City of Fort Lupton

REGULAR MEETING AGENDA
Tuesday, July 6, 2021
7:00 PM
130 South McKinley Avenue

Zo Stieber, Mayor
Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Mike Sanchez, Ward 3
David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

You may join in person or join remotely by registering at:
https://attendee.gotowebinar.com/register/8202213119026433036

Call to Order

Pledge of Allegiance

Roll Call

Executive Session "To hold a conference with the City's attorney to receive legal advice on specific legal questions, pursuant to C.R.S. § 24-6-402(4)(b)": Related to investigation into matters involving City business

Persons to Address Council - This portion of the Agenda is provided to allow members of the audience to present comments to the City Council. The City Council may not respond to your comments this evening, rather they may take your comments and suggestions under advisement or your question may be directed to the appropriate staff member for follow-up. Please limit the time of your comments to three (3) minutes - Mayor Stieber

Approval of Agenda

Review of Accounts Payables

a. July 6, 2021 Accounts Payable

Consent Agenda - Consent Agenda items are considered to be routine and will be enacted by one motion and vote. There will be no separate discussion of Consent Agenda items unless a Councilmember so requests, in which case the item may be removed/moved from the Consent Agenda.

a. June 15, 2021 City Council Meeting Minutes

b. Second Reading Ordinance 2021-1117 An Ordinance of the City Council of Fort Lupton Accepting the Sherri and Leonard Toews Public Right of Way Dedication for County Road 23

c. Second Reading Ordinance 2021-1118 An Ordinance of the City of Fort Lupton Authorizing the Real Estate Purchase Agreement of Real Property Owned by FTL Land Assemblage LLLP for a New Building and Land for the Fort Lupton Public and School Library

d. AM 2021-097 Adopting an Ordinance Amending Article I of Chapter 2 Regarding Municipal Campaign Finance Complaints

e. AM 2021-098 Adopting an Ordinance Amending Section 2-63, Code Enforcement Officers, of the Fort Lupton Municipal Code to Change the Management of Code Enforcement Officers to the Public Safety Department

f. AM 2021-099 Approving a Resolution Accepting Amendments to the Bylaws of the Fort Lupton Urban Renewal Authority

g. AM 2021-100 Award Water Tank Inspection and Cleaning to Inland Potable Service of Centennial, CO for not to Exceed $14,750.00

Action Memorandum

a. AM 2021-101 Adopt an Annexation, Known as the Fort Lupton East Annexation, to Annex Land Legally Described in Exhibit A to the Proposed Ordinance

Public Hearings - Public Hearings allow members of the audience to present comments and questions to the City Council on the item being presented. Comments and questions may be limited to three (3) minutes- Mayor Stieber

a. AM 2021-102 Adopt an Ordinance Rezoning Land Legally Described in Exhibit A to the Proposed Ordinance, and Known as the Fort Lupton East Change of Zone, to the A Agricultural Zone District

b. AM 2021-103 Approve a Resolution for the A&D Custom Cruisers Special Use Permit

c. AM 2021-104 Approve a Resolution Accepting the Murata Farms Preliminary Plat and Preliminary PUD Plan for a Mixed Use Residential

Action Memorandum

a. AM 2021-105 Approve a Supplemental Budget Resolution for an Amount not to Exceed $8,127,140

b. AM 2021-106 Fund $7,840,768 Windy Gap Firming Construction in Cash From the Utility Fund and the General Fund and Send Notification to Northern Colorado Water Conservancy District (NCWCD)

c. AM 2021-095 Authorize Work Order to Jacobs (OMI) for CH2M Hill Engineers, Inc for Maximum not to Exceed $37,275.00 for Professional Services for the Development of a Request for Proposal (RFQ) for Engineering Services for the Planning, Permitting, and Design of a Force Main and Lift Station to Convey Wastewater to the Metro Wastewater Reclamation District Regional Northern Plant

d. AM 2021-096 Approve Work Order for Jacobs (OMI) for CH2M, Inc. Engineers, Inc for not to Exceed $112,500.00 for Professional Services for the Update of the City's Utility Plan

e. AM 2021-107 Approve a Resolution Accepting the Willow Bend Subdivision Final Plat and Final PUD for a Single Lot Subdivision

f. AM 2021-108 Approve a Resolution to Approve an Additional $350,000.00 for the new Public Library Facility

g. AM 2021-109 Approve Library Budget Policy

h. AM 2021-110 Approve Library Personnel Policy and Bylaws Sections 29 & 30

i. AM 2021-111 Approval of a Resolution Approving the Subdivision Improvements Agreement for the Willow Bend Final PUD Plat

j. AM 2021-112 Approve the Purchase From Ava Cloud Camera for New Security Cameras for City Hall and the Police Department Not to Exceed $46,268.63 Allocated From IT Department Budget and General Fund

Staff Reports

Mayor/Council Reports

Future City Events

a. July 6, 2021 Upcoming Events

Adjourn

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
Bank Code: Golf Course-Golf Course							
000024	ACE HARDWARE OF FORT LUPTON		06/22/2021	Regular	0.00	87.75	84437
88891	Invoice	06/01/2021	GOLF-TOOLS-MAINT		0.00	4.99	
89071	Invoice	06/02/2021	GOLF-SUPPLIES-MAINT		0.00	9.99	
89072	Invoice	06/02/2021	GOLF-TOOLS-MAINT		0.00	17.99	
89076	Invoice	06/02/2021	GOLF-TOOLS-MAINT		0.00	49.98	
89079	Invoice	06/02/2021	GOLF-TOOLS-MAINT		0.00	4.80	
000048	AIRGAS USA LLC		06/22/2021	Regular	0.00	15.73	84438
9980283420	Invoice	06/01/2021	GOLF-SUPPLIES-MAINT		0.00	15.73	
002781	BOOMER NATURALS		06/22/2021	Regular	0.00	193.76	84439
SHOPIFY_#PPE1498	Invoice	06/01/2021	GOLF-SUPPLIES-PRD SHOP		0.00	193.76	
000239	CITY OF FORT LUPTON		06/22/2021	Regular	0.00	37,779.27	84440
FIN2021165	Invoice	06/03/2021	GOLF-VERIZON-PRD SHOP		0.00	205.80	
FIN2021167	Invoice	06/04/2021	GOLF-PAYROLL		0.00	37,405.01	
FIN2021172	Invoice	06/08/2021	GOLF-COMCAST-PRD SHOP		0.00	168.46	
000361	DBC IRRIGATION SUPPLY		06/22/2021	Regular	0.00	1,097.94	84441
S4149131.004	Invoice	06/03/2021	GOLF-REPAIR-MAINT		0.00	1,097.94	
002723	EAGLE ROCK COMPANY OF COLO		06/22/2021	Regular	0.00	309.60	84442
7917082	Invoice	06/03/2021	GOLF-BEVERAGES-PRD SHOP		0.00	309.60	
000461	FERRELLGAS LP		06/22/2021	Regular	0.00	457.58	84443
1115405425	Invoice	06/01/2021	GOLF-PROPANE-MAINT		0.00	457.58	
000536	GOLF AND SPORT SOLUTIONS LLC		06/22/2021	Regular	0.00	1,709.31	84444
36895	Invoice	06/01/2021	GOLF-LANDSCAPE-MAINT		0.00	1,142.05	
37396	Invoice	06/01/2021	GOLF-LANDSCAPE-MAINT		0.00	567.26	
000567	HIGH COUNTRY BEVERAGE CORP		06/22/2021	Regular	0.00	774.95	84445
W-5984660	Invoice	06/07/2021	GOLF-ALCOHOL-PRD SHOP		0.00	592.55	
W-5987609	Invoice	06/08/2021	GOLF-ALCOHOL-PRD SHOP		0.00	182.40	
000768	MASEK GOLF CAR OF COLORADO		06/22/2021	Regular	0.00	303.08	84446
1-67924	Invoice	06/07/2021	GOLF-MAINTENANCE-PRD SHOP		0.00	50.48	
1-67925	Invoice	06/07/2021	GOLF-MAINTENANCE-PRD SHOP		0.00	252.60	
000795	MILE HIGH TURFGRASS, LLC		06/22/2021	Regular	0.00	1,000.00	84447
8490	Invoice	06/07/2021	GOLF-CHEMICAL-MAINT		0.00	1,000.00	
000933	R&R PRODUCTS INC		06/22/2021	Regular	0.00	102.48	84448
CD2562409	Invoice	06/01/2021	GOLF-MAINTENANCE-MAINT		0.00	102.48	
000974	SAFE SYSTEMS INC		06/22/2021	Regular	0.00	139.19	84449
870192-1054	Invoice	06/06/2021	GOLF-SECURITY SYSTEM-PRD SHOP		0.00	139.19	
000999	SHAMROCK FOODS COMPANY		06/22/2021	Regular	0.00	2,794.70	84450
22943318	Invoice	06/03/2021	GOLF-FOOD-PRD SHOP		0.00	972.12	
22943319	Invoice	06/03/2021	GOLF-FOOD-PRD SHOP		0.00	1,035.29	
22952492	Invoice	06/07/2021	GOLF-FOOD-PRD SHOP		0.00	787.29	
001022	SOUTHERN GLAZER'S OF CO		06/22/2021	Regular	0.00	263.11	84451
5186408	Invoice	06/02/2021	GOLF-ALCOHOL-PRD SHOP		0.00	263.11	
001052	SWIRE COCA-COLA, USA		06/22/2021	Regular	0.00	198.24	84452

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
13921200071	Invoice	06/08/2021	GOLF-DRINKS-PRD SHOP		0.00	198.24	
001225	YAMAHA MOTOR CORP		06/22/2021	Regular	0.00	10,798.08	84453
742075	Invoice	06/01/2021	GOLF-EQUIPMENT-PRD SHOP		0.00	10,798.08	
000024	ACE HARDWARE OF FORT LUPTON		06/29/2021	Regular	0.00	163.51	84454
89352	Invoice	06/16/2021	GOLF-SUPPLIES-MAINT		0.00	163.51	
002254	ADIDAS AMERICA INC		06/29/2021	Regular	0.00	1,649.21	84455
6153568381	Invoice	06/01/2021	GOLF-APPAREL-PRD SHOP		0.00	239.27	
6153575832	Invoice	06/01/2021	GOLF-APPAREL-PRD SHOP		0.00	958.54	
6153703604	Invoice	06/09/2021	GOLF-APPAREL-PRD SHOP		0.00	451.40	
000160	BREAKTHRU BEVERAGE GROUP		06/29/2021	Regular	0.00	911.83	84456
339843528	Invoice	06/10/2021	GOLF-BEVERAGES-PRD SHOP		0.00	474.09	
339843529	Invoice	06/10/2021	GOLF-BEVERAGES-PRD SHOP		0.00	92.00	
339933198	Invoice	06/17/2021	GOLF-BEVERAGES-PRD SHOP		0.00	345.74	
000163	BRIDGESTONE GOLF, INC		06/29/2021	Regular	0.00	852.00	84457
1003004249	Invoice	06/07/2021	GOLF-MAINTENANCE-PRD SHOP		0.00	852.00	
000183	CALLAWAY GOLF SALES COMPANY		06/29/2021	Regular	0.00	1,358.51	84458
933316821	Invoice	06/02/2021	GOLF-GOLF BALLS-PRD SHOP		0.00	111.03	
933333873	Invoice	06/04/2021	GOLF-GOLF BALLS-PRD SHOP		0.00	245.54	
933346837	Invoice	06/08/2021	GOLF-GOLF BALLS-PRD SHOP		0.00	890.91	
933350126	Invoice	06/08/2021	GOLF-GOLF BALLS-PRD SHOP		0.00	111.03	
000239	CITY OF FORT LUPTON		06/29/2021	Regular	0.00	205.80	84459
FIN2021182	Invoice	06/15/2021	GOLF-VERIZON-PRD SHOP		0.00	205.80	
000290	COLORADO GOLF & TURF INC		06/29/2021	Regular	0.00	89.60	84460
1-106504	Invoice	06/15/2021	GOLF-SUPPLIES-PRD SHOP		0.00	89.60	
000307	COMCAST CABLE COMM, LLC		06/29/2021	Regular	0.00	244.39	84461
606460120790 JU...	Invoice	06/06/2021	GOLF-COMCAST-PRD SHOP		0.00	244.39	
002808	DEREK W BEEZUB		06/29/2021	Regular	0.00	600.00	84462
1	Invoice	06/01/2021	GOLF-REPAIRS-MAINT		0.00	600.00	
002723	EAGLE ROCK COMPANY OF COLO		06/29/2021	Regular	0.00	1,486.45	84463
7939288	Invoice	06/10/2021	GOLF-BEVERAGES-PRD SHOP		0.00	173.19	
7939289	Invoice	06/10/2021	GOLF-BEVERAGES-PRD SHOP		0.00	366.50	
7955772	Invoice	06/17/2021	GOLF-BEVERAGES-PRD SHOP		0.00	115.46	
7955773	Invoice	06/17/2021	GOLF-BEVERAGES-PRD SHOP		0.00	831.30	
000567	HIGH COUNTRY BEVERAGE CORP		06/29/2021	Regular	0.00	943.10	84464
W-5990384	Invoice	06/14/2021	GOLF-BEVERAGES-PRD SHOP		0.00	943.10	
000795	MILE HIGH TURFGRASS, LLC		06/29/2021	Regular	0.00	1,104.54	84465
8507	Invoice	06/16/2021	GOLF-SUPPLIES-MAINT		0.00	1,104.54	
000862	O'REILLY AUTO PARTS		06/29/2021	Regular	0.00	4.29	84466
4489-303221	Invoice	06/16/2021	GOLF-MAINTENANCE-MAINT		0.00	4.29	
000913	POTESTIO BROTHERS EQUIPMENT		06/29/2021	Regular	0.00	112.27	84467
13793P	Invoice	04/01/2021	GOLF-FUEL PUMP-MAINT		0.00	62.36	
6867K	Credit Memo	04/01/2021	GOLF-WORM GEAR-MAINT		0.00	-137.08	
6868K	Credit Memo	04/01/2021	GOLF-WORM GEAR-MAINT		0.00	-269.68	
7387K	Invoice	05/04/2021	GOLF-RIM-MAINT		0.00	242.58	
7579K	Invoice	06/01/2021	GOLF-REPAIR PARTS-MAINT		0.00	54.37	
7802K	Invoice	06/11/2021	GOLF-REPAIR-MAINT		0.00	81.72	
7858K	Invoice	06/16/2021	GOLF-REPAIR-PRD SHOP		0.00	78.00	
000944	REPUBLIC NATIONAL DISTRIBUTING CO LLC		06/29/2021	Regular	0.00	140.19	84468
6166660	Invoice	06/16/2021	GOLF-BEVERAGES-PRD SHOP		0.00	100.24	

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
6166661	Invoice	06/16/2021	GOLF-BEVERAGES-PRD SHOP		0.00	39.95	
000999	SHAMROCK FOODS COMPANY		06/29/2021	Regular	0.00	3,807.47	84469
22960837	Invoice	06/10/2021	GOLF-FOOD-PRD SHOP		0.00	21.82	
22960838	Invoice	06/10/2021	GOLF-FOOD-PRD SHOP		0.00	830.73	
22960839	Invoice	06/10/2021	GOLF-FOOD-PRD SHOP		0.00	746.23	
22979066	Invoice	06/17/2021	GOLF-FOOD-PRD SHOP		0.00	20.88	
22979067	Invoice	06/17/2021	GOLF-FOOD-PRD SHOP		0.00	980.92	
22979068	Invoice	06/17/2021	GOLF-FOOD-PRD SHOP		0.00	1,206.89	
001022	SOUTHERN GLAZER'S OF CO		06/29/2021	Regular	0.00	233.26	84470
2533204	Invoice	06/16/2021	GOLF-BEVERAGES-PRD SHOP		0.00	40.11	
2539036	Invoice	06/16/2021	GOLF-BEVERAGES-PRD SHOP		0.00	193.15	
001751	SPORTS TURF IRRIGATION		06/29/2021	Regular	0.00	499.00	84471
99929-IN	Invoice	06/10/2021	GOLF-REPAIR-MAINT		0.00	499.00	
001052	SWIRE COCA-COLA, USA		06/29/2021	Regular	0.00	466.82	84472
13921200098	Invoice	06/15/2021	GOLF-BEVERAGES-PRD SHOP		0.00	466.82	
001530	TARGET SPECIALTY PRODUCTS		06/29/2021	Regular	0.00	1,885.00	84473
INVP500488911	Invoice	06/11/2021	GOLF-CHEMICALS-MAINT		0.00	585.00	
INVP500494522	Invoice	06/16/2021	GOLF-CHEMICALS-MAINT		0.00	650.00	
INVP500494526	Invoice	06/16/2021	GOLF-CHEMICALS-MAINT		0.00	650.00	
001895	TERMINIX		06/29/2021	Regular	0.00	143.00	84474
408596955	Invoice	06/02/2021	GOLF-PEST CONTROL-PRD SHOP		0.00	143.00	
001105	TOSHIBA FINANCIAL SERVICES		06/29/2021	Regular	0.00	231.45	84475
445972375	Invoice	06/15/2021	Golf Copier Lease		0.00	231.45	
002084	UNITED SITE SERVICES		06/29/2021	Regular	0.00	415.01	84476
114-10836344	Invoice	06/01/2021	GOLF-CONTRACT SVCS-PRD SHOP		0.00	415.01	
001183	WAXIE SANITARY SUPPLY		06/29/2021	Regular	0.00	171.57	84477
80070251	Invoice	06/09/2021	GOLF-SUPPLIES-PRD SHOP		0.00	171.57	
001207	WESTERN DISTRIBUTING INC		06/29/2021	Regular	0.00	178.00	84478
640942	Invoice	06/11/2021	GOLF-BEVERAGES-PRD SHOP		0.00	178.00	
000024	ACE HARDWARE OF FORT LUPTON		07/06/2021	Regular	0.00	21.56	84482
89406/1	Invoice	06/19/2021	GOLF-REPAIRS-PRD SHOP		0.00	21.56	
002254	ADIDAS AMERICA INC		07/06/2021	Regular	0.00	1,657.78	84483
6153691906	Invoice	06/08/2021	GOLF-APPAREL-PRD SHOP		0.00	1,035.74	
6153691907	Invoice	06/08/2021	GOLF-APPAREL-PRD SHOP		0.00	85.34	
6153721438	Invoice	06/11/2021	GOLF-APPAREL-PRD SHOP		0.00	536.70	
002000	CIT GROUP/COMMERCIAL SERVICES		07/06/2021	Regular	0.00	575.97	84484
B0057996	Invoice	06/16/2021	GOLF-APPAREL-PRD SHOP		0.00	575.97	
000239	CITY OF FORT LUPTON		07/06/2021	Regular	0.00	175.08	84485
FIN2021186	Invoice	06/23/2021	GOLF-EMPLOYEE ASSISTANCE PROGRAM-A...		0.00	4.62	
FIN2021188	Invoice	06/23/2021	GOLF-STANDARD INSURANCE-PRD SHOP		0.00	170.46	
000290	COLORADO GOLF & TURF INC		07/06/2021	Regular	0.00	119.40	84486
1-106540	Invoice	06/15/2021	GOLF-PARTS-MAINT		0.00	119.40	
000361	DBC IRRIGATION SUPPLY		07/06/2021	Regular	0.00	926.81	84487
S4194060.001	Invoice	06/16/2021	GOLF-REPAIRS-MAINT		0.00	926.81	
000567	HIGH COUNTRY BEVERAGE CORP		07/06/2021	Regular	0.00	1,568.35	84488
W-5996128	Invoice	06/21/2021	GOLF-BEVERAGES-PRD SHOP		0.00	1,382.85	
W-5996129	Invoice	06/21/2021	GOLF-BEVERAGES-PRD SHOP		0.00	185.50	
000735	LL JOHNSON DISTRIBUTING		07/06/2021	Regular	0.00	3,808.97	84489

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
1135821-00	Invoice	06/14/2021	GOLF-EQUIPMENT MAINTENANCE-MAINT		0.00	453.22	
1855268-00	Invoice	06/09/2021	GOLF-SUPPLIES-MAINT		0.00	2,255.84	
1857687-00	Invoice	06/07/2021	GOLF-PARTS-MAINT		0.00	982.17	
1858331-00	Invoice	06/14/2021	GOLF-VEHICLE MAINTENANCE-MAINT		0.00	117.74	
000768	MASEK GOLF CAR OF COLORADO		07/06/2021	Regular	0.00	12.68	84490
1-68209	Invoice	06/18/2021	GOLF-EMBLEM-PRD SHOP		0.00	12.68	
000913	POTESTIO BROTHERS EQUIPMENT		07/06/2021	Regular	0.00	85.34	84491
7875K	Invoice	06/17/2021	GOLF-PARTS-MAINT		0.00	85.34	
000999	SHAMROCK FOODS COMPANY		07/06/2021	Regular	0.00	865.08	84492
22988564	Invoice	06/21/2021	GOLF-FOOD-PRD SHOP		0.00	865.08	
001026	SPECIALTY CIGARS INTERNATIONAL INC		07/06/2021	Regular	0.00	499.05	84493
2143880	Invoice	06/15/2021	GOLF-CIGARS-PRD SHOP		0.00	499.05	
001052	SWIRE COCA-COLA, USA		07/06/2021	Regular	0.00	796.70	84494
13921200116	Invoice	06/23/2021	GOLF-BEVERAGES-PRD SHOP		0.00	796.70	
002812	THE HUNTINGTON NATIONAL BANK		07/06/2021	Regular	0.00	10,678.08	84495
7120498	Invoice	06/16/2021	GOLF-TURF PACKAGE-MAINT		0.00	10,678.08	
001963	WASTE CONNECTIONS OF COLO, INC		07/06/2021	Regular	0.00	341.30	84496
5344232	Invoice	06/15/2021	GOLF-TRASH SERVICE-PRD SHOP		0.00	201.70	
5344233	Invoice	06/15/2021	GOLF-TRASH SERVICE-MAINT		0.00	139.60	
001183	WAXIE SANITARY SUPPLY		07/06/2021	Regular	0.00	190.66	84497
80093833	Invoice	06/18/2021	GOLF-SUPPLIES-PRD SHOP		0.00	190.66	
001207	WESTERN DISTRIBUTING INC		07/06/2021	Regular	0.00	238.00	84498
642139	Invoice	06/18/2021	GOLF-BEVERAGES-PRD SHOP		0.00	238.00	
001224	XCEL ENERGY-GAS		07/06/2021	Regular	0.00	165.63	84499
736363288	Invoice	06/17/2021	GOLF-UTILITY-PRD SHOP		0.00	165.63	
000285	COLORADO DEPARTMENT OF REVENUE		06/16/2021	Bank Draft	0.00	3,861.00	DFT0001690
MAY21 GOLF SALE...	Invoice	06/01/2021	GOLF MAY 2021 SALES TAX		0.00	3,861.00	

Bank Code Golf Course Summary

Payment Type	Payable Count	Payment Count	Discount	Payment
Regular Checks	104	60	0.00	98,647.48
Manual Checks	0	0	0.00	0.00
Voided Checks	0	0	0.00	0.00
Bank Drafts	1	1	0.00	3,861.00
EFT's	0	0	0.00	0.00
	105	**61**	**0.00**	**102,508.48**

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
Bank Code: Pooled Cash-Pooled Cash							
002650	COLORADO EMERALD SOCIETY PIPES AND DRUMS		06/29/2021	Regular	0.00	-250.00	69643
000031	ADAMSON POLICE PRODUCTS		06/22/2021	Regular	0.00	143.95	69746
INV355030	Invoice	06/04/2021	GF-UNIFORM-PD		0.00	143.95	
000034	ADT SECURITY SYSTEM		06/22/2021	Regular	0.00	127.49	69747
JUNE21	Invoice	06/01/2021	CPR-SECURITY-COM CTR		0.00	127.49	
000037	ADVANCED URGENT CARE AND OCC MED		06/22/2021	Regular	0.00	140.00	69748
69672	Invoice	06/07/2021	GF-DOT-B&G		0.00	85.00	
69790	Invoice	06/14/2021	GF-EMPLOYMENT SCREEN-HR		0.00	55.00	
000108	AUSMUS LAW FIRM PC		06/22/2021	Regular	0.00	13,770.00	69749
7164	Invoice	06/06/2021	GF-APR-MAY LEGAL SERVICES		0.00	13,770.00	
000182	CEM SALES & SERVICE INC		06/22/2021	Regular	0.00	995.00	69750
153803	Invoice	06/01/2021	REC-CHEMICALS		0.00	995.00	
002651	COLORADO COMMUNITY MEDIA		06/22/2021	Regular	0.00	376.20	69751
28226	Invoice	06/11/2021	GF-PUBLIC NOTICE		0.00	151.20	
28810	Invoice	06/18/2021	GF-PUBLIC NOTICES-CITY CL		0.00	225.00	
000306	COMCAST BUSINESS		06/22/2021	Regular	0.00	2,237.05	69752
123670097	Invoice	06/01/2021	Comcast Acct 930000301		0.00	2,237.05	
000372	DELL MARKETING LP		06/22/2021	Regular	0.00	2,161.86	69753
10493165215	Invoice	06/04/2021	Dell Latitude 5420 with docking Unirt		0.00	2,161.86	
002783	DOMINANT DIRTWORK		06/22/2021	Regular	0.00	1,500.00	69754
061621	Invoice	06/16/2021	UF-HYDRANT METER & WRENCH DEPOSIT F...		0.00	1,500.00	
000407	DXP ENTERPRISES INC		06/22/2021	Regular	0.00	38.53	69755
52138782	Invoice	06/01/2021	GF-REPAIRS-STREETS		0.00	38.53	
000431	EMPLOYERS COUNCIL SERVICES, INC		06/22/2021	Regular	0.00	100.00	69756
380191	Invoice	06/01/2021	GF-CONTRACT SERVICES-HR		0.00	100.00	
001089	ERGOMED		06/22/2021	Regular	0.00	1,020.00	69757
7052783	Invoice	06/01/2021	GF-SCREENINGS-HR		0.00	1,020.00	
000455	FASTENAL COMPANY 01COFTL		06/22/2021	Regular	0.00	37.80	69758
COFTL175433	Invoice	06/01/2021	UF-REPAIRS-W LINES		0.00	37.80	
000507	FT LUPTON RECREATION SPORTS		06/22/2021	Regular	0.00	2,300.00	69759
061121	Invoice	06/11/2021	CPR-UMPIRE-ATHL		0.00	2,300.00	
000533	GOLDEN TRIANGLE CONSTRUCTION INC		06/22/2021	Regular	0.00	1,550.00	69760
060921	Invoice	06/09/2021	UF-DEPOSIT		0.00	1,550.00	
002193	GOULD EVANS INC		06/22/2021	Regular	0.00	10,935.00	69761
22060313	Invoice	06/16/2021	GF- Municipal Code Update- Comm Dev		0.00	10,935.00	
000615	J & M DISPLAYS		06/22/2021	Regular	0.00	3,000.00	69762
042221 FIREWOR...	Invoice	06/01/2021	GF-FIREWORK-EVENTS		0.00	3,000.00	
000735	LL JOHNSON DISTRIBUTING		06/22/2021	Regular	0.00	127.42	69763
1134386-01B	Invoice	06/01/2021	GF-WEATHER STATION-PARKS		0.00	127.42	
000811	MOTOROLA SOLUTIONS		06/22/2021	Regular	0.00	15,167.55	69764
1187051577	Invoice	06/01/2021	Radio Replacement		0.00	15,167.55	
002782	MOUNTAIN WEST PRODUCTION GROUP		06/22/2021	Regular	0.00	2,395.00	69765
100977	Invoice	06/08/2021	GF-STAGE & TECH RENTAL		0.00	2,395.00	
000862	O'REILLY AUTO PARTS		06/22/2021	Regular	0.00	22.17	69766
4489-299588	Invoice	06/04/2021	GF-REPAIR-PARKS		0.00	22.17	

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001008	SHRED-IT USA LLC		06/22/2021	Regular	0.00	30.00	69767
8182166659	Invoice	06/01/2021	GF-SHREDDING-CITY CL		0.00	30.00	
001075	THE CONSOLIDATED MUTUAL		06/22/2021	Regular	0.00	1,331.48	69768
061021B	Invoice	06/10/2021	UF-MAY21 ELECTRICAL PERRY PIT-WELL B		0.00	1,190.93	
061021C	Invoice	06/10/2021	UF-MAY21 ELECTRIC PERRY PIT-WELL C		0.00	32.85	
061021PUMP	Invoice	06/10/2021	UF-MAY21 ELECTRICAL PERRY PIT-DISCHARG...		0.00	107.70	
001635	THE TALLENT COMPANY		06/22/2021	Regular	0.00	5,500.00	69769
1163	Invoice	06/01/2021	GF-COMPLETE COMMUNICATION-CITY ADM		0.00	2,750.00	
1167	Invoice	06/14/2021	GF-COMPLETE COMMUNICATON-CITY ADM		0.00	2,750.00	
001135	UNION PACIFIC RAILROAD CO		06/22/2021	Regular	0.00	3,025.18	69770
313699320	Invoice	06/01/2021	GF-JUL2021-JUNE2022 RR PARK LEASE		0.00	3,025.18	
001147	USA BLUE BOOK		06/22/2021	Regular	0.00	152.29	69771
551484	Credit Memo	05/01/2021	CREDIT FOR FREIGHT CHARGES		0.00	-340.51	
560128	Invoice	06/01/2021	UF-SUPPLIES-W LINES		0.00	492.80	
000037	ADVANCED URGENT CARE AND OCC MED		06/29/2021	Regular	0.00	110.00	69772
69930	Invoice	06/18/2021	GF-PRE-EMPLOYMENT SCREEN-HR		0.00	55.00	
69999	Invoice	06/21/2021	GF-PRE-EMPLOYMENT SCREEN-HR		0.00	55.00	
000040	AFLAC		06/29/2021	Regular	0.00	1,995.84	69773
84272 JUN21	Invoice	06/11/2021	GF-SUPPLEMENTAL INSURANCE FOR JUNE21...		0.00	1,995.84	
002809	ANNA JAMES		06/29/2021	Regular	0.00	65.00	69774
2006689.001 JUN...	Invoice	06/16/2021	REC-SHELTER REFUND		0.00	65.00	
000169	BROADCAST MUSIC INC		06/29/2021	Regular	0.00	368.00	69775
40262355	Invoice	06/02/2021	REC-ANNUAL FEE		0.00	368.00	
000182	CEM SALES & SERVICE INC		06/29/2021	Regular	0.00	961.35	69776
154409	Invoice	06/21/2021	REC-CHEMICALS		0.00	961.35	
002651	COLORADO COMMUNITY MEDIA		06/29/2021	Regular	0.00	446.00	69777
28713	Invoice	06/18/2021	UF-WATER COURT LEGAL NOTICE-WATER		0.00	446.00	
000306	COMCAST BUSINESS		06/29/2021	Regular	0.00	2,171.11	69778
124688818	Invoice	06/15/2021	Comcast Phones		0.00	2,171.11	
000307	COMCAST CABLE COMM, LLC		06/29/2021	Regular	0.00	220.03	69779
6460164533 JUN21	Invoice	06/13/2021	Comcast 0164533		0.00	220.03	
001401	DIVISION OF OIL & PUBLIC SAFETY		06/29/2021	Regular	0.00	40.00	69780
731489	Invoice	06/22/2021	CPR-STATE BOILER INSPECTION-MUSEUM		0.00	40.00	
002222	GREELEY LOCK & KEY		06/29/2021	Regular	0.00	1.40	69781
9819A	Invoice	06/01/2021	ANNUAL REC/SENIOR CENTER BRIVO SYSTEM..		0.00	1.40	
001930	HUMANA HEALTH PLAN INC		06/29/2021	Regular	0.00	84,871.78	69782
379450456	Invoice	07/01/2021	GF-HEALTH INSURANCE JUNE21		0.00	84,871.78	
000588	ID EDGE INC		06/29/2021	Regular	0.00	110.00	69783
93529	Invoice	06/01/2021	REC-PRINTABLE CARDS		0.00	110.00	
000655	JOHN DEERE FINANCIAL		06/29/2021	Regular	0.00	66.48	69784
1098275	Invoice	06/22/2021	CF-EQUIPMENT PARTS-PARKS		0.00	66.48	
001786	JOHNSON CONTROLS SECURITY SOLUTIONS		06/29/2021	Regular	0.00	183.19	69785
36013041	Invoice	06/05/2021	CPR-SECURITY SERVICES-MUSEUM		0.00	183.19	
002755	MAXINE BROOKS		06/29/2021	Regular	0.00	266.00	69786
134176-7 JUN21	Invoice	06/22/2021	GF-RESTITUTION CASE #1341767-COURT		0.00	266.00	
000865	OFFICE DEPOT		06/29/2021	Regular	0.00	126.25	69787

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
174453742-001	Invoice	06/15/2021	GF-SUPPLIES-COURT		0.00	126.25	
000869	OPERATIONS MANAGEMENT INT		06/29/2021	Regular	0.00	120,324.80	69788
351230-06222021	Invoice	07/01/2021	UF-OMI MONTHLY BILLING		0.00	120,324.80	
000862	O'REILLY AUTO PARTS		06/29/2021	Regular	0.00	179.98	69789
4489-299649	Invoice	06/04/2021	GF-MAINTENANCE-STREETS		0.00	179.98	
002761	OTTEN JOHNSON ROBINSON NEFF + RAGONETTI F		06/29/2021	Regular	0.00	3,297.00	69790
457354	Invoice	06/11/2021	GF-ANNEXATION CODE REVIEW-PLANNING		0.00	3,297.00	
000896	PETTY CASH-FINANCE		06/29/2021	Regular	0.00	137.32	69791
062121	Invoice	06/21/2021	GF-POP FUND-CITY ADM		0.00	137.32	
000935	RAQUEL FERSZT		06/29/2021	Regular	0.00	360.00	69792
209331	Invoice	06/22/2021	GF-TRANSLATOR SERVICES-COURT		0.00	360.00	
001656	RIVERDALE TREE SERVICES		06/29/2021	Regular	0.00	1,260.00	69793
502A	Invoice	06/01/2021	GF-TREE TREATMENT-PARKS		0.00	1,260.00	
001035	STANDARD INSURANCE CO.		06/29/2021	Regular	0.00	5,432.89	69794
007597610001 JU...	Invoice	07/01/2021	LI, AD&D, LTD, STD Ins Prem		0.00	5,432.89	
001606	SUPER-TECH FILTERS		06/29/2021	Regular	0.00	442.47	69795
349319	Invoice	06/02/2021	REC-FILTERS		0.00	442.47	
001101	TODD HODGES DESIGN LLC		06/29/2021	Regular	0.00	5,625.00	69796
3328	Invoice	06/21/2021	GF-PLANNING SERVICES 6/7-6/20/21-PLANN...		0.00	5,625.00	
001104	TOSHIBA BUSINESS SOLUTIONS		06/29/2021	Regular	0.00	52.50	69797
2027158	Invoice	06/01/2021	GF-COLOR BOND-PLANNING		0.00	52.50	
001105	TOSHIBA FINANCIAL SERVICES		06/29/2021	Regular	0.00	1,723.07	69798
445443765	Invoice	06/07/2021	Copier Lease		0.00	1,723.07	
001126	TYLER TECHNOLOGIES		06/29/2021	Regular	0.00	150.00	69799
25-334971	Invoice	06/01/2021	GF-STAFF DEVELOPMENT-FIN		0.00	150.00	
001963	WASTE CONNECTIONS OF COLO, INC		06/29/2021	Regular	0.00	1,034.48	69800
5247023	Invoice	06/01/2021	GF-JUN21 TRASH SERVICE-PARKS		0.00	114.74	
5287822	Invoice	06/01/2021	GF-MAY2021 TRASH/RECEYCL 130 S MCKINL...		0.00	110.15	
5287823	Invoice	06/01/2021	GF-MAY2021 TRASH SERVICE-PW SHOP		0.00	159.71	
5287824	Invoice	06/01/2021	CPR-MAY2021 TRASH/RECYCL 203 S HARRIS...		0.00	284.94	
5287825	Invoice	06/01/2021	CEM-MAY2021 TRASH 13750 WCR12		0.00	53.38	
5287826	Invoice	06/01/2021	GF-MAY2021 TRASH HWY 52 PEARSON PARK...		0.00	93.38	
5344892	Invoice	06/15/2021	GF-JUL21 TRASH SERVICE-PARKS		0.00	114.74	
5345416	Invoice	06/15/2021	CEM-TRASH SERVICES		0.00	103.44	
001183	WAXIE SANITARY SUPPLY		06/29/2021	Regular	0.00	1,778.63	69801
80076854	Invoice	06/11/2021	REC-SUPPLIES		0.00	1,165.87	
80076855	Invoice	06/11/2021	GF-SUPPLIES-B&G		0.00	192.06	
80076856	Invoice	06/11/2021	GF-SUPPLIES-PARKS		0.00	420.70	
001224	XCEL ENERGY-GAS		06/29/2021	Regular	0.00	1,068.27	69802
734030390 MAY21	Invoice	06/01/2021	GF-MAY21 GAS BILL		0.00	948.06	
736730394	Invoice	06/21/2021	GF-CITY HALL & GENERATOR GAS 5/18-6/7/...		0.00	120.21	
002266	COLORADO PAVING INC		06/29/2021	Regular	0.00	531,497.40	69803
2021-02	Invoice	06/22/2021	SST-Kahil Reconstruction-Streets		0.00	531,497.40	
002720	INTERMOUNTAIN CONTROLS NICHOLS-GIVEN		06/29/2021	Regular	0.00	4,110.93	69804
220/60021184	Invoice	06/01/2021	UF-VALVE & ACTUATOR WTP		0.00	4,110.93	
001112	TRAILER SOURCE INC		06/29/2021	Regular	0.00	4,721.00	69805
062221	Invoice	06/22/2021	GF-Trailer-Parks		0.00	4,721.00	

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002132	VECTOR DISEASE CONTROL		06/29/2021	Regular	0.00	2,967.70	69806
PI-A00009078	Invoice	06/15/2021	AM2021-045 Misquito Management		0.00	2,967.70	
001301	AAA AUTO PARTS INC		07/06/2021	Regular	0.00	34.80	69811
116445	Invoice	06/23/2021	GF-VEHICLE MAINTENANCE-PARKS		0.00	34.80	
000082	AMERICAN WEST LAND SURVEYING, INC		07/06/2021	Regular	0.00	1,200.00	69812
21-270	Invoice	06/22/2021	GF-SHOOTING RANGE ANNEXATION PLATT-...		0.00	1,200.00	
000120	BANK OF COLORADO		07/06/2021	Regular	0.00	232.47	69813
6682 APR21	Invoice	06/01/2021	UF-APR21 CNG GAS PURCHASES-S LINES		0.00	94.27	
6682 MAY21	Invoice	06/01/2021	UF-MAY21 CNG GAS PURCHASES-S LINES		0.00	138.20	
002580	BASALITE BUILDING PRODUCTS LLC		07/06/2021	Regular	0.00	1,051.65	69814
062321	Invoice	06/23/2021	GF-REFUND DEVELOPER ESCROW DEPOSIT		0.00	1,051.65	
000267	COLONIAL LIFE		07/06/2021	Regular	0.00	105.96	69815
7816820-0701588	Invoice	06/22/2021	SUPP INS FOR JUNE		0.00	105.96	
000268	COLORADO ANALYTICAL LAB		07/06/2021	Regular	0.00	161.00	69816
210609035	Invoice	06/10/2021	UF-MAINTENANCE-W LINES		0.00	46.00	
210623056	Invoice	06/24/2021	UF-WATER TESTING-W LINES		0.00	69.00	
210624060	Invoice	06/28/2021	UF-WATER TESTING-W LINES		0.00	46.00	
002651	COLORADO COMMUNITY MEDIA		07/06/2021	Regular	0.00	287.28	69817
29268	Invoice	06/25/2021	GF-PUBLIC NOTICES-FIN		0.00	287.28	
000307	COMCAST CABLE COMM, LLC		07/06/2021	Regular	0.00	100.09	69818
606460159244 JU...	Invoice	06/21/2021	GF-JULY21 FAX/INTOXILIZER-PD		0.00	100.09	
000312	CONNECT 4 EVENTS AND ENTERTAINMENT LLC		07/06/2021	Regular	0.00	900.00	69819
200861	Invoice	06/29/2021	GF-JULY 4TH EVENT		0.00	900.00	
001517	CORE&MAIN LP		07/06/2021	Regular	0.00	36,325.94	69820
O015087	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,822.50	
O305590	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,822.50	
O305594	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,822.50	
O305810	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,728.50	
O305836	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,951.25	
O305910	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,793.50	
O311251	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,618.10	
O311263	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,618.10	
O311267	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	2,618.10	
O311300	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	610.89	
O311369	Invoice	06/04/2021	UF-REPAIRS-W LINES		0.00	2,730.00	
O311378	Invoice	06/04/2021	UF-REPAIRS-W LINES		0.00	2,730.00	
O311435	Invoice	06/04/2021	UF-REPAIRS-W LINES		0.00	2,730.00	
O311453	Invoice	06/04/2021	UF-REPAIRS-W LINES		0.00	2,730.00	
000361	DBC IRRIGATION SUPPLY		07/06/2021	Regular	0.00	783.79	69821
S4198669.001	Invoice	06/17/2021	CEM-IRRIGATION SUPPLIES		0.00	783.79	
000407	DXP ENTERPRISES INC		07/06/2021	Regular	0.00	120.35	69822
52223355	Invoice	06/29/2021	GF-PARTS-PARKS		0.00	120.35	
000410	E-470 PUBLIC HIGHWAY AUTHORITY		07/06/2021	Regular	0.00	22.90	69823
2063179664	Invoice	06/07/2021	UF-TOLLS-STREETS		0.00	22.90	
000429	EMPIRE PORTABLE RESTROOMS		07/06/2021	Regular	0.00	665.95	69824
58132	Invoice	06/22/2021	CEM-RESTROOM SERVICE		0.00	542.00	
58259	Invoice	06/22/2021	GF-RESTROOM SERVICE-PARKS		0.00	123.95	
002813	ERIC BLEEKER		07/06/2021	Regular	0.00	250.00	69825
001	Invoice	06/01/2021	GF-MEMORIAL DAY SERVICE-LEGIS		0.00	250.00	

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000455	FASTENAL COMPANY 01COFTL		07/06/2021	Regular	0.00	31.50	69826
COFTL175135	Invoice	06/01/2021	GF-PARTS-STREETS		0.00	2.42	
COFTL175172	Invoice	06/01/2021	UF-SAFETY VEST-W LINES		0.00	14.40	
COFTL177019	Invoice	06/23/2021	GF-SUPPLIES-PARKS		0.00	14.68	
002181	FRP APPAREL		07/06/2021	Regular	0.00	766.20	69827
8213	Invoice	06/22/2021	GF-APPAREL		0.00	766.20	
000553	HALLIBURTON ENERGY SERVICES		07/06/2021	Regular	0.00	823.10	69828
062321	Invoice	06/23/2021	GF-REFUND DEVELOPER ESCROW DEPOSIT		0.00	823.10	
000655	JOHN DEERE FINANCIAL		07/06/2021	Regular	0.00	104.49	69829
28121-76236 JUN...	Invoice	06/16/2021	GF-PARTS-STREETS		0.00	104.49	
001398	KIMI MOST		07/06/2021	Regular	0.00	1,200.00	69830
051821	Invoice	06/01/2021	GF-JULY 4TH EVENTS		0.00	1,200.00	
000698	L.G. EVERIST, INC		07/06/2021	Regular	0.00	539.30	69831
548202	Invoice	06/07/2021	UF-REPAIRS-W LINES		0.00	539.30	
002810	LUIS RAMIREZ		07/06/2021	Regular	0.00	38.22	69832
062821	Invoice	06/28/2021	GF-CDL PERMIT-STREETS		0.00	38.22	
000862	O'REILLY AUTO PARTS		07/06/2021	Regular	0.00	15.99	69833
4489-304890	Invoice	06/22/2021	GF-VEHICLE MAINTENANCE-PARKS		0.00	15.99	
000928	PUSH-PEDAL-PULL		07/06/2021	Regular	0.00	306.70	69834
312794	Invoice	06/25/2021	REC-TREADMILL CORD		0.00	306.70	
000931	R & L TIRES		07/06/2021	Regular	0.00	12.00	69835
39931	Invoice	06/11/2021	CEM-TIRE REPAIR		0.00	12.00	
000956	ROCKY MOUNTAIN LOW VOLTAGE		07/06/2021	Regular	0.00	210.00	69836
20211050	Invoice	06/30/2021	CPR-FIRE MONITORING-COM CTR		0.00	135.00	
20211085	Invoice	06/30/2021	CPR-ELEVATOR MONITORING-MUSEUM		0.00	75.00	
000990	SCIENTURFIC		07/06/2021	Regular	0.00	38.52	69837
T-122442	Invoice	06/22/2021	CEM-MAINTENANCE		0.00	38.52	
001530	TARGET SPECIALTY PRODUCTS		07/06/2021	Regular	0.00	512.06	69838
INVP500429997	Invoice	06/01/2021	SD-MAINTENANCE-ST DR		0.00	512.06	
001343	TIME CLOCK PLUS		07/06/2021	Regular	0.00	2,400.00	69839
580760	Invoice	06/24/2021	GF-TIME CLOCK-HR		0.00	2,400.00	
001104	TOSHIBA BUSINESS SOLUTIONS		07/06/2021	Regular	0.00	238.75	69840
2025231	Invoice	06/01/2021	GF-COLOR BOND-PLAN		0.00	238.75	
001105	TOSHIBA FINANCIAL SERVICES		07/06/2021	Regular	0.00	283.52	69841
446228009	Invoice	06/18/2021	Copier Lease		0.00	283.52	
001126	TYLER TECHNOLOGIES		07/06/2021	Regular	0.00	150.00	69842
25-337436	Invoice	06/08/2021	GF-STAFF DEVELOPMENT-FIN		0.00	150.00	
001183	WAXIE SANITARY SUPPLY		07/06/2021	Regular	0.00	181.40	69843
80063986	Invoice	06/07/2021	GF-SUPPLIES-PW SHOP		0.00	181.40	
001186	WCC ENTERPRISES, INC		07/06/2021	Regular	0.00	1,200.00	69844
063021	Invoice	06/30/2021	GF-JULY 4TH EVENTS		0.00	1,200.00	
001201	WELD COUNTY SCH DIST RE8		07/06/2021	Regular	0.00	5,812.98	69845
20210032	Invoice	06/24/2021	GF-7/1/20-6/30/21 CROSSING GUARDS-MISC		0.00	5,812.98	
000372	DELL MARKETING LP		07/06/2021	Regular	0.00	18,552.44	69846
10495974549	Invoice	06/15/2021	Dell PowerEdge Servers R640		0.00	9,276.22	
10497081632	Invoice	06/20/2021	Dell PowerEdge R640 Servers		0.00	9,276.22	

Vendor Number / Payable #	Vendor Name / Payable Type	Post Date	Payment Date / Payable Description	Payment Type	Discount Amount / Discount Amount	Payment Amount / Payable Amount	Number
002778	KASEYA US LLC		07/06/2021	Regular	0.00	2,264.00	69847
INV24645381114	Invoice	06/24/2021	VCSA,DarkWeb,BackupofWorkstations		0.00	2,264.00	
000119	BANK OF COLORADO		06/18/2021	Bank Draft	0.00	5,843.08	DFT0001684
INV0000987	Invoice	06/18/2021	HSA DISTRIBUTION		0.00	5,843.08	
000119	BANK OF COLORADO		06/18/2021	Bank Draft	0.00	668.54	DFT0001685
INV0000988	Invoice	06/18/2021	HSA DISTRIBUTION		0.00	668.54	
001416	VALIC_1		06/18/2021	Bank Draft	0.00	31,812.44	DFT0001686
INV0000989	Invoice	06/18/2021	VALIC - 457(b) $ Contributions		0.00	31,812.44	
001265	IRS		06/18/2021	Bank Draft	0.00	55,334.41	DFT0001687
INV0000990	Invoice	06/18/2021	Federal Withholding		0.00	55,334.41	
001418	CO DEPARTMENT OF REVENUE		06/18/2021	Bank Draft	0.00	9,190.41	DFT0001688
INV0000991	Invoice	06/18/2021	CO Withholding		0.00	9,190.41	
000285	COLORADO DEPARTMENT OF REVENUE		06/16/2021	Bank Draft	0.00	3.23	DFT0001689
MAY2021 REC SAL...	Invoice	06/01/2021	REC CENTER MAY 2021 SALES TAX		0.00	3.23	
000465	FIRE & POLICE PENSION ASC		06/18/2021	Bank Draft	0.00	1,858.27	DFT0001691
JUN21 FPPA PAY...	Invoice	06/16/2021	FPPA PAYMENT FOR PAYROLL 6/18/21		0.00	1,858.27	
001265	IRS		06/30/2021	Bank Draft	0.00	54.35	DFT0001698
INV0000997	Invoice	06/30/2021	Federal Withholding		0.00	54.35	
001418	CO DEPARTMENT OF REVENUE		06/30/2021	Bank Draft	0.00	6.63	DFT0001699
INV0000998	Invoice	06/30/2021	CO Withholding		0.00	6.63	
001416	VALIC_1		06/30/2021	Bank Draft	0.00	380.34	DFT0001700
INV0000999	Invoice	06/30/2021	VALIC - Regular Plan Retirement Contributio...		0.00	380.34	
001265	IRS		06/30/2021	Bank Draft	0.00	1,357.92	DFT0001701
INV0001000	Invoice	06/30/2021	Federal Withholding		0.00	1,357.92	
001418	CO DEPARTMENT OF REVENUE		06/30/2021	Bank Draft	0.00	164.27	DFT0001702
INV0001001	Invoice	06/30/2021	CO Withholding		0.00	164.27	

Bank Code Pooled Cash Summary

Payment Type	Payable Count	Payment Count	Discount	Payment
Regular Checks	136	98	0.00	924,273.19
Manual Checks	0	0	0.00	0.00
Voided Checks	0	1	0.00	-250.00
Bank Drafts	12	12	0.00	106,673.89
EFT's	0	0	0.00	0.00
	148	**111**	**0.00**	**1,030,697.08**

All Bank Codes Check Summary

Payment Type	Payable Count	Payment Count	Discount	Payment
Regular Checks	240	158	0.00	1,022,920.67
Manual Checks	0	0	0.00	0.00
Voided Checks	0	1	0.00	-250.00
Bank Drafts	13	13	0.00	110,534.89
EFT's	0	0	0.00	0.00
	253	**172**	**0.00**	**1,133,205.56**

Fund Summary

Fund	Name	Period	Amount
600	GOLF ENTERPRISE FUND	6/2021	79,782.04
600	GOLF ENTERPRISE FUND	7/2021	22,726.44
999	POOLED CASH/CONSOLIDATED CASH	6/2021	952,773.73
999	POOLED CASH/CONSOLIDATED CASH	7/2021	77,923.35
			1,133,205.56

RECORD OF PROCEEDINGS
FORT LUPTON CITY COUNCIL/ENTERPRISE BOARDS
June 15, 2021

The City Council of the City of Fort Lupton met in a regular session at the City Complex, 130 South McKinley Avenue, the regular meeting place of the City Council, on Tuesday, June 15, 2021. Due to the COVID-19 virus, the meeting was held with remote access provided through GoToWebinar. Mayor Zo Stieber called the meeting to order at 7:00 p.m. and invited everyone to join her in the Pledge of Allegiance.

ROLL CALL

Mari Peña, City Clerk, called the roll. Those present were Mayor Zo Stieber and Councilmembers Shannon Rhoda, Chris Ceretto, Tommy Holton, Michael Sanchez and Bruce Fitzgerald. Councilmember David Crespin participated remotely through GoToWebinar.

Also present were City Administrator, Chris Cross, Assistant City Administrator, Glenda McCarroll, City Clerk, Mari Peña, City Attorney, Andy Ausmus, Public Works Director, Roy Vestal, and Finance Director, Leann Perino.

PERSONS TO ADDRESS COUNCIL

Scott Kyle, resident of Fort Lupton, addressed the Council with concerns over the construction of Kahil Street and the nearby construction project. Mr. Kyle's concerns included: poor professionalism and transparency of the project, confusing notices that lacked clarity, poor communication regarding the project, inconsistency in traffic control and lack of speed limit signs, lack of police vehicles to maintain speed limit, disrespect of citizen property from the area workers, lack of onsite project supervision, limited or no access to mailboxes, and speeding down residential streets by an individual in a black Avalanche. Mr. Kyle provided the Council with various notices that were placed at his property.

Councilmember Holton asked the City Clerk that the Council be provided with a script of Mr. Kyle's concerns.

APPROVAL OF AGENDA

Staff asked that Consent Items: Second Reading Ordinance 2021-1114 An Ordinance of the City Council of the City of Fort Lupton, Colorado, Enacting A New Article XII of Chapter 6 of the Fort Lupton Municipal Code Regarding the Regulations and Licensing of Medical Marijuana Establishments and Second Reading Ordinance 2021-1115 An Ordinance of the City Council of the City of Fort Lupton, Colorado Enacting A New Article XIII of Chapter 6 of the Fort Lupton Municipal Code Regarding the Regulations and Licensing of Retail Marijuana Stores, be moved to the beginning of Action Memorandum.

It was moved by Tommy Holton and seconded by Bruce Fitzgerald to approve the Agenda as amended with moving the two items. Motion passed unanimously on roll call vote.

REVIEW OF ACCOUNTS PAYABLES

DRAFT

Council reviewed the June 15, 2021, payables; there were no questions or comments from the Mayor or Council.

CONSENT AGENDA

It was moved by Michael Sanchez and seconded by Shannon Rhoda to approve the Consent Agenda as presented with the following items: June 1, 2021 City Council Meeting Minutes, Second Reading Ordinance 2021-1111 AN ORDINANCE OF THE CITY COUNCIL OF FORT LUPTON ACCEPTING THE HUNSUL DEVELOPMENT, LLC PUBLIC RIGHT OF WAY DEDICATION FOR COUNTY ROAD 29, Second Reading Ordinance 2021-1112 ADOPT ORDINANCE 2021-1112 REZONING LAND LEGALLY DESCRIBED IN EXHIBIT A, AND KNOWN AS THE BRANDYWINE FARMS CHANGE OF ZONE, TO THE C-2 HEAVY COMMERCIAL ZONE DISTRICT, Second Reading Ordinance 2021-1113 AN ORDINANCE OF THE CITY OF FORT LUPTON, COLORADO, AMENDING CHAPTER 16, ARTICLE II, SECTION 16-40 - C-1 GENERAL COMMERCIAL DISTRICT, SECTION 16-42 - I-1 LIGHT INDUSTRIAL DISTRICT AND SECTION 16-45 - PUD PLANNED UNIT DEVELOPMENT DISTRICT OF THE FORT LUPTON MUNICIPAL CODE, Second Reading Ordinance 2021-1116 AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO IMPOSING A SALES TAX FOR EACH SALES TRANSACTION BY ANY MARIJUANA STORE ON THE SALES OF ANY RETAIL MARIJUANA AND RETAIL MARIJUANA PRODUCTS WITHIN THE CITY; SETTING FORTH THE PURPOSE OF SUCH TAX; ESTABLISHING ADMINISTRATIVE AND ENFORCEMENT PROCEDURES; PROVIDING AN EFFECTIVE DATE OF SUCH TAX; AND ENACTING A NEW ARTICLE VIII OF CHAPTER 4 OF THE FORT LUPTON MUNICIPAL CODE CONCERNING ADDITIONAL TAXES ON THE PURCHASE OR SALE OF MARIJUANA AND RETAIL MARIJUANA PRODUCTS, ADOPT AN ORDINANCE 2021-1117 TO ACCEPT PUBLIC RIGHT OF WAY FROM SHERRI AND LEONARD TOEWS FOR 55.00-FEET OF THE WESTERN HALF OF COUNTY ROAD 23 (AM 2021-087), Authorize the Mayor to Execute an Agreement to Waive the City's First Right of Refusal on the Lupton Meadows Storage and 150 Shares of Lupton Meadows Ditch Water (AM 2021-091), Authorize the Lease Transfer of .5 Equivalent Colorado Big Thompson Water Units to the Windy Gap Firming Project (AM 2021-092). Motion passed unanimously on roll call vote.

ACTION AGENDA

Second Reading of ORDINANCE 2021-1114 ENACTING A NEW ARTICLE XII OF CHAPTER 6 OF THE FORT LUPTON MUNICIPAL CODE REGARDING THE REGULATIONS AND LICENSING OF MEDICAL MARIJUANA ESTABLISHMENTS

The City Attorney, Andy Ausmus, stated that staff has been discussing the Ordinances with a consultant. The request is to table the item to allow additional time to gather more information to review the Ordinance and see if any additional changes are needed.

It was moved by Tommy Holton and seconded by Bruce Fitzgerald to table the Second Reading of Ordinance 2021-1114 AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, ENACTING A NEW ARTICLE XII OF CHAPTER 6 OF THE FORT

DRAFT

LUPTON MUNICIPAL CODE REGARDING THE REGULATIONS AND LICENSING OF MEDICAL MARIJUANA ESTABLISHMENTS to the July 20, 2021 City Council meeting. Motion passed unanimously on roll call vote.

Second Reading of Ordinance 2021-1115 AN ORDINANCE ENACTING A NEW ARTICLE XIII OF CHAPTER 6 OF THE FORT LUPTON MUNICIPAL CODE REGARDING THE REGULATIONS AND LICENSING OF RETAIL MARIJUANA STORES

The City Attorney, Andy Ausmus, stated that staff has been discussing the Ordinances with a consultant. The request is to table the item to allow additional time to gather more information to review the Ordinance and see if any additional changes are needed.

It was moved by Chris Ceretto and seconded by Tommy Holton to table the Second Reading of Ordinance 2021-1115 AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, ENACTING A NEW ARTICLE XIII OF CHAPTER 6 OF THE FORT LUPTON MUNICIPAL CODE REGARDING THE REGULATIONS AND LICENSING OF RETAIL MARIJUANA STORES to the July 20, 2021, meeting. Motion passed unanimously on roll call vote.

AM 2021-083 Approval of a Resolution Approving the Reimbursement Agreement With Mountain Sky Metropolitan District for the FL Mountain Sky Off-Site Public Improvements

The development agreement approved for the Mountain Sky Final Plat (LUP2019-0004) was approved by City Council on March 18, 2019. The subdivision is located north of County Road 12, west of County Road 29.5 (S College Avenue). The Subdivision Improvements Agreement was approved by Council on May 20, 2019 with Resolution No. 2019R037.

Off-Site improvements constructed include water main, non-potable water main, sanitary sewer main extensions and South College Avenue paving. Additional properties will benefit from these improvements.

Off-site improvement and documented costs are as follows:

Improvements	Construction Cost	Reimbursable
S College Avenue paving	$554,547.59	$554,547.58
Potable water main extension	$471,890.43	$387,473.54
Non-potable water main extension	$412,057.06	$376,458.18
Sanitary Sewer main extension	$520,073.88	$388,409.61

Term of agreement is 10-years extendable for an additional 5-years (maximum 20-years). Reimbursements are collected at time of development and building permits.

A recesses was called at 7:34 p.m. and the meeting reconvened at 7:39 p.m.

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It was moved by Chris Ceretto and seconded by Bruce Fitzgerald to approve Resolution 2021R035 A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING THE MOUNTAIN SKY METROPOLITAN DISTRICT REIMBURSEMENT AGREEMENT OF THE MOUNTAIN SKY SUBDIVISION OFF SITE IMPROVEMENTS. Motion passed with 5 'yes' votes and 2 'no' votes by Councilmembers Shannon Rhoda and Tommy Holton.

AM 2021-088 Consideration of a Resolution Accepting an Annexation Petition for the Raterink Annexation Submitted by Virginia J. Raterink and George V. Raterink and to Set a Public Hearing Date for July 20, 2021

Virginia J Raterink and George V. Raterink (the "Applicants") have submitted an annexation petition to initiate annexation proceedings for two parcels of land. The parcels are located north and adjacent to Highway 52 and approximately 0.07 miles west of Coyote Creek Drive (Parcel Nos. 147105100002 and 147105100001). The annexation will also include a portion of Clubhouse Drive as indicated on the map. This proposed annexation, known as the Raterink Annexation, consists of a total of 8.68 acres, more or less. The resolution is to accept the annexation petition and initiate the two-month (60 day) review process that involves staff, referral agencies, Planning Commission and City Council. Approval of the resolution does not constitute approval of the annexation request. Approval of the resolution simply means that there is an interest in considering the annexation, with the final decision to be made by City Council at a public hearing on July 20, 2021.The application includes an initial zoning request to the Agriculture District.

It was moved by Tommy Holton and seconded by Bruce Fitzgerald to approve Resolution 2021R036 A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON INITIATING ANNEXATION PROCEEDINGS FOR THE ANNEXATION KNOWN AS THE RATERINK ANNEXATION AND SETTING THE PUBLIC HEARING FOR JULY 20, 2021. Motion passed unanimously on roll call vote.

AM 2021-089 Authorize the Mayor to Execute a Purchase Agreement With the FTL Land Assemblage LLLP and/or Assigns For $850,000.00 for a New Building and Land for the Fort Lupton Public and School Library

In 2018, the Fort Lupton Public & School Library board voted to move forward with building a separate facility to serve as the public library. The City Council approved the library's decision to move forward with a new facility and hire an Owner's Representative (approved agreement AM 2018-147). The library would continue to run and maintain the high school library in the current facility. A decision has not yet been made as to the location of the new building. Purchasing land to build a public facility will enable us to better serve and protect the public and our students. We examined several possible locations and after careful review of the locations we determined the Lupton Village two acres lot would be the best option. The cost is $850,000.

- We chose this land because it is the perfect size for the building we wanted, with outdoor space and appropriate parking and in the center of town
- Walkable from four of the schools
- One block from the Rec Center
- Close to several shopping locations

- Convenient to a future bicycle path from the high school ball fields to the Rec Center

We already have an LOI signed by both the School District and City for this piece of property. This LOI was extended to June 4, 2021 at which time a Purchase of Sale Agreement needs to be signed or the land could go to another interested party.

Re8 School District has been given the option to also sign the Purchase of Sale Agreement and voted on June 3, 2021 to sign the Purchase of Sale Agreement. Attached is a Purchase and Sale Agreement with both the City and School District as buyers of this land.

It was moved by Tommy Holton and seconded by Bruce Fitzgerald to approve Ordinance 2021-1118 AN ORDINANCE OF THE CITY OF FORT LUPTON, AUTHORIZING THE REAL ESTATE PURCHASE AGREEMENT OF REAL PROPERTY OWNED BY FTL LAND ASSEMBLAGE LLLP FOR A NEW BUILDING AND LAND FOR THE FORT LUPTON PUBLIC AND SCHOOL LIBRARY. Motion passed unanimously on roll call vote.

AM 2021-090 Approve a Resolution Consenting to the Inclusion of Certain Property Into the Boundaries of Lupton Village Residential Metropolitan District

Section V.A.5 of the Service Plan for the Lupton Village Residential Metropolitan District (the "District") provides: "The District shall not include into its boundaries any property outside of the Inclusion Area Boundaries without the prior written consent of the City". The Inclusion Area Boundaries are boundaries established in the Service Plan which are permitted to be included into the physical boundaries of the District without City consent. If property outside of these boundaries is requested to be included, prior City consent is required.

Lot 2, Block 7 and Tract D of the Lupton Village P.U.D. were not originally included in the District's Inclusion Area Boundaries as they were originally zoned commercial. Instead, because of the commercial zoning in place at the time, these parcels were originally included in the Inclusion Area Boundaries for the Lupton Village Commercial Metropolitan District, although the property was never included into the physical boundaries of the Lupton Village Commercial Metropolitan District.

On February 19, 2021, the Lupton Village P.U.D., as subsequently corrected and ratified, was recorded. The P.U.D. changed the zoning of these parcels from commercial to residential.

Due to the zoning change, the District is requesting City consent to include the parcels into the District so that it may be within the residential district as opposed to the commercial districts. The parcels were never included into the boundaries of the Lupton Village Commercial Metropolitan District so there is no overlap concern.

Due to technical difficulties, a recess was called at 7:52 p.m. and the meeting reconvened at 7:57 p.m.

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It was moved by Tommy Holton and seconded by Chris Ceretto to approve Resolution 2021R037 A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO CONSENTING TO THE INCLUSION OF CERTAIN PROPERTY INTO THE BOUNDARIES OF LUPTON VILLAGE RESIDENTIAL METROPOLITAN DISTRICT. Motion passed with 5 'yes' votes and 2 'no' votes by Mayor Stieber and Shannon Rhoda.

AM 2021-093 Accepting an Application and Approving a Resolution Establishing all of the City of Fort Lupton as the Neighborhood for the Application Submitted by 7-Eleven, Inc. DBA 7-Eleven Store 41743H for a Fermented Malt Beverage License at 641, 14th Street and Setting a Public Hearing for July 20, 2021 for Consideration of the Application

Under CRS §44-3-301 the Local Licensing Authority, before granting any license, shall consider the reasonable requirements of the neighborhood and the desire of the adult inhabitants as evidenced by petitions, remonstrance or otherwise, and all other reasonable restrictions that are or may be placed upon the neighborhood by the local licensing authority.

Upon receipt of an application the local licensing authority shall schedule a public hearing upon the application not less than thirty days from the date of the application and shall post and publish the public notice thereof not less than 10 days prior to the hearing.

Staff suggests the City Council, acting as the Local License Authority Board, set all of the City of Fort Lupton as the neighborhood that will be affected by the license. The needs of the neighborhood and desires of the inhabitants are to be considered at the hearing.

It was moved by Bruce Fitzgerald and seconded by Chris Ceretto to approve Resolution 2021R038 A RESOLUTION OF THE FORT LUPTON CITY COUNCIL, ACTING AS THE LOCAL LIQUOR LICENSING AUTHORITY, ACCEPTING THE APPLICATION, ESTABLISHING ALL OF THE CITY OF FORT LUPTON AS THE NEIGHBORHOOD FOR THE APPLICATION SUBMITTED BY 7-ELEVEN, INC., DBA 7-ELEVEN STORE 41743H FOR A FERMENTED MALT BEVERAGE LICENSE AND SETTING A PUBLIC HEARING FOR JULY 20, 2021, FOR CONSIDERATION OF THE APPLICATION. Motion passed unanimously on roll call vote.

AM 2021-094 Approving a Contract With the Circuit Clerk, LLC to Provide Municipal Services to the City for an Amount Not to Exceed $5,000.00

Laura Bauer, dba The Circuit Clerk, LLC, has 20 years of experience providing service to small, mid-sized and large communities. She provides assistance in various clerk-related services including interim clerk, the coordination and conduct of municipal elections, complex liquor and marijuana licensing administration, translating policy statements into working procedures and records management.

Mrs. Bauer's extensive knowledge of marijuana codes and licensing can assist staff in the following areas:

DRAFT

1. Reviewing marijuana licensing ordinances,
2. Providing comparative information on licensing processes,
3. Creating workflow documents for marijuana licensing processing, and
4. Creating additional marijuana licensing forms specific to City needs.

It was moved by Chris Ceretto and seconded by Bruce Fitzgerald to approve the contract with the Circuit Clerk, LLC to provide Municipal Services to the City for an amount not to exceed $5,000.00. Motion passed unanimously on roll call vote.

AM 2021-095 Pay Operations Management International, Inc. CH2M Hill Engineers, Inc $37,275.00 for Professional Services for the Development of a Request for Proposal (RFP) for Engineering Services for the Planning, Permitting, and Design of a Force Main and Lift Station to Convey Wastewater to the Metro Wastewater Reclamation District Regional Northern Plant

Staff determined that the item required additional information, therefore asked Council to table the item to the July 6, 2021, City Council meeting.

It was moved by Chris Ceretto and seconded by Bruce Fitzgerald to approve AM 2021-095 be tabled to the July 6, 2021 City Council meeting. Motion passed unanimously on roll call vote.

AM 2021-096 Pay Operations Management International, Inc. CH2M Hill Engineers, Inc $112,500.00 for Professional Services for the Update to the City's Utility Plan Consistent with the Selected Alternative for Treatment Based Upon the Outcome of a Lift Station and Routing Study to be Completed by Others

Staff determined that the item required additional information, therefore asking Council to table the item to the July 6, 2021, City Council meeting.

It was moved by Chris Ceretto and seconded by Bruce Fitzgerald to approve AM 2021-096 be tabled to the July 6, 2021 City Council Meeting. Motion passed unanimously on roll call vote.

STAFF

Chief Fryer provided the Police Department Monthly Report for May 2021.

The Assistant City Administrator, Glenda McCarroll stated that the Risk and Resilience report has been completed and filed with the Environmental Protection Agenda on June 11, 2021. The report is good for 5-years and will expire on June 11, 2026. The EPA will review and let us know if there are any concerns. This means that the City won't have to pay $50,000 in penalties per day on July 1, 2021.

MAYOR/COUNCIL REPORTS

There were no reports from the Mayor or Council.

DRAFT

FUTURE CITY EVENTS

June 29, 2021	Town Hall Meeting, 130 S. McKinley Ave. 6:30 p.m.
July 4, 2021	Independence Day Celebration, Fort Lupton Recreation Center, 203 S. Harrison Ave. Noon-7:00 pm, Fireworks at Dark
July 5, 2021	City Offices Closed in Observance of Independence Day
July 6, 2021	City Council Meeting, 130 S. McKinley Ave. 7:00 p.m.
July 9, 2021	City Wide Yard Sale
July 10, 2021	City Wide Yard Sale
July 13, 2021	Town Hall Meeting, 130 S. McKinley Ave. 6:30 p.m.
August 20, 2021	Jacobs Golf Tournament, Coyote Creek Golf Course

ADJOURNMENT

Mayor Stieber adjourned the meeting at 8:10 p.m.

Respectfully Submitted,

_____
Maricela Peña, City Clerk

Approved by City Council

_____
Zo Stieber, Mayor

DRAFT

ORDINANCE NO. 2021-1117

INTRODUCED BY: BRUCE FITZGERALD

AN ORDINANCE OF THE CITY COUNCIL OF FORT LUPTON ACCEPTING THE SHERRI AND LEONARD TOEWS PUBLIC RIGHT OF WAY DEDICATION FOR COUNTY ROAD 23 LOCATED IN THE EAST ½ OF NORTHEAST ¼ OF SECTION 2, TOWNSHIP 1 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO.

THIS RIGHT OF WAY IS CREATED AND GRANTED THIS 15th DAY OF JUNE 2021.

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this 15th day of June 2021.

PUBLISHED in the Fort Lupton Press the 23th day of June 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this 6th day of July 2021.

PUBLISHED BY TITLE ONLY the 14th day of July 2021.

EFFECTIVE (after publication) the 13th day of August 2021.

CITY OF FORT LUPTON, COLORADO

_____
Zo Stieber, Mayor

ATTEST:

_____
Maricela Peña, City Clerk

Approved as to form:

_____
Andy Ausmus, City Attorney

ORDINANCE NO. 2021-1118

INTRODUCED BY: TOMMY HOLTON

AN ORDINANCE OF THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO, AUTHORIZING THE REAL ESTATE PURCHASE AGREEMENT OF REAL PROPERTY OWNED BY FTL LAND ASSEMBLAGE LLLP FOR A NEW BUILDING AND LAND FOR THE FORT LUPTON PUBLIC AND SCHOOL LIBRARY

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this 15th day of June 2021.

PUBLISHED in the Fort Lupton Press the 23rd day of June 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this 6th day of July 2021.

PUBLISHED BY TITLE ONLY the 14th day of July 2021.

EFFECTIVE (after publication) the 13th day of August 2021.

CITY OF FORT LUPTON

_____
Zo Stieber, Mayor

ATTEST:

_____
Maricela Peña, City Clerk

APPROVED AS TO FORM:

_____
Andy Ausmus, City Attorney

Exhibit A

LEGAL DESCRIPTION.
Lot 13, Block 5 Lupton Village PUD
Fort Lupton, CO 80621

WELD COUNTY ASSESSOR INFO
Owner: FTL Land Assemblage LLLP
Weld County Parcel: 147105318013
Subdivision: Lupton Village PUD
Section: 5 Township: 1N Range: 66W

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-097

ADOPTING AN ORDINANCE AMENDING ARTICLE I OF CHAPTER 2 REGARDING MUNICIPAL CAMPAIGN FINANCE COMPLAINTS

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**
a. SB 19-232
b. Ordinance 2021-xxxx

III. **Summary Statement:**

On May 29, 2019 Senate Bill (SB) 19-232 was signed which amends C.R.S. §1-45-117(9)(b) and provides that any complaint arising out of a municipal campaign finance matter must be exclusively filed with the clerk of the applicable municipality. Prior to SB 19-232, all municipal campaign finance complaints alleging violations of the Colorado Fair Campaign Practices Act (C.R.S. §1-45-101, et. Seq. (FCPA) were filed with and resolved by the Colorado Secretary of State. In accordance with SB 19-232, to comply with the requirements established by SB 19-232, the City Council hereby establishes the review and hearing process.

IV. **Submitted by:** Mari Peña
Mari Peña, City Clerk

V. **Finance Reviewed**
Finance Director

VI. **Approved for Presentation:**
City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:**
City Clerk Date

IX. Detail of Issue/Request:

On May 29, 2019 Senate Bill (SB) 19-232 was signed which amends C.R.S. §1-45-117(9)(b) and provides that any complaint arising out of a municipal campaign finance matter must be exclusively filed with the clerk of the applicable municipality. Prior to SB 19-232, all municipal campaign finance complaints alleging violations of the Colorado Fair Campaign Practices Act (C.R.S. §1-45-101, et. Seq. (FCPA) were filed with and resolved by the Colorado Secretary of State. In accordance with SB 19-232, to comply with the requirements established by SB 19-232, the City Council hereby establishes the review and hearing process.

X. Legal/Political Considerations:

XI. Alternatives/Options:

XII. Financial Considerations:

XIII. Staff Recommendation:

Staff recommends approval of the Ordinance.



SENATE BILL 19-232

BY SENATOR(S) Foote, Bridges, Court, Donovan, Fenberg, Fields, Gonzales, Pettersen, Rodriguez, Story, Winter;
also REPRESENTATIVE(S) Weissman, Arndt, Duran, Froelich, Galindo, Gonzales-Gutierrez, Jackson, Kennedy, Kipp, Lontine, Mullica, Roberts, Singer, Sirota, Snyder, Sullivan, Valdez A.

CONCERNING THE CODIFICATION OF THE RULES OF THE SECRETARY OF STATE ADDRESSING THE PROCEDURES FOR THE ENFORCEMENT OF STATE LAWS GOVERNING CAMPAIGN FINANCE.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. In Colorado Revised Statutes, **add** 1-45-111.7 as follows:

1-45-111.7. Campaign finance complaints - initial review - curing violations - investigation and enforcement - hearings - advisory opinions - document review - collection of debts resulting from campaign finance penalties - definitions. (1) **Definitions.** AS USED IN THIS SECTION, UNLESS THE CONTEXT OTHERWISE REQUIRES:

(a) "ARTICLE XXVIII" MEANS ARTICLE XXVIII OF THE STATE

Capital letters or bold & italic numbers indicate new material added to existing law; dashes through words or numbers indicate deletions from existing law and such material is not part of the act.

CONSTITUTION.

(b) "DEPUTY SECRETARY" MEANS THE DEPUTY SECRETARY OF STATE APPOINTED PURSUANT TO SECTION 24-21-105 OR THE DEPUTY SECRETARY'S DESIGNEE.

(c) "DIVISION" MEANS THE DIVISION WITHIN THE OFFICE OF THE SECRETARY RESPONSIBLE FOR ADMINISTERING THE STATE'S LAWS GOVERNING CAMPAIGN AND POLITICAL FINANCE.

(d) "HEARING OFFICER" MEANS A PERSON AUTHORIZED TO CONDUCT A HEARING UNDER SECTION 24-4-105 (3).

(e) "RULES" MEANS THE RULES OF THE SECRETARY CONCERNING CAMPAIGN AND POLITICAL FINANCE.

(f) "SECRETARY" MEANS THE SECRETARY OF STATE OR THE SECRETARY'S DESIGNATE.

(2) **Filing complaints.** (a) ANY PERSON WHO BELIEVES THAT A VIOLATION HAS OCCURRED OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES MAY FILE A COMPLAINT WITH THE SECRETARY.

(b) A COMPLAINT MUST BE FILED NO LATER THAN ONE HUNDRED EIGHTY DAYS AFTER THE DATE ON WHICH THE COMPLAINANT EITHER KNEW OR SHOULD HAVE KNOWN, BY THE EXERCISE OF REASONABLE DILIGENCE, OF THE ALLEGED VIOLATION.

(c) ANY COMPLAINT MUST BE FILED IN WRITING AND SIGNED BY THE COMPLAINANT ON THE FORM PROVIDED BY THE SECRETARY. THE COMPLAINT MUST IDENTIFY ONE OR MORE RESPONDENTS AND INCLUDE THE INFORMATION REQUIRED TO BE PROVIDED ON THE FORM.

(d) UPON RECEIPT OF A COMPLAINT, THE DIVISION SHALL NOTIFY THE RESPONDENT OF THE COMPLAINT BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE.

(e) THE DIVISION SHALL FORWARD ANY COMPLAINT MADE AGAINST A CANDIDATE FOR SECRETARY OR THE SECRETARY TO THE DEPARTMENT OF LAW FOR THE REVIEW OF THE COMPLAINT BY THE ATTORNEY GENERAL TO

ACT ON BEHALF OF THE DIVISION IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THIS SECTION.

(3) **Initial review.** (a) THE DIVISION SHALL CONDUCT AN INITIAL REVIEW OF A COMPLAINT FILED UNDER SUBSECTION (2) OF THIS SECTION TO DETERMINE WHETHER THE COMPLAINT:

(I) WAS TIMELY FILED UNDER SUBSECTION (2)(b) OF THIS SECTION;

(II) SPECIFICALLY IDENTIFIES ONE OR MORE VIOLATIONS OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES; AND

(III) ALLEGES SUFFICIENT FACTS TO SUPPORT A FACTUAL AND LEGAL BASIS FOR THE VIOLATIONS OF LAW ALLEGED IN THE COMPLAINT.

(b) WITHIN TEN BUSINESS DAYS OF RECEIVING A COMPLAINT, THE DIVISION SHALL TAKE ONE OR MORE OF THE ACTIONS SPECIFIED IN THIS SUBSECTION (3)(b):

(I) IF THE DIVISION MAKES AN INITIAL DETERMINATION THAT THE COMPLAINT WAS NOT TIMELY FILED, HAS NOT SPECIFICALLY IDENTIFIED ONE OR MORE VIOLATIONS OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES, OR DOES NOT ASSERT FACTS SUFFICIENT TO SUPPORT A FACTUAL OR LEGAL BASIS FOR AN ALLEGED VIOLATION, THE DIVISION SHALL PREPARE AND FILE WITH THE DEPUTY SECRETARY A MOTION TO DISMISS THE COMPLAINT. THE DEPUTY SECRETARY SHALL MAKE A DETERMINATION ON THE MOTION TO DISMISS WITHIN FIVE BUSINESS DAYS, WHICH MUST BE PROVIDED TO THE COMPLAINANT AND THE RESPONDENT BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE. IF THE DEPUTY SECRETARY DENIES THE MOTION, THE DIVISION SHALL DETERMINE WHETHER TO CONDUCT A REVIEW UNDER SUBSECTION (3)(b)(II) OR (3)(b)(III) OF THIS SECTION. THE FINAL DETERMINATION BY THE DEPUTY SECRETARY ON THE MOTION TO DISMISS CONSTITUTES FINAL AGENCY ACTION AND IS SUBJECT TO JUDICIAL REVIEW BY A STATE DISTRICT COURT UNDER SECTION 24-4-106.

(II) IF THE DIVISION MAKES AN INITIAL DETERMINATION THAT THE COMPLAINT ALLEGES ONE OR MORE CURABLE VIOLATIONS AS ADDRESSED IN SUBSECTION (4) OF THIS SECTION, THE DIVISION SHALL NOTIFY THE RESPONDENT AND PROVIDE THE RESPONDENT AN OPPORTUNITY TO CURE THE VIOLATIONS.

(III) IF THE DIVISION MAKES AN INITIAL DETERMINATION THAT THE COMPLAINT HAS SPECIFICALLY IDENTIFIED ONE OR MORE VIOLATIONS OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES, AND HAS ALLEGED FACTS SUFFICIENT TO SUPPORT A FACTUAL OR LEGAL BASIS FOR EACH ALLEGED VIOLATION, AND THAT EITHER A FACTUAL FINDING OR A LEGAL INTERPRETATION IS REQUIRED, THE DIVISION SHALL CONDUCT ADDITIONAL REVIEW UNDER SUBSECTION (5) OF THIS SECTION WITHIN THIRTY DAYS TO DETERMINE WHETHER TO FILE A COMPLAINT WITH A HEARING OFFICER.

(4) **Curing violations.** (a) UPON THE DIVISION'S INITIAL DETERMINATION THAT A COMPLAINT ALLEGES A FAILURE TO FILE OR OTHERWISE DISCLOSE REQUIRED INFORMATION, OR ALLEGES ANOTHER CURABLE VIOLATION, THE DIVISION SHALL NOTIFY THE RESPONDENT BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE OF THE CURABLE DEFICIENCIES ALLEGED IN THE COMPLAINT.

(b) THE RESPONDENT HAS TEN BUSINESS DAYS FROM THE DATE THE NOTICE IS E-MAILED OR MAILED TO FILE AN AMENDMENT TO ANY RELEVANT REPORT THAT CURES ANY DEFICIENCIES SPECIFIED IN THE NOTICE.

(c) THE RESPONDENT SHALL PROVIDE THE DIVISION WITH NOTICE OF THE RESPONDENT'S INTENT TO CURE ON THE FORM PROVIDED BY THE SECRETARY AND INCLUDE A COPY OF ANY AMENDMENTS TO ANY REPORT CONTAINING ONE OR MORE DEFICIENCIES.

(d) UPON RECEIPT OF THE RESPONDENT'S NOTICE OF AN INTENT TO CURE, THE DIVISION MAY ASK THE RESPONDENT TO PROVIDE ADDITIONAL INFORMATION AND MAY GRANT THE RESPONDENT AN EXTENSION OF TIME TO FILE AN AMENDED NOTICE OF INTENT TO CURE IN ORDER TO RESPOND TO ANY SUCH REQUEST.

(e) (I) AFTER THE PERIOD FOR CURE HAS EXPIRED, THE DIVISION SHALL DETERMINE WHETHER THE RESPONDENT HAS CURED ANY VIOLATION ALLEGED IN THE COMPLAINT AND, IF SO, WHETHER THE RESPONDENT HAS SUBSTANTIALLY COMPLIED WITH ITS LEGAL OBLIGATIONS UNDER ARTICLE XXVIII, THIS ARTICLE 45, AND THE RULES IN ACCORDANCE WITH SUBSECTION (4)(f) OF THIS SECTION.

(II) IF THE DIVISION DETERMINES THAT THE RESPONDENT HAS SUBSTANTIALLY COMPLIED WITH ITS LEGAL OBLIGATIONS, THE DIVISION

SHALL PREPARE AND FILE WITH THE DEPUTY SECRETARY A MOTION TO DISMISS THE COMPLAINT. THE MOTION MUST BE ACCOMPANIED BY A DRAFT ORDER SPECIFYING THE MANNER IN WHICH THE RESPONDENT HAS SATISFIED THE FACTORS SPECIFIED IN SUBSECTION (4)(f) OF THIS SECTION. THE DEPUTY SECRETARY SHALL MAKE A DETERMINATION ON THE MOTION TO DISMISS, WHICH MUST BE PROVIDED TO THE COMPLAINANT AND THE RESPONDENT BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE. IF THE DEPUTY SECRETARY DENIES THE MOTION, THE DIVISION SHALL DETERMINE WHETHER TO CONDUCT A REVIEW UNDER SUBSECTION (3)(b)(II) OR (3)(b)(III) OF THIS SECTION. THE DETERMINATION BY THE DEPUTY SECRETARY UNDER THIS SUBSECTION (4)(e)(II) IS FINAL AGENCY ACTION AND IS SUBJECT TO JUDICIAL REVIEW BY A STATE DISTRICT COURT UNDER SECTION 24-4-106.

(III) IF THE DIVISION DETERMINES THAT THE RESPONDENT HAS FAILED TO SUBSTANTIALLY COMPLY UNDER SUBSECTION (4)(f) OF THIS SECTION, THE DIVISION SHALL CONDUCT AN ADDITIONAL REVIEW UNDER SUBSECTION (5)(a) OF THIS SECTION TO DETERMINE WHETHER TO FILE THE COMPLAINT WITH A HEARING OFFICER.

(f) IN DETERMINING WHETHER AN ENTITY SUBSTANTIALLY COMPLIED WITH ITS LEGAL OBLIGATIONS UNDER ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES THE DIVISION MUST CONSIDER:

(I) THE EXTENT OF THE RESPONDENT'S NONCOMPLIANCE;

(II) THE PURPOSE OF THE PROVISION VIOLATED AND WHETHER THAT PURPOSE WAS SUBSTANTIALLY ACHIEVED DESPITE THE NONCOMPLIANCE; AND

(III) WHETHER THE NONCOMPLIANCE MAY PROPERLY BE VIEWED AS AN INTENTIONAL ATTEMPT TO MISLEAD THE ELECTORATE OR ELECTION OFFICIALS.

(g) IF THE DIVISION DETERMINES THAT THE RESPONDENT FAILED TO CURE ANY ALLEGED DEFICIENCY, THE DIVISION SHALL CONDUCT AN ADDITIONAL REVIEW UNDER SUBSECTION (5)(a) OF THIS SECTION TO DETERMINE WHETHER TO FILE A COMPLAINT WITH A HEARING OFFICER.

(5) **Investigations and enforcement.** (a) (I) THE DIVISION SHALL INVESTIGATE EACH COMPLAINT THAT WAS NOT DISMISSED DURING EITHER

ITS INITIAL REVIEW OR BY MEANS OF THE CURE PROCEEDINGS IN ACCORDANCE WITH SUBSECTION (3) OR (4) OF THIS SECTION TO DETERMINE WHETHER TO FILE A COMPLAINT WITH A HEARING OFFICER. THE DIVISION MAY ALSO INITIATE AN INVESTIGATION UNDER SUBSECTION (7)(b) OF THIS SECTION.

(II) FOR THE PURPOSE OF AN INVESTIGATION RELATING TO A COMPLAINT FILED UNDER SUBSECTION (2)(a) OF THIS SECTION OR AN INVESTIGATION INITIATED BY THE DIVISION UNDER SUBSECTION (7)(b) OF THIS SECTION, THE DIVISION MAY REQUEST THE PRODUCTION OF ANY DOCUMENTS OR OTHER TANGIBLE THINGS THAT ARE BELIEVED TO BE RELEVANT OR MATERIAL TO THE INVESTIGATION, AND SHALL ESTABLISH THE RELEVANCE AND MATERIALITY IN WRITING. NOTWITHSTANDING ANY OTHER PROVISION OF LAW, DOCUMENTS OR OTHER TANGIBLE THINGS PROVIDED TO THE DIVISION DURING THE COURSE OF AN INVESTIGATION UNDER THIS SUBSECTION (5) ARE NOT SUBJECT TO INSPECTION OR COPYING UNDER THE "COLORADO OPEN RECORDS ACT", PART 2 OF ARTICLE 72 OF TITLE 24. NOTWITHSTANDING ANY OTHER PROVISION OF LAW, DOCUMENTS OR OTHER TANGIBLE THINGS PROVIDED TO THE DIVISION DURING THE COURSE OF AN INVESTIGATION UNDER THIS SUBSECTION (5) AND OTHER MATERIALS PREPARED OR ASSEMBLED TO ASSIST THE SECRETARY'S DESIGNEE IN REACHING A DECISION ARE WORK PRODUCT AS DEFINED IN SECTION 24-72-202 (6.5)(a) AND ARE NOT PUBLIC RECORDS SUBJECT TO INSPECTION UNDER PART 2 OF ARTICLE 72 OF TITLE 24.

(III) IF THE DIVISION RECEIVES A PERSON'S MEMBERSHIP LIST OR DONOR LIST DURING THE COURSE OF THE DIVISION'S INITIAL REVIEW UNDER SUBSECTION (3) OF THIS SECTION, INVESTIGATION UNDER THIS SUBSECTION (5), OR THE CURE PROCESS, INCLUDING THE DETERMINATION OF SUBSTANTIAL COMPLIANCE, AS DESCRIBED IN SUBSECTION (4) OF THIS SECTION, THE DIVISION SHALL NOT DISCLOSE SUCH LIST OR THE IDENTITY OF ANY MEMBER OR DONOR TO ANY PERSON. NOTWITHSTANDING ANY OTHER PROVISION OF LAW, ANY SUCH MEMBERSHIP OR DONOR LIST IS NOT A PUBLIC RECORD SUBJECT TO INSPECTION, COPYING, OR ANY OTHER FORM OF REPRODUCTION UNDER PART 2 OF ARTICLE 72 OF TITLE 24.

(IV) THE DIVISION SHALL DETERMINE WHETHER IT WILL FILE A COMPLAINT WITH A HEARING OFFICER WITHIN THIRTY DAYS AFTER INITIATING AN INVESTIGATION. IF THE DIVISION MAKES A DETERMINATION THAT A COMPLAINT SHOULD NOT BE FILED WITH A HEARING OFFICER

BECAUSE THERE IS NOT SUFFICIENT INFORMATION TO SUPPORT THE ALLEGATIONS CONTAINED IN THE COMPLAINT OR FOR ANY OTHER REASON, IT SHALL PREPARE AND FILE WITH THE DEPUTY SECRETARY A MOTION TO DISMISS THE COMPLAINT. THE DEPUTY SECRETARY SHALL MAKE A DETERMINATION ON THE MOTION TO DISMISS WITHIN THIRTY-FIVE DAYS OF THE INITIAL DETERMINATION OF THE DIVISION UNDER THIS SUBSECTION (5)(a)(IV), OR THE INITIATION OF AN INVESTIGATION BY THE DIVISION UNDER SUBSECTION (7)(b) OF THIS SECTION, WHICH MUST BE PROVIDED TO THE COMPLAINANT AND THE RESPONDENT BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE. IF THE DEPUTY SECRETARY DENIES THE MOTION, THE DIVISION HAS FOURTEEN BUSINESS DAYS TO FILE A COMPLAINT WITH A HEARING OFFICER UNDER THIS SUBSECTION (5).

(V) IF THE DIVISION FILES A COMPLAINT WITH A HEARING OFFICER UNDER THIS SUBSECTION (5), IT IS RESPONSIBLE FOR CONDUCTING SUCH DISCOVERY AS MAY BE NECESSARY FOR EFFECTIVELY PROSECUTING THE COMPLAINT, SUPPLEMENTING OR AMENDING THE COMPLAINT WITH SUCH ADDITIONAL OR ALTERNATIVE CLAIMS OR ALLEGATIONS AS MAY BE SUPPORTED BY THE DIVISION'S INVESTIGATION, AMENDING THE COMPLAINT TO STRIKE ALLEGATIONS OR CLAIMS THAT ARE NOT SUPPORTED BY THE DIVISION'S INVESTIGATION, AND IN ALL OTHER RESPECTS PROSECUTING THE COMPLAINT.

(b) A COMPLAINANT OR ANY OTHER NONRESPONDENT IS NOT A PARTY TO THE DIVISION'S INITIAL REVIEW, CURE PROCEEDINGS, INVESTIGATION, OR ANY PROCEEDINGS BEFORE A HEARING OFFICER AS DESCRIBED IN THIS SECTION. A COMPLAINANT MAY SEEK PERMISSION FROM THE HEARING OFFICER TO FILE A BRIEF AS AN AMICUS CURIAE. A PERSON'S STATUS AS A COMPLAINANT IS NOT SUFFICIENT TO ESTABLISH THAT HE OR SHE MAY BE AFFECTED OR AGGRIEVED BY THE SECRETARY'S ACTION ON THE COMPLAINT. TO THE EXTENT THIS SUBSECTION (5)(b) CONFLICTS IN ANY RESPECT WITH SECTION 24-4-105 OR 24-4-106, THIS SUBSECTION (5)(b) CONTROLS. A COMPLAINANT MAY ALSO SEEK JUDICIAL REVIEW BY A STATE DISTRICT COURT OF A FINAL AGENCY ACTION UNDER SECTION 24-4-106.

(6) **Conduct of hearings.** (a) ANY HEARING CONDUCTED BY A HEARING OFFICER UNDER THIS SECTION MUST BE IN ACCORDANCE WITH SECTION 24-4-105; EXCEPT THAT A HEARING OFFICER SHALL SCHEDULE A HEARING WITHIN THIRTY DAYS OF THE FILING OF THE COMPLAINT, WHICH HEARING MAY BE CONTINUED UPON THE MOTION OF ANY PARTY FOR UP TO

THIRTY DAYS OR A LONGER EXTENSION OF TIME UPON A SHOWING OF GOOD CAUSE.

(b) ANY INITIAL DETERMINATION MADE BY A HEARING OFFICER MUST BE MADE IN ACCORDANCE WITH SECTION 24-4-105 AND IS SUBJECT TO REVIEW BY THE DEPUTY SECRETARY. THE FINAL AGENCY DECISION IS SUBJECT TO REVIEW UNDER SECTION 24-4-106.

(7) **Document review.** (a) IN ADDITION TO ANY OTHER POWERS AND DUTIES IT POSSESSES UNDER LAW, THE DIVISION MAY ALSO REVIEW ANY DOCUMENT THE SECRETARY RECEIVES FOR FILING UNDER ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES.

(b) IN CONNECTION WITH THE REVIEW OF OTHER AVAILABLE INFORMATION REGARDING A POTENTIAL VIOLATION UNDER THIS SUBSECTION (7):

(I) IF THE DIVISION DETERMINES THAT A PERSON VIOLATED OR POTENTIALLY VIOLATED ANY OF THE PROVISIONS OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES, THE DIVISION SHALL EITHER NOTIFY THE PERSON OF HIS OR HER OPPORTUNITY TO CURE THE IDENTIFIED DEFICIENCIES IN ACCORDANCE WITH SUBSECTION (4) OF THIS SECTION OR NOTIFY THE PERSON THAT THE DIVISION IS INITIATING AN INVESTIGATION UNDER SUBSECTION (5) OF THIS SECTION. THE DIVISION SHALL SEND THE NOTIFICATION BY E-MAIL OR BY REGULAR MAIL IF E-MAIL IS UNAVAILABLE.

(II) IF THE DIVISION INITIATES AN INVESTIGATION OR FILES A COMPLAINT WITH A HEARING OFFICER IN CONNECTION WITH ITS REVIEW, THE PROCEDURES DESCRIBED IN SUBSECTIONS (5) AND (6) OF THIS SECTION APPLY.

(c) AS USED IN THIS SUBSECTION (7), "REVIEW" MEANS THE FACTUAL INSPECTION OF ANY DOCUMENT REQUIRED TO BE FILED WITH THE SECRETARY FOR CAMPAIGN FINANCE REGISTRATION, REPORTING, OR DISCLOSURE IN ORDER TO ASSESS THE DOCUMENT'S ACCURACY AND COMPLETENESS AND THE TIMELINESS OF THE DOCUMENT'S FILING.

(8) **Advisory opinions.** (a) ANY PERSON SEEKING GUIDANCE ON THE APPLICATION OF ARTICLE XXVIII, THIS ARTICLE 45, OR THE RULES MAY REQUEST THAT THE SECRETARY ISSUE AN ADVISORY OPINION REGARDING

THAT PERSON'S SPECIFIC ACTIVITY.

(b) THE SECRETARY SHALL DETERMINE, AT THE SECRETARY'S DISCRETION, WHETHER TO ISSUE AN ADVISORY OPINION UNDER SUBSECTION (8)(a) OF THIS SECTION. IN MAKING THIS DETERMINATION, THE SECRETARY SHALL CONSIDER FACTORS INCLUDING WHETHER:

(I) THE ADVISORY OPINION WILL TERMINATE A CONTROVERSY OR REMOVE ONE OR MORE UNCERTAINTIES AS TO THE APPLICATION OF THE LAW TO THE REQUESTOR'S SITUATION;

(II) THE REQUEST INVOLVES A SUBJECT, QUESTION, OR ISSUE THAT CONCERNS A FORMAL OR INFORMAL MATTER OR INVESTIGATION CURRENTLY PENDING BEFORE THE SECRETARY OR A COURT; AND

(III) THE REQUEST SEEKS A RULING ON A MOOT OR HYPOTHETICAL QUESTION.

(c) A PERSON MAY RELY ON AN ADVISORY OPINION ISSUED BY THE SECRETARY AS AN AFFIRMATIVE DEFENSE TO ANY COMPLAINT FILED UNDER THIS SECTION.

(d) A REFUSAL BY THE SECRETARY TO ISSUE AN ADVISORY OPINION DOES NOT CONSTITUTE A FINAL AGENCY ACTION THAT IS SUBJECT TO APPEAL.

(9) **Miscellaneous matters - debt collection - municipal complaints.** (a) THE SECRETARY MAY SEND TO THE STATE CONTROLLER FOR COLLECTION ANY OUTSTANDING DEBT RESULTING FROM A CAMPAIGN FINANCE PENALTY THAT THE SECRETARY DEEMS COLLECTIBLE.

(b) ANY COMPLAINT ARISING OUT OF A MUNICIPAL CAMPAIGN FINANCE MATTER MUST BE EXCLUSIVELY FILED WITH THE CLERK OF THE APPLICABLE MUNICIPALITY.

SECTION 2. In Colorado Revised Statutes, 1-45-103.7, **amend** (7)(a) as follows:

1-45-103.7. Contribution limits - treatment of independent expenditure committees - contributions from limited liability

companies - voter instructions on spending limits - definitions. (7) (a) Any person who believes that a violation of ~~subsection (5) or (6)~~ SUBSECTION (1.5), (5), OR (6) of this section has occurred may file a written complaint with the secretary of state ~~no later than one hundred eighty days after the date of the alleged violation. The complaint shall be subject to all applicable procedures specified in section 9 (2) of article XXVIII of the state constitution~~ IN ACCORDANCE WITH SECTION 1-45-111.7.

SECTION 3. In Colorado Revised Statutes, 1-45-109, **repeal** (4)(b), (4)(c), (11), and (12) as follows:

1-45-109. Filing - where to file - timeliness - definition. (4) (b) ~~Any report that is deemed incomplete by the appropriate officer must be accepted and the committee must be notified of the deficiency. If an e-mail address is on file with the secretary of state, the secretary of state may provide such notification by e-mail. The committee has thirty calendar days from the date such notice is sent, whether electronically or by United States mail, to file an addendum that cures the deficiencies.~~

(c) ~~(I) Upon receipt of a complaint brought under section 9 (2)(a) of article XXVIII of the state constitution alleging a failure to file other information required to be filed or disclosed pursuant to article XXVIII of the state constitution or this article 45, the secretary of state shall give notice to the committee by e-mail, or by regular mail if an e-mail address is not known, of the deficiencies alleged in the complaint. Service of the notice does not toll or otherwise affect the three-day period during which the secretary of state is required to refer a complaint to an administrative law judge pursuant to section 9 (2)(a) of article XXVIII of the state constitution. Upon receipt of the notice from the secretary of state, the committee may request from the appropriate officer a postponement of the hearing brought under section 9 (2)(a) of article XXVIII of the state constitution and, if such request is timely submitted, has fifteen business days from the date of the notice to file an addendum to the relevant report that cures any such deficiencies in the disclosure specified in the notice. The committee shall also provide the complainant notice of the entity's intent to cure and a copy of the addendum on the same day that the addendum is filed with the secretary of state. Where the committee files an addendum that cures all deficiencies alleged in the complaint before the expiration of the fifteen-day period specified in this subsection (4)(c)(I), the appropriate officer shall not assess a penalty against the committee that otherwise would have been~~

~~assessed for the deficiencies for the period from the first date of the alleged violation through the expiration of the cure period.~~

~~(II) Upon filing an addendum to the relevant report by the committee that cures all such deficiencies in accordance with subsection (4)(c)(I) of this section, the appropriate officer shall set a hearing within thirty days of the notice to determine whether all issues raised by the complaint have been resolved. If the committee fails to cure any such deficiency, any penalty imposed for the deficiency continues to accrue until further resolution of the matter. Notwithstanding any other provision of law, subsection (4)(c)(I) of this section only applies in the case of a good faith effort by a committee to make a timely disclosure in accordance with article XXVIII of the state constitution or this article 45 or where the disclosure made by the committee is in substantial compliance with such legal requirements. The committee has the burden of demonstrating good faith or substantial compliance under this subsection (4)(c)(II) by a preponderance of the evidence in the hearing held by the appropriate officer under section 9 (2)(a) of article XXVIII of the state constitution. Where the committee fails to satisfy its burden of demonstrating either good faith or substantial compliance, the administrative law judge shall enter or impose a civil penalty in accordance with the following:~~

~~(A) If the amount of the penalty that has accrued to that point in time is less than five thousand dollars, the administrative law judge shall impose a penalty in the amount of the penalty that has accrued to that point in time.~~

~~(B) If the amount of the civil penalty that has accrued to that point in time is five thousand or more dollars, the administrative law judge shall impose a penalty, in his or her discretion, in an amount that is not less than five thousand dollars.~~

(11) ~~Notwithstanding any other provision of this section, during the period commencing May 25, 2010, and continuing through December 31, 2010, any report, statement, or other document required to be filed under section 1-45-107.5 that is to be filed electronically with the secretary of state's office pursuant to this section may be filed manually or by means of a portable document format file acceptable to the secretary.~~

(12) ~~For purposes of subsection (4)(c) of this section, "appropriate~~

~~officer" means a hearing officer or an administrative law judge.~~

SECTION 4. In Colorado Revised Statutes, 1-45-111.5, **amend** (1.5)(a), (1.5)(b), (1.5)(c), (1.5)(d), (1.5)(e), (2), (3), and (4)(d)(II); and **repeal** (5) as follows:

1-45-111.5. Duties of the secretary of state - enforcement - sanctions - definitions. (1.5) (a) Any person who believes that a violation of ~~either~~ ARTICLE XXVIII OF THE STATE CONSTITUTION, the secretary of state's rules concerning campaign and political finance or this article 45 has occurred may file a written complaint with the secretary of state ~~not later than one hundred eighty days after the date of the occurrence of the alleged violation. The complaint is subject to all applicable procedures specified in section 9 (2) of article XXVIII of the state constitution. The person filing the complaint must serve the complaint on the respondent by certified mail, return receipt requested, on the same day the person files the complaint with the secretary of state. The person filing the complaint must state factual allegations of a violation. For purposes of this section and section 9 (2) of article XXVIII of the state constitution, "complaint" means a signed document that alleges a violation of article XXVIII of the state constitution or of this article 45~~ IN ACCORDANCE WITH SECTION 1-45-111.7.

(b) Any person who commits a violation of either the secretary of state's rules concerning campaign and political finance or this article that is not specifically listed in ~~section 9 (2)(a) of~~ article XXVIII of the state constitution shall be subject to any of the sanctions specified in section 10 of article XXVIII of the state constitution or in this section.

(c) In addition to any other penalty authorized by article XXVIII of the state constitution or this ~~article, an administrative law judge~~ ARTICLE 45, A HEARING OFFICER may impose a civil penalty of fifty dollars per day for each day that a report, statement, or other document required to be filed under this ~~article~~ ARTICLE 45 that is not specifically listed in article XXVIII of the state constitution is not filed by the close of business on the day due. Any person who fails to file three or more successive committee registration reports or reports concerning contributions, expenditures, or donations in accordance with the requirements of section 1-45-107.5 shall be subject to a civil penalty of up to five hundred dollars for each day that a report, statement, or other document required to be filed by an independent expenditure committee is not filed by the close of business on the day due.

Any person who knowingly and intentionally fails to file three or more reports due under section 1-45-107.5 shall be subject to a civil penalty of up to one thousand dollars per day for each day that the report, statement, or other document is not filed by the close of business on the day due. Imposition of any penalty under this ~~paragraph (c)~~ SUBSECTION (1.5)(c) shall be subject to all applicable requirements specified in section 10 of article XXVIII of the state constitution governing the imposition of penalties.

(d) In connection with a complaint brought to enforce any requirement of article XXVIII of the state constitution or this ~~article, an administrative law judge~~ ARTICLE 45, A HEARING OFFICER may order disclosure of the source and amount of any undisclosed donations or expenditures.

(e) In connection with any action brought to enforce any provision of article XXVIII of the state constitution or this ~~article~~ ARTICLE 45, the membership lists of a MEMBERSHIP ORGANIZATION, A labor organization or, in the case of a publicly held corporation, a list of the shareholders of the corporation, shall not be disclosed by means of discovery or by any other manner.

(2) A party in any action brought to enforce the provisions of article XXVIII of the state constitution or of this article 45 is entitled to the recovery of the party's reasonable attorney fees and costs from any attorney or party who has brought or defended the action, either in whole or in part, upon a determination by the ~~office of administrative courts~~ HEARING OFFICER that the action, or any part thereof, lacked substantial justification or that the action, or any part thereof, was commenced for delay or harassment or if it finds that an attorney or party unnecessarily expanded the proceeding by other improper conduct, including abuses of discovery procedures available under the Colorado rules of civil procedure. Notwithstanding any other provision of this subsection (2), no attorney fees may be awarded under this subsection (2) unless the court or ~~administrative law judge~~ HEARING OFFICER, as applicable, has first considered and issued written findings regarding the provisions of section 13-17-102 (5) and (6). Either party in an action in which the ~~office of administrative courts~~ HEARING OFFICER awarded attorney fees and costs may apply to a district court to convert an award of attorney fees and costs into a district court judgment. Promptly upon the conversion of the award of attorney fees and

costs into a district court judgment, the clerk of the district court shall mail notice of the filing of the judgment to the judgment debtor at the address given and shall make a note of the mailing in the docket. The notice must include the name and post-office address of the judgment creditor and the judgment creditor's lawyer, if any, in this state. In addition, the judgment creditor may mail a notice of the filing of the judgment to the judgment debtor and may file proof of mailing with the clerk. Lack of mailing notice of filing by the clerk shall not affect the enforcement proceedings if proof of mailing by the judgment creditor has been filed. For purposes of this subsection (2), "lacked substantial justification" means substantially frivolous, substantially groundless, or substantially vexatious.

(3) Upon a determination by the ~~office of administrative courts~~ HEARING OFFICER that an issue committee failed to file a report required pursuant to section 1-45-108, the ~~administrative law judge~~ HEARING OFFICER shall direct the issue committee to file any such report within ten days containing all required disclosure of any previously unreported contributions or expenditures and may, in addition to any other penalty, impose a penalty not to exceed twenty dollars for each contribution received and expenditure made by the issue committee that was not timely reported.

(4) (d) If the court determines that the subpoenaed witness or party is required to comply with the administrative subpoena:

(II) The ~~administrative law judge~~ HEARING OFFICER shall schedule a hearing on the complaint to occur on a day after the occurrence of the required deposition and such other discovery as may be warranted due to such deposition.

(5) ~~Not later than December 1, 2016, the secretary of state shall create and post on the secretary's official website a campaign finance training course that offers sufficient content to satisfy the training requirements for administrative law judges that is required by section 24-30-1003 (6), C.R.S.~~

SECTION 5. In Colorado Revised Statutes, 24-30-1003, **repeal** (6) as follows:

24-30-1003. Administrative law judges - appointment - qualifications - standards of conduct. (6) ~~On and after January 1, 2017,~~

~~before hearing a complaint that has been filed with the office of administrative courts in accordance with section 9 (2) of article XXVIII of the state constitution, an administrative law judge shall complete four credit hours of continuing legal education courses that have been certified by the Colorado supreme court. The four credit hours of legal education must be substantially related to election or campaign finance law. An administrative law judge who hears campaign finance complaints must obtain the four credit hours on an annual basis. An administrative law judge may satisfy the requirements of this subsection (6) by completing the campaign finance training course that is offered on the secretary of state's website pursuant to section 1-45-111.5 (5), C.R.S.~~

SECTION 6. Effective date - applicability. (1) This act takes effect July 1, 2019, and applies to complaints filed with the secretary of state on or after said date.

(2) Section 1-45-103.7 (7)(a), Colorado Revised Statutes, as amended in section 1 of House Bill 19-1007, does not take effect if this act, Senate Bill 19-232, becomes law.

SECTION 7. Safety clause. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Leroy M. Garcia
PRESIDENT OF
THE SENATE

KC Becker
SPEAKER OF THE HOUSE
OF REPRESENTATIVES

Cindi L. Markwell
SECRETARY OF
THE SENATE

Marilyn Eddins
CHIEF CLERK OF THE HOUSE
OF REPRESENTATIVES

APPROVED May 29, 2019 at 11:29 p.m.
(Date and Time)

Jared S. Polis
GOVERNOR OF THE STATE OF COLORADO

ORDINANCE NO. 2021-10xx

INTRODUCED BY:

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, AMENDING ARTICLE I OF CHAPTER 2 OF THE FORT LUPTON MUNICIPAL CODE REGARDING MUNICIPAL CAMPAIGN FINANCE COMPLAINTS

WHEREAS, the City of Fort Lupton, Colorado ("City") is authorized under Title 31 of the Colorado Revised Statutes to adopt and amend ordinances in furtherance of governmental administration and the City's police powers; and

WHEREAS, on May 29, 2019 Senate Bill 19-232 was signed which amends C.R.S. §1-45-117(9)(b) and provides that any complaint arising out of a municipal campaign finance matter must be exclusively filed with the clerk of the applicable municipality, and;

WHEREAS, prior to SB 19-232, a municipal campaign finance complaints alleging violations of the Colorado Fair Campaign Practices Act (C.R.S. §1-45-101, et. Seq. (FCPA) were filed with and resolved by the Colorado Secretary of State, and;

WHEREAS, in accordance with SB 19-232, to comply with the requirements established by SB 19-232, the City Council hereby establishes the review and hearing process.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, THAT:

Section 1. The foregoing recitals are hereby affirmed and incorporated herein by this reference as finding of the City Council.

Section 2. The Fort Lupton Municipal Code is amended by the addition of following new sections:

Sec. 2-8. Campaign finance complaints.

In addition to the campaign finance duties outlined in C.R.S. § 1-45-112 for a municipal clerk, the City Clerk shall have the responsibilities set forth in this Article related to campaign finance complaints.

Sec. 2-9. Complaint process.

Any person who believes that a violation of Article XXVIII of the Colorado Constitution, the Fair Campaign Practices Act, C.R.S. § 1-45-101, *et seq*., or the Secretary of State's rules concerning campaign and political finance has occurred in municipal campaign finance matters may file a complaint with the City Clerk.

(a) A "municipal campaign finance matter" has the meaning defined in C.R.S. § 1-45-111.7(9)(b) and 8 C.C.R. 1505-6, both as amended. The process for review and handling of complaints related to a municipal campaign finance matter shall be as set forth in this Article in a manner consistent with the Fair Campaign Practices Act, C.R.S. § 1-45-101, *et seq*., specifically C.R.S. § 1-45-111.7, as amended, and the rules promulgated by the Colorado Secretary of State at 8 C.C.R. 1505-6, specifically Rule 23, as amended.

(b) A complaint must be filed no later than one hundred eighty (180) days after the date on which the complainant either knew or should have known, by the exercise of reasonable diligence, of the alleged violation and must meet the minimum requirements set forth in 8 C.C.R. 1505-6, Rule 23.1, as amended. A complaint must be filed in writing and signed by the complainant on the form provided by the City. The complaint must identify one or more respondents and include the information required to be provided on the form.

(c) Upon receipt of a complaint, the City Clerk shall notify the respondent of the complaint by e-mail or by regular mail if e-mail is unavailable.

(d) Documents related to a complaint will be publicly available as set forth in 8 C.C.R. 1505-6, Rule 23.2, as amended.

Sec. 2-10. - Initial determination.

The City Clerk shall conduct an initial review of a complaint to determine whether the complaint was timely filed, specifically identifies one or more violations of Article XXVIII of the Colorado Constitution, the Fair Campaign Practices Act, C.R.S. § 1-45-101, et seq., or the Secretary of State's rules concerning campaign and political finance; and alleges sufficient facts to support a factual and legal basis for the violations of law alleged in the complaint.

Within ten (10) business days of receiving a complaint, the City Clerk shall take one or more of the following actions:

(a) If the City Clerk determines that the complaint was not timely filed, has not specifically identified one or more violations of Article XXVIII of the Colorado Constitution, the Fair Campaign Practices Act, C.R.S. 1-45-101, et seq., or the Secretary of State's rules concerning campaign and political finance, or does not assert facts sufficient to support a factual or legal basis for an alleged violation, the City Clerk shall notify the complainant and respondent of such determination by e-mail or by regular mail if e-mail is unavailable. The City Clerk's determination hereunder is a final action subject only to judicial review pursuant to C.R.C.P. 106(a)(4).

(b) If the City Clerk determines that the complaint alleges one or more curable violations, the City Clerk shall notify the respondent and provide the respondent an opportunity to cure the violations. The process for curing shall be as set forth below.

(c) If the City Clerk determines that the complaint has specifically identified one or more violations of Article XXVIII of the Colorado Constitution, the Fair Campaign Practices Act, C.R.S. § 1-45-101, et seq., or the Secretary of State's rules concerning campaign and political

finance, and has alleged facts sufficient to support a factual or legal basis for each alleged violation, and that either a factual finding or a legal interpretation is required, the City Clerk shall forward the complaint to a hearing officer appointed by the City Council.

Sec. 2-11. Process for curing.

Upon the City Clerk's determination that a complaint alleges a failure to file or otherwise disclose required information, or alleges another curable violation, the City Clerk shall notify the respondent by e-mail or by regular mail if e-mail is unavailable of the curable deficiencies alleged in the complaint. The process for curing shall be as set forth in C.R.S. § 1-45-111.7(4), as amended.

Sec. 2-12. Hearing procedure.

The hearing officer shall schedule a hearing on a complaint referred by the City Clerk within thirty (30) days of the filing of the complaint. The hearing may be continued upon the motion of any party for up to thirty (30) days or a longer extension of time upon a showing of good cause. The hearing shall be in compliance with C.R.S. § 1-45-111.7(6), as amended. Testimony shall be given under oath, and the hearing officer shall have the power to issue subpoenas and compel the attendance of witnesses. The hearing shall be summary and not subject to delay and shall be concluded within sixty (60) days after the petition is filed. No later than five (5) days after the conclusion of the hearing, the hearing officer shall issue a written determination. The hearing officer's written determination is a final action subject only to judicial review pursuant to C.R.C.P. 106(a)(4).

Sec. 2-13. Penalties.

The City Clerk or a hearing officer, as appropriate, may impose a penalties and sanctions as set forth in C.R.S. § 1-45-111.5, and 8 C.C.R. 1505-6, Rule 23.3.3, both as amended. Recovery of a party's reasonable attorney fees and costs shall be as set forth therein.

Section 3. Codification Amendments. The codifier of Fort Lupton's Municipal Code is hereby authorized to make such numerical, technical, and formatting changes as may be necessary to incorporate the provisions of this ordinance within the Fort Lupton Code.

Section 4. If any article, section, paragraph, sentence, clause or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The city council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 5. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

Section 6. The repeal or modification of any provision of the Municipal Code of the City of Fort Lupton by this ordinance shall not release, extinguish, alter, modify or change in whole or in part any penalty, forfeiture or liability, either civil or criminal, which shall have been incurred

under such provision. Each provision shall be treated and held as still remaining in force for the purpose of sustaining any and all proper actions, suits, proceedings and prosecutions for enforcement of the penalty, forfeiture or liability, as well as for the purpose of sustaining any judgment, decree or order which can or may be rendered, entered or made in such actions, suits, proceedings or prosecutions.

Section 7. This ordinance is deemed necessary for the preservation of the public property, health, welfare, peace and safety.

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this _th day of __, 2021.

PUBLISHED in the Fort Lupton Press the _th day of __ 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this __ day of __ 2021.

PUBLISHED BY TITLE ONLY the _day of __ 2021.

EFFECTIVE (after publication) the _day of __ 2021.

CITY OF FORT LUPTON, COLORADO

_____

Zo Stieber, Mayor

ATTEST:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-098

ADOPTING AN ORDINANCE AMENDING SECTION 2-63, CODE ENFORCEMENT OFFICERS, OF THE FORT LUPTON MUNICIPAL CODE TO CHANGE THE MANANGEMENT OF CODE ENFORCEMENT OFFICERS TO THE PUBLIC SAFETY DEPARTMENT

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. Ordinance 2021-xxxx.

III. **Summary Statement:**

The Code Enforcement functions and employee position of the Code Enforcement Officer are no longer a part of the Planning and Development Department. The change is to amend Section 2-63 of the Fort Lupton Municipal Code to the Public Safety Department.

IV. **Submitted by:** Mari Peña, City Clerk

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

The Code Enforcement functions and employee position of the Code Enforcement Officer are no longer a part of the Planning and Development Department. The change is to amend Section 2-63 of the Fort Lupton Municipal Code to the Public Safety Department.

X. Legal/Political Considerations:

XI. Alternatives/Options:

XII. Financial Considerations:

The budget and expenditures are in the police department in 2021.

XIII. Staff Recommendation:

Adopt to Ordinance to move the management of Code Enforcement Officer's to the Public Safety Department.

ORDINANCE NO. 2021-1XXX

INTRODUCED BY:

AN ORDINANCE CHANGING CODE ENFORCEMENT OFFICER MANAGEMENT BY AMENDING SECTION 2-63 OF THE FORT LUPTON MUNICIPAL CODE

WHEREAS, The Code Enforcement functions and the employee position of Code Enforcement are no longer a part of the Planning and Development Department, and;

WHEREAS, the functions and position have been moved to the Public Safety Department and the Ordinance needs amended.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, THAT:

Section 1. That section 2-63 of the Fort Lupton Municipal Code be amended so that such section shall read as follows:

Sec. 2-63 Code Enforcement Officers.

(a) The Code enforcement function and the employee position of Code Enforcement Officer shall be part of the Public Safety Department, and Code Enforcement Officers shall be organized under and managed by that department. Community Service Officers shall be organized under and managed by the Police Department. Community Service Officers and Code Enforcement Officers shall be appointed by the City Administrator, and be authorized by the Mayor, to serve as duly appointed law enforcement officers of the City, and, as such, authorized to enforce all Code violations (except Chapters 8 and 10 of this Code), and parking violations throughout this Code and the Model Traffic Code. These officers shall not have arrest powers. These officers shall have the authority to issue summonses and complaints to be filed in the Municipal Court pursuant to Rule 206 of the Municipal Court Rules of Procedure and Section 13-10-111, C.R.S.
(b) These personnel are law enforcement officers for all purposes under this Code, including the protections and application of Sections 10-72 through 10-74 and 10-77 of this Code.

Section 2. Codification Amendments. The codifier of Fort Lupton's Municipal Code is hereby authorized to make such numerical, technical, and formatting changes as may be necessary to incorporate the provisions of this ordinance within the Fort Lupton Code.

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this 6th day of July 2021.

PUBLISHED in the Fort Lupton Press the 14th day of July 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this __ day of __ 2021.

PUBLISHED BY TITLE ONLY the _day of __ 2021.

EFFECTIVE (after publication) the _day of __ 2021.

CITY OF FORT LUPTON, COLORADO

_____
Zo Stieber, Mayor

ATTEST:

_____
Maricela Peña, City Clerk

Approved as to form:

_____
Andy Ausmus, City Attorney

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-099

APPROVE A RESOLUTION ACCEPTING AMENDMENTS TO THE BYLAWS OF THE FORT LUPTON URBAN RENEWAL AUTHORITY

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**
a. Proposed Resolution (with Amended Bylaws as Exhibit A)
b. Redlines of Proposed Amendments to Bylaws.

III. **Summary Statement:**

The City Council has received the Fort Lupton Urban Renewal Authority's proposed amendments to their Bylaws. According to the Fort Lupton Urban Renewal Authority Structure, Responsibilities and Operational Guidelines currently adopted by City Council, and the Bylaws of the Authority, any amendments to the Bylaws must be approved by City Council prior to going into effect. The attached amendments to the Bylaws are for the City Council's consideration.

IV. **Submitted by:** _____ Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** _____ Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

The City Council has received the Fort Lupton Urban Renewal Authority's ("Authority" or "Board") proposed amendments to their Bylaws. According to the Fort Lupton Urban Renewal Authority Structure, Responsibilities and Operational Guidelines currently adopted by City Council, and the Bylaws of the Authority, any amendments to the Bylaws must be approved by City Council prior to going into effect. The attached amendments to the Bylaws are for the City Council's consideration.

The proposed revisions are attached as redlines to this Action Memorandum and include cleanup of typos, and updates to better align the Bylaws to the procedures that are currently being conducted by staff and/or the Authority. A clean version of the updates is also attached.

Other updates include Article VIII. Meetings, Section 3. Meeting Types. Paragraph C amends the required City Council update meeting to be held annually rather than quarterly. Paragraph D amends the annual meeting with Special Districts to be on an as needed basis instead.

Article IV. Membership, Section 3. Executive Director has been amended to be titled Personnel. It elaborates on qualifications for the Executive Director position, as well as allows for the addition of staff if authorized by the Authority. It further allows for the delegation of the Executive Director duties to authorized designees with approval of the Authority.

X. Legal/Political Considerations:

Approval will allow the amendments to the Bylaws to go into effect.

XI. Alternatives/Options:

1. *Approve the proposed amendments to Bylaws of the Fort Lupton Urban Renewal Authority; or*
2. *Do not approve the proposed amendments to Bylaws of the Fort Lupton Urban Renewal Authority.*

XII. Financial Considerations:

Not applicable.

XIII. Staff Recommendation:

Staff recommends a motion amending the Bylaws of the Fort Lupton Urban Renewal Authority.

RESOLUTION 2021Rxxx

A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING AN AMENDMENT OF THE BYLAWS OF THE FORT LUPTON URBAN RENEWAL AUTHORITY

WHEREAS, the Bylaws of the Fort Lupton Urban Renewal Authority ("Bylaws") must be approved by City Council prior to going into effect, pursuant to the Second Amended Structure, Responsibilities and Operational Guidelines ("Guidelines") currently in effect and accepted by City Council; and

WHEREAS, on June 17, 2021, the Authority approved the proposed amendments to the Bylaws; and

WHEREAS, the City Council has reviewed the amended Bylaws (attached as Exhibit A) and finds them to meet the intent of the City and the approved Guidelines; and

NOW THEREFORE BE IT RESOLVED that the Fort Lupton City Council hereby approves the amendments to the Bylaws of the Fort Lupton Urban Renewal Authority attached as Exhibit A to this Resolution.

APPROVED AND ADOPTED BY THE FORT LUPTON CITY COUNCIL THIS 6th DAY OF JULY 2021.

City of Fort Lupton, Colorado

_____

Zo Stieber, Mayor

Attest:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

EXHIBIT A

FLURA
FORT LUPTON URBAN RENEWAL AUTHORITY

AMENDED BYLAWS OF THE FORT LUPTON URBAN RENEWAL AUTHORITY OF THE CITY OF FORT LUPTON, COLORADO (EFFECTIVE JULY 6, 2021)

ARTICLE I. INTRODUCTION

Section 1. The name of this urban renewal authority shall be the "Fort Lupton Urban Renewal Authority," as established by Resolution 2014R043 of the Fort Lupton City Council on August 18, 2014, and hereinafter referred to as the "Authority."

Section 2. The within Bylaws have been adopted by the Authority, and all previously adopted bylaws are hereby repealed.

Section 3. The purpose of these Bylaws is to establish rules and procedures necessary to carry out the purpose and duties of this Authority, as set forth in the Colorado Revised Statue Title 31, Article 25, Part 1, and hereinafter referred to as the "Colorado Urban Renewal Law."

ARTICLE II. MISSION STATEMENT

Section 1. **Mission.** The mission of the Authority is to promote redevelopment and reinvestment within the City of Fort Lupton and to create a thriving community that is economically diverse.

ARTICLE III. POWERS AND DUTIES

Section 1. **Powers and Duties.** The Authority shall have all the general powers granted to it by the Fort Lupton City Council and by the Colorado Urban Renewal Law, and shall perform all duties required by law.

Section 2. **Acquisition of Property.** The Authority may acquire any interest in property by any manner available, except that the Authority may not acquire property by means of eminent domain. The Authority may acquire property, or any interest therein, by agreement for the following reasons: to eliminate or prevent conditions of blight; to carry out one or more objectives of any plan formally adopted by the Authority; to assemble property for redevelopment by private enterprise; for needed public improvements; for any other lawful purpose authorized by any plan formally adopted by the Authority. The Authority may authorize all expenditure of funds in excess of $5,000.00.

ARTICLE IV.
MEMBERSHIP

Section 1. Membership. Membership on the Authority will be in accordance with the Authority's Third Amended Structure, Responsibilities and Operational Guidelines ("Guidelines"), which were adopted by the Fort Lupton City Council on March 5, 2018 by Resolution No. 2018R021. The Colorado Urban Renewal Law shall govern where there are conflicts between the Guidelines and Colorado Revised Statutes.

A. The Authority shall be comprised of nine regular members and one alternate, and those members shall include:

1. One member shall be appointed by agreement of the board of county commissioners.
2. One member shall be a board member of a special district whose property taxes are subject to allocation under the urban renewal plan.
3. One member shall be an elected member of the school board.
4. One member shall be an elected official that is currently serving on the Fort Lupton City Council at the time of appointment to the Board.
5. One member shall be a board member of the Fort Lupton Fire Protection District.
6. Two members shall serve as business representatives and must own and operate a business within the City and reside within the City at the time of their appointment and at all times while serving on the Authority.
7. Two members shall represent the citizens of Fort Lupton and must reside within the City at the time of their appointment and at all times while serving on the Authority.
8. One alternate, who is eligible to fill the alternate position if they either (1) operate a business within the City and reside within the City at the time of their appointment and at all times while serving on the Authority, or (2) reside within the City at the time of their appointment and at all times while serving on the Authority.

B. The Mayor, with the consent of City Council, shall appoint the members of the Authority. A resolution of the appointment or reappointment of any member shall be conclusive evidence of the due and proper appointment of such Authority member.

C. The Authority members who are first appointed shall be designated by the Mayor to serve for staggered terms so that the term of at least one member will expire each year. Thereafter, the term of office for Authority members is five years.

D. An Authority member shall hold office until his successor has been appointed and has qualified.

E. Vacancies other than by reason of expiration of terms shall be filled by the Mayor, with consent of City Council, for the unexpired term.

F. Members of the Authority shall receive no compensation for their services, except that they may be entitled to necessary expenses, including traveling expenses, incurred in the discharge of their duties.

Section 2. Resignation. The resignation of a member of the Authority shall be made in writing to either the Executive Director or Chair of the Authority, and the resignation shall be forwarded to the City Clerk. The resignation of a member of the Authority shall be effective immediately upon receipt, unless an alternate date is stated in the written resignation.

Section 3. Personnel. The Authority shall be staffed by a non-voting Executive Director who shall be the City Administrator, unless the City Administrator recommends and the Authority concurs with another person serving as the Executive Director.

With the Authority's authorization, the Executive Director may create positions and appoint personnel as determined to be necessary to perform the duties and obligations of the Authority. All positions and appointments shall be approved by the Authority before going into effect. Positions and appointments shall continue at the pleasure of the Authority or until resignation. Compensation may be established by the Authority, if applicable. The Authority may contract with the City of Fort Lupton for services of City personnel.

The Executive Director, or designees, provides the following support and assistance to the Authority, including, but not limited to the following duties:

A. Ensure that the agenda is prepared and distributed on schedule.

B. Post notice of meetings in the official posting places, and in any additional places designated by the Authority.

C. Ensure that minutes are taken, posted and submitted to designated staff for the Authority's permanent archives.

D. Assist the Chair during the meeting, if necessary.

E. Ensure that actions and activities of the Authority are consistent with policies and procedures of the City of Fort Lupton.

F. Offer insights about City organization, policies, and efforts.

G. Notify the Authority of events, meetings, or circumstances when designated staff are asked to speak on behalf of the Authority.

H. Maintain the Authority's presence on its designated website.

I. Act as point person for contact with the City of Fort Lupton, City of Fort Lupton liaisons, departments or boards, unless otherwise delegated.

J. Facilitate communication among members in compliance with City of Fort Lupton and Colorado open meetings laws.

Section 4. Attendance and Dismissal Requirements.

A. Any member who has not provided notice of their absences from two consecutive regular meetings or three regular meetings in a six-month period shall receive a written notification from the Chair of the Authority advising the member of his/her absences. If a continued pattern of absences occurs, the Chair shall notify the Mayor.

B. The Mayor, with the consent of the City Council, may remove an Authority member for inefficiency, neglect of duty or misconduct in office, but only after the member has been given a copy of the charges made by the Mayor against them and has had an opportunity to be heard in person or by Counsel before the governing body. In the event of the removal of any member, the Mayor shall file in the office of the City Clerk a record of the proceedings, together with the charges made against the member and findings thereon.

ARTICLE V.
OFFICERS

Section 1. Officer Terms and Duties. The officers of the Authority shall be a Chair, Vice-Chair, Secretary, and a Treasurer.

A. The Chair shall preside over all regular and special meetings of the Authority, and shall, subject to these Bylaws and rules of procedure, decide all points of procedure, unless otherwise directed by a majority of the members present at a particular meeting. The Chair shall sign all documents of the Authority, and shall serve as the primary contact between the Authority and the Executive Director.

B. The Vice-Chair shall assume the duties and responsibilities of the Chair in the event the Chair is absent or unable to perform his/her duties.

C. When both the Chair and Vice-Chair are absent, the members present shall select a member to preside over the meeting by a majority vote.

D. The Secretary shall keep the minutes of all meetings of the Authority in an appropriate minute book, give or serve all notices required by law, be a custodian of the Authority's records, sign official documents of the Authority that require the signature of the Secretary, and perform such other duties of the Secretary as required by law. Performance of duties of the Secretary may be delegated to City staff by a majority vote of the members of the Authority.

E. The Treasurer shall have the care and custody of all funds of the Authority. The Treasurer shall keep records of accounts and other financial matters of the Authority and shall provide to the Authority not less than quarterly, or as often as requested by the Authority, a report of all expenditures. The Treasurer shall prepare and submit to the Authority members an annual budget for the operation of the Authority and shall cause the financial records, documents and accounts of the Authority to be audited annually. If required by the members of the Authority, or required by law, the Treasurer shall be bonded. Performance of duties of the Treasurer may be delegated to City staff by a majority vote of the members of the Authority.

Section 2. Elections. Officers shall be elected by a majority vote of the Authority, at the first meeting of the calendar year. Nominations for an officer position do not require a second. Nominees may have an opportunity to speak to their nomination before the vote is taken. A voice vote may be taken to elect all officers. Officers shall be elected by a majority of the members present.

Section 3. Vacancies of Officers. A vacancy in an officer position shall be filled by election at the next regular or special meeting of the Authority from among the Authority members. Until such election, the Vice-Chair shall serve as acting Chair, if the Chair position is vacant. All officers elected to fill a vacant officer position shall serve until the next officer election.

ARTICLE VI.
LEGAL COUNSEL OF THE AUTHORITY

Section 1. Legal Counsel. The Authority may call upon the municipal counsel or chief legal officer of the municipality for such legal services as it may require, or it may employ its own counsel and legal staff.

ARTICLE VII.
MEETINGS

Section 1. Schedule. Meetings shall occur on the regularly scheduled meeting dates established by the Authority. Regular meetings may be postponed, rescheduled, or cancelled by the Authority, if necessary, or if there is no business to conduct. If inclement weather requires that a meeting be postponed or rescheduled, the Chair shall have the authority to reschedule or postpone the meeting, and shall promptly notify all Authority members accordingly. A record of the cancellation, postponement or rescheduling must be written into the minutes of the next meeting.

Section 2. Notice of Meetings. Meeting agendas shall be posted in compliance with Colorado law. The meeting agenda shall be posted as notice of a meeting. The Authority may designate additional posting places for its agendas at its first meeting of each year. Notice of any

regular or special meeting shall be posted in the designated posting places no less than 24 hours prior to the holding of such meeting, unless an emergency requires posting within 24 hours of the meeting time. Any executive session must comply with applicable law.

Section 3. Meeting Types

A. **Public Meetings.** All meetings of the Authority shall be open to the public, pursuant to the Fort Lupton Municipal Code and Colorado law. All meetings of three or more members of the Authority, at which any Authority business is discussed or at which any formal action may be taken, shall constitute a meeting for purposes of this section.

B. **Special Meetings.** Special meetings may be called by the Chair, plus one regular Authority member. When a special meeting is scheduled, all Authority members must be notified at least 24 hours prior to the time set for such meeting by phone and written notice (via e-mail or hand delivery), including a listing of all items to be considered (agenda) at the special meeting, unless an emergency requires posting within less than 24 hours prior to such meeting. Formal action taken at a special meeting called in accordance herewith shall be considered as though it were taken in a regular meeting for those, and only those, matters referred to in the agenda contained in the notice of the meeting.

C. **City Council Quarterly Meeting**. The Authority shall meet with the Fort Lupton City Council on an annual basis in order to provide an update on Authority activities, with the ability to hold additional meetings as needed.

D. **Special District Meetings.** The Authority shall meet as needed with special districts that are included within any adopted urban renewal plan to provide an update on Authority activities or discuss other matters as determined necessary.

Section 4. Quorum; Voting Required.

A. A majority of the voting members of the Authority in office shall constitute a quorum. In the absence of a quorum, no business shall be conducted by the Authority, except rescheduling of the meeting, except as otherwise provided in subparagraph D. of this Section 4, below.

B. All members are required to vote unless recused or disqualified from voting. In determining whether a member shall be recused or disqualified from voting on a matter before the Authority, the Authority shall follow the procedures outlined in the City Council Code of Ethics and Conduct.

C. If it is determined that any Authority members are disqualified from voting, and such disqualification causes the Authority to lose its quorum (as defined by these Bylaws) on the matter before the Authority, the matter shall be continued until the next meeting at which a sufficient number of qualified Authority members are

present to constitute a quorum. In the event that the number of disqualifications are such that tabling the matter will not result in a quorum of qualified Authority members, the quorum necessary to conduct that item of business shall be adjusted to consist of at least fifty percent of those members not disqualified.

D. Remote participation by Authority members via telephone, internet, or other remote communication technology is permitted for an Authority that are not sitting in a quasi-judicial capacity, if such remote participation is technically feasible. Any member of the Authority who wishes to participate in a meeting by remote communication shall give as much advanced notice to the Executive Director as possible, prior to the meeting.

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Section 1. Special Committees. Special committees may be authorized and formed for special, limited purpose(s), and to work on specific issues or projects, as needed. A special committee shall serve only until completion of the special, limited purpose(s) for which it was formed. Recommendations of a special committee must be approved by the Authority before being considered officially adopted.

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Section 2. Conflict of Interest. The Authority shall adhere to all Colorado and City of Fort Lupton laws, rules and regulations that may pertain to the avoidance of conflicts of interest.

No member of the Authority, other officer, or employee of the Authority, nor any immediate member of the family of any such member, officer, or employee shall acquire any interest, direct or indirect, in any contract or proposed contract for materials or services to be furnished or used in connection with any specific redevelopment project. If any member, other officer, or employee of the Authority owns or controls an interest, direct or indirect, in any property included or planned to be included in any specific redevelopment project, they shall immediately disclose the same in writing to the Authority, and such disclosure shall be entered upon the minutes of the Authority. Upon such disclosure, such member, officer, or other employee shall not participate in any action by the Authority affecting the carrying out of the project planning or the undertaking of the specific redevelopment project unless the Authority determines that, in the light of such personal interest, the participation of such member in any such act would not be contrary to the public interest. Acquisition or retention of any such interest without such determination by the Authority that it is not contrary to the public interest, or willful failure to disclose any such interest, constitutes misconduct in office.

Section 3. Communications Among Members. Authority members shall adhere to all Colorado and City of Fort Lupton laws, rules and regulations governing government communications.

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D. The Executive Director shall not edit any of the messages that are forwarded.

E. There shall be no further electronic communication on the matter after the compiled replies have been forwarded to the entire Authority by the Executive Director. Any further communication among the Authority members regarding the matter shall not occur unless and until a promptly posted public meeting is held.

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Approved on: _____ Chair:_____

FLURA
FORT LUPTON URBAN RENEWAL AUTHORITY

AMENDED BYLAWS OF THE FORT LUPTON URBAN RENEWAL AUTHORITY OF THE CITY OF FORT LUPTON, COLORADO

(EFFECTIVE JULY 6, 2021)

ARTICLE I.
INTRODUCTION

Section 1. The name of this urban renewal authority shall be the "Fort Lupton Urban Renewal Authority," as established by Resolution 2014R043 of the Fort Lupton City Council on August 18, 2014, and hereinafter referred to as the "Authority."

Section 2. The within Bylaws have been adopted by the Authority, and all previously adopted bylaws are hereby repealed.

Section 3. The purpose of these Bylaws is to establish rules and procedures necessary to carry out the purpose and duties of this Authority, as set forth in the Colorado Revised Statue Title 31, Article 25, Part 1, and hereinafter referred to as the "Colorado Urban Renewal Law."

ARTICLE II.
MISSION STATEMENT

Section 1. **Mission.** The mission of the Authority is to promote redevelopment and reinvestment within the City of Fort Lupton and to create a thriving community that is economically diverse.

ARTICLE III.
POWERS AND DUTIES

Section 1. **Powers and Duties.** The Authority shall have all the general powers granted to it by the Fort Lupton City Council and by the Colorado Urban Renewal Law, and shall perform all duties required by law.

Section 2. **Acquisition of Property.** The Authority may acquire any interest in property by any manner available, except that the Authority may not acquire property by means of eminent domain. The Authority may acquire property, or any interest therein, by agreement for the following reasons: to eliminate or prevent conditions of blight; to carry out one or more objectives of any plan formally adopted by the Authority; to assemble property for redevelopment by private enterprise; for needed public improvements; for any other lawful purpose authorized by any plan formally adopted by the Authority. The Authority may authorize all expenditure of funds in excess of $5,000.00.

ARTICLE IV.
MEMBERSHIP

Section 1. Membership. Membership on the Authority will be in accordance with the Authority's Third Amended Structure, Responsibilities and Operational Guidelines ("Guidelines"), which were adopted by the Fort Lupton City Council on ~~December 7, 2015~~March 5, 2018 by Resolution No. ~~2015R052~~2018R021. The Colorado Urban Renewal Law shall govern where there are conflicts between the Guidelines and Colorado Revised Statutes.

A. The Authority shall be comprised of nine regular members and one alternate, and those members shall include:

1. One member shall be appointed by agreement of the board of county commissioners.
2. One member shall be a board member of a special district whose property taxes are subject to allocation under the urban renewal plan.
3. One member shall be an elected member of the school board.
4. One member shall be an elected official that is currently serving on the Fort Lupton City Council at the time of appointment to the Board.
5. One member shall be a board member of the Fort Lupton Fire Protection District.
6. Two members shall serve as business representatives and must own and operate a business within the City and reside within the City at the time of their appointment and at all times while serving on the Authority.
7. Two members shall represent the citizens of Fort Lupton and must reside within the City at the time of their appointment and at all times while serving on the Authority.
8. One alternate, who is eligible to fill the alternate position if they either (1) operate a business within the City and reside within the City at the time of their appointment and at all times while serving on the Authority, or (2) reside within the City at the time of their appointment and at all times while serving on the Authority.

B. The Mayor, with the consent of City Council, shall appoint the members of the Authority. A resolution of the appointment or reappointment of any member shall be conclusive evidence of the due and proper appointment of such Authority member.

C. The Authority members who are first appointed shall be designated by the Mayor to serve for staggered terms so that the term of at least one member will expire each year. Thereafter, the term of office for Authority members is five years.

D. An Authority member shall hold office until his successor has been appointed and has qualified.

E. Vacancies other than by reason of expiration of terms shall be filled by the Mayor, with consent of City Council, for the unexpired term.

F. Members of the Authority shall receive no compensation for their services, except that they may be entitled to necessary expenses, including traveling expenses, incurred in the discharge of their duties.

Section 2. Resignation. The resignation of a member of the Authority shall be made in writing to either the Executive Director or Chair of the Authority, and the resignation shall be forwarded to the City Clerk. The resignation of a member of the Authority shall be effective immediately upon receipt, unless an alternate date is stated in the written resignation. ~~and verification by the City Clerk's office.~~

Section 3. ~~Executive Director~~Personnel. The Authority shall be staffed by a non-voting Executive Director who shall be the City Administrator, unless the City Administrator recommends and the Authority concurs with another person serving as the Executive Director. ~~A non-voting~~

With the Authority's authorization, the Executive Director may create positions and appoint personnel as determined to be necessary to perform the duties and obligations of the Authority. All positions and appointments shall be approved by the Authority before going into effect. Positions and appointments shall continue at the pleasure of the Authority or until resignation. Compensation may be established by the Authority, if applicable. The Authority may contract with the City of Fort Lupton for services of City personnel.

The Executive Director, or designees, provides the following support and assistance to the Authority, including, but not limited to the following duties:

A. Ensure that the agenda is prepared and distributed on schedule.

B. Post notice of meetings in the official posting places, and in any additional places designated by the Authority.

C. Ensure that minutes are taken, posted and submitted to designated staff ~~to the City Clerk~~ for the ~~City's~~ Authority's permanent archives.

D. Assist the Chair during the meeting, if necessary.

E. Ensure that actions and activities of the Authority are consistent with policies and procedures of the City of Fort Lupton.

F. Offer insights about City organization, policies, and efforts.

G. Notify the Authority of events, meetings, or circumstances when designated staff are ~~the City Liaison(s) is~~ asked to speak on behalf of the Authority.

H. Maintain the Authority's presence on ~~the City~~its designated website.

I. Act as point person for contact with the City of Fort Lupton, ~~other~~ City of Fort Lupton liaisons, departments or boards, unless otherwise delegated.

~~I.~~

J. Facilitate communication among members in compliance with City of Fort Lupton and Colorado open meetings laws.

Section 4. Attendance and Dismissal Requirements.

A. Any member who has not provided notice of their absences from two consecutive regular meetings or three regular meetings in a six-month period shall receive a written notification from the Chair of the Authority advising the member of his/her absences. If a continued pattern of absences occurs, the Chair shall notify the Mayor.

B. The Mayor, with the consent of the City Council, may remove an Authority member for inefficiency, neglect of duty or misconduct in office, but only after the member has been given a copy of the charges made by the Mayor against them and has had an opportunity to be heard in person or by Counsel before the governing body. In the event of the removal of any member, the Mayor shall file in the office of the City Clerk a record of the proceedings, together with the charges made against the member and findings thereon.

ARTICLE V.
OFFICERS

Section 1. Officer Terms and Duties. The officers of the Authority shall be a Chair, Vice-Chair, Secretary, and a Treasurer.

A. The Chair shall preside over all regular and special meetings of the Authority, and shall, subject to these Bylaws and rules of procedure, decide all points of procedure, unless otherwise directed by a majority of the members present at a particular meeting. The Chair shall sign all documents of the Authority, and shall serve as the primary contact between the Authority and the Executive Director.

B. The Vice-Chair shall assume the duties and responsibilities of the Chair in the event the Chair is absent or unable to perform his/her duties.

C. When both the Chair and Vice-Chair are absent, the members present shall select a member to preside over the meeting by a majority vote.

D. The Secretary shall keep the minutes of all meetings of the Authority in an appropriate minute book, give or serve all notices required by law, be a custodian

of the Authority's records, sign official documents of the Authority that require the signature of the Secretary, and perform such other duties of the Secretary as required by law. Performance of duties of the Secretary may be delegated to City staff by a majority vote of the members of the Authority.

E. The Treasurer shall have the care and custody of all funds of the Authority. The Treasurer shall keep records of accounts and other financial matters of the Authority and shall provide to the Authority not less than quarterly, or as often as requested by the Authority, a report of all expenditures. The Treasurer shall prepare and submit to the Authority members an annual budget for the operation of the Authority and shall cause the financial records, documents and accounts of the Authority to be audited annually. If required by the members of the Authority, or required by law, the Treasurer shall be bonded. Performance of duties of the Treasurer may be delegated to City staff by a majority vote of the members of the Authority.

Section 2. Elections. Officers shall be elected by a majority vote of the Authority, at the first meeting of the calendar year. Nominations for an officer position do not require a second. Nominees may have an opportunity to speak to their nomination before the vote is taken. A voice vote may be taken to elect all officers. Officers shall be elected by a majority of the members present.

Section 3. Vacancies of Officers. A vacancy in an officer position shall be filled by election at the next regular or special meeting of the Authority from among the Authority members. Until such election, the Vice-Chair shall serve as acting Chair, if the Chair position is vacant. All officers elected to fill a vacant officer position shall serve until the next officer election.

ARTICLE VI.
LEGAL COUNSEL OF THE AUTHORITY

Section 1. Legal Counsel. The Authority may call upon the municipal counsel or chief legal officer of the municipality for such legal services as it may require, or it may employ its own counsel and legal staff.

ARTICLE VII.
MEETINGS

Section 1. Schedule. Meetings shall occur on the regularly scheduled meeting dates established by the Authority. Regular meetings may be postponed, rescheduled, or cancelled by the Authority, if necessary, or if there is no business to conduct. If inclement weather requires that a meeting be postponed or rescheduled, the Chair shall have the authority to reschedule or postpone the meeting, and shall promptly notify all Authority members accordingly. A record of the cancellation, postponement or rescheduling must be written into the minutes of the next meeting.

Section 2. Notice of Meetings. Meeting agendas shall be posted in compliance with ~~the Fort Lupton Municipal Code and~~ Colorado law. The meeting agenda shall be posted as notice of a meeting. The Authority may designate additional posting places ~~in~~ for its agendas at its first meeting of each year. Notice of any regular or special meeting shall be posted in the designated posting places no less than 24 hours prior to the holding of such meeting, unless an emergency requires posting within 24 hours of the meeting time. Any executive session must comply with applicable law.

Section 3. Meeting Types

A. **Public Meetings.** All meetings of the Authority shall be open to the public, pursuant to the Fort Lupton Municipal Code and Colorado law. All meetings of three or more members of the Authority, at which any Authority business is discussed or at which any formal action may be taken, shall constitute a meeting for purposes of this section.

B. **Special Meetings.** Special meetings may be called by the Chair, plus one regular Authority member. When a special meeting is scheduled, all Authority members must be notified at least 24 hours prior to the time set for such meeting by phone and written notice (via e-mail or hand delivery), including a listing of all items to be considered (agenda) at the special meeting, unless an emergency requires posting within less than 24 hours prior to such meeting. Formal action taken at a special meeting called in accordance herewith shall be considered as though it were taken in a regular meeting for those, and only those, matters referred to in the agenda contained in the notice of the meeting.

C. **City Council Quarterly Meeting**. The Authority shall meet with the Fort Lupton City Council on an ~~quarterly~~ annual basis in order to provide an update on Authority activities, with the ability to hold additional meetings as needed.

D. **Special District Meetings.** The Authority shall meet as needed ~~at least annually~~ with special districts that are included within any adopted urban renewal plan to provide an update on Authority activities or discuss other matters as determined necessary.

Section 4. Quorum; Voting Required.

A. A majority of the voting members of the Authority in office shall constitute a quorum. In the absence of a quorum, no business shall be conducted by the Authority, except rescheduling of the meeting, except as otherwise provided in subparagraph D. of this Section 4, below.

B. All members are required to vote unless recused or disqualified from voting. In determining whether a member shall be recused or disqualified from voting on a

matter before the Authority, the Authority shall follow the procedures outlined in the City Council Code of Ethics and Conduct.

C. If it is determined that any Authority members are disqualified from voting, and such disqualification causes the Authority to lose its quorum (as defined by these Bylaws) on the matter before the Authority, the matter shall be continued until the next meeting at which a sufficient number of qualified Authority members are present to constitute a quorum. In the event that the number of disqualifications are such that tabling the matter will not result in a quorum of qualified Authority members, the quorum necessary to conduct that item of business shall be adjusted to consist of at least fifty percent of those members not disqualified.

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ARTICLE X.
AMENDMENTS TO BYLAWS

Section 1. Amendments. These Bylaws shall be reviewed as needed and proposed amendments shall be approved by an affirmative vote of not less than a majority of the total current members of the Authority. Copies of the proposed amendment(s) shall be provided to each member of the Authority at least one (1) week prior to the date of any regular or special meeting at which the Bylaws amendment(s) are on the agenda for consideration. These Bylaws, and any subsequent amendments thereto, shall be submitted to City Council for approval by resolution prior to going into effect.

Approved on: _____ Chair:_____

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-100

Award Water Tank Inspection and Cleaning to Inland Potable Service of Centennial CO for not to exceed $14,750.00

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**
a. Inland Potable Services Quote for Services
b. Bid Evaluation Form

III. **Summary Statement:**

The Potable Water Storage Tanks are required to have an internal inspection every four years. This is a Colorado Department of Health and Environment mandate. The tanks were last inspected in 2017. The least disruptive manner of inspection is to have divers enter the tanks after sterilization of their equipment to inspect and clean the tanks. *Staff sent out a request for proposals to 5 firms that perform this type of diving. All five responded with proposals. Inland Potable Services was the lowest bid. Their bid was $11000.00 for the inspection and cleaning. If any additional repairs are needed or if sediment buildup is more than 3 inches, costs are $375.00 per hour. Staff had allowed for 10 hours of additional work with this AM. The cost or cleaning and inspection is $11,000.00 with $3,750.00 allowed for extra cleaning or minor repairs to the epoxy lining.*

IV. **Submitted by:** Jon Mays, Wastewater Supervisor

V. **Finance Reviewed** LeannPerino
Finance Director

VI. **Approved for Presentation:**
City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:**
City Clerk Date

IX. Detail of Issue/Request:

Staff sent out a Request for Proposal to five firms that perform diving operations in Potable water tanks. All five firms have certified divers to perform the inspection and cleaning. The divers are sterilized completely before entering the tank. All equipment that enters the tank is sterilized. Staff requested quotes from five firms. All five provided proposals. Inland Potable Services was the lowest bid. Inland has performed work for the City of Aurora, Thornton and Eagle in Colorado. The proposal provides for cleaning up to 3 inches of silt of from the tanks. If additional, silt or if minor repairs can be made at the time of the dive, Inland charges $375.00 per hour. Three of the proposals quoted pricing for additional work Costs varied from $375.00 per hour to $400.00 per hour. The other two firms stated that additional charges could be made but did not give a per hour cost. Inland was the lowest cost for additional work also.

X. Legal/Political Considerations:

Inland Potable Services is a Colorado business with the required Insurance for this project.

XI. Alternatives/Options:

The State of Colorado requires an internal inspection of potable water tanks every 4 years. The only alternative to diving the tank is to drain the tank and perform a dry inspection. The configuration of the Fort Lupton Water Tank system does not allow for easy draining of a tank. Costs for draining and dry inspection of the tanks would be 10 times more expensive.

XII. Financial Considerations:

The Utility Fund Budgeted $50,000 budgeted in repairs and maintenance in the water treatment plant for water tank diving and inspection.

XIII. Staff Recommendation:

Staff recommends accepting Inland Marines proposal for $11,000.00 and $375.00 per hour for any additional work required. A Jacobs representative will be on hand while the tanks are being inspected and cleaned to monitor the work.

Inland Potable Services, Inc.

16297 E. Crestline Lane
Centennial, Colorado 80015
Office Phone: 303-400-4220
Toll Free: 1-844-372-2956
Office Fax: 303-400-4215
Email: Sam@inlandpotableservices.com

OMI - Fort Lupton, CO
Wastewater Plant
Jon Ways
130 S. McKinley Ave
Fort Lupton, CO 80621

Date:
Phone:
Email:

Diving Services for Potable Water Tank Cleaning and Inspection

Tanks	Tank Description	Additional Information	Scope of Work Includes
1	Raw Water Tank 0.5 MG, Steel Welded, On-Grade, 65' Dia x 20' Tall	All Discharge water does not require de-chlorination. All Discharge water and sediment may be released onto the ground.	**Clean and inspect.** Up to three (3) inches of sediment removal from the tank floor. Visual inspection of the interior and exterior of the tank. Written report with photos. and a DVD of the dive.
1	Final Clear Well 0.75 MG, Concrete, Below Grade, 82' x 30'x 11.9 Deep		
1	Finished Water Tank 3 MG, Steel Welded, On-Grade, 130' Dia x 30' Tall		
1	Finished Water Tank 1 MG, Steel Welded, On-Grade, 65' Dia x 40' Tall		
1	Finished Water Tank 1 MG, Steel Welded, On-Grade, 65' Dia x 40' Tall		
1	Non-potable Water Tank 1 MG, Steel Welded, On-Grade, 65' Dia x 40' Tall		
Proposal Total: $11,000.00 Proposals signed and returned to Inland Potable Services are valid for one year from date of acceptance.			

Payment terms: 1% Ten Days, Net 30 Days. 1.5% interest will be charged on all accounts past 30 days.

This contract is based on a total price which includes time and mobilization to and from the project site, set-up and breakdown of equipment, and the preparation for the dive and diving services. Diving services will include sediment removal up to 3 inches from the floor, a video inspection and written report for your records (still photos included). During the initial dive, sediment depths will be measured by the diver and documented on video.

If removal of sediment of an abnormal consistency (clay, calcium, rocks, pebbles, mud, etc.), additional sediment removal (over 3 inches from the floor), wall cleaning or epoxy repairs is requested and approved by designated on-site representative, each of these services will be performed at a rate of $369.00 per hour.

Inland Potable Services, Inc. will provide all personnel and equipment necessary to provide diving services in the above referenced tank(s) or reservoir(s). We will provide your utility with a written report as well as a narrated color video for the services performed. The tank(s) or reservoir(s) will be inspected according to American Water Works Association (AWWA), NACE, SSPC, ASNT, ACI and AWS standards.

- **All divers employed by Inland Potable Services are certified Commercial Divers.**
- **Inland Potable Services is fully bondable and insured.**
- **All equipment entering the tanks will be disinfected with a minimum of 200 ppm Chlorine.**
- **Schedule dates are tentative and are subject to change.**
- **If Inland Potable Services dive team is required to stop working or is delayed working due to unforeseen circumstances or any reasons beyond our control (i.e. no utility personnel onsite, inability to access designated work site, low water level, etc.) a down-time charge of $369.00 per hour will be charged.**
- **A fee based on $369.00 per hour will be charged if we are unable to get our truck and trailer to a tank location. We will use portable dive gear and cleaning equipment to complete the job. Please understand that use of utility vehicles or equipment may be necessary to get our equipment to a tank.**
- **Inland Potable Services makes every attempt to obtain complete information from customers prior to the presentation of bids concerning fees required for municipal licenses, registration fees, Sales Tax or Use Taxes in your area. These items are identified on your contract. In the event that additional fees are discovered or charged, after the bid has been submitted, these charges will be added to the stated contract amount when billed.**

Sam Ireland, Regional Account Manager **Date:**

Important Information

Hatch Size - The entry hatch on top of the tank must be at least 20 inches in diameter or square with no obstructions that would prevent entry. A futile trip charge of $500.00 will be levied if the team is unable to enter the tank due to the hatch size being too small or objects are blocking the entry.

Water Level – Please understand, the water level within the tank must be within ten (10) feet or less of the hatch opening prior to the dive team's arrival. If the air gap is more than 10 feet, a fee of $369.00 per hour will be charged until the water reaches the appropriate level.

Tank Information – Please verify the type of tank, dimensions or information listed in the proposal is accurate. If the tank dimensions or information is not accurate as listed then additional costs may be added.

Fuel Surcharge - Effective January 1, 2021 a fuel surcharge of $25.00 per day will be added to this contract, if the price of diesel fuel exceeds $4.00 per gallon on the date of the contract completion.

Completion Date – With acceptance this work will be completed at a mutually acceptable date within one year. If money budgeted for this work must be used by a specific date, please indicate the date on this line and every attempt will be made to meet the given date: _____

Option – If a hatch gasket ($75), a #24 mesh vent screen ($75) and/or a lock for the hatch ($25) is needed, would you like the dive team to install while on-site? **Yes** ___ **No** ___

To accept, please sign and date the proposal. Please fax both pages to 303-400-4215 or scan and email them to me at Sam@inlandpotableservices.com.

_____ _____

Printed Name and Title Signature

Date: _____

Bidder Identification			Read-out Bid Price(s)		Modifications or Comments[1]
Name (a)	City/State or Province (b)	Country (c)	Currency(ies) (d)	Amount(s) (e)	(f)
Inland Potable Services	16297E. Crestline Dr. Centennial CO 80015			$11,000.00	Includes report
Midco Diving	P. O. Box 513 Rapid City, SD 57709			$10,898.00	Report Fee 249.00 $11,147.00
Liquid Engineering				$12,685.00	Includes Report
Rubicon Applied Divers				13,250.00	Includes Report
Marine Diving Solutions				$$22,750.00	Includes Report
etc.					

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-101

ADOPT AN ANNEXATION, KNOWN AS THE FORT LUPTON EAST ANNEXATION, TO ANNEX LAND LEGALLY DESCRIBED IN EXHIBIT A TO THE PROPOSED ORDINANCE

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Proposed Ordinance
b. Land Use Application
c. Project Description
d. Annexation Map
e. Change of Zone Referral Responses

III. **Summary Statement:**

The City of Fort Lupton is the owner of a property proposed for annexation. The proposed annexation will also include right of way as indicated on the annexation map, for a total of 166.96 acres, more or less. The proposed initial zoning is to the 'A' Agricultural Zone District, which is being presented to City Council for approval under a separate Action Memorandum and Ordinance.

IV. **Submitted by:** _____ Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** _____ Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

The City of Fort Lupton is the owner of a property proposed for annexation. The proposed annexation will also include right of way as indicated on the annexation map, for a total of 166.96 acres, more or less. The proposed initial zoning is to the 'A' Agricultural Zone District, which is being presented to City Council for approval under a separate Action Memorandum and Ordinance.

The purpose of this annexation is to bring City owned property under the jurisdiction of the City. The current use of the property is vacant / agricultural, and any future development will require an additional land use process.

X. Legal/Political Considerations:

This annexation meets the requirements set forth by Colorado Statutes in 31-12-106(3) which states that when a municipality is the sole owner of the area that desires to annex, which area is eligible for annexation in accordance with section 30 (1)(c) of article II of the state constitution and sections 31-12-104 (1)(a) and 31-12-105, the governing body may by ordinance annex said area to the municipality without notice and hearing as provided in sections 31-12-108 and 31-12-109.

There were no notification requirements associated with this process. The initial zoning was noticed.

XI. Alternatives/Options:

The City Council has the following options for this request:

a) Adopt The Ordinance.
b) Do not adopt The Ordinance.

XII. Financial Considerations:

This property is owned by the City of Fort Lupton; therefore, fees were not collected.

XIII. Staff Recommendation:

Staff recommends approval of the proposed Ordinance annexing land legally described in Exhibit A of the proposed Ordinance.

ORDINANCE NO. 2021-xxxx

INTRODUCED BY:

ADOPT ORDINANCE 2021-xxxx ANNEXING LAND LEGALLY DESCRIBED IN EXHIBIT "A" KNOWN AS THE FORT LUPTON EAST ANNEXATION.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO:

WHEREAS, the City of Fort Lupton is authorized under C.R.S. 31.12.106(c) to by ordinance annex municipally owned land without notice and hearing as provided in sections 31-12-108 and 31-12-109.

WHEREAS, the area proposed to be annexed is owned by the annexing municipality and is not solely a public street or right-of-way.

WHEREAS, the City Council finds that the area to be annexed is eligible for annexation pursuant to Section 31-12-104 C.R.S. as to contiguity; and, the area is not affected by any of the limitations that would prevent annexation set forth in Section 31-12-105 C.R.S.

WHEREAS, the City Council declares that the subject property is hereby annexed.

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this 6th day of July 2021.

PUBLISHED in the Fort Lupton Press the _th day of __ 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this _th of __ 2021.

PUBLISHED BY TITLE ONLY the _th day of __ 2021.

EFFECTIVE (after publication) the _th day of __ 2021.

CITY OF FORT LUPTON, COLORADO

_____
Zo Stieber, Mayor

ATTEST:

_____
Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

EXHIBIT A
PROPERTY DESCRIPTION

A PARCEL OF LAND BEING PORTIONS OF SECTION TWO (2) AND SECTION THREE (3) OF TOWNSHIP ONE NORTH (T.1N.), RANGE SIXTY-SIX WEST (R.66W.) AND A PORTION OF THE SOUTHEAST QUARTER OF SE1/4) OF SECTION THIRTY-FIVE (35) OF TOWNSHIP TWO NORTH (T.2N.), RANGE SIXTY-SIX WEST (R.66W.) OF THE SIXTH PRINCIPAL MERIDIAN (6TH P.M.), COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 2 AND ASSUMING THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 2, MONUMENTED ON THE WEST END BY A #6 REBAR WITH A 3.25 ALUMINUM CAP L.S. 27269 AND ON THE EAST END BY A #6 REBAR WITH A 2.5" ILLEGIBLE ALUMINUM CAP, AS BEARING NORTH 89°03'33" EAST BEING A GRID BEARING OF THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM 1983, A DISTANCE OF 2643.85 FEET WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO;

THE LINEAL DIMENSIONS AS CONTAINED HEREIN ARE BASED UPON THE U.S. SURVEY FOOT.

THENCE SOUTH 00°28'49" EAST ALONG THE EAST LINE OF THE NE1/4 OF SAID SECTION 2 A DISTANCE OF 2572.75 FEET TO THE EAST QUARTER CORNER OF SAID SECTION 2;
THENCE SOUTH 00°24'23" EAST ALONG THE EAST LINE OF THE SE1/4 OF SAID SECTION 2 A DISTANCE OF 50.00 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF HIGHWAY 52;

THENCE ALONG THE SOUTH-RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING THREE (3) COURSES AND DISTANCES:
THENCE SOUTH 89°29'11" WEST A DISTANCE OF 2643.06 FEET;
THENCE SOUTH 89°29'28" WEST A DISTANCE OF 2624.45 FEET;
THENCE SOUTH 89°19'51" WEST A DISTANCE OF 237.05 FEET TO THE EAST LINE OF PATTERSON ANNEXATION TO THE CITY OF FORT LUPTON RECORDED ON OCTOBER 10, 2017 AT RECEPTION NUMBER 4343163 WITHIN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;
THENCE NORTH 00°56'53" WEST ALONG THE EAST LINE OF SAID PATTERSON ANNEXATION A DISTANCE OF 100.00 FEET TO THE NORTH RIGHT-OF-WAY OF HIGHWAY 52;

THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING TWO (2) COURSES AND DISTANCES;
THENCE NORTH 89°19'51" EAST A DISTANCE OF 237.67 FEET;
THENCE NORTH 89°29'28" EAST A DISTANCE OF 2624.60 FEET TO THE WEST LINE OF THE NE1/4 A DISTANCE OF 2503.04 FEET TO THE NORTH QUARTER CORNER OF SAID SECTION 2;
THENCE NORTH 00°29'38" WEST ALONG THE NORTHERLY PROLONGATION OF SAID WEST LINE A DISTANCE OF 30.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF COUNTY ROAD 14;

THENCE NORTH 89’03’33” EAST ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 14 A DISTANCE OF 2643.85 FEET TO IT’S INTERSECTION WITH THE NORTHERLY PROLONGATION OF THE EAST LINE OF THE NE1/4 OF SAID SECTION 2;
THENCE SOUTH 00’28’49” EAST ALONG SAID NORTHERLY PROLONGATION A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING

SAID PARCEL OF LAND CONTAINS 166.96 ACRES OR 7,272,560 SQ. FT., MORE OR LESS (+/-), AND IS SUBJECT TO ANY RIGHTS-OF-WAY OR OTHER EASEMENTS OF RECORD AS NOW EXISTING ON SAID DESCRIBED PARCEL OF LAND.

Form PLAN002

CITY OF Fort Lupton EST 1836

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Project No. _____

Land Use Application Form

A. CONTACT INFORMATION

1) Property Owner Name: City of Fort Lupton

Company: _____

Phone: (303) 857-6694 Email: ccross@fortluptonco.gov

Address: 130 S. McKinley Avenue

Preferred method of contact? Email: Phone: Mail:

2) Representative Name: Chris Cross, City Administrator

Company: City of Fort Lupton

Phone: (303) 857-6694 Email: ccross@fortluptonco.gov

Address: 130 S. McKinley Avenue

Preferred method of contact? Email: Phone: Mail:

3) Billing Contact *(where invoices should be directed to)*: N/A

Billing Company: _____

Phone: _____ Email: _____

Address: _____

B. SITE DESCRIPTION

Site Address: _____

Parcel Number: 147102000064

Existing Zone Classification: Ag (Weld County) Proposed Zone Classification: Ag (City of Fort Lupton)

Water Type: _____ Name: _____

Sewage Type: _____ District Name or Location Hauled to: _____

C. APPLICATION TYPE (CHECK ALL THAT APPLY)

Sketch Plat	Administrative Site Plan	PUD Plan (Preliminary & Final)
Preliminary Plat	Special Use Permit	Variance
Final Plat	Oil & Gas Permit	Administrative Variance
Minor Subdivision	(Annexation & Initial Zone)	Appeal
Amended Plat	Change of Zone	Other: _____
Site Plan	Comp Plan Amendment	

Project No. _____

D. PROJECT DESCRIPTION

Project Name: Fort Lupton East Annexation and Initial Zoning

Please provide a short description of the proposed project in the space provided below:

This property will be annexed to the City of Fort Lupton with inital zoning to the 'A' Agricultural Zone District. There is no proposed development with this application.

E. REQUIRED DOCUMENTS

For an application to be considered complete, and for planning staff to begin review and schedule any applicable public hearings, this Land Use Application Form must be fully completed and all required attachments included. Planning staff will review the application for completeness and will provide notice to the representative and/or owner whether the application has been deemed complete.

F. CERTIFICATIONS

Representative Certification

By signing this application, I attest that I am acting with the knowledge and consent of all owners of the property that is the subject of this application, and that I have been designated to act as the representative for the project described in this land use application. I further certify that all information submitted with this application is true and accurate to the best of my knowledge.

Representative: _____ Date: 5/27/21

Owner Certification

I hereby certify that I am the legal owner of record of the property that is the subject of this application. I authorize the representative listed on this application, if any, to communicate directly with City officials and to submit documentation and information regarding this application on my behalf.

Owner: _____ Date: 5/27/21

For Office Use Only

Received Date: _____

If the application is not complete, state reasons why it is incomplete:

Deemed Complete Date: _____

Fees Submitted: _____ Escrow Submitted: _____

Project Description

The City of Fort Lupton is the owner of a property located at the northwest corner of the intersection of Highway 52 and County Road 35. The City intends to annex this property as well as right of way as indicated on the annexation map.

The City is requesting initial zoning to the ‘A’ Agricultural Zone District. The property is currently zoned Agriculture in Weld County. The is no proposed development for the property with this application.

FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016

PROPERTY DESCRIPTION

A parcel of land being portions of Section Two (2) and Section Three (3) of Township One North (T.1N.), Range Sixty-six West (R.66W.) and a portion of the Southeast Quarter (SE1/4) of Section Thirty-five (35) of Township Two North (T.2N.), Range Sixty-six West (R.66W.) of the Sixth Principal Meridian (6th P.M.), County of Weld, State of Colorado, being more particularly described as follows:

BEGINNING at the Northeast corner of said Section 2 and assuming the North line of the Northeast Quarter of said Section 2, monumented on the West end by a #6 rebar with a 3.25" aluminum cap L.S. 27269 and on the East end by a #6 rebar with a 2.5" illegible aluminum cap, as bearing North 89°03'33" East being a grid bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein being relative thereto;

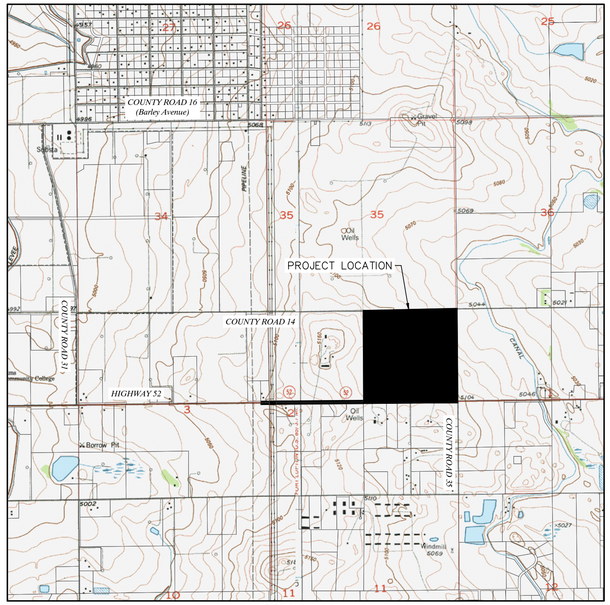
The lineal dimensions as contained herein are based upon the U.S. Survey Foot.

THENCE South 00°28'49" East along the East line of the NE1/4 of said Section 2 a distance of 2572.75 feet to the East Quarter corner of said Section 2;
THENCE South 00°24'23" East along the East line of the SE1/4 of said Section 2 a distance of 50.00 feet to the South right-of-way line of Highway 52;
Thence along the South right-of-way line of said Highway 52 the following Three (3) courses and distances:
THENCE South 89°29'11" West a distance of 2643.06 feet;
THENCE South 89°29'28" West a distance of 2624.45 feet;
THENCE South 89°19'51" West a distance of 237.05 feet to the East line of Patterson Annexation to the City of Fort Lupton recorded on October 10, 2017 at Reception No. 4343163 within the records of the Weld County Clerk and Recorder;
THENCE North 00°56'53" West along the East line of said Patterson Annexation a distance of 100.00 feet to the North right-of-way line of Highway 52;
Thence along the North right-of-way line of said Highway 52 the following Two (2) courses and distances;
THENCE North 89°19'51" East a distance of 237.67 feet;
THENCE North 89°29'28" East a distance of 2624.60 feet to the West line of the NE1/4 of said Section 2;
THENCE North 00°29'38" West along the West line of said NE1/4 a distance of 2503.04 feet to the North Quarter corner of said Section 2;
THENCE North 00°29'38" West along the Northerly prolongation of said West line a distance of 30.00 feet to the North right-of-way line of County Road 14;
THENCE North 89°03'33" East along the North right-of-way line of said County Road 14 a distance of 2643.85 feet to it's intersection with the Northerly prolongation of the East line of the NE1/4 of said Section 2;
THENCE South 00°28'49" East along said Northerly prolongation a distance of 30.00 feet to the **POINT OF BEGINNING**

Said parcel of land contains **166.96 Acres** or 7,272,560 sq. ft., more or less (+/-), and is subject to any rights-of-way or other easements of record as now existing on said described parcel of land.

TITLE COMMITMENT NOTE

This survey does not constitute a title search by Lat40, Inc. to determine ownership or easements of record. For all information regarding easements, rights-of-way and title of record, Lat40, Inc. relied upon ALTA Commitment Order Number **FCC25179943**, having an effective date of **September 11, 2020 at 5:00 P.M.** as prepared by **Old Republic National Title Insurance Company** to delineate the aforesaid information.



VICINITY MAP
SCALE – 1"=2000'

SURVEYOR'S STATEMENT

I hereby state that this annexation map accurately represents the results of a survey made by me or under my direct supervision.

I further state that not less than one-sixth of the perimeter of the area proposed to be annexed is contiguous to the boundary line of the City of Fort Lupton, County of Weld, State of Colorado.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR JASON S. ALLEE 38479 4-27-21

Sheet 1 of 2

Jason S. Allee–On behalf of Lat40°, Inc.
Colorado Licensed Professional
Land Surveyor No. 38479

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
TOTAL BOUNDARY PERIMETER (L.F.)	16296.47
1/6 OF PERIMETER (L.F.)	2716.08
ANNEXATION RATIO (1 to X)	3.228
TOTAL LAND AREA (Acres)	166.96

BASIS OF BEARINGS AND LINEAL UNIT DEFINITION

Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

SURVEYOR'S NOTES

1. According to Colorado law, you must commence any legal action based upon any defect in this survey within three years after you discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years after the date of the certificate shown hereon. (13-80-105 C.R.S.)

2. Blanket type easements, leases, agreements and other recorded documentation may/do exist, affect the subject property and are not delineated hereon.

OWNER'S APPROVAL

Know all men by these presents, that I/we, The City of Fort Lupton, being the sole owner(s) of the land described herein, have caused said land to be annexed under the name of **FORT LUPTON EAST ANNEXATION.**

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____ 20_____.

By: _____ As: _____

NOTARIAL CERTIFICATE

STATE OF _____)
)SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me by _____

this _____ day of _____, 20_____. Witness my hand and seal.

My commission expires _____ _____
Notary Public

PLANNING COMMISSION RECOMMENDATION

This if to certify that the annexation map of the above described property was recommended to the Fort Lupton City Council by way of Resolution No. _____

Recommended this _____ day of _____ 20_____.

_____
Chairperson Fort Lupton
Planning Commission

MAYOR'S CERTIFICATE

This is to certify that a plat of the above described property was approved by Ordinance No. _____ of the City Council of Fort Lupton approved and adopted on the _____ day of _____ 20 _____A.D..

and that the Mayor of the City of Fort Lupton, as authorized by said resolution on behalf of the City of Fort Lupton, hereby acknowledges and adopts the said plat upon which this certification is endorsed for all purposes indicated thereon.

_____ Attest: _____
Mayor Seal

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970-515-5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #:
4/22/2021	2020359ANX	JSA	JA	AS NOTED	2020359

REVISIONS:	DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

1
SHEET 1 OF 2

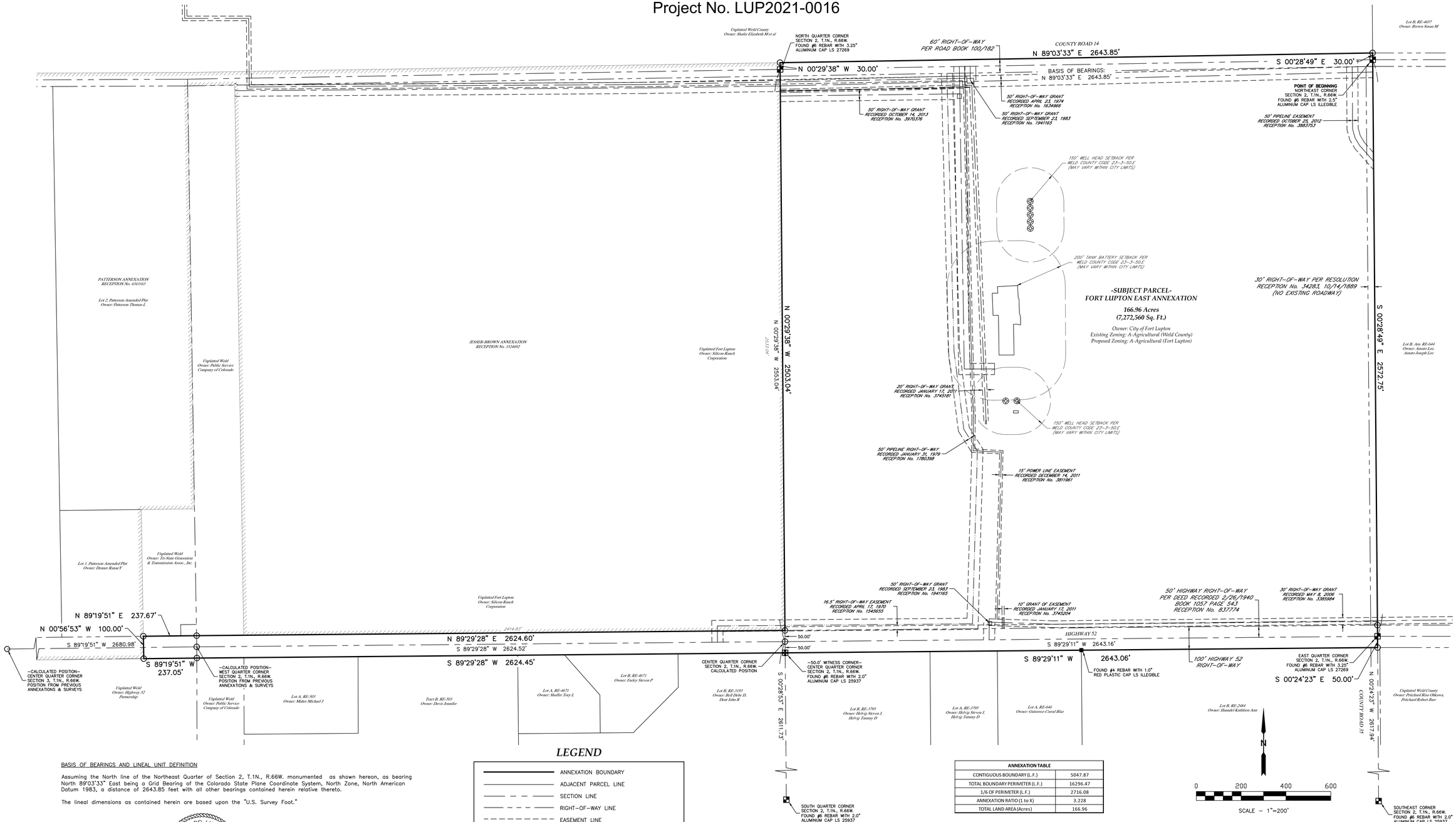
FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016



LEGEND

- ANNEXATION BOUNDARY
- ADJACENT PARCEL LINE
- SECTION LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- CENTER LINE
- EXISTING CITY LIMITS
- FOUND ALIQUOT CORNER AS DESCRIBED
- FOUND ALIQUOT WITNESS CORNER AS DESCRIBED
- FOUND MONUMENT AS DESCRIBED
- CALCULATED POSITION

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
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1/6 OF PERIMETER (L.F.)	2716.08
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Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

COLORADO LICENSED
JASON S. ALLEE
38479
PROFESSIONAL LAND SURVEYOR
4-27-21

Sheet 2 of 2

Jason S. Allee–On behalf of Lat40°, Inc.
Colorado Licensed Professional
Land Surveyor No. 38479

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970-515-5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #:
4/22/2021	2020359ANX	JSA	JA	1"=200'	2020359

REVISIONS:	DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

2
SHEET 2 OF 2

Magaly Morales-Tejada

From: John Fryar
Sent: Friday, May 28, 2021 12:07 PM
To: Magaly Morales-Tejada
Subject: RE: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

No LE concerns.

Chief John Fryar

From: Magaly Morales-Tejada
Sent: Thursday, May 27, 2021 4:27 PM
Cc: Maria Lancto; Todd Hodges; Alyssa Knutson
Subject: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

Good Afternoon,

The documentation located at the following link is submitted to you for review and recommendation for an annexation and initial zoning being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/603.

Any comments you consider relevant to this request would be appreciated. Please reply by **June 17, 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearings for this matter are scheduled for:

- Planning Commission: Thursday, June 24, 2021 at 6:00 PM; and
- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Magaly Morales-Tejada

From: Jake Freier
Sent: Thursday, June 3, 2021 8:22 AM
To: Magaly Morales-Tejada
Subject: RE: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

I've been working with the surveyors on this one and everything from a drawing and legal description standpoint look good. We'll just need to make sure the signature blocks are correct and then it should be good to go.
Cheers,
Jake

JAKE FREIER, GISP
GIS Specialist
City of Fort Lupton

720-466-6115 (office)
303-720-5155 (cell)
jfreier@fortluptonco.gov

130 S. McKinley Ave.
Fort Lupton, CO 80621
www.fortluptonco.gov

From: Magaly Morales-Tejada
Sent: Thursday, May 27, 2021 4:27 PM
Cc: Maria Lanctoo; Todd Hodges; Alyssa Knutson
Subject: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

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Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Magaly Morales-Tejada

From: Mettenbrink - DNR, Chris
Sent: Saturday, June 12, 2021 4:19 PM
To: Magaly Morales-Tejada
Subject: Re: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

Magaly,

Colorado Parks and Wildlife has no issues with this annexation.

Thank you.

Chris

On Thu, May 27, 2021 at 4:26 PM Magaly Morales-Tejada wrote:

> Good Afternoon,
>
> The documentation located at the following link is submitted to you for review and recommendation for an annexation and initial zoning being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/603.
>
> Any comments you consider relevant to this request would be appreciated. Please reply by **June 17, 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.
>
> The Public Hearings for this matter are scheduled for:
>
> - Planning Commission: Thursday, June 24, 2021 at 6:00 PM; and
> - City Council: Tuesday, July 6, 2021 at 7:00 PM
>
> Your time in this matter is greatly appreciated!

Magaly Morales-Tejada

Planning assistant

130 S. McKinley Ave.

Fort Lupton, CO 80621

Direct: 720-466-6111

The information transmitted is intended only for the person or entity to which it is addressed and may contain CONFIDENTIAL material. If you receive this information in error, please delete or destroy the information.

--

Chris Mettenbrink
District Wildlife Manager- Wildlife Officer
Area 2- Fort Lupton

P 970.472.4405 | C 303.906.1979
4207 W. CR 16E, Loveland, CO 80537
Chris.Mettenbrink@state.co.us | www.cpw.state.co.us

June 23, 2021

VIA E-MAIL

City of Fort Lupton Planning and Building Department
130 S. McKinley Ave
Fort Lupton, Colorado 80621
planningdept@fortlupton.org

NOTICE OF RIGHT-OF-WAY GRANTS OWNED BY KERR-McGEE GATHERING LLC

Re: Fort Lupton East Annexation
Township 1 North, Range 66 West, 6th P.M.
Portions of Sections 2 & 3
Township 2 North, Range 66 West, 6th P.M.
Portion of Section 35
Weld County, Colorado

City of Fort Lupton Planning and Building Department:

This letter is being sent by Kerr-McGee Gathering LLC ("KMGG") to inform you KMGG is the owner of valid easements and pipelines/surface facilities located in the N2 of Section 2 & E2NE4 of Section 3, Township 1 North, Range 66 West and S2 of Section 35, Township 2 North, Range 66 West for which the City of Fort Lupton Planning and Building Department ("Town") is reviewing Fort Lupton East Annexation. KMGG is submitting this comment timely, in accordance with the Town's procedural requirements.

The following are comments in support of this Notice:

1. KMGG is the owner of a valid Right-of-Way Grant that was executed on June 14, 2001 and recorded on August 23, 2001 with the Weld County Clerk and Recorder at reception number 2877143.

2. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 16, 2005 and recorded on November 10, 2005 with the Weld County Clerk and Recorder at reception number 3339210.

3. KMGG is the owner of a valid Right-of-Way Grant that was executed on July 26, 1983 and recorded on September 21, 1983 with the Weld County Clerk and Recorder at reception number 1941165.

4. KMGG is the owner of a valid Right-of-Way Grant that was executed on April 18, 1974 and recorded on April 23, 1974 with the Weld County Clerk and Recorder at reception number 1634966.

5. KMGG is the owner of a valid Right-of-Way Grant that was executed on January 11, 1979 and recorded on January 31, 1979 with the Weld County Clerk and Recorder at reception number 1780398.

6. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 12, 2013 and recorded on October 14, 2013 with the Weld County Clerk and Recorder at reception number 3970376.

7. KMGG is the owner of a valid Right-of-Way Grant that was executed on October 15, 2013 and recorded on January 13, 2014 with the Weld County Clerk and Recorder at reception number 3989624.

8. KMGG is the owner of a valid Surface Facility Grant that was executed on September 15, 1997 and recorded on November 24, 1997 with the Weld County Clerk and Recorder at reception number 2580745.

9. KMGG is the owner of a valid Right-of-Way Grant that was executed on July 18, 1983 and recorded on August 8, 1983 with the Weld County Clerk and Recorder at reception number 1936288.

10. KMGG is the owner of a valid Right-of-Way Grant that was executed on March 15, 1975 and recorded on March 20, 1975 with the Weld County Clerk and Recorder at reception number 1656382.

11. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 26, 2007 and recorded on May 26, 2009 with the Weld County Clerk and Recorder at reception number 3625068.

12. KMGG is the owner of a valid Right-of-Way Grant that was executed on October 16, 2013 and recorded on November 19, 2013 with the Weld County Clerk and Recorder at reception number 3978875.

13. KMGG is the owner of a valid Site Easement that was executed on December 3, 2012 and recorded on March 26, 2013 with the Weld County Clerk and Recorder at reception number 3919736.

14. KMGG is the owner of a valid Right-of-Way Grant that was executed on May 11, 2001 and recorded on August 23, 2001 with the Weld County Clerk and Recorder at reception number 2877141.

15. KMGG is the owner of a valid Access Easement Agreement that was executed on February 13, 2013 and recorded on January 28, 2015 with the Weld County Clerk and Recorder at reception number 4079198.

16. KMGG is the owner of a valid Right-of-Way Grant that was executed on March 20, 2008 and recorded on April 22, 2010 with the Weld County Clerk and Recorder at reception number 3688522.

KMGG does not object to the proposed Fort Lupton East Annexation provided the applicant does not encroach on KMGG's pipelines/surface facilities and conforms to the terms of the Right-of-Way Grants/Easements identified above.

Please contact me at 970-336-3518 if you have any questions or comments about this matter.

Sincerely,
KERR-McGEE GATHERING LLC

Clay Young
Consulting Landman

cc: Murph Shelby, Senior Counsel
Sherry Bursey, Senior Counsel
Brett Cavanagh
Jake Billadeau
Heather Bennett
Kelly Reyos

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-102

ADOPT AN ORDINANCE REZONING LAND LEGALLY DESCRIBED IN EXHIBIT A TO THE PROPOSED ORDINANCE, AND KNOWN AS THE FORT LUPTON EAST CHANGE OF ZONE, TO THE A AGRICULTURAL ZONE DISTRICT

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Proposed Ordinance
b. Planning Commission Resolution
c. Planning Commission Minutes
d. Staff Report
e. Land Use Application
f. Project Description
g. Annexation Map
h. Referral Responses
i. Legal Notifications

III. **Summary Statement:**

The City of Fort Lupton is the owner of certain land identified in Exhibit A of the Ordinance subject to this initial zoning request. The proposed initial zoning is to the 'A' Agricultural Zone District. The property is located at the northwest corner of the intersection of Highway 52 and County Road 35. City Council has previously reviewed and considered an Ordinance to approve the annexation known as the Fort Lupton East Annexation at a hearing on July 6, 2021. This request is to initially zone the property included within that Annexation.

IV. **Submitted by:** _____ Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** _____ Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

The City of Fort Lupton is the owner of certain land identified in Exhibit A of the Ordinance subject to this initial zoning request. The proposed initial zoning is to the 'A' Agricultural Zone District. The property is located at the northwest corner of the intersection of Highway 52 and County Road 35. City Council has previously reviewed and considered an Ordinance to approve the annexation known as the Fort Lupton East Annexation at a hearing on July 6, 2021. This request is to initially zone the property included within that Annexation.

The land use is not changing at this time. Any future development will require additional review.

X. Legal/Political Considerations:

All notification requirements were met, including posting notice of the hearings on the property at least 15 days prior to this public hearing, mailing notice to property owners within 100 feet of the property, and publishing notice of the hearing at least fifteen days prior to the hearing.

XI. Alternatives/Options:

The City Council has the following options for this request:

a) Adopt The Ordinance.
b) Do not adopt The Ordinance.

XII. Financial Considerations:

This property is owned by the City of Fort Lupton; therefore, fees were not collected.

XIII. Staff Recommendation:

Staff recommends approval of the proposed Ordinance rezoning the land described in Exhibit A of the proposed Ordinance to the 'A' Agricultural Zone District.

ORDINANCE NO. 2021-xxxx

INTRODUCED BY:

ADOPT ORDINANCE 2021-xxxx INITIALLY ZONING LAND KNOWN AS THE FORT LUPTON EAST INITIAL ZONING, LEGALLY DESCRIBED IN EXHIBIT A, TO THE 'A' AGRICULTURAL ZONE DISTRICT.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO:

WHEREAS, under the procedures detailed in Section 16-9 of the Fort Lupton Municipal Code, the City of Fort Lupton, acting as the applicant, submitted a request to initially zone 166.96± acres of land more particularly described in Exhibit A.

WHEREAS, the Planning Commission held a public hearing on the zone request on June 24, 2021, and recommended approval to City Council of the initial zoning of land described in Exhibit A to the 'A' Agricultural Zone District, with all the uses-by-right allowed in said district.

WHEREAS, the City Council, after public notice and hearing, and consideration of the Planning Commission recommendation, declares that the official zoning map be amended to reflect the initial zone on the property described in Exhibit A of this Ordinance to the 'A' Agricultural Zone District, and that The Ordinance is hereby approved.

INTRODUCED, READ, AND PASSED ON FIRST READING, AND ORDERED PUBLISHED this 6th day of July 2021.

PUBLISHED in the Fort Lupton Press the _th day of __ 2021.

FINALLY READ BY TITLE ONLY, PASSED AND ORDERED PUBLISHED BY TITLE ONLY this _th day of __ 2021.

PUBLISHED BY TITLE ONLY the _th day of __ 2021.

EFFECTIVE (after publication) the _th day of __ 2021.

CITY OF FORT LUPTON, COLORADO

_____

Zo Stieber, Mayor

ATTEST:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

EXHIBIT A
PROPERTY DESCRIPTION

A PARCEL OF LAND BEING PORTIONS OF SECTION TWO (2) AND SECTION THREE (3) OF TOWNSHIP ONE NORTH (T.1N.), RANGE SIXTY-SIX WEST (R.66W.) AND A PORTION OF THE SOUTHEAST QUARTER OF SE1/4) OF SECTION THIRTY-FIVE (35) OF TOWNSHIP TWO NORTH (T.2N.), RANGE SIXTY-SIX WEST (R.66W.) OF THE SIXTH PRINCIPAL MERIDIAN (6TH P.M.), COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 2 AND ASSUMING THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 2, MONUMENTED ON THE WEST END BY A #6 REBAR WITH A 3.25 ALUMINUM CAP L.S. 27269 AND ON THE EAST END BY A #6 REBAR WITH A 2.5" ILLEGIBLE ALUMINUM CAP, AS BEARING NORTH 89°03'33" EAST BEING A GRID BEARING OF THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM 1983, A DISTANCE OF 2643.85 FEET WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO;

THE LINEAL DIMENSIONS AS CONTAINED HEREIN ARE BASED UPON THE U.S. SURVEY FOOT.

THENCE SOUTH 00°28'49" EAST ALONG THE EAST LINE OF THE NE1/4 OF SAID SECTION 2 A DISTANCE OF 2572.75 FEET TO THE EAST QUARTER CORNER OF SAID SECTION 2;
THENCE SOUTH 00°24'23" EAST ALONG THE EAST LINE OF THE SE1/4 OF SAID SECTION 2 A DISTANCE OF 50.00 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF HIGHWAY 52;
THENCE ALONG THE SOUTH-RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING THREE (3) COURSES AND DISTANCES:
THENCE SOUTH 89°29'11" WEST A DISTANCE OF 2643.06 FEET;
THENCE SOUTH 89°29'28" WEST A DISTANCE OF 2624.45 FEET;
THENCE SOUTH 89°19'51" WEST A DISTANCE OF 237.05 FEET TO THE EAST LINE OF PATTERSON ANNEXATION TO THE CITY OF FORT LUPTON RECORDED ON OCTOBER 10, 2017 AT RECEPTION NUMBER 4343163 WITHIN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;
THENCE NORTH 00°56'53" WEST ALONG THE EAST LINE OF SAID PATTERSON ANNEXATION A DISTANCE OF 100.00 FEET TO THE NORTH RIGHT-OF-WAY OF HIGHWAY 52;
THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING TWO (2) COURSES AND DISTANCES;
THENCE NORTH 89°19'51" EAST A DISTANCE OF 237.67 FEET;
THENCE NORTH 89°29'28" EAST A DISTANCE OF 2624.60 FEET TO THE WEST LINE OF THE NE1/4 A DISTANCE OF 2503.04 FEET TO THE NORTH QUARTER CORNER OF SAID SECTION 2;

THENCE NORTH 00’29’38” WEST ALONG THE NORTHERLY PROLONGATION OF SAID WEST LINE A DISTANCE OF 30.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF COUNTY ROAD 14;
THENCE NORTH 89’03’33” EAST ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 14 A DISTANCE OF 2643.85 FEET TO IT’S INTERSECTION WITH THE NORTHERLY PROLONGATION OF THE EAST LINE OF THE NE1/4 OF SAID SECTION 2;
THENCE SOUTH 00’28’49” EAST ALONG SAID NORTHERLY PROLONGATION A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING

SAID PARCEL OF LAND CONTAINS 166.96 ACRES OR 7,272,560 SQ. FT., MORE OR LESS (+/-), AND IS SUBJECT TO ANY RIGHTS-OF-WAY OR OTHER EASEMENTS OF RECORD AS NOW EXISTING ON SAID DESCRIBED PARCEL OF LAND.

RESOLUTION NO. P2021-019

A RESOLUTION OF THE PLANNING COMMISSION OF FORT LUPTON RECOMMENDING TO CITY COUNCIL APPROVAL OF A CHANGE OF ZONE KNOWN AS THE FORT LUPTON EAST CHANGE OF ZONE ON A PROPERTY LOCATED IN A PORTION OF SECTION 2 AND SECTION 3 OF TOWNSHIP 1 NORTH, RANGE 66 WEST AND A PORTION OF THE SOUTHEAST QUARTER OF SECTION 35 OF TOWNSHIP 2 NORTH RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, the Planning Commission held a public hearing June 24, 2021 for the purpose of reviewing a change of zone known as the Fort Lupton East Change of Zone to the A Agricultural Zone District on a property legally described under Exhibit A to this Resolution, and

WHEREAS, after review of the application and supporting information, the Planning Commission finds that the Fort Lupton East Change of Zone application conforms to Colorado Revised Statutes and City codes and policies therein, and

WHEREAS, all legal requirements for the public hearing have been met, including publication of the legal notice in the Fort Lupton Press, mailing of public hearing notices to adjacent property owners within 100 feet, and post notice of the public hearings on the site.

NOW THEREFORE BE IT RESOLVED, the Planning Commission has taken into consideration all referral comments and citizen testimony in response to this application. Based upon the facts presented on this date the Planning Commission hereby recommends approval of the Fort Lupton East Change of Zone to the A Agricultural Zone District.

DONE THIS 24TH DAY OF JUNE, 2021, BY THE PLANNING COMMISSION FOR THE CITY OF FORT LUPTON, COLORADO.

Chairman

ATTEST:

Planning Director

EXHIBIT A

LEGAL DESCRIPTION

A PARCEL OF LAND BEING PORTIONS OF SECTION TWO (2) AND SECTION THREE (3) OF TOWNSHIP ONE NORTH (T.1N.), RANGE SIXTY-SIX WEST (R.66W.) AND A PORTION OF THE SOUTHEAST QUARTER OF SE1/4) OF SECTION THIRTY-FIVE (35) OF TOWNSHIP TWO NORTH (T.2N.), RANGE SIXTY-SIX WEST (R.66W.) OF THE SIXTH PRINCIPAL MERIDIAN (6TH P.M.), COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 2 AND ASSUMING THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 2, MONUMENTED ON THE WEST END BY A #6 REBAR WITH A 3.25 ALUMINUM CAP L.S. 27269 AND ON THE EAST END BY A #6 REBAR WITH A 2.5" ILLEGIBLE ALUMINUM CAP, AS BEARING NORTH 89°03'33" EAST BEING A GRID BEARING OF THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM 1983, A DISTANCE OF 2643.85 FEET WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO;

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RECORD OF PROCEEDINGS
FORT LUPTON PLANNING COMMISSION
June 24, 2021

The Planning Commission of the City of Fort Lupton met in session at the City Complex, 130 South McKinley Avenue, the regular meeting place of the Planning Commission and virtually via GoToMeeting, on Thursday, June 24, 2021.

Chair Mike Simone called the meeting to order at 6:03 p.m. and gave the following advisement:

> Tonight's meeting shall have the option of virtual appearances so as to ensure the health and safety of the general public and the City of Fort Lupton Planning Commission and staff
>
> The intent and purpose of the virtual appearance option is to allow the City to be innovative in providing the general public the most meaningful access possible in light of the current challenges present as a result of the Covid-19 pandemic. Therefore, members of the general public will be offered the opportunity to be electronically present for meetings at the City, subject to existing health conditions.
>
> An electronic link has been made available for tonight's meeting on the City's website and social media platforms and as posted at City Hall, so that the general public, Planning Commission and staff may choose to participate electronically via the internet or on the phone.

ROLL CALL

Roll was taken and those present were Chair Mike Simone and Commission Members Carlos Barron, Kathy Kvasnicka and Paul Weber. Member Thomas Meyers participated via phone. Also in attendance were Planning Director Todd Hodges, City Planner II Alyssa Knutson, City Planner I Maria Lancto, and Administrative Assistant Magaly Morales-Tejada.

APPROVAL OF AGENDA

A motion to approve the agenda was moved by Carlos Barron and seconded by Kathy Kvasnicka.

CONSENT AGENDA

A motion to approve the consent agenda was moved by Paul Weber and seconded by Kathy Kvasnicka.

PUBLIC COMMENT

Chair Simone asked if there was anyone who would like to comment on an item not on the agenda tonight. Hearing none, he closed Public Comment.

ACTION ITEMS

P2021-017: Been Minor Subdivision

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Chair Simone stated that the Been Minor Subdivision and the Been Special Use Permit would be presented at the same time, but public comment would be separate.

Planner Alyssa Knutson presented this item. She stated that this property, located west and adjacent to county road 19, would be subdivided into 4 separate parcels, Lot 3 specifically is being proposed for a special use permit for an RV park for about 75-141 RV's. Lot 1 is an existing residence, lot 2 would become future residential and lot 4 is yet to be determined. This property is zoned agricultural; an RV park is not a use by right in agricultural zoning which is why the special use permit is required. Conditions of approval have been added to the resolution that address lighting and landscaping. All notification requirements have been met and the applicant would like to provide a presentation.

Chair Simone addressed the applicant's representative, Chadwin Cox and the applicant, Sheryl Been and asked if they understood that a Member of the Planning Commission is appearing tonight via virtual connection and will not be appearing in-person. He asked if they consented to the applicable member voting on the submittal, even though said member was not present in person and if they voluntarily signed and submitted the written waiver and consent to proceed electronically tonight.

Ms. Been and Mr. Corder stated yes to all questions.

Mr. Cox stated that this 17-acre property includes an existing residence and the subdivision proposal would divide the property into four lots, 2 residential, 1 RV lot and 1 undetermined lot. The entire property is zoned agricultural. As part of the process, they have worked with traffic engineer, sales engineers, and consultants to identify short-term and long-term traffic. 75 RVs is the threshold at which improvements to the turn lane would be required. There will be internal water within the RV, the water rights for the wells have been secured to serve 75-80 RV's; however, they are continuing conversations with Central Weld Water to secure a connection to the water system. The site drains from northeast to southeast, this drainage pattern will remain the same with a proposed storm water retention pond. This proposed RV park is the 3rd park that Western Engineering has worked on and the regulations within the park would be similar to those in the Keenesburg RV park. These regulations include no exterior storage on site, quiet hours, no ATV or motorized scooters, pets on leash, visitor registration, firearms and fireworks are strictly prohibited and campfires are only permitted in fire pits. There will be a quantity of trees along with a 6-foot screening fence along the border of the property. There will be a screened trash enclosure on site, a security building and a caretaker building with an outdoor covered area for gatherings.

Chair Simone addressed the applicant, Sheryl Been. He asked if she felt she had a full land fair opportunity to participate in tonight's public hearing

Ms. Bene stated yes

Chair Simone asked if there was anything she would have liked to present that she felt she was prevented from doing.

Ms. Been stated no.

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Chair Simone opened up the public comment portion of the Hearing for the action item.

Tom Tinney, 3867 CR 19, asked when this property was annexed into Fort Lupton? What is the difference between the residential parcels and the RV lot? How many residences will there be? What is the permanence of the RV's? Who is responsible for the road maintenance? How does the amount of RV's affect the water wells? Who is responsible for the enforcement of rules within the subdivision? Is this meant to house workers passing through the area? Are there are any city ordinances in place for RV permanence?

Mr. Cox responded to Mr. Tinney's questions. He stated that the property was annexed in 2020 - *staff correction, 2021*- this is not intended for mobile homes, the previously referenced RV Park in Keenesburg is very high-end, with no derelict vehicles in the lot, the property owner will provide the road maintenance on site. The State of Colorado Division of Water Resources has vetted the water well usage and deemed it adequate. The rules will be enforced at a zero-tolerance level and if local law enforcement is needed it will be called. The expected tenants are those working in the community that may not have the funds to purchase a permanent residence in the community.

Chair Simone closed the public comment portion of the Hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions.

Member Barron asked if the access to the two residential lots was through the RV lot.

Mr. Cox stated that they would.

Member Barron asked if the access was vehicle accessible.

Mr. Cox states that all of the accesses are vehicle accessible. The internal roads were designed with fire district circulation in mind.

Chair Simone called for a motion to approve P2021-0015.

It was moved by Paul Weber and seconded by Carlos Barron. Motion passed unanimously.

P2021-018 Been RV Park Special Use Permit

There was no additional presentation for this item; the presentation for P2021-017 addressed the "Been" project in its entirety.

Chair Simone opened up the public comment portion of the Hearing for this action item.

Danielle Rainey, 3863 CR 19, stated that she is strongly opposed to this special use permit begin approved. She stated that she and her family moved in to the property north and adjacent to the Been property and stated that had she known this RV park was being proposed she would not have bought the property. She stated that this will impact the property values of her home and of others in the area and that it will affect

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their quality of life. She stated that she is concerned about the increase in traffic and the distance of the Fort Lupton police department and Fort Lupton Fire District, a distance that would not provide immediate response if there was an issue on the property. She also expressed concern about the impact on local schools and classroom sizes. Ms. Rainey stated that the increased traffic flow and the necessary light pollution is unfavorable to land and livestock in the area. She stated that that the significant use of the water well will decrease the lifespan of the water well. She stated that she believes that the special use permit is a loophole in the agricultural zoning that will have a detrimental effect on the land. She concluded by stating that she does not believe that this use is harmonious with the current agricultural usage.

Dolf Veit, 8502 CR 10, stated that, if approved, he would like the RV park entirely fenced as his property is accessible by foot and he has had previous issues with the current pedestrian flow on his property. He stated that the community as a whole is opposed to this project and that he does not appreciate that Ms. Been, who is living out of state, is proposing such a major change to their tight knit community. Mr. Veit voiced his concern over fire pits being used by several RV's and the effect that would have to the health of the community. He stated that many of the property owners in the area invested in these properties to retire on someday and that this proposed development directly affects that opportunity. Mr. Veit asked for clarification on the use of fire pits.

Eric Gardner, 3308 CR 19, stated that he believes that the RV Park would significantly affect the property values in the area. Mr. Gardner stated that many of the wells in the area are already shallow and this increased use could cause a significant decrease in the volume. He asked who is paying for new wells if they become necessary due to direct impact of this project. Mr. Gardner referenced another RV park in Plattsburgh - similar to this proposed park - was closed due to contamination issues. Mr. Gardner stated that traffic increase would affect the roads and increase traffic accidents. He stated that the fire fits would cause insurance prices to go up. He stated that in 2007 there was an explosion at the refinery across the street, potentially putting the RV tenants at risk.

Tom Tinney, 3867 CR 19, stated that he is strongly opposed to this use. He stated that this use would significantly alter the character of this area. He stated that the large RVs present a risk to the pedestrian traffic as well as vehicular traffic. Mr. Tinney asked if this special use satisfy the applicable provisions of the code and if it is consistent with Fort Lupton's comprehensive plan. Mr. Tinney stated that the code encourages a neighborhood meeting, which was not done by the applicant.

John Brunetti, 3869 CR 19, stated that he wished the applicant had reached out to the surrounding neighbors to discuss their concerns. He stated that a high-density development is not the intended use for agricultural properties. He stated that he has concerns with the water rights not being fully secured, sewer concerns and light pollution. Mr. Brunetti stated that he would like more time to understand how these issues are being addressed. He also stated that the property is not currently maintained properly, with a lot of trash already in the area and imagines that an RV lot will bring more trash. He stated that he is concerned with an increase in crime and how that will directly affect his business and the horses on his property.

Dean Felton, 3434 CR 19, read a letter on behalf of himself and his wife. The letter is attached to these minutes. He stated that they have concerns about the lack of notification from both the County and the City

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regarding this project. Mr. Felton stated that he has concerns on the well usage and how that affect the volume of the well. He stated that the community as a whole is opposed to this development.

Chair Simone closed the Public Comment portion of the Hearing.

Mr. Cox responded to the questions. He stated that they did discuss how to safely conduct a neighborhood meeting, but it was decided that due to COVID-19 they would not pursue that. He stated that they will discuss the possibility of more fencing. Mr. Cox stated that there are currently no fire pits proposed on this property. He stated that the refinery is regulated by the State. The well usage and septic design criteria has also been regulated by the State. Mr. Cox stated that well usage is only being proposed in the event that negotiations between Central Weld Water and Northern Colorado Water District take several years. He stated that the caretaker will live on site and will be responsible for daily maintenance, including cleanliness of the property.

Chair Simone addressed the applicant, Sheryl Been. He asked if she felt she had a full land fair opportunity to participate in tonight's public hearing

Ms. Bene stated yes

Chair Simone asked if there was anything she would have liked to present that she felt she was prevented from doing.

Ms. Been stated no.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions.

Member Weber asked for clarification on the annexation of the property.

Planner Knutson stated that the City Council approval for the annexation was on February 16, 2021.

Mr. Weber asked if there is an age limit on the RV.

Ms. Been stated that they would like them to be no older than 8 years.

Mr. Weber asked if how it is determined that the aquifer was is suitable for 75+ units.

Mr. Cox stated that the usage needed is projected, this is then used to apply through the water court at which point it is vetted by that court and the State Division of Water Resources. He stated that there is a series of criteria that needs to be met.

Mr. Weber asked for clarification on what they intend to use for water.

Mr. Cox stated that they intend to pursue Central Weld Water rather than well usage. However both usages will be efficient.

DRAFT

Chair Simone asked if proposed lighting is included in this proposal and if all lighting would be downcast.

Mr. Cox stated that the photometric design address no shedding of light outside of the property.

Chair Simone addressed the public; he explained that while he, and the other members of the commission, are sympathetic to the concerns expressed tonight, he would like to clarify that the Planning Commission votes using criteria of land usage and zoning.

Member Barron added that all of these comments will be given to City Council for their hearing and that the public is encouraged to attend the City Council hearing.

Chair Simone called for a motion approve P2021-0018. It was moved by Paul Weber and seconded by Carlos Barron. Motion passed on 4 "yes" votes and 1 "no" votes

P2021-019 Fort Lupton East Change of Zone

Planner Maria Lancto presented this item, she stated that this property, located northwest of the intersection of Hwy 52 and CR 35, is owned by the City of Fort Lupton and will be annexed by ordinance. She stated that city owned property can be annexed without public hearings; however change of zone requires public hearing. She stated that this hearing is for the initial zoning to the Agricultural zone district. She stated that there is currently no proposed development and all future land use would go through the appropriate land use process. All notification requirements have been met and staff is available to answer any questions.

Chair Simone opened up the public comment portion of the Hearing for the action item.

Andy Ellis, 17469 CR 14, stated that he had been told that this location would be a gun range in the future; he realizes that this public hearing is only for the change of zone, but would like to voice his opposition to the gun range and ask for recommendation on how to prepare for those hearings.

Planner Knutson stated that any future development proposals at this site would come back to the planning commission and follow the public hearing forum.

Mr. Ellis asked if they would be notified of future public hearings.

Chair Simone stated that there would be public notice and posting of any hearings, such as there were for this hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions. With no questions from Planning Commissioners, Chair Simone called for a motion to approve P2021-0015.

It was moved by Kathy Kvasnicka and seconded by Paul Weber. Motion passed unanimously.

DISCUSSION ITEMS

DRAFT

RECORD OF PROCEEDINGS
FORT LUPTON PLANNING COMMISSION
June 24, 2021

Review of Meeting Discussion

A review of meeting discussions took place.

Development Code Update

A discussion of the Development Code Update took place.

FUTURE BUSINESS

The next meeting of the Planning Commission is scheduled for June 24, 2021 at 6:00 PM.

ADJOURNMENT

Chair Simone adjourned the meeting at 7:22 PM.

Submitted by

_____
Magaly Morales-Tejada, Planning Assistant

Approved by Planning Commission

_____
Mike Simone, Chair-person

DRAFT

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

FORT LUPTON EAST CHANGE OF ZONE STAFF REPORT
PROJECT NO. LUP2021-0016/ PLAN NO. COZ2021-0003

PROJECT DESCRIPTION

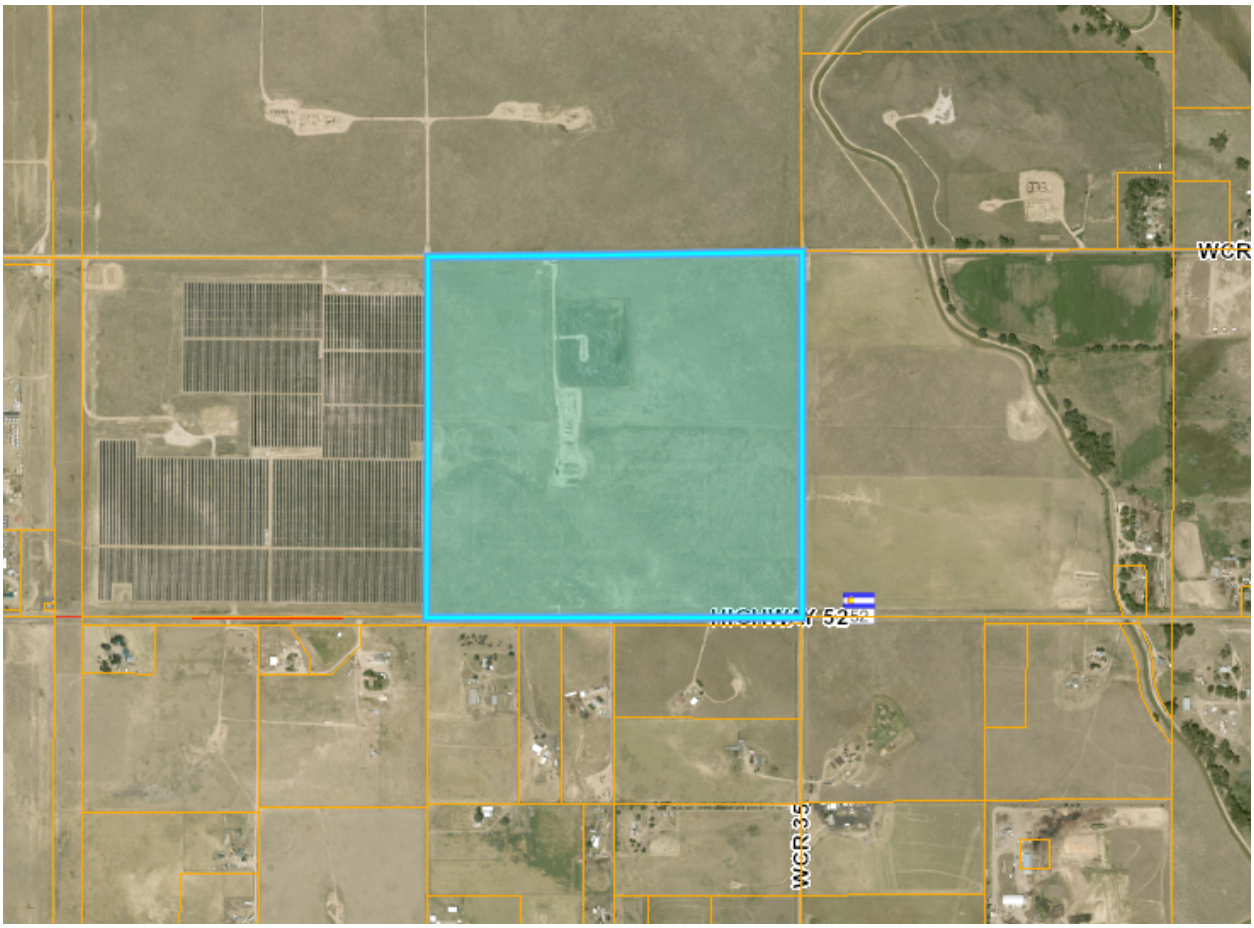
Project No.: LUP2021-0016 / Plan No. COZ2021-0003

Project name: Fort Lupton East Change of Zone

Owner's Name: City of Fort Lupton

Location of Request:

The site is located at the northwest corner of the intersection of Highway 52 and County Road 35 (Parcel No. 147102000064) (the Property). The Property is located in a portion of Section 2 and Section 3 of Township 1 North, Range 66 West and a portion of the Southeast Quarter of Section 35 of Township 2 North Range 66 West of the Sixth Principal Meridian, County of Weld, State of Colorado.



Nature of Request:

The applicant is requesting a change of zone from Weld County's Agricultural Zone District to the City of Fort Lupton's Agricultural Zone District.

The Property associated with this request is owned by the City of Fort Lupton. The City is in the process of annexing this parcel and right-of-way as indicated on the map within the Hearing packet. Annexation of municipally owned land can be done by ordinance and does not need to go through the public hearing process as is required in typical annexations. However, all zoning changes must be reviewed by Planning Commission and City Council at a public hearing, including the initial zoning of municipally owned land.

Site Size: The Property is 166.96 acres, more or less.

Current Zone District: 'A' Agricultural (Weld County).

Proposed Zone District: 'A' Agricultural (Fort Lupton).

Proposed Use: There is no proposed development at this time.

Existing Use: Vacant/Agricultural with active and inactive oil and gas wells on site.

Hearing Dates: Planning Commission – June 24, 2021 at 6:00 PM; and
City Council – July 6 at 7:00 PM.

Hearing Location: Fort Lupton City Hall – Council Chambers, 130 S. McKinley Ave., Fort Lupton, Colorado.

Staff Recommendation: Approval.

SUMMARY OF PREVIOUS APPLICATIONS

To staff's knowledge, there are no prior applications for this property through the City of Fort Lupton.

APPLICATION PROCESS

The Applicant is requesting approval of initial zoning to the 'A' Agricultural Zone District.

A change of zone is processed under Section 16-9 of the Fort Lupton Municipal Code ("Code"). After required public notice of the change of zone, the Planning Commission shall consider the application, referral comments and any public testimony at a public hearing and make a recommendation to City Council to approve, approve with conditions or deny the change of zone. The Planning Commission's comments shall be based on the evidence presented, conformance with the Comprehensive Plan and compliance with the City's standards, regulations and policies.

The City Council shall then conduct a public hearing and evaluate the change of zone, referral agency comments, Planning Commission recommendation and any public testimony, and shall approve, conditionally approve, continue for additional information or for further study or deny the application based on the evidence presented and compliance with the City's standards, regulations and policies and other guidelines.

NOTIFICATION REQUIREMENTS

The Zoning Regulations require published notice of the hearings at least fifteen (15) days prior to the hearings. The Planning Commission and City Council hearings were published in the Fort Lupton Press on June 9, 2021.

Notice of the public hearings were posted on the Property pursuant to the Zoning Regulations at least fifteen (15) days prior to the hearings.

Notice was mailed to neighbors within one-hundred (100) feet of the Property on June 9, 2021.

CONFORMANCE WITH CITY STANDARDS, REGULATIONS AND POLICIES

The annexation of unincorporated municipally owned land is subject to C.R.S. 31-12-106(3) which provides the ability for said land to be annexed via ordinance without notice or hearing. Although the annexation of this property does not need a public hearing, the initial zoning is governed by Section 16-9 of the Fort Lupton Municipal Code.

The Applicant is proposing initial zoning to the 'A' Agricultural Zone District, governed by Section 16-32 of the Code. The intent of the Agricultural District is to apply in areas which economically have value for agricultural uses and are not yet ready for development into urban usage. The Agricultural District is also appropriate as a temporary zoning district for newly annexed land that has not been subdivided.

All required documents have been submitted.

CONFORMANCE WITH THE COMPREHENSIVE PLAN

The Fort Lupton Comprehensive Plan designates the majority of this property for agricultural and rural residential land uses. The southern portion of the property is designated for commercial transitional land uses.

The agricultural and rural residential designation allows for agricultural and related uses as well as low density residential on the periphery of the planning area, intended to preserve a generally rural character. This also includes a variety of miscellaneous uses, such as isolated industrial businesses and semi-rural properties located under Estate Zoning.

The commercial transition designation identifies potential growth areas for commercial development outside the municipal boundaries or primary commercial districts of Fort Lupton. These areas should support gradual, long-term commercial investment outward from the City's urban core, including incremental transitioning of agricultural uses to commercial development.

The proposed zoning conforms to the agricultural and rural residential land use designation. A change of zone for the property or a portion of the property would be evaluated when the site is developed.

REFERRALS

Referrals were provided to the list below. Any comments received are enclosed with the Planning Commission packet.

Buildings/Grounds Manager	City Administrator	City Attorney
GIS Specialist	Police Chief	Public Works Director
Finance Director	Fort Lupton Fire Protection District	CDOT
Colorado Parks and Wildlife	Weld County Department of Planning	Weld County Public Works

STAFF RECOMMENDATION

Staff recommendation approval of the Fort Lupton East Change of Zone.

For more information on this development, please refer to the Planning Commission packet provided. Additional documents are available for review at the Fort Lupton City Hall.

Form PLAN002

CITY OF

Fort Lupton

EST 1836

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621

Phone: 303.857.6694
Fax: 303.857.0351

www.fortluptonco.gov

Project No. _____

Land Use Application Form

A. CONTACT INFORMATION

1) Property Owner Name: City of Fort Lupton

Company: _____

Phone: (303) 857-6694 Email: ccross@fortluptonco.gov

Address: 130 S. McKinley Avenue

Preferred method of contact? Email: Phone: Mail:

2) Representative Name: Chris Cross, City Administrator

Company: City of Fort Lupton

Phone: (303) 857-6694 Email: ccross@fortluptonco.gov

Address: 130 S. McKinley Avenue

Preferred method of contact? Email: Phone: Mail:

3) Billing Contact *(where invoices should be directed to)*: N/A

Billing Company: _____

Phone: _____ Email: _____

Address: _____

B. SITE DESCRIPTION

Site Address: _____

Parcel Number: 147102000064

Existing Zone Classification: Ag (Weld County) Proposed Zone Classification: Ag (City of Fort Lupton)

Water Type: _____ Name: _____

Sewage Type: _____ District Name or Location Hauled to: _____

C. APPLICATION TYPE (CHECK ALL THAT APPLY)

Sketch Plat	Administrative Site Plan	PUD Plan (Preliminary & Final)
Preliminary Plat	Special Use Permit	Variance
Final Plat	Oil & Gas Permit	Administrative Variance
Minor Subdivision	(Annexation & Initial Zone)	Appeal
Amended Plat	Change of Zone	Other: _____
Site Plan	Comp Plan Amendment	

Project No. _____

D. PROJECT DESCRIPTION

Project Name: Fort Lupton East Annexation and Initial Zoning

Please provide a short description of the proposed project in the space provided below:

This property will be annexed to the City of Fort Lupton with inital zoning to the 'A' Agricultural Zone District. There is no proposed development with this application.

E. REQUIRED DOCUMENTS

For an application to be considered complete, and for planning staff to begin review and schedule any applicable public hearings, this Land Use Application Form must be fully completed and all required attachments included. Planning staff will review the application for completeness and will provide notice to the representative and/or owner whether the application has been deemed complete.

F. CERTIFICATIONS

Representative Certification

By signing this application, I attest that I am acting with the knowledge and consent of all owners of the property that is the subject of this application, and that I have been designated to act as the representative for the project described in this land use application. I further certify that all information submitted with this application is true and accurate to the best of my knowledge.

Representative: _____ Date: 5/27/21

Owner Certification

I hereby certify that I am the legal owner of record of the property that is the subject of this application. I authorize the representative listed on this application, if any, to communicate directly with City officials and to submit documentation and information regarding this application on my behalf.

Owner: _____ Date: 5/27/21

For Office Use Only

Received Date: _____

If the application is not complete, state reasons why it is incomplete:

Deemed Complete Date: _____

Fees Submitted: _____ Escrow Submitted: _____

Project Description

The City of Fort Lupton is the owner of a property located at the northwest corner of the intersection of Highway 52 and County Road 35. The City intends to annex this property as well as right of way as indicated on the annexation map.

The City is requesting initial zoning to the ‘A’ Agricultural Zone District. The property is currently zoned Agriculture in Weld County. The is no proposed development for the property with this application.

FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016

PROPERTY DESCRIPTION

A parcel of land being portions of Section Two (2) and Section Three (3) of Township One North (T.1N.), Range Sixty-six West (R.66W.) and a portion of the Southeast Quarter (SE1/4) of Section Thirty-five (35) of Township Two North (T.2N.), Range Sixty-six West (R.66W.) of the Sixth Principal Meridian (6th P.M.), County of Weld, State of Colorado, being more particularly described as follows:

BEGINNING at the Northeast corner of said Section 2 and assuming the North line of the Northeast Quarter of said Section 2, monumented on the West end by a #6 rebar with a 3.25" aluminum cap L.S. 27269 and on the East end by a #6 rebar with a 2.5" illegible aluminum cap, as bearing North 89°03'33" East being a grid bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein being relative thereto;

The lineal dimensions as contained herein are based upon the U.S. Survey Foot.

THENCE South 00°28'49" East along the East line of the NE1/4 of said Section 2 a distance of 2572.75 feet to the East Quarter corner of said Section 2;
THENCE South 00°24'23" East along the East line of the SE1/4 of said Section 2 a distance of 50.00 feet to the South right-of-way line of Highway 52;
Thence along the South right-of-way line of said Highway 52 the following Three (3) courses and distances:
THENCE South 89°29'11" West a distance of 2643.06 feet;
THENCE South 89°29'28" West a distance of 2624.45 feet;
THENCE South 89°19'51" West a distance of 237.05 feet to the East line of Patterson Annexation to the City of Fort Lupton recorded on October 10, 2017 at Reception No. 4343163 within the records of the Weld County Clerk and Recorder;
THENCE North 00°56'53" West along the East line of said Patterson Annexation a distance of 100.00 feet to the North right-of-way line of Highway 52;
Thence along the North right-of-way line of said Highway 52 the following Two (2) courses and distances;
THENCE North 89°19'51" East a distance of 237.67 feet;
THENCE North 89°29'28" East a distance of 2624.60 feet to the West line of the NE1/4 of said Section 2;
THENCE North 00°29'38" West along the West line of said NE1/4 a distance of 2503.04 feet to the North Quarter corner of said Section 2;
THENCE North 00°29'38" West along the Northerly prolongation of said West line a distance of 30.00 feet to the North right-of-way line of County Road 14;
THENCE North 89°03'33" East along the North right-of-way line of said County Road 14 a distance of 2643.85 feet to it's intersection with the Northerly prolongation of the East line of the NE1/4 of said Section 2;
THENCE South 00°28'49" East along said Northerly prolongation a distance of 30.00 feet to the **POINT OF BEGINNING**

Said parcel of land contains **166.96 Acres** or 7,272,560 sq. ft., more or less (+/-), and is subject to any rights-of-way or other easements of record as now existing on said described parcel of land.

TITLE COMMITMENT NOTE

This survey does not constitute a title search by Lat40, Inc. to determine ownership or easements of record. For all information regarding easements, rights-of-way and title of record, Lat40, Inc. relied upon ALTA Commitment Order Number **FCC25179943**, having an effective date of **September 11, 2020 at 5:00 P.M.** as prepared by **Old Republic National Title Insurance Company** to delineate the aforesaid information.

SURVEYOR'S STATEMENT

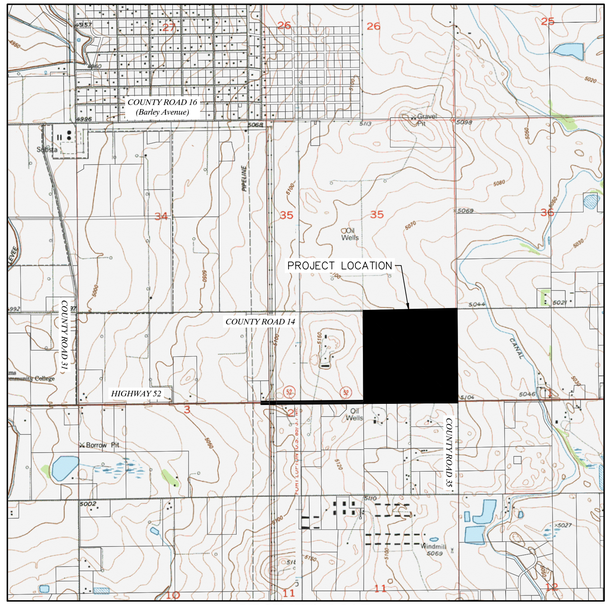
I hereby state that this annexation map accurately represents the results of a survey made by me or under my direct supervision.

I further state that not less than one-sixth of the perimeter of the area proposed to be annexed is contiguous to the boundary line of the City of Fort Lupton, County of Weld, State of Colorado.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR — JASON S. ALLEE — 38479 — 4-27-21

Sheet 1 of 2

Jason S. Allee-On behalf of Lat40°, Inc.
Colorado Licensed Professional
Land Surveyor No. 38479



VICINITY MAP
SCALE - 1"=2000'

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
TOTAL BOUNDARY PERIMETER (L.F.)	16296.47
1/6 OF PERIMETER (L.F.)	2716.08
ANNEXATION RATIO (1 to X)	3.228
TOTAL LAND AREA (Acres)	166.96

BASIS OF BEARINGS AND LINEAL UNIT DEFINITION

Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

SURVEYOR'S NOTES

1. According to Colorado law, you must commence any legal action based upon any defect in this survey within three years after you discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years after the date of the certificate shown hereon. (13-80-105 C.R.S.)

2. Blanket type easements, leases, agreements and other recorded documentation may/do exist, affect the subject property and are not delineated hereon.

OWNER'S APPROVAL

Know all men by these presents, that I/we, The City of Fort Lupton, being the sole owner(s) of the land described herein, have caused said land to be annexed under the name of **FORT LUPTON EAST ANNEXATION.**

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____ 20_____.

By: _____ As: _____

NOTARIAL CERTIFICATE

STATE OF _____)
)SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me by _____

this _____ day of _____, 20_____. Witness my hand and seal.

My commission expires _____ _____
Notary Public

PLANNING COMMISSION RECOMMENDATION

This if to certify that the annexation map of the above described property was recommended to the Fort Lupton City Council by way of Resolution No. _____

Recommended this _____ day of _____ 20_____.

_____
Chairperson Fort Lupton
Planning Commission

MAYOR'S CERTIFICATE

This is to certify that a plat of the above described property was approved by Ordinance No. _____ of the City Council of Fort Lupton approved and adopted on the _____ day of _____ 20 _____A.D..

and that the Mayor of the City of Fort Lupton, as authorized by said resolution on behalf of the City of Fort Lupton, hereby acknowledges and adopts the said plat upon which this certification is endorsed for all purposes indicated thereon.

_____ Attest: _____
Mayor Seal

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970-515-5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #:
4/22/2021	2020359ANX	JSA	JA	AS NOTED	2020359

REVISIONS:	DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

1
SHEET 1 OF 2

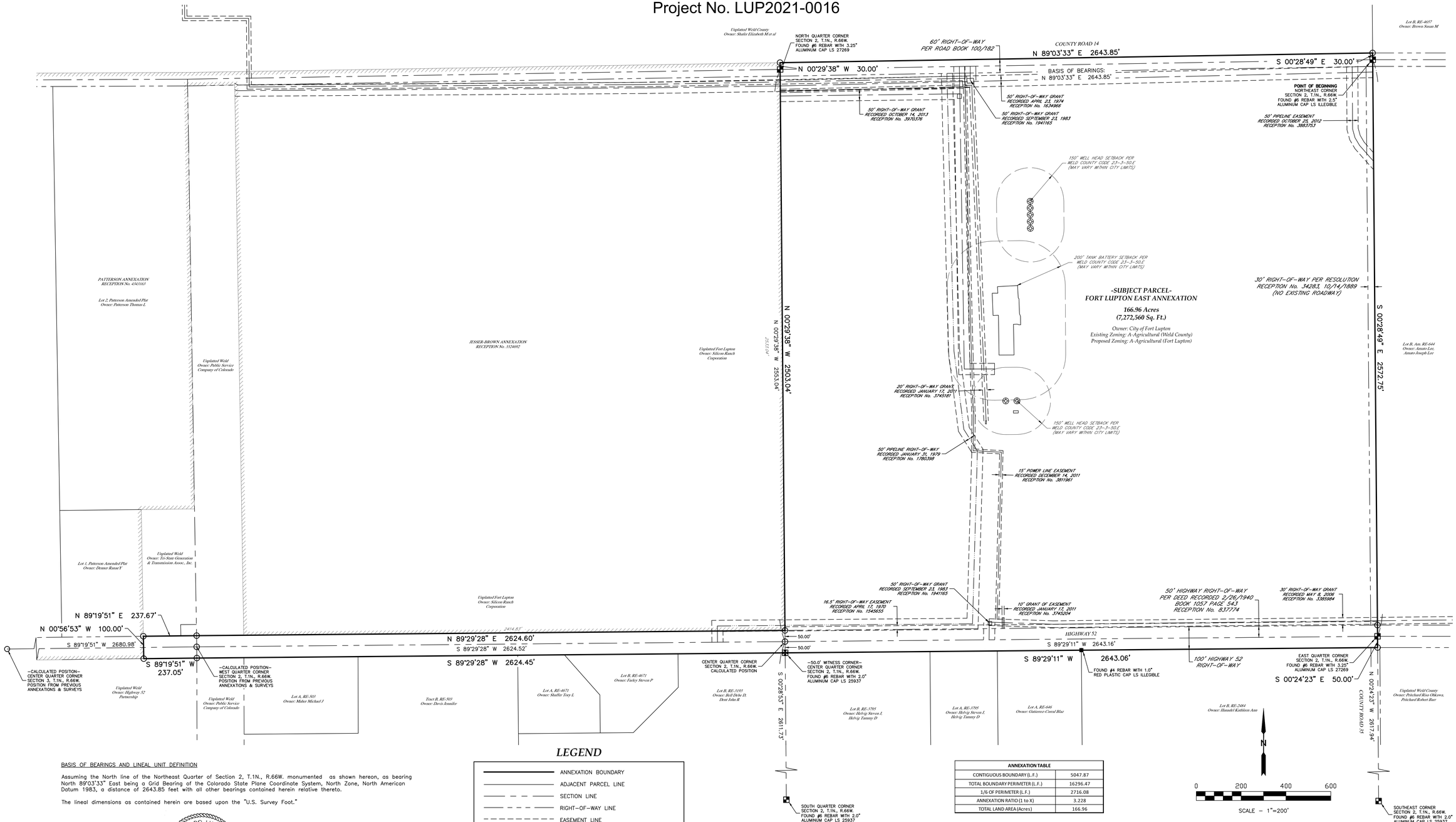
FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016



BASIS OF BEARINGS AND LINEAL UNIT DEFINITION

Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

COLORADO LICENSED
JASON S. ALLEE
38479
PROFESSIONAL LAND SURVEYOR
4-27-21

Sheet 2 of 2

Jason S. Allee–On behalf of Lat40°, Inc.
Colorado Licensed Professional
Land Surveyor No. 38479

LEGEND

- ANNEXATION BOUNDARY
- ADJACENT PARCEL LINE
- SECTION LINE
- RIGHT–OF–WAY LINE
- EASEMENT LINE
- CENTER LINE
- EXISTING CITY LIMITS
- FOUND ALIQUOT CORNER AS DESCRIBED
- FOUND ALIQUOT WITNESS CORNER AS DESCRIBED
- FOUND MONUMENT AS DESCRIBED
- CALCULATED POSITION

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
TOTAL BOUNDARY PERIMETER (L.F.)	16296.47
1/6 OF PERIMETER (L.F.)	2716.08
ANNEXATION RATIO (1 to X)	3.228
TOTAL LAND AREA (Acres)	166.96

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970–515–5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #:
4/22/2021	2020359ANX	JSA	JA	1"=200'	2020359

REVISIONS:	DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

2
SHEET 2 OF 2

Magaly Morales-Tejada

From: John Fryar
Sent: Friday, May 28, 2021 12:07 PM
To: Magaly Morales-Tejada
Subject: RE: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

No LE concerns.

Chief John Fryar

From: Magaly Morales-Tejada
Sent: Thursday, May 27, 2021 4:27 PM
Cc: Maria Lancto; Todd Hodges; Alyssa Knutson
Subject: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

Good Afternoon,

The documentation located at the following link is submitted to you for review and recommendation for an annexation and initial zoning being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/603.

Any comments you consider relevant to this request would be appreciated. Please reply by **June 17, 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearings for this matter are scheduled for:

- Planning Commission: Thursday, June 24, 2021 at 6:00 PM; and
- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Magaly Morales-Tejada

From: Jake Freier
Sent: Thursday, June 3, 2021 8:22 AM
To: Magaly Morales-Tejada
Subject: RE: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

I've been working with the surveyors on this one and everything from a drawing and legal description standpoint look good. We'll just need to make sure the signature blocks are correct and then it should be good to go.
Cheers,
Jake

JAKE FREIER, GISP
GIS Specialist
City of Fort Lupton

720-466-6115 (office)
303-720-5155 (cell)
jfreier@fortluptonco.gov

130 S. McKinley Ave.
Fort Lupton, CO 80621
www.fortluptonco.gov

From: Magaly Morales-Tejada
Sent: Thursday, May 27, 2021 4:27 PM
Cc: Maria Lanctoo; Todd Hodges; Alyssa Knutson
Subject: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

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Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Magaly Morales-Tejada

From: Mettenbrink - DNR, Chris
Sent: Saturday, June 12, 2021 4:19 PM
To: Magaly Morales-Tejada
Subject: Re: Referral Response Request: Fort Lupton East Annexation and Change of Zone (LUP2021-0016)

Magaly,

Colorado Parks and Wildlife has no issues with this annexation.

Thank you.

Chris

On Thu, May 27, 2021 at 4:26 PM Magaly Morales-Tejada wrote:

> Good Afternoon,
>
> The documentation located at the following link is submitted to you for review and recommendation for an annexation and initial zoning being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/603.
>
> Any comments you consider relevant to this request would be appreciated. Please reply by **June 17, 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.
>
> The Public Hearings for this matter are scheduled for:
>
> - Planning Commission: Thursday, June 24, 2021 at 6:00 PM; and
> - City Council: Tuesday, July 6, 2021 at 7:00 PM
>
> Your time in this matter is greatly appreciated!

Magaly Morales-Tejada

Planning assistant

130 S. McKinley Ave.

Fort Lupton, CO 80621

Direct: 720-466-6111

The information transmitted is intended only for the person or entity to which it is addressed and may contain CONFIDENTIAL material. If you receive this information in error, please delete or destroy the information.

--
Chris Mettenbrink
District Wildlife Manager- Wildlife Officer
Area 2- Fort Lupton
P 970.472.4405 | C 303.906.1979
4207 W. CR 16E, Loveland, CO 80537
Chris.Mettenbrink@state.co.us | www.cpw.state.co.us

June 23, 2021

VIA E-MAIL

City of Fort Lupton Planning and Building Department
130 S. McKinley Ave
Fort Lupton, Colorado 80621
planningdept@fortlupton.org

NOTICE OF RIGHT-OF-WAY GRANTS OWNED BY KERR-McGEE GATHERING LLC

Re: Fort Lupton East Annexation
Township 1 North, Range 66 West, 6th P.M.
Portions of Sections 2 & 3
Township 2 North, Range 66 West, 6th P.M.
Portion of Section 35
Weld County, Colorado

City of Fort Lupton Planning and Building Department:

This letter is being sent by Kerr-McGee Gathering LLC ("KMGG") to inform you KMGG is the owner of valid easements and pipelines/surface facilities located in the N2 of Section 2 & E2NE4 of Section 3, Township 1 North, Range 66 West and S2 of Section 35, Township 2 North, Range 66 West for which the City of Fort Lupton Planning and Building Department ("Town") is reviewing Fort Lupton East Annexation. KMGG is submitting this comment timely, in accordance with the Town's procedural requirements.

The following are comments in support of this Notice:

1. KMGG is the owner of a valid Right-of-Way Grant that was executed on June 14, 2001 and recorded on August 23, 2001 with the Weld County Clerk and Recorder at reception number 2877143.

2. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 16, 2005 and recorded on November 10, 2005 with the Weld County Clerk and Recorder at reception number 3339210.

3. KMGG is the owner of a valid Right-of-Way Grant that was executed on July 26, 1983 and recorded on September 21, 1983 with the Weld County Clerk and Recorder at reception number 1941165.

4. KMGG is the owner of a valid Right-of-Way Grant that was executed on April 18, 1974 and recorded on April 23, 1974 with the Weld County Clerk and Recorder at reception number 1634966.

5. KMGG is the owner of a valid Right-of-Way Grant that was executed on January 11, 1979 and recorded on January 31, 1979 with the Weld County Clerk and Recorder at reception number 1780398.

6. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 12, 2013 and recorded on October 14, 2013 with the Weld County Clerk and Recorder at reception number 3970376.

7. KMGG is the owner of a valid Right-of-Way Grant that was executed on October 15, 2013 and recorded on January 13, 2014 with the Weld County Clerk and Recorder at reception number 3989624.

8. KMGG is the owner of a valid Surface Facility Grant that was executed on September 15, 1997 and recorded on November 24, 1997 with the Weld County Clerk and Recorder at reception number 2580745.

9. KMGG is the owner of a valid Right-of-Way Grant that was executed on July 18, 1983 and recorded on August 8, 1983 with the Weld County Clerk and Recorder at reception number 1936288.

10. KMGG is the owner of a valid Right-of-Way Grant that was executed on March 15, 1975 and recorded on March 20, 1975 with the Weld County Clerk and Recorder at reception number 1656382.

11. KMGG is the owner of a valid Right-of-Way Grant that was executed on September 26, 2007 and recorded on May 26, 2009 with the Weld County Clerk and Recorder at reception number 3625068.

12. KMGG is the owner of a valid Right-of-Way Grant that was executed on October 16, 2013 and recorded on November 19, 2013 with the Weld County Clerk and Recorder at reception number 3978875.

13. KMGG is the owner of a valid Site Easement that was executed on December 3, 2012 and recorded on March 26, 2013 with the Weld County Clerk and Recorder at reception number 3919736.

14. KMGG is the owner of a valid Right-of-Way Grant that was executed on May 11, 2001 and recorded on August 23, 2001 with the Weld County Clerk and Recorder at reception number 2877141.

15. KMGG is the owner of a valid Access Easement Agreement that was executed on February 13, 2013 and recorded on January 28, 2015 with the Weld County Clerk and Recorder at reception number 4079198.

16. KMGG is the owner of a valid Right-of-Way Grant that was executed on March 20, 2008 and recorded on April 22, 2010 with the Weld County Clerk and Recorder at reception number 3688522.

KMGG does not object to the proposed Fort Lupton East Annexation provided the applicant does not encroach on KMGG's pipelines/surface facilities and conforms to the terms of the Right-of-Way Grants/Easements identified above.

Please contact me at 970-336-3518 if you have any questions or comments about this matter.

Sincerely,
KERR-McGEE GATHERING LLC

Clay Young
Consulting Landman

cc: Murph Shelby, Senior Counsel
Sherry Bursey, Senior Counsel
Brett Cavanagh
Jake Billadeau
Heather Bennett
Kelly Reyos

CITY OF FORT LUPTON
NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Fort Lupton is in receipt of an application for a change of zone referred to as the Fort Lupton East Change of Zone, located at the northwest corner of the intersection of Highway 52 and County Road 35 in Fort Lupton, Colorado, pursuant to the City of Fort Lupton Municipal Code Notice Requirements.

The public hearings are to be held before the Planning Commission on June 24, 2021, at 6:00 P.M., and before the City Council on July 6 2021, at 7:00 P.M. or as soon as possible thereafter.

The public hearings shall be held at the Fort Lupton City Hall, 130 S. McKinley Avenue in Fort Lupton, Colorado. In the event that the City Hall remains closed at the time of the hearings, the public hearings will be held remotely, accessible to the public by phone and internet. Information on how to attend the hearings will be provided in the agenda as posted on the City's website, www.fortluptonco.gov.

Further information is available through the City Planning and Building Department at (303) 857-6694.

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION

A PARCEL OF LAND BEING PORTIONS OF SECTION TWO (2) AND SECTION THREE (3) OF TOWNSHIP ONE NORTH (T.1N.), RANGE SIXTY-SIX WEST (R.66W.) AND A PORTION OF THE SOUTHEAST QUARTER OF SE1/4) OF SECTION THIRTY-FIVE (35) OF TOWNSHIP TWO NORTH (T.2N.), RANGE SIXTY-SIX WEST (R.66W.) OF THE SIXTH PRINCIPAL MERIDIAN (6TH P.M.), COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 2 AND ASSUMING THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 2, MONUMENTED ON THE WEST END BY A #6 REBAR WITH A 3.25 ALUMINUM CAP L.S. 27269 AND ON THE EAST END BY A #6 REBAR WITH A 2.5" ILLEGIBLE ALUMINUM CAP, AS BEARING NORTH 89°03'33" EAST BEING A GRID BEARING OF THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM 1983, A DISTANCE OF 2643.85 FEET WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO;

THE LINEAL DIMENSIONS AS CONTAINED HEREIN ARE BASED UPON THE U.S. SURVEY FOOT.

THENCE SOUTH 00°28'49" EAST ALONG THE EAST LINE OF THE NE1/4 OF SAID SECTION 2 A DISTANCE OF 2572.75 FEET TO THE EAST QUARTER CORNER OF SAID SECTION 2;
THENCE SOUTH 00°24'23" EAST ALONG THE EAST LINE OF THE SE1/4 OF SAID SECTION 2 A DISTANCE OF 50.00 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF HIGHWAY 52;
THENCE ALONG THE SOUTH-RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING THREE (3) COURSES AND DISTANCES:
THENCE SOUTH 89°29'11" WEST A DISTANCE OF 2643.06 FEET;
THENCE SOUTH 89°29'28" WEST A DISTANCE OF 2624.45 FEET;
THENCE SOUTH 89°19'51" WEST A DISTANCE OF 237.05 FEET TO THE EAST LINE OF PATTERSON ANNEXATION TO THE CITY OF FORT LUPTON RECORDED ON OCTOBER 10, 2017 AT RECEPTION NUMBER 4343163 WITHIN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;
THENCE NORTH 00°56'53" WEST ALONG THE EAST LINE OF SAID PATTERSON ANNEXATION A DISTANCE OF 100.00 FEET

TO THE NORTH RIGHT-OF-WAY OF HIGHWAY 52;

THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING TWO (2) COURSES AND DISTANCES;

THENCE NORTH 89'19'51" EAST A DISTANCE OF 237.67 FEET;

THENCE NORTH 89'29'28" EAST A DISTANCE OF 2624.60 FEET TO THE WEST LINE OF THE NE1/4 A DISTANCE OF 2503.04 FEET TO THE NORTH QUARTER CORNER OF SAID SECTION 2;

THENCE NORTH 00'29'38" WEST ALONG THE NORTHERLY PROLONGATION OF SAID WEST LINE A DISTANCE OF 30.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF COUNTY ROAD 14;

THENCE NORTH 89'03'33" EAST ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 14 A DISTANCE OF 2643.85 FEET TO IT'S INTERSECTION WITH THE NORTHERLY PROLONGATION OF THE EAST LINE OF THE NE1/4 OF SAID SECTION 2;

THENCE SOUTH 00'28'49" EAST ALONG SAID NORTHERLY PROLONGATION A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING

SAID PARCEL OF LAND CONTAINS 166.96 ACRES OR 7,272,560 SQ. FT., MORE OR LESS (+/-), AND IS SUBJECT TO ANY RIGHTS-OF-WAY OR OTHER EASEMENTS OF RECORD AS NOW EXISTING ON SAID DESCRIBED PARCEL OF LAND.

Legal Ad No.: FLP222320
First Publication: June 9, 2021
Last Publication: June 9, 2021
Published In: Fort Lupton Press

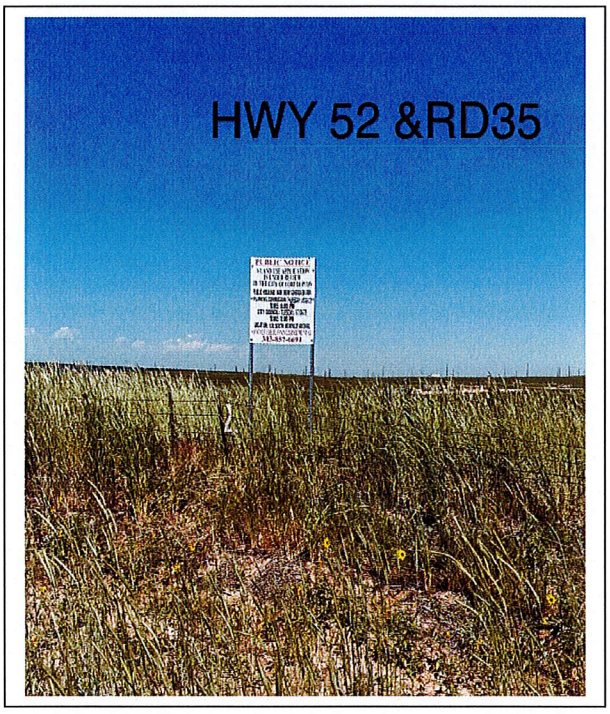
CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

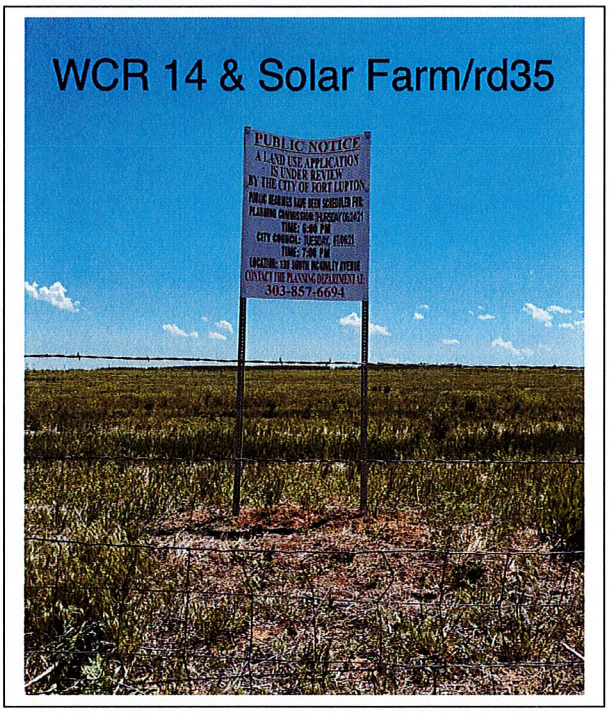
Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Sign Posting Affidavit

Fort Lupton East Annexation and Change of Zone
Project No. LUP2021-0016 / Plan No. ANX2021-0002 & COZ2021-0003





I, Roy Vestal hereby acknowledge that the aforementioned property was posted in accordance with City Codes. Said public hearing notice was posted on this 8th day of June, 2021.

Roy Vestal, PW Dir

Signature of Owner or Owner's Representative

The foregoing instrument was acknowledged before me by Roy Vestal, this 8 day of June, 2021. Witness my hand and seal.

My commission expires 12-31-2022.

Amber Phillips

Notary Public

(SEAL)

AMBER PHILLIPS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144004824
MY COMMISSION EXPIRES DECEMBER 31, 2022

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

CERTIFICATE OF MAILING

I, the undersigned, hereby certify that on the 9th day of June, 2021, a true and correct copy of the foregoing Notice of Public Hearings for the Fort Lupton East Annexation and Change of Zone was sent via United States Mail, postage pre-paid, to the following addresses:

ELIZABETH METAL SHAFER
7450 COUNTY ROAD 35
FORT LUPTON, CO 80621

ROBERT BARR PRITCHARD
RISA OHKAWA PRITCHARD
5276 COUNTY ROAD 35
FORT LUPTON, CO 80621

BLAZ GUTIERREZ-CORRAL
16734 HWY 52
FORT LUPTON, CO 80621

TOMMY D HELVIG
STEVEN J HELVIG
16590 HWY 52
FORT LUPTON, CO 80621

JOSEPH LEE AMATO
17447 HWY 52
FORT LUPTON, CO 80621

SUSAN M BROWN
3307 68TH AVE
GREELEY, CO 80634

SILICON RANCH CORPORATION
222 S. 2ND AVE
STE 1900
NASHVILLE, TN 37201

KATHLEEN ANN HANADEL
5119 COUNTY ROAD 35
FORT LUPTON, CO 80621

DEBE D BELL
JOHN R DENT
16230 HWY 52
FORT LUPTON, CO 80621

City Official

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

CERTIFICATE OF MAILING

I, the undersigned, hereby certify that on the 10th day of June, 2021, a true and correct copy of the foregoing Notice of Public Hearings for the Fort Lupton East Annexation and Change of Zone was sent via United States Mail, postage pre-paid, to the following addresses:

OCCIDENTAL PETROLEUM CORP.
1099 18TH ST.
STE 1800
DENVER, CO 80202

City Official

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

CITY OF FORT LUPTON
NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Fort Lupton is in receipt of an application for a change of zone referred to as the Fort Lupton East Change of Zone, located at the northwest corner of the intersection of Highway 52 and County Road 35 in Fort Lupton, Colorado, pursuant to the City of Fort Lupton Municipal Code Notice Requirements.

The public hearings are to be held before the Planning Commission on June 24, 2021, at 6:00 P.M., and before the City Council on July 6 2021, at 7:00 P.M. or as soon as possible thereafter.

The public hearings shall be held at the Fort Lupton City Hall, 130 S. McKinley Avenue in Fort Lupton, Colorado. In the event that the City Hall remains closed at the time of the hearings, the public hearings will be held remotely, accessible to the public by phone and internet. Information on how to attend the hearings will be provided in the agenda as posted on the City's website, www.fortluptonco.gov.

Further information is available through the City Planning and Building Department at (303) 857-6694.

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: FORT LUPTON EAST CHANGE OF ZONE

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION

A PARCEL OF LAND BEING PORTIONS OF SECTION TWO (2) AND SECTION THREE (3) OF TOWNSHIP ONE NORTH (T.1N.), RANGE SIXTY-SIX WEST (R.66W.) AND A PORTION OF THE SOUTHEAST QUARTER OF SE1/4) OF SECTION THIRTY-FIVE (35) OF TOWNSHIP TWO NORTH (T.2N.), RANGE SIXTY-SIX WEST (R.66W.) OF THE SIXTH PRINCIPAL MERIDIAN (6TH P.M.), COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 2 AND ASSUMING THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 2, MONUMENTED ON THE WEST END BY A #6 REBAR WITH A 3.25 ALUMINUM CAP L.S. 27269 AND ON THE EAST END BY A #6 REBAR WITH A 2.5" ILLEGIBLE ALUMINUM CAP, AS BEARING NORTH 89°03'33" EAST BEING A GRID BEARING OF THE COLORADO STATE PLANE COORDINATE

SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM 1983, A DISTANCE OF 2643.85 FEET WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO;

THE LINEAL DIMENSIONS AS CONTAINED HEREIN ARE BASED UPON THE U.S. SURVEY FOOT.

THENCE SOUTH 00'28'49" EAST ALONG THE EAST LINE OF THE NE1/4 OF SAID SECTION 2 A DISTANCE OF 2572.75 FEET TO THE EAST QUARTER CORNER OF SAID SECTION 2;
THENCE SOUTH 00'24'23" EAST ALONG THE EAST LINE OF THE SE1/4 OF SAID SECTION 2 A DISTANCE OF 50.00 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF HIGHWAY 52;

THENCE ALONG THE SOUTH-RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING THREE (3) COURSES AND DISTANCES:
THENCE SOUTH 89'29'11" WEST A DISTANCE OF 2643.06 FEET;
THENCE SOUTH 89'29'28" WEST A DISTANCE OF 2624.45 FEET;
THENCE SOUTH 89'19'51" WEST A DISTANCE OF 237.05 FEET TO THE EAST LINE OF PATTERSON ANNEXATION TO THE CITY OF FORT LUPTON RECORDED ON OCTOBER 10, 2017 AT RECEPTION NUMBER 4343163 WITHIN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;
THENCE NORTH 00'56'53" WEST ALONG THE EAST LINE OF SAID PATTERSON ANNEXATION A DISTANCE OF 100.00 FEET TO THE NORTH RIGHT-OF-WAY OF HIGHWAY 52;

THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 52 THE FOLLOWING TWO (2) COURSES AND DISTANCES;
THENCE NORTH 89'19'51" EAST A DISTANCE OF 237.67 FEET;
THENCE NORTH 89'29'28" EAST A DISTANCE OF 2624.60 FEET TO THE WEST LINE OF THE NE1/4 A DISTANCE OF 2503.04 FEET TO THE NORTH QUARTER CORNER OF SAID SECTION 2;
THENCE NORTH 00'29'38" WEST ALONG THE NORTHERLY PROLONGATION OF SAID WEST LINE A DISTANCE OF 30.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF COUNTY ROAD 14;
THENCE NORTH 89'03'33" EAST ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 14 A DISTANCE OF 2643.85 FEET TO IT'S INTERSECTION WITH THE NORTHERLY PROLONGATION OF THE EAST LINE OF THE NE1/4 OF SAID SECTION 2;
THENCE SOUTH 00'28'49" EAST ALONG SAID NORTHERLY PROLONGATION A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING

SAID PARCEL OF LAND CONTAINS 166.96 ACRES OR 7,272,560 SQ. FT., MORE OR LESS (+/-), AND IS SUBJECT TO ANY RIGHTS-OF-WAY OR OTHER EASEMENTS OF RECORD AS NOW EXISTING ON SAID DESCRIBED PARCEL OF LAND.

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: FORT LUPTON EAST CHANGE OF ZONE

FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016

PROPERTY DESCRIPTION

A parcel of land being portions of Section Two (2) and Section Three (3) of Township One North (T.1N.), Range Sixty-six West (R.66W.) and a portion of the Southeast Quarter (SE1/4) of Section Thirty-five (35) of Township Two North (T.2N.), Range Sixty-six West (R.66W.) of the Sixth Principal Meridian (6th P.M.), County of Weld, State of Colorado, being more particularly described as follows:

BEGINNING at the Northeast corner of said Section 2 and assuming the North line of the Northeast Quarter of said Section 2, monumented on the West end by a #6 rebar with a 3.25" aluminum cap L.S. 27269 and on the East end by a #6 rebar with a 2.5" illegible aluminum cap, as bearing North 89°03'33" East being a grid bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein being relative thereto;

The lineal dimensions as contained herein are based upon the U.S. Survey Foot.

THENCE South 00°28'49" East along the East line of the NE1/4 of said Section 2 a distance of 2572.75 feet to the East Quarter corner of said Section 2;
THENCE South 00°24'23" East along the East line of the SE1/4 of said Section 2 a distance of 50.00 feet to the South right-of-way line of Highway 52;
Thence along the South right-of-way line of said Highway 52 the following Three (3) courses and distances:
THENCE South 89°29'11" West a distance of 2643.06 feet;
THENCE South 89°29'28" West a distance of 2624.45 feet;
THENCE South 89°19'51" West a distance of 237.05 feet to the East line of Patterson Annexation to the City of Fort Lupton recorded on October 10, 2017 at Reception No. 4343163 within the records of the Weld County Clerk and Recorder;
THENCE North 00°56'53" West along the East line of said Patterson Annexation a distance of 100.00 feet to the North right-of-way line of Highway 52;
Thence along the North right-of-way line of said Highway 52 the following Two (2) courses and distances;
THENCE North 89°19'51" East a distance of 237.67 feet;
THENCE North 89°29'28" East a distance of 2624.60 feet to the West line of the NE1/4 of said Section 2;
THENCE North 00°29'38" West along the West line of said NE1/4 a distance of 2503.04 feet to the North Quarter corner of said Section 2;
THENCE North 00°29'38" West along the Northerly prolongation of said West line a distance of 30.00 feet to the North right-of-way line of County Road 14;
THENCE North 89°03'33" East along the North right-of-way line of said County Road 14 a distance of 2643.85 feet to it's intersection with the Northerly prolongation of the East line of the NE1/4 of said Section 2;
THENCE South 00°28'49" East along said Northerly prolongation a distance of 30.00 feet to the **POINT OF BEGINNING**

Said parcel of land contains **166.96 Acres** or 7,272,560 sq. ft., more or less (+/-), and is subject to any rights-of-way or other easements of record as now existing on said described parcel of land.

TITLE COMMITMENT NOTE

This survey does not constitute a title search by Lat40, Inc. to determine ownership or easements of record. For all information regarding easements, rights-of-way and title of record, Lat40, Inc. relied upon ALTA Commitment Order Number **FCC25179943**, having an effective date of **September 11, 2020 at 5:00 P.M.** as prepared by **Old Republic National Title Insurance Company** to delineate the aforesaid information.

SURVEYOR'S STATEMENT

I hereby state that this annexation map accurately represents the results of a survey made by me or under my direct supervision.

I further state that not less than one-sixth of the perimeter of the area proposed to be annexed is contiguous to the boundary line of the City of Fort Lupton, Colorado, and **State** of Colorado.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR 38479 4-27-21

Sheet 1 of 2

Jason S. Allee-On behalf of Lat40°, Inc.
Colorado Licensed Professional
Land Surveyor No. 38479

BASIS OF BEARINGS AND LINEAL UNIT DEFINITION

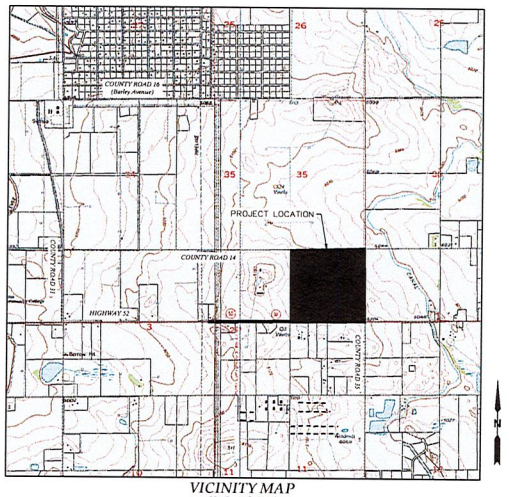
Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

SURVEYOR'S NOTES

1. According to Colorado law, you must commence any legal action based upon any defect in this survey within three years after you discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years after the date of the certificate shown hereon. (13-80-105 C.R.S.)

2. Blanket type easements, leases, agreements and other recorded documentation may/do exist, affect the subject property and are not delineated hereon.



VICINITY MAP
SCALE - 1"=2000'

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
TOTAL BOUNDARY PERIMETER (L.F.)	16296.47
1/6 OF PERIMETER (L.F.)	2716.08
ANNEXATION RATIO (1 to X)	3.228
TOTAL LAND AREA (Acres)	166.96

OWNER'S APPROVAL

Know all men by these presents, that I/we, The City of Fort Lupton, being the sole owner(s) of the land described herein, have caused said land to be annexed under the name of **FORT LUPTON EAST ANNEXATION.**

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____ 20____.

By: _____ As: _____

NOTARIAL CERTIFICATE

STATE OF _____)
)SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me by _____

this _____ day of _____, 20_____. Witness my hand and seal.

My commission expires _____

Notary Public

PLANNING COMMISSION RECOMMENDATION

This if to certify that the annexation map of the above described property was recommended to the Fort Lupton City Council by way of Resolution No. _____

Recommended this _____ day of _____ 20_____.

_____
Chairperson Fort Lupton
Planning Commission

MAYOR'S CERTIFICATE

This is to certify that a plat of the above described property was approved by Ordinance No. _____ of the City Council of Fort Lupton approved and adopted on the _____ day of _____ 20_____ A.D.

and that the Mayor of the City of Fort Lupton, as authorized by said resolution on behalf of the City of Fort Lupton, hereby acknowledges and adopts the said plat upon which this certification is endorsed for all purposes indicated thereon.

_____ Attest: _____
Mayor Seal

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970-515-5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #
4/22/2021	2020359ANX	JSA	JA	AS NOTED	2020359

REVISIONS:	DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

1
SHEET 1 OF 2

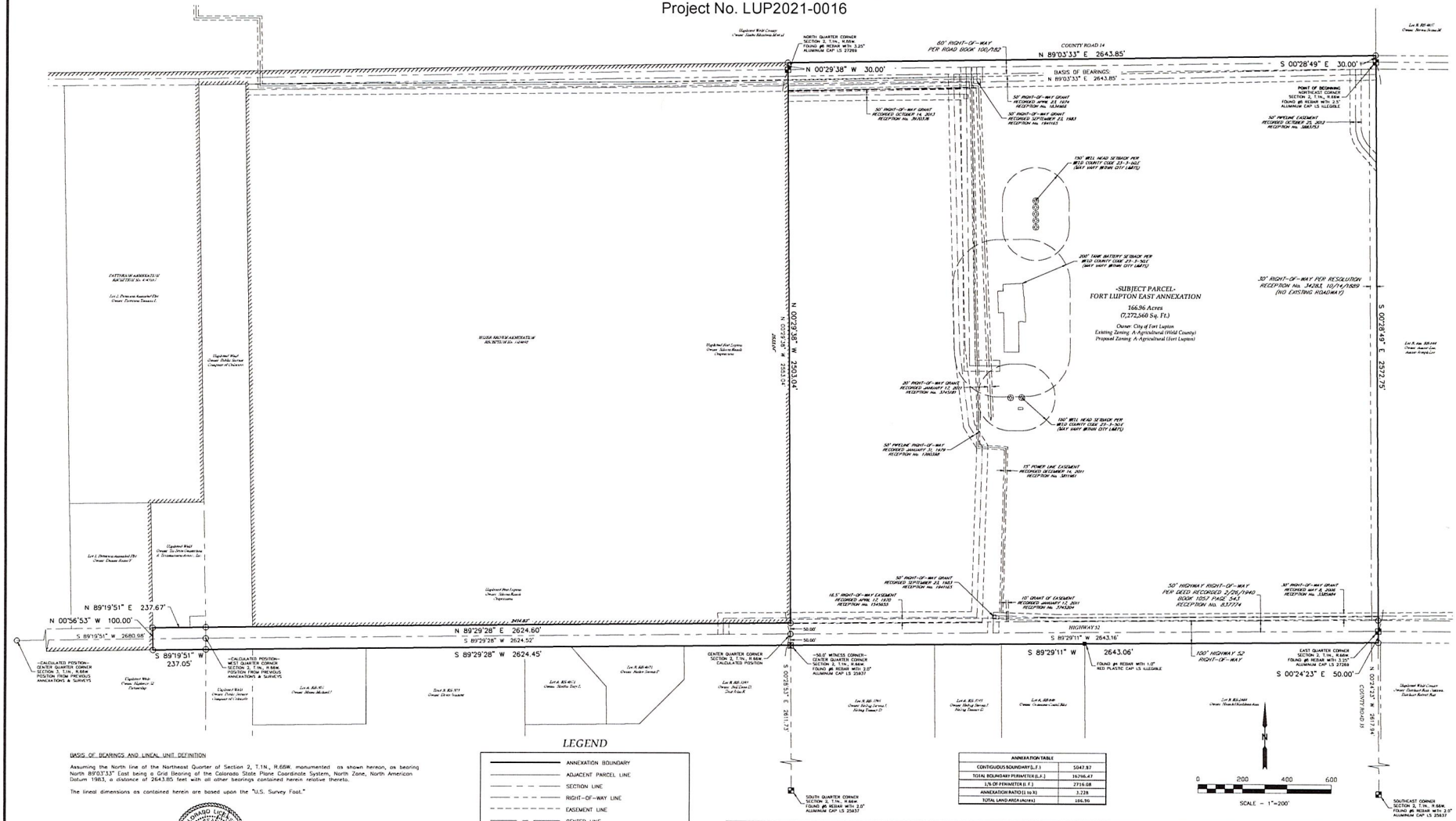
FORT LUPTON EAST ANNEXATION

-To the City of Fort Lupton-

Portions of Sections 2 & 3, Township 1 North, Range 66 West and a Portion of the Southeast Quarter of Section 35, Township 2 North, Range 66 West of the 6th P.M., County of Weld, State of Colorado

Plan No. ANX2021-002 & COZ2021-0003

Project No. LUP2021-0016



BASIS OF BEARINGS AND LINEAL UNIT DEFINITION

Assuming the North line of the Northeast Quarter of Section 2, T.1N., R.66W. monumented as shown hereon, as bearing North 89°03'33" East being a Grid Bearing of the Colorado State Plane Coordinate System, North Zone, North American Datum 1983, a distance of 2643.85 feet with all other bearings contained herein relative thereto.

The lineal dimensions as contained herein are based upon the "U.S. Survey Foot."

COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR JASON S. ALLEE 38479 4-27-21

Sheet 2 of 2

Jason S. Allee-On behalf of Lat40', Inc.
Colorado Licensed Professional
Land Surveyor No. 38479

LEGEND

- ANNEXATION BOUNDARY
- ADJACENT PARCEL LINE
- SECTION LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- CENTER LINE
- EXISTING CITY LIMITS
- FOUND ALIQUOT CORNER AS DESCRIBED
- FOUND ALIQUOT WITNESS CORNER AS DESCRIBED
- FOUND MONUMENT AS DESCRIBED
- CALCULATED POSITION

ANNEXATION TABLE	
CONTIGUOUS BOUNDARY (L.F.)	5047.87
TOTAL BOUNDARY PERIMETER (L.F.)	16796.47
1/6 OF PERIMETER (L.F.)	2716.08
ANNEXATION RATIO (1 to X)	1:7.28
TOTAL LAND AREA (ACRES)	166.96

Lat40°, Inc.
Professional Land Surveyors
6250 W. 10th Street, Unit 2
Greeley, CO 80634
O: 970-515-5294

DATE:	FILE NAME:	DRAWN BY:	CHECKED BY:	SCALE:	PROJECT #:
4/22/2021	2020359ANX	JSA	JA	1"=200'	2020359

REVISIONS: DATE:

FORT LUPTON EAST ANNEX
FOR
CITY OF FORT LUPTON
130 SOUTH MCKINLEY AVENUE
FORT LUPTON, COLORADO 80621

2
SHEET 2 OF 2

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-103

APPROVE A RESOLUTION FOR THE A&D CUSTOM CRUISERS SPECIAL USE PERMIT LOCATED IN THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Proposed Resolution
b. Planning Commission Resolution
c. Planning Commission Minutes
d. Staff Report
e. Land Use Application
f. Special Use Permit Application
g. Special Use Permit Map
h. Referral Responses
i. Legal Notifications

III. **Summary Statement:**

David Corder (the "Applicant") has submitted a request for a special use permit for an auto body and paint shop on a property located at 721 5th Street. The Property is located within the C-1 General Commercial Zone District, which requires a special use permit for all auto, truck, boat, trailer and farm equipment sales, services and repairs.

IV. **Submitted by:** _____ Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

David Corder (the "Applicant") has submitted a request for a special use permit for an auto body and paint shop on a property located at 721 5th Street. The Property is located within the C-1 General Commercial Zone District, which requires a special use permit for all auto, truck, boat, trailer and farm equipment sales, services and repairs.

Section 16-7(d) states that the City shall use the following criteria to evaluate the Applicant's request:

1. *The special use shall satisfy all applicable provisions of the Code and shall be consistent with the intent of the Comprehensive Plan.*

   Staff Comment: The Applicant has been working with City staff to comply with applicable provisions of the Code.

2. *The special use shall not substantially alter the character of the district or the neighborhood.*

   Staff Comment: The property previously operated as an auto parts retail store. Additionally, to the east and west are auto body businesses. An auto body and paint shop conforms to the current character of this neighborhood.

3. *The special use will result in efficient on- and off-site traffic circulation, and will not have an adverse impact on adjacent uses or present hazardous conditions for pedestrians or vehicles.*

   Staff Comment: The proposed use does not add additional traffic from what currently exists.

4. *Adequate conditions of approval shall address traffic; activity levels; light; noise; odor; building type, style and scale; hours of operation; dust; erosion and other performance issues identified through the public hearing process.*

   Staff Comment: The proposed use will have minimal impact on these items. Conditions of approval will address any item that is impacted.

5. *The term of the special use permit and any reporting and inspection requirements as might be reasonably necessary to ensure compliance with conditions of approval may also be specified by the City Council.*

   Staff Comment: A special use permit in non-transferable, and therefore if a new owner were to occupy the property, the auto body and paint shop approved through this application would no longer be permitted unless a new application were submitted and approved. Planning Department staff will ensure compliance with other conditions of approval, either as listed on the proposed Resolution or as added by City Council.

X. Legal/Political Considerations:

The Zoning Regulations require published notice of the hearings at least fifteen (15) days prior to the hearings. The Planning Commission and City Council hearings was published in the Lupton Press on May 26, 2021.

Notice of the public hearings were posted on May 26, 2021, which is at least fifteen (15) days prior to the hearings, as required by the Zoning Regulations.

Notice was mailed to neighbors within one-hundred (100) feet of the parcels that are included with this project on May 25, 2021.

XI. Alternatives/Options:

The City Council has the following three options for each request:

a) Approve the request;
b) Deny the request; or
c) Refer the request back to Planning Commission for further study.

XII. Financial Considerations:

The Applicant has paid all applicable land use application fees and is covering ongoing review expenses.

XIII. Staff Recommendation:

Staff recommends conditional approval of the A&D Custom Cruisers Special Use Permit. The conditions are listed in the proposed Resolution provided to Council.

RESOLUTION NO. 2021Rxxx

A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING DAVID CORDER'S APPLICATION FOR A SPECIAL USE PERMIT FOR AN AUTO BODY AND PAINT SHOP AT 721 5TH STREET AND LOCATED IN THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, the Planning Commission held a public hearing on June 10, 2021, for the purpose of reviewing David Corder's special use permit application for an auto body and paint shop; and

WHEREAS, after review of the application and supporting information, and consideration of staff comments, applicant's presentation and any public input, the Planning Commission recommended approval, with conditions, of the special use permit application; and

WHEREAS, the City Council held a public hearing to consider and review the request for the special use permit on July 6, 2021; and

WHEREAS, after review of the application and supporting information, the City Council finds that the special use permit conforms to Colorado Revised Statutes and City codes and policies therein, and

WHEREAS, all legal requirements for the public hearing have been met, including publication of the legal notice in the Fort Lupton Press, mailing of public hearing notices to adjacent property owners within 100 feet, and posting of the hearing on the site; and

NOW THEREFORE BE IT RESOLVED that the Fort Lupton City Council reviewed the plans and supporting documentation, referral comments, as well as any citizen input in response to this application. Based upon the review of applicable policies and goals in the Fort Lupton Comprehensive Plan, review of the Zoning Regulations, and analysis of referral comments and the facts presented on this date, the City Council hereby approves the A&D Custom Cruisers Special Use Permit, with the following conditions:

I. Prior to recording the special use permit map:

A. The title of the site plan and special use permit map shall include the Project No.: LUP2021-0014 & Plan No. SUP2021-0003.

B. Any redline comments provided by staff shall be made to the special use permit map.

C. Applicant shall work with the Planning Department and Public Works to locate the dumpster appropriately. Applicant shall also provide details on screening of dumpster.

D. Applicant shall provide written acknowledgement of the comments from Pro Code, Inc.

E. Applicant shall provide written acknowledgement of the comments from United Power.

F. Applicant shall provide written evidence that the comments from Public Works have been adequately addressed.

G. Applicant shall provide written evidence that the comments from the Fort Lupton Fire Protection District have been adequately addressed.

H. The following note shall be added:

1. The property shall be maintained to the curb, or roadway if no curb exists.

2. The City reserves the right to reevaluate traffic impacts in the future if there is an increase or change from what was represented to the City in evaluating this special use permit.

3. Any proposed signage shall be submitted to the City for review and permitting.

4. Any future expansion of the site or addition of a buildings or other structures not shown on the special use permit map will require the review from the Planning Department, Building Department, Engineering Department and the Fire District to determine if additional requirements are necessary prior to release of building permits.

II. The mylar map and additional requirements shall be submitted within 120 days from the date of City Council approval.

APPROVED AND PASSED BY A MAJORITY VOTE OF THOSE ELECTED TO THE CITY COUNCIL THIS 6th DAY OF JULY 2021.

City of Fort Lupton, Colorado

_____

Zo Stieber, Mayor

Attest:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

RESOLUTION NO. P2021-015

A RESOLUTION OF THE PLANNING COMMISSION OF FORT LUPTON RECOMMENDING TO CITY COUNCIL APPROVAL OF DAVID CORDER'S APPLICATION FOR A SPECIAL USE PERMIT FOR AN AUTO BODY AND PAINT SHOP AT 721 5TH STREET AND LOCATED IN THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, the Planning Commission held a public hearing on June 10, 2021, for the purpose of reviewing David Corder's special use permit application for an auto body and paint shop; and

WHEREAS, after review of the application and supporting documentation, the Planning Commission finds the request for a special use permit generally conforms with City codes and requirements and policies therein; and

WHEREAS, all legal requirements for the public hearing have been met including publication of the legal notice in the Fort Lupton Press, mailing of public hearing notices to adjacent property owners within 100 feet and posting of the hearing on the site; and

NOW THEREFORE BE IT RESOLVED, the Planning Commission has considered the application and has taken into consideration all referral comments and any citizen testimony in response to this application. Based upon the facts presented on this date, the Planning Commission hereby recommends approval of David Corder's special use permit for an auto body and paint shop on a property at 721 5th Street and located in the Northwest Quarter of Section 5, Township 1 North, Range 66 West of the 6th P.M. in Fort Lupton, Colorado, with the following conditions:

I. Prior to recording the special use permit map:

A. The title of the site plan and special use permit map shall include the Project No.: LUP2021-0014 & Plan No. SUP2021-0003.

B. Any redline comments provided by staff shall be made to the special use permit map.

C. Applicant shall work with the Planning Department and Public Works to locate the dumpster appropriately. Applicant shall also provide details on screening of dumpster.

D. Applicant shall provide written acknowledgement of the comments from Pro Code, Inc.

E. Applicant shall provide written acknowledgement of the comments from United Power.

F. Applicant shall provide written evidence that the comments from Public Works have been adequately addressed.

G. Applicant shall provide written evidence that the comments from the Fort Lupton Fire Protection District have been adequately addressed.

H. The following note shall be added:

1. The property shall be maintained to the curb, or roadway if no curb exists.

2. The City reserves the right to reevaluate traffic impacts in the future if there is an increase or change from what was represented to the City in evaluating this special use permit.

3. Any proposed signage shall be submitted to the City for review and permitting.

4. Any future expansion of the site or addition of a buildings or other structures not shown on the special use permit map will require the review from the Planning Department, Building Department, Engineering Department and the Fire District to determine if additional requirements are necessary prior to release of building permits.

II. The mylar map and additional requirements shall be submitted within 120 days from the date of City Council approval.

DONE THIS 10h DAY OF JUNE, 2021 BY THE PLANNING COMMISSION FOR THE CITY OF FORT LUPTON, COLORADO.

Chairman

ATTEST:

Planning Director

RECORD OF PROCEEDINGS
FORT LUPTON PLANNING COMMISSION
June 10, 2021

The Planning Commission of the City of Fort Lupton met in session at the City Complex, 130 South McKinley Avenue, the regular meeting place of the Planning Commission and virtually via GoToMeeting, on Thursday, April 8, 2021.

Chair Mike Simone called the meeting to order at 6:00 p.m. and gave the following advisement:

Tonight's meeting shall be held virtually so as to ensure the health and safety of the general public and the City of Fort Lupton Planning Commission and staff.

The intent and purpose of the virtual appearance options is to allow the City to be innovative in providing the general public the most meaningful access possible in light of the current challenges present as a result of the Covid-19 pandemic. Therefore, subject to social distancing and public health orders, members of the general public will be offered the opportunity to be electronically present for meetings at the City, subject to existing health conditions.

An electronic link has been made available for tonight's meeting on the City's website and social media platforms and as posted at City Hall, so that the general public, Planning Commission and staff may participate electronically via the internet or on the phone.

ROLL CALL

Roll was taken and those present were Chair Mike Simone and Commission Members Carlos Barron and Kathy Kvasnicka. Member Lynne Derby participated via phone. Also in attendance were City Planner II Alyssa Knutson, City Planner I Maria Lancto, and Administrative Assistant Magaly Morales-Tejada.

APPROVAL OF AGENDA

A motion to approve the agenda was moved by Carlos Barron and seconded by Kathy Kvasnicka.

CONSENT AGENDA

A motion to approve the consent agenda was moved by Carlos Barron and seconded by Kathy Kvasnicka.

PUBLIC COMMENT

Chair Simone asked if there was anyone who would like to comment on an item not on the agenda tonight. Hearing none, he closed Public Comment.

ACTION ITEMS

P2021-015: A&D Custom Cruisers

Chair Simone addressed the applicant, David Corder, 155 Valle Dr. and asked if he understood that a Member of the Planning Commission is appearing tonight via virtual connection and will not be appearing

in-person. He asked if he consented to the applicable member voting on his submittal, even though said member was not present in person and if he voluntarily signed and submitted the written waiver and consent to proceed electronically tonight.

Mr. Corder stated yes to all questions.

Planner Maria Lancto presented this item. She stated that this application was submitted for a special use permit for an auto body and paint shop at a site located at 721 5th Street in the 'C-1' General Commercial Zone District. Ms. Lancto stated that this site was previously an auto parts retail store, and there are other auto body businesses in the immediate area, which is why staff is supportive of the special use permit. Ms. Lancto stated that all notification requirements had been met, including posting in the newspaper and mailing to all surrounding properties. She stated that Mr. Corder was present to answer any questions.

Mike Simone addressed the applicant, David Corder. He asked if he had anything to add or present on behalf of his application.

Mr. Corder stated that he started his business in Fort Lupton in 2006 and was simply moving locations within the city.

Chair Simone opened up the public comment portion of the Hearing for the action item. Hearing no one from the public wishing to speak, Chair Simone closed the Public Hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions. With no questions from Planning Commissioners, Chair Simone called for a motion to approve P2021-0015.

It was moved by Carlos Barron and seconded by Kathy Kvasnicka. Motion passed unanimously.

P2021-016 Murata Farms Preliminary Plat & Preliminary PUD Plan

Chair Simone addressed the applicant, Eric Eckberg, 2696 S Colorado Blvd, and asked if Mr. Eckberg understood that a Member of the Planning Commission is appearing tonight via virtual connection and will not be appearing in-person, if he consented to the applicable member voting on his submittal, even though said member was not present in person, if he voluntarily signed and submitted the written waiver and consent to proceed electronically tonight and if he waived his right to have said member appear in person and consented to proceed with tonight's hearing.

Mr. Eckberg stated yes to all questions.

Planner Alyssa Knutson presented this item. She stated that this application was for a Preliminary Plat and Preliminary PUD Plan for a property located south of Hwy 52 and west of County Road 29, to be known as the Murata Farms Subdivision. She stated that this application was for a mixed density residential development which will also include commercial development on the upper northeast corner. Ms. Knutson stated that the Preliminary Plat is platting 180 single family residences and future phases will include mixed use residential and commercial. She stated that there are several trails and pocket parks. Ms. Knutson stated

that zoning is currently PUD and the proposal complies with the PUD zoning. Ms. Knutson stated that all notification requirements had been met and that the applicant had a presentation for the commission.

Eric Eckberg stated that also present with him was Travis Frazier, Project Engineer and Karen Henry, Planner. Mr. Eckberg stated that the sketch plat for this project was previously approved by the Planning Commission and since then a new subdivision, Mountain Sky, has developed to the south. He stated that they have coordinated infrastructure with Mountain Sky. Mr. Eckberg stated that there will be 280 lots, with varying lot sizes allowing for single-family detached, single-family attached and multi-family units as well as varying price points. Mr. Eckberg stated that the commercial village corner will provide amenities to the community. Mr. Eckberg referred to the utility plan and pointed out that there is a non-potable water line that they will tie in to Mountain Sky's non-potable infrastructure to use for irrigation. He also pointed out that the regional detention pond on the southwest corner will be completed. Mr. Eckberg referred to the street improvements map and stated that they will be doing improvements to Highway 52 as well as turn lane improvements. Mr. Eckberg stated that all the infrastructure is tied to phase one, the single family lots. He stated that phase 3 and 4 are interchangeable or may occur concurrently. He then referred to the trail map and stated that they will have several connecting trails to the surrounding areas. Mr. Eckberg stated that they will be providing several amenities in the parks such as play structures, shelters and picnic tables. Mr. Eckberg stated that they believe this subdivision is a logical extension to Fort Lupton.

Chair Simone opened up the public comment portion of the Hearing for the action item. Seeing no one from the public wishing to speak, Chair Simone closed the Public Hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions.

Member Barron asked if the native weeds and plants near the well site would be left there.

Mr. Eckberg stated yes. Mr. Frazier added that that is part of the easement agreement with Occidental Petroleum Corp.

Chair Simone asked if the fencing would be wood or vinyl. He stated that he would like to see consistency and asked if this decision would be the developers or each home owner's.

Ms. Henry stated that at this phase in the plan they are leaving the option to either wood or vinyl but will ultimately be the developers decision for perimeter fencing. She stated that any open space or trail corridor will be open rail fencing, fencing on rear-yard and side-yard on homes will be privacy fencing. She stated that they will set a standard to provide consistency.

Chair Simone stated that he is not personally a fan of wood fencing on the perimeter and would like to see vinyl fencing, he also stated that he has seen standards in other cities where the developer installs fencing and likes how that works.

Ms. Henry stated that is something that they could consider.

Chair Simone asked if they would consider vinyl fencing on the perimeter?

Ms. Henry stated that they could definitely look at it with the team, she stated that in many cases a stain on wood fencing prevents sprinkler rings.

Member Kvasnicka added that she has seen many different materials that should be considered for the fencing.

Chair Simone asked that a condition of approval be added stating that the applicant will present to City Council the pros and cons of different fencing materials.

Chair Simone asked if there will be a standard for streetlights to be downcast

Mr. Frazier stated that in the current state of design they have not yet addressed streetlight standards but they will work with United Power's standards as well as consider public safety when lighting pathways and roadways while keeping in mind the concerns of the commission of lighting spilling out to surrounding properties.

Chair Simone asked that a condition of approval be added stating that they will present downcast lighting to City Council.

Chair Simone asked if the hook up to the water main connection to Silverado would cause a decrease in pressure to surrounding neighborhoods.

Roy Vestal, Public Works Director, stated that this line was recently connected to the Mountain Sky development and there was no change in pressure. He stated that this connection actually removes the potential of stale water due to the dead end on Silverado.

Mr. Frazier added that looping the water system should help stabilize the system and that they will be providing a water model and ensure that they are not creating any pressure drops.

Chair Simone asked for clarification the number of units.

Mr. Eckberg stated that there will be 180 single-family, he stated that 60 units more or less are planned for phase 3 and phase 4, based on acreage and density. For a total of 300 units.

Mr. Frazier stated that one of the conditions of approval is a preliminary plat for phases 3 and 4.

Chair Simone asked if they are looking at 4 sided architecture for homes facing highway 52.

Mr. Eckberg stated that they are and they welcome city planners input.

Chair Simone asked if they have an idea of when the traffic light will be installed.
Mr. Frazier stated that they do not yet, they are reevaluating the access based on CDOT's comments and are working with the city.

Chair Simone asked if this would be a metro district and if so, how many mills they would have.

Mr. Eckberg stated that they would be following the standard service plan for Fort Lupton and he believes that they are 55 mills.

Member Barron asked if they had an idea of what commercial would be coming in to the commercial village.

Mr. Eckberg stated that they do not know, but that it is a large area that gives opportunity for various commercial developments.

Chair Simone called for a motion to conditionally approve P2021-0016. It was moved by Carlos Barron and seconded by Lynne Derby. Motion passed unanimously.

DISCUSSION ITEMS

Review of Meeting Discussion

A review of meeting discussions took place.

Development Code Update

A discussion of the Development Code Update took place.

FUTURE BUSINESS

The next meeting of the Planning Commission is scheduled for June 24, 2021 at 6:00 PM.

ADJOURNMENT

Chair Simone adjourned the meeting at 6:47 PM.

Submitted by

Magaly Morales-Tejada, Planning Assistant

Approved by Planning Commission

Mike Simone, Chair-person

A&D CUSTOM CRUISERS
SPECIAL USE PERMIT STAFF REPORT
Project No. LUP2021-0014 & Plan No. SUP2021-0003

PROJECT DESCRIPTION

Project No.: LUP2021-0014 / Plan No. SUP2021-0003

Project Name: A&D Custom Cruisers Special Use Permit

Applicant's Name: David Corder with A&D Custom Cruisers LLC

Location of Request:

The site is located at 721 5th Street in a portion of the Northwest Quarter of Section 5, Township 1 North, Range 66 West of the 6th P.M. in Fort Lupton, Colorado. The site is situated at the northwest corner of the intersection of 5th Street and Main Street.



Nature of Request:

The Applicant has submitted a request for a special use permit for an auto body and paint shop on a property located at 721 5th Street. This property is zoned C-1 General Commercial. Within the C-1 Zone District, a special use permit is required for auto, truck, boat, trailer and farm equipment sales, services and repairs.

Site Size: The Property is 0.241 acres, more or less.

Zone District: 'C-1' General Commercial

Proposed Use: Auto body and paint shop.

Existing Use: Currently vacant; previously was an auto parts retail store.

Hearing Dates: Planning Commission: Thursday, June 10, 2021 at 6:00
City Council: Tuesday, July 6, 2021 at 7:00 PM

Hearing Location: Fort Lupton City Hall – Council Chambers, 130 S. McKinley Ave., Fort Lupton, Colorado, or virtually via GoToMeeting.

Staff Recommendation: Approval with conditions, as shown on the proposed resolution.

SUMMARY OF PREVIOUS APPLICATIONS

To staff's knowledge, there are no prior applications for these properties through the City of Fort Lupton.

APPLICATION PROCESS

The Applicant is requesting approval of a special use permit for an auto body and paint shop. A special use permit application is processed under Section 16-7 of the Code.

After required public notice of the special use permit application, the Planning Commission shall consider the application, referral comments and any public testimony at a public hearing and make a recommendation to City Council to approve, approve with conditions or deny the special use permit. The Planning Commission's comments shall be based on the evidence presented, conformance with the Comprehensive Plan and compliance with the City's standards, regulations and policies.

The City Council shall then conduct a public hearing and evaluate the application, referral agency comments, Planning Commission recommendation and any public testimony, and shall approve, conditionally approve, continue for additional information or for further study or deny the application based on the evidence presented and compliance with the City's standards, regulations and policies and other guidelines.

NOTIFICATION REQUIREMENTS

The Zoning Regulations require published notice of the hearings at least fifteen (15) days prior to the hearings. The Planning Commission and City Council hearings was published in the Fort Lupton Press on May 26, 2021.

Notice of the public hearings was posted on May 26, 2021 at the Property, which is at least fifteen (15) days prior to the hearings, as required by the Zoning Regulations.

Notice was mailed to neighbors within one-hundred (100) feet of the Property on May 25, 2021, as required by the Zoning Regulations of the Code.

CONFORMANCE WITH CITY STANDARDS, REGULATIONS AND POLICIES

The property is located within the 'C-1' General Commercial Zone District. The Municipal Code does not list auto body and paint shops as a use by right, but does list auto, truck, boat, trailer and farm equipment sales, services and repairs as being allowed with an approved special use permit. Section 16-7 states that it is the intent of the special use permit is to provide flexibility, to provide a means for setting performance standards for individual land uses and to help diversify uses within a zoning district. It furthers states that the list of permitted uses in each zone district is exclusive, meaning that uses not specifically described are not permitted, but similar uses and compatible uses, may be permitted as special uses as set forth in [Section 16-7].

Section 16-7(d) states that the City shall use the following criteria to evaluate the Applicant's request for a special use permit:

1. The special use shall satisfy all applicable provisions of the Code and shall be consistent with the intent of the Comprehensive Plan.

   Staff Comment: The Applicant has been working with City staff to comply with applicable provisions of the Code.

2. The special use shall not substantially alter the character of the district or the neighborhood.

   Staff Comment: The property previously operated as an auto parts retail store. Additionally, to the east and west are auto body businesses. An auto body and paint shop conforms to the current character of this neighborhood.

3. The special use will result in efficient on- and off-site traffic circulation, and will not have an adverse impact on adjacent uses or present hazardous conditions for pedestrians or vehicles.

   Staff Comment: The proposed use does not add additional traffic from what currently exists.

4. Adequate conditions of approval shall address: traffic; activity levels; light; noise; odor; building type, style and scale; hours of operation; dust; erosion and other performance issues identified through the public hearing process.

   Staff Comment: The proposed use will have minimal impact on these items. Conditions of approval will address any item that is impacted.

5. The term of the special use permit and any reporting and inspection requirements as might be reasonably necessary to ensure compliance with conditions of approval may also be specified by the City Council.

   Staff Comment: A special use permit in non-transferable, and therefore if a new owner were to occupy the property, the auto body and paint shop approved through this application would no longer be permitted unless a new application were submitted and approved. Planning Department staff will ensure compliance with other conditions of approval, either as listed on the proposed Resolution or as added by City Council.

CONFORMANCE WITH THE COMPREHENSIVE PLAN

The Fort Lupton Comprehensive Plan designates this area as the Downtown Mixed-use type. Largely defined within the Downtown Subarea Plan, this area is intended for higher density mixed-use development that will establish an urban, pedestrian-oriented district at the heart of the community.

While auto oriented uses are not encouraged in this land use designation, the special use permit is appropriate due to the small scale of this shop and the temporary nature of a special use permit. Additionally, the existing building, which will be utilized, is oriented towards the street contributing to the urban and pedestrian oriented character of this area.

REFERRALS

Referrals were provided to the list below. Any comments received are enclosed with the Planning Commission packet.

Building Inspector	OMI	City Attorney
GIS Specialist	Police Chief	Public Works Director
Fort Lupton Fire Protection District	CDOT	United Power
Comcast	CenturyLink	Xcel Energy
Postmaster		

STAFF RECOMMENDATION

Staff recommends conditional approval of the A&D Custom Cruisers Special Use Permit. Conditions are listed under the proposed Resolution included with the Planning Commission packet.

For more information on this development, please refer to the Planning Commission packet provided. Additional documents are available for review at the Fort Lupton City Hall.

Form AN003

CITY OF

Fort Lupton
EST 1836

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Project No. _____

Land Use Application Form

A. CONTACT INFORMATION

1) Property Owner Name: Don & LuAnn Patton

Company: _____

Phone: 303-901-2413 Email: _____

Address: 4502 County Rd 31 Fort Lupton Colo 80621

Preferred method of contact? Email: (Phone:) Mail:

2) Representative Name: David Corder

Company: A+D Custom Cruisers LLC

Phone: 303-857-4947 Email: ADCustomcruisers@Gmail.com

Address: 1340 Factory Circle Ft. Lupton CO 80621

Preferred method of contact? Email: (Phone:) Mail:

3) Billing Contact *(where invoices should be directed to)*: David Corder

Billing Company: A+D Custom Cruisers LLC

Phone: 303-857-4947 Email: ADCustomcruisers@gmail.com

Address: 1340 Factory Circle Ft Lupton Co 80621

B. SITE DESCRIPTION

Site Address: 721 - 5th st. Fort Lupton CO 80621

Parcel Number: _____

Existing Zone Classification: _____ Proposed Zone Classification: _____

Water Type: City Name: _____

Sewage Type: City District Name or Location Hauled to: _____

C. APPLICATION TYPE (CHECK ALL THAT APPLY)

Sketch Plat	Administrative Site Plan	PUD Plan (Preliminary & Final)
Preliminary Plat	(Special Use Permit)	Variance
Final Plat	Oil & Gas Permit	Administrative Variance
Minor Subdivision	Annexation & Initial Zone	Appeal
Amended Plat	Change of Zone	Other: _____
Site Plan	Comp Plan Amendment	

Project No. _____

D. PROJECT DESCRIPTION

Project Name: _____

Please provide a short description of the proposed project in the space provided below:

Auto Body & Paint Shop

E. REQUIRED DOCUMENTS

For an application to be considered complete, and for planning staff to begin review and schedule any applicable public hearings, this Land Use Application Form must be fully completed and all required attachments included. Planning staff will review the application for completeness and will provide notice to the representative and/or owner whether the application has been deemed complete.

F. CERTIFICATIONS

Representative Certification

By signing this application, I attest that I am acting with the knowledge and consent of all owners of the property that is the subject of this application, and that I have been designated to act as the representative for the project described in this land use application. I further certify that all information submitted with this application is true and accurate to the best of my knowledge.

Representative: David Corder Date: 2-19-2021

Owner Certification

I hereby certify that I am the legal owner of record of the property that is the subject of this application. I authorize the representative listed on this application, if any, to communicate directly with City officials and to submit documentation and information regarding this application on my behalf.

Owner: Don Patton Date: 2-19-2021

For Office Use Only

Received Date: _____

If the application is not complete, state reasons why it is incomplete:

Deemed Complete Date: _____

Fees Submitted: _____ Escrow Submitted: _____

Form PLAN003

CITY OF
Fort Lupton
EST 1836

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303-857-6694
Fax: 303.857.0351
www.fortluptonco.gov

APPLICATION FOR SPECIAL USE PERMIT

A pre-application conference and site visit may be required prior to submitting the Special Use Permit Application. The applicant may meet with representatives from the Planning Department to discuss the applicant's intended submittal, the City's application requirements and processes and other information relevant to the proposed application. Please contact the Planning Department at 303-857-6694.

Applicant should provide the following:

1. Plat of area with proposed zoning with vicinity map identifying site and surrounding area. If you are constructing a new building or adding to an existing building as part of this application, you must also submit a plot plan, construction plans, and a drainage plan. Approval of the special use permit will be based upon the drawings submitted unless changes are recommended by the engineer, planning commission, or city council.
2. Information as requested.

The applicant is responsible for the following:

1. Posting a hearing notice on the property 15 days prior to the hearing.

Name of Property Owner(s): Don & LuAnn Patton Phone: 303-901-2413

Address: 4502 County Rd 31 Fort Lupton CO 80621

Applicant (if different from owner): DAVID Corder

Address: 155 Valle Dr. Ft. Lupton CO 80621

Home Phone: N-A Cell Phone: 303-710-0404

Address or location of Property for which Special Use Permit is being requested:
721 - 5th Street Fort Lupton CO 80621

Legal Description _____

Current Zoning: _____

Reason for Request: to Move my Body shop & Paint shop A&D Custom Cruisers

Please answer the following questions in detail.

1. What is the proposed use? Auto Body & Paint shop

2. How will the proposed use impact the surrounding properties as it relates to the following areas:

   Noise Limited to Inside the Bildig - Running Air Compressor & Fan's -

   Dust Inside the Building

   Odor maybe A little - Everthing is Filtered

   Safety Not

   Traffic Not

   Light Not

3. What are the proposed hours of operation? 8Am to 6pm Monday - Friday - Sometimes Saturdays

4. Are you required to obtain any special licenses or permits through any other government agency? If yes, what types of licenses and permits are required?

   NO

5. If this application is for a daycare, how many children will you be caring for?

   NO

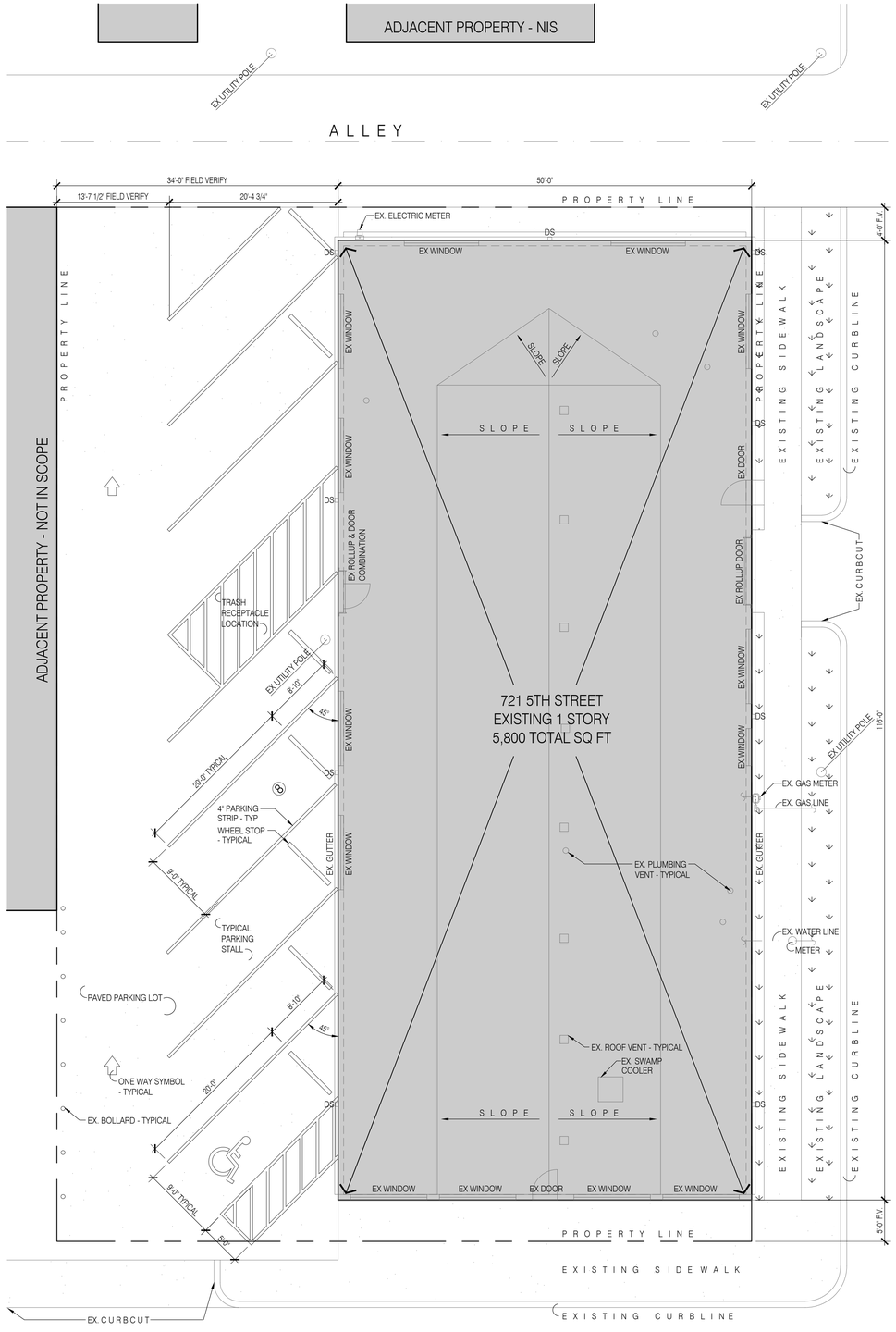
6. If this application is for an assisted living facility, how many units will you have in the facility? NO

7. How many employees will work at the proposed facility?

   5 - 8 person's

The applicant hereby certifies that the above information, along with the attached plans and project descriptions, is correct. The applicant agrees to comply with the provisions of the zoning ordinances, building code and all other applicable sections of the City Code, Land Use Code, City Plan and all other laws and ordinances affecting the construction and occupancy of the proposed building.

Signature(s): David Conlon Date: 2-19-2021



1 ARCHITECTURAL SITE & ROOF PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

ZONING INFORMATION:

ADDRESS: 721 5TH STREET, FORT LUPTON, CO 80621

ZONE DISTRICT	PRIMARY USE(S)	ZONE LOT SIZE (GROSS AREA)	GROSS FLOOR AREA BY USE	LANDSCAPE AREA (GROSS AREA)
C-1	AUTOBODY SHOP (F-1)	10,500 SF	5,800 SF AUTOBODY SHOP (F-1)	N/A

BUILDING HEIGHT, STORIES (MIN./MAX)	BUILDING HEIGHT, FEET (MIN./MAX)	TRANSPARENCY PROVIDED (PRIMARY STREET)	BUILDING FORM
1	15'	N/A	INDUSTRIAL

STANDARD PARKING SPACES		COMPACT PARKING SPACES		ACCESSIBLE PARKING SPACES		TOTAL PARKING SPACES		BICYCLE PARKING SPACES	
PROVIDED: 7	REQUIRED: 5	PROVIDED: 00	REQUIRED: 00	PROVIDED: 01	REQUIRED: 01	PROVIDED: 8	REQUIRED: 6	PROVIDED: 00	REQUIRED: 00

LEGAL DESCRIPTION	RECEPTION NO. 2763646, LOTS 10, 11, 12, BLOCK 12, IN THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PREVIOUS USE	AUTO PARTS RETAIL STORE (M)
PROPOSED USE	AUTOBODY SHOP (F-1)
TOTAL BUILDING AREA	5,800 SF (PER ASSESSOR'S RECORDS)
EXISTING BUILDING PERMIT & ZONING LOG #	ZONING: NONE LISTED
	BUILDING PERMITS: NONE LISTED

SITE PLAN GENERAL NOTES

1. VERIFY EXACT LOCATION OF ALL UTILITIES IN THE FIELD. THIS DRAWING IS TO BE USED AS A UTILITY REFERENCE ONLY.
2. VERIFY ALL DIMENSIONS SHOWN FOR EXISTING CONDITIONS.
3. NOTIFICATION OF DISCREPANCIES SHOULD BE ISSUED TO THE ARCHITECT IMMEDIATELY UPON DISCOVERY.
4. COMPLY WITH ALL LOCAL, STATE, NATIONAL, AND FEDERAL SAFETY REQUIREMENTS. COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE STARTING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

SPECIAL USE PERMIT APPLICATION

CERTIFICATIONS FOR SITE PLAN, SPECIAL USE PERMIT AND CHANGE OF ZONE APPLICATIONS

PROPERTY DESCRIPTION

A parcel of land in the City of Fort Lupton, Colorado, located in the NW of 1/4 of Section 05, T 01, R 66 of the 6th P.M. and more particularly described as follows:

RECEPTION NO. 2763646, LOTS 10, 11, 12, BLOCK 12, IN THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

OWNER'S APPROVAL

Know All Men By These Presents, that GENERAL PARTS DISTRIBUTION LLC , being the sole owner of the land described herein, and _____ are all of the mortgagees and holders of liens upon the property, and each and all hereby consent to this plat and join the conveyance and dedication of all streets, roads, alleys, easements, public ways and places shown hereon.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this ___ day of _____, 2016.

_____

STATE OF COLORADO,)
) ss
COUNTY OF WELD)

The foregoing instrument was acknowledged before me by _____ on this ___ day of _____, 2016. Witness my hand and seal.

My commission expires _____.

_____
Notary Public

CITY ENGINEER'S APPROVAL

Approved this ___ day of _____, 2016.

_____
City Engineer

CITY WATER AND SEWER DEPARTMENT APPROVAL

Approved this ___ day of _____, 2016.

_____
Director of Public Works

CITY ADMINISTATOR'S APPROVAL

Approved this ___ day of _____, 2016.

_____
City Administrator

PLANNING COMMISSION RECOMMENDATION

Recommended this ___ day of _____, 2016, by Resolution No. _____.

_____
Chairperson, Fort Lupton
Planning Commission

MAYOR'S CERTIFICATE

This is to certify that a plat of the above-described property was approved by [Ordinance/Resolution] No. _____ of the City of Fort Lupton passed and adopted on the ___ day of _____, A.D., 2016 and that the Mayor of the City of Fort Lupton, as authorized by said [ordinance/resolution] on behalf of the City of Fort Lupton, hereby acknowledges and adopts the said plat upon which this certificate is endorsed for all purposes indicated thereon.

_____
Mayor

Attest:

_____
City Clerk

(Seal)

SK2 ARCHITECTURE
Studio K2 Architecture
1525 Market St., Suite 200
Denver, CO 80202
Phone: 303.534.4480

The Professional Architect's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments or other documents not exhibiting this seal shall not be considered prepared by this architect, and this architect expressly disclaims any and all responsibility for such plans, drawings or documents not exhibiting this seal.

A&D CUSTOM CRUISER
SITE PLAN FOR SPECIAL USE PERMIT
SITE PLAN UPDATE
721 5TH STREET
FORT LUPTON, CO 80621

NO. REVISION / SUBMISSIONS	DATE
USE PERMIT SET	05.03.21

PROJECT NUMBER	DATE
2021.013	05.03.21

ARCHITECTURAL SITE & ROOF PLAN

DRAWING NUMBER

AS001

Fort Lupton Fire Protection District
1121 Denver Avenue • Fort Lupton, Colorado 80621
Office: (303)857-4603 • Fax: (303)857-6619 • Website: www.fortluptonfire.org

Date: 04/12/2021
Project name: A&D Custom Cruisers Special Use Permit (LUP2021-0014)
Project address: 721 5th St., Fort Lupton, CO 80621
FLFPD Project # R2021-0024
Plan reviewer: Taw Tamlin, Fire Marshal

The Fire District has reviewed the submittal review for **A&D Custom Cruisers Special Use Permit (LUP2021-0014)** located at **721 5th St.,** Fort Lupton, CO 80621. The submittal was reviewed for compliance with *2012 International Fire Code (IFC)* and National Fire Protection Association (*NFPA)* standards as adopted by the Fort Lupton Fire Protection District, the City Council of Fort Lupton and the Weld County Commissioners. The following specific requirements and conditions shall be met prior to operations.

Specific Requirements

1. Any property owner or authorized agent who intends to conduct an operation or business, or install or modify systems and equipment which is regulated by this code, or to cause any such work to be done, shall first make application to the fire code official and obtain the required permit. *2012 IFC, 105.1.1*
2. Application for a permit required by this code shall be made to the fire code official in such form and detail as prescribed by the fire code official. Applications for permits shall be accompanied by such plans as prescribed by the fire code official. *2012 IFC, 105.2*
    a. *Directions for submitting for plan reviews, Fee Schedule, and Plan Review Application can be found at https://fortluptonfire.org/contractors/*
3. Spray application operations shall meet the requirements of section 2404 of the 2012 International Fire Code and NFPA 33, Spray Application Using Flammable or Combustible Materials.
4. It shall be the responsibility of the applicant to ensure that the construction documents include all of the fire protection requirements and the shop drawings are complete and in compliance with the applicable codes and standards.

Spray Booths,

1. Spray booths shall be installed so that all parts of the booth are readily accessible for cleaning. A clear space of not less than 3 feet shall be maintained on all sides of the spray booth. This clear space shall be kept free of any storage or combustible construction. *2012 IFC 2404.3.2.5*

a. Exceptions:

1. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to or directly against an interior partition, wall or floor/ceiling assembly that has a fire-resistance rating of not less than 1 hour, provided the spray booth can be adequately maintained and cleaned.

2. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to an exterior wall or a roof assembly, provided the wall or roof is constructed of noncombustible material and the spray booth can be adequately maintained and cleaned.

2. Spray booth and spray rooms shall be protected by an approved automatic fire-extinguishing system complying with Chapter 9. Protection shall extend to exhaust plenums, exhaust ducts and both sides of dry filters when such filters are used. *2012 IFC 2404.4*

3. Spray booths, spray rooms, and spraying spaces shall not be alternately utilized for different types of coating materials where the combustion of materials is conducive to spontaneous ignition, unless all deposits of one material are removed from the booth, room or space and exhaust ducts prior to spraying with a different material. *2012 IFC 2404.5.1*

4. Automatic sprinklers installed in flammable vapor areas shall be protected from the accumulation of residue from spraying operations in an approved manner. Bags used as a protective covering shall be 0.003-inch-thick (0.076 mm) polyethylene or cellophane or shall be thin paper. Automatic sprinklers contaminated by overspray particles shall be replaced with new automatic sprinklers. *2012 IFC 2404.5.2*

5. Control of sources of ignition shall be in accordance with Section 2403.2 and Sections 2404.6.1 through 2404.6.2.4. *2012 IFC 2404.6*

6. Portable electric lamps shall not be used in flammable vapor areas during spraying operations. Portable electric lamps used during cleaning or repairing operations shall be of a type approved for hazardous locations. *2012 IFC 2404.6.2.4*

7. Mechanical ventilation of flammable vapor areas shall be provided in accordance with Section 502.7 of the International Mechanical Code. *2012 IFC 2404.7*

8. Mechanical ventilation shall be kept in operation at all times while spraying operations are being conducted and for a sufficient time thereafter to allow vapors from drying coated articles and finishing material residue to be exhausted. Spraying equipment shall be interlocked with the ventilation of the flammable vapor areas such that spraying operations cannot be conducted unless the ventilation system is in operation. *2012 IFC 2404.7.1*

9. Air exhausted from spraying operations shall not be recirculated. *2012 IFC 2404.7.1*

10. All applicable requirements of NFPA 33, Standard for Spray Application Using flammable or Combustible Materials shall be met. NFPA 33 can be found at www.nfpa.org

11. An audible/visual indicator shall be provided to show that the system has operated, that personnel response is needed, and the system is in need of recharge. *NFPA 17A, 5.2.1.8*
    a. A horn strobe shall be mounted on the outside front of the building.
    b. Plans for the instillation of the Alarm System shall be submitted for review as per NFPA 72.

5. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official.

   A Knox Box shall be placed next to the front door of the building
   a. Application for Knox can be found at https://www.knoxbox.com/ .

6. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the fire code official from requiring the correction of errors in the construction documents and other data. Any addition to or alteration of approved construction documents shall be approved in advance by the fire code official, as evidenced by the issuance of a new or amended permit. *2012 IFC, 105.3.6*

Required Plan Reviews and inspections

- A site/floor plan from a certified architect shall be submitted.
- Construction Plan of the spray booth and supporting data.
- Plans for fire suppression system.
- Key placement in KNOXBOX
- Final fire code inspection of the building and booth.

It shall be the duty of the holder of the permit or their duly authorized agent to notify the fire code official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

Please contact Fire Marshal, Taw Tamlin at 303-857-4603 one week in advance to schedule the final inspection or if you have questions or need further assistance.

CITY OF
Fort Lupton
EST 1836

Public Works

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

MEMO

To: Todd Hodges
Alyssa Knutson

From: Roy Vestal

Date: May 28, 2021

Subject: A&D Custom Cruisers Special Use Permit (LUP2021-0014)
Site Plan Review

Public Works has reviewed the submitted information for the above referenced development project with the following comments for inclusion with the Site Plan submittal.

1. **Utilities -**
    a. **Water - Chapter 3**
        i. No cross connections are documented at this location on our Back Flow database.
        ii. Section 3.24.08 Backflow prevention may be required for this service connection. Any pressure creating devices would require back flow protection.
        iii. Please have a certified backflow technician inspect the plumbing at this location to determine if backflow devices are required. Contact Amber for more information for who is on the certified list and how to obtain an inspection report.

Magaly Morales-Tejada

From: Jonathan Gesick
Sent: Friday, May 14, 2021 2:59 PM
To: Magaly Morales-Tejada
Cc: Maria Lancto; Alyssa Knutson; Todd Hodges
Subject: RE: Referral Response Request: A&D Custom Cruisers Special Use Permit (LUP2021-0014)

Not sure what the building has been used for in the past but a Change of Use permit may be required. Also the installation of a paint booth would require a building permit.

Jonathan Gesick
Certified Building Official
(970) 305-3161
www.procodeinc.net

Confidentiality Notice: This electronic transmission and any attached documents or other writings are intended only for the person or entity to which it is addressed and may contain information that is privileged, confidential or otherwise protected from disclosure. If you have received this communication in error, please immediately notify sender by return e-mail and destroy the communication. Any disclosure, copying, distribution or the taking of any action concerning the contents of this communication or any attachments by anyone other than the named recipient is strictly prohibited.

From: Magaly Morales-Tejada
Sent: Wednesday, May 12, 2021 1:51 PM
Cc: Maria Lancto; Alyssa Knutson; Todd Hodges
Subject: Referral Response Request: A&D Custom Cruisers Special Use Permit (LUP2021-0014)

Good Afternoon,

The documentation located at the following link is submitted to you for review and recommendation for a special use permit being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/599.

Any comments you consider relevant to this request would be appreciated. Please reply by **June 2, 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearings for this matter are scheduled for:

- Planning Commission: Thursday, June 10, 2021 at 6:00 PM; and
- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111



The information transmitted is intended only for the person or entity to which it is addressed and may contain CONFIDENTIAL material. If you receive this information in error, please delete or destroy the information.

Please be cautious
This email was sent outside of your organization

June 1, 2021

Fort Lupton Planning Department
130 S. McKinley Avenue
Fort Lupton, CO 80621
www.fortlupton.org

Re: A&D Custom Cruisers Special Use Permit Project No. LUP2021-0014; Plan No. SPR2021-0003

Dear Mr. Hodges and Ms. Knutson:

On behalf of United Power, Inc., thank you for inviting us to review and comment on the A&D Custom Cruisers Special Use Permit; Plan No. SPR2021-0003. After review of the information, United Power has no concerns or objection to the proposed Project No. LUP2021-0014; contingent upon United Power's ability to maintain all existing rights, facilities/equipment, and existing easements. This request should not hinder our ability for future expansion, including all present and any future accommodations for electrical distribution.

Please note, the property owner/developer/contractor must submit an application along with CAD data for new electric service via https://www.unitedpower.com/construction. United Power would like to work with these persons early in the construction process on getting an electric design prepared so that we can request any additional easements needed and hopefully have those easements dedicated on the plat rather than obtaining separate document(s). Obtaining easements via a separate document can be time consuming and could cause delays.

As a Reminder: No permanent structures are acceptable within the dry utility easement(s); such as, window wells, wing walls, retaining walls, basement walls, roof overhang, anything affixed to the house like decks, etc. United Power considers any structure that impedes the access, maintenance, and safety of our facilities a permanent structure. No exceptions will be allowed, and any encroachments could result in penalties.

Service will be provided according to the rules, regulations, and policies in effect by United Power at the time service is requested. We look forward to safely and efficiently providing reliable electric power and outstanding service.

Thank you,

Amber Mendoza

Amber Mendoza, RWA
ROW Agent
720.249.9315 | platreferral@unitedpower.com

Magaly Morales-Tejada

From: John Fryar
Sent: Thursday, May 13, 2021 9:56 AM
To: Magaly Morales-Tejada
Subject: RE: Referral Response Request: A&D Custom Cruisers Special Use Permit (LUP2021-0014)

I don't see any LE issues.

Chief John Fryar

From: Magaly Morales-Tejada
Sent: Wednesday, May 12, 2021 1:51 PM
Cc: Maria Lancto; Alyssa Knutson; Todd Hodges
Subject: Referral Response Request: A&D Custom Cruisers Special Use Permit (LUP2021-0014)

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Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Colorado Community Media
750 W. Hampden Ave. Suite 225
Englewood, CO 80110

City of Ft Lupton Legals
130 S McKinley Avenue
Fort Lupton CO 80621

Description: No. FLP222312 A&D Custom Cruisers Special

AFFIDAVIT OF PUBLICATION

State of Colorado }
County of Weld } ss

This Affidavit of Publication for the Fort Lupton Press, a weekly newspaper, printed and published for the County of Weld, State of Colorado, hereby certifies that the attached legal notice was published in said newspaper once in each week, for 1 successive week(s), the last of which publication was made 5/26/2021, and that copies of each number of said paper in which said Public Notice was published were delivered by carriers or transmitted by mail to each of the subscribers of said paper, according to their accustomed mode of business in this office.



For the Fort Lupton Press

State of Colorado }
County of Weld } ss

The above Affidavit and Certificate of Publication was subscribed and sworn to before by the above named Gerard Healey, publisher of said newspaper, who is personally known to me to be the identical person in the above certificate on 5/26/2021. Gerard Healey has verified to me that he has adopted an electronic signature to function as his signature on this document.

20004025550-157765

Carla Bethke
Notary Public
My commission ends April 11, 2022

CARLA BETHKE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20004025550
MY COMMISSION EXPIRES APRIL 11, 2022

Public Notice

CITY OF FORT LUPTON
NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Fort Lupton is in receipt of an application for a special use permit referred to as the A&D Custom Cruisers Special Use Permit located at 721 5th Street in Fort Lupton, Colorado, pursuant to the City of Fort Lupton Municipal Code Notice Requirements.

The public hearings are to be held before the Planning Commission on **June 10, 2021, at 6:00 P.M., and before the City Council on July 6, 2021, at 7:00 P.M. or as soon as possible thereafter.**

The public hearings shall be held at the Fort Lupton City Hall, 130 S. McKinley Avenue in Fort Lupton, Colorado. In the event that the City Hall remains closed at the time of the hearings, the public hearings will be held remotely, accessible to the public by phone and internet. Information on how to attend the hearings will be provided in the agenda as posted on the City's website, www.fortluptonco.gov.

Further information is available through the City Planning and Building Department at (303) 857-6694.

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION
LOT 10, 11 AND 12, BLOCK 12, IN THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

Legal Notice No. FLP222312
First Publication: May 26, 2021
Last Publication: May 26, 2021
Publisher: Fort Lupton Press

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Sign Posting Affidavit

A&D Custom Cruisers Special Use Permit
Project No. LUP2021-0014 / Plan No. SUP2021-0003



Facing 5th Street



Facing Main Street

I, David Corder hereby acknowledge that the aforementioned property was posted in accordance with City Codes. Said public hearing notice was posted on this 26 day of May, 2021.

David Corder

Signature of Owner or Owner's Representative

The foregoing instrument was acknowledged before me by David Corder, this 26th day of May, 2021. Witness my hand and seal.

My commission expires 09/21/2022.

DAWN KOSHIO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104038580
My Commission Expires September 21, 2022

Dawn Koshio

Notary Public

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

CERTIFICATE OF MAILING

I, the undersigned, hereby certify that on the 25th day of May, 2027, a true and correct copy of the foregoing Notice of Public Hearings for the A&D Custom Cruisers Special Use Permit was sent via United States Mail, postage pre-paid, to the following addresses:

RD PURIFOY REAL ESTATE LLC
601 DENVER AVE
FORT LUPTON, CO 80621

ALONSO GUERRERO
805 5TH ST
FORT LUPTON, CO 80621

MARIA GLORIA VASQUEZ
808 HARRISON ST
FORT LUPTON, CO 80621

EVELYN M VANBUSKIRK
DONALD & LUAN PATTON
4502 COUNTY ROAD 31
FORT LUPTON, CO 80621

ARMIDA ROJO
LUIS ROJO
1303 7TH ST
FORT LUPTON, CO 80621

C/O GRAY OIL
710 DENVER AVE
FORT LUPTON, CO 80621

SONIA SAENZ
4455 WINDMILL DR
BRIGHTON, CO 80601

IGNACIO SALINAS
516 MAIN ST
FORT LUPTON, CO 80621

DOROTHY SANCHEZ
2633 MATHER ST
FORT LUPTON, CO 80621

GAYLE F GREENE
RONALD M GREENE
PO BOX 1247
FORT MORGAN, CO 80701

MICHAEL R HAWTHORNE
575 MAIN ST
FORT LUPTON, CO 80621

ROSAURA ROJAS
555 MAIN ST
FORT LUPTON, CO 80621

AMERICAN PIZZA PARTNERS LP
7700 E POLO DR
WICHITA, KS 67206

City Official

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
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Phone: 303.857.6694
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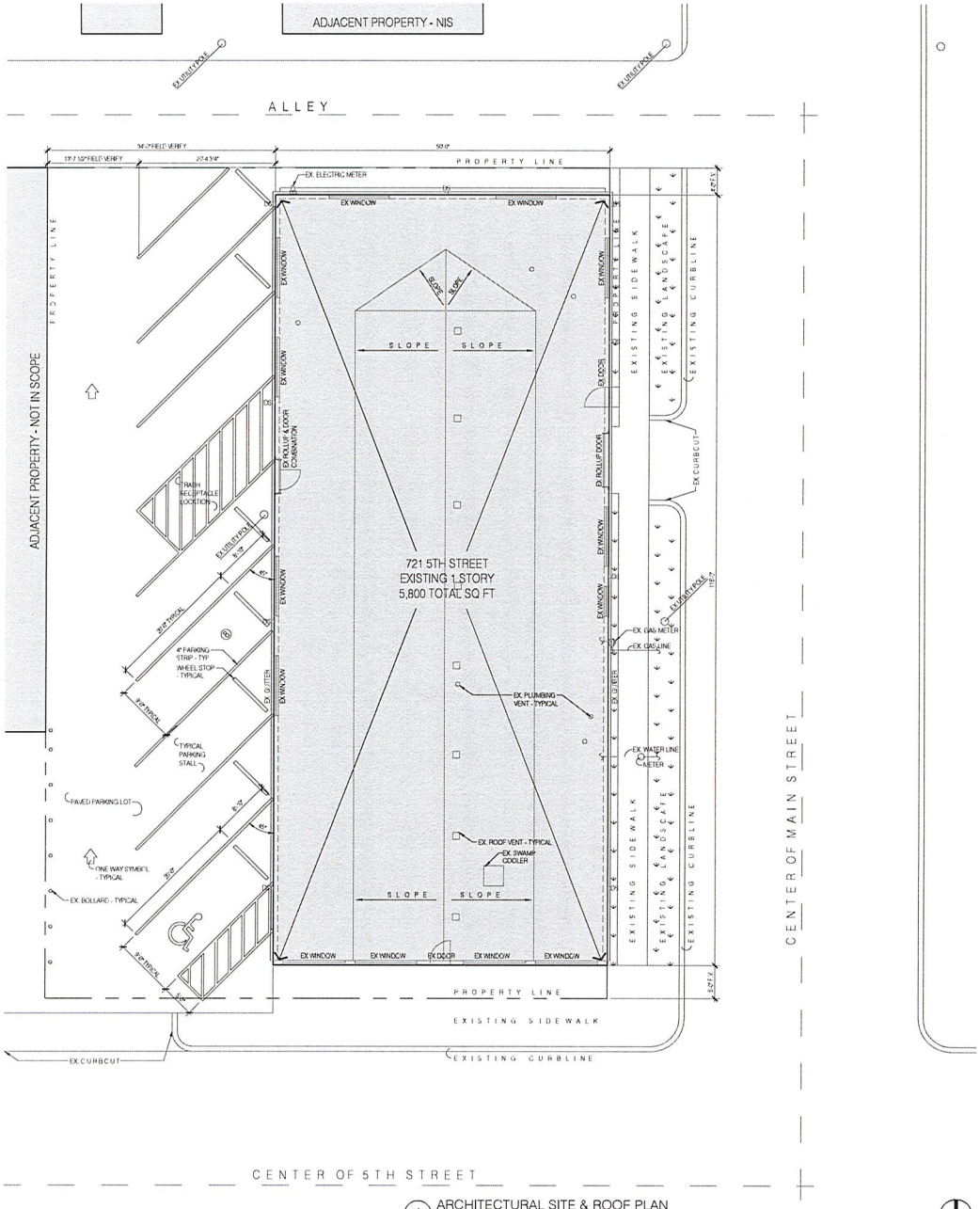
Further information is available through the City Planning and Building Department at (303) 857-6694.

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: A&D CUSTOM CRUISERS SPECIAL USE PERMIT.

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION

LOT 10, 11 AND 12, BLOCK 12, IN THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.



1 ARCHITECTURAL SITE & ROOF PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

ZONING INFORMATION:

ADDRESS: 721 5TH STREET, FORT LUPTON, CO 80621

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TOTAL BUILDING AREA	5,800 SF (PER ASSESSORS RECORDS)
EXISTING BUILDING PERMIT & ZONING LOG #	ZONING: NONE LISTED
	BUILDING PERMITS: NONE LISTED

SITE PLAN GENERAL NOTES

1. VERIFY EXACT LOCATION OF ALL UTILITIES IN THE FIELD. THIS DRAWING IS TO BE USED AS A UTILITY REFERENCE ONLY.
2. VERIFY ALL DIMENSIONS SHOWN FOR EXISTING CONDITIONS.
3. NOTIFICATION OF DISCREPANCIES SHOULD BE ISSUED TO THE ARCHITECT IMMEDIATELY UPON DISCOVERY.
4. COMPLY WITH ALL LOCAL, STATE, NATIONAL, AND FEDERAL SAFETY REQUIREMENTS. COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE STARTING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

SPECIAL USE PERMIT APPLICATION

CERTIFICATIONS FOR SITE PLAN, SPECIAL USE PERMIT AND CHANGE OF ZONE APPLICATIONS

PROPERTY DESCRIPTION

A parcel of land in the City of Fort Lupton, Colorado, located in the NW/4 of 1/4 of Section 15, T1N R67 of the 6th P.M. and more particularly described as follows:

RECEPTION NO. 2763646, LOTS 10, 11, 12, BLOCK 12, IN THE CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

OWNER'S APPROVAL

Know All Men By These Presents, that GENERAL PARTS DISTRIBUTION LLC, being the sole owner of the land described herein, and _____, are all of the mortgagees and holders of liens upon the property, and each and all hereby consent to this plat and join the conveyance and dedication of all streets, roads, alleys, easements, public ways and places shown hereon.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this ___ day of _____, 2016.

STATE OF COLORADO,)
) ss.
COUNTY OF WELD)

The foregoing instrument was acknowledged before me by _____ on this ___ day of _____, 2016. Witness my hand and seal.

My commission expires _____

Notary Public

CITY ENGINEER'S APPROVAL

Approved this ___ day of _____, 2016.

City Engineer

CITY WATER AND SEWER DEPARTMENT APPROVAL

Approved this ___ day of _____, 2016.

Director of Public Works

CITY ADMINISTATOR'S APPROVAL

Approved this ___ day of _____, 2016.

City Administrator

PLANNING COMMISSION RECOMMENDATION

Recommended this ___ day of _____, 2016, by Resolution No. _____.

Chairperson, Fort Lupton Planning Commission

MAYOR'S CERTIFICATE

This is to certify that a plat of the above-described property was approved by [Ordinance/Resolution] No. _____ of the City of Fort Lupton passed and adopted on the ___ day of _____, A.D., 2016 and that the Mayor of the City of Fort Lupton, as authorized by said [ordinance/resolution] on behalf of the City of Fort Lupton, hereby acknowledges and adopts the said plat upon which this certificate is endorsed for all purposes indicated thereon.

Mayor

Attest:

City Clerk

(Seal)

SK2 ARCHITECTURE
Studio K2 Architecture
1525 Market St., Suite 200
Denver, CO 80202
Phone: 303.534.4480

The Professional Architect's seal affixed to this sheet applies only to the material and items shown on this sheet. Any alteration, modification, or other documents not exhibiting this seal shall not be construed as being sealed by this Architect, and the undersigned expressly disclaims any and all responsibility for such plans, drawings or documents not exhibiting this seal.

A&D CUSTOM CRUISER

SITE PLAN FOR SPECIAL USE PERMIT

SITE PLAN UPDATE

721 5TH STREET FORT LUPTON, CO 80621

NO.	REVISION / SUBMISSIONS	DATE
	USE PERMIT SET	05.03.21

PROJECT NUMBER	DATE
2021.013	05.03.21

ARCHITECTURAL SITE & ROOF PLAN

DRAWING NUMBER

AS001

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: A&D CUSTOM CRUISERS SPECIAL USE PERMIT.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-104

APPROVE A RESOLUTION ACCEPTING THE MURATA FARMS PRELIMINARY PLAT AND PRELIMINARY PUD PLAN FOR A MIXED USE RESIDENTIAL LOCATED WEST AND ADJACENT TO COUNTY ROAD 29 ½ AND SOUTH AND ADJACENT TO STATE HIGHWAY 52 IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Proposed Resolution
b. Planning Commission Resolution, Minutes & Staff Report
c. Land Use Application & Project Description
d. Preliminary Plat & Preliminary PUD Plan
e. Development Reports & Traffic Impact Study
f. Oil and Gas Development Setbacks
g. Referral Responses
h. Legal Notifications

III. **Summary Statement:**

The applicant, JEhome, LLC for Coronado West, and owner M-J Perri Company, have applied for approval of a Preliminary Plat and Preliminary PUD Plan for the City Council's consideration for the Murata Farms Subdivision. The Subdivision is located west and adjacent to County Road 29 ½ and south and adjacent to State Highway 52. The proposal is for residential uses including 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. The Property will also include four pocket parks, along with greenways and trail connections.

IV. **Submitted by:** _____ City Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** _____ Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

The applicant, JEhome, LLC for Coronado West, and owner M-J Perri Company, have applied for approval of a Preliminary Plat and Preliminary PUD Plan for the City Council's consideration for the Murata Farms Subdivision. The subdivision is located west and adjacent to County Road 29 ½ and south and adjacent to State Highway 52. The site is 72.7 acres, more or less, and residential uses are proposed, including 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. The Property will also include four pocket parks, along with greenways and trail connections.

The zoning is 'PUD' Planned Unit Development, and the proposed land use conforms to this zoning. In addition, the comprehensive plan supports this proposed development, which is designated as the Single Family Attached and Commercial General land use types. The proposed development also includes Single Family Detached housing, which is consistent with surrounding land use types.

Additional information on this application can be found in the attached Staff Report and other supportive documents. Other submittal documents may not be included with this packet, but can be available for review upon request.

X. Legal/Political Considerations:

The preliminary plat and PUD plan is being reviewed under the preliminary plat provisions of the Subdivision Regulations of the Fort Lupton Municipal Code. This is the second step in the major subdivision process. The first step is approval of a sketch plat (reviewed and approved on April 21, 2020). The public hearing for the preliminary plat and PUD plan is the second step, and the final plat and PUD plan will be the final step, which will be reviewed at a separate public meeting if the preliminary plat and PUD plan is approved.

Under the Code, the Planning Commission shall consider the application, referral comments and any public testimony at a public hearing and make a recommendation to City Council to approve, approve with conditions or deny the preliminary plat. The Planning Commission reviewed the application on June 10, 2021 and recommended approval of this application, with conditions as shown on the Resolution included with the packet materials.

The City Council shall then conduct a public hearing and evaluate the preliminary plat and preliminary PUD plan, referral agency comments, Planning Commission recommendation and any public testimony. City Council shall approve, conditionally approve, continue for additional information or for further study or deny the application based on the evidence presented and compliance with the City's standards, regulations and policies and other guidelines.

References to the Preliminary PUD Plan establishes the unique regulations and standards for development on the Property. This includes, but is not limited to, any deviations from the City's Zoning Regulations, Residential Design Standards and Specification for Design and Construction of Public Improvements and Zoning Regulations.

The Subdivision Regulations require published notice of the hearings in a timely manner prior to the hearings. The Planning Commission and City Council hearings were published in the Fort Lupton press on May 26, 2021. Notice of the public hearings were posted on the Property on May 26, 2021, pursuant to the Subdivision Regulations, which require the Applicant post the

Property with notice of the hearings at least fifteen (15) days prior to the hearings. Notice was mailed to neighbor within 500 feet of the Property, and owners and lessees of mineral interests on May 25, 2021.

XI. Alternatives/Options:

The City Council has the following three options for each request:

a) Approve the proposed resolution.
b) Approve the proposed resolution with conditions.
c) Continue the meeting for additional information or further study.
d) Deny the proposed resolution.

XII. Financial Considerations:

All applicable land use application fees have been paid and a fee deposit has been submitted to cover costs related to the application.

XIII. Staff Recommendation:

Staff recommends conditional approval of the Murata Farms Preliminary Plat and Preliminary PUD Plan.

RESOLUTION NO. 2021Rxxx

A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING THE MURATA FARMS PRELIMINARY PLAT AND PRELIMINARY PUD PLAN FOR A MIXED USE RESIDENTIAL AND COMMERCIAL SUBDIVISION LOCATED IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH P.M., CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, JEhome, LLC for Coronado West ("Applicant") has applied for approval of the Murata Farms Preliminary Plat and Preliminary PUD Plan for a mixed use residential and commercial subdivision; and

WHEREAS, the Fort Lupton City Council held a public hearing on July 6, 2021, for the purpose of reviewing the Murata Farms Preliminary Plat and Preliminary PUD Plan; and

WHEREAS, after review of the application for a Preliminary Plat and Preliminary PUD Plan, and consideration of staff comments, Applicant's presentation, and any public input, the City Council finds that the Preliminary Plat and Preliminary PUD Plan is in conformance with the Colorado Revised Statutes, City codes and policies, and Comprehensive Plan adopted by the City; and

NOW THEREFORE BE IT RESOLVED that the Fort Lupton City Council reviewed the plans and supporting documentation, all referral comments and any citizen input in response to this application. Based upon review of the applicable policies and goals in the Fort Lupton Comprehensive Plan, review of the Subdivision and Zoning Regulations, an analysis of referral comments and facts presented on this date, the City Council hereby recommends approval of the Murata Farms Preliminary Plat and Preliminary PUD Plan located in the North Half of the Southwest Quarter of Section 4, Township 1 North, Range 66 West of the 6th P.M., City of Fort Lupton, County of Weld, State of Colorado with the following conditions:

I. Prior to submitting the Final Plat and Final PUD Plan:

A. Any redline comments provided by City staff shall be made to the preliminary plat.

B. Applicant shall provide written evidence that the comments from the Public Works Director have been adequately addressed.

C. Applicant shall provide written evidence that the comments from CDOT have been adequately addressed.

D. Applicant shall provide written evidence that the comments from United Power have been adequately addressed. Utility easements will need to be shown on the plat.

E. Applicant shall provide written evidence that the comments from the Fort Lupton Fire Protection District have been adequately addressed.

F. Applicant shall provide written evidence that the comments from Xcel Energy (Public Service Company) have been adequately addressed. Utility easements will need to be shown on the plat.

G. Applicant shall provide written evidence that the comments from Kerr-McGee Gathering LLC have been adequately addressed.

H. Applicant shall work with Planning Department staff to finalize trail names on the preliminary and final maps.

I. Applicant shall provide written evidence that the comments from the Division of Water Resources have been adequately addressed, and discuss the potential conveyance of water rights with the Public Works Director.

J. Applicant shall provide written detail on how the comments previously provided by Colorado Parks and Wildlife will be addressed.

K. Applicant shall finalize street names with City staff and update all drawings with those names.

L. Referral comments that impact the layout of the preliminary plat shall be incorporated into the preliminary plat, including providing easements as required by utility companies.

M. Applicant shall present a comparison of wood versus vinyl fencing to City Council for their consideration, and update the development standards if applicable.

N. A development standard shall be added to the PUD Plan that states that lighting within the subdivision shall be downcast and not spill onto adjacent properties.

O. The following note shall be added to the Preliminary Plat and Preliminary PUD Plan map:

1. Unless specifically modified by a PUD plan, all provisions of the City's Code and adopted standards and specifications shall apply within PUD Districts.

2. At the time of platting, future Phases 3 – 5 shall finalize PUD development standards for approval by City Council.

APPROVED AND PASSED BY A MAJORITY VOTE OF THOSE ELECTED TO THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO THIS 6th DAY OF JULY, 2021.

City of Fort Lupton, Colorado

_____

Zo Stieber, Mayor

Attest:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

RESOLUTION NO. P2021-016

A RESOLUTION OF THE PLANNING COMMISSION OF FORT LUPTON RECOMMENDING TO CITY COUNCIL APPROVAL OF THE MURATA FARMS PRELIMINARY PLAT AND PRELIMINARY PUD PLAN FOR A MIXED USE RESIDENTIAL AND COMMERCIAL SUBDIVISION LOCATED IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH P.M., CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, the Planning Commission held a public hearing on June 10, 2021, for the purpose of reviewing the Murata Farms Preliminary Plat and Preliminary PUD Plan; and

WHEREAS, the Murata Farms Preliminary Plat and Preliminary PUD Plan proposes 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development; and

WHEREAS, after review of the application for the Murata Farms Preliminary Plat and Preliminary PUD Plan, and consideration of staff comments, applicant's presentation, and any public input, the Planning Commission finds the request for the Murata Farms Preliminary Plat and Preliminary PUD Plan conforms with City codes, and requirements and policies therein; and

WHEREAS, all legal requirements for the public hearing have been met, including mailing of public hearing notices to adjacent property owners within 500 feet; and

NOW THEREFORE BE IT RESOLVED, the Planning Commission has considered the application and has taken into consideration all referral comments and any citizen testimony in response to this application. Based upon the facts presented on this date, the Planning Commission hereby recommends approval of the Murata Farms Preliminary Plat and Preliminary PUD Plan located in the North Half of the Southwest Quarter of Section 4, Township 1 North, Range 66 West of the 6th P.M., City of Fort Lupton, County of Weld, State of Colorado with the following conditions:

I. Prior to submitting the Final Plat and Final PUD Plan:

A. Any redline comments provided by City staff shall be made to the preliminary plat.

B. Applicant shall provide written evidence that the comments from the Public Works Director have been adequately addressed.

C. Applicant shall provide written evidence that the comments from CDOT have been adequately addressed.

D. Applicant shall provide written evidence that the comments from United Power have been adequately addressed. Utility easements will need to be shown on the plat.

E. Applicant shall provide written evidence that the comments from Xcel Energy (Public Service Company) have been adequately addressed. Utility easements will need to be shown on the plat.

F. Applicant shall provide written evidence that the comments from Kerr-McGee Gathering LLC have been adequately addressed.

G. Applicant shall work with Planning Department staff to finalize trail names on the preliminary and final maps.

H. Applicant shall provide written evidence that the comments from the Division of Water Resources have been adequately addressed, and discuss the potential conveyance of water rights with the Public Works Director.

I. Applicant shall provide written detail on how the comments previously provided by Colorado Parks and Wildlife will be addressed.

J. Applicant shall finalize street names with City staff and update all drawings with those names.

K. Referral comments that impact the layout of the preliminary plat shall be incorporated into the preliminary plat, including providing easements as required by utility companies.

L. Applicant shall present a comparison of wood versus vinyl fencing to City Council for their consideration, and update the development standards if applicable.

M. A development standard shall be added to the PUD Plan that states that lighting within the subdivision shall be downcast and not spill onto adjacent properties.

N. The following note shall be added to the Preliminary Plat and Preliminary PUD Plan map:

1. Unless specifically modified by a PUD plan, all provisions of the City's Code and adopted standards and specifications shall apply within PUD Districts.

2. At the time of platting, future Phases 3 – 5 shall finalize PUD development standards for approval by City Council.

DONE THIS 10th DAY OF JUNE, 2021 BY THE PLANNING COMMISSION FOR THE CITY OF FORT LUPTON, COLORADO.

Chairman

ATTEST:

Planning Director

RECORD OF PROCEEDINGS
FORT LUPTON PLANNING COMMISSION
June 10, 2021

The Planning Commission of the City of Fort Lupton met in session at the City Complex, 130 South McKinley Avenue, the regular meeting place of the Planning Commission and virtually via GoToMeeting, on Thursday, April 8, 2021.

Chair Mike Simone called the meeting to order at 6:00 p.m. and gave the following advisement:

Tonight's meeting shall be held virtually so as to ensure the health and safety of the general public and the City of Fort Lupton Planning Commission and staff.

The intent and purpose of the virtual appearance options is to allow the City to be innovative in providing the general public the most meaningful access possible in light of the current challenges present as a result of the Covid-19 pandemic. Therefore, subject to social distancing and public health orders, members of the general public will be offered the opportunity to be electronically present for meetings at the City, subject to existing health conditions.

An electronic link has been made available for tonight's meeting on the City's website and social media platforms and as posted at City Hall, so that the general public, Planning Commission and staff may participate electronically via the internet or on the phone.

ROLL CALL

Roll was taken and those present were Chair Mike Simone and Commission Members Carlos Barron and Kathy Kvasnicka. Member Lynne Derby participated via phone. Also in attendance were City Planner II Alyssa Knutson, City Planner I Maria Lancto, and Administrative Assistant Magaly Morales-Tejada.

APPROVAL OF AGENDA

A motion to approve the agenda was moved by Carlos Barron and seconded by Kathy Kvasnicka.

CONSENT AGENDA

A motion to approve the consent agenda was moved by Carlos Barron and seconded by Kathy Kvasnicka.

PUBLIC COMMENT

Chair Simone asked if there was anyone who would like to comment on an item not on the agenda tonight. Hearing none, he closed Public Comment.

ACTION ITEMS

P2021-015: A&D Custom Cruisers

Chair Simone addressed the applicant, David Corder, 155 Valle Dr. and asked if he understood that a Member of the Planning Commission is appearing tonight via virtual connection and will not be appearing

in-person. He asked if he consented to the applicable member voting on his submittal, even though said member was not present in person and if he voluntarily signed and submitted the written waiver and consent to proceed electronically tonight.

Mr. Corder stated yes to all questions.

Planner Maria Lancto presented this item. She stated that this application was submitted for a special use permit for an auto body and paint shop at a site located at 721 5th Street in the 'C-1' General Commercial Zone District. Ms. Lancto stated that this site was previously an auto parts retail store, and there are other auto body businesses in the immediate area, which is why staff is supportive of the special use permit. Ms. Lancto stated that all notification requirements had been met, including posting in the newspaper and mailing to all surrounding properties. She stated that Mr. Corder was present to answer any questions.

Mike Simone addressed the applicant, David Corder. He asked if he had anything to add or present on behalf of his application.

Mr. Corder stated that he started his business in Fort Lupton in 2006 and was simply moving locations within the city.

Chair Simone opened up the public comment portion of the Hearing for the action item. Hearing no one from the public wishing to speak, Chair Simone closed the Public Hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions. With no questions from Planning Commissioners, Chair Simone called for a motion to approve P2021-0015.

It was moved by Carlos Barron and seconded by Kathy Kvasnicka. Motion passed unanimously.

P2021-016 Murata Farms Preliminary Plat & Preliminary PUD Plan

Chair Simone addressed the applicant, Eric Eckberg, 2696 S Colorado Blvd, and asked if Mr. Eckberg understood that a Member of the Planning Commission is appearing tonight via virtual connection and will not be appearing in-person, if he consented to the applicable member voting on his submittal, even though said member was not present in person, if he voluntarily signed and submitted the written waiver and consent to proceed electronically tonight and if he waived his right to have said member appear in person and consented to proceed with tonight's hearing.

Mr. Eckberg stated yes to all questions.

Planner Alyssa Knutson presented this item. She stated that this application was for a Preliminary Plat and Preliminary PUD Plan for a property located south of Hwy 52 and west of County Road 29, to be known as the Murata Farms Subdivision. She stated that this application was for a mixed density residential development which will also include commercial development on the upper northeast corner. Ms. Knutson stated that the Preliminary Plat is platting 180 single family residences and future phases will include mixed use residential and commercial. She stated that there are several trails and pocket parks. Ms. Knutson stated

that zoning is currently PUD and the proposal complies with the PUD zoning. Ms. Knutson stated that all notification requirements had been met and that the applicant had a presentation for the commission.

Eric Eckberg stated that also present with him was Travis Frazier, Project Engineer and Karen Henry, Planner. Mr. Eckberg stated that the sketch plat for this project was previously approved by the Planning Commission and since then a new subdivision, Mountain Sky, has developed to the south. He stated that they have coordinated infrastructure with Mountain Sky. Mr. Eckberg stated that there will be 280 lots, with varying lot sizes allowing for single-family detached, single-family attached and multi-family units as well as varying price points. Mr. Eckberg stated that the commercial village corner will provide amenities to the community. Mr. Eckberg referred to the utility plan and pointed out that there is a non-potable water line that they will tie in to Mountain Sky's non-potable infrastructure to use for irrigation. He also pointed out that the regional detention pond on the southwest corner will be completed. Mr. Eckberg referred to the street improvements map and stated that they will be doing improvements to Highway 52 as well as turn lane improvements. Mr. Eckberg stated that all the infrastructure is tied to phase one, the single family lots. He stated that phase 3 and 4 are interchangeable or may occur concurrently. He then referred to the trail map and stated that they will have several connecting trails to the surrounding areas. Mr. Eckberg stated that they will be providing several amenities in the parks such as play structures, shelters and picnic tables. Mr. Eckberg stated that they believe this subdivision is a logical extension to Fort Lupton.

Chair Simone opened up the public comment portion of the Hearing for the action item. Seeing no one from the public wishing to speak, Chair Simone closed the Public Hearing.

Chair Simone opened up the hearing to Planning Commissioners' comments and questions.

Member Barron asked if the native weeds and plants near the well site would be left there.

Mr. Eckberg stated yes. Mr. Frazier added that that is part of the easement agreement with Occidental Petroleum Corp.

Chair Simone asked if the fencing would be wood or vinyl. He stated that he would like to see consistency and asked if this decision would be the developers or each home owner's.

Ms. Henry stated that at this phase in the plan they are leaving the option to either wood or vinyl but will ultimately be the developers decision for perimeter fencing. She stated that any open space or trail corridor will be open rail fencing, fencing on rear-yard and side-yard on homes will be privacy fencing. She stated that they will set a standard to provide consistency.

Chair Simone stated that he is not personally a fan of wood fencing on the perimeter and would like to see vinyl fencing, he also stated that he has seen standards in other cities where the developer installs fencing and likes how that works.

Ms. Henry stated that is something that they could consider.

Chair Simone asked if they would consider vinyl fencing on the perimeter?

Ms. Henry stated that they could definitely look at it with the team, she stated that in many cases a stain on wood fencing prevents sprinkler rings.

Member Kvasnicka added that she has seen many different materials that should be considered for the fencing.

Chair Simone asked that a condition of approval be added stating that the applicant will present to City Council the pros and cons of different fencing materials.

Chair Simone asked if there will be a standard for streetlights to be downcast

Mr. Frazier stated that in the current state of design they have not yet addressed streetlight standards but they will work with United Power's standards as well as consider public safety when lighting pathways and roadways while keeping in mind the concerns of the commission of lighting spilling out to surrounding properties.

Chair Simone asked that a condition of approval be added stating that they will present downcast lighting to City Council.

Chair Simone asked if the hook up to the water main connection to Silverado would cause a decrease in pressure to surrounding neighborhoods.

Roy Vestal, Public Works Director, stated that this line was recently connected to the Mountain Sky development and there was no change in pressure. He stated that this connection actually removes the potential of stale water due to the dead end on Silverado.

Mr. Frazier added that looping the water system should help stabilize the system and that they will be providing a water model and ensure that they are not creating any pressure drops.

Chair Simone asked for clarification the number of units.

Mr. Eckberg stated that there will be 180 single-family, he stated that 60 units more or less are planned for phase 3 and phase 4, based on acreage and density. For a total of 300 units.

Mr. Frazier stated that one of the conditions of approval is a preliminary plat for phases 3 and 4.

Chair Simone asked if they are looking at 4 sided architecture for homes facing highway 52.

Mr. Eckberg stated that they are and they welcome city planners input.

Chair Simone asked if they have an idea of when the traffic light will be installed.
Mr. Frazier stated that they do not yet, they are reevaluating the access based on CDOT's comments and are working with the city.

Chair Simone asked if this would be a metro district and if so, how many mills they would have.

Mr. Eckberg stated that they would be following the standard service plan for Fort Lupton and he believes that they are 55 mills.

Member Barron asked if they had an idea of what commercial would be coming in to the commercial village.

Mr. Eckberg stated that they do not know, but that it is a large area that gives opportunity for various commercial developments.

Chair Simone called for a motion to conditionally approve P2021-0016. It was moved by Carlos Barron and seconded by Lynne Derby. Motion passed unanimously.

DISCUSSION ITEMS

Review of Meeting Discussion

A review of meeting discussions took place.

Development Code Update

A discussion of the Development Code Update took place.

FUTURE BUSINESS

The next meeting of the Planning Commission is scheduled for June 24, 2021 at 6:00 PM.

ADJOURNMENT

Chair Simone adjourned the meeting at 6:47 PM.

Submitted by

Magaly Morales-Tejada, Planning Assistant

Approved by Planning Commission

Mike Simone, Chair-person

MURATA FARMS PRELIMINARY PLAT & PRELIMINARY PUD PLAN
STAFF REPORT
LUP2021-0012 & PPL2021-0002

PROJECT DESCRIPTION

Project Nos.: LUP2021-0012 & PPL2021-0002

Project Name: Murata Farms Preliminary Plat & Preliminary PUD Plan

Applicant's Name: M-J PERRI COMPANY ("Applicant")

Location of Request:

The site consists of a parcel of land west and adjacent to County Road 29 ½, and south and adjacent to Highway 52 in Fort Lupton (the "Property"). The Property is located in the North Half of the Southwest Quarter of Section 4, Township 1 North, Range 66 West of the Sixth Principal Meridian, City of Fort Lupton, County of Weld, State of Colorado.



Nature of Request:

The Applicant has submitted a request for a preliminary plat and preliminary PUD plan for a mixed use subdivision that will consist of 180 single family detached homes (Phases 1 and 2, which are being reviewed and platted at this stage), as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. These additional phases will require separate platting approval by the Planning Commission and City Council.

Site Size: 72.7 acres, more or less.

Zone District: PUD Planned Unit Development.

Proposed Use: Residential uses including 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. The Property will also include four pocket parks, along with greenways and trail connections.

Existing Use: Vacant/agricultural with two well sites with appurtenances. One well is abandoned and plugged, while the second well remains active.

Hearing Dates: Planning Commission – June 10, 2021 at 6:00 PM; and
City Council – July 6, 2021 at 7:00 PM.

Hearing Location: Fort Lupton City Hall – Council Chambers, 130 S. McKinley Ave., Fort Lupton, Colorado.

Staff Recommendation: Approval with conditions, as shown on the proposed resolution.

SUMMARY OF PREVIOUS APPLICATIONS

In 2002, the City Council approved the Murata Farms Annexation and Initial Zoning to 'PUD' Planned Unit Development.

On April 7, 2020, the Fort Lupton City Council approved the Sketch Plat for this project as part of the City's major subdivision process. The Preliminary Plat and Preliminary PUD Plan are the next phase of the subdivision process and zoning process for a planned unit development.

APPLICATION PROCESS

The Applicant is requesting approval of a preliminary plat and preliminary PUD plan for a residential subdivision that will include 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. The Property will also include four pocket parks, along with greenways and trail connections.

Under the Fort Lupton Municipal Code, after required public notice of the preliminary plat and PUD plan, the Planning Commission shall consider the application, referral comments and any public testimony at a public hearing and make a recommendation to City Council to approve, approve with conditions or deny the preliminary plat. The Planning Commission's comments shall be based on the evidence presented, conformance with the Comprehensive Plan and compliance with the City's standards, regulations and policies.

The City Council shall then conduct a public hearing and evaluate the preliminary plat and preliminary PUD plan, referral agency comments, Planning Commission recommendation and any public testimony. City Council shall approve, conditionally approve, continue for additional information or for further study or deny the application based on the evidence presented and compliance with the City's standards, regulations and policies and other guidelines.

References to the Preliminary PUD Plan establishes the unique regulations and standards for development on the Property. This includes, but is not limited to, any deviations from the City's Zoning

Regulations, Residential Design Standards and Specification for Design and Construction of Public Improvements and Zoning Regulations.

NOTIFICATION REQUIREMENTS

The Subdivision Regulations require published notice of the hearings in a timely manner prior to the hearings. The Planning Commission and City Council hearings were published in the Fort Lupton press on May 26, 2021.

Notice of the public hearings were posted on the Property on May 26, 2021, pursuant to the Subdivision Regulations, which require the Applicant post the Property with notice of the hearings at least fifteen (15) days prior to the hearings.

Notice was mailed to neighbor within 500 feet of the Property, and owners and lessees of mineral interests on May 25, 2021.

CONFORMANCE WITH CITY STANDARDS, REGULATIONS AND POLICIES

The area is zoned PUD Planned Unit Development with commercial, neighborhood, and residential uses. The objective of a PUD is to provide for the planning and development of substantial tracts of land, suitable in location and character for the uses proposed, as unified and integrated entities in accordance with detailed development plans.

The Preliminary Plat and Preliminary PUD Plan is for a mixed use subdivision to include 180 single family detached homes, as well as future development tracts for planned paired homes, townhomes, and commercial development at the northwest corner of the site. The street names and layout have been initially reviewed by the Design Review Team, including representatives from the Fire District, Engineering, Public Works and Planning. Some of the proposed street names will require changes and the Applicant is working with City staff to finalize names prior to submittal of the Final Plat and Final PUD Plan.

The Applicant has submitted the required documents pursuant to the Code. The City Engineer has provided comments related to the construction plans, and the proposed resolution includes conditions of approval to ensure that any concerns are addressed as part of the final plat review process.

Approval of a PUD Plan is being reviewed concurrently with the Preliminary Plat. All development within a PUD zone district must be in accordance with a PUD plan. PUD plans shall contain unique district regulations that apply to the PUD zone district. All provisions of the City's Code and adopted standards and specifications shall apply within PUD zone districts, unless specifically modified in the PUD plan. Deviations from the City's standards are noted on the Preliminary Plat and Preliminary PUD Plan map.

CONFORMANCE WITH THE COMPREHENSIVE PLAN

The Future Land Use Map designates this area as Single-Family Attached land use with a portion in the northeast corner of the Property designated as Commercial General land use. The Single-Family Attached designation allows for single family attached homes in formal, planned developments. These provide higher density and more affordable housing options to complement traditional single family detached neighborhoods. Opportunities for new single family attached will help increase housing diversity and attract a wide range of potential residents. The Commercial General designation allows for commercial

businesses that offer residents basic goods and services. This supports a range of development styles, including stand-alone businesses on smaller properties as well as commercial shopping centers with multiple tenants. Primarily located along the City's major corridors, expansion of general commercial will offer residents greater shopping options within Fort Lupton and contribute to increased local commerce. In addition to commercial, these areas can include small office buildings, medical practices, and public and semi-public uses.

The proposed development plans for a variety of residential uses including single family detached homes, paired homes and attached townhomes. Furthermore, the plan includes a small area of Commercial General uses. Although Single-Family Detached housing is planned for a large portion of the site, generally, the application complies with and meets the intent of the Comprehensive Plan by including paired homes and townhomes, as well as the commercial corner.

The proposal also complies with the Parks and Trails Master Plan, which identifies a collector trail as running along the Highway 52 to the south, as well as a portion of the Main Fulton Ditch Trail, and a trailhead for the Main Fulton Ditch Trail along S. College Avenue (County Road 29 ½). The proposal includes plans for development of these amenities.

REFERRALS

Referrals were provided to the list below. Any comments received are enclosed with the Planning Commission packet.

City Attorney	Police Chief	Public Works Director
Recreation Manager	Golf Course Manager	Water Treatment Plant Manager
GIS Specialist	Fort Lupton Fire Protection District	CDOT
Colorado Parks and Wildlife	Division of Water Resources	Army Corp of Engineers
United Power	Comcast	CenturyLink
Xcel Energy	Postmaster	Weld County Dept. of Planning
Weld County School District RE-8	NCWCD	Fulton Ditch Company
Western Midstream		

For more information on this development, please refer to the Planning Commission packet provided. Additional documents are available for review at the Fort Lupton City Hall.

Form PLAN002

CITY OF Fort Lupton EST 1836

COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortlupton.org

Project No. _____

Land Use Application Form

A. CONTACT INFORMATION

1) Property Owner Name: Perry L. Murata, President and Glenice Tani, Treasurer

Company: M-J Perri Company

Phone: 720-505-0733/303-857-4823 Email: plmurata@comcast.net/glenicetani7@gmail.com

Address: 7215 S. Himalaya Way Centennial, CO 80016/14286 Highway 52, Ft. Lupton, CO 80621

Preferred method of contact? Email: ☐ Phone: ☐ Mail: ☐

2) Representative Name: Eric Eckberg, JEhome LLC - John Cork, Coronado West

Company: JEhome LLC for Coronado West

Phone: 303-472-6720/480-820-0977 Email: eric@jehome.com/jcork@coronadowest.com

Address: 2696 S. Colorado Blvd #320, Denver, CO 80222/8655 S. Priest Drive, Tempe, AZ 85284

Preferred method of contact? Email: ☑ Phone: ☐ Mail: ☐

3) Billing Contact *(where invoices should be directed to)*: Eric Eckberg c/o John Cork

Billing Company: Coronado West (John Cork)

Phone: 303-472-6720/480-820-0977 Email: eric@jehome.com/jcork@coronadowest.com

Address: 2696 S. Colorado Blvd #320, Denver, CO 80222/8655 S. Priest Drive, Tempe, AZ 85284

B. SITE DESCRIPTION

Site Address: 14284 Highway 53, Ft. Lupton, CO 80621

Parcel Number: 147104000069

Existing Zone Classification: Agriculture Proposed Zone Classification: PUD

Water Type: Municipal Name: Fort Lupton

Sewage Type: Municipal District Name or Location Hauled to: _____

C. APPLICATION TYPE (CHECK ALL THAT APPLY)

☐ Sketch Plat	☐ Administrative Site Plan	☑ PUD Plan (Preliminary & Final)
☑ Preliminary Plat	☐ Special Use Permit	☐ Variance
☐ Final Plat	☐ Oil & Gas Permit	☐ Administrative Variance
☐ Minor Subdivision	☐ Annexation & Initial Zone	☐ Appeal
☐ Amended Plat	☐ Change of Zone	☐ Other: _____
☐ Site Plan	☐ Comp Plan Amendment	

Project No. _____

D. PROJECT DESCRIPTION

Project Name: Murata Farms

Please provide a short description of the proposed project in the space provided below:

The Preliminary Plat/PUD for Murata Farms is planned as a Mixed Use neighborhood including 180 Single Family Lots with Tract established for the future platting and development of Paired Homes, Townhomes and Commercial uses.

E. REQUIRED DOCUMENTS

For an application to be considered complete, and for planning staff to begin review and schedule any applicable public hearings, this Land Use Application Form must be fully completed and all required attachments included. Planning staff will review the application for completeness and will provide notice to the representative and/or owner whether the application has been deemed complete.

F. CERTIFICATIONS

Representative Certification

By signing this application, I attest that I am acting with the knowledge and consent of all owners of the property that is the subject of this application, and that I have been designated to act as the representative for the project described in this land use application. I further certify that all information submitted with this application is true and accurate to the best of my knowledge.

Representative: J. Eric Eckberg Date: 2/19/21

Owner Certification

I hereby certify that I am the legal owner of record of the property that is the subject of this application. I hereby authorize the representative listed on this application, if any, to communicate directly with City officials and to submit documentation and information regarding this application on my behalf.

Owner: See owners authorizations attached Date: 2/19/21

For Office Use Only

Received Date: _____

If the application is not complete, state reasons why it is incomplete:

Deemed Complete Date: _____

Fees Submitted: _____ Escrow Submitted: _____

Instructions for Submitting the Land Use Application Form

DEFINITIONS

Words in the singular include the plural and words in the plural include the singular.

Application refers to the official submittal to the City of Fort Lupton's Planning Department for review of the proposed land use development identified in the land use application form. The application includes the form, all materials submitted for review of the project, including those documents required under the Land Use Regulations of the Municipal Code, and any additional information provided.

Project refers to the land use development identified on the land use application form and application materials.

Property refers to the land that is being proposed for development as described in the land use application form and application materials.

A. CONTACT INFORMATION

1) Provide contact information for all owners of any property that is the subject of the application. If the contact information for all property owners will not fit on the space provided, submit a separate sheet for the additional owners.

2) Provide contact information for all persons, firms or businesses that are authorized by the owners identified in Section A(1) to work on the land use application, including, but not limited to, discussing the project, submitting application materials, and attending meeting and hearings. If the contact information for all representatives will not fit on the space provided, submit a separate sheet for the additional representatives.

3) Provide contact and mailing information for the person that should receive all invoices for the project. If this person changes at any time, contact the Planning Department immediately to update this information.

B. SITE DESCRIPTION

Provide all information requested. Parcel numbers and address information may be found at the Weld County Property Portal at https://www.co.weld.co.us/maps1/propertyportal/. Current zoning can be found at http://www.fortlupton.org/405/Zoning.

C. APPLICATION TYPE

Select the land use application that is applicable to the project. If there are multiple land use application types being submitted to run concurrently, select all that apply. The land use application types will be identified during the required pre-application meeting. If you have any questions about this, please contact the Planning Department at 303.857.6694 or planningdept@fortlupton.org.

D. PROJECT DESCRIPTION

Please select a project name that will be referenced throughout the project and a description of what the project entails. If you need more space for the project description, please attach a separate sheet.

E. REQUIRED DOCUMENTS

Required documents will be discussed during the pre-application meeting with the Planning Department. If any documents are missing, the acceptance of the application may be delayed until the submittal is complete.

F. CERTIFICATIONS

Representative Certification. Provide the signature of all authorized representatives in this section.
Owner Certification. Provide the signature of all owners of properties included in the application in this section.

For any other questions, please contact the Planning Department at 303.857.6694 or planningdept@fortlupton.org.

Murata Farms

Preliminary Plat – Preliminary PUD Narrative May 10, 2021

1. Team

Developer/Applicant
Eric Eckberg
Coronado West
2696 S. Colorado Blvd., #320
Denver, CO 80222
303-472-6720
eric@jehome.com

Civil Engineer
Travis Frazier, PE
Redland
1500 West Canal Court
Littleton, CO 80120
720-283-6783 Ext. 126
tfrazier@redland.com

Landscape Architect
Karen Henry, PLA
Henry Design Group, Inc.
1501 Wazee Street, #1-C
Denver, CO 80202
303-446-2368
khenry@henrydesigngroup.com

2. Location and Property Description

The 72.71-acre property is located at the southwest corner of Hwy. 52 and WCR 29-1/2. More particularly described as being in a portion of the North One-Half of the Southwest One-Quarter of Section 4, Township 1 North, Range 66 West of the 6th Principal Meridian, Weld County, Colorado.

3. Adjacent Land Uses

North: Highway 52 and the Coyote Creek residential subdivision and Golf Course
South: The Mountain Sky residential subdivision
East: WCR 29-1/2 and the proposed Taylor Annexation subdivision
West: Appel residential subdivision

4. Site Features

The site is a gently rolling farm field comprising of crops and weeds. Existing vegetation includes indigenous trees and shrubs adjacent to the existing structures, along the Fulton Ditch and access roads to the well sites. A segment of the Fulton Ditch parallels Hwy. 52 in the eastern half of the site. Two well sites with appurtenances are on the property. The well within proposed Lot 2 Block 14 has been plugged and abandoned. As such, a pocket park is proposed on this site. An active well remains in the northern portion within Tract N. Another existing well is located off-site to the southwest of the

property. The required well setbacks will remain. A 30-foot-wide pipeline easement traverses the site in a north-south direction connecting the two operating well sites. The pipeline easement will remain in place as an open space trail corridor. The existing structures will be removed from the site.

Soil Type. The NRCS soil survey indicates that the soil on site is primarily sandy loams. The northern region of the property includes Olney Loams with Grades ranging from 1 to 5% with the majority of the site being under 3% for slope. The south eastern corner of the site includes an Otero Sandy loam with typical grades below 3%. The south west corner of the site includes Vona Sandy Loams with grades typically below 3%. These soil types are generally rated in Wind Erodibility Group 3 which has a higher susceptibility for wind erosion.

Geologic Characteristics. Refer to attached Geotechnical report "Preliminary Geotechnical Investigation Murata Farms (Muraco Subdivision) Southwest of Highway 52 and County Road 29 ½" By CTL Thompson dated October 31, 2019.

5. Zoning

The property was zoned Planned Unit Development (PUD) for a mix of neighborhood commercial, office and residential uses concurrent with the Annexation of the property. As indicated in the Annexation Agreement, the PUD is for agriculture and residential purposes consistent with the current use of the land. These land uses are permitted until such time a PUD Plan is approved for the property. The proposed Preliminary Plat/PUD indicates the proposed uses satisfying the requirement of the Annexation Agreement thereby allowing for the development of Murata Farms for a mixture of uses including single family detached residential, paired homes, townhomes, parks, trails, open space and commercial and office uses.

6. Proposed Land Uses

The Preliminary Plat/PUD proposes a total of 180 Single Family Detached homes and future development tracts. Lot 3 Block 14 is 7.29 acres and is proposed 58 Paired Homes. Lot 2 Block 14 is 5.13 acres and is proposed for 61 Townhomes. Lot 1 Block 14 is 2.52 acres and is planned for Commercial development. The commercial site is located at the Southwest corner of Highway 52 and WCR 29-1/2. The development will include four pocket parks

and a system of open space/greenway trail corridors for a total of 13.43 acres of parks and open space.

7. Compliance with the Ft. Lupton Comprehensive Plan and Plans and Design Standards

The proposed development integrates the goals set out in the Town Comprehensive Plan in the following ways:

Growth and Development. The proposed development is designed to provide connections at pre-determined locations to the existing and proposed adjacent neighborhoods. In addition, the layout provides continuous, direct, convenient, and safe pedestrian trails in open space corridors between the proposed parks, residences and the neighborhood commercial area.

The site is well situated for both housing and a commercial corner per the Comprehensive Plan. The plan also provides for diversity in housing types for the community. The commercial site is positioned to take advantage of the WCR 29-1/2 frontage and proximity to Aims Community College.

Transportation and Mobility. Murata Farms provides a safe and efficient transportation network that accommodates pedestrians, vehicles and bicycles. The main entrance is located along Highway 52 at the Coyote Creek Drive alignment. This collector street continues south providing future access to the Mountain Sky neighborhood. Local street access is also provided from this collector to Silverado Lane to the West. Secondary access is from WCR 29-1/2. A collector street meanders through the site in an east/west direction providing a connection to the extension of Coyote Creek Drive. This through collector street will provide convenient access to local streets internal to the neighborhoods for vehicles, bicycles, and pedestrians alike. The proposed neighborhood is planned as a pedestrian oriented and walkable community with on-street sidewalks and off-street trail connections throughout the community providing connections to future adjacent neighborhoods and the planned Regional Trail along the Fulton Ditch.

Parks, Open Space and Environmental Features. The proposed parks, open space and trails within the development will provide high quality recreational opportunities for neighborhood residents and create connections to future

neighborhoods and uses beyond the project boundaries. The proposed neighborhood complies with the Parks and Trails Master Plan, as follows:

a. A portion of the Fulton Ditch Trail will be constructed providing for a connection to the proposed Trailhead at the corner of County Road 29-1/2 and HWY 52.
b. Connector Trails will be provided along Hwy. 52 and County Road 29-1/2 providing for connections to the Trailhead, the Fulton Ditch Trail, and the Fort Lupton Trail west of the neighborhood.
c. Neighborhood Trails will provide connectivity to the Connector Trails.
d. Sidewalks will be provided where off-street trails are not available to ensure connectivity to adjacent neighborhood.

A proposed Trails Map is provided in the Preliminary Plat/PUD Plan set.

The neighborhood feature is provided by a park at the southeast corner of the intersection of the two collector streets providing good visibility and access. Three addition pocket parks are located within the single-family neighborhoods and are interconnected by open space/greenway Neighborhood trail corridors. One additional pocket park is proposed in the future paired home and townhome neighborhoods.

Public Facilities and Services. The proposed development is a logical extension of the City of Fort Lupton public services without placing additional burdens on existing residents and businesses. Infrastructure will be provided as necessary to meet the requirements of the Comprehensive Plan and/or the Land Use Code.

8. Public Land Dedication

Public land dedication for parks and open space is provided in accordance with the Fort Lupton's Subdivision regulations as follows:

REQUIRED PARK & OPEN SPACE

10 Acres per 1,000 Residents = 8.665 Acres

3 Residents per SFD & Paired Home dwelling unit (238 x 3 = 714 Residents)

2.5 Residents per SFA & MF dwelling unit (61 x 2.5 = 152.5 Residents)

PROVIDED PARK & OPEN SPACE

Land Use	Area (acres)	No Credit (acres)
Parks/Open Space	4.22	
Open Space Landscape Area/Detention		3.33
Fulton Ditch Corridor	4.38	
Well Site Radius		1.52
Total	8.60	4.85

9. Utility Service

Stormwater Drainage. A Phase II Drainage Report has been prepared in compliance with the City of Fort Lupton Criteria and is included with the application. The proposed drainage design includes expansion of the Mountain Sky detention and water quality pond for peak flow attenuation for minor and major event flows. The plan also anticipates that the existing Fulton Ditch will not be impacted with additions stormwater runoff from the proposed development.

Evidence of Adequate Water Supply. The City of Fort Lupton will provide domestic water in conjunction with the development agreement that will be negotiated with the Final Plat.

Looped connectivity will be provided at a stub connection in Silverado Lane at the western edge of the property and in 29 ½ to the east.

Hydrant testing in the area indicates that residual pressures under 1300 gpm flow conditions generally maintain 68 psi. Development of this site will include similar fire flow demands which indicates that the area water system can support demands on the system.

Evidence of Adequate Sewer Service. The City of Fort Lupton will provide sanitary sewer service in conjunction with the development agreement that will be

negotiated with the Final Plat.

Sanitary Sewer service is available at the south west corner of the site with an existing manhole located in the extension of the future County Road 29-1/2.

Conversations with the City include a discussion about a 12" sewer main located at the south west corner of the site which will serve as the sewer outfall for the site. A final evaluation of the impact on the downstream system will be developed in conjunction with the City as anticipated loads on the system are presented.

10. Public Services.

a. Life Safety. Fire and Police Protection and Law enforcement for the property would be provided by the Fort Lupton Police Department. It is not anticipated that there would be special security needs or a specific need for additional officers. Fire protection for the property would be provided by Fort Lupton Fire Department. It is not anticipated that the project would pose special fire hazards. Fire prevention requirements, fire detection, fire lanes, emergency access, etc. will be provided as required by code.

b. Schools. The project is within the Weld RE-8 School District. The applicant will work with the District to identify and address any impacts of this project.

c. Recreation and Open Space. The project will include park amenities, including open spaces and trails, and active and passive recreation.

11. Traffic Statement

Site development is proposed in compliance with the Fort Lupton Transportation Plan from June 2018. The site is currently served by Highway 52 and Weld County Road 29 ½. Highway 52 is currently a 2-lane paved road section that is planned for a future 4 lane arterial road. The minimum required right of way for Highway 52 is 120 feet in accordance with the City of Fort Lupton 4-lane major Arterial section.

Weld County Road 29 ½ is currently a dirt road planned as an urban collector. The City of Fort Lupton typical ROW section for a 4 lane Major Collector is 110 feet. This is consistent with what Mountain Sky provided to the south. The

developer will dedicate the required half right of way for each of these roadways in conjunction with Final Plat approval.

A north/south road will access Hwy. 52 at the Coyote Creek Drive intersection. This collector street will intersect with the proposed east/west collector street. The north/south collector will provide a connection into the Mountain Sky Neighborhood and local street access at Silverado Lane to the west. The east/west collector street will access WCR 29-1/2 and provide local street access to the proposed neighborhoods both north and south of the collector. The connections to surrounding Arterial Roadways have been designed to disperse traffic evenly within the development. A full Traffic Impact Study is provided with this Preliminary Plat/Preliminary PUD application.

12. Commercial Mineral Deposits

There are currently oil & gas facilities within the property but there are no known commercial mineral deposits on-site.

13. Cultural and Historical

A preliminary search of the History Colorado Office of Archaeology and Historic Preservation. The report indicates there may be one survey located within the Section 4 but the exact located has not been determined, the report is attached.

14. Phasing

The development is proposed in five (5) phases. Trails and parks included in the phase boundaries will be constructed with that phase. The project will generally develop in phases from the east progressing to the west. Phase 1 will include the eastern half of the single family lots from County Rd 29 ½ to the north south trail corridor, comprising of 95 lots. Phase 2 will be the balance of the 85 single- family lots located between the north/south trail corridor and the Appel subdivision. Phase 3 will be the paired homes. Phase 4 will be the townhomes and Phase 5 will be the commercial area.

It is anticipated that construction will commence upon completion of the entitlement and permitting process. The initial phase of development will

include the necessary infrastructure to serve phase 1. Development will continue based on market demand.

A proposed Phasing Plan is provided in the Preliminary Plat/PUD Plan set.

MURATA FARMS
PRELIMINARY PLAT / PUD

LOCATED IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

COVER SHEET

LEGAL DESCRIPTION

PER LAND TITLE GUARANTEE COMPANY COMMITMENT ORDER NO. ABC25165205, WITH AN EFFECTIVE DATE OF 05/07/2019 AT 5:00 P.M.

LOT B OF RECORDED EXEMPTION NUMBER 1471-04-3-RE 879 RECORDED AUGUST 14, 1986 UNDER RECEPTION NO. 2065102, BEING A PORTION OF THE FOLLOWING DESCRIBED PROPERTY:

THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO,

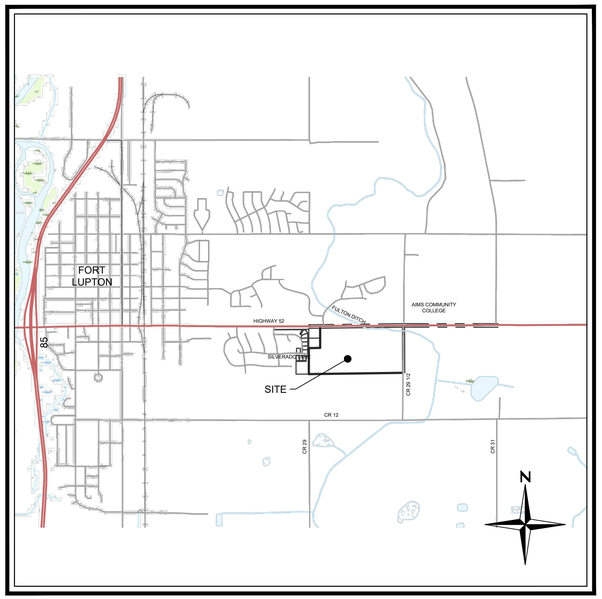
EXCEPT THOSE PORTIONS CONVEYED IN DEED RECORDED DECEMBER 4, 1989 UNDER RECEPTION NO. 02199253 AND EXCEPT THE NORTH 50.00 FEET AND THE EAST 30.00 FEET THEREOF, RESERVED FOR STATE AND COUNTY ROAD R.O.W.

BASIS OF BEARINGS

BASIS OF BEARINGS BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM GPS OBSERVATION BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 NORTH ZONE (NAD 83, 2011) REFERENCED TO THE NORTH LINE OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 66 WEST, SIXTH PRINCIPAL MERIDIAN BEING MONUMENTED AS SHOWN HEREON, TAKEN TO BEAR NORTH 89°17'03" EAST, A DISTANCE OF 2647.89 FEET.

FLOOD ZONE

FLOOD ZONE THE SUBJECT PROPERTY SHOWN HEREIN LIES WITHIN OTHER AREAS - ZONE X, AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP INDEX NO. 08123C2110E, MAP REVISED JANUARY 20, 2016 (PANEL NOT PRINTED).



VICINITY MAP
SCALE: 1" = 2000'

INDEX OF SHEETS	
SHEET #	SHEET TITLE
1	COVER SHEET
2	DEVELOPMENT STANDARDS
3	EXISTING CONDITIONS
4	SITE PLAN
5	SITE PLAN
6	SITE PLAN
7	SITE PLAN
8	SITE PLAN
9	PHASING PLAN
10	GRADING PLAN
11	GRADING PLAN
12	GRADING PLAN
13	GRADING PLAN
14	GRADING PLAN
15	GRADING PLAN
16	UTILITY PLAN
17	UTILITY PLAN
18	UTILITY PLAN
19	UTILITY PLAN
20	OVERALL LANDSCAPE PLAN
21	LANDSCAPE PLAN
22	LANDSCAPE PLAN
23	LANDSCAPE PLAN
24	LANDSCAPE PLAN
25	SITE DETAILS
26	TRAIL PLAN
27	REPRESENTATIVE ARCHITECTURE

LAND USE SUMMARY CHART		
LAND USE	RESIDENTIAL	
GROSS AREA	3,167,346	SF
	72.71	AC
ROW	712,244	SF
	16.35	AC
RESIDENTIAL LOTS	1,219,105	SF
	27.99	AC
TRACTS	585,182	SF
	13.43	AC
FUTURE DEVELOPMENT	650,705	SF
	14.94	AC
TOTAL LOTS	**180**	
DETACHED SINGLE FAMILY LOTS (60' LOTS)	25	
DETACHED SINGLE FAMILY LOTS (55' LOTS)	58	
DETACHED SINGLE FAMILY LOTS (50' LOTS)	97	
MIN DETACHED LOTS SIZE - 65' X 105' LOTS	6,300.0	SF
MIN DETACHED LOTS SIZE - 55' X 105' LOTS	5,775.0	SF
MIN DETACHED LOTS SIZE - 50' X 105' LOTS	5,250.0	SF
DENSITY (EXCLUDES FUTURE LOTS)	3.12	DU/AC

REQUIRED OPEN SPACE DEDICATION:
10 AC / 1000 POPULATION =
180 SFD = 5.40 AC
FUTURE RESIDENTIAL (58 PAIRED & 61 TOWNHOMES) = 3.26 AC
PROVIDED OPEN SPACE DEDICATION: 8.60 AC

AREA SUMMARY							
DESCRIPTION	AREA (SF)	AREA(AC)	OWNERSHIP	MAINTENANCE RESPONSIBILITY	USE	OPEN SPACE / PARK CREDIT	NO CREDIT
RIGHT OF WAY	712,244	16.35	FORT LUPTON	FORT LUPTON			
RESIDENTIAL LOTS	1,219,105	27.99	PRIVATE	PRIVATE			
TOTAL	1,931,349	44.34					
TRACT A	24,047	0.55	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.55
TRACT B	7,700	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.18	
TRACT C	7,700	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.18	
TRACT D	7,628	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.18	
TRACT E	72,248	1.66	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	1.66	
TRACT F	3,478	0.08	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.08
TRACT G	10,837	0.25	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.25	
TRACT H	9,083	0.21	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.21	
TRACT I	11,803	0.27	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.27
TRACT J	91,397	2.10	METRO DISTRICT	METRO DISTRICT	DETENTION		2.10
TRACT K	52,106	1.20	METRO DISTRICT	METRO DISTRICT	PARK	1.20	
TRACT L	2,433	0.06	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.06
TRACT M	3,923	0.09	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.09	
TRACT N	257,336	5.91	METRO DISTRICT	METRO DISTRICT	OPENSPACE	4.38	1.53
TRACT O	7,170	0.16	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.16
TRACT P	808	0.02	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.02
TRACT Q	11,863	0.27	METRO DISTRICT	METRO DISTRICT	LANDSCAPING	0.27	
TRACT R	3,622	0.08	METRO DISTRICT	METRO DISTRICT	LANDSCAPING		0.08
TOTAL	585,182	13.43					
Lot 1, Block 14	109,770	2.52	OWNER	OWNER	FUTURE COMMERCIAL		
Lot 2, Block 14	223,286	5.13	OWNER	OWNER	FUTURE RESIDENTIAL		
Lot 3, Block 14	317,649	7.29	OWNER	OWNER	FUTURE RESIDENTIAL		
TOTAL	650,705	14.94				8.60	4.85
TOTALS	3,167,236	72.71					

PROJECT TEAM

CIVIL ENGINEER
REDLAND
1500 W. CANAL CT.
LITTLETON, CO 80120
720.283.6783 voice
CONTACT: TRAVIS FRAZIER, P.E.

OWNER / DEVELOPER
CORONADO WEST
8655 S. PRIEST DRIVE
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303.285.1110 voice
CONTACT: ERIC ECKBERG

LANDSCAPE ARCHITECT/PLANNER
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CONTACT: KAREN HENRY, PLA

TRAFFIC ENGINEER
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SURVEYOR
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LITTLETON, CO 80122
303. 713.18981 VOICE
CONTACT: MIKE NOFFSINGER, PLS

BENCHMARK
NGS BENCHMARK 4907 (AZTEC #4907A). DISK ON PIPE LOCATED ON THE SOUTH SIDE 9TH STREET 175' MORE OR LESS EAST OF MAIN ST.
ELEVATION = **4908.22 (NAVD88)**

LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2368 • henrydesigngroup.com

ENGINEER:
Redland
WHERE GREAT PLACES BEGIN
1500 West Canal Court
Littleton, Colorado 80120
REDLAND.COM

APPLICANT:
CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

DRAWN JLR
CHECKED TJF
APPROVED TJF
PROJECT NO. 19032
HORIZ. SCALE HORIZ. SCALE
VERT. SCALE

NO.	DATE	NOTES
1	2021-02-22	1st submittal
2	2021-05-06	2nd Submittal

MURATA FARMS
PRELIMINARY PLAT / PUD

COVER SHEET

SHEET
1

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MURATA FARMS PUD ZONE DISTRICT NOTES

1. Intent. The Murata Farms Planned Unit Development (PUD) is a 72.71- acre mixed-use neighborhood. The PUD will provide an attractive living and working environment using innovative site planning and design techniques that respond to the existing site conditions and existing adjacent land uses. The PUD is intended to meet the goals of the City of Fort Lupton PUD district as stated in the City's Municipal Code and Comprehensive Plan.

   The PUD will allow for a variety of residential housing types attractive to a variety of households. Housing may include single family detached homes, paired homes and single family attached or townhomes.

   The PUD also provides for a mixture of retail and service commercial and businesses located along the frontage of Highway-52.

   Features of the PUD include:

   - An interconnected public street system that is bicycle and pedestrian friendly. Trails are provided in all green court/open space areas. Homes facing the public streets and green courts will have interesting elevations, thereby enhancing the pedestrian experience.
   - Common open space and a pocket park provide areas for passive and active recreational opportunities.
   - Conditions, covenants, and restrictions will be provided to ensure cohesive architecture and landscaping throughout the neighborhood.

2. Definitions. Refer to Chapter 16, Section 16-5 of the fort Lupton Municipal Code and Section 11- of the Residential Design Standards.

3. Murata Farms Neighborhood Feature. The Neighborhood Feature is proposed as the developed park located at the southeast corner of the two intersection collector streets. The park shall be maintained by the HOA as a public park and contains a range of improvements including a multiple-use turf area, playground, walking path, plazas, pavilion with picnic tables, benches, and other similar features for various age groups to enjoy. The Neighborhood Feature Park is accessible to the public through connections to planned and existing trails adjacent to the subdivision. The park that satisfies the requirement for a Neighborhood Feature shall be credited against the neighborhood park land dedication requirements and improvements to such park shall be credited against and not to exceed the Park Development fees set forth in Section III.C. of the Residential Design Standards.

4. Public Land Dedication.

   A. Public Land Dedication for Parks ad Open Space shall be determined at Final Plat/Final PUD Plan and shall be based on the number of dwelling units included in the Final Plat. Land credited for dedication include:

      - Internal Trail Corridors
      - Pocket Parks
      - Neighborhood Feature
      - Fulton Ditch Regional Trail corridor

   B. School Land Dedication shall be in accordance with the Fort Lupton Municipal Code.

VARIATIONS TO THE RESIDENTIAL DESIGN STANDARDS

1. Landscape Buffer. A landscape buffer 30-feet in width shall be provided along Highway-52 in the Paired Home and Single Family Attached area as measured from the edge of right-of-way.

2. Setbacks Adjacent to Collector and Arterial Roads:

   - The rear yard setback along County Road 29-1/2 and Highway-52 shall be 20-feet.
   - The side yard setback adjacent to the east-west collector street where adjacent to a landscape tract shall be 10-feet.
   - The rear yard setback adjacent to the east-west collector street where adjacent to a landscape tract shall be 20-feet.

3. Perimeter Fences.

   - A solid perimeter fence a maximum of six-feet (6) in height is permitted along the rear and side lot lines adjacent to Highway-52 and County Road 29-1/2. The fence shall be buffered with landscaping on the street side of the fence.
   - Lot line fencing adjacent to open space corridors and pocket parks shall be open rail a maximum forty-two (42) inches in height. A wire mesh grid on the lot side of the fence is permitted for pet enclosure.

4. Lot Variation. Lot variations shall be provided within Murata Farms as follows. No minimum or maximum of any lot size is required.

   Single Family Detached Lots:

   - 5,250 Square Feet
   - 6,050 Square Feet
   - 6,600 Square Feet

   Paired Home Lots: 1,750 Square Feet

   Townhome Lots: 900 Square Feet

5. Single Family Detached Residential

   - Garage door shall not comprise more than forty-seven (47) percent of the front façade of the principal dwelling structure for two-car garages nor more than fifty-five (55) percent for three-car garages.
   - Alternate loaded garages are encouraged but not required.
   - At least 25% of all street facing garages shall be recessed a minimum of 4 feet behind the front façade of the structure or covered porch.
   - An additional 25 % of all street facing garages shall be recessed a minimum of 2 feet behind the front façade of the structure or covered porch.
   - At least 40% of the homes within the Homestead Vista shall incorporate a covered front porch which is a minimum of six (6) feet in depth with a minimum size of 48 square feet.
   - Mix of roof colors: Where asphalt shingles are used three (3) distinct roof colors are required to be dispersed throughout the neighborhood.

6. Single Family Paired or Duplex Residential

   Each homebuilder shall provide at least two (2) different floorplans for pairing. A mirrored floorplan shall not be counted as a separate plan.

   - Mix of roof colors: Where asphalt shingles are used three (3) distinct roof colors are required to be dispersed throughout the neighborhood.
   - One (1) in every three (3) pairs of homes shall contain one front porch which is at least six (6) feed in depth and eight (8) feet in width.
   - If the pair contains front loading garages to the public street right-of-way, the garage doors shall be recessed a minimum of two (2) feet from the front façade or face of the front porch. Inside or outside side loading garages or garages facing an auto court are exempt from this requirement.
   - Garage Design Standards (Applies to garages facing a public street right-of-way) (Replaces Sec.17-44-228 of the RDS)

     a. Alternate loaded garages are encouraged but not required.
     b. At least 25% of all street facing garages shall be recessed a minimum of 4 feet behind the front façade of the structure or covered porch.
     c. An additional 25 % of all street facing garages shall be recessed a minimum of 2 feet behind the front façade of the structure or covered porch.
     d. There is no maximum garage door coverage for the front loading paired or duplex homes. However, garages shall not be forward of the façade of the primary structure or front porch more than two (2) feet.
     e. Rear loaded, and auto court garages are exempt from this requirement.
     f. A horizontal or vertical offset on the rear elevation of an alley loaded paired home is not required. The variation shall be provided by a change in color, roof form or color or cladding.

7. Single Family Attached Residential

   - Primary pedestrian entries shall face a public street, private drive, or common open space corridor.
   - Single family attached areas shall have one through public or private access drive that is continuous through the site with a detached sidewalk and tree lawn.
   - Alternate entry locations are not required for single family attached homes.
   - Each single family attached unit is not required to be articulated to designate each unit. However, unit designation shall be provided as follows:

     a. 2 to 4 units: No articulation or change in the front plane is required.
     b. 5 to 8 units:One change in the front plane of at least two (2)-feet
     c. Differentiation in the units shall be provided through cohesive variations in the front building elevation, width of units or Exterior Materials for each single family attached building (not unit):

   - Garage Design Standards (Applies to garages facing a public street right-of-way

     a. Rear loaded garages are encouraged for single family attached homes.
     b. A pedestrian front door is required on the front elevation when a front-loaded garage is proposed.

MURATA FARMS - DIMENSIONAL STANDARDS

USE / STANDARD	MURATA FARMS PUD	CITY OF FORT LUPTON – R-2 RESIDENTIAL DISTRICT MEDIUM DENSITY
Single Family Residential		
Permitted Land Uses	Single Family Detached	NA
Maximum Number of Dwelling Units	180	
Minimum Lot Size	5,000 SF	6,000 SF
Minimum Lot Frontage at front property line	30-feet	30-feet
Maximum Building Height	35-feet	35-feet
Setbacks		
Front		
-to face of garage door (2) -to structure and porch (non-garage side)	20 feet 15 feet	25 feet
Side	5-feet	5-feet
Rear	15-feet	20-feet
Corner Side	10-feet	20-feet
Maximum Building Height	35-feet	35-feet
Minimum Floor Area	900 SF	750 SF two story/900 SF Ranch / 750 SF Tri-level

NOTES

1. Measurement per Fort Lupton Municipal Code
2. As measured from back of sidewalk on a public street right-of-way or edge of pavement on a private drive/alley.
3. Accessory uses/structures shall meet the requirements of the Fort Lupton Municipal Code.
4. Permitted encroachments into building setbacks:
   a. Architectural features including but not limited to eaves, bay windows, chimneys, entertainment centers, brick ledges, cantilevers, counterforts, cornices, canopies, wing walls and like architectural features may encroach into the required setbacks a maximum of 24 inches.
   b. Window wells may encroach into required setbacks a maximum of 36 inches
   c. Unenclosed or uncovered patios less than 30 inches above grade may encroach into building setbacks to within five (5) feet of the rear lot line and two (2) feet within a side lot line.
   d. Encroachments may not extend into easements without written approval from the easement holder.
5. All setbacks are measured to the building foundation.

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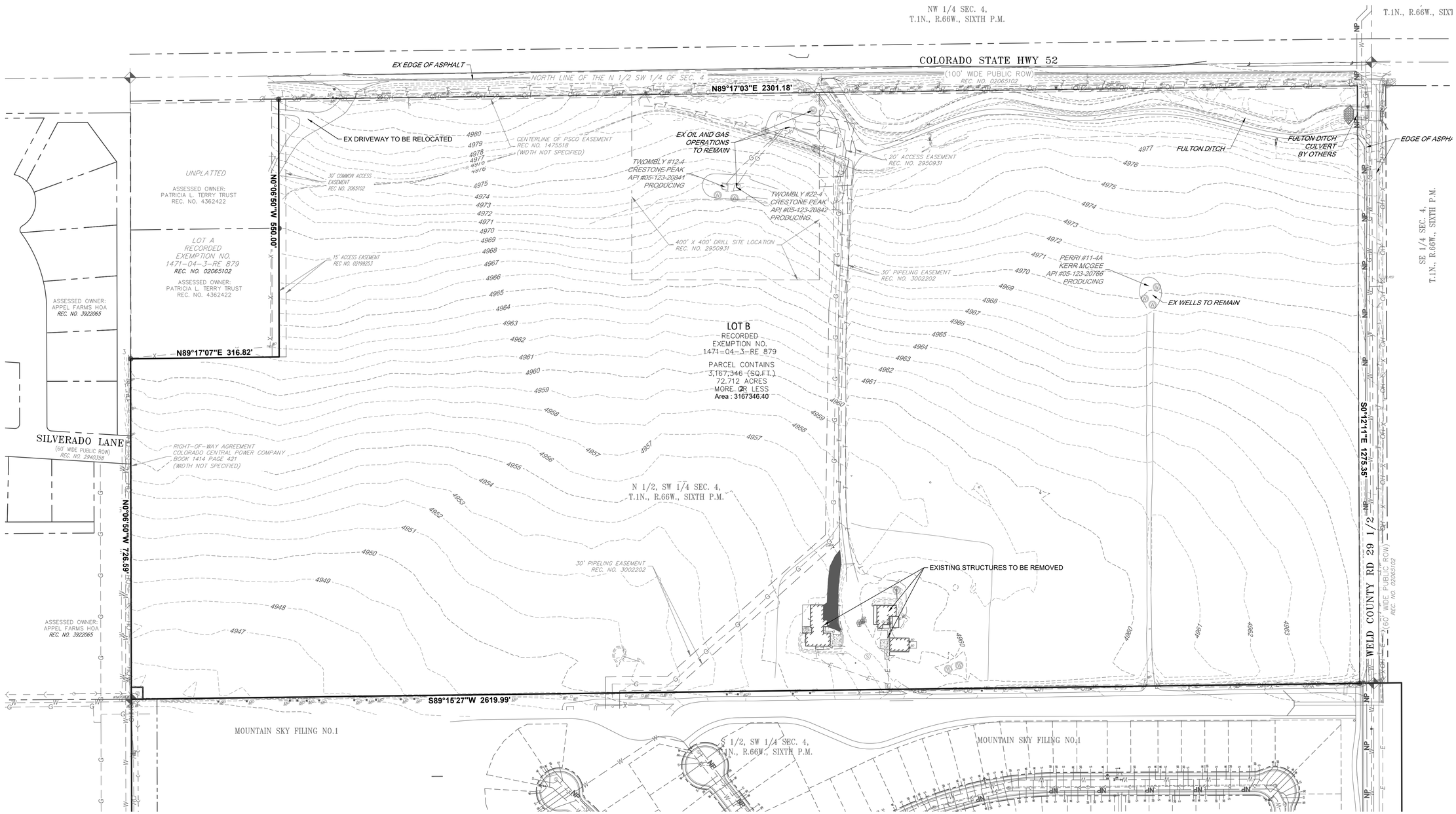
Arvada, Colorado 80007
303.420.1080
REDLAND.COM

APPLICANT:
CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

NO.	DATE	NOTES
1	3-26-2021	
2	5-10-2021	
3	6-28-2021	

MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
DEVELOPMENT STANDARDS
2 of 27



EXISTING LEGEND

	PROPERTY LINE
	R.O.W.
	LOT LINE
	EASEMENT LINE
	SECTION LINE
	ROAD CENTERLINE
	EDGE OF PAVEMENT
	CURB AND GUTTER
	CONCRETE
—X— —X—	FENCE
	RETAINING WALL
—W— —W—	WATER LINE
—RW—	RAW WATER LINE
—NP—	NON-POTABLE WATER LINE
—IRR—	IRRIGATION LINE
	SANITARY SEWER
	STORM SEWER
—E— —E—	ELECTRIC LINE
—G— —G—	GAS LINE
—T— —T—	TELEPHONE LINE
—FO—	FIBER OPTICS LINE
5280	CONTOUR MAJOR
5281	CONTOUR MINOR

N

0 50 100 200

SCALE: 1" = 100'

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ENGINEER:

Redland WHERE GREAT PLACES BEGIN

REDLAND.COM

APPLICANT:

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8655 S. Priest Drive
Tempe, AZ 85284

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CHECKED	TJF
APPROVED	TJF
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HORIZ. SCALE	HORIZ. SCALE
VERT. SCALE	

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MURATA FARMS
PRELIMINARY PLAT / PUD

EXISTING CONDITIONS

SHEET

3

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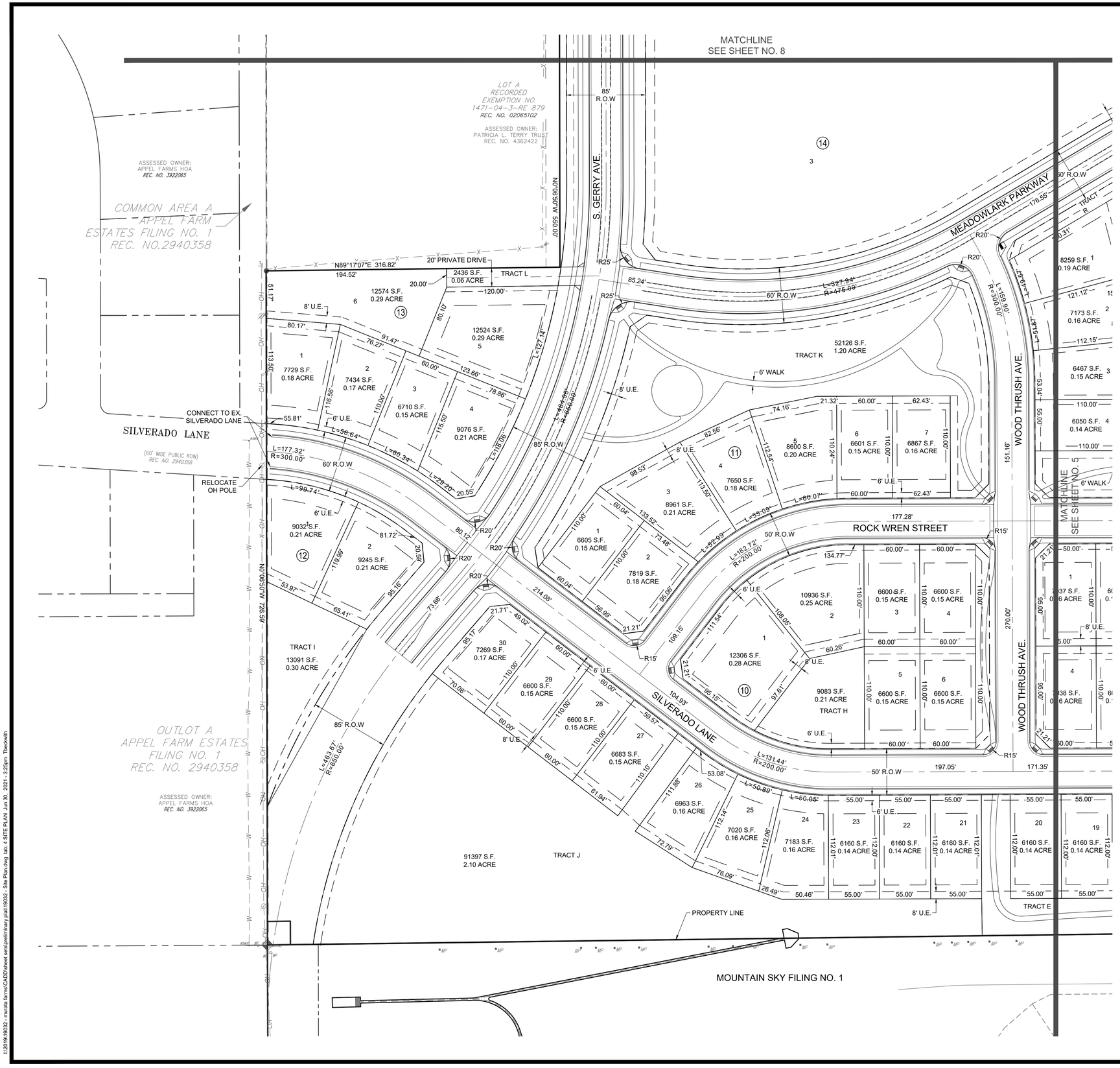

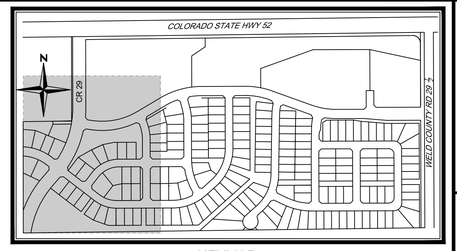

KEYMAP
N.T.S

EXISTING LEGEND

- EXISTING PROPERTY LINE
- EXISTING R.O.W.
- EXISTING LOT LINE
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PROPOSED LEGEND

- PROPOSED PROPERTY LINE
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- PROPOSED SIDEWALK

N

0 25 50 100
SCALE: 1" = 50'

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MURATA FARMS
PRELIMINARY PLAT / PUD

SITE PLAN

SHEET
4

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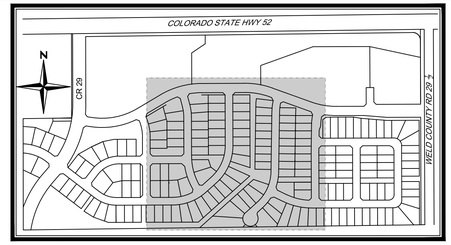

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N

0 25 50 100

SCALE: 1" = 50'

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1	2021-02-22	1st submittal
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MURATA FARMS
PRELIMINARY PLAT / PUD

SITE PLAN

SHEET
5

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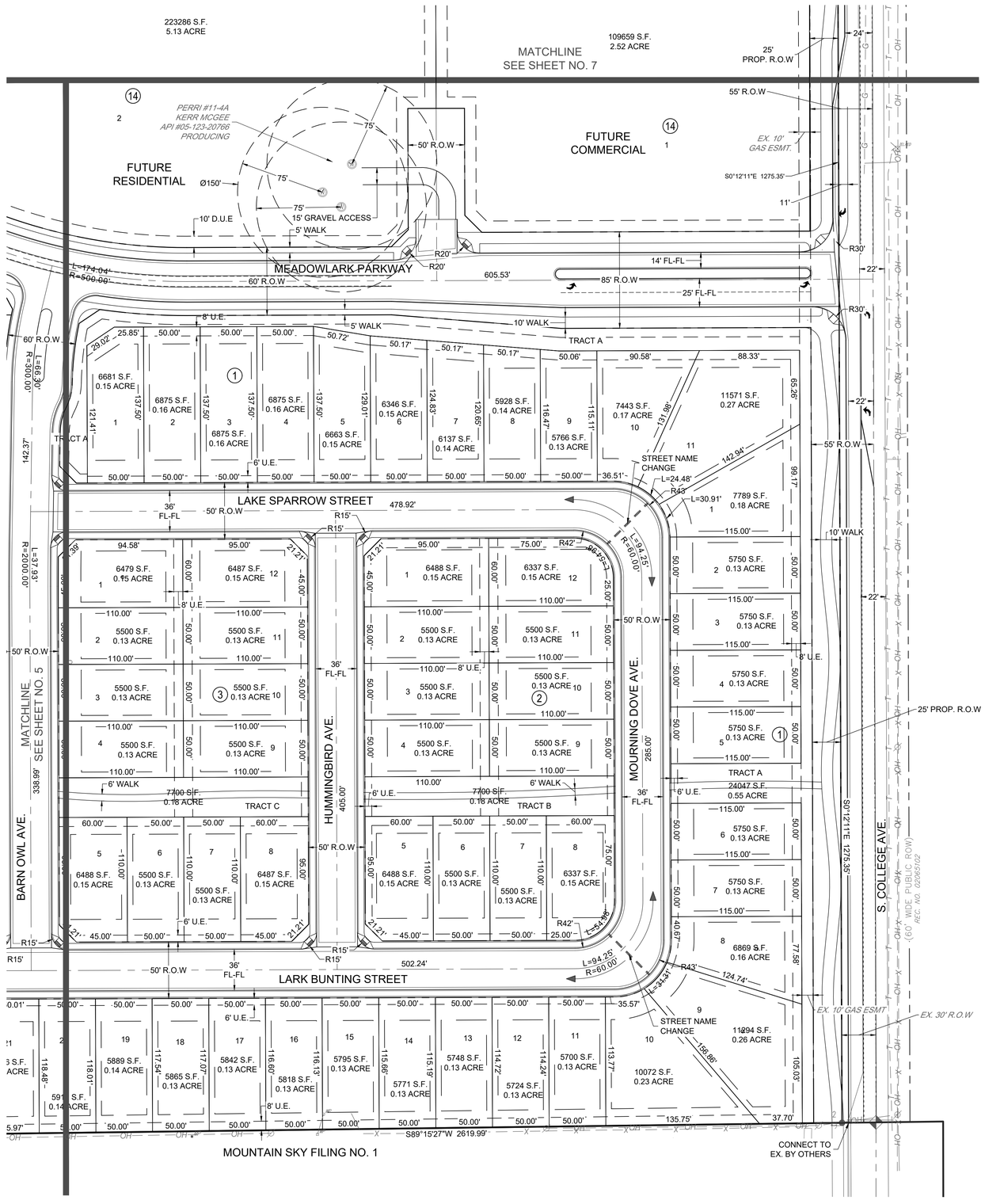

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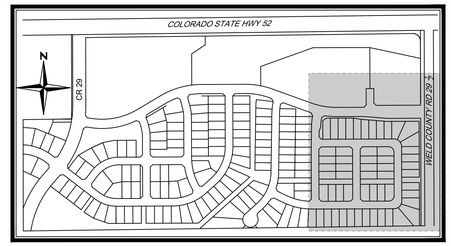
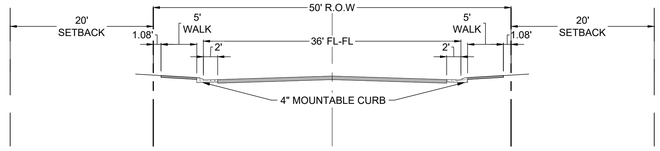


KEYMAP
N.T.S



LOCAL RESIDENTIAL
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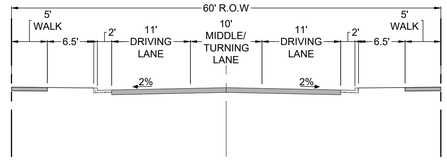

60' R.O.W COLLECTOR
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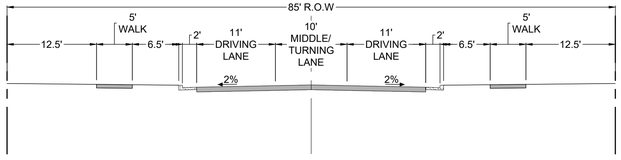

85' R.O.W COLLECTOR
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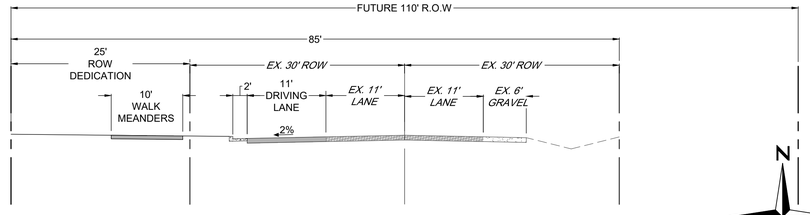

COUNTY ROAD 29 ½
1" = 10'

N

0 25 50 100
SCALE: 1" = 50'

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MURATA FARMS
PRELIMINARY PLAT / PUD

SITE PLAN

SHEET
6

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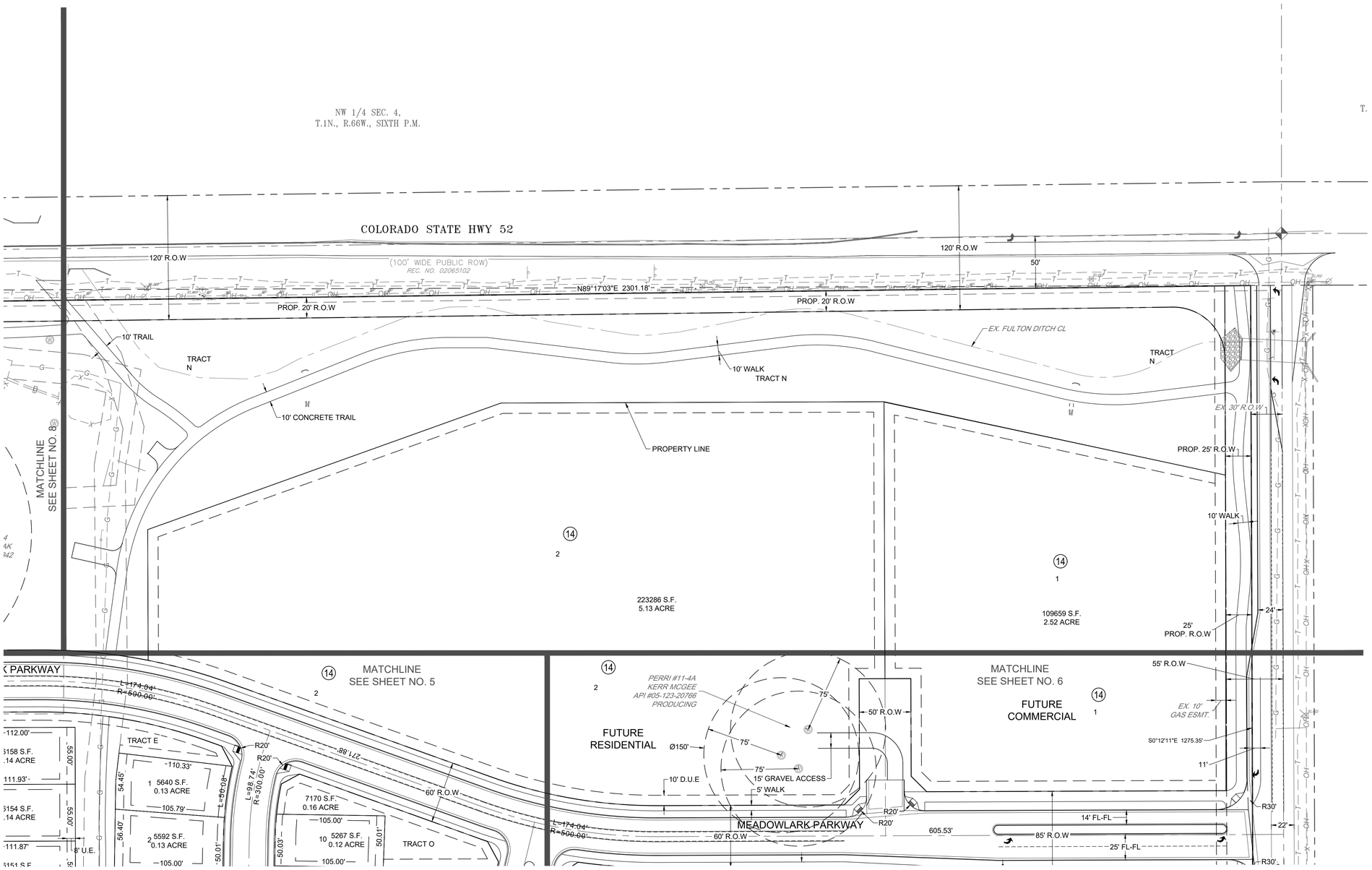

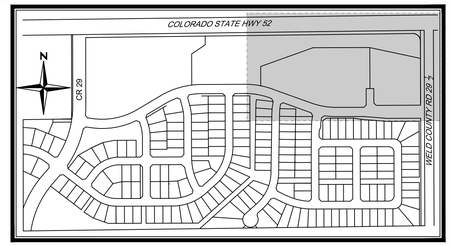

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PROPOSED LEGEND

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MURATA FARMS
PRELIMINARY PLAT / PUD

SITE PLAN

SHEET
7

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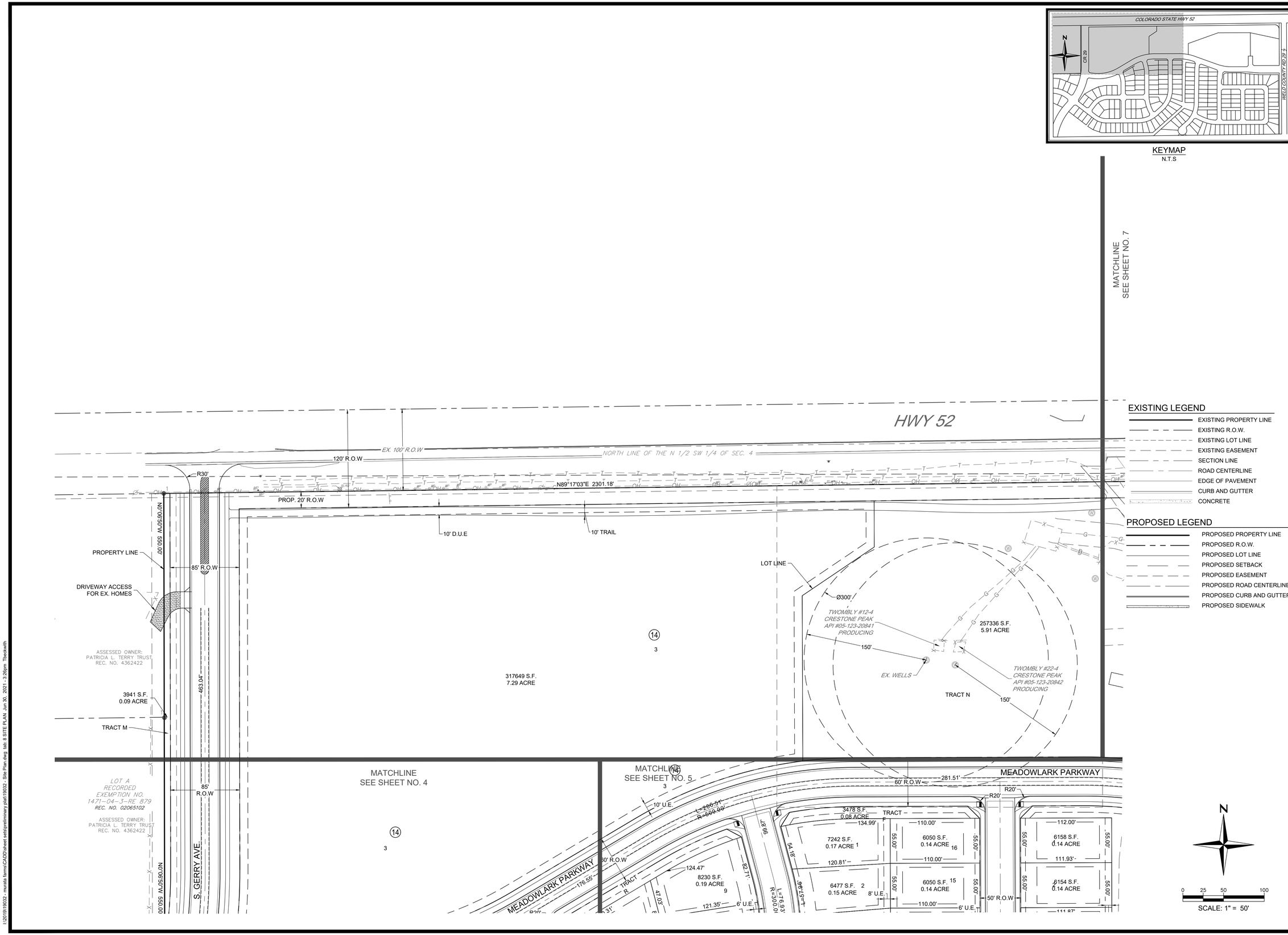

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MURATA FARMS
PRELIMINARY PLAT / PUD

SITE PLAN

SHEET
8

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COLORADO STATE HWY 52

PHASE 1

PHASE 2

PHASE 3

PHASE 4

PHASE 5

TRAIL IN PHASE 2

ALL DETENTION POND IMPROVEMENTS IN PHASE 1

UNPLATTED
ASSESSED OWNER:
PATRICIA L. TERRY TRUST
REC. NO. 4362422

LOT A
RECORDED EXEMPTION NO.
1471-04-3-RE 879
REC. NO. 02065102
ASSESSED OWNER:
PATRICIA L. TERRY TRUST
REC. NO. 4362422

ASSESSED OWNER:
APPEL FARMS HOA
REC. NO. 3922065

ASSESSED OWNER:
APPEL FARMS HOA
REC. NO. 3922065

S. GERRY AVENUE
MEADOWLARK PARKWAY
SAGE GROUSE AVE.
BLUEBIRD AVE.
MOUNTAIN FLOWER AVE.
SILVERADO LANE
ROCK WREN STREET
WOOD THRUSH AVE.
BARN OWL AVE.
HUMMINGBIRD AVE.
MOURNING DOVE AVE.
S. COLLEGE AVE.
LAKE SPARROW STREET
LARK BUNTING STREET
MOUNTAIN SKY FILING NO. 1

TRACT A
TRACT B
TRACT C
TRACT D
TRACT E
TRACT F
TRACT G
TRACT H
TRACT I
TRACT J
TRACT K
TRACT N
TRACT O

PROPOSED LEGEND

- PROPERTY LINE
- R.O.W.
- LOT LINE
- SETBACK
- EASEMENT
- ROAD CENTERLINE
- CURB AND GUTTER
- SIDEWALK
- STORM SEWER
- SANITARY SEWER
- TRENCH DRAIN
- W — WATER LINE

LOT SITE TABULATION		
☆	25	65' WIDE LOT (PHASE 1)
55	58	55' WIDE LOT (PHASE 1)
TOTAL	83	UNITS
50	97	50' WIDE LOT (PHASE 2)
TOTAL	180	UNITS

N

0 50 100 200

SCALE: 1" = 100'

LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2388 • henrydesigngroup.com

ENGINEER:
Redland
WHERE GREAT PLACES BEGIN
1000 West Canal Court
Littleton, Colorado 80120
REDLAND.COM

APPLICANT:
CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

DRAWN	JLR
CHECKED	TJF
APPROVED	TJF
PROJECT NO.	19032
HORZ. SCALE	
VERT. SCALE	

NOTES

NO	DATE
1	2021-02-22
2	2021-05-06

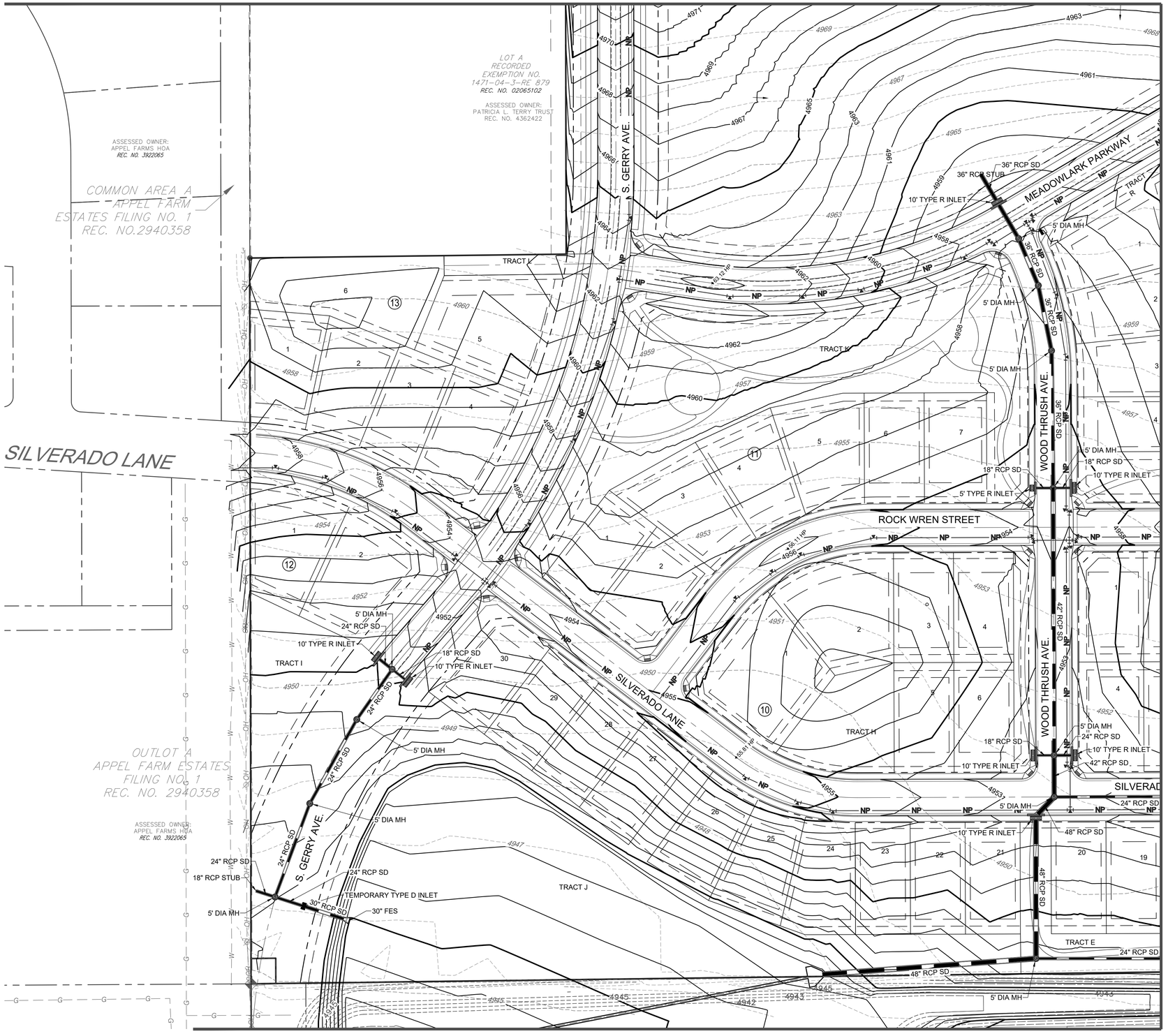
1st submittal
2nd Submittal

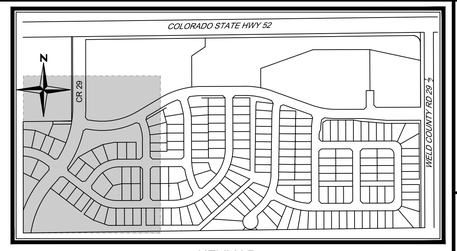
MURATA FARMS
PRELIMINARY PLAT / PUD

PHASING PLAN

SHEET
9

I:\2019\19032 - murata farms\CAD\sheet sets\preliminary plat\19032 - Phasing Plan.dwg tab: 9 PHASING PLAN Jun 30, 2021 - 3:26pm Tbeckwith





KEYMAP
N.T.S

NOTES:

1. ALL SLOPES ARE MAXIMUM OF 4H:1V UNLESS OTHERWISE NOTED.
2. GRADES SHOWN FOR ROADS, TRACTS AND OPEN SPACE AREAS ARE FINISHED GRADE.
3. REFER TO MOUNTAIN SKY FILING NO 1 PLANS FOR WCR 29 ½ GRADING AND REGIONAL CHANNEL.

LEGEND

5281	EXISTING MINOR CONTOUR
5280	EXISTING MAJOR CONTOUR
5281	PROPOSED MINOR CONTOUR
5280	PROPOSED MAJOR CONTOUR
	PROPOSED STORM SEWER LINE
	PROPOSED MANHOLE
	PROPOSED BOX BASE MANHOLE
	PROPOSED INLET
	PROPOSED FLARED END SECTION

N

0 25 50 100
SCALE: 1" = 50'

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MURATA FARMS
PRELIMINARY PLAT / PUD

GRADING PLAN

SHEET
10

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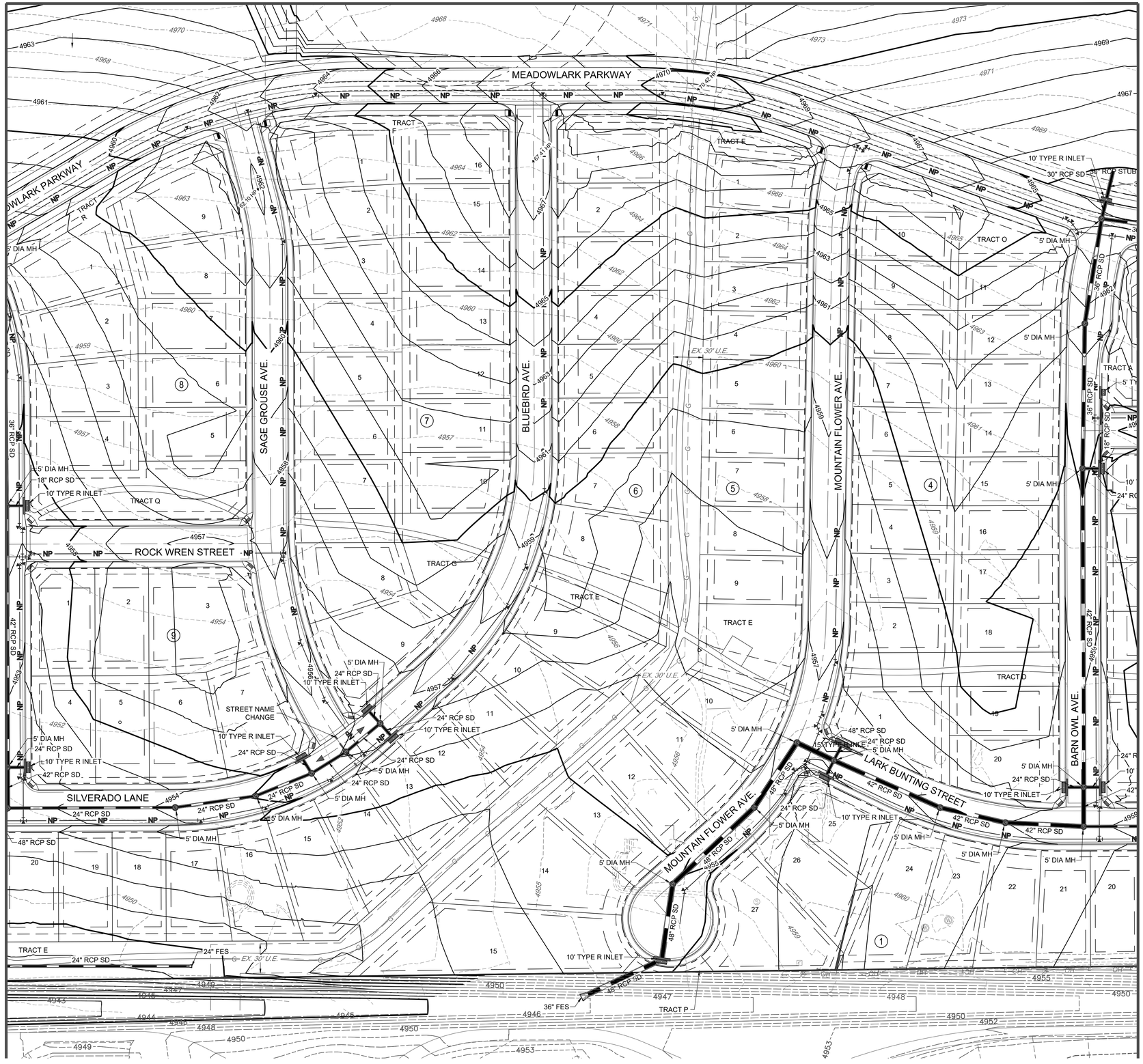

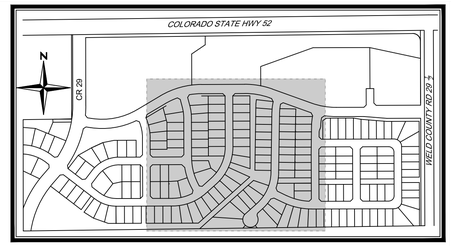

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GRADING PLAN

SHEET
11

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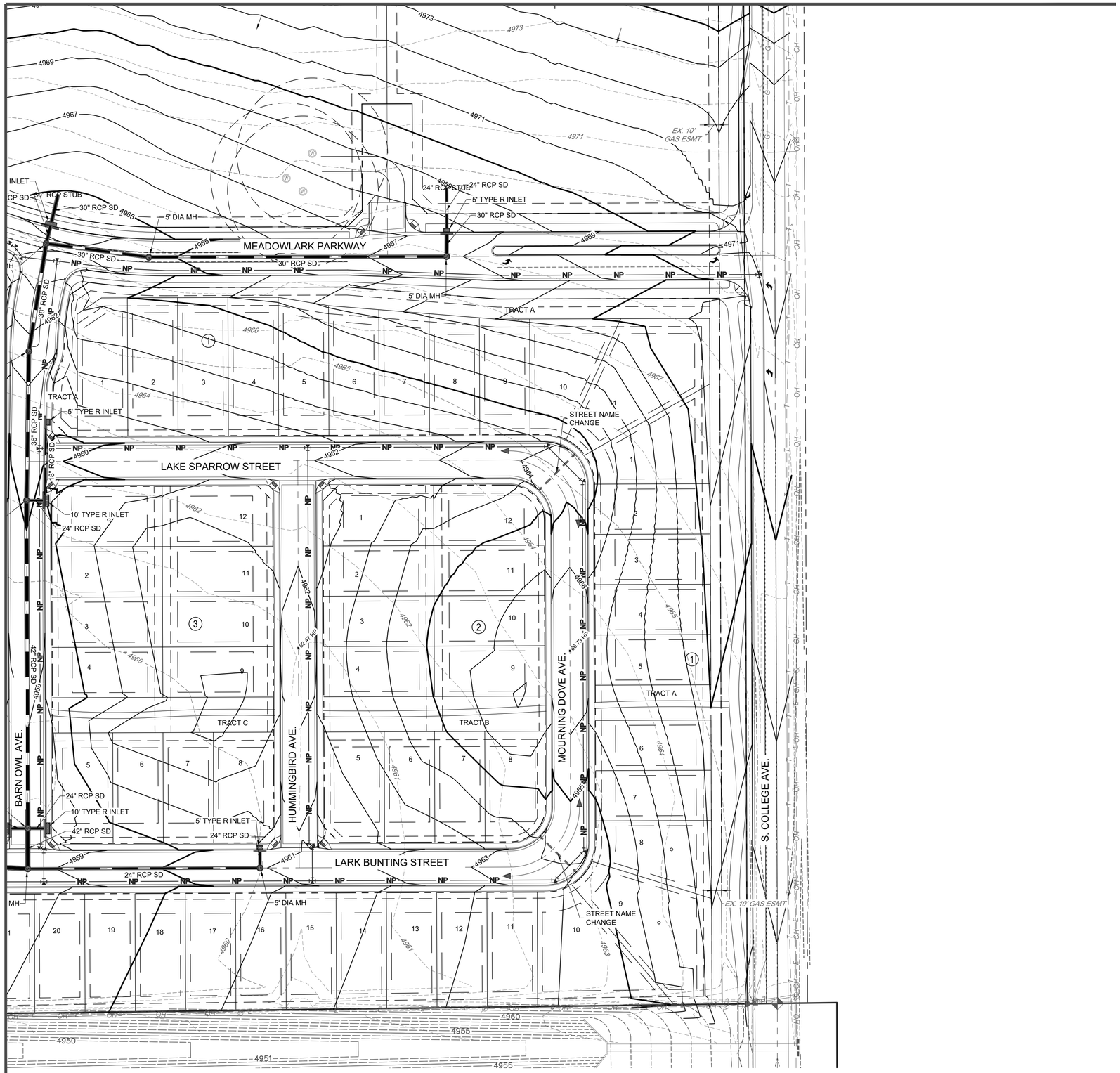

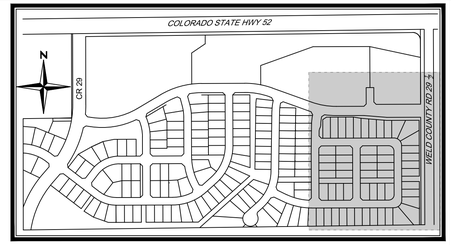

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MURATA FARMS
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GRADING PLAN

SHEET
12

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LEGEND

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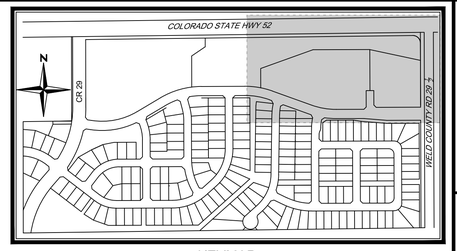
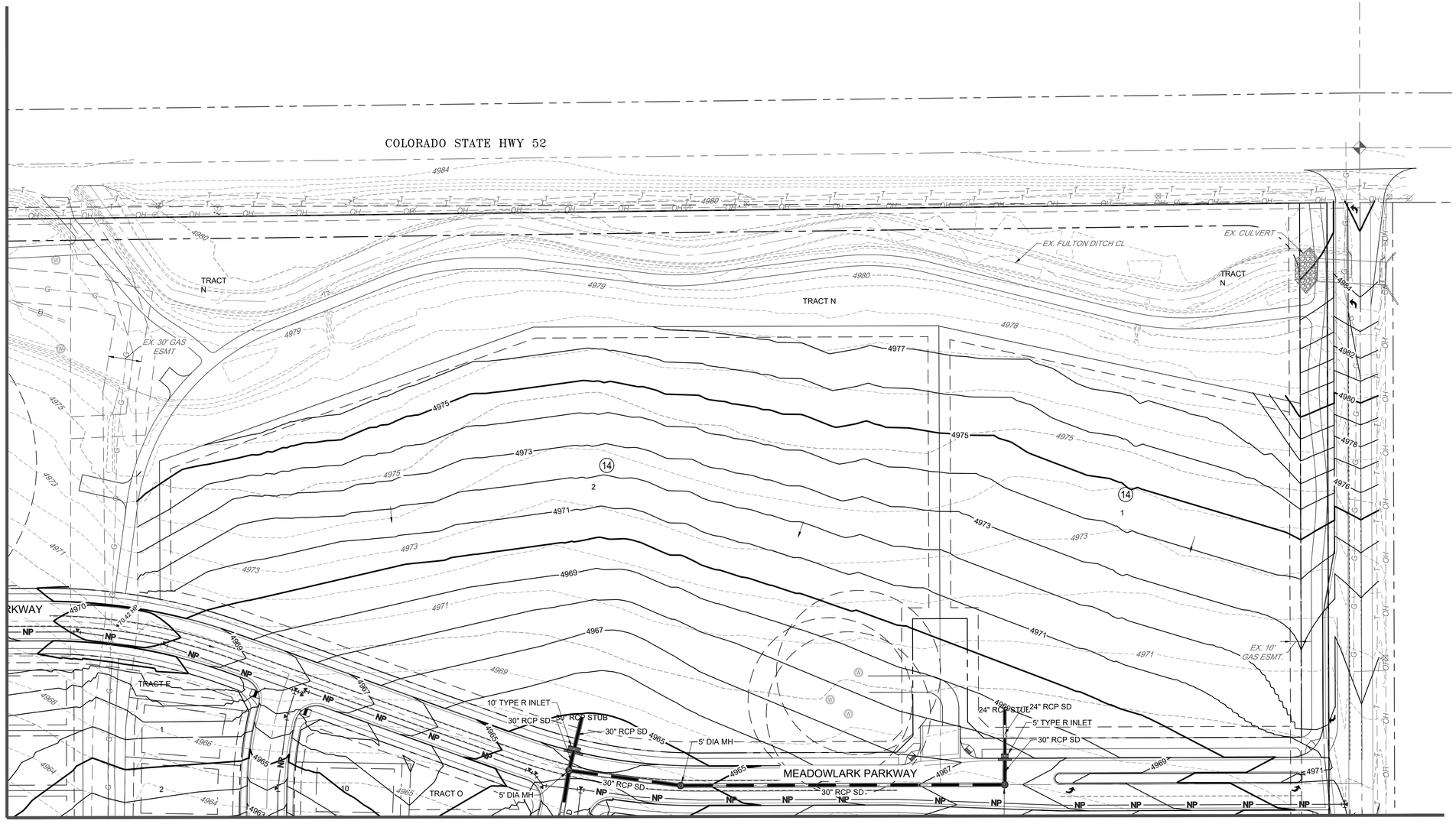
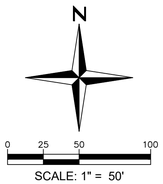


KEYMAP
N.T.S



REFERENCE LINE SEE SHEET 14

REFERENCE LINE SEE SHEET 12



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Littleton, Colorado 80120
REDLAND.COM

APPLICANT:
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Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

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APPROVED	TJF
PROJECT NO.	19032
HORZ. SCALE	HORIZ. SCALE
VERT. SCALE	

DATE	NO.	NOTES
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2021-05-06	2	2nd Submittal

MURATA FARMS
PRELIMINARY PLAT / PUD

GRADING PLAN

SHEET
13

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NOTES:

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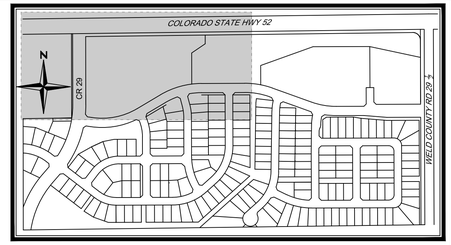
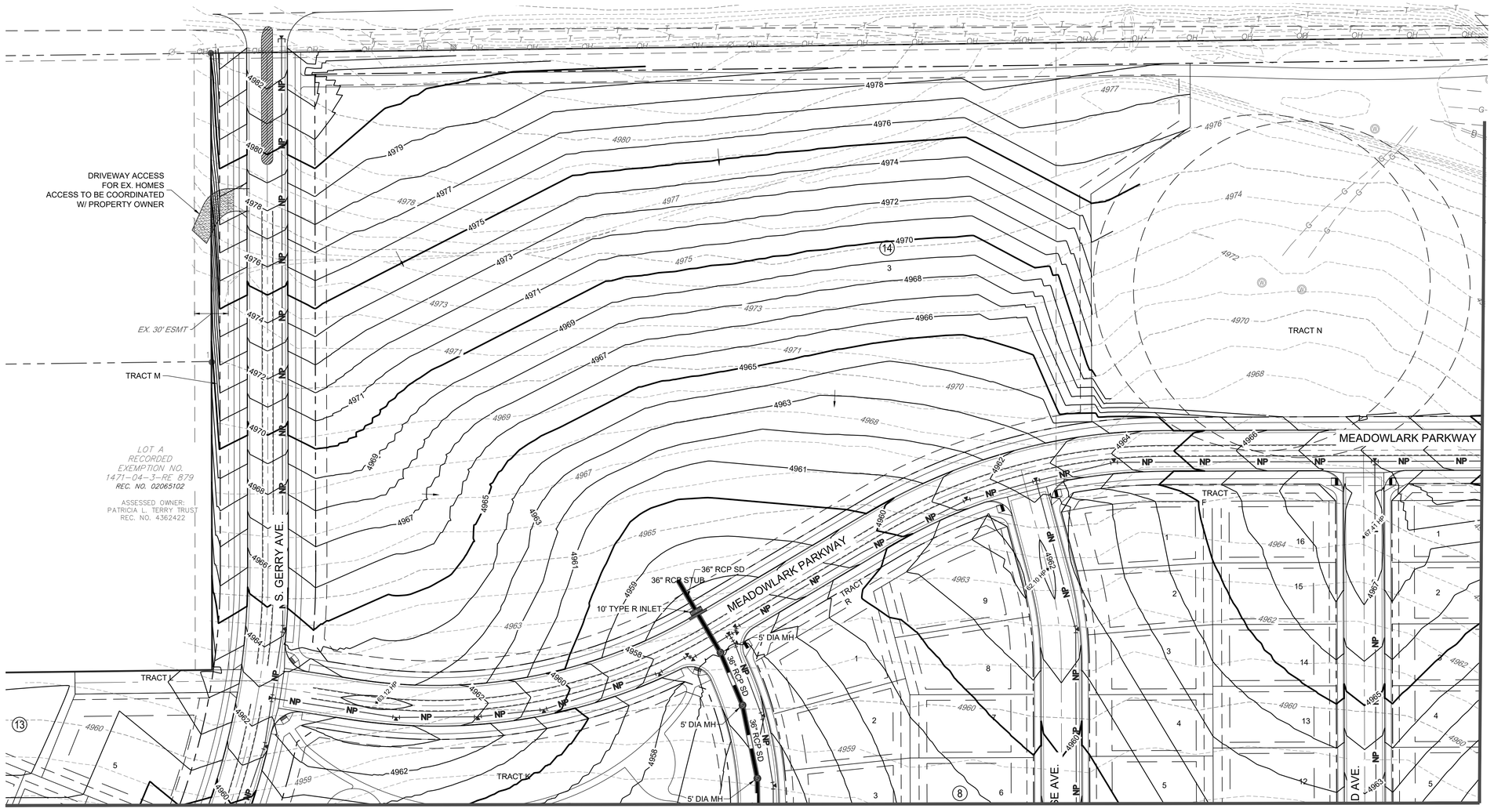
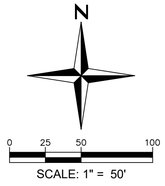


KEYMAP
N.T.S



REFERENCE LINE SEE SHEET 13

REFERENCE LINE SEE SHEET 10



LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2368 • henrydesigngroup.com

ENGINEER:
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7250 Ralston Drive
1500 West Canal Court
Littleton, Colorado 80120
REDLAND.COM

APPLICANT:
CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

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APPROVED	TJF
PROJECT NO.	19032
HORZ. SCALE	HORIZ. SCALE
VERT. SCALE	

NOTES

DATE	NO.	
2021-02-22	1	1st submittal
2021-05-06	2	2nd Submittal

MURATA FARMS
PRELIMINARY PLAT / PUD

GRADING PLAN

SHEET
14

I:\2019\19032 - murata farms\CADD\sheet sets\preliminary plat\19032 - Grading Plan.dwg tab: 14 GRADING PLAN Jun 30, 2021 - 3:27pm Tbeckwith

NOTES:

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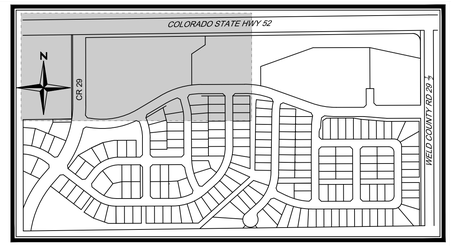
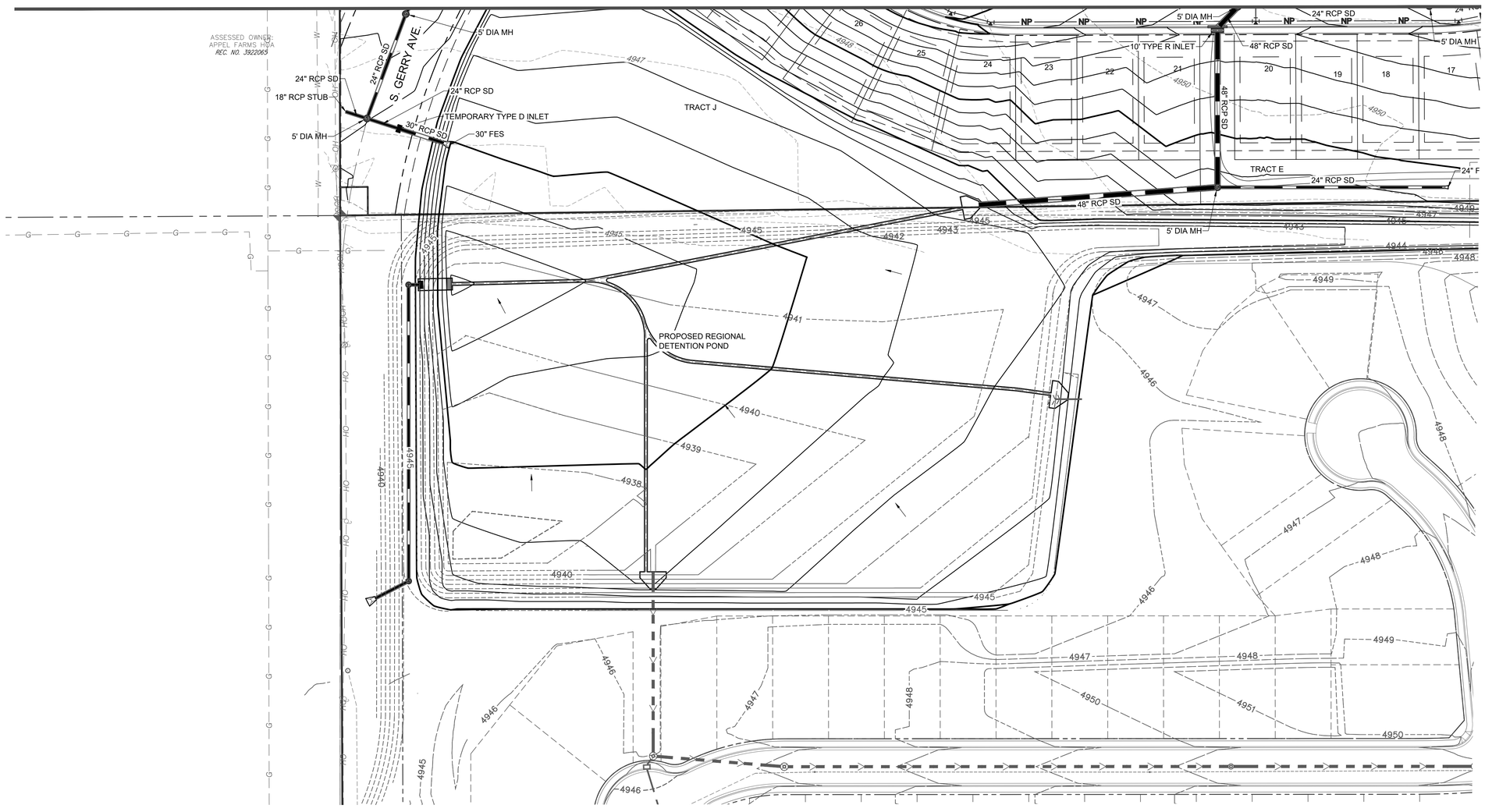
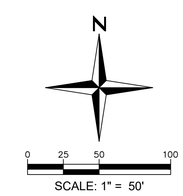


KEYMAP
N.T.S

REFERENCE LINE SEE SHEET 10





LANDSCAPE ARCHITECT / PLANNER:
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Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
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1500 West Canal Court
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MURATA FARMS
PRELIMINARY PLAT / PUD

GRADING PLAN

SHEET
15

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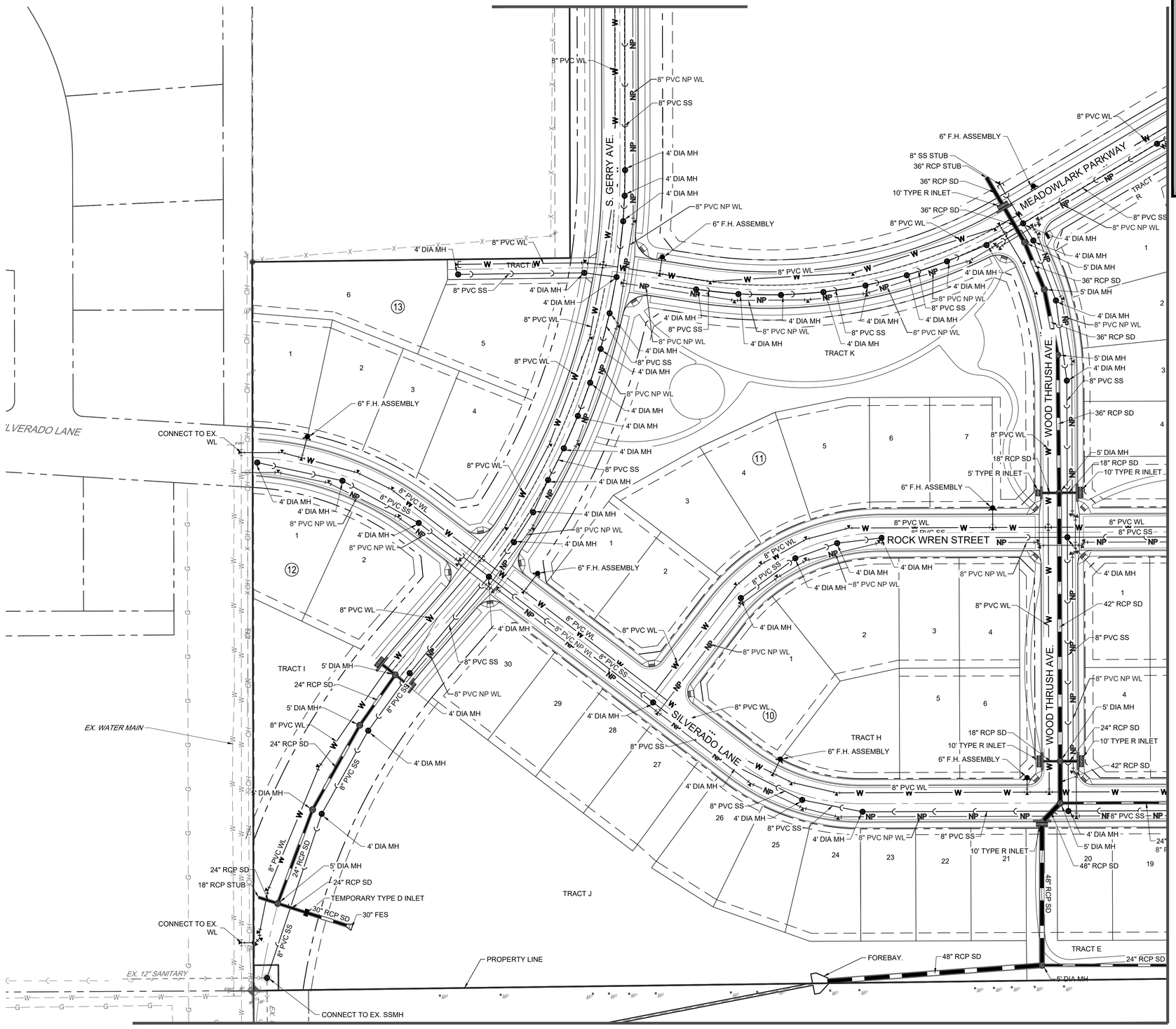
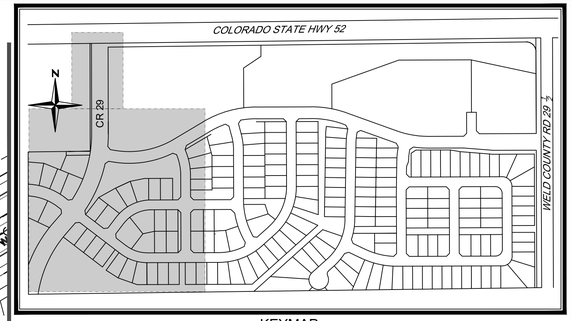




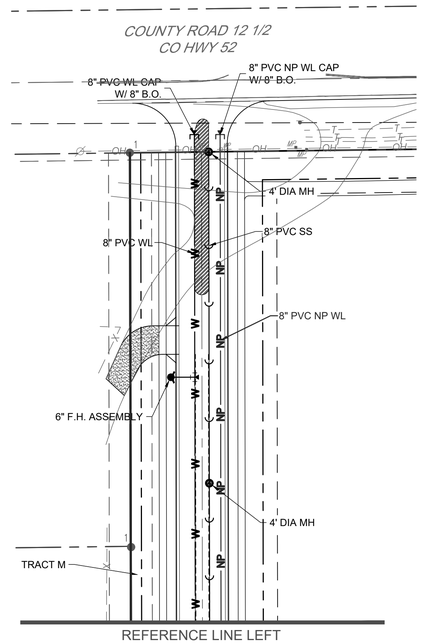
KEYMAP
N.T.S

NOTES:

1. WATER LINE APPURTENACES ARE SHOWN FOR GRAPHIC REPRESENTATION ONLY AND DO NOT REFLECT ACTUAL SIZE (TYP.)
2. NO STRUCTURE OR APPURTENANCE ASSOCIATED WITH WET UTILITY INSTALLATION MAY BE LOCATED WITHIN THE CURB, GUTTER, AT THE LIP OF GUTTER OR IN CROSSPANS.
3. UTILITY SIZES ARE APPROXIMATE AND WILL BE FINALIZED WITH CONSTRUCTION DOCUMENTS
4. MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 10-FEET BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND 5-FEET BETWEEN IRRIGATION WATER AND SEWER MAINS.

UTILITY LEGEND

- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS
- EXISTING FIBER OPTIC
- EXISTING STORM CULVERT
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- PROPOSED STORM SEWER LINE
- PROPOSED MANHOLE
- PROPERTY LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED LOT LINE
- PROPOSED EASEMENT



REFERENCE LINE LEFT

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1501 Wazee Street Suite 1-C, Denver, Colorado 80202
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7500 Ward Road Office
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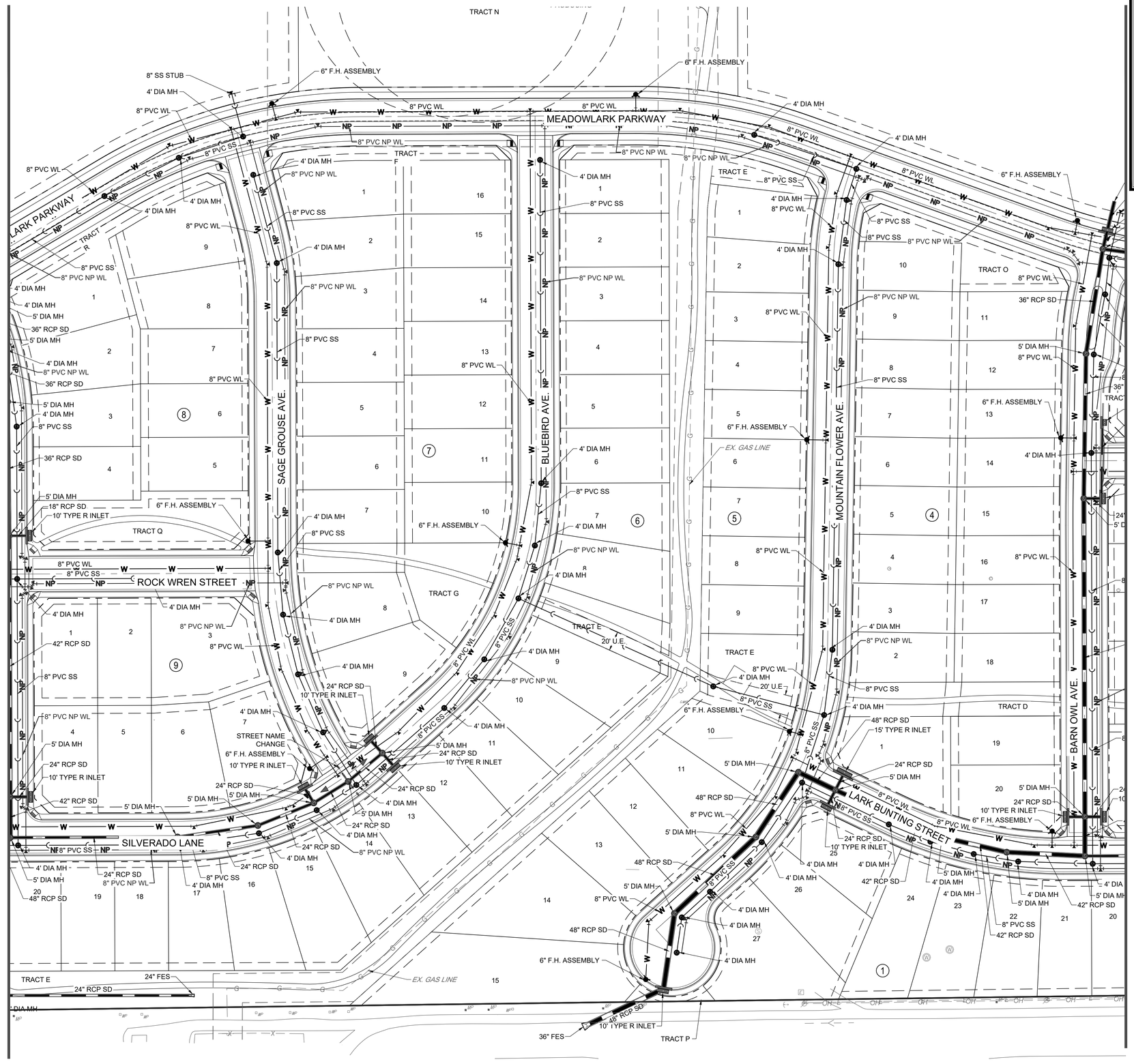
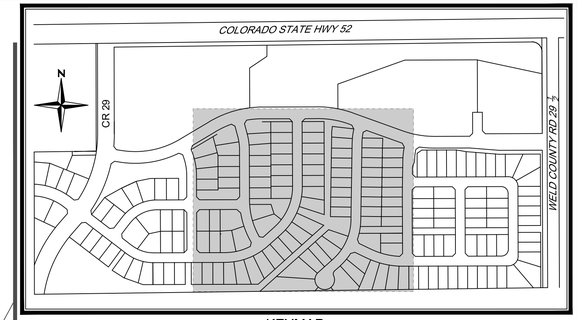
MURATA FARMS
PRELIMINARY PLAT / PUD

UTILITY PLAN

SHEET
16

I:\2019\19032 - murata farms\CADD\sheet sets\preliminary plat\19032 - Utility Plan.dwg tab: 16 UTILITY PLAN Jun 30, 2021 - 3:27pm Tbeckwith





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- EXISTING WATER LINE
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- PROPOSED WATER LINE
- PROPOSED STORM SEWER LINE
- PROPOSED MANHOLE
- PROPERTY LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED LOT LINE
- PROPOSED EASEMENT

N

0 25 50 100
SCALE: 1" = 50'

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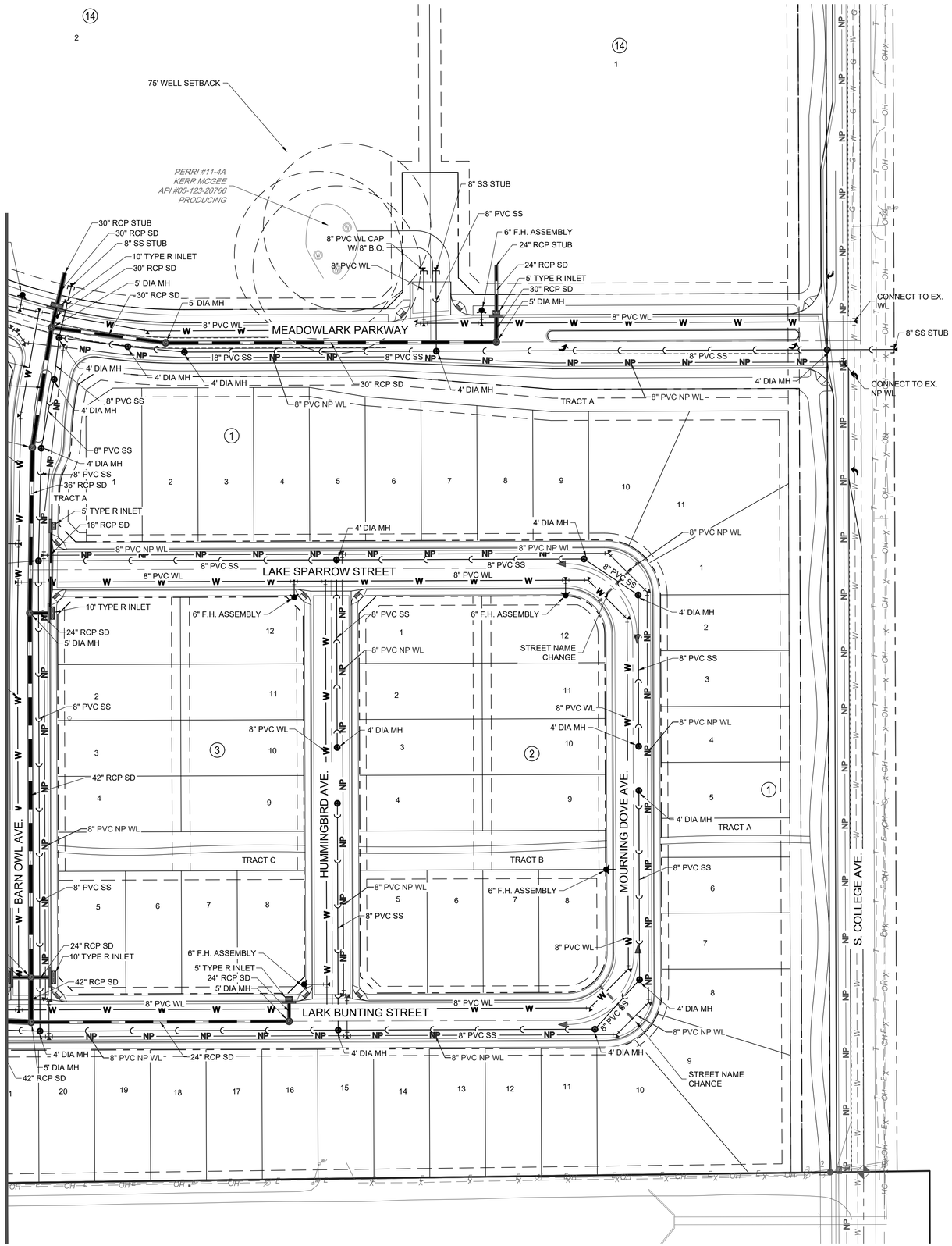
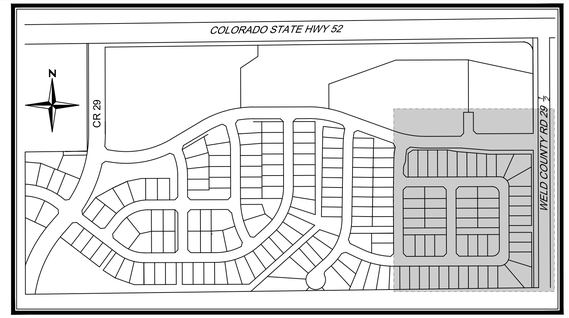
UTILITY PLAN

SHEET
17

I:\2019\19032 - murata farms\CADD\sheet sets\preliminary plat\19032 - Utility Plan.dwg tab: 17 UTILITY PLAN Jun 30, 2021 - 3:27pm Tbeckwith





KEYMAP
N.T.S

NOTES:

1. WATER LINE APPURTENACES ARE SHOWN FOR GRAPHIC REPRESENTATION ONLY AND DO NOT REFLECT ACTUAL SIZE (TYP.)
2. NO STRUCTURE OR APPURTENANCE ASSOCIATED WITH WET UTILITY INSTALLATION MAY BE LOCATED WITHIN THE CURB, GUTTER, AT THE LIP OF GUTTER OR IN CROSSPANS.
3. UTILITY SIZES ARE APPROXIMATE AND WILL BE FINALIZED WITH CONSTRUCTION DOCUMENTS
4. MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 10-FEET BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND 5-FEET BETWEEN IRRIGATION WATER AND SEWER MAINS.

UTILITY LEGEND

- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS
- EXISTING FIBER OPTIC
- EXISTING STORM CULVERT
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- PROPOSED STORM SEWER LINE
- PROPOSED MANHOLE
- PROPERTY LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED LOT LINE
- PROPOSED EASEMENT

N

0 25 50 100

SCALE: 1" = 50'

LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2388 • henrydesigngroup.com

ENGINEER:
Redland
WHERE GREAT PLACES BEGIN
Redland Engineering, LLC
1800 West Sweet Court
Superior, Colorado 80027
REDLAND.COM

APPLICANT:
CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

DRAWN	JLR
CHECKED	TJF
APPROVED	TJF
PROJECT NO.	19032
HORZ. SCALE	HORIZ. SCALE
VERT. SCALE	

NO.	DATE	NOTES
1	2021-02-22	1st submittal
2	2021-05-06	2nd Submittal

MURATA FARMS
PRELIMINARY PLAT / PUD

UTILITY PLAN

SHEET
18

I:\2019\19032 - murata farms\CADD\sheet sets\preliminary plat\19032 - Utility Plan.dwg tab: 18 UTILITY PLAN Jun 30, 2021 - 3:27pm Tbeckwith

UTILITY LEGEND

- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS
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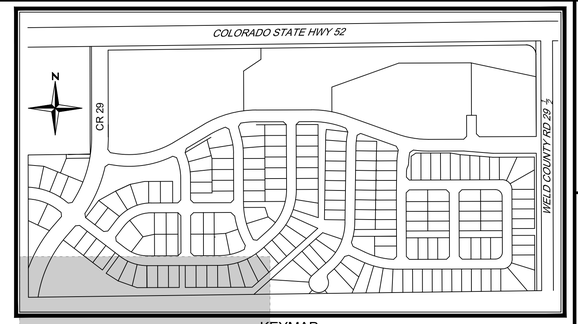
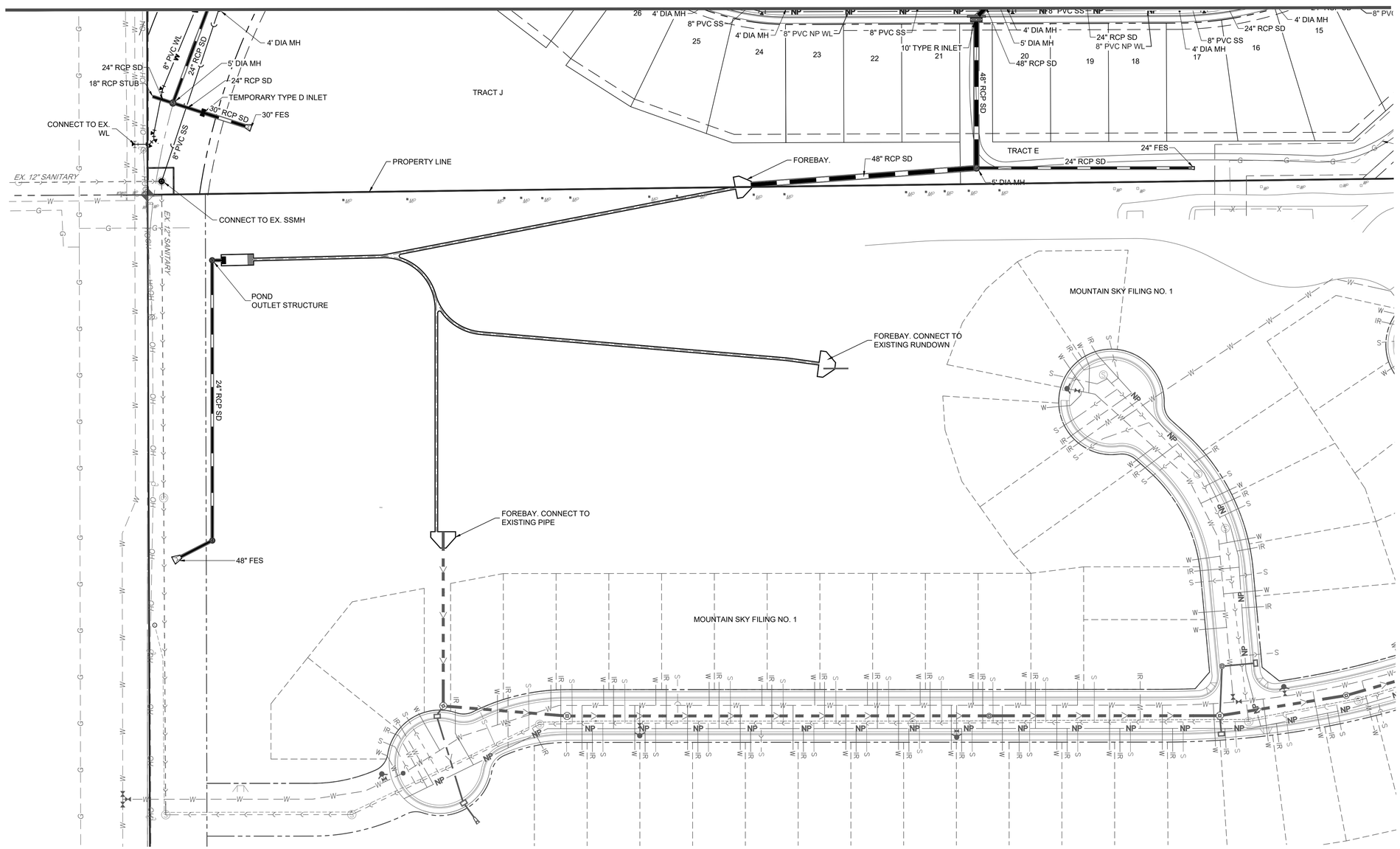


KEYMAP
N.T.S

REFERENCE LINE SEE SHEET 16



N

0 25 50 100

SCALE: 1" = 50'

LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
1501 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2388 • henrydesigngroup.com

ENGINEER:
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2533 West Canal Court
Littleton, Colorado 80120
REDLAND.COM

APPLICANT:
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Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

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PROJECT NO.	19032
HORZ. SCALE	
VERT. SCALE	
HORIZ. SCALE	

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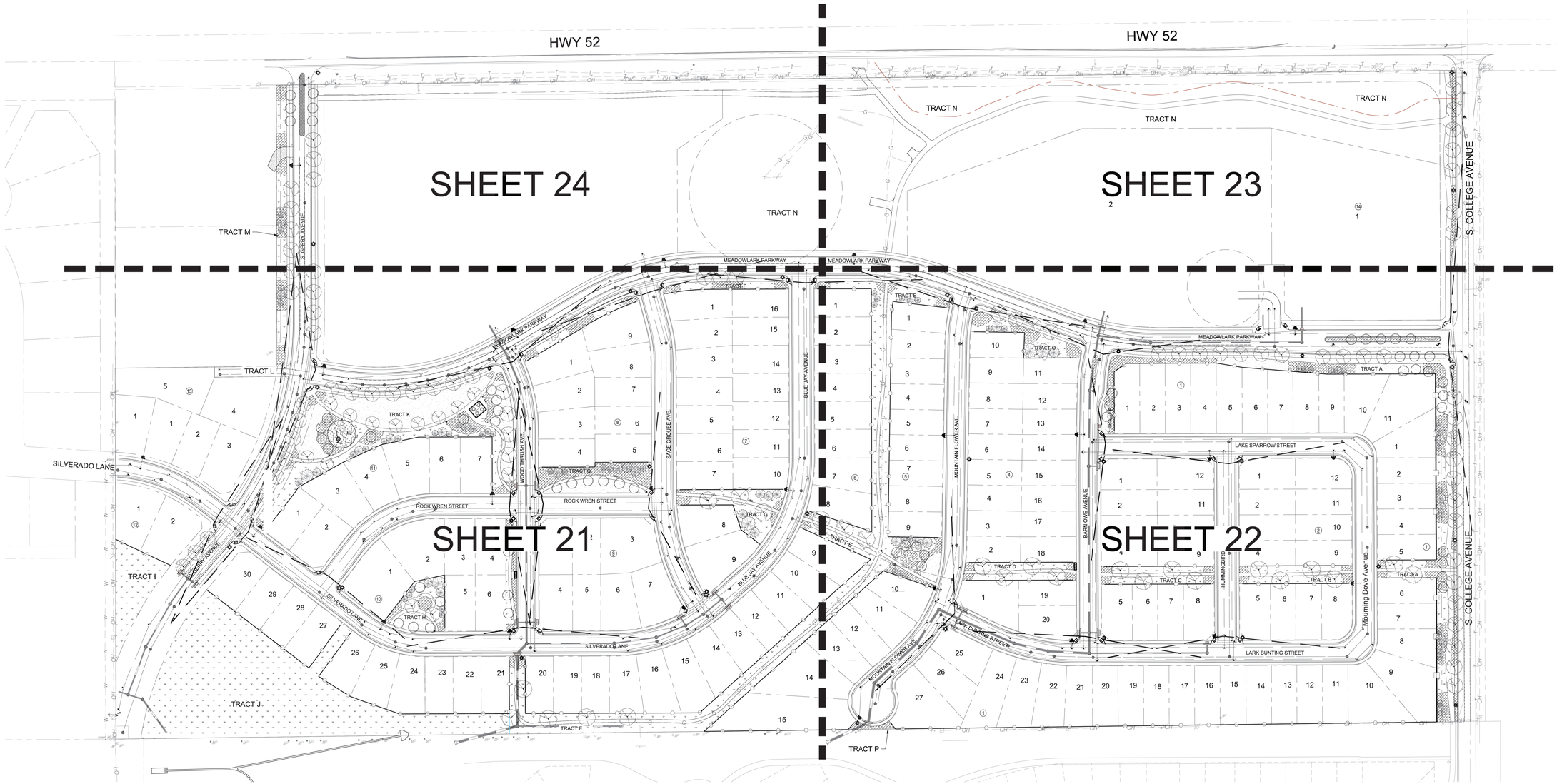
MURATA FARMS
PRELIMINARY PLAT / PUD

UTILITY PLAN

SHEET
19

I:\2019\19032 - murata farms\CADD\sheet sets\preliminary plat\19032 - Utility Plan.dwg tab: 19 UTILITY PLAN Jun 30, 2021 - 3:28pm Tbeckwith



NORTH

0 100' 200'

SCALE: 1"=100'

NOTES

1. Other than various grasses and forbes, existing vegetation is non-existant; therefore, preservation of existing vegetation shall not be required.
2. The site does not contain any known endangered species, archaeological or historic areas. Also, no floodplains, wetlands or geologic hazards have been mapped on the site.
3. It is the responsibility of the Developer and their Contractors to build the project according to approved plans and details, and in accordance with current Town of Fort Lupton Landscape Standards and Specifications. Field changes to these plans are to be approved by the Town of Fort Lupton prior to any work. Field conditions that conflict with or jeopardize the longevity of the proposed improvements shall be brought to the attention of the Town for resolution. Failure to bring such matters to the Town's attention or to obtain approval of remedial measures will in no way relieve the Developer/Contractor of their obligation to resolve the matter to the satisfaction of the Town of Fort Lupton.
4. It will be the responsibility of the Developer to replace all dead plant material and/or re-sod or seed turf areas that are not established during the warranty period established by the Development Agreement for this project.
5. Proposed park and open space areas will be private and maintained at homeowners expense by a mandatory metro district.
6. All plant material shall carry a warranty for a period of not less than 1 year after acceptance of the project by the owner. Warranty shall be a one-time replacement that includes plant material and labor costs.
7. All landscape areas and plant material shall be watered by an automatic irrigation system. Drip irrigation is to be provided to shrub areas; turf area heads are to be installed so as to provide head to head coverage. Temporary irrigation shall be provided to native grass areas for establishment in order to assist in complying with the re-vegetation standards.
8. All areas disturbed by construction shall be adequately re-vegetated so as not to leave any bare ground.
9. Each front yard shall contain at least 1 deciduous tree. Final locations of trees shall be based upon driveways and utility service lines.
10. No tree or shrub will be planted within 3 feet of a fire hydrant. Trees shall be planted with the top most root in the root ball 3" to 5" higher than the finished landscape grade. This includes trees that are set on slopes. Set root ball on undisturbed soil. Trees where the trunk flare is not visible shall be rejected. Do not cover the root ball with soil.
11. Soil preparation under all areas to be seeded, sodded or otherwise planted shall include topsoil and/or organic matter (compost or aged manure) and shall be added at a rate of 3 cubic yards per 1 thousand square feet and tilled into the soil to a depth of 6"
12. Organic mulch shall be used within 1 foot of all shrubs and ornamental grasses, as well as around trees in a 6 foot diameter ring. Remaining areas of planting beds shall contain 1-1/2 inch western river rock. All planting beds require a pre-embergent treatment before mulching.
13. All shrub beds shall be mulched with rock cobble mulch 1" - 2" in size, placed over a suitable weed barrier fabric. Minimum depth of mulch shall be 3 inches. All shrub bed areas shall be separated from sod areas by steel edging material.
14. Sod within parks shall be Turf Master TM EnviroTurf. All other sod, including ROW lawns shall be Turf Master TM Nature's Prairie.
15. All fencing shall be as indicated on the landscape plans and details.

LANDSCAPE ARCHITECT / PLANNER:
henry design group
Landscape Architecture • Planning • Entitlements
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REDLAND.COM

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Tempe, AZ 85284

NO.	DATE	NOTES
1	3-26-2021	
2	5-10-2021	
3	6-28-2021	

MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
LANDSCAPE SHEET INDEX

20 of 27

MATCHLINE B - SHEET 24

MATCHLINE A - SHEET 22

SILVERADO LANE

SIGHT DISTANCE TRIANGLE

TRACT L

MEADOWLARK PARKWAY

OPEN PLAY LAWN
TRACT K

BBQ GRILLS & TRASH RECEPTACLE

20'x24' SHELTER & PICNIC TABLES

BIKE RACKS

DOG WASTE STATION

BENCHES, BIKE RACKS
& TRASH RECEPTACLE

PLAYGROUND

DOG WASTE STATION

OPEN 3-RAIL FENCE

WOOD THRUSH AVE.

SAGE GROUSE AVE.

BLUE JAY AVENUE

TRACT F

SIGHT DISTANCE TRIANGLE

OPEN 3-RAIL FENCE

OPEN 3-RAIL FENCE

BENCHES

TRACT Q

OPEN 3-RAIL FENCE

BENCH

6' CONCRETE TRAIL

ROCK WREN STREET

SIGHT DISTANCE TRIANGLE

ROCK WREN STREET

SIGHT DISTANCE TRIANGLE

TRACT G

S. GERRY AVENUE

6' CONCRETE TRAIL

1 OF 2 MAILBOX KIOSK
5 BOXES OF 20 UNITS EACH

TRACT I

OPEN 3-RAIL FENCE

BENCHES

BUTTERFLY GARDEN

OPEN 3-RAIL FENCE

SILVERADO LANE

TRACT H

DOG WASTE STATION

SILVERADO LANE

BLUE JAY AVENUE

OPEN 3-RAIL FENCE

6' CONCRETE TRAIL

DETENTION

TRACT J

TRACT E

LEGEND

- DECIDUOUS TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- SOD
- MULCH PLANTING BED
- NATIVE GRASS
- PLAYGROUND MULCH
- PRIVACY FENCE
- OPEN 3-RAIL FENCE
- STEEL LANDSCAPE EDGER
- SIGHT DISTANCE TRIANGLE
- STREET LIGHT
- FIRE HYDRANT

NORTH

SCALE: 1" = 50'

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Landscape Architecture • Planning • Entitlements
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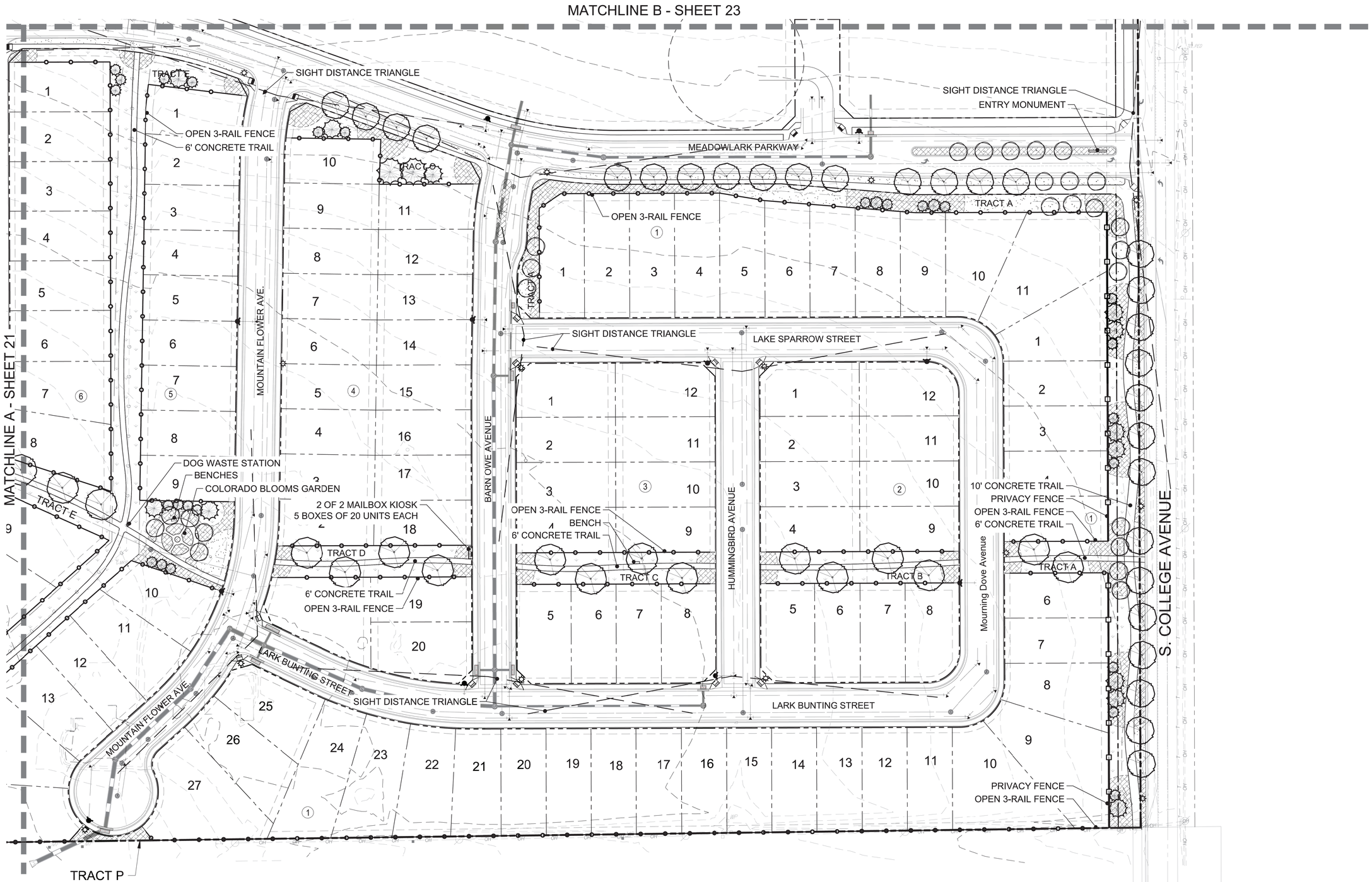
MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
PRELIMINARY LANDSCAPE PLAN
21 of 27



LEGEND

DECIDUOUS TREE
ORNAMENTAL TREE
EVERGREEN TREE
SOD
MULCH
PLANTING BED
NATIVE GRASS
PLAYGROUND MULCH
PRIVACY FENCE
OPEN 3-RAIL FENCE
STEEL LANDSCAPE EDGER
SIGHT DISTANCE TRIANGLE
STREET LIGHT
FIRE HYDRANT

NORTH
0 50' 100'
SCALE: 1" = 50'

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REDLAND.COM

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Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

NOTES

DATE	NO.
3-26-2021	1
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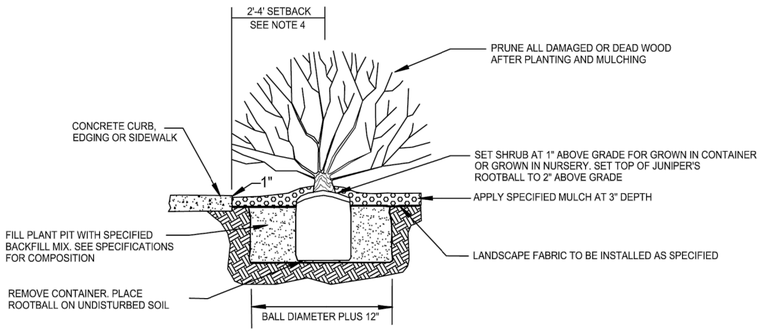
MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
PRELIMINARY LANDSCAPE PLAN
22 of 27



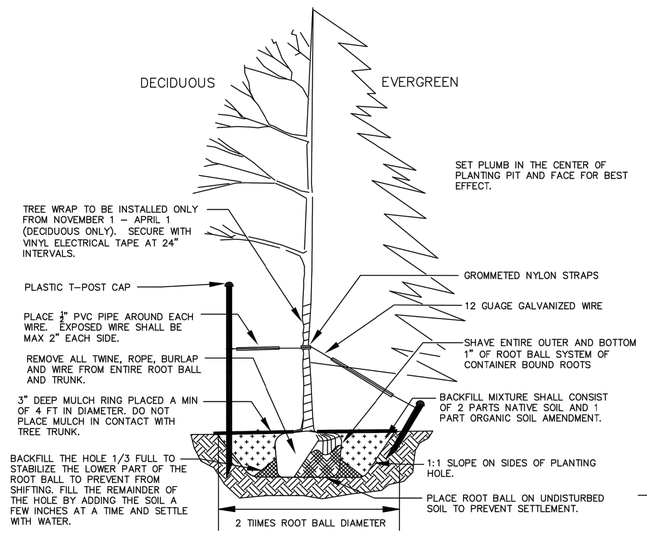
SHRUB

NOTE:

1. DO NOT PLANT ANY PLANT WITH ROOTBALL NOT IN CONFORMANCE WITH COLORADO NURSERY ACT REQUIREMENTS
2. HOLD MULCH GRADE 1" BELOW EDGE OF WALK, EDGING OR CURB
3. SHRUBS NOT PLANTED WITHIN A MULCHED BED REQUIRE A 4" HIGH EARTH SAUCER TO BE CONSTRUCTED CONTAINING A 1' RADIUS AND 3" DEEP MULCH COLLAR.
4. USE A 2' TO 4' SETBACK DEPENDING ON SPECIES. SETBACK TO ACCOMODATE MATURE SPREAD OF SPECIES TO PREVENT OVERHANG.
5. REMOVE ALL CONTAINERS & POTS PRIOR TO PLANTING.

SHRUB & PERENNIAL PLANTING STANDARD DETAIL

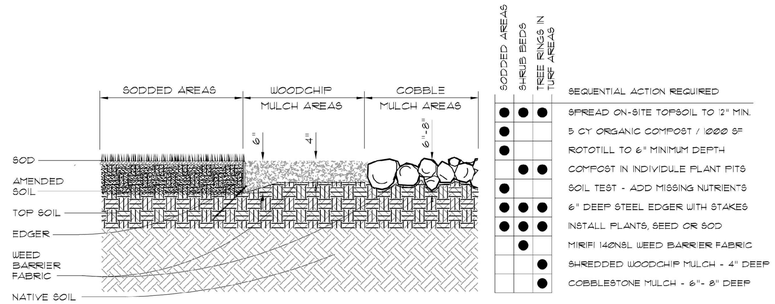
NOT TO SCALE



STAKING NOTES:
DECIDUOUS TREES SHALL BE STAKED USING TWO(2) SIX(6) FOOT STEEL T-POSTS DRIVEN PERPENDICULAR TO THE TREE AT 180 DEGREES.
EVERGREEN TREES SHALL BE STAKED USING THREE(3) TWO(2) FOOT STAKES DRIVEN AT 120 DEGREES.
ALL STAKES SHALL BE DRIVEN OUTSIDE OF ROOTBALL AND IN UNDISTURBED SOIL.

TREE PLANTING STANDARD DETAIL

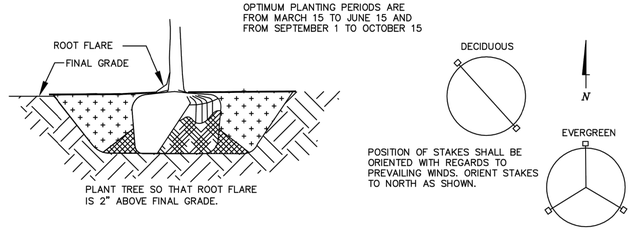
NOT TO SCALE

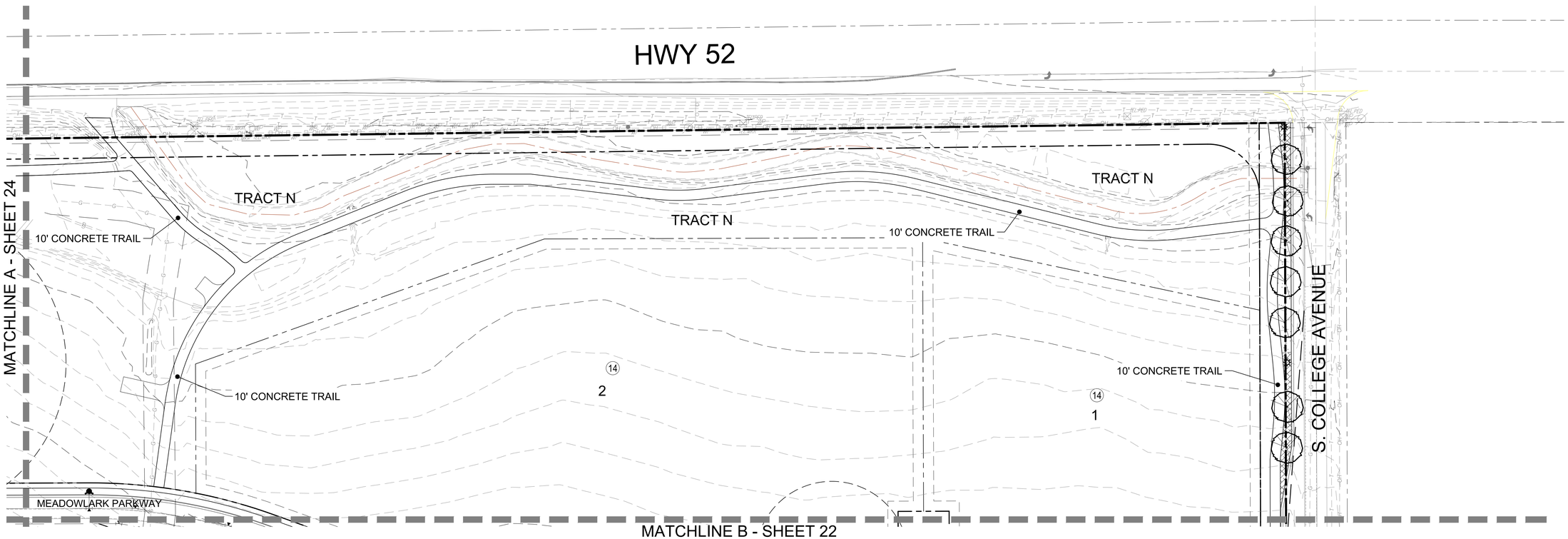


SODDED AREAS	SHRUB BEDS	TREE RINGS IN TURF AREAS	SEQUENTIAL ACTION REQUIRED
●	●	●	SPREAD ON-SITE TOPSOIL TO 12" MIN.
●			5 CY ORGANIC COMPOST / 1000 SF
●			ROTOTILL TO 6" MINIMUM DEPTH
	●	●	COMPOST IN INDIVIDUAL PLANT PITS
●			SOIL TEST - ADD MISSING NUTRIENTS
●	●	●	6" DEEP STEEL EDGER WITH STAKES
●	●	●	INSTALL PLANTS, SEED OR SOD
	●		MIRIFI 140NSL WEED BARRIER FABRIC
		●	SHREDDED WOODCHIP MULCH - 4" DEEP
		●	COBBLESTONE MULCH - 6"- 8" DEEP

EDGER, MULCHES & SOIL PREPARATION

NOT TO SCALE





LEGEND

- DECIDUOUS TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- SOD
- MULCH PLANTING BED
- NATIVE GRASS
- PLAYGROUND MULCH
- PRIVACY FENCE
- OPEN 3-RAIL FENCE
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- SIGHT DISTANCE TRIANGLE
- STREET LIGHT
- FIRE HYDRANT

NORTH

SCALE: 1" = 50'

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ENGINEER:
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APPLICANT:
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Coronado West, LLC
8655 S. Priest Drive
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MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
PRELIMINARY LANDSCAPE PLAN
23 of 27

SUGGESTED PLAN PALETTE

SHADE TREES

COMMON HACKBERRY	CELTIS OCCIDENTALIS
ENGLISH OAK	QUERCUS ROBUR
GREENSPIRE LINDEN	TILIA CORDATA GREENSPIRE
NORWEGIAN SUNSET MAPLE	ACER PLATANOIDES 'NORWEGIAN SUNSET'
SKYLINE HONEYLOCUST	GLEDITSIA TRIACANTHOS INERMIS SKYLINE

ORNAMENTAL TREES

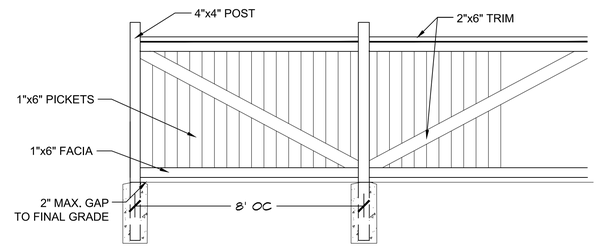
CHANTICLEER PEAR	PYRUS CALLERYANA
CRIMSON SPIRE OAK	QUERCUS CRIMSON SPIRE
GOLDEN RAINTREE	KOELREUTERIA PANICULATA

EVERGREEN TREES

AUSTRIAN PINE	PINUS NIGRA
BRISTLECONE PINE	PINUS ARISTATA
VANDERWOLF'S PYRAMID PINE	PINUS FLEXILIS 'VANDERWOLF'S PYRAMID'

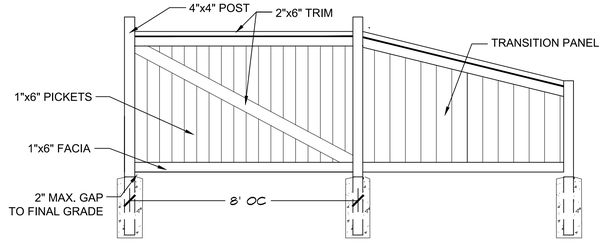
SHRUBS

BLUE BUTTERFLY BUSH	BUDDLEJA DAVIDII 'ELLEN'S BLUE'
CHEYENNE MOCKORANGE	PHILADELPHUS LEWISII 'CHEYENNE'
DWARF BLACK CHOKEBERRY	ARONIA MELANOCARPA IROQUOIS BEAUTY
GRO LOW SUMAC	RHUS AROMATICA 'GRO-LOW'
LITTLE LEAF MAHOGANY	CERCOCARPUS INTRICATUS
SPANISH GOLD BROOM	CYTISUS PURGANS SPANISH GOLD
SASKATOON SERVICEBERRY	AMERLANCHIER ALNIFOLIA
WESTERN SAND CHERRY	PRUNUS BESSEYI

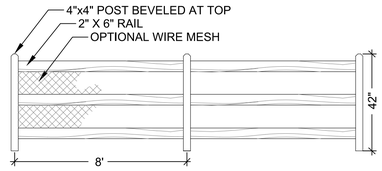


PRIVACY FENCE
WOOD or VINYL
Not to Scale

Vinyl fencing shall be of an "off-white" or "tan" color. Wood shall be stained to complement the primary color of the homes within the neighborhood.



TRANSITION FROM PRIVACY FENCE TO OPEN RAIL
WOOD or VINYL
Not to Scale



OPEN RAIL FENCE
WOOD or VINYL
Not to Scale

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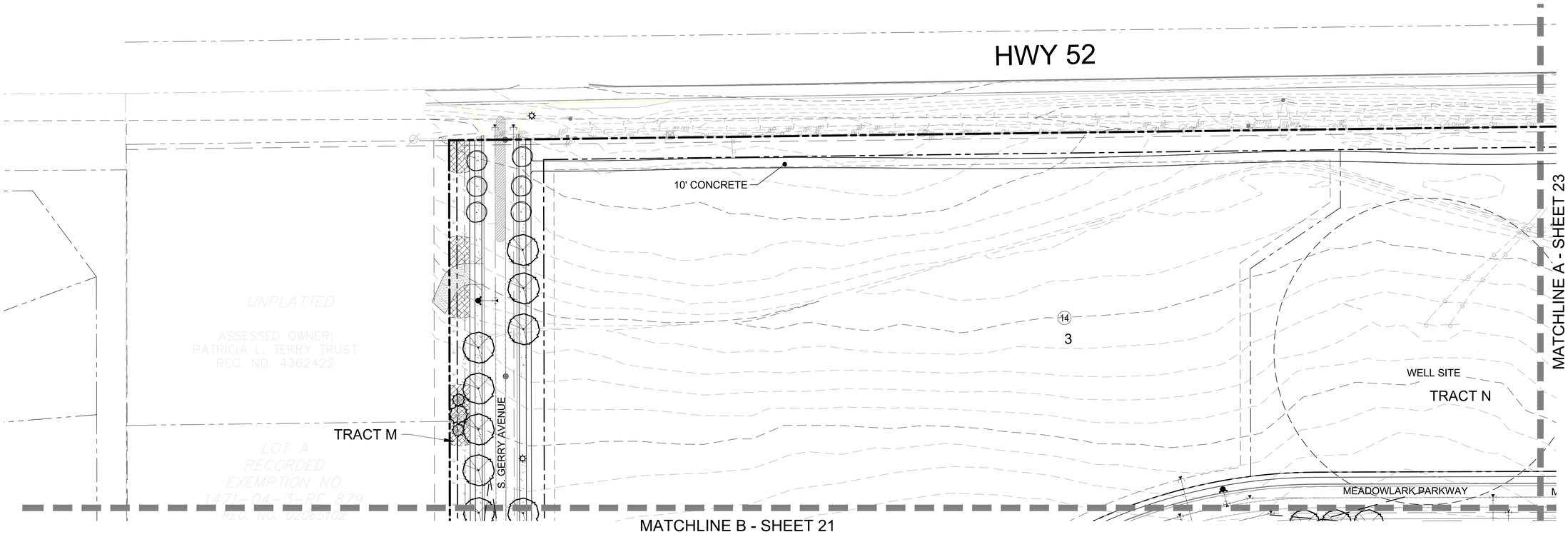

LEGEND

DECIDUOUS TREE
ORNAMENTAL TREE
EVERGREEN TREE
SOD
MULCH PLANTING BED
NATIVE GRASS
PLAYGROUND MULCH
PRIVACY FENCE
OPEN 3-RAIL FENCE
STEEL LANDSCAPE EDGER
SIGHT DISTANCE TRIANGLE
STREET LIGHT
FIRE HYDRANT

NORTH
SCALE: 1" = 50'

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NOTES

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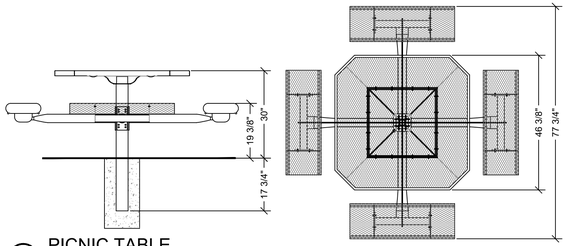
MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

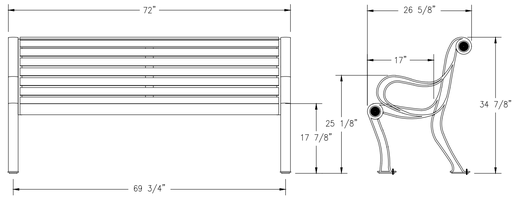
SHEET
PRELIMINARY LANDSCAPE PLAN
24 of 27



PICNIC TABLE

MANUFACTURER: WABASH VALLEY
MODEL: SG235D/SG230D INGROUND
COLOR: DARK GREEN

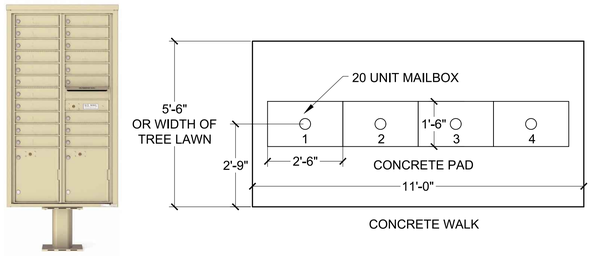
Not to Scale



BENCH

MANUFACTURER: WABASH VALLEY
MODEL: BU1119C
COLOR: DARK GREEN

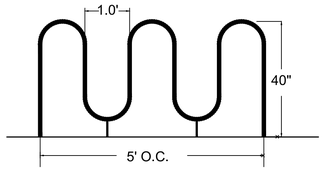
Not to Scale



1 Cluster of 4 Mailboxes with 20 personal units each.
1 Cluster of 3 Mailboxes with 20 personal units each.

MAILBOX CLUSTER

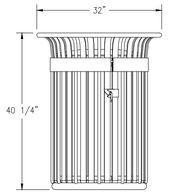
Not to Scale



Not to Scale

BICYCLE RACK

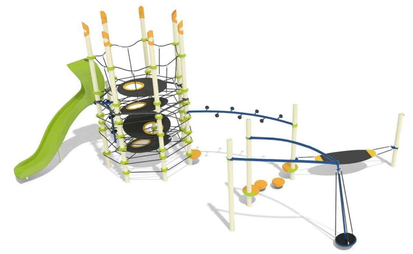
MANUFACTURER: WABASH VALLEY
MODEL: BRK538I
COLOR: DARK GREEN



Not to Scale

TRASH RECEPTACLE

MANUFACTURER: WABASH VALLEY
MODEL: TJ3F43I
COLOR: DARK GREEN



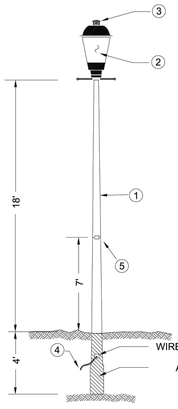
NetPlex with LolliLadder, Boogie Bard, Sol Spinner and Rush Slide
Ages 5-12

NETPLEX PLAY STRUCTURE

Landscape Structures, Model: 96573-1-1A
landscapestructures.com

Not to Scale

ITEM	QTY	ASSET #	INVENTORY NO.
1	1	DT SL 373003	49500023
2	1	DT SL 373050	39302500
4	1	DT SV 369077	09350602



NOTES:

1. REFER TO STREET LIGHT DATA COLLECTION REPORTING AND FIELD IDENTITY PROCEDURE.
2. FOR LED FIXTURE USE ONLY SOLID STATE PHOTO CONTROL.
3. INDICATE THE VOLTAGE ON FIXTURE IF VOLTAGE IS HIGHER THAN 120 VOLTS.
4. LIGHT TO BE FULL CUT-OFF TO REDUCE LIGHT POLLUTION.

Bulb, Wattage and Spec. Unit

Bulb Type	Wattage	Full Unit Spec.	Fixture Spec.	Pole Spec.	INVENTORY #
LED	50W	UML-CLED	UMF-CLED	UMP-23	39302500

ITEM	#	MATERIAL	SPEC #	INVENTORY #
1	1	BLACK ROUND TAPERED FIBERGLASS DIRECT BURIAL 23' POLE - (3" POLE TOP)	UMP-23	49500023
2	1	COLONIAL STYLE FIXTURE	UMF	-
3	1	PHOTO CELL		44451000
4	1	#6 DUPLEX SECONDARY WIRE AS REQUIRED		09350602
5	1	METAL ID TAG AND STRAP		-
6	1	FUSE, ST. LT. (20 AMP)		24501500
7	1	FUSE HOLDER, ST. LT.		24501501
8	2	FUSE HOLDER COVER, ST. LT.		24501502

COLONIAL STYLE STREET LIGHT

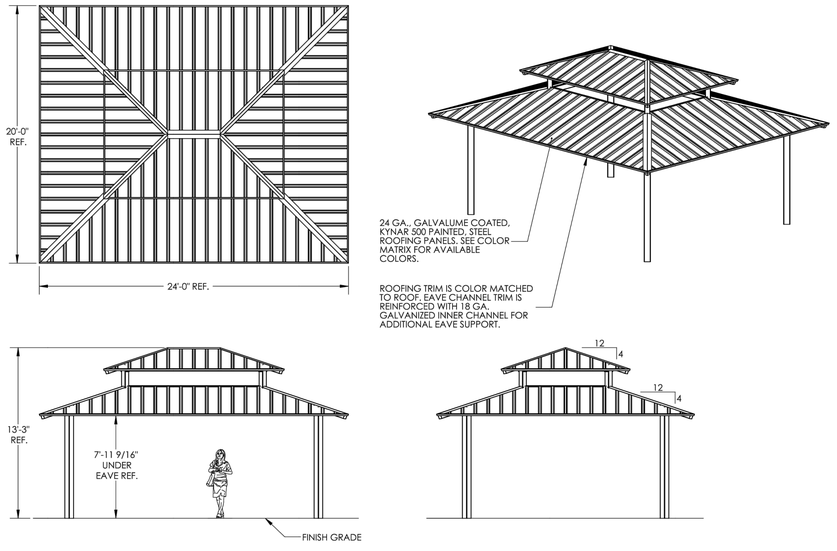
INTERMOUNTAIN RURAL ELECTRIC ASSOCIATION

IREA

ISSUE DATE:
DRAWN BY:
APP BY:
REVISED DATE:
UML-CLED
FILE NAME: StreetLight1

STREET LIGHT

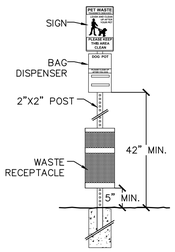
Not to Scale



SHELTER - 20' x 24'

POLIGON, MODEL: MARQUEE 20X24 POLIGON.COM
COLORS: ROOF - TUDOR BROWN, POSTS - SURREY BEIGE

Not to Scale



Not to Scale

DOG WASTE STATION

COLOR: DARK GREEN

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Tempe, AZ 85284

NOTES	NO.	DATE
	1	3-26-2021
	2	5-10-2021
	3	6-28-2021

MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
SITE DETAILS
25 of 27



1 CONNECTOR TRAIL: County Road 29-1/2 trail provides a 10-foot-wide concrete trail within a tract on the west side of County Road 29-1/2. Potential connectivity includes access to the Trailhead and matches the trail along County Road 29-1/2 provided by Mountain Sky Subdivision. Also, trail along the Fulton Ditch provides a 10-foot-wide concrete trail with potential future connection (by others) north to trail running south from the Town of Platteville. Potential future connection (by others) south to the trail running north from the City of Brighton at County Road 6.

2 TRAILHEAD: Located at southwest corner of Hwy. 52 and County Road 29-1/2.

3 CONNECTOR TRAIL: HWY 52 connector trail provides a 10-foot-wide concrete trail located south of the right-of-way for Hwy 52. Potential future connectivity (by others) includes a connection to the Fulton Ditch Trail; the Trailhead at HWY. 52 and County Road 29-1/2 to the east and the Fort Lupton Trail to the west.

4 NEIGHBORHOOD TRAILS: Trails within open space tracts and pocket parks provides a 6-foot-wide concrete trail connecting the neighborhood to the community trail system and pocket parks within the Murata Farms neighborhood.

5 SIDEWALKS: Five (5) foot wide detached sidewalks are provided on all collector streets. The detached sidewalk provides a walk connection to the Mountain Sky neighborhood to the south. The sidewalks also provide connectivity for the residents to the Connector, Neighborhood and Fulton Ditch Trails.

6 SIDEWALKS: Five (5) foot wide sidewalks are attached to the curb on all local streets. The sidewalk system provides connectivity to the adjacent Appel Farms neighborhood along Silverado Lane to the west. The sidewalks also provide connectivity for the residents to the Connector, Neighborhood and Fulton Ditch Trails.

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NOTES

DATE	NO.
3-26-2021	1
5-10-2021	2
6-28-2021	3

MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
TRAILS PLAN







SINGLE FAMILY DETACHED HOMES

NOT TO SCALE







PAIRED HOMES

NOT TO SCALE







TOWNHOMES

NOT TO SCALE

THE ABOVE IMAGES ARE REPRESENTATIVE OF THE PROPOSED CHARACTER AND DESIGN OF THE ARCHITECTURE OF THE HOMES AND ARE SUBJECT TO CHANGES AND REFINEMENT PER THE HOMEBUILDERS WITHIN MURATA FARMS. THE HOME DESIGNS WILL BE IN COMPLIANCE WITH FORT LUPTON'S RESIDENTIAL DESIGN STANDARDS. THESE IMAGES ARE 'CONCEPTUAL ONLY' TO ILLUSTRATE DESIGN INTENT AND DO NOT REPRESENT ANY FINAL PROPOSED COMMITMENT OR CONDITION. ALL IMAGES ARE USED FOR ILLUSTRATIVE PURPOSES ONLY, ARE FOUND FROM DIFFERENT SOURCES, ARE ASSUMED TO BE PUBLIC DOMAIN, AND ARE DISPLAYED UNDER THE FAIR USE PRINCIPLE.

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NO.	DATE	NOTES
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2	5-10-2021	
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MURATA FARMS
PRELIMINARY PLAT / PUD
FORT LUPTON, COLORADO

SHEET
REPRESENTATIVE ARCHITECTURE

27 of 27

Preliminary Drainage Report

Murata Farms Filing No. 1

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Prepared by:

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REDLAND.COM

February 2021
Project No. 19036

ENGINEER'S CERTIFICATION

"This Preliminary Drainage Report for Murata Farms Filing No. 1 was prepared by me (or under my direct supervision) in accordance with the provisions of the *City of Fort Lupton Storm Drainage Design and Technical Criteria* and was designed to comply with the provisions thereof.

_____

Travis Frazier, P.E.
Registered Professional Engineer
State of Colorado No. 45342

Table of Contents

Table of Contents 3
Introduction 4
Site Location 4
Site Description 4
Proposed Project Description 4
Flood Hazard and Drainage Studies Relevant to the Site 4
Soil Type 4
Historic Drainage System 5
Proposed Drainage System and Basins 5
Criteria 5
Runoff / Proposed Basin Description 5
Major Basins 5
Sub-basins 5
Proposed Full-Spectrum Detention Area 15
Water Quality Enhancement Best Management Practices 16
Conclusion 16
References 17

Introduction

INTRODUCTION

This drainage report presents an analysis for the proposed storm drainage system and patterns of Murata Farms Filing No. 1, hereafter referred to as the Site.

Site Location

The Site is located in the northern section of the southwest quarter of Section 4, Township 1 North, Range 66 West of the 6th Principal Meridian, City of Fort Lupton and County of Weld, Colorado. The Site is located to the south of County Road 12 1/2, also known as Colorado Highway 52 and west of County Road 29 1/2. To the west of the site is an existing development of Appel Farms. To the south of the site is the Mountain Sky Filing No. 1 development.

Site Description

The existing site encompasses approximately 72.71 acres and is largely undeveloped with the exception of existing farm buildings and existing oil wells. The site generally slopes from north to south. There is an existing detention pond off-site in the southwest corner and directly south of the project on the eastern half lies a drainage channel. The existing Fulton Irrigation Ditch crosses the northeast corner of the site. The site is actively being farmed at the time of this report.

Proposed Project Description

The property is proposed to be a planned residential development which will include single family homes, townhomes, a commercial lot and park areas. A total of 180 single family residential units will be constructed with the project. Runoff from the site will be treated in a full-spectrum detention pond.

Flood Hazard and Drainage Studies Relevant to the Site

The site is contained within FIRM Map No. 08123C2110E, with a revised date of January 20, 2016. The site lies entirely within Zone X.

Soil Type

The NRCS soil survey indicates that the soil on site is primarily sandy loams, whose hydrologic soil group is Type B. A soil map has been included in the appendix for reference.

Historic Drainage System

The existing site is primarily farmland. Historically, the site flows from North to South at a slope of 2.6%. South of the existing site is the development known as Mountain Sky which has a drainage swale along Mountain Sky's northern edge. The Site partially drains into the swale and into the existing pond as well.

Proposed Drainage System and Basins

Criteria

This report has been prepared in accordance with the *City of Fort Lupton Storm Drainage Design and Technical Criteria* and the *Urban Drainage and Flood Control District Criteria Manual*.

The hydrologic design was computed using the Rational Method as defined by Mile Flood Control District. The 5-year storm was used as the minor storm event, while the 100-year storm was used as the major event. The one-hour point rainfall depth used for the 5-year storm was 1.11 inches and 2.71 inches for the 100-year event. The Rational Method was used to analyze fully developed conditions. Roads interior to the site are designed to use mountable curb whereas the major east to west Road on the northern end of the site and the road running north to south of the west end of the site is vertical curb.

Erosion control shall be utilized throughout the site. BMP's shall be installed and maintained during the project duration per Urban Drainage Flood Control District and *City of Fort Lupton Storm Drainage Design and Technical Criteria.*

Runoff / Proposed Basin Description

Major Basins

The proposed development has been divided into six Major Basins. Major Basins A, B and C (majority of the site) will be captured and treated in a full spectrum detention pond and released at the historic rate. These Major Bains have an overall imperviousness of 49%. Major Basins D, E, F and OS (offsite) will follow historic flow patterns.

Sub-basins

Basin A

Basin A consists of single-family lots, parks and roadways primarily along the western half of the site. Basin A will be collected by on-site storm sewer and routed to the full-spectrum detention pond.

Basin A1 (5.41 Acres)

Basin A1 is half of a road section of Colorado State Highway 52 and the area surrounding an existing well setback. Flows from Basin A1 will reach Design Point A1 and will spill over the curb into Basin A2 where the flow will follow the gutter and be routed to a 10' Type R Inlet in a sump condition. Approximately 0.9 cfs in the minor storm and 10.9 cfs of the major storm will be routed to the inlet through A2. This basin has an overall imperviousness of 13%.

$C_5 = 0.08$ $C_{100} = 0.49$

$Q_5 = 0.9$ CFS $Q_{100} = 10.9$ CFS

Basin A2 (0.75 Acres)

Basin A2 consists of a road section, adjacent sidewalk, and tree lawn. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R Inlet in a sump condition at Design Point A2. This basin has an overall imperviousness of 76%.

$C_5 = 0.61$ $C_{100} = 0.78$

$Q_5 = 1.7$ CFS $Q_{100} = 5.0$ CFS

Basin A3 (7.29 Acres)

Basin A3 consists of future single-family attached lots, associated road, and landscape. Flows will sheet flow and collect into a 36" RCP storm stub located at Design Point A3. This basin has an overall imperviousness of 75%.

$C_5 = 0.60$ $C_{100} = 0.78$

$Q_5 = 13.9$ CFS $Q_{100} = 42.1$ CFS

Basin A4 (1.88 Acres)

Basin A4 consists of single-family detached lot, park areas and associated roads and landscape. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 5' Type R inlet in an on-grade condition located at Design Point B4. Approximately 0.1 cfs of the minor storm and 4.0 cfs of the major storm will bypass to Basin A6. This basin has an overall imperviousness of 48%.

$C_5 = 0.35$ $C_{100} = 0.69$

$Q_5 = 1.8$ CFS $Q_{100} = 7.5$ CFS.

Basin A5 (2.36 Acres)

Basin A5 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in an on-grade condition located at Design Point A5. Approximately 3.0 cfs of the major storm will bypass to Basin A7. This basin has an overall imperviousness of 57%.

$C_5 = 0.44$ $C_{100} = 0.69$

$Q_5 = 2.9$ CFS $Q_{100} = 10.5$ CFS.

Basin A6 (1.54 Acres)

Basin A6 consists of single-family detached lots, associated landscape area, and road Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point A6. This basin has an overall imperviousness of 50%.

$C_5 = 0.37$ $C_{100} = 0.66$

$Q_5 = 1.7$ CFS $Q_{100} = 6.9$ CFS.

Basin A7 (1.50 Acres)

Basin A7 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point A8. This basin has an overall imperviousness of 59%.

$C_5 = 0.45$ $C_{100} = 0.70$

$Q_5 = 2.2$ CFS $Q_{100} = 7.8$ CFS

Basin A8 (3.26 Acres)

Basin A7 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type

R inlet in a sump condition located at Design Point A7. Approximately 7.9 cfs of the major storm from Basin A8 will bypass to Basin A7. This basin has an overall imperviousness of 54%.

$C_5 = 0.41$ $C_{100} = 0.70$

$Q_5 = 4.0$ CFS $Q_{100} = 15$ CFS

Basin A9 (1.15 Acres)

Basin A9 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point A9. Approximately 2.4 cfs of the major storm from Basin A9 will bypass to Basin A7. This basin has an overall imperviousness of 54%.

$C_5 = 0.41$ $C_{100} = 0.68$

$Q_5 = 1.5$ CFS $Q_{100} = 5.5$ CFS

Basin A10 (1.29 Acres)

Basin A10 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in an on-grade condition located at Design Point A10. Approximately 0.1 cfs of the minor storm and 3.0 cfs of the major storm from Basin A10 will be routed to a 10' Type R Inlet in a sump condition at Design Point A11 This basin has an overall imperviousness of 58%.

$C_5 = 0.45$ $C_{100} = 0.7$

$Q_5 = 1.8$ CFS $Q_{100} = 6.3$ CFS

Basin A11 (2.65 Acres)

Basin A11 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point A11. This basin has an overall imperviousness of 58%.

$C_5 = 0.45$ $C_{100} = 0.70$

$Q_2 = 3.4$ CFS $Q_{100} = 14.0$ CFS

Basin A12 (4.35 Acres)

Basin A12 consists of single-family detached lots, landscape areas, and walks. Flows will sheet flow and collect into a grass swale within Basin A12. The flows will channel along the grass swale down to Design Point A12 where they will flow into a 24" FES. This basin has an overall imperviousness of 34%.

$C_5 = 0.24$ $C_{100} = 0.59$

$Q_5 = 2.9$ CFS $Q_{100} = 15.5$ CFS

Basin B

Basin B consists of single-family lots, and roadways primarily along the eastern half of the site. Basin B will be collected by on-site storm sewer and routed an existing swale along the southern edge of the Site.

Basin B1 (5.13 Acres)

Basin B1 consists of future single-family attached lots, park areas and associated roads, alleys and landscape. Flows will sheet flow and collect where they will be collected into a 30" RCP Storm Stub. This basin has an overall imperviousness of 75%.

$C_5 = 0.60$ $C_{100} = 0.78$

$Q_5 = 11.4$ CFS $Q_{100} = 34.4$ CFS

Basin B2 (2.52 Acres)

Basin B2 consists of future commercial. Flows will sheet flow and collect where they will be collected into a 24" RCP Storm Stub. The commercial area has an assumed imperviousness of 90%, consistent with alleys and sidewalk areas.

$C_5 = 0.74$ $C_{100} = 0.85$

$Q_5 = 7.2$ CFS $Q_{100} = 19.4$ CFS

Basin B3 (1.03 Acres)

Basin B3 consists of a road section, adjacent sidewalk to it, and tree lawn. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 5' Type R Inlet in an on-grade condition at Design Point B3. Approximately 0.3 cfs of the minor storm and 3.4 cfs of

the major storm will bypass the inlet and carry over to Basin B4. This basin has an overall imperviousness of 67%.

$C_5 = 0.52$ $C_{100} = 0.74$

$Q_5 = 2.0$ CFS $Q_{100} = 6.4$ CFS

Basin B4 (0.60 Acres)

Basin B4 consists of a road section, adjacent sidewalk to it, and tree lawn. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R Inlet in a sump condition at Design Point B4. This basin has an overall imperviousness of 72%.

$C_5 = 0.58$ $C_{100} = 0.77$

$Q_5 = 2.6$ CFS $Q_{100} = 9.5$ CFS

Basin B5 (2.18 Acres)

Basin B5 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point B5. This basin has an overall imperviousness of 56%.

$C_5 = 0.43$ $C_{100} = 0.69$

$Q_5 = 2.6$ CFS $Q_{100} = 9.5$ CFS

Basin B6 (1.97 Acres)

Basin B6 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 15' Type R inlet in a sump condition located at Design Point B6. This basin has an overall imperviousness of 54%.

$C_5 = 0.41$ $C_{100} = 0.68$

$Q_5 = 2.5$ CFS $Q_{100} = 9.4$ CFS

Basin B7 (1.96 Acres)

Basin B7 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in an on-grade condition located at Design Point B7. Approximately 1.9 cfs of the major storm will bypass to Basin B6. This basin has an overall imperviousness of 52%.

$C_5 = 0.39$ $C_{100} = 0.67$

$Q_5 = 2.2$ CFS $Q_{100} = 8.5$ CFS

Basin B8 (0.80 Acres)

Basin B8 consists of a road section, adjacent sidewalk to it, and tree lawn. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in an on-grade condition located at Design Point B8. Approximately 0.1 cfs of the minor storm and 2.0 cfs of the major storm will bypass to Basin B10. This basin has an overall imperviousness of 77%.

$C_5 = 0.62$ $C_{100} = 0.79$

$Q_5 = 1.7$ CFS $Q_{100} = 5.0$ CFS

Basin B9 (3.11 Acres)

Basin B9 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected at Design Point B9 after which the flows will enter a cross pan and go into the Inlet at Design Point B10. This basin has an overall imperviousness of 47%.

$C_5 = 0.35$ $C_{100} = 0.65$

$Q_5 = 3.0$ CFS $Q_{100} = 12.8$ CFS

Basin B10 (1.89 Acres)

Basin B10 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in an on-grade condition located at Design Point B10. Approximately 0.4 cfs of the minor storm and 13.3 cfs of the major storm will bypass to Basin B10. This basin has an overall imperviousness of 60%.

$C_5 = 0.46$ $C_{100} = 0.71$

$Q_5 = 2.6$ CFS $Q_{100} = 9.2$ CFS

Basin B11(1.48 Acres)

Basin B11consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point B10. This basin has an overall imperviousness of 53%.

$C_5 = 0.40$ $C_{100} = 0.68$

$Q_5 = 1.8$ CFS $Q_{100} = 7.0$ CFS

Basin B12 (1.61 Acres)

Basin B12 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 5' Type R inlet in an on-grade condition located at Design Point B12. Approximately 0.2 cfs of the minor storm and 3.9 cfs of the major storm will bypass to Basin B10. This basin has an overall imperviousness of 54%.

$C_5 = 0.41$ $C_{100} = 0.68$

$Q_5 = 2.0$ CFS $Q_{100} = 7.7$ CFS

Basin B13 (2.90 Acres)

Basin B13 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point B13.. This basin has an overall imperviousness of 52%.

$C_5 = 0.39$ $C_{100} = 0.67$

$Q_5 = 3.0$ CFS $Q_{100} = 11.5$ CFS

Basin B14 (1.27 Acres)

Basin B14 consists of single-family detached lots. Flows will sheet flow to the swale to the south of the Site. This basin has an overall imperviousness of 45%.

$C_5 = 0.33$ $C_{100} = 0.64$

$Q_5 = 1.7$ CFS $Q_{100} = 7.4$ CFS

Basin C

Basin C consists of single-family lots, and roadways primarily along the western edge of the site. Basin C will be collected by on-site storm sewer and routed to the full-spectrum detention pond.

Basin C1 (1.37 Acres)

Basin C1 consists of park area, walks, road, and associated landscape area. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected at Design Point C1 after which the flows will enter a cross pan and go into the Inlet at Design Point C4. This basin has an overall imperviousness of 51%.

$C_5 = 0.38$ $C_{100} = 0.66$

$Q_5 = 1.8$ CFS $Q_{100} = 7.1$ CFS

Basin C2 (2.92 Acres)

Basin C2 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point C2. This basin has an overall imperviousness of 50%.

$C_5 = 0.38$ $C_{100} = 0.66$

$Q_5 = 3.3$ CFS $Q_{100} = 13.1$ CFS

Basin C3 (1.91 Acres)

Basin C3 consists of single-family detached lots, associated landscape area, and road. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a 10' Type R inlet in a sump condition located at Design Point C3. This basin has an overall imperviousness of 59%.

$C_5 = 0.45$ $C_{100} = 0.70$

$Q_5 = 2.6$ CFS $Q_{100} = 9.2$ CFS

Basin C4 (0.47 Acres)

Basin C4 consists of future roadway and landscape area. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into a temporary Type D inlet located at Design Point C4. It is assumed that this would become a 10' Type D inlet when the road is developed. This basin has an overall imperviousness of 77%.

$C_5 = 0.62$ $C_{100} = 0.79$

$Q_5 = 0.8$ CFS $Q_{100} = 2.3$ CFS

Basin C5 (0.68 Acres)

Basin C5 consists of future roadway. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected into an 18" Storm Stub at design point C5. This basin has an overall imperviousness of 36%.

$C_5 = 0.25$ $C_{100} = 0.59$

$Q_5 = 0.5$ CFS $Q_{100} = 2.3$ CFS

Basin C6 (2.94 Acres)

Basin C6 consists of single-family detached lots and landscape area. Flows will sheet flow directly into the full-spectrum detention pond. This basin has an overall imperviousness of 14%.

$C_5 = 0.08$ $C_{100} = 0.49$

$Q_5 = 0.8$ CFS $Q_{100} = 9.1$ CFS

Basin D

Basin D consists of the existing roadway that runs along the eastern edge of the Site, the walk alongside it and associated landscaping. Basin D will follow historic drainage patterns and will not be treated in the full-spectrum detention facility.

Basin D1 (0.89 Acres)

Basin D1 consists of the western half of Weld County Road 29 1/2, proposed walk, and associated landscaping. Flows will sheet flow and collect in the on-site curb and gutter where they will be collected in an existing inlet off-site. This basin has an overall imperviousness of 61%.

$C_5 = 0.47$ $C_{100} = 0.71$

$Q_5 = 1.1$ CFS $Q_{100} = 4.5$ CFS

Off-site Basins

The off-site basins consist of portions of the project that will discharge off-site and typically follow historic drainage patterns. Portions of these basins are considered undeveloped because the areas will not be developed with this project or they match the historical imperviousness of the area. The Fulton Irrigation Ditch along the northern end of the site will not have any flows directed towards the ditch. There is no proposed development on the north side of the ditch. Since these basins are not tributary to the full-spectrum detention facility, they will not be treated.

Basin OS-B1 (0.97 Acres)

Basin OS-B1 consists of a landscaping area north of Basin B1. Flows will sheet flow onto Basin B1. This basin has an overall imperviousness of 15%.

$C_5 = 0.09$ $C_{100} = 0.50$

$Q_5 = 0.1$ CFS $Q_{100} = 1.2$ CFS

Basin OS-B2 (0.49 Acres)

Basin OS-B2 consists of a landscaping area north of Basin B2. Flows will sheet flow onto Basin B2. This basin has an overall imperviousness of 16%.

$C_5 = 0.10$ $C_{100} = 0.50$

$Q_5 = 0.1$ CFS $Q_{100} = 0.9$ CFS

Proposed Full-Spectrum Detention Area

The Site will utilize a full-spectrum extended detention basin (EDB) for on-site water quality and detention requirements. The proposed storm infrastructure will capture the runoff from Basins A, B, C and D and route them to the pond. Tributary basins make up approximately 70.88 acres with an imperviousness of 53%.

The proposed EDB will modify an existing pond located south of the site in the Mountain Sky Subdivision. This pond, as discussed in the Mountain Sky Drainage Report, has a restricted release rate to the 5-year storm due to lack of downstream infrastructure. The proposed pond

will be sized for both developments and will release at the 10-year historical release rate. The improvements to the existing pond will include additional volume, outlet structure, micropool, trickle channels, forebays and an emergency overflow. The pond will have a total volume of approximately 17.59 ac-ft. It was sized using the Mile High Flood District spreadsheet MHFD-Detention_v4.03. There will be a 2' concrete channel at the bottom of the pond for low flows. The pond has been sized for Water Quality, Excess Urban Runoff Volume and 100-year detention. Excess Urban Runoff Volume is defined as the difference between the developed condition runoff volume and the pre-development volume. Orifice plates will keep the 100-year release rate below historical runoff for the site. See Appendix for detention calculations.

There is an existing offsite basin OS-N, as described in the Mountain Sky Drainage Report, consisting of 825 acres that flows into the Mountain Sky Subdivision. This flow is routed through Mountain Sky in a channel and into the proposed pond. Following the Mountain Sky Drainage Report, this flow will be routed through the pond and will not be treated. The emergency overflow will be sized to convey this offsite flow.

The pond will outfall, per the Mountain Sky Drainage Report, to the property to the west.

The pond and the outlet structure shall be owned and maintained by the Murata Farms Metropolitan District. The pond and outlet structure will have maintenance access from the northwest corner of the pond.

Water Quality Enhancement Best Management Practices

The pond discussed in the previous section has been designed in accordance with the *City of Fort Lupton Storm Drainage and Technical Criteria*, and the *MHFD Urban Storm Drainage Criteria Manual Volumes 1, 2 and 3*. The pond was designed to detain the Excess Urban Runoff Volume and the 100-year Detention Volume.

Conclusion

The Site will follow existing drainage patterns towards a full spectrum detention pond located in the southwestern corner of the Site that is to be resized to accommodate the increased flow rates. The flows from the detention pond are to be released at the historical 10-year rate as there is no formal down-stream infrastructure. The existing channel along the southern edge of the site will be used as a drainage channel for Basins B and D that will continue to release into the detention pond. Since there the proposed pond will be releasing at the historic 10-year release rate, the will be no negative downstream impacts.

References

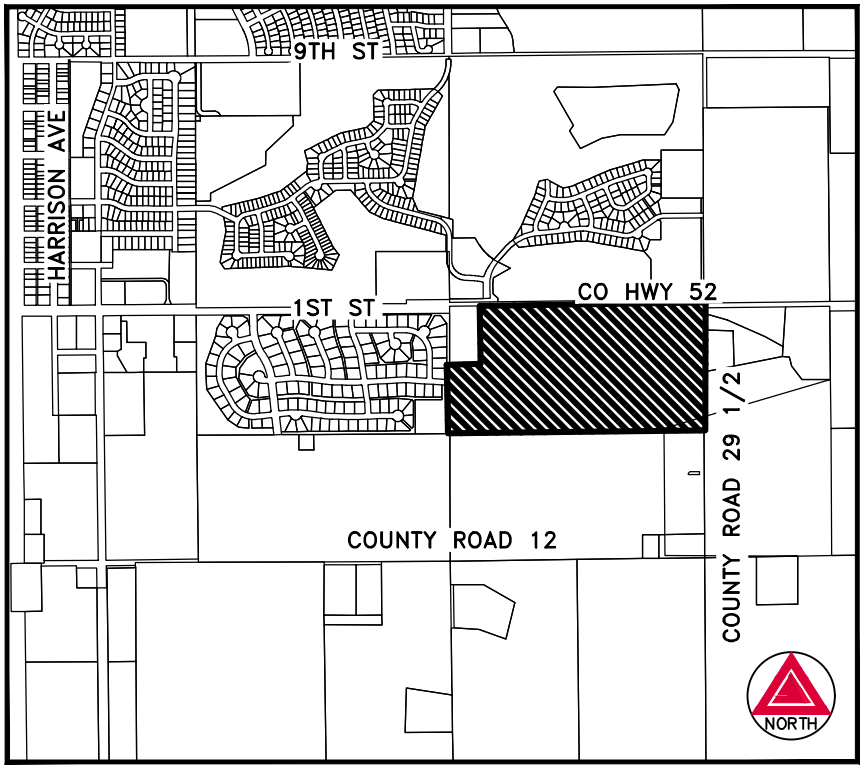
REFERENCES

1. City of Fort Lupton Storm Drainage Design and Technical Criteria.

2. Urban Drainage and Flood Control District, Denver, Colorado, Urban Storm Drainage Criteria Manual, Volume 1-3, latest online addition.

3. *Mountain Sky Subdivision, – Filing No. 1 with +/- 45 Residential Lots, Final Drainage Report,* prepared by Calibre Engineering Inc. and dated June, 2016.

Appendix A - Vicinity Map, FIRM Map, Soils Map



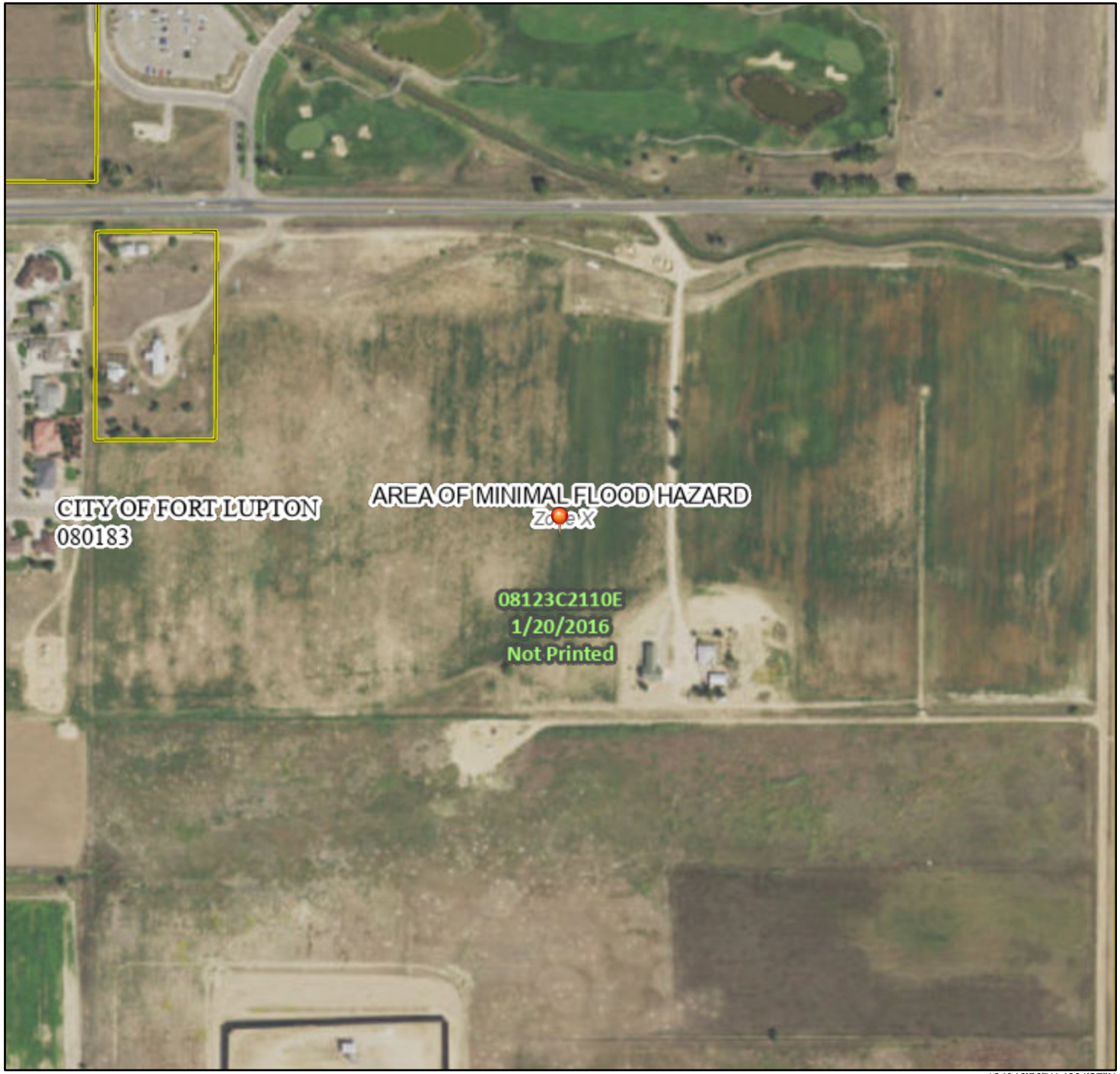
VICINITY MAP

SCALE 1" = 2,000'

National Flood Hazard Layer FIRMette

FEMA

104°47'33"W 40°4'54"N



104°46'56"W 40°4'27"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

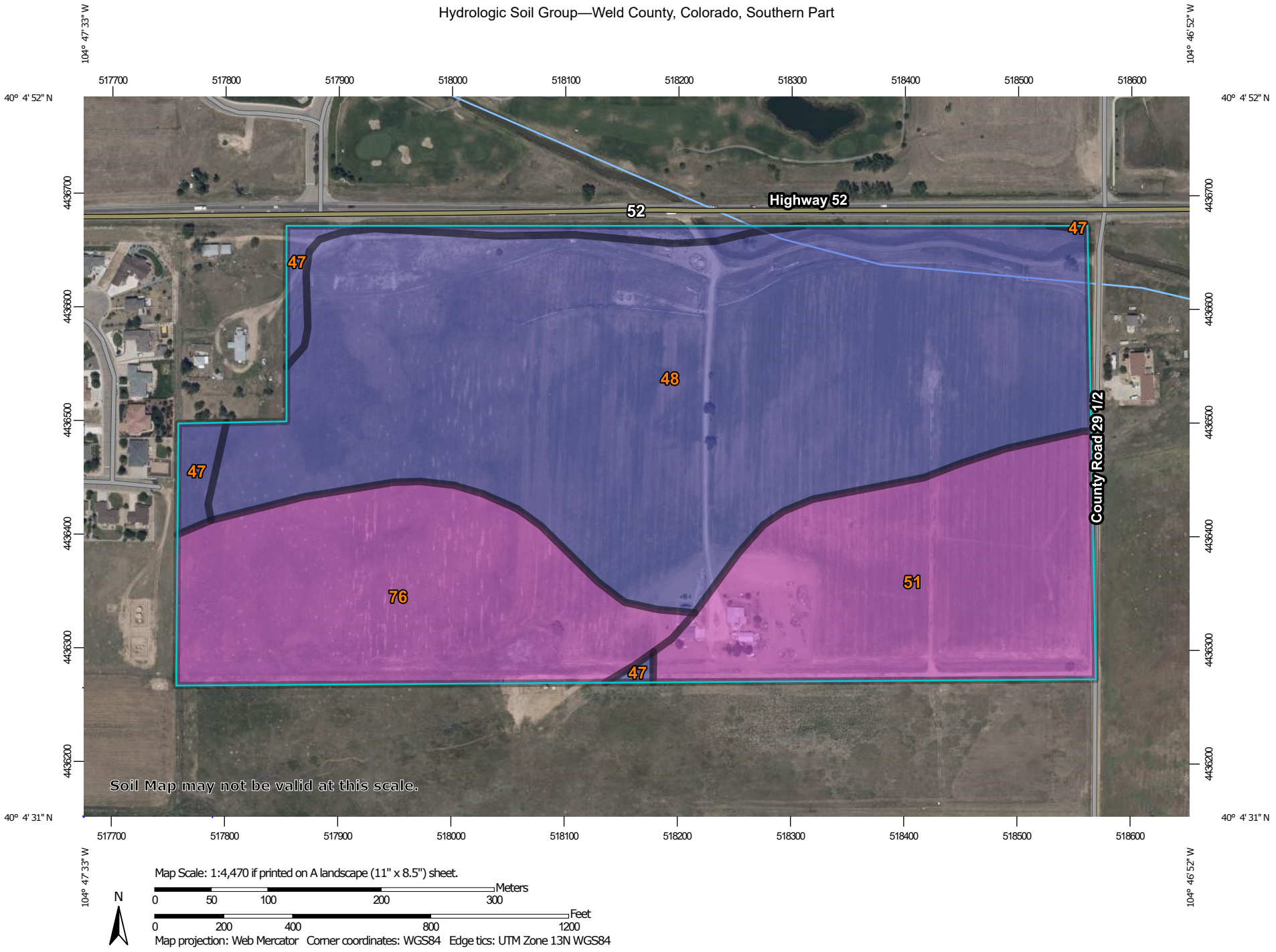
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/22/2021 at 4:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.


104° 47' 33" W
104° 46' 52" W
517700
517800
517900
518000
518100
518200
518300
518400
518500
518600
40° 4' 52" N
40° 4' 31" N
4436700
4436600
4436500
4436400
4436300
4436200
Highway 52
52
47
48
76
51
County Road 29 1/2
Soil Map may not be valid at this scale.
Map Scale: 1:4,470 if printed on A landscape (11" x 8.5") sheet.
N
0 50 100 200 300 Meters
0 200 400 800 1200 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 19, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 19, 2018—Aug 10, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
47	Olney fine sandy loam, 1 to 3 percent slopes	B	2.3	3.0%
48	Olney fine sandy loam, 3 to 5 percent slopes	B	43.6	57.0%
51	Otero sandy loam, 1 to 3 percent slopes	A	15.2	19.9%
76	Vona sandy loam, 1 to 3 percent slopes	A	15.3	20.1%
Totals for Area of Interest			**76.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix B - Hydrologic Calculation

SF-1
RUNOFF COEFFICIENTS - DEVELOPED

PROJECT NAME: Murata Farms
PROJECT NUMBER: 19032
CALCULATED BY: WPC
CHECKED BY: TJF

DATE: 2/22/2021

LAND USE:	Paved Area	Park Area	Landscape Area	SF Detatched Area	SF Attached Area	Alley / Commercial/ Walk Area
IMPERVIOUS %	100%	10%	2%	45%	75%	90%

Calculations assume Type C soils per NRCS

OVERALL SITE STUDY AREA

DESIGN BASIN	DESIGN POINT	(AC)	(AC)	(AC)	(AC)	(AC)	(AC)	TOTAL AREA (AC)	Cd(2)	Cd(5)	Cd(10)	Cd(100)	Impervious %
A1	A1	0.52		4.80			0.09	**5.41**	0.08	0.09	0.16	0.49	13%
A2	A2	0.45		0.17			0.13	**0.75**	0.61	0.64	0.67	0.78	76%
A3	A3					7.29		**7.29**	0.60	0.63	0.66	0.78	75%
A4	A4	0.37	0.69		0.58		0.19	**1.83**	0.35	0.38	0.44	0.65	48%
A5	A5	0.66	0.19	0.21	1.13		0.17	**2.36**	0.44	0.47	0.52	0.69	57%
A6	A6	0.34		0.33	0.81		0.06	**1.54**	0.37	0.40	0.46	0.66	50%
A7	A7	0.32		0.02	1.08		0.08	**1.50**	0.45	0.48	0.53	0.70	59%
A8	A8	0.58	0.06	0.18	2.28		0.16	**3.26**	0.41	0.44	0.49	0.68	54%
A9	A9	0.28		0.20	0.59		0.08	**1.15**	0.41	0.44	0.49	0.68	54%
A10	A10	0.28		0.06	0.86		0.09	**1.29**	0.45	0.48	0.53	0.70	58%
A11	A11	0.31		0.05	0.96		0.08	**1.40**	0.45	0.48	0.53	0.70	58%
A12	A12	0.00	0.00	1.32	2.82		0.21	**4.35**	0.24	0.27	0.33	0.59	34%
BASIN A		**4.11**	**0.94**	**7.34**	**11.11**	**7.29**	**1.34**	**32.13**	0.37	0.40	0.46	0.66	**50%**
		12.8%	**2.9%**	**22.8%**	**34.6%**	**22.7%**	**4.2%**	**100.0%**					
B1	B1					5.13		**5.13**	0.60	0.63	0.66	0.78	75%
B2	B2						2.52	**2.52**	0.74	0.77	0.79	0.85	90%
B3	B3	0.52		0.33			0.18	**1.03**	0.52	0.55	0.60	0.74	67%
B4	B4	0.35		0.16			0.09	**0.60**	0.58	0.60	0.64	0.77	72%
B5	B5	0.64		0.39	1.02		0.13	**2.18**	0.43	0.46	0.51	0.69	56%
B6	B6	0.38		0.18	1.29		0.12	**1.97**	0.41	0.44	0.50	0.68	54%
B7	B6.1	0.35		0.24	1.27		0.10	**1.96**	0.39	0.42	0.48	0.67	52%
B8	B7	0.49		0.17			0.14	**0.80**	0.62	0.65	0.68	0.79	77%
B9	B8	0.31		0.35	2.37		0.08	**3.11**	0.35	0.38	0.44	0.65	47%
B10	B9	0.45		0.02	1.31		0.11	**1.89**	0.46	0.50	0.55	0.71	60%
B11	B10	0.25		0.13	1.01		0.09	**1.48**	0.40	0.43	0.49	0.68	53%
B12	B10.1	0.39		0.30	0.80		0.12	**1.61**	0.41	0.44	0.49	0.68	54%
B13	B13	0.48		0.27	2.01		0.14	**2.90**	0.39	0.42	0.48	0.67	52%
B14	B14			0.01	1.26			**1.27**	0.33	0.36	0.42	0.64	45%
BASIN B		**4.61**	**0.00**	**2.55**	**12.34**	**5.13**	**3.82**	**28.45**	0.48	0.51	0.56	0.72	**62%**
		16.2%	**0.0%**	**9.0%**	**43.4%**	**18.0%**	**13.4%**	**100.0%**					
C1	C1	0.45	0.40	0.30			0.22	**1.37**	0.38	0.41	0.47	0.66	51%
C2	C2	0.65		0.64	1.47		0.16	**2.92**	0.38	0.41	0.46	0.66	50%
C3	C3	0.51		0.12	1.32		0.12	**2.07**	0.45	0.48	0.53	0.70	59%
C4	C4	0.21		0.07			0.04	**0.32**	0.62	0.65	0.68	0.79	77%
C5	C5	0.15		0.37	0.14		0.03	**0.69**	0.25	0.28	0.35	0.59	36%
C6	C6			2.13	0.79			**2.92**	0.08	0.10	0.17	0.49	14%
BASIN C		**1.97**	**0.40**	**3.63**	**3.72**	**0.00**	**0.57**	**10.29**					**41%**
		19.1%	**3.9%**	**35.3%**	**36.1%**	**0.0%**	**5.5%**	**100.0%**					
D1	D1	0.39		0.34			0.16	**0.89**	0.47	0.50	0.55	0.71	61%
BASIN D		**0.39**	**0.00**	**0.34**	**0.00**	**0.00**	**0.16**	**0.89**					**61%**
		43.8%	**0.0%**	**38.2%**	**0.0%**	**0.0%**	**18.0%**	**100.0%**					
OVERALL STUDY AREA		**10.69**	**1.34**	**13.52**	**27.17**	**12.42**	**5.73**	**70.88**	0.40	0.43	0.49	0.68	**53%**
		15.1%	**1.9%**	**19.1%**	**38.3%**	**17.5%**	**8.1%**	**100.0%**					
OS-B1	OS-B1			0.83			0.14	**0.97**	0.09	0.11	0.18	0.50	15%
OS-B2	OS-B2			0.41			0.08	**0.49**	0.10	0.12	0.19	0.50	16%
Offsite - OS BASINS		**0.00**	**0.00**	**1.24**	**0.00**	**0.00**	**0.22**	**1.46**	0.09	0.11	0.18	0.50	**15%**
		0.0%	**0.0%**	**84.9%**	**0.0%**	**0.0%**	**15.1%**	**100.0%**					

Table 6-4. Runoff coefficient equations based on NRCS soil group and storm return period

NRCS Soil Group	Storm Return Period						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
A	$C_A = 0.84i^{1.302}$	$C_A = 0.86i^{1.276}$	$C_A = 0.87i^{1.232}$	$C_A = 0.88i^{1.124}$	$C_A = 0.85i+0.025$	$C_A = 0.78i+0.110$	$C_A = 0.65i+0.254$
B	$C_B = 0.84i^{1.169}$	$C_B = 0.86i^{1.088}$	$C_B = 0.81i+0.057$	$C_B = 0.63i+0.249$	$C_B = 0.56i+0.328$	$C_B = 0.47i+0.426$	$C_B = 0.37i+0.536$
C/D	$C_{C/D} = 0.83i^{1.122}$	$C_{C/D} = 0.82i+0.035$	$C_{C/D} = 0.74i+0.132$	$C_{C/D} = 0.56i+0.319$	$C_{C/D} = 0.49i+0.393$	$C_{C/D} = 0.41i+0.484$	$C_{C/D} = 0.32i+0.588$

Where:

i = % imperviousness (expressed as a decimal)

C_A = Runoff coefficient for Natural Resources Conservation Service (NRCS) HSG A soils

C_B = Runoff coefficient for NRCS HSG B soils

C_{OD} = Runoff coefficient for NRCS HSG C and D soils.

Redland

STANDARD FORM SF-2 - DEVELOPED
Time of Concentration

PROJECT NAME: Murata Farms
PROJECT NUMBER: 19032
CALCULATED BY: WPC
CHECKED BY: TJF

DATE: 2/22/2021

SUB-BASIN DATA			INITIAL TIME (T_i)			TRAVEL TIME (T_t)						t_c CHECK (URBANIZED BASINS)			FINAL t_c		
DESIGN BASIN (1)	AREA Ac (2)	C_5 (3)	LENGTH Ft* (4)	SLOPE % (5)	T_i Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	C_v (9)	Land Surface (10)	VEL fps (11)	T_t Min. (12)	COMP. t_c (13)	TOTAL LENGTH (14)	$T_C=(18\text{-}15i)+\frac{L_t}{60(24i+12)S_0^{1/2}}$ (15)	Min.	C10	C100
A1	5.41	0.09	25	2.0%	7.3	1100	1.2%	7.0	Short Pasture/Lawn	0.8	23.9	31.2	1125	16.6	31.2	0.16	0.49
A2	0.75	0.64	10	2.0%	2.1	760	1.8%	20.0	Paved Areas	2.7	4.7	6.8	770	6.9	6.8	0.67	0.78
A3	7.29	0.63	100	4.4%	5.3	390	4.4%	7.0	Short Pasture/Lawn	1.5	4.4	9.7	490	6.9	9.7	0.66	0.78
A4	1.83	0.38	100	2.0%	10.4	570	1.7%	20.0	Paved Areas	2.6	3.6	14.1	670	11.1	14.1	0.44	0.65
A5	2.36	0.47	50	2.0%	6.5	1,050	1.5%	20.0	Paved Areas	2.4	7.1	13.7	1100	9.9	13.7	0.52	0.69
A6	1.54	0.40	60	2.0%	7.9	450	0.8%	20.0	Paved Areas	1.8	4.2	12.1	510	10.8	12.1	0.46	0.66
A7	1.50	0.48	60	2.0%	7.0	380	1.2%	20.0	Paved Areas	2.2	2.9	9.9	440	9.4	9.9	0.53	0.70
A8	3.26	0.44	60	2.0%	7.4	590	1.1%	20.0	Paved Areas	2.1	4.7	12.1	650	10.2	12.1	0.49	0.68
A9	1.15	0.44	60	2.0%	7.4	610	1.8%	20.0	Paved Areas	2.7	3.8	11.2	670	10.1	11.2	0.49	0.68
A10	1.29	0.48	60	2.0%	7.0	640	1.7%	20.0	Paved Areas	2.6	4.1	11.1	700	9.6	11.1	0.53	0.70
A11	1.40	0.48	60	2.0%	7.0	420	0.9%	20.0	Paved Areas	1.9	3.7	10.7	480	9.5	10.7	0.53	0.70
A12	4.35	0.27	20	1.7%	5.7	1,140	1.7%	15.0	Grassed Waterway	2.0	9.7	15.4	1160	13.4	15.4	0.33	0.59
B1	5.13	0.63	80	3.4%	5.1	260	3.4%	20.0	Paved Areas	3.7	1.2	6.3	340	6.8	6.3	0.66	0.78
B2	2.52	0.77	80	2.7%	3.9	260	2.5%	20.0	Paved Areas	3.2	1.4	5.3	340	4.6	5.3	0.79	0.85
B3	1.03	0.55	10	2.0%	2.5	780	2.2%	20.0	Paved Areas	3.0	4.4	6.9	790	8.3	6.9	0.60	0.74
B4	0.60	0.60	10	2.0%	2.3	450	1.3%	20.0	Paved Areas	2.3	3.3	5.6	460	7.4	5.6	0.64	0.77
B5	2.18	0.46	60	2.0%	7.2	1,010	1.5%	20.0	Paved Areas	2.4	6.9	14.1	1070	10.0	14.1	0.51	0.69
B6	1.97	0.44	60	2.0%	7.4	630	1.9%	20.0	Paved Areas	2.8	3.8	11.2	690	10.1	11.2	0.50	0.68
B7	1.96	0.42	60	2.0%	7.7	770	1.2%	20.0	Paved Areas	2.2	5.9	13.5	830	10.6	13.5	0.48	0.67
B8	0.80	0.65	10	2.0%	2.1	840	1.3%	20.0	Paved Areas	2.3	6.1	8.2	850	6.8	8.2	0.68	0.79
B9	3.11	0.38	60	2.0%	8.2	700	1.0%	20.0	Paved Areas	2.0	5.8	14.0	760	11.4	14.0	0.44	0.65
B10	1.89	0.50	60	2.0%	6.8	620	1.1%	20.0	Paved Areas	2.1	4.9	11.7	680	9.3	11.7	0.55	0.71
B11	1.48	0.43	60	2.0%	7.5	330	0.5%	20.0	Paved Areas	1.4	3.9	11.4	390	10.3	11.4	0.49	0.68
B12	1.61	0.44	60	2.0%	7.5	470	1.3%	20.0	Paved Areas	2.3	3.4	10.9	530	10.2	10.9	0.49	0.68
B13	2.90	0.42	60	2.0%	7.6	1,050	1.0%	20.0	Paved Areas	2.0	8.8	16.4	1110	10.7	16.4	0.48	0.67
B14	1.27	0.36	20	2.0%	4.8	60	2.0%	20.0	Paved Areas	2.8	0.4	5.2	80	11.3	5.2	0.42	0.64
C1	1.37	0.41	20	2.0%	4.5	850	3.2%	20.0	Paved Areas	3.6	4.0	8.4	870	10.7	8.4	0.47	0.66
C2	2.92	0.41	20	2.0%	4.5	990	1.2%	20.0	Paved Areas	2.2	7.5	12.0	1010	11.0	12.0	0.46	0.66
C3	2.07	0.48	100	2.0%	9.0	500	0.7%	20.0	Paved Areas	1.7	5.0	14.0	600	9.5	14.0	0.53	0.70
C4	0.32	0.65	10	2.0%	2.1	250	1.7%	20.0	Paved Areas	2.6	1.6	3.7	260	6.5	5.0	0.68	0.79
C5	0.69	0.28	100	2.0%	11.9	250	1.3%	20.0	Paved Areas	2.3	1.8	13.8	350	12.8	13.8	0.35	0.59
C6	2.92	0.10	50	2.0%	10.3	220	1.9%	7.0	Short Pasture/Lawn	1.0	3.8	14.1	270	16.0	14.1	0.17	0.49
D1	0.89	0.50	10	2.0%	2.8	700	0.5%	20.0	Paved Areas	1.4	8.2	11.0	710	9.4	11.0	0.55	0.71
OS-B1	0.97	0.11	20	5.0%	65.0	5	5.0%	7.0	Short Pasture/Lawn	1.6	0.1	65.1	25	15.8	65.1	0.18	0.50
OS-B2	0.49	0.12	20	1.2%	40.0	1	1.2%	7.0	Short Pasture/Lawn	0.8	0.0	40.0	21	15.5	40.0	0.19	0.50

* L = 500' max for non-urban land uses and 300' max for urban land uses

$$T_i = \frac{0.395(1.1-C)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60V} \qquad t_c = \frac{L}{180} + 10 \qquad V = C_v S_w^{0.5}$$

Table RO-2—Conveyance Coefficient, C_v

Type of Land Surface	Conveyance Coefficient, C_v
Heavy meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

Redland

STANDARD FORM SF-3 - DEVELOPED
STORM DRAINAGE DESIGN - RATIONAL METHOD 5 YEAR EVENT

PROJECT NAME: Murata Farms
PROJECT NUMBER: 19032
CALCULATED BY: WPC
CHECKED BY: TJF

DATE: 2/22/2021

P_1 (1-Hour Rainfall) = 1.11

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
STORM LINE	DESIGN POINT	DESIGN BASIN	AREA (AC)	RUNOFF COEFF C5	tc (min)	C*A(ac)	I (in/hr)	Q (cfs)	tc(min)	S(C*A) (ac)	I (in/hr)	Q (cfs)	SLOPE (%)	STREET FLOW(cfs)	DESIGN FLOW(cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	tt (min)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	A1	A1	5.41	0.09	31.24	0.50	1.70	0.85													
	A2	A2	0.75	0.64	6.84	0.48	3.44	1.66													
	A3	A3	7.29	0.63	9.70	4.58	3.04	13.93													
	A4	A4	1.83	0.38	14.07	0.70	2.60	1.82													
	A5	A5	2.36	0.47	13.66	1.10	2.63	2.90													
	A6	A6	1.54	0.40	12.06	0.62	2.78	1.72													
	A7	A7	1.50	0.48	9.87	0.72	3.02	2.17													
	A8	A8	3.26	0.44	12.13	1.43	2.77	3.98													
	A9	A9	1.15	0.44	11.23	0.51	2.87	1.45													
	A10	A10	1.29	0.48	11.12	0.61	2.88	1.77													
	A11	A11	1.40	0.48	10.71	0.67	2.92	1.95													
	A12	A12	4.35	0.27	15.44	1.16	2.49	2.89													
	B1	B1	5.13	0.63	6.31	3.23	3.52	11.37													
	B2	B2	2.52	0.77	5.29	1.93	3.71	7.17													
	B3	B3	1.03	0.55	6.89	0.57	3.43	1.96													
	B4	B4	0.60	0.60	5.57	0.36	3.66	1.33													
	B5	B5	2.18	0.46	14.10	1.00	2.59	2.59													
	B6	B6	1.97	0.44	11.21	0.87	2.87	2.51													
	B7	B7	1.96	0.42	13.51	0.82	2.64	2.18													
	B8	B8	0.80	0.65	8.21	0.52	3.23	1.68													
	B9	B9	3.11	0.38	13.99	1.17	2.60	3.05													
	B10	B10	1.89	0.50	11.74	0.94	2.81	2.63													
	B11	B11	1.48	0.43	11.40	0.64	2.85	1.83													
	B12	B12	1.61	0.44	10.91	0.70	2.90	2.04													
	B13	B13	2.90	0.42	16.36	1.23	2.42	2.98													
	B14	B14	1.27	0.36	5.18	0.45	3.73	1.69													
	C1	C1	1.37	0.41	8.45	0.56	3.20	1.80													
	C2	C2	2.92	0.41	12.04	1.19	2.78	3.31													
	C3	C3	2.07	0.48	13.98	1.00	2.60	2.59													
	C4	C4	0.32	0.65	5.00	0.21	3.76	0.78													
	C5	C5	0.69	0.28	13.76	0.19	2.62	0.51													
	C6	C6	2.92	0.10	14.11	0.29	2.59	0.74													
	D1	D1	0.89	0.50	11.01	0.45	2.89	1.29													
	OS-B1	OS-B1	0.97	0.11	65.05	0.10	1.06	0.11													
	OS-B2	OS-B2	0.49	0.12	40.03	0.06	1.46	0.09													
Total at Design Point A2 (A1 & A2)	A1								31.2	0.98	1.70	**1.7**									
Total at Design Point A4 (A4, A6)	A4								14.1	1.32	2.60	**3.4**									

Redland

STANDARD FORM SF-3 - DEVELOPED
STORM DRAINAGE DESIGN - RATIONAL METHOD 100 YEAR EVENT

PROJECT NAME: Murata Farms
PROJECT NUMBER: 19032
CALCULATED BY: WPC
CHECKED BY: TJF

DATE: 2/22/2021

P_1 (1-Hour Rainfall) = 2.71

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
STORM LINE	DESIGN POINT	DESIGN BASIN	AREA (AC)	RUNOFF COEFF C_{100}	tc (min)	C*A(ac)	I (in/hr)	Q (cfs)	tc(min)	S(C*A) (ac)	I (in/hr)	Q (cfs)	SLOPE (%)	STREET FLOW(cfs)	DESIGN FLOW(cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	tt (min)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	A1	A1	5.41	0.49	31.24	2.63	4.15	10.9													
	A2	A2	0.75	0.78	6.84	0.59	8.39	5.0													
	A3	A3	7.29	0.78	9.70	5.68	7.42	42.1													
	A4	A4	1.83	0.65	14.07	1.19	6.34	7.5													
	A5	A5	2.36	0.69	13.66	1.64	6.42	10.5													
	A6	A6	1.54	0.66	12.06	1.02	6.79	6.9													
	A7	A7	1.50	0.70	9.87	1.05	7.37	7.8													
	A8	A8	3.26	0.68	12.13	2.22	6.77	15.0													
	A9	A9	1.15	0.68	11.23	0.78	7.00	5.5													
	A10	A10	1.29	0.70	11.12	0.90	7.02	6.3													
	A11	A11	1.40	0.70	10.71	0.98	7.13	7.0													
	A12	A12	4.35	0.59	15.44	2.55	6.07	15.5													
	B1	B1	5.13	0.78	6.31	3.99	8.61	34.4													
	B2	B2	2.52	0.85	5.29	2.14	9.05	19.4													
	B3	B3	1.03	0.74	6.89	0.76	8.37	6.4													
	B4	B4	0.60	0.77	5.57	0.46	8.93	4.1													
	B5	B5	2.18	0.69	14.10	1.50	6.33	9.5													
	B6	B6	1.97	0.68	11.21	1.34	7.00	9.4													
	B7	B7	1.96	0.67	13.51	1.31	6.46	8.5													
	B8	B8	0.80	0.79	8.21	0.63	7.89	5.0													
	B9	B9	3.11	0.65	13.99	2.01	6.36	12.8													
	B10	B10	1.89	0.71	11.74	1.34	6.87	9.2													
	B11	B11	1.48	0.68	11.40	1.00	6.95	7.0													
	B12	B12	1.61	0.68	10.91	1.09	7.08	7.7													
	B13	B13	2.90	0.67	16.36	1.95	5.90	11.5													
	B14	B14	1.27	0.64	5.18	0.81	9.10	7.4													
	C1	C1	1.37	0.66	8.45	0.91	7.81	7.1													
	C2	C2	2.92	0.66	12.04	1.93	6.79	13.1													
	C3	C3	2.07	0.70	13.98	1.45	6.36	9.2													
	C4	C4	0.32	0.79	5.00	0.25	9.19	2.3													
	C5	C5	0.69	0.59	13.76	0.41	6.40	2.6													
	C6	C6	2.92	0.49	14.11	1.43	6.33	9.1													
	D1	D1	0.89	0.71	11.01	0.63	7.05	4.5													
	OS-B1	OS-B1	0.97	0.50	65.05	0.48	2.59	1.2													
	OS-B2	OS-B2	0.49	0.50	40.03	0.25	3.57	0.9													
Total at Design Point A2 (A2 & A3)	A2								31.2	3.22	4.15	**13.4**									
INLET A6 (Basin A2, A6)									11.1	6.58	7.02	**46.2**									

Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
A1	5.41	0.08	0.49	13%	0.9	10.9
A2	0.75	0.61	0.78	76%	1.7	5.0
A3	7.29	0.60	0.78	75%	13.9	42.1
A4	1.83	0.35	0.65	48%	1.8	7.5
A5	2.36	0.44	0.69	57%	2.9	10.5
A6	1.54	0.37	0.66	50%	1.7	6.9
A7	1.50	0.45	0.70	59%	2.2	7.8
A8	3.26	0.41	0.68	54%	4.0	15.0
A9	1.15	0.41	0.68	54%	1.5	5.5
A10	1.29	0.45	0.70	58%	1.8	6.3
A11	1.40	0.45	0.70	58%	2.0	7.0
A12	4.35	0.24	0.59	34%	2.9	15.5

Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
B1	5.13	0.60	0.78	75%	11.4	34.4
B2	2.52	0.74	0.85	90%	7.2	19.4
B3	1.03	0.52	0.74	67%	2.0	6.4
B4	0.60	0.58	0.77	72%	1.3	4.1
B5	2.18	0.43	0.69	56%	2.6	9.5
B6	1.97	0.41	0.68	54%	2.5	9.4
B7	1.96	0.39	0.67	52%	2.2	8.5
B8	0.80	0.62	0.79	77%	1.7	5.0
B9	3.11	0.35	0.65	47%	3.0	12.8
B10	1.89	0.46	0.71	60%	2.6	9.2
B11	1.48	0.40	0.68	53%	1.8	7.0
B12	1.61	0.41	0.68	54%	2.0	7.7
B13	2.90	0.39	0.67	52%	3.0	11.5
B14	1.27	0.33	0.64	45%	1.7	7.4

Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
C1	1.37	0.38	0.66	51%	1.8	7.1
C2	2.92	0.38	0.66	50%	3.3	13.1
C3	2.07	0.45	0.70	59%	2.6	9.2
C4	0.32	0.62	0.79	77%	0.8	2.3
C5	0.69	0.25	0.59	36%	0.5	2.6
C6	2.92	0.08	0.49	14%	0.7	9.1
D1	0.89	0.47	0.71	61%	1.1	4.5
OS-B1	0.97	0.09	0.50	15%	0.1	1.2
OS-B2	0.49	0.10	0.50	16%	0.1	0.9

Appendix C - Hydraulic Calculations

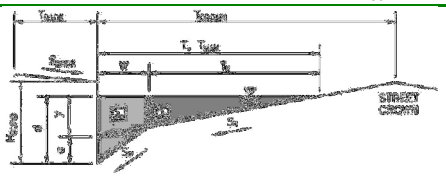
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A2



Gutter Geometry (Enter data in the blue cells)

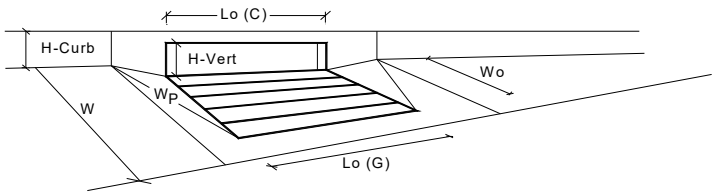
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.5	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)	CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	2	2	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	8.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**10.5**	**19.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	2.8	15.9	cfs

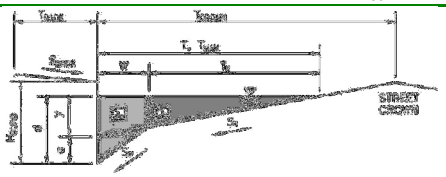
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A4



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

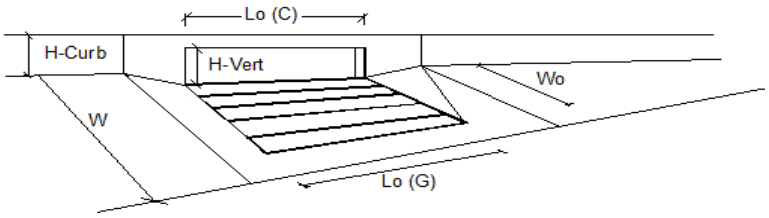
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**3.7**	**15.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.7**	**3.5**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**4.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**94**	**47**	**%**

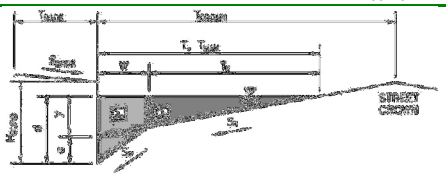
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A5



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

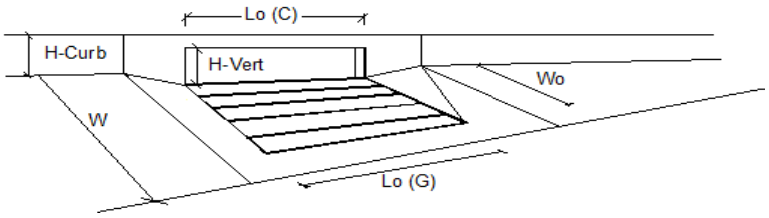
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**3.7**	**15.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.9**	**7.5**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**3.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**71**	**%**

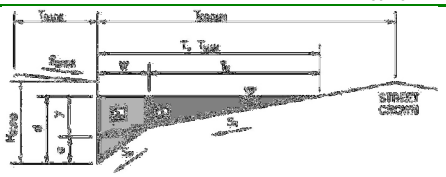
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A6



Gutter Geometry (Enter data in the blue cells)

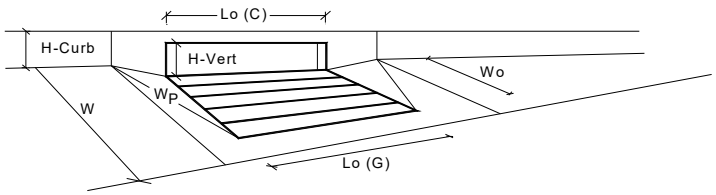
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**20.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	1.8	10.9	cfs

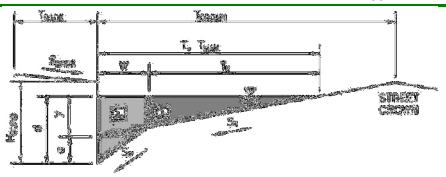
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A7



Gutter Geometry (Enter data in the blue cells)

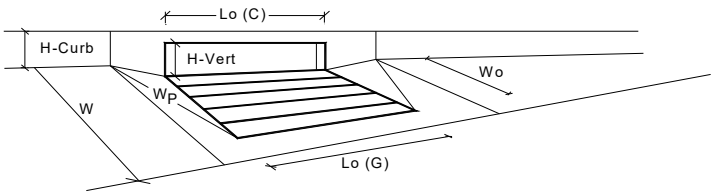
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



			MINOR	MAJOR	
Design Information (Input)					
	Type of Inlet	Type =	CDOT Type R Curb Opening		
Warning 1	Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	5.00	5.00	inches
	Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
	Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
	Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
	Width of a Unit Grate	W_o =	N/A	N/A	feet
	Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
	Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
	Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
	Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
	Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
	Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
	Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
	Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
	Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
	Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
	Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
	Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
	Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
	Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
	Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
	Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
	Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**10.5**	**20.4**	**cfs**
	Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.2	18.7	cfs

Warning 1: Dimension entered is not a typical dimension for inlet type specified.

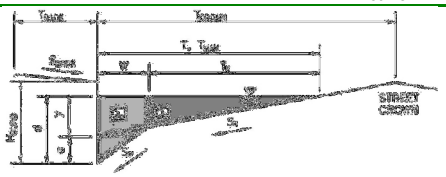
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A8



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

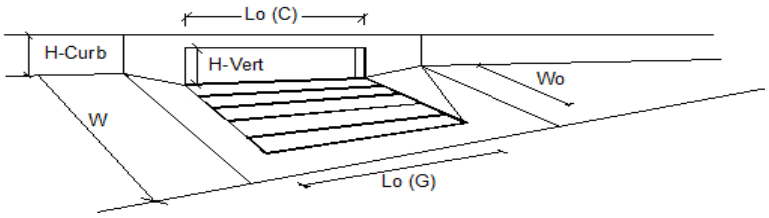
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**4.2**	**16.8**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

WARNING: MAJOR STORM max. allowable capacity is less than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: WARNING: Q > ALLOWABLE Q FOR MAJOR STORM		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**4.0**	**9.5**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**7.9**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**55**	**%**

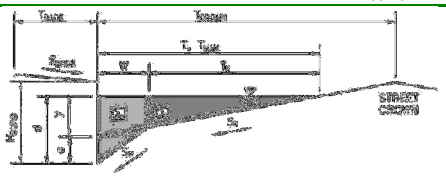
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A9



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

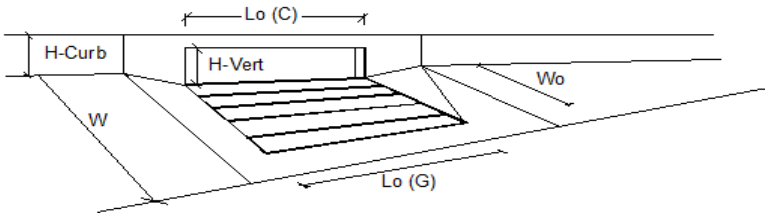
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**4.2**	**16.8**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.5**	**3.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.4**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**98**	**57**	**%**

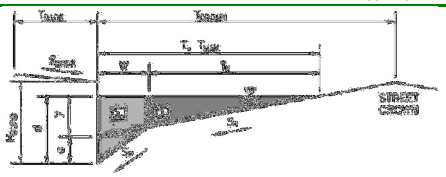
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A10



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

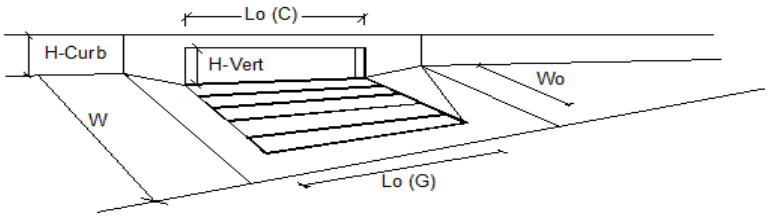
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**4.2**	**16.8**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.7**	**3.3**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**3.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**94**	**53**	**%**

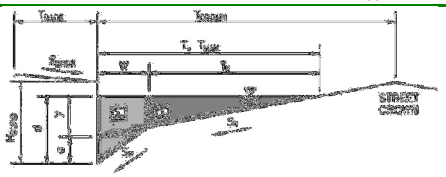
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet A11



Gutter Geometry (Enter data in the blue cells)

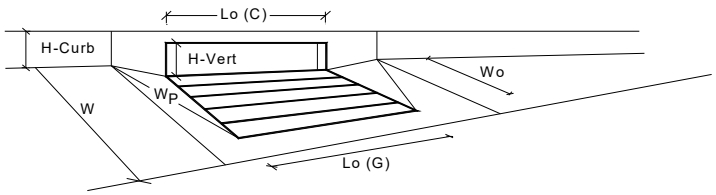
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Warning 02 Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**20.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.1	10.0	cfs

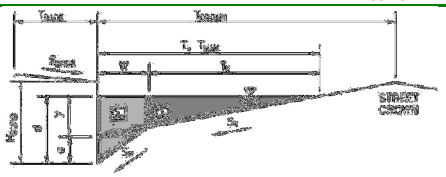
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet C3



Gutter Geometry (Enter data in the blue cells)

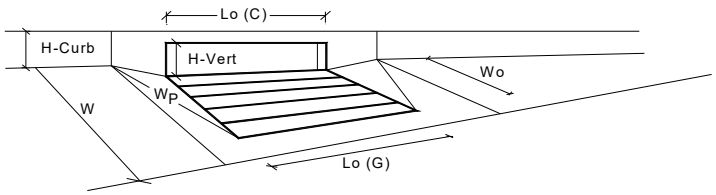
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	24.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	16.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**19.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	4.4	16.3	cfs

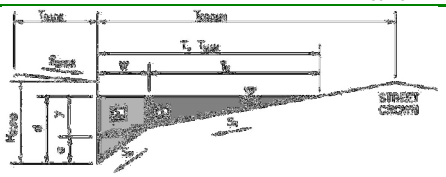
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet C5



Gutter Geometry (Enter data in the blue cells)

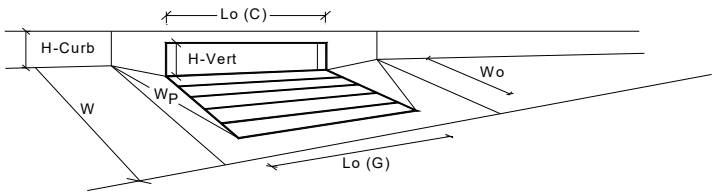
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	24.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.79	0.89	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**13.5**	**27.9**	**cfs**
#VALUE!	$Q_{PEAK\ REQUIRED}$ =	#VALUE!	#VALUE!	cfs

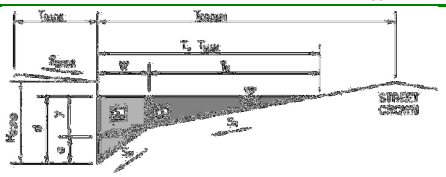
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet C4



Gutter Geometry (Enter data in the blue cells)

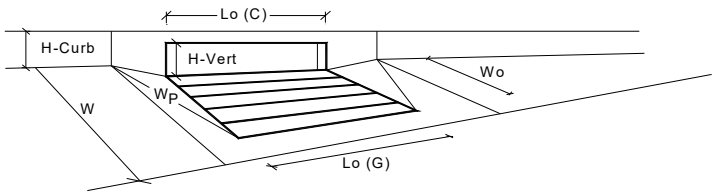
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**19.3**	**cfs**
#VALUE!	$Q_{PEAK\ REQUIRED}$ =	#VALUE!	#VALUE!	cfs

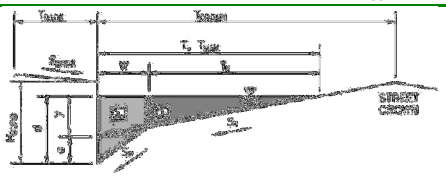
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet C2



Gutter Geometry (Enter data in the blue cells)

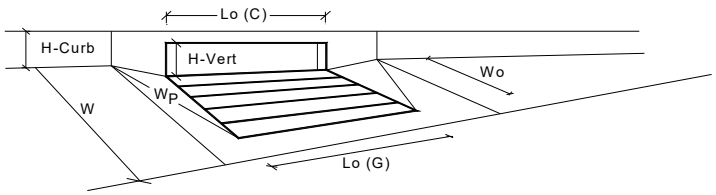
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	16.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**19.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	3.3	13.1	cfs

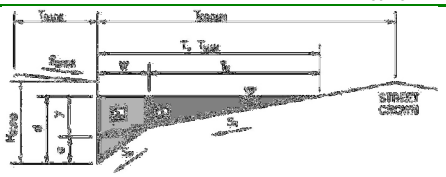
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.015	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

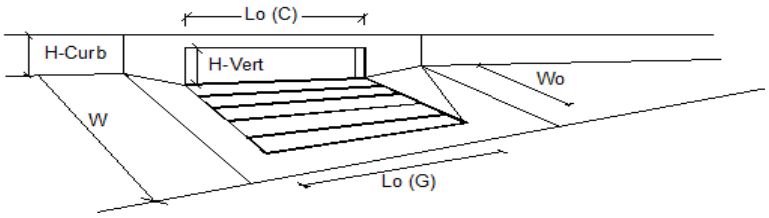
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**7.1**	**18.9**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.7**	**3.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.3**	**3.4**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**84**	**47**	**%**

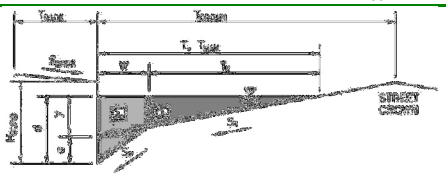
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B4



Gutter Geometry (Enter data in the blue cells)

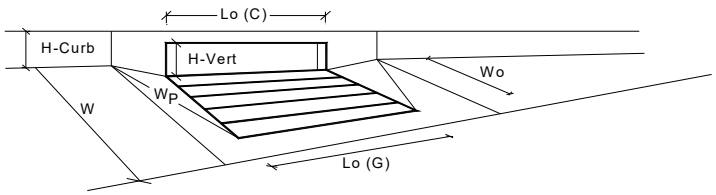
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.77	1.00	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**9.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	1.6	7.5	cfs

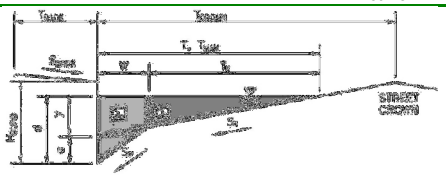
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B8



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

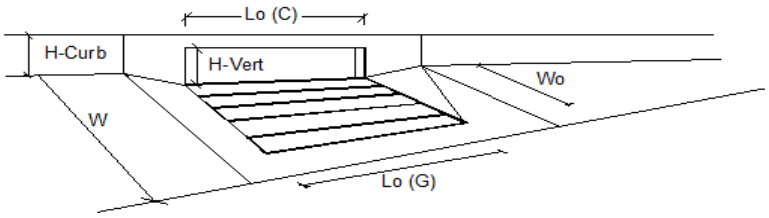
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**3.7**	**15.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.6**	**3.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**95**	**60**	**%**

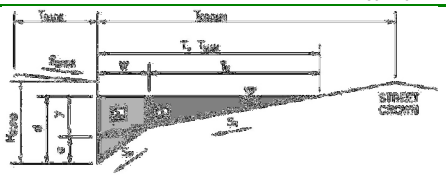
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B10



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

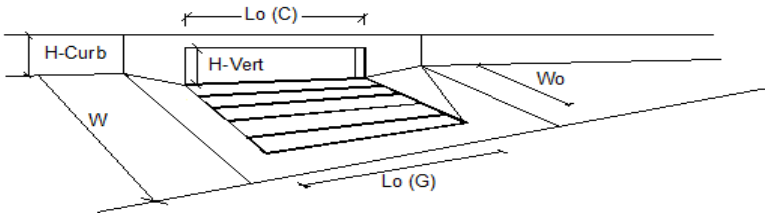
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**3.7**	**15.1**	**cfs**

WARNING: MINOR STORM max. allowable capacity is less than the design flow given on sheet 'Inlet Management'

WARNING: MAJOR STORM max. allowable capacity is less than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: WARNING: Q > ALLOWABLE Q FOR MINOR & MAJOR STORM		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**5.3**	**10.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.4**	**13.3**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**93**	**45**	**%**

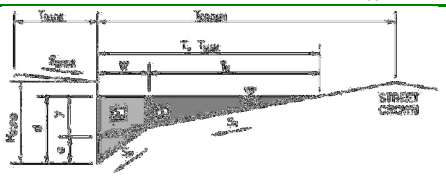
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B12



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.005	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

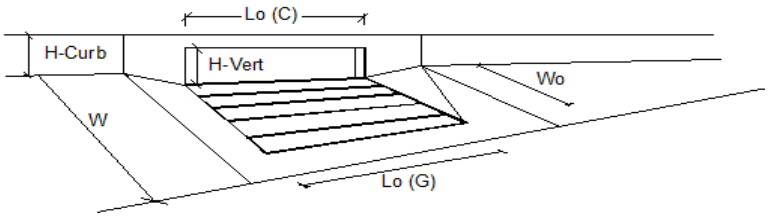
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**2.9**	**11.9**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

WARNING: MAJOR STORM max. allowable capacity is less than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: WARNING: Q > ALLOWABLE Q FOR MAJOR STORM		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.4**	**10.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**13.7**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**44**	**%**

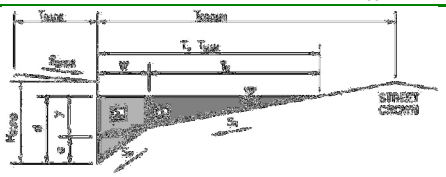
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B11



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.095	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

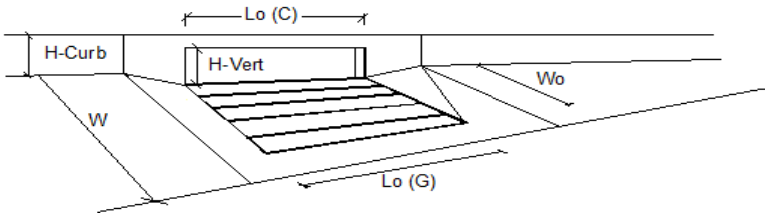
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**12.8**	**13.9**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.8**	**3.8**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.2**	**3.9**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**90**	**49**	**%**

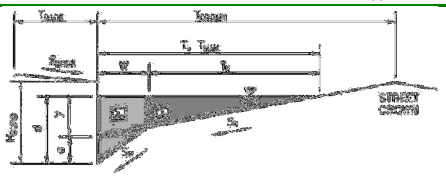
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.005	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	6.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

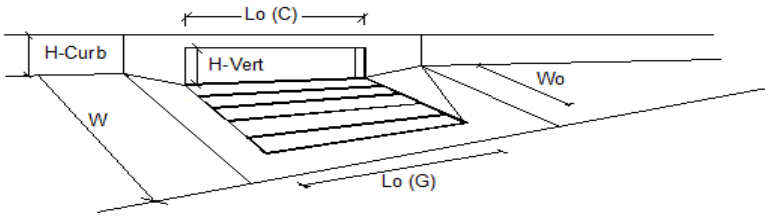
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**2.9**	**11.9**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.2**	**6.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**1.9**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**78**	**%**

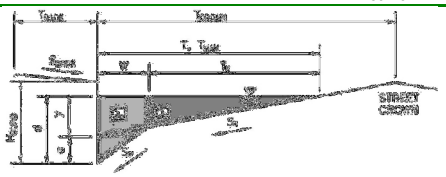
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B6



Gutter Geometry (Enter data in the blue cells)

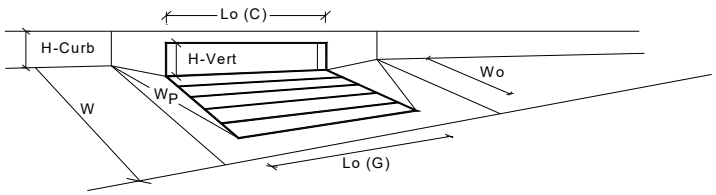
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.79	0.89	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**13.5**	**27.9**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.5	25.0	cfs

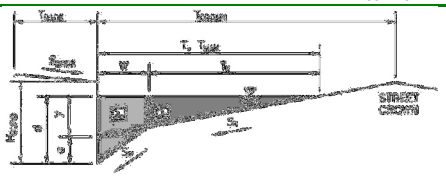
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B13



Gutter Geometry (Enter data in the blue cells)

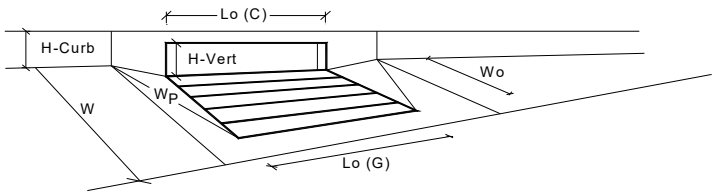
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**19.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	3.0	11.5	cfs

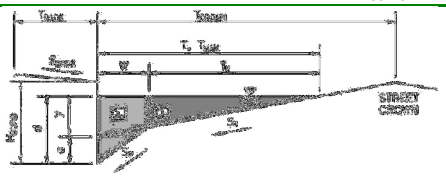
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet B5



Gutter Geometry (Enter data in the blue cells)

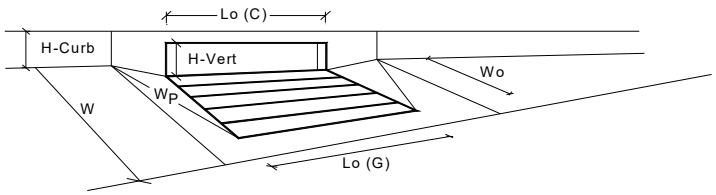
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.57	0.75	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**10.5**	**19.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.6	9.5	cfs

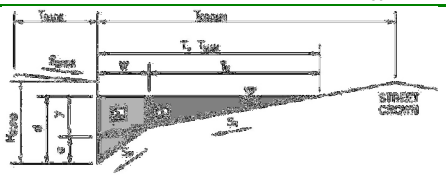
Version 4.06 Released August 2018

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Enter Your Project Name Here

Inlet ID: Inlet D1



Gutter Geometry (Enter data in the blue cells)

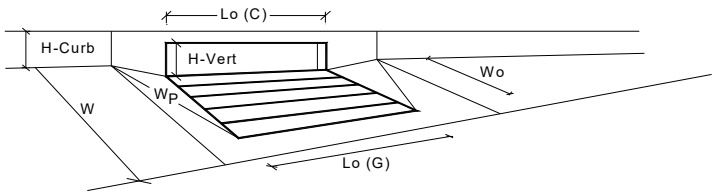
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	33.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.010	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	8.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.50	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.77	1.00	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	

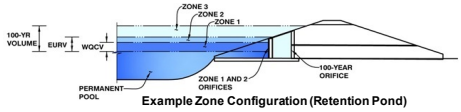
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**9.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	1.1	4.5	cfs

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.03 (May 2020)

Project: Murata Farms

Basin ID:



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	123.00	acres
Watershed Length =	2,755	ft
Watershed Length to Centroid =	1,235	ft
Watershed Slope =	0.013	ft/ft
Watershed Imperviousness =	47.00%	percent
Percentage Hydrologic Soil Group A =	38.2%	percent
Percentage Hydrologic Soil Group B =	61.8%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	2.032	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	6.303	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	4.270	acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	6.867	acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	8.999	acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.69 in.) =	9.823	acre-feet		inches
50-yr Runoff Volume (P1 = 2.38 in.) =	16.499	acre-feet	2.38	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	20.481	acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	24.884	acre-feet		inches
Approximate 2-yr Detention Volume =	3.743	acre-feet		
Approximate 5-yr Detention Volume =	5.720	acre-feet		
Approximate 10-yr Detention Volume =	7.529	acre-feet		
Approximate 25-yr Detention Volume =	7.571	acre-feet		
Approximate 50-yr Detention Volume =	10.166	acre-feet		
Approximate 100-yr Detention Volume =	11.664	acre-feet		

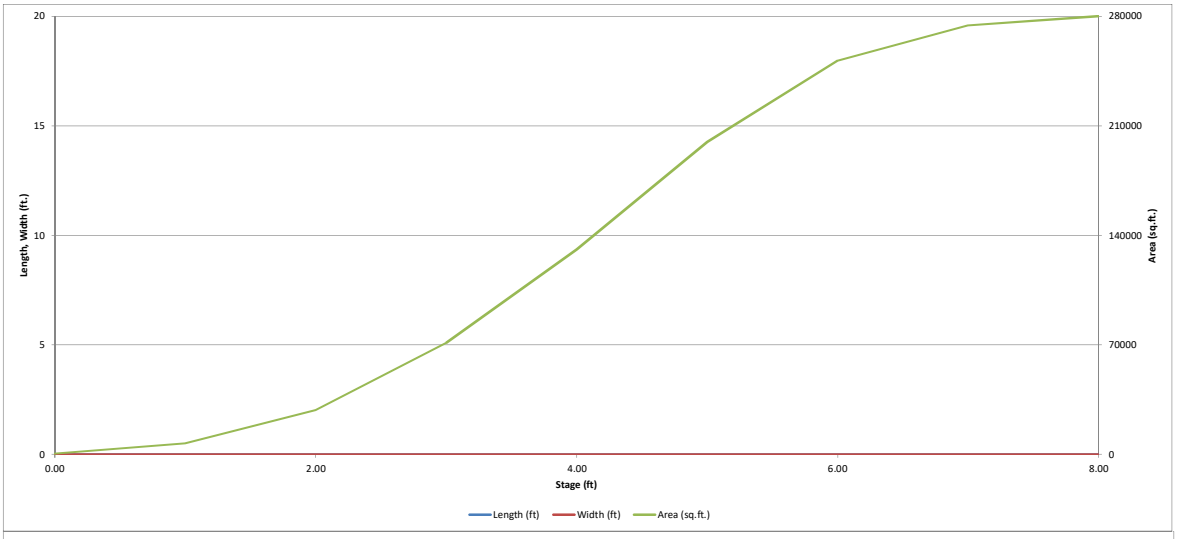
Define Zones and Basin Geometry

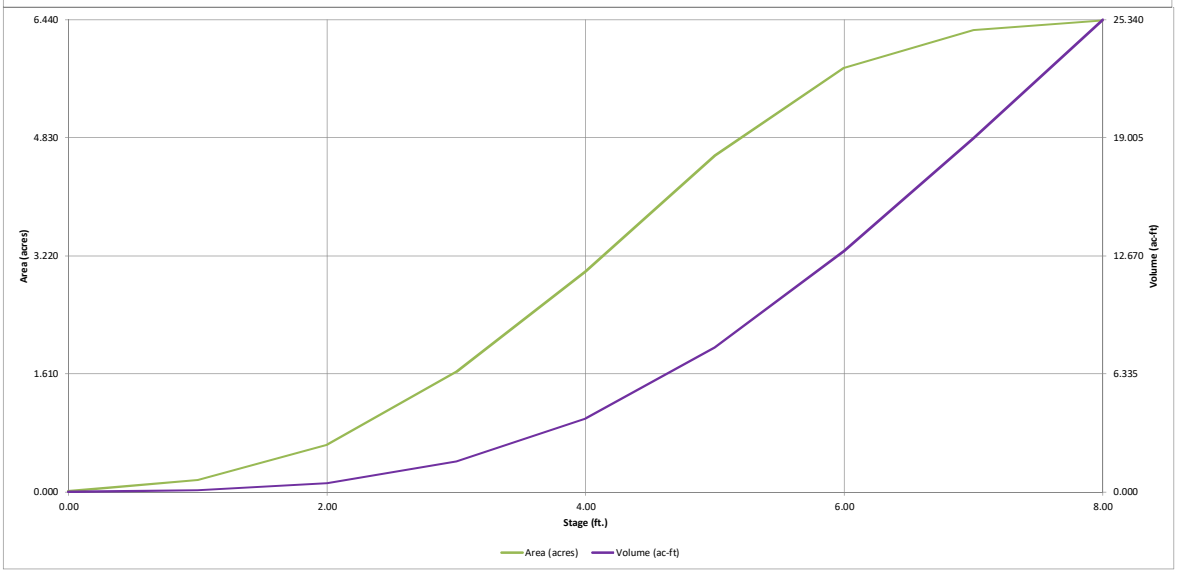
Zone 1 Volume (WQCV) =	2.032	acre-feet
Zone 2 Volume (EURV - Zone 1) =	4.271	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	5.361	acre-feet
Total Detention Basin Volume =	11.664	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	500	0.011		
4938	--	1.00	--	--	--	7,120	0.163	3,810	0.087
4939	--	2.00	--	--	--	28,250	0.649	21,495	0.493
4940	--	3.00	--	--	--	71,250	1.636	71,245	1.636
4941	--	4.00	--	--	--	130,900	3.005	172,319	3.956
4942	--	5.00	--	--	--	199,800	4.587	337,669	7.752
4943	--	6.00	--	--	--	251,800	5.781	563,469	12.935
4944	--	7.00	--	--	--	274,350	6.298	826,544	18.975
4945	--	8.00	--	--	--	280,000	6.428	1,103,719	25.338


20
15
10
5
0
Length, Width (ft.)
280000
210000
140000
70000
0
Area (sq.ft.)
0.00
2.00
4.00
6.00
8.00
Stage (ft)
Length (ft)
Width (ft)
Area (sq.ft.)


6.440
4.830
3.220
1.610
0.000
Area (acres)
25.340
19.005
12.670
6.335
0.000
Volume (ac-ft)
0.00
2.00
4.00
6.00
8.00
Stage (ft.)
Area (acres)
Volume (ac-ft)

Appendix D - Reference Documents

MOUNTAIN SKY SUBDIVISION, FILING NO. 1 WITH +/- 45 RESIDENTIAL LOTS

FINAL DRAINAGE REPORT

JUNE 2016

For:
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jon@rokehconsulting.com

Prepared By:
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APPENDICIES

A. Maps and Exhibits
B. Hydrologic Computations
C. Hydraulic Computations
D. Referenced Criteria

SCOPE

The purpose of this report is to determine the drainage infrastructure for the proposed project with +/- 45 Residential Lots and the detailed concept for the portion of the site which is being developed in Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots. The scope of this report is limited to hydrologic and hydraulic calculations for the major tributary basins, on-site detention pond, on-site infrastructure for Filing No. 1 and a bypass channel for off-site flows which drain to and through the site along the north property line. The infrastructure within Filing No. 1 was sized to convey flows from the ultimate buildout condition for the Mountain Sky subdivision.

1.0 GENERAL LOCATION AND DESCRIPTION

1.1 Location

The project is located as follows:

- Within the southwest quarter of Section 4, Township 1 North, Range 66 West of the 6th Principal Meridian
- Adjacent to the southern and eastern perimeter of Fort Lupton's city limits
- North of Weld CR 12
- South of undeveloped land located south of State Highway 52
- East of Shortline Ditch (runoff from this site currently enters the ditch)
- West of CR 29 ½
- West of an existing levee which passes under W CR 12 and SH 52
- North and west of a single family home, south of a single family home and southeast of a housing sub-division
- See Vicinity Map located in Appendix A

1.2 Description of Property

The following are characteristics of the site:

- As currently platted, the parcel consists of 76.95 acres
- Anadarko will utilize 15.75 acres of the parcel for future oil/gas development which includes 1.25 acres of W CR12 and W CR 29 roads adjacent to the Anadarko Parcel
- Mountain Sky Subdivision proposes to utilize the remaining 61.2 acres of the parcel

- Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots will develop approximately 22 acres including an on-site detention/ water quality pond and a channel to bypass upstream offsite flows
- Site is existing farm land
- Site drains east to the west with existing ground slopes ranging between 1% and 4%
- Site contains soils predominantly in Hydrologic Group B, Sandy Plains (see Soils Map located in Appendix A)
- Roadside drainage ditches are located on the south side of the site adjacent to WCR 12
- An oil and gas well site located along the north property line
- The proposed land use for the site is primarily single family residential
- The project includes the development of land, roadways, parks and utilities within the site, as well as the construction of a drainage system which will include detention and water quality facilities to meet the City of Fort Lupton's onsite drainage requirements
- A Natural Resources Assessment was completed by ERO Resources Corporation on September 30, 2014 which stated ditches and wetland vegetation are potential waters of the U.S. but "because the ditches do not have a surface connection to a known water of the U.S., it is unlikely the Corps would take jurisdiction over the ditches; however, the Corp must make that determination."

2.0 DRAINAGE BASINS AND SUB-BASINS

2.1 Major Basin Description

- The project falls within the study area of the Master Drainage Plan of:
  a) the *City of Fort Lupton Water, Wastewater and Storm Drainage Master Plan, Section 6 Storm Drainage System*
  b) the *DRAFT copy of the City of Fort Lupton Comprehensive Plan* prepared by Clear Water Solutions, Inc.
- Storm runoff from the tributary basins generally flows east to west across the subject site
- Site runoff is ultimately conveyed to South Platte River via downstream ditches, streets, and storm sewer conveyance facilities

2.2 Sub-Basin Description

- According to the *Storm Drainage Master Plan*, the project site is located in the South Drainage Basin which included portions of sections 3, 4, and 5, T. IN., R66W of 6th P.M.
- According to the DRAFT copy of the *City of Fort Lupton Comprehensive Plan, Section 8.0 STORM DRAINAGE SYSTEM* (a copy of pertinent sections of the DRAFT report is located in Appendix D), the project site is located within sub-basin S6. The project site received runoff from sub-basins S6.1 and S6.3 and portions of sub-basins S6.2 and S8 for a total of approximately 1700 acres

- An existing irrigation ditch, Fulton Ditch, located east of the site running in a south-to-north direction, receives runoff from the South, East, and OS Basins. It is assumed that the ditch is running full and that all runoff from the basin flows over the ditch embankment continuing in a westerly direction towards the subject site
- Shortline Ditch, located immediately west of the proposed development, currently receives runoff from all five sub-basins, including the subject site
- Approximately 3 acres consisting of single-family residences, located southeasterly and offsite, historically flows northwesterly onto the proposed site
- The development is within FEMA Flood Insurance Rate Map panels 0802660981C, revised September 28, 1982, and 0802660982C, which is not available for printing. The project is located in Zone C and no mapped 100-year floodplains exist on the site. See FEMA Map Community Panel 080266 0981C in Appendix A
- There are no existing major irrigation facilities located on the Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots property.
- The downstream drainage flow patterns are not anticipated to affect the development of Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots

3.0 DRAINAGE DESIGN CRITERIA

3.1 Development Criteria References and Constraints

- Research was completed in an effort to obtain the DRAFT copy of the *City of Fort Lupton Comprehensive Plan, Section 8.0 STORM DRAINAGE SYSTEM*. The study is currently in progress and calculations are not available at this time
- *City of Fort Lupton Water, Wastewater and Storm Drainage Master Plan, Section 6 Storm Drainage System*, prepared by Rothberg, Tamburini & Winsor, Inc. in 1999, provided major basin and irrigation information as well as future concepts for the project area
- The *City of Fort Lupton Standards and Specifications for the Design and Construction of Public Improvements, 2014 Edition, Chapter 5 Storm Sewer System* provided local criteria
- The *City of Fort Lupton Storm Drainage Design and Technical Criteria* (CRITERIA) shall be the design criteria for the analysis and design of onsite storm drainage facilities
- The *Urban Drainage and Flood Control District's (UDFDC) Urban Storm Drainage Criteria Manual* was also used as a reference and guide for regional criteria
- The *Wastewater and Storm Drainage Master Plan, Section 6, South Drainage Basin* has proposed that all developments within the subject area of the City release storm water only at the 5-year historic level, including the storm generated by the 100-year event

3.2 Hydrologic Criteria

- Design rainfall is from *City of Fort Lupton Storm Drainage Design and Technical Criteria*, *Section 5 RAINFALL*

Event Occurrence	2 YR	5 YR	10 YR	50 YR	100 YR
1-hr. Rainfall Intensity (in/hr)	1.00	1.42	1.68	2.35	2.71

- Peak runoff rates for the final design of the Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots utilize the Rational Method Procedure
- Offisite runoff calculations utilized CUHP/SWMM as presented in the *Mountain Sky Subdivision Preliminary Drainage Report*
- The 5-year storm is the minor event for the development
- The 100-year storm is the major event for the development

3.3 Hydraulic Criteria

- The capacities of existing downstream storm sewer pipes or natural drainage ways should not be impacted by this development once local detention and storm sewer water quality pond facilities are constructed
- Upstream-offsite drainage basin will require similar detention/W.Q. ponds to attenuate peak flows to the 5-year historic release rate
- CUHP/SWMM modeling was used in the *Preliminary Drainage Report* to determine the peak runoff to the proposed onsite bypass channel
- Imperviousness for the future Site Basin was determined at 40% by interpolating the runoff coefficients 5-yr c=0.45 and 100-yr c=0.60
- Per the City of Fort Lupton's CRITERIA, the FAA method for Minor and Major Storm Storage Volumes was utilized to determine onsite detention
- On-site detention design is based upon the 5-year and 100-year storm frequencies with a 5 year historic release rate
- From the *Wastewater and Storm Drainage Master Plan,* the release rate for the major storm of the on-site detention pond has been restricted to the 5-year historic storm peak flow as shown in the *Preliminary Drainage Report*
- The proposed outlet structure constructed during Filing No. 1 will be sized for final build-out conditions for the minor and major storms but the vertical water quality outlet pipe shall be resized and replaced as each filing is constructed
- Since the runoff from the surface area of the proposed bypass channel cannot be captured and treated in the on-site detention pond, the minor and major storm release rates have been reduced proportionally

3.4 Adaptations or Variations of Criteria

- Maximum design depth of ponding in the major storm is greater than the CRITERIA requirement of 5 feet since the major storm is being restricted to the 5-year release rate (maximum ponding depth of one foot is needed to meet the required detention ponding needs for the site)

- Pond bottom sloped at 2% as opposed to CRITERIA's requirement of 3% slope (NOTE: could not achieve desired volume with the 3% criteria)

4.0 DRAINAGE FACILITY DESIGN

4.1 General Concept

- The proposed drainage system will continue to drain the project site from southeast to northwest following the existing drainage pattern
- As described in the *Preliminary Drainage Report*, it is not possible to create a regional detention pond on this site as proposed in the *Wastewater and Storm Drainage Master Plan*
- An on-site detention pond for the project and a bypass channel for offsite runoff considerations is being proposed for final buildout conditions to be installed during the construction of Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots (NOTE: additional ponding and water quality facilities will need to be constructed within upstream reaches as land development occurs)
- Excerpts from referenced criteria and reports are included in Appendix D

4.2 Specific Details

Site Runoff

- Six offsite sub-basins will affect the development of the site
  - OS-E, East Basin (east of site)
  - OS-N, North Basin (north of site)
  - OS, OS Basin (north of Highway 52)
  - OS-S, South Basin (south of CR 12)
  - OS-1, Tributary Area (single family homes southeast of site)
  - OS-2, Future Oil/Gas Development by Anadarko Petroleum Corporation (southwest of site)
- CUHP/SWMM was used in the *Preliminary Drainage Report* to determine the runoff from the larger offsite basins. OS-E, OS-N, OS and OS-S
- Rational Method was used to determine the smaller off-site basins, OS-1 and OS-2
- The offsite basin area and contributing flow is summarized in the following table:

Basin Name	Area (acres)	5-YR Runoff (cfs)	100-YR Runoff (cfs)
OS-E	825	90	643
OS-N	78.4	24	138
OS	110	43	239
OS-S	616	88	603
OS-1	2.66	4.1	10.3
OS-2	13.38	6.1	38.8

- Seven onsite basins:
  - Basin A, developed portion of Filing No. 1
  - Basin B, future filing south of Filing No. 1 draining to park area then pond
  - Basin C, future filing west of Filing No. 1 draining overland to pond
  - Basin D, future filing west of Basin C draining overland to pond
  - Basin E, onsite detention pond area
  - Basin F, onsite channel and drainage to channel to bypass detention pond
  - Basin R, roadside areas along CR12 and CR29 ½

- The onsite sub-basin area and contributing flow is summarized in the following table:

Basin Name	Area (acres)	5-YR Runoff (cfs)	100-YR Runoff (cfs)
A1	2.81	3.7	9.5
A2	0.64	1.1	2.9
A3	3.17	4.5	11.4
A4	1.29	2.3	5.9
A5	0.93	1.7	4.2
B1	0.76	1.9	4.6
B2	3.42	6.2	15.7
B3	0.74	1.3	3.4
B4	1.50	1.4	5.0
B5	1.61	2.5	6.4
B6	2.96	5.0	12.8
B7	2.73	4.2	10.6
B8	1.99	2.9	7.3
B9	3.32	2.9	10.1
C1	1.24	2.3	5.8
C2	2.14	3.6	8.9
C3	1.41	2.3	5.8
C4	2.83	3.9	10.4
D1	1.45	2.7	7.0
D2	3.48	3.2	10.4
D3	1.14	1.9	4.8
D4	1.29	2.1	5.5
E1	0.39	0.8	2.0
E2	2.56	4.0	10.1
F1	0.48	1.2	2.9
F2	8.69	5.9	20.4
P1	6.38	11.7	28.2
R1	0.73	1.9	4.1

R2	0.79	1.7	4.1
R3	0.79	1.9	4.5
R4	0.48	1.3	3.1
R5	1.24	1.1	4.0

- Runoff from the onsite and offsite basins drains either directly or indirectly to the lowpoint of the site at DP34, totalling the above mentioned 1700 acres.
- Sub-basins OS-E, OS-N, OS and OS-S contribute off-site drainage as calculated in the *Mountain Sky Subdivision Preliminary Drainage Report* as displayed in the Overall Drainage Exhibit located in Appendix A of this report
- See Appendix B for composite c-factors, times of concentration and rational method calculations for Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots

Street and Inlet Capacities

- Road capacities for CR29 ½, the entry drive from CR29 ½ and residential streets are enclosed is Appendix C
- Inlet capacity and carry-over calculations can be found in Appendix C

Storm Drain System

- The storm drainage system for Mountain Sky Subdivision, Filing No. 1 with +/- 45 Residential Lots will consist of storm sewer for onsite runoff, a bypass channel for offsite runoff, and culverts under CR29 ½ for the Fulton Ditch and runoff from off-site basin OS-E
- One flared end section (FES) will be installed at DP 25 which ties into one the two inlets (DP 26 and DP 27) not being utilized during this phase
- The FES at DP 25 will capture stormwater runoff from onsite undeveloped areas and route runoff to the pond for water quality and detention
- There will be a storm stub at the Filing No. 1 phase line at DP 17 that will also capture stormwater runoff from the onsite undeveloped areas from the southeastern portion of the site
- The onsite bypass channel is sized to carry the 100-yr undeveloped runoff from off-site basins as determined by the CUHP/SWMM model presented in the *Preliminary Drainage Report*
- Two culverts under CR29 ½ will be constructed during Filing No. 1 (culvert for Fulton Ditch and culvert for the Off-Site East Basin Drainage)
- Flows for the Fulton Ditch were not made available to Calibre – the culvert was sized to match the hydraulic capacity of the existing ditch section
- The Fulton Ditch culvert shall be sized for the current ditch cross section and slope
- The culvert for the OS-E basin runoff is sized to carry the 100-yr undeveloped flow as determined by the CUHP/SWMM model presented in the *Preliminary Drainage Report*

Detention Pond

- The Detention Pond is being constructed for water quality and detention purposes for on-site basins only using the FAA method per the City of Fort Lupton's CRITERIA
- A 3-stage outlet structure and emergency overflow weir will be constructed in the pond (water quality, 5-year release and 100-yr release)
- A 5-year orifice will be constructed for final build-out conditions within the structure to release the 5-year developed runoff at the 5-year historic rate
    - The release rate for the 100-yr runoff is restricted to 5-yr historic flow for captured stormwater by installing a restrictor plate in the outlet structure
    - Even though the 5-year orifice will not be necessary since the restrictor plate is utilized to release runoff at the 5-year historic rate, it is being installed so the restrictor plate can be adjusted during future filing before final buildout conditions
- To avoid multiple modifications to the pond, it has been sized for the future buildout of the entire Mountain Sky Subdivision.
- During the construction of future filings, the water quality outlet pipe and restrictor plate will be replaced for interim conditions until full buildout conditions have been achieved
- Anadarko will be responsible for water quality and detention for their 15.7-acre parcel including half of CR 29 to their parcel. Runoff from Basin OS-2, (future development of Parcel F), will not be captured or treated for water quality
- The Mountain Sky Subdivision parcel consists of 61.2 acres (76.9 acres platted area less Anadarko's 15.7-acre parcel)
- The pond can only capture runoff from 55.25 acres due to grading restrictions related to the 6.4-acre grass-lined bypass channel (Note: 55.25 acres of captured runoff + 6.4 acres of bypass channel is greater than the 61.2-acre subdivision parcel due to capturing stormwater runoff from Basins OS-1, a developed single-family lot currently in use)
- The pond's release rate has been adjusted to reduce the runoff rate below the 5-year historic rate of 0.13 cfs/acre since runoff from the entire Mountain Sky Subdivision cannot be completely captured in the onsite detention pond
- See Appendix C for pond and outlet structure calculations

5.0 SUMMARY

5.1 Compliance with Standards

- This report is in general accordance with the *City of Fort Lupton Storm Drainage Design and Technical Criteria*
- This report is in general accordance, where applicable and not superseded by other criteria, to the *Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual* (USDCM)

- This report is in general accordance with FEMA; there are no known regulatory floodplains within the site boundary

5.2 Drainage Concept

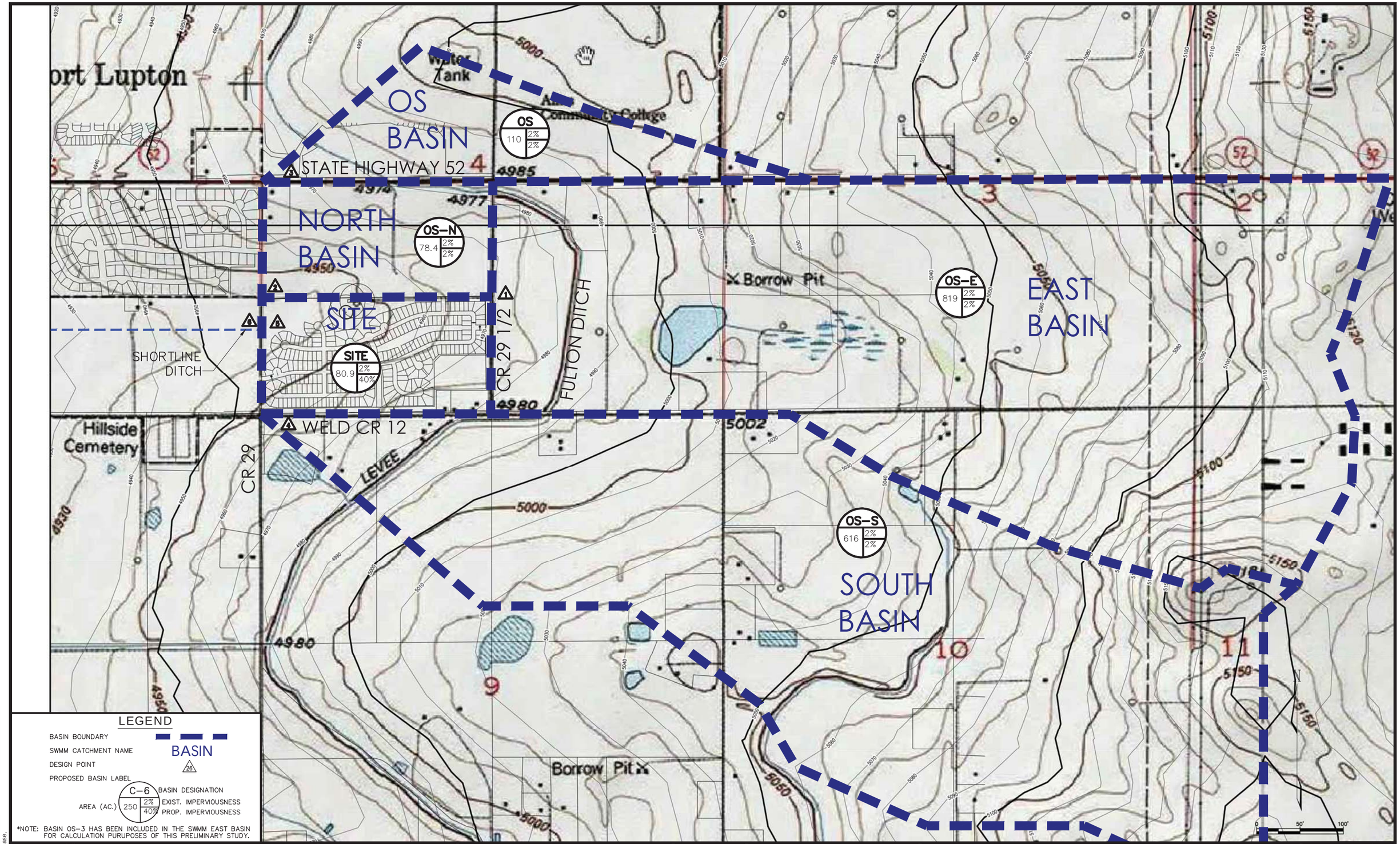
- Runoff from the site will be conveyed via onsite drainage swales, a street curb, gutter, and paving, and a storm sewer system to the proposed detention pond
- Runoff from off-site will be directed around or through the site via swales, ditches and channels to the Shortline Ditch which currently receives this upstream runoff
- During future development, it will be possible to pipe the runoff from the proposed channel in a southerly direction to connect to proposed storm sewer in CR12
- Downstream properties should not be affected by the development of the proposed site; the detention pond will provide the appropriate onsite detention to control the major and minor storm releases from the development

5.3 Standard Statement 1

The developer, vis contractual agreements with his consultant(s) is responsible for obtaining any and all permits, licenses, and any other documentation/correspondence that are necessary to address any additional issues such as wetlands, floodplains, irrigation facilities, groundwater dewatering, and protection of existing utilities. See Page 2 for Engineer's signed statement.

6.0 LIST OF REFERENCES

1. *City of Fort Lupton Storm Drainage Design and Technical Criteria* (CRITERIA)
2. DRAFT copy of the *City of Fort Lupton Comprehensive Plan, Section 8.0 STORM DRAINAGE SYSTEM*, prepared by Clear Water Solutions, Inc., 2014
3. *City of Fort Lupton Water, Wastewater and Storm Drainage Master Plan, Section 6 Storm Drainage System*, prepared by Rothberg, Tamburini & Winsor, Inc., 1999
4. *City of Fort Lupton Standards and Specifications for the Design and Construction of Public Improvements, 2014 Edition, Chapter 5 Storm Sewer System*
5. *Urban Storm Drainage Criteria Manual, Volumes 1, 2 & 3*, Urban Drainage Flood Control District



LEGEND

BASIN BOUNDARY

SWMM CATCHMENT NAME — BASIN

DESIGN POINT — 26

PROPOSED BASIN LABEL

C–6 BASIN DESIGNATION

AREA (AC.) 250 | 2% EXIST. IMPERVIOUSNESS | 40% PROP. IMPERVIOUSNESS

*NOTE: BASIN OS–3 HAS BEEN INCLUDED IN THE SWMM EAST BASIN FOR CALCULATION PURUPOSES OF THIS PRELIMINARY STUDY.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

PATH: P:\EQUINOX MTN SKY\CADD\CIVIL\DRN\11OD.DWG
PLOTTED BY: Tracey Wise PLOT DATE: 2/19/2016 12:04 PM
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Job Number	1 inch = 500 ft. Horizontal 1 inch = 0 ft Vertical		
Prepared For: ROKEH CONSULTING, LLC	Designer: TAW	Drafter: TAW	Checked: GVM

NORTH

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

MOUNTAIN SKY SUBDIVISION

DRAINAGE ANALYSIS

OVERALL DRAINAGE MAP

Sheet E-OD 1 of 2

Date 23 FEBRUARY 2016

KEY NOTES

(1) TRIBUTARY AREA
HISTORIC FLOWS FROM THE TRIBUTARY AREA WILL FLOW OVERLAND ONTO THE MOUNTAIN SKY SUBDIVISION WHERE IT WILL BE INTERCEPTED BY THE MOUNTAIN SKY STREET DRAINAGE SYSTEM AND CONVEYED TO THE DETENTION POND. IN ADDITION TO THIS TRIBUTARY AREA FLOW, THE FINAL DESIGN SHALL PROVIDE EMERGENCY CONVEYANCE FOR ANY DIVERTED FLOW FROM THE SOUTH BASIN. BOTH TRIBUTARY AREA AND SOUTH BASIN FLOWS SHALL BE EITHER ROUTED THROUGH THE DETENTION POND,DIRECTED TO THE CHANNEL NORTH OF THE DETENTION POND OR SHORTLINE DITCH.

DEVELOPED FLOWS FROM TRIBUTARY AREA WILL BE DETAINED IN THE MOUNTAIN SKY DETENTION POND AND RELEASED AT THE 5-YEAR HISTORIC RATE.

(2) SOUTH BASIN CONVEYANCE
THE DRAINAGE PATH OF THE SOUTH BASIN RUNOFF IS INDETERMINATE AND A FLOW SPLIT LIKELY OCCURS WITH PARTIAL FLOW CARRIED WEST IN WELD CR12, WELD CR29 1/2 AND PARTIAL FLOW OVERTOPPING THE ROADS AND SPILLING ONTO THE PROPERTY AT THE NORTHWEST CORNER OF CR29 1/2 AND CR12. FUTURE FILINGS DEVELOPING LOTS ALONG THE SOUTH PROPERTY LINE WILL QUANTIFY THE FLOW IN CR12, THEN PROVIDE CONVEYANCES TO CONTROL SOUTH BASIN FLOWS AND DIVERT PAST THE PROPOSED LOTS.

LEGEND

- BASIN BOUNDARY
- PROPOSED STORM DRAIN PIPE
- PROPOSED SWALE
- PROPERTY LINE
- FLOW ARROW
- PROPOSED MAJOR CONTOUR (5') — 5250
- PROPOSED MINOR CONTOUR (1')
- EXISTING MINOR CONTOUR (1')
- EXISTING MAJOR CONTOUR (5') — 5250
- DESIGN POINT (26)
- PROPOSED BASIN LABEL: B1 | AREA (AC.) 250 | 2% EXIST. IMPERVIOUSNESS | 40% PROP. IMPERVIOUSNESS

OS | 110 | 2% | 2%

OS BASIN (NORTH OF HWY 52)
OS BASIN (HISTORIC) TO BYPASS PROPOSED CHANNEL
A = 110 ACRES
Q5 = 43 CFS
Q100 = 239 CFS

OS-N | 78.4 | 2% | 2%

NORTH BASIN
NORTH BASIN (HISTORIC)
A=78.4 ACRES
Q5 = 24 CFS
Q100 = 138 CFS

FUTURE DETENTION FOR ANALYSIS PURPOSES ONLY. (OFF-SITE PROPERTY REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE AT HISTORIC RATES PER FORT LUPTON CRITERIA. LOCATION AND SIZE OF FUTURE DETENTION TO BE DETERMINED.)

PROPOSED CHANNEL

PROPOSED ON-SITE DETENTION

PROPOSED OUTLET STRUCTURE TO RELEASE TO CHANNEL AT 5-YR HISTORIC RATE

SHORTLINE DITCH

MOUNTAIN SKY SUBDIVISION

PROPOSED PARK

WELD CR29 1/2

NORTH

EAST BASIN
EAST BASIN (HISTORIC)
A = 819 ACRES
Q5 = 90 CFS
Q100 = 643 CFS
TO CULVERT UNDER CR 29 1/2

OS-E | 819 | 2% | 2%

FUTURE OIL/GAS DEVELOPMENT BY ANADARKO PETROLEUM CORPORATION

SITE | 80.9 | 2% | 40%

SITE
SITE (DEVELOPED)
A=80.9 ACRES
Q5 = 83 CFS
Q100 = 252 CFS

TRIBUTARY AREA (1)

CR 29 1/2

CR 12

CR 29

WELD COUNTY ROAD 12

SOUTH BASIN

ASSUMED ULTIMATE SOUTH BASIN (HISTORIC)
A = 616 ACRES
Q5 = 88 CFS
Q100 = 603 CFS
ULTIMATELY CONTROL 100% OF THIS FLOW TO BE CARRIED WEST ALONG WELD CR12

OS-S | 616 | 2% | 2%

	DATE	REVISION DESCRIPTION
6		
5		
4		
3		
2		
1		

Drawing Name: 12DR-PR.dwg
Job Number: EQNX MTN SKY
Prepared For: EQUINOX LAND GROUP
Designer: TAW | Drafter: TAW | Checked: GLP

0 50 100 200
1 inch = 100 ft. Horizontal
1 inch = 0 ft Vertical

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MOUNTAIN SKY SUBDIVISION
DRAINAGE ANALYSIS
PROPOSED OVERALL SITE DRAINAGE

Sheet: P-OD | 2 of 2
Date: 23 FEBRUARY 2016

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PLOTTED BY: Tracey Wise PLOT DATE: 2/19/2016 12:18 PM
XREFS: w-PUT-Full Buildout, 10PPN, 10PUT, 10EUT, 10EPN, 10PCN, 10BASE,

KEY NOTES

(1) TRIBUTARY AREA
HISTORIC FLOWS FROM BASIN OS-1 WILL FLOW OVERLAND ONTO THE MOUNTAIN SKY SUBDIVISION WHERE IT WILL BE INTERCEPTED BY THE MOUNTAIN SKY STREET DRAINAGE SYSTEM AND CONVEYED TO THE DETENTION POND. IN ADDITION TO THIS TRIBUTARY AREA FLOW, THE FINAL DESIGN SHALL PROVIDE EMERGENCY CONVEYANCE FOR ANY DIVERTED FLOW FROM THE SOUTH BASIN. BOTH TRIBUTARY AREA AND SOUTH BASIN FLOWS SHALL BE EITHER ROUTED THROUGH THE DETENTION POND,DIRECTED TO THE CHANNEL NORTH OF THE DETENTION POND OR SHORTLINE DITCH.

DEVELOPED FLOWS FROM TRIBUTARY AREA WILL BE DETAINED IN THE MOUNTAIN SKY DETENTION POND AND RELEASED AT THE 5-YEAR HISTORIC RATE.

(2) SOUTH BASIN CONVEYANCE
THE DRAINAGE PATH OF SOUTH BASIN RUNOFF IS INDETERMINATE AND A FLOW SPLIT LIKELY OCCURS WITH PARTIAL FLOW CARRIED WEST IN WELD CR12, WELD CR29 1/2 AND PARTIAL FLOW OVERTOPPING THE ROADS AND SPILLING ONTO THE PROPERTY AT THE NORTHWEST CORNER OF CR29 1/2 AND CR12. FUTURE FILINGS DEVELOPING LOTS ALONG THE SOUTH PROPERTY LINE WILL QUANTIFY THE FLOW IN CR12, THEN PROVIDE CONVEYANCES TO CONTROL SOUTH BASIN FLOWS AND DIVERT PAST THE PROPOSED LOTS.

LEGEND

BASIN BOUNDARY
PROPOSED STORM DRAIN PIPE
PROPOSED SWALE
PROPERTY LINE
FLOW ARROW
PROPOSED MAJOR CONTOUR (5') 5250
PROPOSED MINOR CONTOUR (1')
EXISTING MINOR CONTOUR (1')
EXISTING MAJOR CONTOUR (5') 5250
DESIGN POINT 26
PROPOSED BASIN LABEL
B1 | 250 | .45/.60 — BASIN DESIGNATION; AREA (AC.); 5YR C-VALUE; 100YR C-VALUE

NORTH

OS BASIN (NORTH OF HWY 52)

OS BASIN (HISTORIC)
TO BYPASS PROPOSED CHANNEL
A = 110 ACRES
Q5 = 43 CFS
Q100 = 239 CFS

NORTH BASIN

NORTH BASIN (HISTORIC)
A=78.4 ACRES
Q5 = 24 CFS
Q100 = 138 CFS

FUTURE DETENTION FOR ANALYSIS PURPOSES ONLY. (OFF-SITE PROPERTY REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE AT HISTORIC RATES PER FORT LUPTON CRITERIA. LOCATION AND SIZE OF FUTURE DETENTION TO BE DETERMINED BY OTHERS.)

PROPOSED CHANNEL
PROPOSED ON-SITE DETENTION
PROPOSED OUTLET STRUCTURE TO RELEASE TO CHANNEL AT 5-YR HISTORIC RATE
SHORTLINE DITCH
PROPOSED GRASS SWALE
20' UTILITY EASEMENT
20' DRAINAGE EASEMENT
BLANKET DRAINAGE AND UTILITY EASEMENT
MOUNTAIN SKY SUBDIVISION
FUTURE OIL/GAS DEVELOPMENT BY ANADARKO PETROLEUM CORPORATION
TRIBUTARY AREA
SOUTH BASIN
WELD COUNTY ROAD 12
CR 12
CR 29
WELD CR29 1/2
CR 29 1/2

NOTE:
NO DETENTION STORAGE FOR UNDEVELOPED BASIN OS-2. FUTURE DEVELOPMENT OF THIS SITE WILL REQUIRE A REDESIGN OF EXISTING DETENTION POND OR THE DESIGN OF A NEW DETENTION/WATER QUALITY POND FACILITY.

EAST BASIN

EAST BASIN (HISTORIC)
A = 819 ACRES
Q5 = 90 CFS
Q100 = 643 CFS
TO CULVERT UNDER CR 29 1/2

ASSUMED ULTIMATE SOUTH BASIN (HISTORIC)
A = 616 ACRES
Q5 = 88 CFS
Q100 = 603 CFS
ULTIMATELY CONTROL 100% OF THIS FLOW TO BE CARRIED WEST ALONG WELD CR12

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	2
	1

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Prepared For: EQUINOX LAND GROUP
Designer: TAW | Drafter: TAW | Checked: GLP
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1 inch = 100 ft. Horizontal
1 inch = 0 ft Vertical

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MOUNTAIN SKY SUBDIVISION
DRAINAGE ANALYSIS
PROPOSED OVERALL SITE DRAINAGE

Sheet P-OD 2 of 2
Date 12 FEBRUARY 2016

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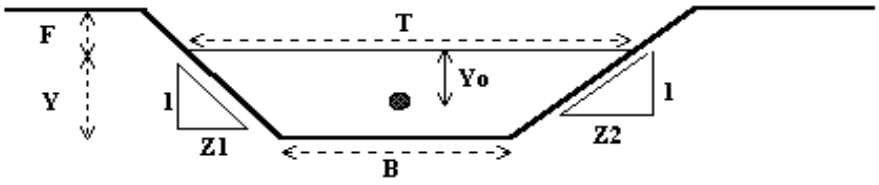
Critical Flow Analysis - Trapezoidal Channel

Project: Mountain Sky Subdivision

Channel ID: Channel along North PL: 5-yr Storm



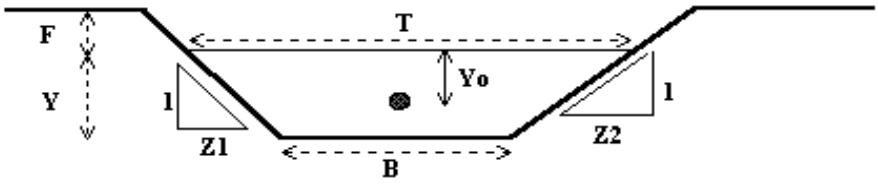
Design Information (Input)			
Bottom Width	B =	15.00	ft
Left Side Slope	Z1 =	3.00	ft/ft
Right Side Slope	Z2 =	3.00	ft/ft
Design Discharge	Q =	**114.00**	cfs

Critical Flow Condition (Calculated)			
Critical Flow Depth	**Y =**	**1.12**	ft
Critical Flow Area	A =	20.56	sq ft
Critical Top Width	T =	21.72	ft
Critical Hydraulic Depth	D =	0.95	ft
Critical Flow Velocity	V =	5.54	fps
Froude Number	**Fr =**	**1.00**	
Critical Wetted Perimeter	P =	22.08	ft
Critical Hydraulic Radius	R =	0.93	ft
Critical (min) Specific Energy	Esc =	1.60	ft
Centroid on the Critical Flow Area	Yoc =	0.49	ft
Critical (min) Specific Force	Fsc =	1.86	kip

Normal Flow Analysis - Trapezoidal Channel

Project: Mountian Sky Subdivision

Channel ID: Channel along North PL: 100-year Storm



Design Information (Input)			
Channel Invert Slope	So =	0.0060	ft/ft
Manning's n	n =	0.035	
Bottom Width	B =	15.00	ft
Left Side Slope	Z1 =	3.00	ft/ft
Right Side Slope	Z2 =	3.00	ft/ft
Freeboard Height	F =	1.00	ft
Design Water Depth	Y =	**4.27**	ft

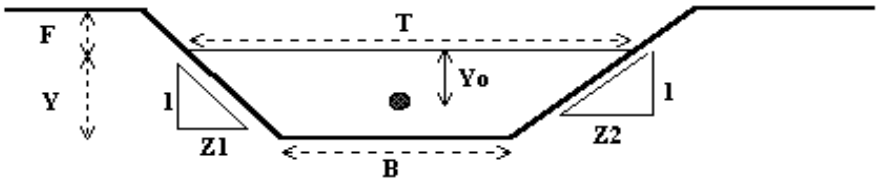
Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**781.05**	cfs
Froude Number	**Fr =**	**0.68**	
Flow Velocity	**V =**	**6.59**	fps
Flow Area	A =	118.55	sq ft
Top Width	T =	40.59	ft
Wetted Perimeter	P =	41.97	ft
Hydraulic Radius	R =	2.82	ft
Hydraulic Depth	D =	2.92	ft
Specific Energy	Es =	4.94	ft
Centroid of Flow Area	Yo =	1.80	ft
Specific Force	Fs =	23.29	kip

Q = OS-E + OS-N
Q = 643 + 138 cfs
Q = 781 cfs
Fr < 0.8
V < 7 fps

Critical Flow Analysis - Trapezoidal Channel

Project: Mountain Sky Subdivision

Channel ID: Channel along North PL: 100-yr Storm



Design Information (Input)			
Bottom Width	B =	15.00	ft
Left Side Slope	Z1 =	3.00	ft/ft
Right Side Slope	Z2 =	3.00	ft/ft
Design Discharge	Q =	**722.87**	cfs

Critical Flow Condition (Calculated)			
Critical Flow Depth	**Y =**	**3.31**	ft
Critical Flow Area	A =	82.69	sq ft
Critical Top Width	T =	34.89	ft
Critical Hydraulic Depth	D =	2.37	ft
Critical Flow Velocity	V =	8.74	fps
Froude Number	**Fr =**	**1.00**	
Critical Wetted Perimeter	P =	35.97	ft
Critical Hydraulic Radius	R =	2.30	ft
Critical (min) Specific Energy	Esc =	4.50	ft
Centroid on the Critical Flow Area	Yoc =	1.22	ft
Critical (min) Specific Force	Fsc =	18.54	kip

Worksheet for OS-E Swale - 5YR Storm

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.00800	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.20	ft
Discharge	90.00	ft³/s

Results

Normal Depth	1.77	ft
Flow Area	18.66	ft²
Wetted Perimeter	16.42	ft
Hydraulic Radius	1.14	ft
Top Width	15.84	ft
Critical Depth	1.56	ft
Critical Slope	0.01347	ft/ft
Velocity	4.82	ft/s
Velocity Head	0.36	ft
Specific Energy	2.14	ft
Froude Number	0.78	
Flow Type	Subcritical	

Minor Storm
Q = 90 cfs
D = 1.77 ft
V < 5 fps
Fr < 0.8

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.77	ft
Critical Depth	1.56	ft
Channel Slope	0.00800	ft/ft

Worksheet for OS-E Swale - 100YR Storm

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.00800	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.20	ft
Discharge	321.50	ft³/s

Results

Normal Depth	3.22	ft
Flow Area	47.81	ft²
Wetted Perimeter	25.55	ft
Hydraulic Radius	1.87	ft
Top Width	24.51	ft
Critical Depth	2.97	ft
Critical Slope	0.01134	ft/ft
Velocity	6.73	ft/s
Velocity Head	0.70	ft
Specific Energy	3.92	ft
Froude Number	0.85	
Flow Type	Subcritical	

Major Storm
Q = 643/2
Q = 321.5 cfs
D = 3.22 ft
V < 7 fps
Fr = 0.85

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.22	ft
Critical Depth	2.97	ft
Channel Slope	0.00800	ft/ft

Calibre

FULL BUILDOUT CONDITIONS

Desgin Area = 61.22 acres

Actual Basin Area = 55.27 acres

Weighted Runoff Coefficient C_5 (5-year) = 0.45 Adjusted 5yr Release = 0.12 cfs / acre Actual Release Rate = Actual Area / Design Area * Design Release Rate

Weighted Runoff Coefficient C_{100} (100-year) = 0.60 Adjusted 100yr Release = 0.12 cfs / acre Design Release Rate = 0.13 cfs / acre

DETENTION POND - FAA METHOD

LOCATION: EQUINOX MTN SKY CITY OF: CITY OF FORT LUPTON DATE: 2/19/2016

TIME	RAINFALL INTENSITY (IN/HR)		C x A		INFLOW VOLUME (FT^3)		RELEASE RATE (CFS)		OUTFLOW VOLUME (FT^3)		REQUIRED VOLUME (FT^3)		REQUIRED VOLUME (AC-FT)	
(MIN)	5YR	100YR	5 YR	100 YR	5 YR	100 YR	5 YR	100 YR	5YR	100YR	5 YR	100 YR	5 YR	100 YR
(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(5)	(6)	(6)	(7)	(7)	(8)	(8)
5	4.92	9.48	24.87	33.16	36,710	94,313	6.49	6.49	1,946	1,946	34,765	92,367	0.80	2.12
10	3.84	7.32	24.87	33.16	57,304	145,648	6.49	6.49	3,891	3,891	53,413	141,756	1.23	3.25
15	3.24	6.16	24.87	33.16	72,525	183,850	6.49	6.49	5,837	5,837	66,688	178,013	1.53	4.09
20	2.80	5.45	24.87	33.16	83,568	216,879	6.49	6.49	7,783	7,783	75,785	209,097	1.74	4.80
25	2.50	4.85	24.87	33.16	93,268	241,254	6.49	6.49	9,729	9,729	83,540	231,525	1.92	5.32
30	2.24	4.28	24.87	33.16	100,282	255,480	6.49	6.49	11,674	11,674	88,608	243,806	2.03	5.60
35	2.08	3.95	24.87	33.16	108,639	275,079	6.49	6.49	13,620	13,620	95,019	261,459	2.18	6.00
40	1.91	3.70	24.87	33.16	114,011	294,479	6.49	6.49	15,566	15,566	98,445	278,913	2.26	6.40
45	1.78	3.45	24.87	33.16	119,532	308,904	6.49	6.49	17,511	17,511	102,021	291,393	2.34	6.69
50	1.65	3.22	24.87	33.16	123,114	320,345	6.49	6.49	19,457	19,457	103,657	300,888	2.38	6.91
55	1.54	3.00	24.87	33.16	126,397	328,304	6.49	6.49	21,403	21,403	104,994	306,901	**2.41**	**7.05**
60	1.42	2.71	24.87	33.16	127,143	323,528	6.49	6.49	23,349	23,349	103,795	300,180	2.38	6.89

(4) = (3) x (2) x (1) x 60

(5) = allowable detention pond release rate

(6) = (5) x (1) x 60

(7) = (4) - (6)

Pond to be constructed for full build-out conditions w/ reduced release rate, Volume = 7.05 ac-ft

Calibre

FILING NO. 1

Desgin Area = 61.22 acres

Actual Basin Area = 55.25 acres

Weighted Runoff Coefficient C_5 (5-year) = 0.22 Adjusted 5yr Release = 0.12 cfs / acre Actual Release Rate = Actual Area / Design Area * Design Release Rate

Weighted Runoff Coefficient C_{100} (100-year) = 0.52 Adjusted 100yr Release = 0.12 cfs / acre Design Release Rate = 0.13 cfs / acre

DETENTION POND - FAA METHOD

LOCATION: EQUINOX MTN SKY CITY OF: CITY OF FORT LUPTON DATE: 2/19/2016

TIME (MIN)	RAINFALL INTENSITY (IN/HR)		C x A		INFLOW VOLUME (FT^3)		RELEASE RATE (CFS)		OUTFLOW VOLUME (FT^3)		REQUIRED VOLUME (FT^3)		REQUIRED VOLUME (AC-FT)	
	5YR	100YR	5 YR	100 YR	5 YR	100 YR	5 YR	100 YR	5YR	100YR	5 YR	100 YR	5 YR	100 YR
(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(5)	(6)	(6)	(7)	(7)	(8)	(8)
5	4.92	9.48	12.07	28.50	17,821	81,060	6.48	6.48	1,945	1,945	15,876	79,114	0.36	1.82
10	3.84	7.32	12.07	28.50	27,819	125,181	6.48	6.48	3,891	3,891	23,928	121,290	0.55	2.78
15	3.24	6.16	12.07	28.50	35,208	158,015	6.48	6.48	5,836	5,836	29,372	152,179	0.67	3.49
20	2.80	5.45	12.07	28.50	40,569	186,403	6.48	6.48	7,781	7,781	32,788	178,622	0.75	4.10
25	2.50	4.85	12.07	28.50	45,278	207,352	6.48	6.48	9,727	9,727	35,551	197,625	0.82	4.54
30	2.24	4.28	12.07	28.50	48,683	219,579	6.48	6.48	11,672	11,672	37,011	207,907	0.85	4.77
35	2.08	3.95	12.07	28.50	52,740	236,424	6.48	6.48	13,617	13,617	39,122	222,807	0.90	5.11
40	1.91	3.70	12.07	28.50	55,348	253,098	6.48	6.48	15,563	15,563	39,785	237,535	0.91	5.45
45	1.78	3.45	12.07	28.50	58,028	265,496	6.48	6.48	17,508	17,508	40,520	247,988	0.93	5.69
50	1.65	3.22	12.07	28.50	59,767	275,329	6.48	6.48	19,453	19,453	40,314	255,876	0.93	5.87
55	1.54	3.00	12.07	28.50	61,361	282,170	6.48	6.48	21,399	21,399	39,962	260,771	**0.92**	**5.99**
60	1.42	2.71	12.07	28.50	61,723	278,066	6.48	6.48	23,344	23,344	38,379	254,722	0.88	5.85

(4) = (3) x (2) x (1) x 60

(5) = allowable detention pond release rate

(6) = (5) x (1) x 60

(7) = (4) - (6)

Filing No. 1 required volume w/ reduced release rate, Volume = 5.99 ac-ft

FULL BUILDOUT CONDITIONS

PROJECT: EQUINOX MOUNTIAN SKY
SUBJECT: PROPOSED POND VOLUME

DATE: 2/19/2016
BY: TAW

Volume Equation:

Vol = 1/3h(A1+A2+(A1*A2)^1/2

V = Volume in cubic feet (cu-ft)
h = Contour Interval in feet (ft.)
A1,A2 = Area enclosed by successive Contours in square feet (sq-ft)

Required Detention Volume:

Area = 55.27 acres
Imperviousness, I = 40%
WQCV = 0.180 watershed inches
WQ Design Volume = 0.99 ac-ft'
V(5yr Stm)= 2.41 ac-ft
V(100yr Stm)= 4.18 ac-ft with release rate at 100yr Historic Rate
V(100yr Stm)= 7.05 ac-ft with release rate at 5yr Historic Rate

WQCV = 1.0 (0.91I^3 - 1.19I^2 + 0.78I)
WQ Design Volume = (WQCV / 12 * Area * 1.2)

WQ Inv. In = 4937.52

Pond Height = 4.90 feet
Pond Height = 6.13 feet

Contour Elev. (ft.)	Area (sf)	Area (ac)	A1+A2 (ac)	(A1xA2)^1/2 (ac)	(A1+A2) + (A1+A2)^1/2 (ac)	h (ft)	h/3 (ft)	Volume (ac-ft)	Accumul. Volume (ac-ft)
4938	1437	0.03							0.00
			0.32	0.10	0.41	1.00	0.33	0.14	
4939	12395	0.28							0.14
			1.01	0.46	1.47	1.00	0.33	0.49	
4940	31816	0.73							0.63
			2.07	0.99	3.06	1.00	0.33	1.02	
4941	58520	1.34							1.65
			3.30	1.62	4.92	1.00	0.33	1.64	
4942	85057	1.95							3.29
			4.30	2.14	6.44	1.00	0.33	2.15	
4943	102229	2.35							5.44
			4.99	2.49	7.48	1.00	0.33	2.49	
4944	115081	2.64							7.93
			5.50	2.75	8.25	1.00	0.33	2.75	
4945	124433	2.86							10.68
			Water Quality Water Surface Elevation =				**4941.46**		
			Minor Storm Water Surface Elevation =				**4942.42**		
			Major Storm Water Surface Elevation =				**4943.65**		

FILING NO. 1 ONLY

PROJECT: EQUINOX MOUNTIAN SKY
SUBJECT: PROPOSED POND VOLUME

DATE: 2/19/2016
BY: TAW

Volume Equation:

Vol = 1/3h(A1+A2+(A1*A2)^1/2

V = Volume in cubic feet (cu-ft)
h = Contour Interval in feet (ft.)
A1,A2 = Area enclosed by successive Contours in square feet (sq-ft)

Required Detention Volume:

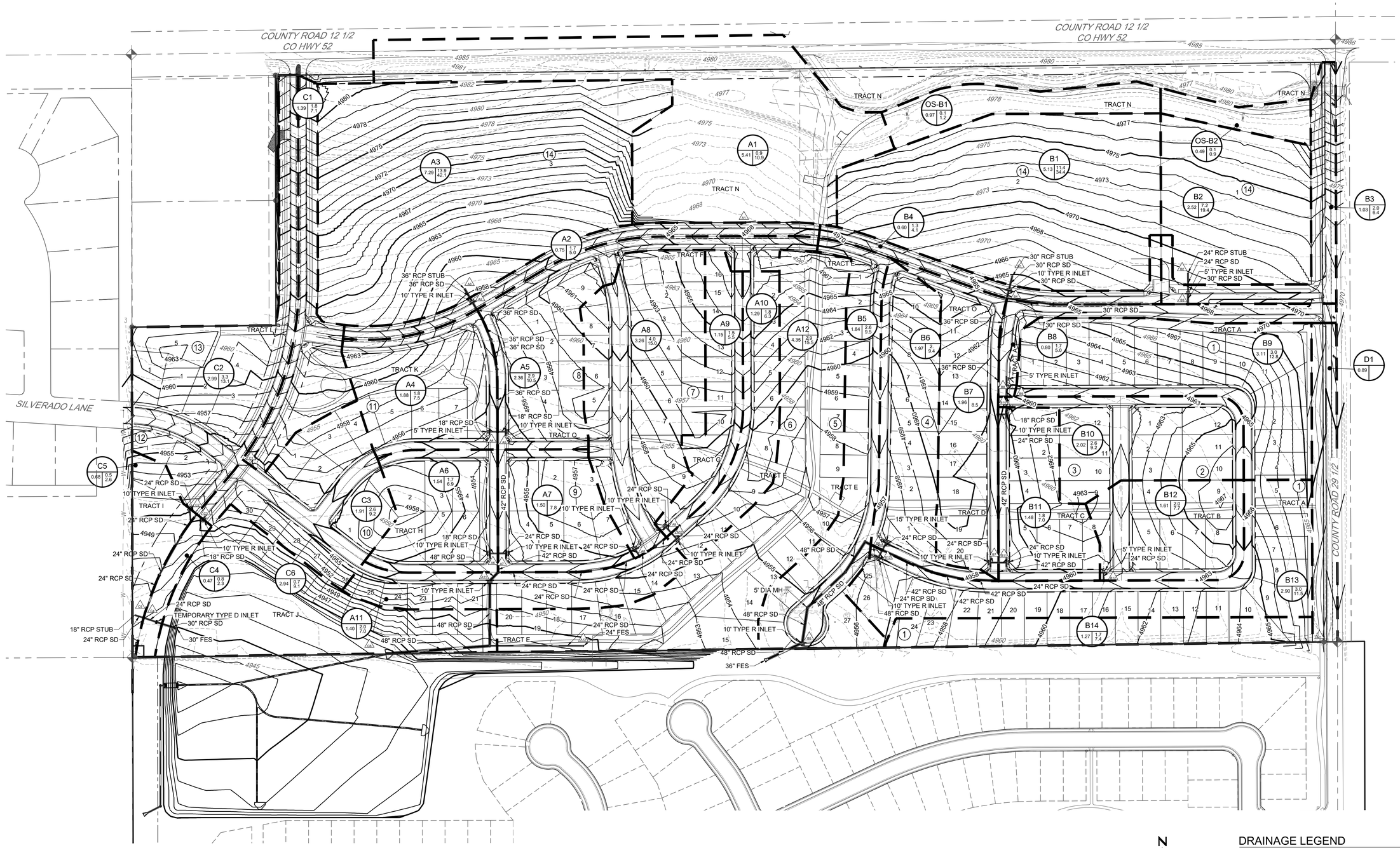
Area = 55.25 acres
Imperviousness, I = 11%
WQCV = 0.072 watershed inches
WQ Design Volume = 0.40 ac-ft'
V(5yr Stm)= 0.92 ac-ft
V(100yr Stm)= 2.94 ac-ft with release rate at 100yr Historic Rate
V(100yr Stm)= 5.99 ac-ft with release rate at 5yr Historic Rate

WQCV = 1.0 (0.91I^3 - 1.19I^2 + 0.78I)
WQ Design Volume = (WQCV / 12 * Area * 1.2)

Inv. In = 4937.52
Pond Height = 4.47 feet
Pond Height = 5.70 feet

Contour Elev. (ft.)	Area (sf)	Area (ac)	A1+A2 (ac)	(A1xA2)^1/2 (ac)	(A1+A2) + (A1+A2)^1/2 (ac)	h (ft)	h/3 (ft)	Volume (ac-ft)	Accumul. Volume (ac-ft)
4938	1437	0.03							0.00
			0.32	0.10	0.41	1.00	0.33	0.14	
4939	12395	0.28							0.14
			1.01	0.46	1.47	1.00	0.33	0.49	
4940	31816	0.73							0.63
			2.07	0.99	3.06	1.00	0.33	1.02	
4941	58520	1.34							1.65
			3.30	1.62	4.92	1.00	0.33	1.64	
4942	85057	1.95							3.29
			4.30	2.14	6.44	1.00	0.33	2.15	
4943	102229	2.35							5.44
			4.99	2.49	7.48	1.00	0.33	2.49	
4944	115081	2.64							7.93
			5.50	2.75	8.25	1.00	0.33	2.75	
4945	124433	2.86							10.68
			Water Quality Water Surface Elevation =				**4940.55**		
			Minor Storm Water Surface Elevation =				**4941.84**		
			Major Storm Water Surface Elevation =				**4943.22**		

Appendix E - Drainage Maps



Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
A1	5.41	0.08	0.49	13%	0.9	10.9
A2	0.75	0.61	0.78	76%	1.7	5.0
A3	7.29	0.60	0.78	75%	13.9	42.1
A4	1.83	0.35	0.65	48%	1.8	7.5
A5	2.36	0.44	0.69	57%	2.9	10.5
A6	1.54	0.37	0.66	50%	1.7	6.9
A7	1.50	0.45	0.70	59%	2.2	7.8
A8	3.26	0.41	0.68	54%	4.0	15.0
A9	1.15	0.41	0.68	54%	1.5	5.5
A10	1.29	0.45	0.70	58%	1.8	6.3
A11	1.40	0.45	0.70	58%	2.0	7.0
A12	4.35	0.24	0.59	34%	2.9	15.5

Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
B1	5.13	0.60	0.78	75%	11.4	34.4
B2	2.52	0.74	0.85	90%	7.2	19.4
B3	1.03	0.52	0.74	67%	2.0	6.4
B4	0.60	0.58	0.77	72%	1.3	4.1
B5	2.18	0.43	0.69	56%	2.6	9.5
B6	1.97	0.41	0.68	54%	2.5	9.4
B7	1.96	0.39	0.67	52%	2.2	8.5
B8	0.80	0.62	0.79	77%	1.7	5.0
B9	3.11	0.35	0.65	47%	3.0	12.8
B10	1.89	0.46	0.71	60%	2.6	9.2
B11	1.48	0.40	0.68	53%	1.8	7.0
B12	1.61	0.41	0.68	54%	2.0	7.7
B13	2.90	0.39	0.67	52%	3.0	11.5
B14	1.27	0.33	0.64	45%	1.7	7.4

Basin Summary Table						
		Runoff Coefficients			Peak Flows (cfs)	
Basin	Area (AC)	C5	C100	I (%)	Q5	Q100
C1	1.37	0.38	0.66	51%	1.8	7.1
C2	2.92	0.38	0.66	50%	3.3	13.1
C3	2.07	0.45	0.70	59%	2.6	9.2
C4	0.32	0.62	0.79	77%	0.8	2.3
C5	0.69	0.25	0.59	36%	0.5	2.6
C6	2.92	0.08	0.49	14%	0.7	9.1
D1	0.89	0.47	0.71	61%	1.1	4.5
OS-B1	0.97	0.09	0.50	15%	0.1	1.2
OS-B2	0.49	0.10	0.50	16%	0.1	0.9

N

0 50 100 200

SCALE: 1" = 100'

DRAINAGE LEGEND

- 5281 — EXISTING MINOR CONTOUR
- 5280 — EXISTING MAJOR CONTOUR
- 5281 — PROPOSED MINOR CONTOUR
- 5280 — PROPOSED MAJOR CONTOUR
- PROPOSED STORM SEWER LINE
- PROPOSED BASIN BOUNDARY
- A1 — BASIN ID
- 0.000 | 0.00 | 0.00 — 5 YEAR RUNOFF / 100 YEAR RUNOFF / BASIN AREA (ACRES)
- 00 — PROPOSED DESIGN POINT
- FLOW ARROW

Redland
WHERE GREAT PLACES BEGIN
720.283.6783 Office
5160 Wadsworth Frontage Road
Littleton, Colorado 80120
REDLAND.COM

DRAWN WPC
CHECKED TF
APPROVED TF
PROJECT NO. 19032
HORZ. SCALE 1" = 100'
VERT. SCALE

NOTES

NO.	DATE

MURATA FARMS

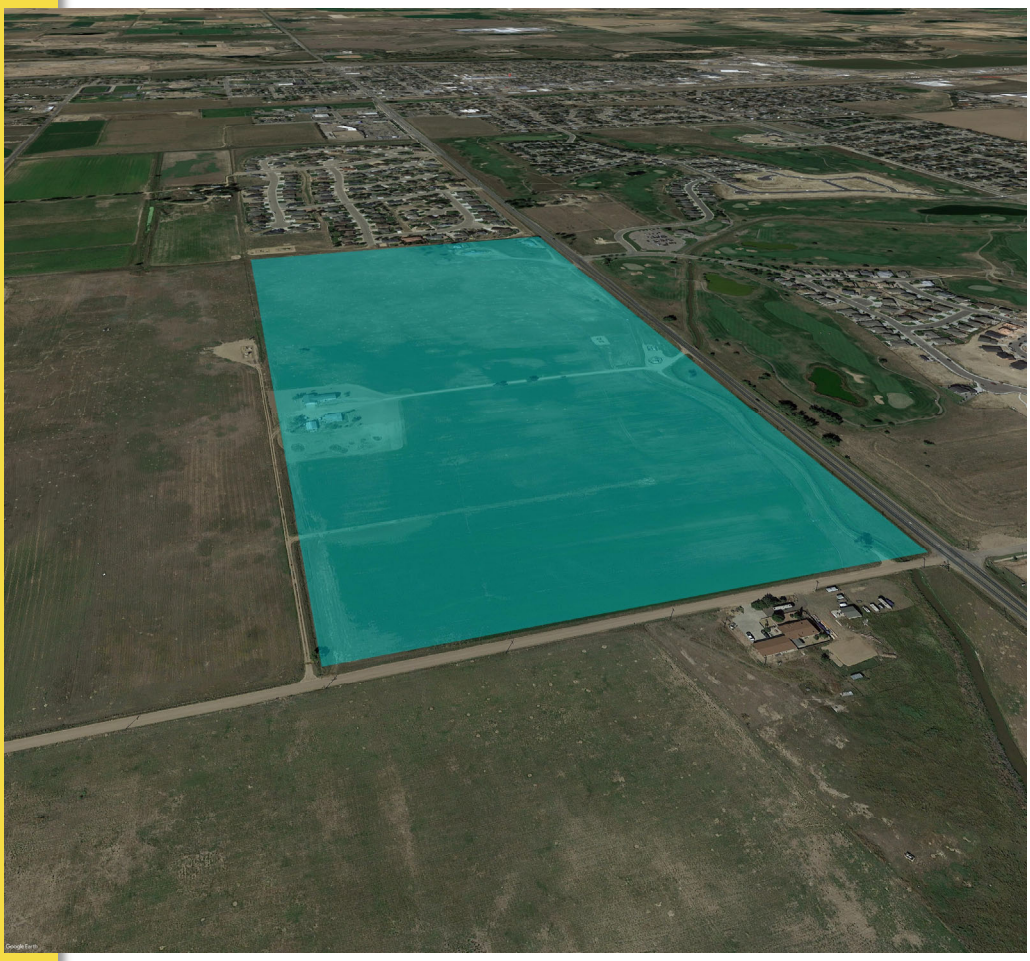
DRAIANGE PLAN

SHEET

DNG

MURATA FARMS

Traffic Impact Study



Date: February 18, 2021

Submitted To:
Redland
1500 West Canal Court
Littleton, CO 80120

Submitted By:
Fox Tuttle Transportation Group, LLC
1624 Market Street, Suite 202
Denver, CO 80202

FOX TUTTLE

TABLE OF CONTENTS

1.0 INTRODUCTION 4

2.0 PROJECT DESCRIPTION 4

3.0 EXISTING TRAFFIC CONDTIONS 7

3.1 Study Area and Circulation Network 7
3.2 Existing Traffic Volumes 7
3.3 Existing Intersection Capacity Analysis 7

4.0 FUTURE TRAFFIC CONDITIONS WITHOUT PROJECT 10

4.1 Annual Growth Factor and Future Volume Methodology 10
4.2 Future Year Background (without Project) Capacity Analysis 10

5.0 PROPOSED DEVELOPMENT TRAFFIC 13

5.1 Trip Generation 13
5.2 Trip Distribution and Assignment 13

6.0 FUTURE TRAFFIC CONDITIONS WITH PROJECT 17

6.1 Intersection Capacity Analysis for Year 2025 + Project Scenario 17
6.2 Intersection Capacity Analysis for Year 2040 + Project Scenario 17
6.3 Site Access and Circulation 21

7.0 CONCLUSIONS 24

LIST OF TABLES

Table 1 – Intersection LOS Summary (Existing and Future-Year Background)....8
Table 2 – Trip Generation Estimate....14
Table 3 – TripType Breakdown....15
Table 4 – Intersection LOS Summary (w/Project)....19

LIST OF FIGURES

Figure 1 – Vicinity Map....5
Figure 2 – Site and Access Plan....6
Figure 3 – Existing Traffic Volumes....9
Figure 4 – Year 2025 Background Traffic Volumes....11
Figure 5 – Year 2040 Background Traffic Volumes....12
Figure 6 – Site-Generated Traffic Volumes....15
Figure 7 – Year 2025 Total Traffic Volumes....18
Figure 8 – Year 2040 Total Traffic Volumes....20
Figure 9 – Peak Hour Signal Warrant....23

APPENDIX

Level of Service Definitions
Intersection Capacity Worksheets
Traffic Count Data Sheets

MURATA FARMS
TRAFFIC IMPACT STUDY

1.0 INTRODUCTION

This traffic impact study has been prepared by the Fox Tuttle Transportation Group for the Murata Farms mixed-use project. The project proposes to develop 181 single-family residential lots, ±119 paired and attached homes, and ±2.4-acres of commercial use on primarily vacant land located at the southwest corner of the State Highway (SH) 52 and Weld County Road (WCR) 29.5 intersection in the City of Fort Lupton.

The purpose of this study is to assist in identifying potential traffic impacts within the study area with buildout of this project in the short and long-term scenarios. The traffic study addresses morning and evening peak hour intersection conditions in the study area without and with the project-added traffic. The information contained in this study is anticipated to be used by the City and Colorado Department of Transportation (CDOT) in identifying any intersection or roadway deficiencies and potential improvements for both the near term and long-term future scenarios necessary to service project-added traffic volumes.

2.0 PROJECT DESCRIPTION

The Murata Farms project proposes to develop single-family detached, single-family paired homes, attached dwelling units, and retail uses, as described below:

- Initial Development = 181 single-family, detached residential homes
- Short-Term = single-family, paired homes on a ±7.3-acre parcel (approx. 58 homes)
- Short-Term = single-family, attached homes on a ±5.1-acre parcel (approx. 61 homes)
- Short-Term = development of ±2.4-acre to include neighborhood retail/commercial use

A vicinity map is shown on **Figure 1**. Existing adjacent land uses include single-family residential, institutional, agricultural, and recreational uses.

The site plan illustrating proposed access locations are provided on **Figure 2**. The access plan includes a ¾-access along SH 52 towards the west end of the project (aligning with Coyote Creek Drive to the north), a new full-movement access located along WCR 29.5 south of SH 52, and local/collector roadway interconnectivity to Silverado Lane to the west and the Mountain Sky residential development to the south.

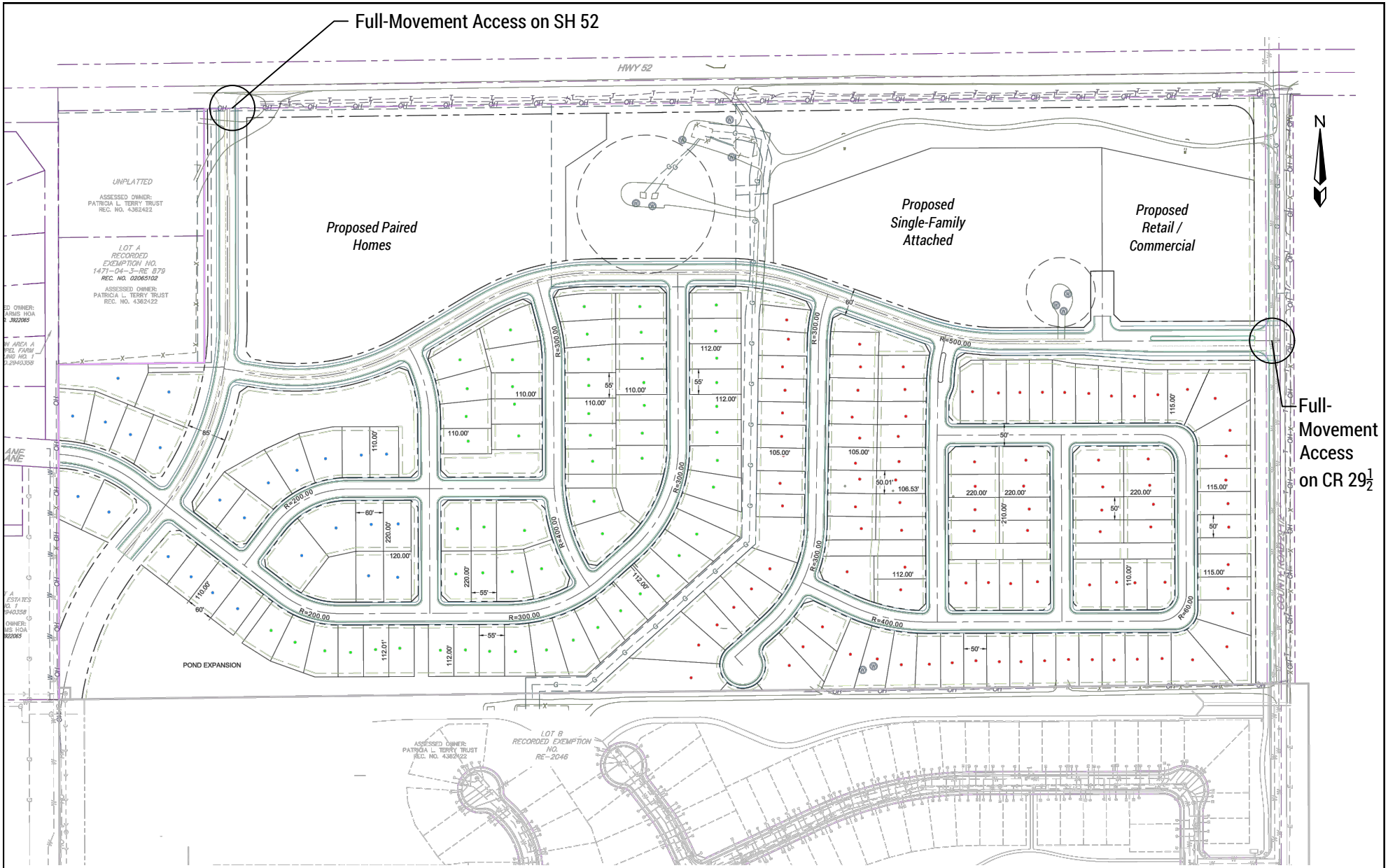


FOX TUTTLE
TRANSPORTATION GROUP

MURATA FARMS TRAFFIC IMPACT STUDY

VICINITY MAP

FT Project #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	1



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MURATA FARMS TRAFFIC IMPACT STUDY

SITE AND ACCESS PLAN

FT Project #	20065	Original Scale	1"=300'	Date	2/18/21	Drawn by	SGT	Figure #	2

3.0 EXISTING TRAFFIC CONDTIONS

3.1 Study Area and Circulation Network

The study area boundaries took into consideration the amount of traffic to be generated by the project and potential impact to the existing and proposed roadway network.

The existing study area street network consists of arterial, collector and local streets. The primary public roadways that serve the project site are discussed in the following text. Roadway classifications discussed are consistent with the Fort Lupton Transportation Plan[1]. The existing study area roadway network is illustrated on **Figure 1**.

State Highway (SH) 52 is a two-lane (future four lane) regional arterial roadway that provides east-west access through Fort Lupton and connects between Weld County to the east and Boulder County to the west. This roadway is categorized by CDOT as a Non-Rural Arterial (NR-B) roadway within the project vicinity. The posted speed limit is 55 miles per hour (mph).

Weld County Road 29.5 is a two-lane collector roadway that provides north-south access between WCR 14 to the north and WCR 12 to the south (a distance of one mile).

3.2 Existing Traffic Volumes

Weekday AM and PM peak period turning-movement were collected at the SH 52 & WCR 29.5 intersection in August 2020. Due to the impacts of the COVID-19 pandemic during this period, these raw counts were factored up to represent normal conditions based on a comparison of pre-COVID (2019) daily roadway volumes and COVID-impacted volumes (2020) contained in the CDOT Traffic Data Management System (TDMS) database. Per the CDOT data, the 2019 (pre-COVID) counts were 15% higher than 2020 data just to the west of this site. In addition, traffic projections specific to the Aims Community College located at the northwest corner of the intersection were added, using ITE trip generation for a community college and existing volume distribution, to represent conditions as if the college were in normal class session and operation.

The existing traffic volumes, including both the raw intersection count data and COVID-adjusted volumes, are illustrated on **Figure 3**. The existing intersection geometry is also shown on the traffic volume figure. Count data sheets are provided in the Appendix.

3.3 Existing Intersection Capacity Analysis

In determining the operational characteristics of an intersection, “Levels of Service” (LOS) A through F are applied, with LOS A indicating very good operations and LOS F indicating congested operations. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement. A more detailed discussion of

[1] Fort Lupton Transportation Plan. JR Engineering, Houseal Lavigne Assoc., June 2018.

LOS methodology is contained in the Appendix for reference. Criteria contained in the Highway Capacity Manual (HCM)[2] was applied for these analyses in order to determine existing levels of service and 95th-percentile queues during peak hour periods.

The results of the LOS and queue calculations for the intersections are summarized in **Table 1** for existing conditions (and future background conditions, as discussed in subsequent sections). The intersection level of service and queue worksheets are attached in the Appendix. The data in the tables shows that all study intersections are operating acceptably overall and for individual movements (LOS D or better) in both peak hours.

Table 1 - Intersection LOS Summary (Existing and Future-Year Background)

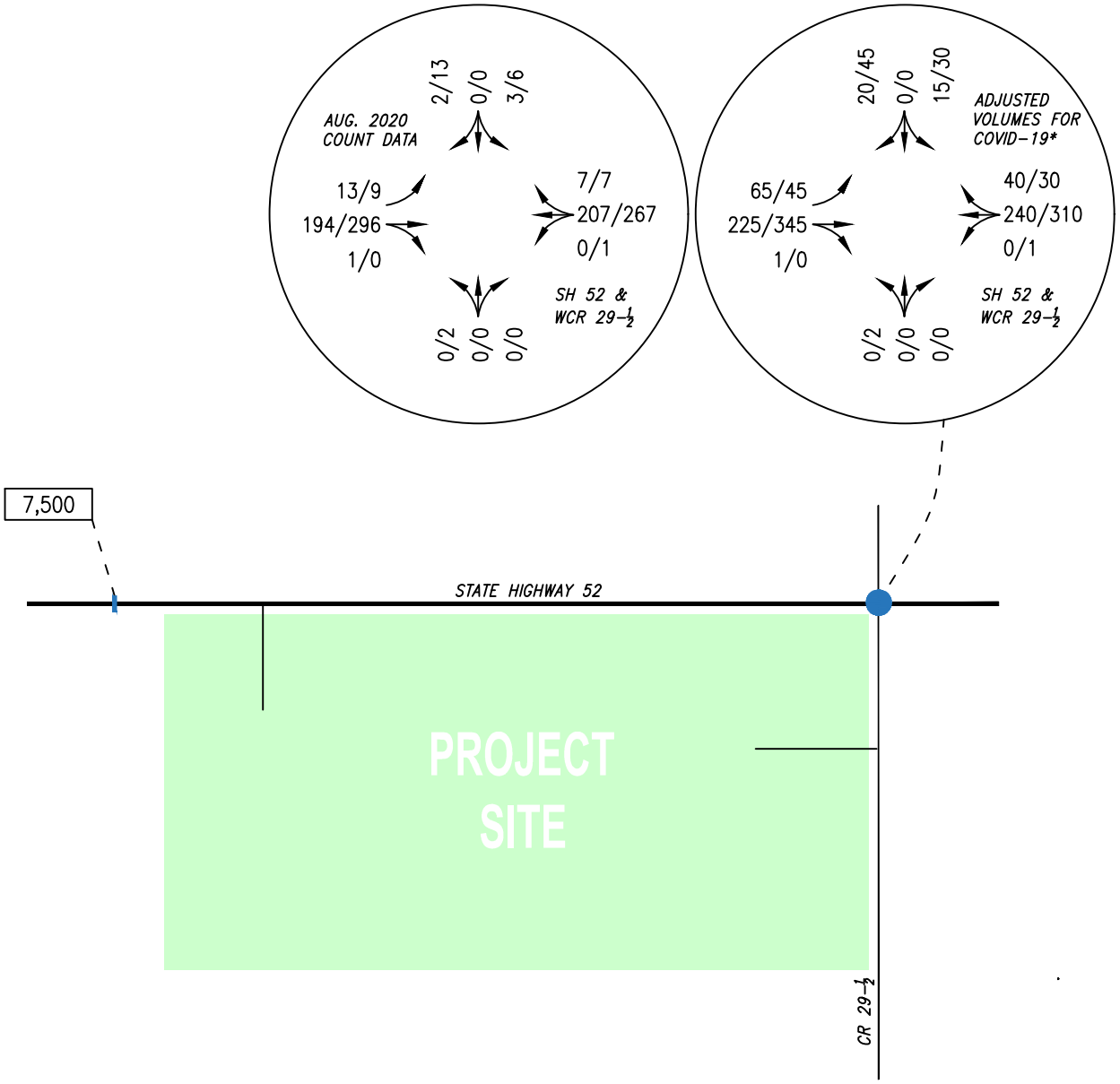
Int.	Lane	Existing (Adjusted*)				Year 2025 Background				Year 2040 Background			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
SH 52 & WCR 29.5 *(Stop Controlled)*	EB LT	8	A	8	A	8	A	8	A	9	A	9	A
	WB LT+TH+RT	0	A	0	A								
	WB LT					8	A	9	A	8	A	10	A
	NB LT+TH+RT	0	A	0	A	37	E	72	F				
	NB LT									74	F	152	F
	NB TH+RT									13	B	18	C
	SB LT+TH+RT	13	B	17	C	11	B	28	D	23	C	50	F
SH 52 & WCR 29.5 *(Signal Controlled)*	*Overall (Signal)*	*See Stop Controlled Analysis*				*See Stop Controlled Analysis*				**20**	**B**	**20**	**B**
	EB LT									11	B	11	B
	EB TH									17	B	18	B
	EB RT									15	B	16	B
	WB LT									14	B	12	B
	WB TH									23	C	20	B
	WB RT									20	B	17	B
	NB LT									23	C	28	C
	NB TH+RT									21	C	25	C
	SB LT+TH+RT									22	C	29	C

* August 2020 counts factored up for COVID-19 travel impacts using CDOT data and Aims CC trip data.

Note: Delay represented in average seconds per vehicle. Delays calculated using Synchro v10 and HCM6 methodology.

[2] Highway Capacity Manual, Sixth Edition, Transportation Research Board, National Research Council, 2016. Synchro v10 software utilized.

* INCREASES MADE PER CDOT PRE- VS. POST-COVID-19 TRAFFIC PATTERN DISRUPTION FACTORS AND AIMS CC TRIP GEN DATA FOR NORMAL CLASS CONDITIONS



KEY

XXX/XXX	AM/PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	AVERAGE DAILY TRAFFIC VOLUME

FOX TUTTLE TRANSPORTATION GROUP

MURATA FARMS TRAFFIC IMPACT STUDY

EXISTING TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	3

4.0 FUTURE TRAFFIC CONDITIONS WITHOUT PROJECT

4.1 Annual Growth Factor and Future Volume Methodology

Potential for background (non-project) traffic growth in the project vicinity was considered based on CDOT traffic projections, the City Transportation Plan projections, and planned development within the project vicinity. Based on the CDOT 20-year growth data, a 2.66% annual background growth rate was applied to existing volumes within the study area to project to future years. In addition, traffic projections specific to the following developments were added at the SH 52 & WCR 29.5 intersection, per the noted documents:

- Mountain Sky – 200 single-family residential units, located directly south of the project[3]
- Villagio Classical – 81 single-family residential units + gas-station/convenience store, located to the south and east of the project (east side of WCR 29.5)[4]

The Murata Farms project is anticipated to be fully built and occupied within the next 5 years. Thus, the Year 2025 planning horizon was assumed for the build-out or "opening day" scenario, with Year 2040 as the long-term planning scenario. It was assumed that both of the adjacent developments discussed above would be also built out and occupied within this timeframe. Using the above growth rates and adjacent development projections, the projected Year 2025 background traffic volumes are provided on **Figure 4** with the projected Year 2040 background traffic volumes on **Figure 5**.

4.2 Future Year Background (without Project) Capacity Analysis

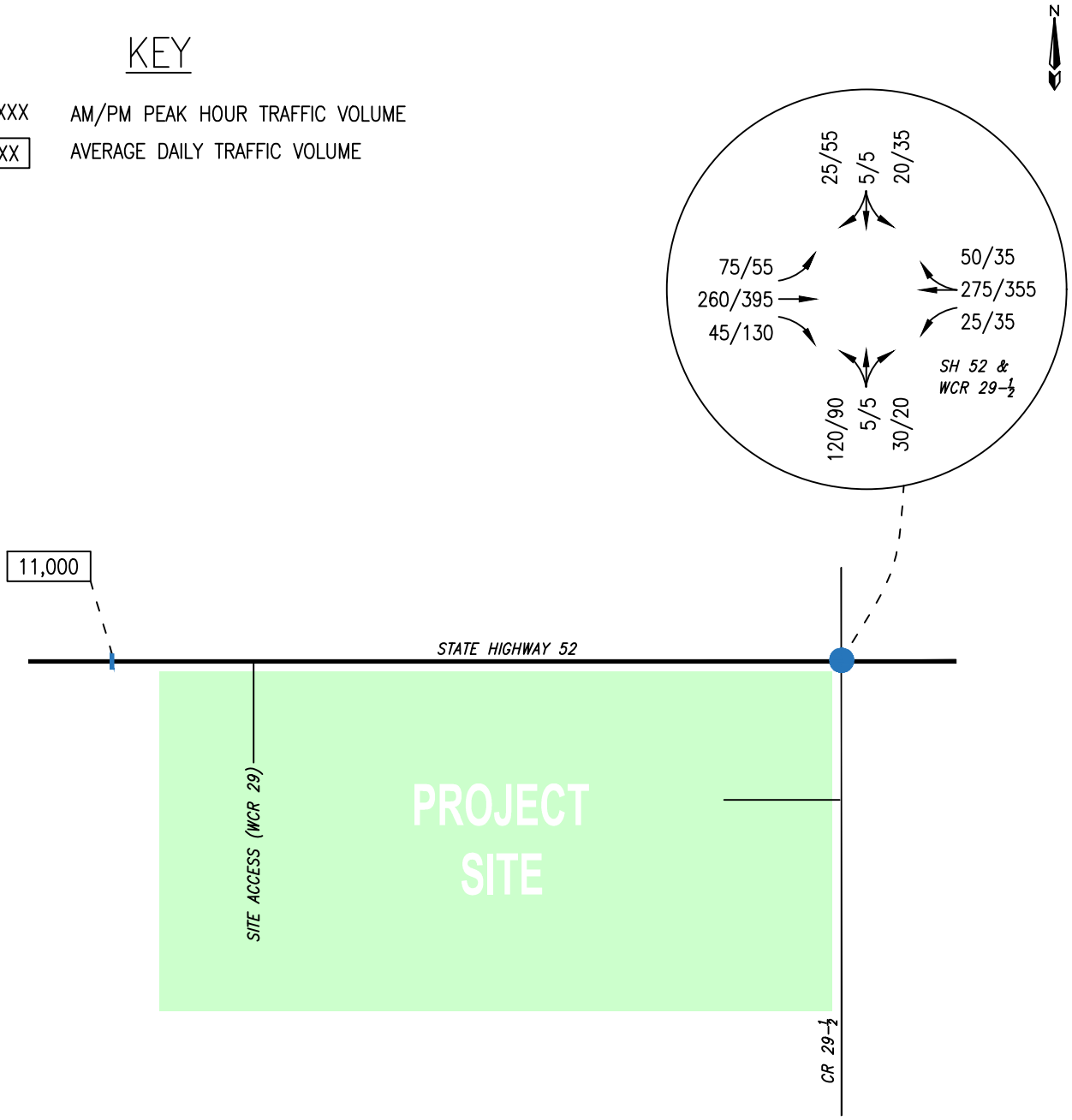
The level of service criteria discussed Section 3.3 was applied to the study area intersections to determine baseline operations for the Year 2025 and Year 2040 background traffic scenarios. The results of the LOS calculations are summarized on **Table 1** on the previous page. The intersection level of service and queue worksheets are attached in the Appendix.

Consistent with the recommendations of the Mountain Sky Traffic Impact Study, it was assumed that an eastbound right-turn deceleration and westbound left-turn deceleration would be built a the SH 52 & WCR 29.5 intersection to support that development and would be in place for the Year 2025 background scenario.

The data on **Table 1** shows that the SH 52 & WCR 29.5 intersection is projected to operate acceptably for individual movements (LOS D or better) in both peak hours, with the exception of the northbound approach on WCR 29.5 (LOS E in AM and LOS F in PM). A peak hour signal warrant analysis (discussed later in this report) shows that the intersection would likely meet signal warrant volume thresholds in the PM peak hour and signalization would be needed to mitigate these delays in the short-term, background planning horizon.

[3] Mountain Sky Traffic Impact Study, Aldridge Transportation Consultants, March 2016

[4] Trip Generation Estimate for the Villagio Classical Development in Fort Lupton, Sustainable Traffic Solutions, July 2019.



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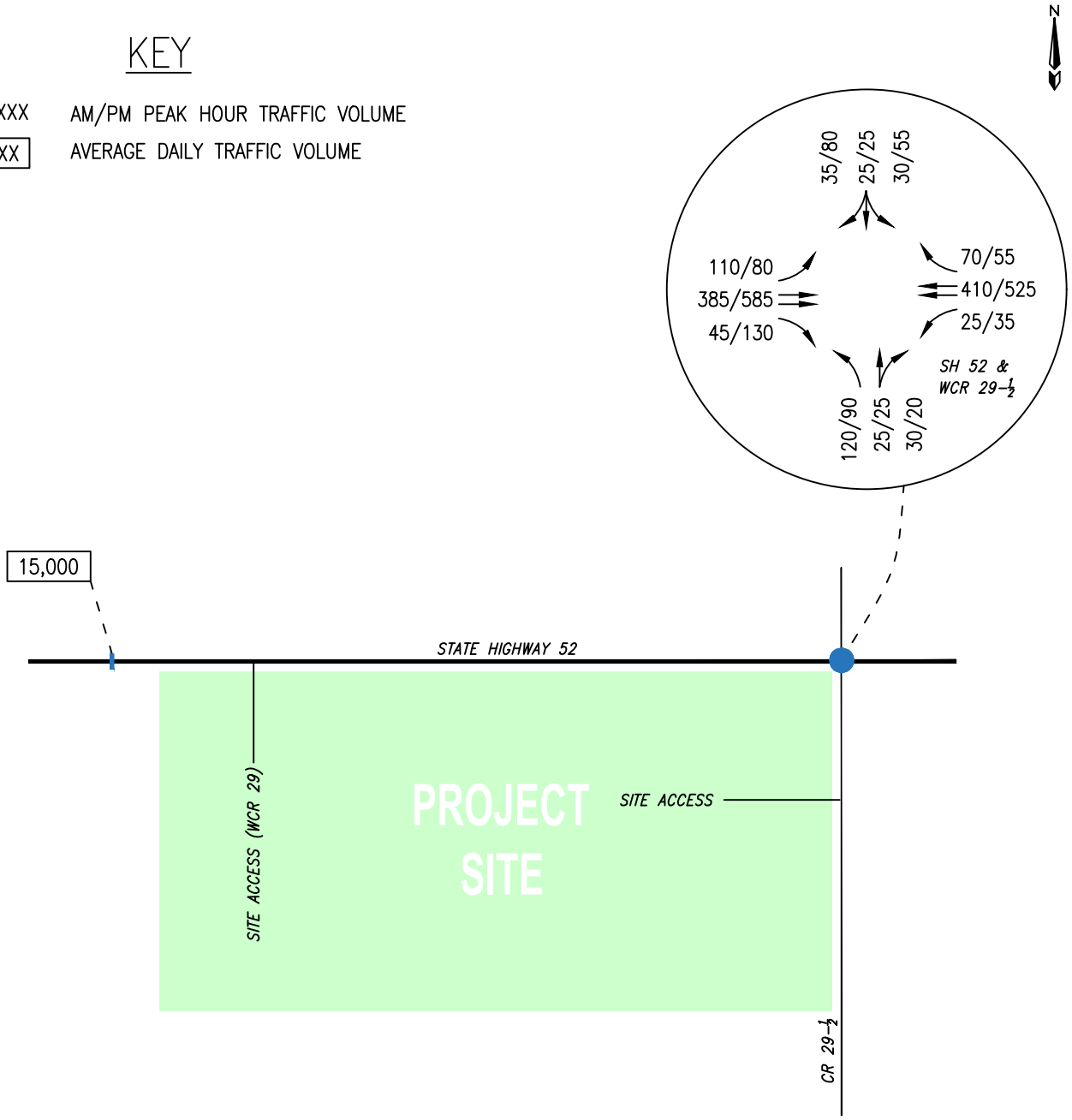
MURATA FARMS TRAFFIC IMPACT STUDY

YEAR 2025 BACKGROUND TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	4



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MURATA FARMS TRAFFIC IMPACT STUDY

YEAR 2040 BACKGROUND TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	5

5.0 PROPOSED DEVELOPMENT TRAFFIC

5.1 Trip Generation

In order to estimate the anticipated volume of trips generated by the site at build-out, trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation manual[5] for the appropriate land use categories were applied. For the retail development, a gas station, fast casual restaurant, and general retail use were assumed. The resulting existing trip estimates for each parcel are summarized on **Table 2** on the following page.

As shown, the initial 181-unit development is anticipated to generate approximately 1,709 daily, 134 AM peak hour, and 179 PM peak hour trips. The future paired/attached homes and retail development would add an additional 4,454 daily, 223 AM peak hour, and 325 PM peak hour trips at full buildout.

A portion of the retail trips will be "pass-by" trips, which are trips that are already occurring on the adjacent roadway (going to and from places not part of this site) but are diverted into the site. An example of a pass-by trip for this site would be someone who stops at the gas station on site while driving SH 52 to or from work. Pass-by rates were assumed based on ITE averages. These trips are thus not "new" trips to the external roadway system but do count as new trips to the site driveways and internal roadways. The breakdown of primary vs. pass-by trips is provided on **Table 3**.

5.2 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the study area street network based on existing traffic characteristics and land uses in the area. The overall assumed distribution percentages are listed below:

- 65% to/from the west on SH 52
- 15% to/from the east on SH 52
- 10% to/from the north on WCR 29.5
- 10% to/from the south on WCR 29.5

At the intersection level, the retail trips (primary and pass-by) are anticipated to have primary access from the SH 52 intersection at WCR 29.5 and the residential trips would also be oriented to/from the ¾-movement access along SH 52.

[5] Trip Generation 10th Edition, Institute of Transportation Engineers, 2016.

Table 2 – Trip Generation Estimate

Land Use	Size	Unit	Average Weekday Trips		Weekday AM Peak Hour Trips				Weekday PM Peak Hour Trips			
			Rate	Total	Rate	Total	In	Out	Rate	Total	In	Out
#210 Single Family Detached Homes	181	D.U.	9.44	1709	0.74	134	34	100	0.99	179	113	66
#210 Single Family Detached Homes - Paired Homes	58	D.U.	9.44	548	0.74	43	11	32	0.99	57	36	21
#210 Single Family Detached Homes - Attached	61	D.U.	9.44	576	0.74	45	11	34	0.99	60	38	22
#820 Shopping Center	3.5	1,000 SF	37.75	119	0.94	3	2	1	3.81	12	6	6
#930 Fast Casual Restaurant	3.5	1,000 SF	315.17	993	2.07	7	5	2	14.13	45	25	20
#945 Gasoline/Service Station with Convenience	12.0	vfp [1]	205.36	2218	12.47	135	69	66	13.99	151	77	74
Total				6163		367	132	235		504	295	209

Source: ITE Trip Generation Handbook, 10th Edition (2017).

[1] Vehicle fueling positions (vfp)

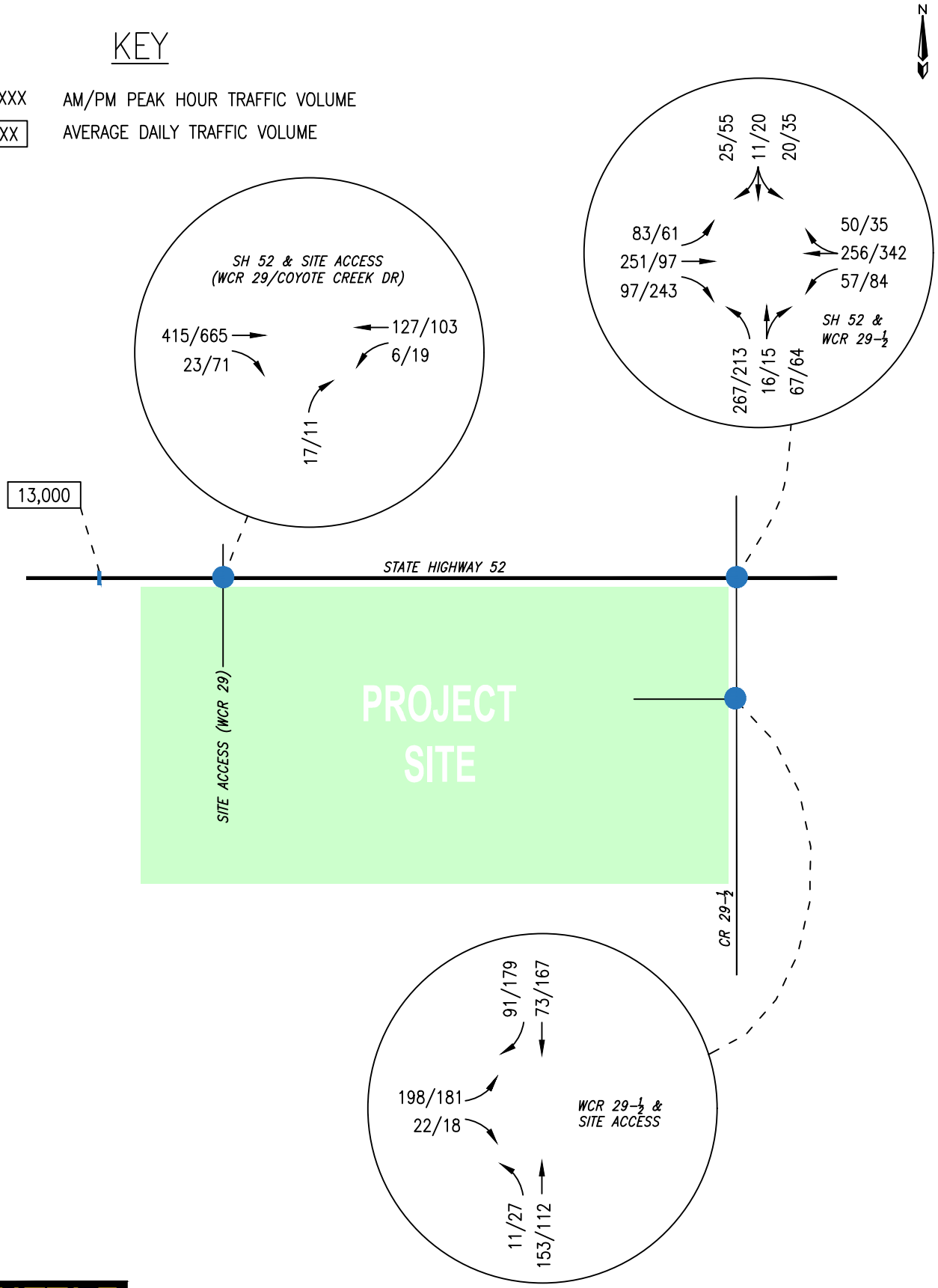
Table 3 – Trip Type Breakdown

Land Use	Trip Type %[1]				PRIMARY Trips						PASS-BY Trips					
	AM Primary	AM Pass-By	PM Primary	PM Pass-By	Daily In	Daily Out	AM In	AM Out	PM In	PM Out	Daily In	Daily Out	AM In	AM Out	PM In	PM Out
#210 Single Family Detached Homes	100%	0%	100%	0%	855	855	34	100	113	66	0	0	0	0	0	0
#210 Single Family Detached Homes - Paired Homes	100%	0%	100%	0%	274	274	11	32	36	21	0	0	0	0	0	0
#210 Single Family Detached Homes - Attached	100%	0%	100%	0%	288	288	11	34	38	22	0	0	0	0	0	0
#820 Shopping Center	100%	0%	66%	34%	49	49	2	1	4	4	10	10	0	0	2	2
#930 Fast Casual Restaurant	100%	0%	57%	43%	390	390	5	2	14	11	107	107	0	0	11	9
#945 Gasoline/Service Station with Convenience	38%	62%	44%	56%	455	455	26	25	34	33	654	654	43	41	43	41
TOTAL					2310	2310	89	194	239	157	771	771	43	41	56	52

Source: ITE Trip Generation Handbook, 10th Edition (2017).

[1] Supported by ITE average data for each land use or comparable land use.

[2] Pass-by percentages not available for #932 Fast Casual Restaurant; #932 High Turnover Restaurant utlized.



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MURATA FARMS TRAFFIC IMPACT STUDY

YEAR 2025 TOTAL TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	6

6.0 FUTURE TRAFFIC CONDITIONS WITH PROJECT

This analysis has been conducted in order to determine impacts associated with full development and occupancy of the project in the short-term (build-out) and long-term scenarios.

6.1 Intersection Capacity Analysis for Year 2025 + Project Scenario

The site-generated traffic volumes were added to the Year 2025 background traffic volumes to analyze potential site impacts in the short-term, build-out scenario. The Year 2025 total traffic volumes are illustrated on **Figure 7**. The LOS criteria discussed in prior sections was applied to the study area intersections to determine impacts with the addition of project build-out traffic volumes in the short-term. The results of the LOS calculations for the intersections are summarized for each scenario in **Table 4**. The intersection LOS worksheets are attached in the Appendix.

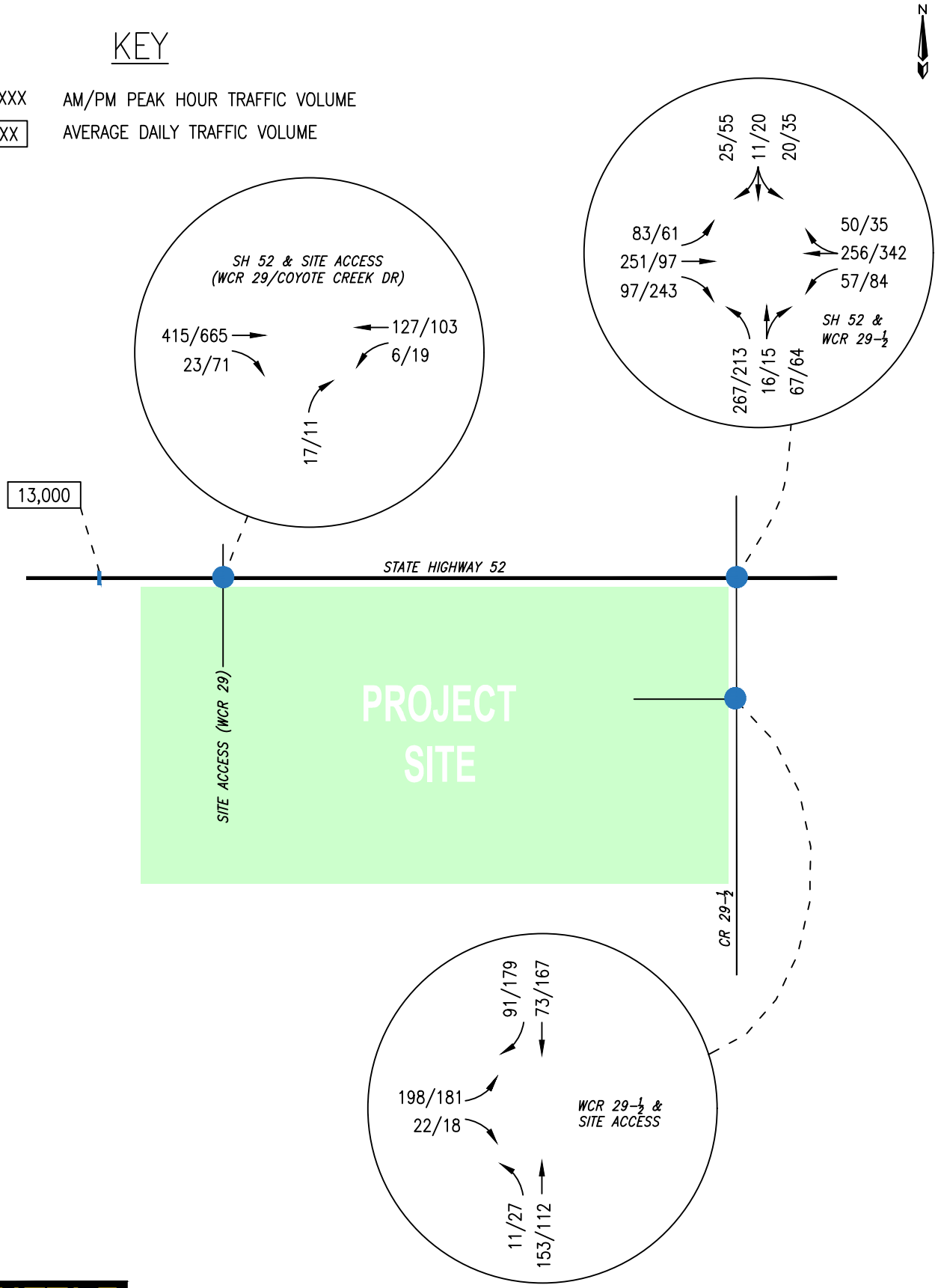
Per the discussion in Section 4.2 a traffic signal is warranted and necessary to mitigate delays associated with buildout of the adjacent Mountain Sky and Villagio Classical developments and thus a traffic signal is assumed to be installed with initial development of Murata Farms for this scenario. In addition, eastbound right-turn and westbound left-turn lanes on SH 52 are assumed to be in place, as warranted by the Mountain Sky development and would be warranted by the Murata Farms project on it's own, with the installation of these lanes by whichever development is developed first. Based on the projected volumes and operations, a separate northbound left-turn lane on WCR 29.5 approaching SH 52 was also assumed.

The data contained in **Table 4** illustrates that the study area intersections and proposed accesses will operate acceptably with the addition of project traffic at build-out in the short-term, build out scenario, with the improvements discussed above in place. With these improvements in place, **no additional mitigation measures were identified as necessary to support project added traffic in the short-term planning horizon.**

6.2 Intersection Capacity Analysis for Year 2040 + Project Scenario

The site-generated traffic volumes were added to the Year 2040 background traffic volumes to analyze potential site impacts in the long-term, build-out scenario. The Year 2040 total traffic volumes are illustrated on **Figure 8**. The LOS criteria discussed in prior sections was applied to the study area intersections to determine impacts with the addition of project build-out traffic volumes in the long-term. The results of the LOS calculations for the intersections are summarized for each scenario in **Table 4**. The intersection LOS worksheets are attached.

The data contained in **Table 4** illustrates that the study area intersections and proposed accesses will operate acceptably with the addition of project traffic at build-out in the long-term. Other than the improvements detailed in Section 6.1, **no additional mitigation measures were identified as necessary to support project added traffic in the long-term planning horizon.**



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MURATA FARMS TRAFFIC IMPACT STUDY

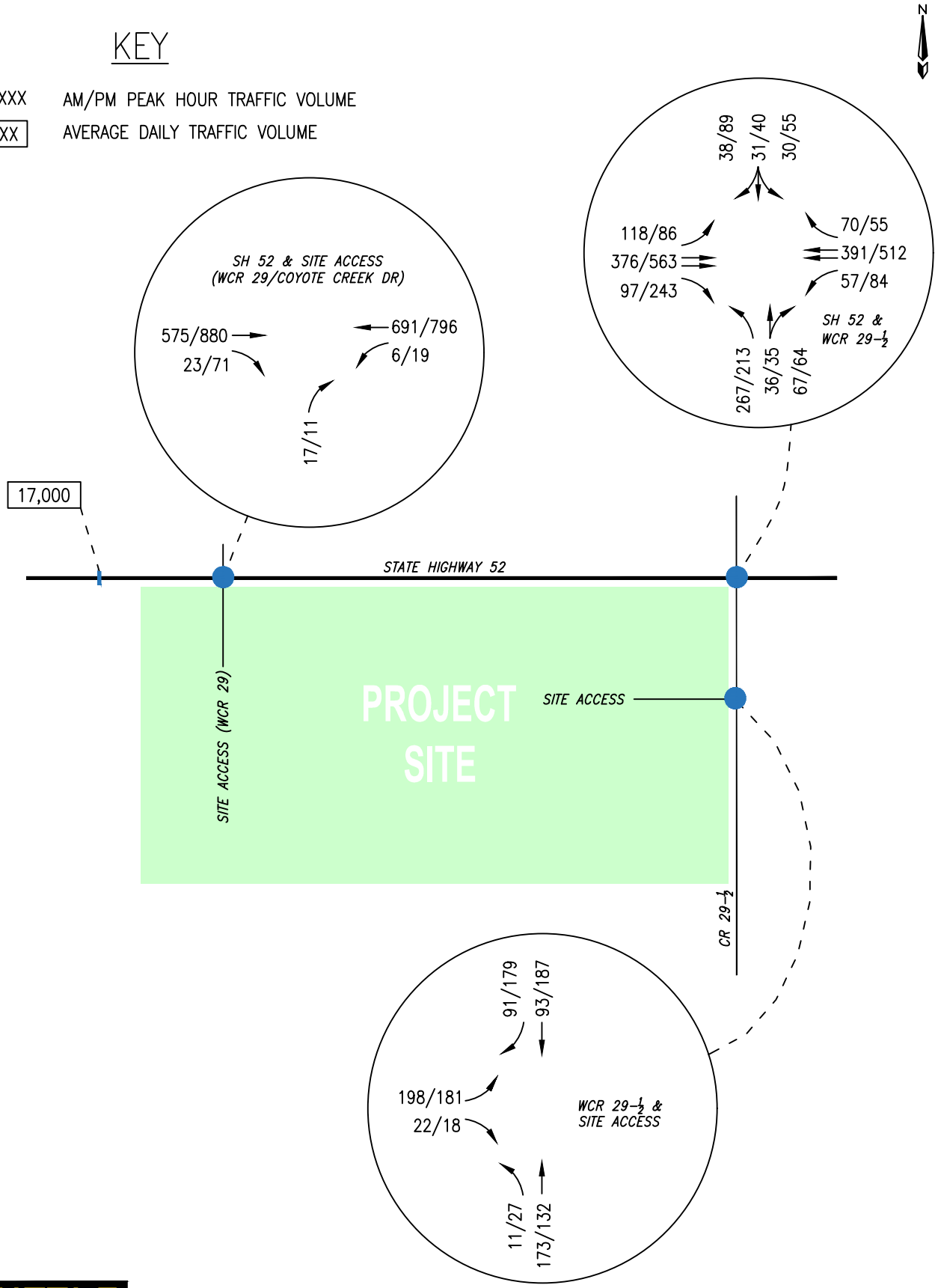
YEAR 2025 TOTAL TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	7

Table 4 - Intersection LOS Summary (w/Project Build Out)

Int.	Lane	Year 2025 w/Project Build Out				Year 2040 w/Project Build Out			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
SH 52 & WCR 29.5 *(Signal Controlled)*	*Overall (Signal)*	**21**	**C**	**21**	**C**	**21**	**C**	**21**	**C**
	EB LT	14	B	13	B	14	B	13	B
	EB TH	18	B	19	B	18	B	18	B
	EB RT	16	B	18	B	17	B	19	B
	WB LT	14	B	13	B	14	B	13	B
	WB TH+RT	21	C	19	B				
	WB TH					19	B	17	B
	WB RT					18	B	14	B
	NB LT	27	C	30	C	39	D	31	C
	NB TH+RT	20	B	22	C	21	C	22	C
	SB LT+TH+RT	31	C	34	C	33	C	39	D
SH 52 & Site Access	NB LT	11	B	14	B	10	A	12	B
	WB LT	8	A	10	A	9	A	11	B
WCR 29.5 & Site Access	EB LT	13	B	14	B	14	B	15	B
	EB RT	9	A	9	A	9	A	10	A
	NB LT	8	A	8	A	8	A	8	A

Note: Delay represented in average seconds per vehicle. Delays calculated using Synchro v10 and HCM6 methodology.



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MURATA FARMS TRAFFIC IMPACT STUDY

YEAR 2025 TOTAL TRAFFIC VOLUMES

FT #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	8

6.3 Site Access and Circulation

The project proposes the following access points and configurations:

1) **¾-Access along SH 52**. This access point is located approximately 2,275 feet east of WCR 29.5 and is proposed as a ¾-access restriction at build out, with no left-turns permitted onto SH 52. Left-turns from westbound SH 52 into the site would be allowed with a left-turn deceleration built to CDOT Access Code criteria (600' total lane length inclusive of a 18.5:1 bay taper.

2) **Full-movement access along WCR 29.5**. This access point is located approximately 575' south of SH 52. Based on the build out traffic analysis, the project should build this access to include a northbound left-turn deceleration lane on WCR 29.5 and a southbound right-turn deceleration lane on WCR 29.5.

3) **Neighborhood Interconnectivity**. The project proposes an extension of Silverado Lane to the west and connection via an internal, north-south collector roadway to Mountain Sky to the south. Neither connection would be anticipated to service a significant volume of trips from the adjacent developments given more direct options via the surrounding roadway network (i.e.: WCR 29.5, WCR 12 and Purman Ave.). However, provision of the connections allows for trip choices, walking/biking connections, and internal trips without using the external roadway network.

4) **SH 52 & WCR 29.5 Auxiliary Lane Improvements**. The project will warrant the need for an eastbound right-turn deceleration lane and westbound left-turn deceleration lane on SH 52 at WCR 29.5 (both lanes 600' total lane length inclusive of a 18.5:1 taper per CDOT Access Code criteria). The Mountain Sky project was also shown to warrant these lanes; thus, whichever project is developed first may be required to install these lanes, and the developers may seek to share the cost of these improvements. The Villagio Classical development would also contribute traffic to this need. In addition, the project would warrant an eastbound right-turn deceleration lane on SH 52 at WCR 29.5 (960' total length inclusive of an 18.5:1 taper) at full buildout with the other two developments built and full occupied. All three developments will create this need together, while none would warrant this improvement individually.

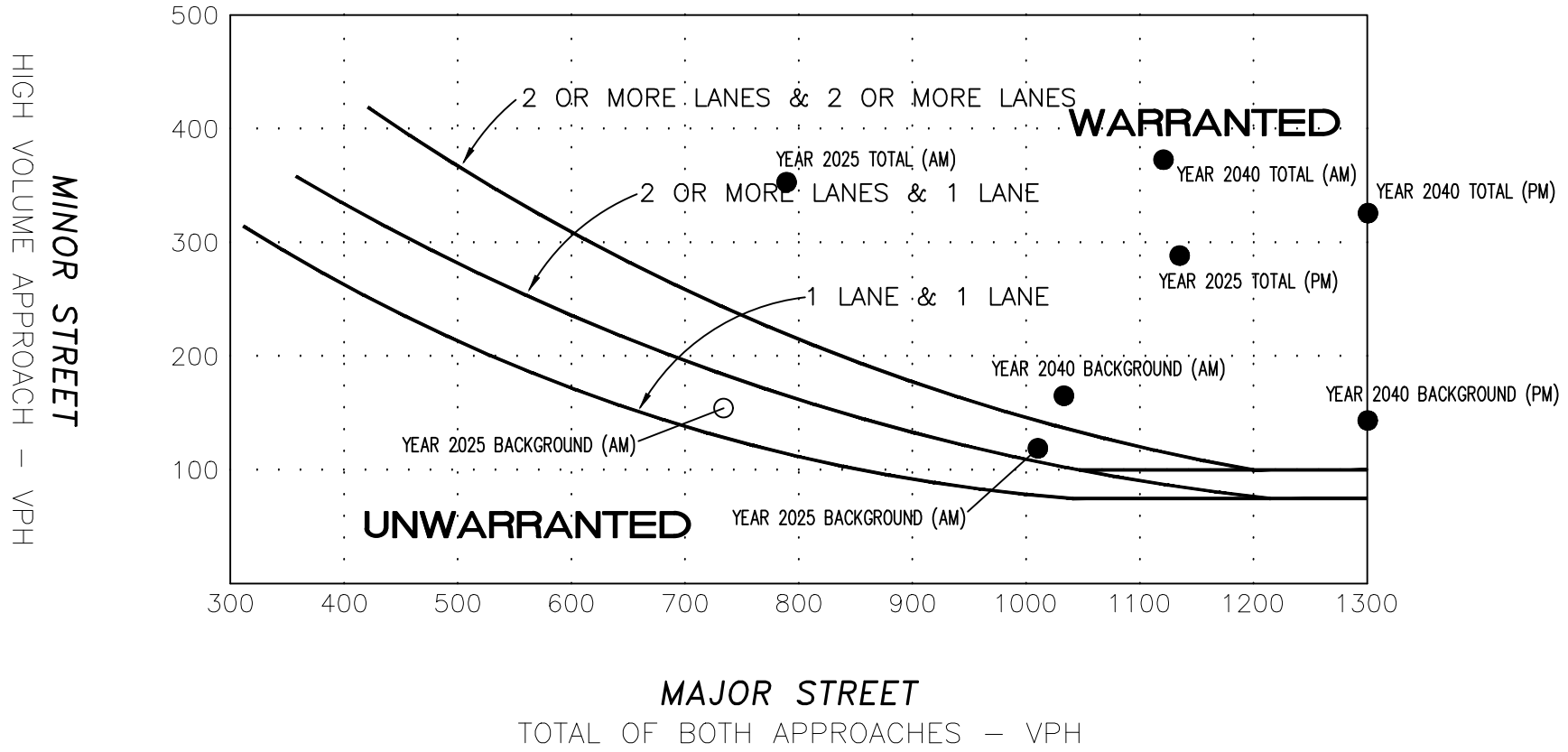
5) **SH 52 & WCR 29.5 Traffic Signal**. MUTCD Peak Hour signal warrant analysis was performed as a planning-level assessment of the need for a signal with each scenario and planning horizon. The warrant analysis is summarized on **Figure 9**. This analysis shows that a signal would be warranted either with full development of both the Mountain Sky and Villagio Classical developments (in the Year 2025 background PM peak hour) or with build out of the full Murata Farms project. In interim years, with only partial buildout of these developments, a signal warrant may not yet be met. Thus, the timing of the need for a signal will be a moving target based on rate of development for each project. With respect to a potential cost-share/responsibility assessment, at full build out the Murata Farms project would generate approximately 50% of the projected

traffic volume to the northbound approach which would dictate the need for this traffic signal.

Pedestrian and bicycle traffic is anticipated to be accommodated via the internal roadway network and system of sidewalks built per City standard cross-sections. Connectivity to the existing neighborhood to the west and future residential to the south will be provided, as well.

PEAK HOUR VOLUME WARRANT

(COMMUNITY LESS THAN 10,000 POPULATION
OR ABOVE 40 MPH ON MAJOR STREET)



NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

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MURATA FARMS TRAFFIC IMPACT STUDY
PEAK HOUR SIGNAL WARRANT

FT Project #	20065	Original Scale	NTS	Date	2/18/21	Drawn by	SGT	Figure #	9

7.0 CONCLUSIONS

This traffic impact study has been prepared by the Fox Tuttle Transportation Group for the Murata Farms mixed project. The project proposes to develop 300 single-family residences and a ±2.4-acre retail parcel with 181 residential uses with initial development. The project site is located at the southwest corner of the SH 52 and WCR 29.5 intersection. Access is proposed via a new ¾-access located along SH 52 approximately 2,275' west of WCR 29.5 and a new full-movement access along WCR 29.5 located approximately 575' south of SH 52. The purpose of this study is to assist in identifying potential traffic impacts within the study area with buildout of this project in the short and long-term scenarios. The traffic study addresses AM and PM peak hour intersection conditions in the study area without and with the project added traffic.

The project is anticipated to generate a total of approximately 6,163 daily, 367 AM peak hour and 504 PM peak hour driveway trips at full build-out and occupancy. It was determined that the project-added traffic can be accommodated on the existing and future roadway and intersection network with minimal impacts.

The following improvements are recommended to be implemented by the project to service project-added traffic:

- Construct an eastbound right-turn deceleration lane and westbound left-turn deceleration lane on SH 52 at the proposed ¾-movement access (both lanes 600' total lane length inclusive of a 18.5:1 taper per CDOT Access Code criteria.
- If not already constructed by adjacent development, which also warrants this need, construct (or share in the cost of) an eastbound right-turn deceleration lane and westbound left-turn deceleration lane on SH 52 at WCR 29.5 (both lanes 600' total lane length inclusive of a 18.5:1 taper per CDOT Access Code criteria.
- Construct, or share in the cost of, an eastbound right-turn acceleration lane on SH 52 at WCR 29.5 (960' total length inclusive of an 18.5:1 taper per CDOT Access Code criteria)
- Construct, or share in the cost of, a traffic signal at the SH 52 & WCR 29.5 intersection. The Murata Farms project would generate approximately 50% of the projected traffic volume to the northbound approach which would dictate the need for this traffic signal.
- Depending upon the rate of development of this and other, adjacent project, these improvements may be phased or tied to specific triggers (i.e.: development of initial residential, later shared home and attached residential, or development of the retail uses.

APPENDIX

Level of Service Definitions
Intersection Capacity Worksheets
Traffic Count Data Sheets

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on Highway Capacity Manual (6th Edition, 2016) criteria.

Intersection Capacity Worksheets

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	225	5	0	240	40	0	0	0	15	0	20
Future Vol, veh/h	65	225	5	0	240	40	0	0	0	15	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	281	6	0	261	43	0	0	0	20	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	287	0	0	742	750	284	729	732	283
Stage 1	-	-	-	-	-	-	446	446	-	283	283	-
Stage 2	-	-	-	-	-	-	296	304	-	446	449	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1257	-	-	1275	-	-	332	340	755	338	348	756
Stage 1	-	-	-	-	-	-	591	574	-	724	677	-
Stage 2	-	-	-	-	-	-	712	663	-	591	572	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1257	-	-	1275	-	-	304	318	755	321	326	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	304	318	-	321	326	-
Stage 1	-	-	-	-	-	-	553	537	-	678	677	-
Stage 2	-	-	-	-	-	-	687	663	-	553	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0	0	13.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1257	-	-	1275	-	-	478
HCM Lane V/C Ratio	-	0.065	-	-	-	-	-	0.098
HCM Control Delay (s)	0	8.1	-	-	0	-	-	13.3
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	345	0	1	310	30	2	0	0	30	0	45
Future Vol, veh/h	45	345	0	1	310	30	2	0	0	30	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	81	81	81	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	375	0	1	383	37	3	0	0	40	0	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	375	0	0	907	895	375	877	877	402
Stage 1	-	-	-	-	-	-	473	473	-	404	404	-
Stage 2	-	-	-	-	-	-	434	422	-	473	473	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1139	-	-	1183	-	-	257	280	671	269	287	648
Stage 1	-	-	-	-	-	-	572	558	-	623	599	-
Stage 2	-	-	-	-	-	-	600	588	-	572	558	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1139	-	-	1183	-	-	225	268	671	260	274	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	268	-	260	274	-
Stage 1	-	-	-	-	-	-	547	534	-	596	598	-
Stage 2	-	-	-	-	-	-	544	587	-	547	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	21.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	1139	-	-	1183	-	-	406
HCM Lane V/C Ratio	0.012	0.043	-	-	0.001	-	-	0.246
HCM Control Delay (s)	21.2	8.3	-	-	8	0	-	16.7
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	260	45	25	275	50	120	5	30	20	5	25
Future Vol, veh/h	75	260	45	25	275	50	120	5	30	20	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	375	375	-	-	190	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	283	49	27	299	54	141	6	35	24	6	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	332	0	0	845	854	283	872	876	326
Stage 1	-	-	-	-	-	-	447	447	-	380	380	-
Stage 2	-	-	-	-	-	-	398	407	-	492	496	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1206	-	-	1227	-	-	283	296	756	271	287	715
Stage 1	-	-	-	-	-	-	591	573	-	642	614	-
Stage 2	-	-	-	-	-	-	628	597	-	558	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1206	-	-	1227	-	-	249	270	756	237	261	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	249	270	-	237	261	-
Stage 1	-	-	-	-	-	-	551	534	-	598	600	-
Stage 2	-	-	-	-	-	-	583	584	-	490	508	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.6	31.1	16.9
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	249	601	1206	-	-	1227	-	-	361
HCM Lane V/C Ratio	0.567	0.069	0.068	-	-	0.022	-	-	0.163
HCM Control Delay (s)	36.8	11.4	8.2	-	-	8	-	-	16.9
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.2	0.2	0.2	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	395	130	55	355	35	90	5	20	35	5	55
Future Vol, veh/h	55	395	130	55	355	35	90	5	20	35	5	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	375	375	-	-	190	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	429	141	60	386	38	106	6	24	41	6	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	424	0	0	570	0	0	1110	1093	429	1160	1215	405
Stage 1	-	-	-	-	-	-	549	549	-	525	525	-
Stage 2	-	-	-	-	-	-	561	544	-	635	690	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1135	-	-	1002	-	-	187	214	626	172	181	646
Stage 1	-	-	-	-	-	-	520	516	-	536	529	-
Stage 2	-	-	-	-	-	-	512	519	-	467	446	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1135	-	-	1002	-	-	150	190	626	148	161	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	190	-	148	161	-
Stage 1	-	-	-	-	-	-	492	489	-	508	497	-
Stage 2	-	-	-	-	-	-	428	488	-	421	422	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.1	59.7	27.6
HCM LOS			F	D

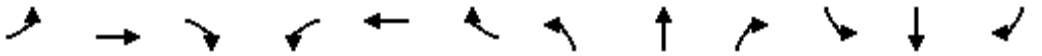
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	150	429	1135	-	-	1002	-	-	269
HCM Lane V/C Ratio	0.706	0.069	0.053	-	-	0.06	-	-	0.415
HCM Control Delay (s)	72.4	14	8.3	-	-	8.8	-	-	27.6
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	4.1	0.2	0.2	-	-	0.2	-	-	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	83	251	97	57	256	267	16	20	11
Future Volume (vph)	83	251	97	57	256	267	16	20	11
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6	3	8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	3	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	11.0	43.0	43.0	10.0	42.0	14.0	37.0	23.0	23.0
Total Split (%)	12.2%	47.8%	47.8%	11.1%	46.7%	15.6%	41.1%	25.6%	25.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	C-Max	C-Max	Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	45.0	38.5	38.5	43.0	37.5	32.5	32.5		18.5
Actuated g/C Ratio	0.50	0.43	0.43	0.48	0.42	0.36	0.36		0.21
v/c Ratio	0.19	0.34	0.14	0.12	0.43	0.63	0.15		0.20
Control Delay	11.2	18.8	2.5	10.7	20.1	29.4	7.2		19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	11.2	18.8	2.5	10.7	20.1	29.4	7.2		19.8
LOS	B	B	A	B	C	C	A		B
Approach Delay		13.7			18.6		24.1		19.8
Approach LOS		B			B		C		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 53.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	251	97	57	256	50	267	16	67	20	11	28
Future Volume (veh/h)	83	251	97	57	256	50	267	16	67	20	11	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	273	105	62	278	54	314	19	79	24	13	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	509	800	678	520	634	123	583	114	475	139	84	151
Arrive On Green	0.07	0.43	0.43	0.06	0.42	0.42	0.11	0.36	0.36	0.21	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1522	296	1781	317	1317	413	409	733
Grp Volume(v), veh/h	90	273	105	62	0	332	314	0	98	70	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1817	1781	0	1633	1556	0	0
Q Serve(g_s), s	2.4	8.8	3.7	1.7	0.0	11.7	9.5	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	8.8	3.7	1.7	0.0	11.7	9.5	0.0	3.7	3.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.81	0.34		0.47
Lane Grp Cap(c), veh/h	509	800	678	520	0	757	583	0	590	373	0	0
V/C Ratio(X)	0.18	0.34	0.15	0.12	0.00	0.44	0.54	0.00	0.17	0.19	0.00	0.00
Avail Cap(c_a), veh/h	509	800	678	520	0	757	583	0	590	373	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.2	17.3	15.8	13.1	0.0	18.7	24.4	0.0	19.5	29.6	0.0	0.0
Incr Delay (d2), s/veh	0.8	1.2	0.5	0.5	0.0	1.8	3.6	0.0	0.6	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.5	1.3	0.6	0.0	4.7	5.8	0.0	1.4	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	18.4	16.3	13.5	0.0	20.6	27.9	0.0	20.1	30.7	0.0	0.0
LnGrp LOS	B	B	B	B	A	C	C	A	C	C	A	A
Approach Vol, veh/h		468			394			412			70	
Approach Delay, s/veh		17.1			19.5			26.1			30.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	43.0	14.0	23.0	11.0	42.0		37.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	38.5	9.5	18.5	6.5	37.5		32.5				
Max Q Clear Time (g_c+I1), s	3.7	10.8	11.5	5.0	4.4	13.7		5.7				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.2	0.0	1.7		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		21.2	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	415	23	6	546	0	17
Future Vol, veh/h	415	23	6	546	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	375	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	451	25	7	593	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	476	0	-	451
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	1086	-	0	608
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1086	-	-	608
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	-	-	1086	-
HCM Lane V/C Ratio	0.033	-	-	0.006	-
HCM Control Delay (s)	11.1	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	198	22	11	153	73	92
Future Vol, veh/h	198	22	11	153	73	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	60	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	233	26	13	180	86	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	292	86	194	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	206	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	699	973	1379	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	693	973	1379	-	-	-
Mov Cap-2 Maneuver	693	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	829	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.5	0
HCM LOS	B		

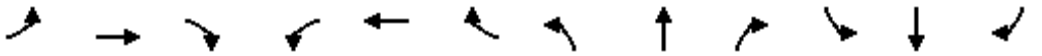
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1379	-	693	973	-	-
HCM Lane V/C Ratio	0.009	-	0.336	0.027	-	-
HCM Control Delay (s)	7.6	-	12.8	8.8	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1.5	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	61	373	243	84	342	213	15	35	20
Future Volume (vph)	61	373	243	84	342	213	15	35	20
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6	3	8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	3	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	10.0	45.0	45.0	11.0	46.0	11.0	34.0	23.0	23.0
Total Split (%)	11.1%	50.0%	50.0%	12.2%	51.1%	12.2%	37.8%	25.6%	25.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	C-Max	C-Max	Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	46.0	40.5	40.5	48.0	41.5	29.5	29.5		18.5
Actuated g/C Ratio	0.51	0.45	0.45	0.53	0.46	0.33	0.33		0.21
v/c Ratio	0.15	0.48	0.31	0.20	0.48	0.66	0.16		0.39
Control Delay	9.6	19.8	3.0	9.9	18.8	34.1	8.1		22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.6	19.8	3.0	9.9	18.8	34.1	8.1		22.0
LOS	A	B	A	A	B	C	A		C
Approach Delay		12.9			17.2		27.1		22.0
Approach LOS		B			B		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	373	243	84	342	35	213	15	64	35	20	64
Future Volume (veh/h)	61	373	243	84	342	35	213	15	64	35	20	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	405	264	91	372	38	251	18	75	41	24	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	488	842	713	437	770	79	473	104	432	121	81	173
Arrive On Green	0.06	0.45	0.45	0.07	0.46	0.46	0.07	0.33	0.33	0.21	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1669	171	1781	316	1317	335	395	843
Grp Volume(v), veh/h	66	405	264	91	0	410	251	0	93	140	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1840	1781	0	1633	1573	0	0
Q Serve(g_s), s	1.7	13.7	9.9	2.3	0.0	13.9	6.5	0.0	3.7	2.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	13.7	9.9	2.3	0.0	13.9	6.5	0.0	3.7	6.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.81	0.29		0.54
Lane Grp Cap(c), veh/h	488	842	713	437	0	848	473	0	535	375	0	0
V/C Ratio(X)	0.14	0.48	0.37	0.21	0.00	0.48	0.53	0.00	0.17	0.37	0.00	0.00
Avail Cap(c_a), veh/h	488	842	713	437	0	848	473	0	535	375	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.2	17.4	16.3	12.0	0.0	16.8	26.2	0.0	21.6	31.0	0.0	0.0
Incr Delay (d2), s/veh	0.6	2.0	1.5	1.1	0.0	2.0	4.2	0.0	0.7	2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	3.7	0.9	0.0	5.4	4.9	0.0	1.5	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	19.3	17.8	13.1	0.0	18.8	30.4	0.0	22.3	33.8	0.0	0.0
LnGrp LOS	B	B	B	B	A	B	C	A	C	C	A	A
Approach Vol, veh/h		735			501			344			140	
Approach Delay, s/veh		18.2			17.7			28.2			33.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	45.0	11.0	23.0	10.0	46.0		34.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	40.5	6.5	18.5	5.5	41.5		29.5				
Max Q Clear Time (g_c+I1), s	4.3	15.7	8.5	8.6	3.7	15.9		5.7				
Green Ext Time (p_c), s	0.0	3.0	0.0	0.5	0.0	2.1		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			21.3									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	665	71	19	601	0	11
Future Vol, veh/h	665	71	19	601	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	375	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	723	77	21	653	0	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	800	0	-	723
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	823	-	0	426
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	823	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	426	-	-	823	-
HCM Lane V/C Ratio	0.03	-	-	0.025	-
HCM Control Delay (s)	13.7	-	-	9.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	181	18	27	112	167	179
Future Vol, veh/h	181	18	27	112	167	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	60	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	21	32	132	196	211

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	392	196	407	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	196	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	612	845	1152	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	595	845	1152	-	-	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1152	-	595	845	-	-
HCM Lane V/C Ratio	0.028	-	0.358	0.025	-	-
HCM Control Delay (s)	8.2	-	14.4	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	385	45	25	410	70	120	5	30	30	5	35
Future Vol, veh/h	110	385	45	25	410	70	120	5	30	30	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	375	375	-	375	190	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	120	418	49	27	446	76	141	6	35	35	6	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	522	0	0	467	0	0	938	1234	209	952	1207	223
Stage 1	-	-	-	-	-	-	658	658	-	500	500	-
Stage 2	-	-	-	-	-	-	280	576	-	452	707	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1041	-	-	1091	-	-	219	175	797	214	182	780
Stage 1	-	-	-	-	-	-	420	459	-	521	541	-
Stage 2	-	-	-	-	-	-	703	500	-	557	436	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	1091	-	-	180	151	797	178	157	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	151	-	178	157	-
Stage 1	-	-	-	-	-	-	372	406	-	461	527	-
Stage 2	-	-	-	-	-	-	642	488	-	464	386	-

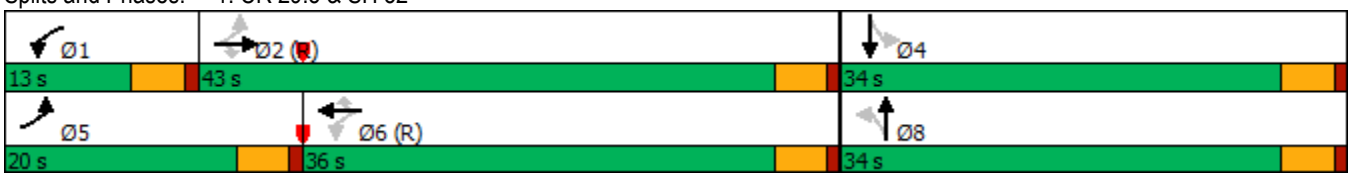
Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.4	59.8	22.7
HCM LOS			F	C

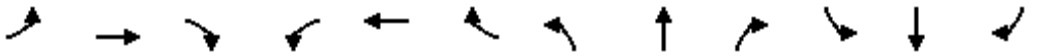
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	180	495	1041	-	-	1091	-	-	285
HCM Lane V/C Ratio	0.784	0.083	0.115	-	-	0.025	-	-	0.289
HCM Control Delay (s)	73.5	12.9	8.9	-	-	8.4	-	-	22.7
HCM Lane LOS	F	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	5.2	0.3	0.4	-	-	0.1	-	-	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	110	385	45	25	410	70	120	5	30	5
Future Volume (vph)	110	385	45	25	410	70	120	5	30	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	20.0	43.0	43.0	13.0	36.0	36.0	34.0	34.0	34.0	34.0
Total Split (%)	22.2%	47.8%	47.8%	14.4%	40.0%	40.0%	37.8%	37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	51.5	38.5	38.5	40.0	31.5	31.5	29.5	29.5		29.5
Actuated g/C Ratio	0.57	0.43	0.43	0.44	0.35	0.35	0.33	0.33		0.33
v/c Ratio	0.21	0.28	0.07	0.05	0.36	0.12	0.31	0.07		0.15
Control Delay	9.8	17.3	2.2	9.4	22.8	1.4	25.1	9.1		13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.8	17.3	2.2	9.4	22.8	1.4	25.1	9.1		13.1
LOS	A	B	A	A	C	A	C	A		B
Approach Delay		14.5			19.2			21.5		13.1
Approach LOS		B			B			C		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 55	
Control Type: Pretimed	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 42.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	385	45	25	410	70	120	5	30	30	5	35
Future Volume (veh/h)	110	385	45	25	410	70	120	5	30	30	5	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	418	49	27	446	76	141	6	35	35	6	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	613	1520	678	572	1244	555	540	78	454	248	58	249
Arrive On Green	0.17	0.43	0.43	0.09	0.35	0.35	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1359	237	1384	582	178	759
Grp Volume(v), veh/h	120	418	49	27	446	76	141	0	41	82	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1359	0	1621	1519	0	0
Q Serve(g_s), s	3.0	6.9	1.6	0.8	8.4	2.9	2.8	0.0	1.6	0.4	0.0	0.0
Cycle Q Clear(g_c), s	3.0	6.9	1.6	0.8	8.4	2.9	5.9	0.0	1.6	3.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.43		0.50
Lane Grp Cap(c), veh/h	613	1520	678	572	1244	555	540	0	531	555	0	0
V/C Ratio(X)	0.20	0.27	0.07	0.05	0.36	0.14	0.26	0.00	0.08	0.15	0.00	0.00
Avail Cap(c_a), veh/h	613	1520	678	572	1244	555	540	0	531	555	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.7	16.7	15.2	14.1	21.7	20.0	22.2	0.0	20.9	21.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.4	0.2	0.2	0.8	0.5	1.2	0.0	0.3	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.5	0.6	0.3	3.3	1.1	2.3	0.0	0.6	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	17.1	15.4	14.3	22.5	20.5	23.4	0.0	21.1	21.9	0.0	0.0
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	A	A
Approach Vol, veh/h		587			549			182			82	
Approach Delay, s/veh		15.8			21.9			22.9			21.9	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	43.0		34.0	20.0	36.0		34.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	38.5		29.5	15.5	31.5		29.5				
Max Q Clear Time (g_c+I1), s	2.8	8.9		5.1	5.0	10.4		7.9				
Green Ext Time (p_c), s	0.0	2.6		0.4	0.2	2.6		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	585	130	35	525	55	90	5	20	55	5	80
Future Vol, veh/h	80	585	130	35	525	55	90	5	20	55	5	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	320	-	375	375	-	375	190	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	636	141	38	571	60	106	6	24	65	6	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	631	0	0	777	0	0	1175	1517	318	1142	1598	286
Stage 1	-	-	-	-	-	-	810	810	-	647	647	-
Stage 2	-	-	-	-	-	-	365	707	-	495	951	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	947	-	-	835	-	-	147	118	678	155	105	711
Stage 1	-	-	-	-	-	-	340	391	-	426	465	-
Stage 2	-	-	-	-	-	-	627	436	-	525	336	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	835	-	-	109	102	678	128	91	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	102	-	128	91	-
Stage 1	-	-	-	-	-	-	309	355	-	387	444	-
Stage 2	-	-	-	-	-	-	512	416	-	453	305	-

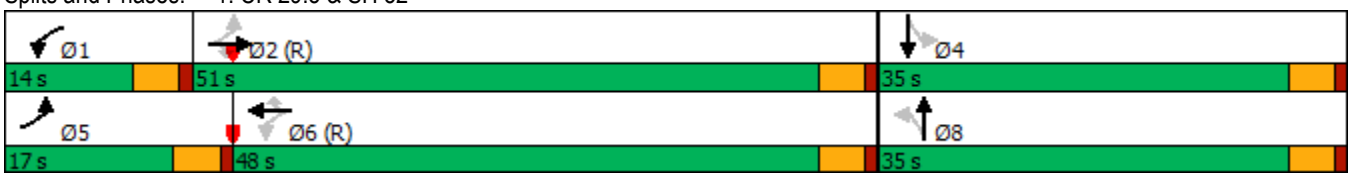
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.5	122.7	50.3
HCM LOS			F	F

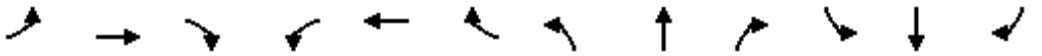
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	109	318	947	-	-	835	-	-	234
HCM Lane V/C Ratio	0.971	0.092	0.092	-	-	0.046	-	-	0.704
HCM Control Delay (s)	151.9	17.5	9.2	-	-	9.5	-	-	50.3
HCM Lane LOS	F	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.1	0.3	0.3	-	-	0.1	-	-	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	80	585	130	35	525	55	90	5	55	5
Future Volume (vph)	80	585	130	35	525	55	90	5	55	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	17.0	51.0	51.0	14.0	48.0	48.0	35.0	35.0	35.0	35.0
Total Split (%)	17.0%	51.0%	51.0%	14.0%	48.0%	48.0%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	59.0	46.5	46.5	53.0	43.5	43.5	30.5	30.5		30.5
Actuated g/C Ratio	0.59	0.46	0.46	0.53	0.44	0.44	0.30	0.30		0.30
v/c Ratio	0.17	0.39	0.17	0.08	0.37	0.08	0.30	0.06		0.32
Control Delay	9.0	18.3	3.2	8.7	19.9	4.3	29.5	12.0		17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.0	18.3	3.2	8.7	19.9	4.3	29.5	12.0		17.4
LOS	A	B	A	A	B	A	C	B		B
Approach Delay		14.9			17.9			25.7		17.4
Approach LOS		B			B			C		B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 55	
Control Type: Pretimed	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 46.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	585	130	35	525	55	90	5	20	55	5	80
Future Volume (veh/h)	80	585	130	35	525	55	90	5	20	55	5	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	636	141	38	571	60	106	6	24	65	6	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	555	1652	737	483	1546	689	450	100	399	213	37	265
Arrive On Green	0.13	0.47	0.47	0.09	0.44	0.44	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1295	327	1308	533	123	868
Grp Volume(v), veh/h	87	636	141	38	571	60	106	0	30	165	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1295	0	1635	1524	0	0
Q Serve(g_s), s	2.2	11.7	5.2	1.0	10.8	2.2	0.0	0.0	1.3	5.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	11.7	5.2	1.0	10.8	2.2	7.5	0.0	1.3	8.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	0.39		0.57
Lane Grp Cap(c), veh/h	555	1652	737	483	1546	689	450	0	499	515	0	0
V/C Ratio(X)	0.16	0.38	0.19	0.08	0.37	0.09	0.24	0.00	0.06	0.32	0.00	0.00
Avail Cap(c_a), veh/h	555	1652	737	483	1546	689	450	0	499	515	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.7	17.4	15.7	11.7	19.0	16.6	26.8	0.0	24.6	26.9	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.7	0.6	0.3	0.7	0.2	1.2	0.0	0.2	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.4	1.8	0.4	4.1	0.8	2.1	0.0	0.5	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	18.1	16.3	12.0	19.7	16.8	28.0	0.0	24.8	28.5	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	C	A	C	C	A	A
Approach Vol, veh/h		864			669			136			165	
Approach Delay, s/veh		17.1			19.0			27.3			28.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	51.0		35.0	17.0	48.0		35.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	9.5	46.5		30.5	12.5	43.5		30.5				
Max Q Clear Time (g_c+I1), s	3.0	13.7		10.1	4.2	12.8		9.5				
Green Ext Time (p_c), s	0.0	4.5		0.8	0.1	3.7		0.4				

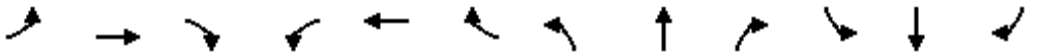
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	118	376	97	57	391	70	267	36	30	31
Future Volume (vph)	118	376	97	57	391	70	267	36	30	31
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		3	8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	13.0	42.0	42.0	11.0	40.0	40.0	14.0	37.0	23.0	23.0
Total Split (%)	14.4%	46.7%	46.7%	12.2%	44.4%	44.4%	15.6%	41.1%	25.6%	25.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	C-Max	C-Max	Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	46.0	37.5	37.5	42.0	35.5	35.5	32.5	32.5		18.5
Actuated g/C Ratio	0.51	0.42	0.42	0.47	0.39	0.39	0.36	0.36		0.21
v/c Ratio	0.25	0.28	0.14	0.12	0.30	0.11	0.69	0.18		0.34
Control Delay	11.8	18.0	2.6	10.9	19.5	1.2	31.9	8.9		25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	11.8	18.0	2.6	10.9	19.5	1.2	31.9	8.9		25.2
LOS	B	B	A	B	B	A	C	A		C
Approach Delay		14.2			16.1			25.5		25.2
Approach LOS		B			B			C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 50.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	376	97	57	391	70	267	36	67	30	31	38
Future Volume (veh/h)	118	376	97	57	391	70	267	36	67	30	31	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	409	105	62	425	76	314	42	79	35	36	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	1481	660	511	1402	625	551	210	395	125	128	127
Arrive On Green	0.09	0.42	0.42	0.07	0.39	0.39	0.11	0.36	0.36	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	581	1093	353	621	618
Grp Volume(v), veh/h	128	409	105	62	425	76	314	0	121	116	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	0	1674	1592	0	0
Q Serve(g_s), s	3.6	6.8	3.7	1.7	7.4	2.7	9.5	0.0	4.5	0.7	0.0	0.0
Cycle Q Clear(g_c), s	3.6	6.8	3.7	1.7	7.4	2.7	9.5	0.0	4.5	5.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	0.30		0.39
Lane Grp Cap(c), veh/h	528	1481	660	511	1402	625	551	0	604	379	0	0
V/C Ratio(X)	0.24	0.28	0.16	0.12	0.30	0.12	0.57	0.00	0.20	0.31	0.00	0.00
Avail Cap(c_a), veh/h	528	1481	660	511	1402	625	551	0	604	379	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.0	17.3	16.4	13.4	18.7	17.3	24.5	0.0	19.8	30.4	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.5	0.5	0.5	0.6	0.4	4.2	0.0	0.7	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.5	1.4	0.7	2.8	1.0	5.9	0.0	1.8	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	17.8	16.9	13.9	19.3	17.7	28.8	0.0	20.5	32.5	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	C	A	C	C	A	A
Approach Vol, veh/h		642			563			435			116	
Approach Delay, s/veh		16.9			18.5			26.5			32.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	42.0	14.0	23.0	13.0	40.0		37.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	37.5	9.5	18.5	8.5	35.5		32.5				
Max Q Clear Time (g_c+I1), s	3.7	8.8	11.5	7.2	5.6	9.4		6.5				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.4	0.1	2.6		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	575	23	6	691	0	17
Future Vol, veh/h	575	23	6	691	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	375	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	625	25	7	751	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	650	0	-	313
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	-	3.32
Pot Cap-1 Maneuver	-	-	932	-	0	683
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	932	-	-	683
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	683	-	-	932	-
HCM Lane V/C Ratio	0.029	-	-	0.007	-
HCM Control Delay (s)	10.4	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	198	22	11	173	93	92
Future Vol, veh/h	198	22	11	173	93	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	60	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	233	26	13	204	109	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	339	109	217	0	-	0
Stage 1	109	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	657	945	1353	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	945	1353	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.5	0
HCM LOS	B		

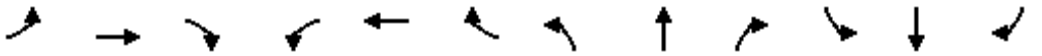
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1353	-	650	945	-	-
HCM Lane V/C Ratio	0.01	-	0.358	0.027	-	-
HCM Control Delay (s)	7.7	-	13.6	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1.6	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	86	563	243	84	512	55	213	35	55	40
Future Volume (vph)	86	563	243	84	512	55	213	35	55	40
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		3	8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	10.0	44.0	44.0	11.0	45.0	45.0	12.0	35.0	23.0	23.0
Total Split (%)	11.1%	48.9%	48.9%	12.2%	50.0%	50.0%	13.3%	38.9%	25.6%	25.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	C-Max	C-Max	Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	45.0	39.5	39.5	47.0	40.5	40.5	30.5	30.5		18.5
Actuated g/C Ratio	0.50	0.44	0.44	0.52	0.45	0.45	0.34	0.34		0.21
v/c Ratio	0.22	0.39	0.31	0.22	0.35	0.08	0.70	0.19		0.63
Control Delay	10.7	18.1	3.2	10.6	16.9	0.2	36.0	9.7		34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	10.7	18.1	3.2	10.6	16.9	0.2	36.0	9.7		34.3
LOS	B	B	A	B	B	A	D	A		C
Approach Delay		13.3			14.7			27.7		34.3
Approach LOS		B			B			C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 57.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: CR 29.5 & SH 52





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	563	243	84	512	55	213	35	64	55	40	89
Future Volume (veh/h)	86	563	243	84	512	55	213	35	64	55	40	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	612	264	91	557	60	251	41	75	65	47	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	469	1560	696	413	1599	713	440	201	367	127	91	156
Arrive On Green	0.06	0.44	0.44	0.07	0.45	0.45	0.08	0.34	0.34	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	592	1083	364	444	757
Grp Volume(v), veh/h	93	612	264	91	557	60	251	0	116	217	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	0	1675	1565	0	0
Q Serve(g_s), s	2.5	10.5	10.1	2.4	9.2	1.9	7.5	0.0	4.4	7.5	0.0	0.0
Cycle Q Clear(g_c), s	2.5	10.5	10.1	2.4	9.2	1.9	7.5	0.0	4.4	11.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	0.30		0.48
Lane Grp Cap(c), veh/h	469	1560	696	413	1599	713	440	0	568	374	0	0
V/C Ratio(X)	0.20	0.39	0.38	0.22	0.35	0.08	0.57	0.00	0.20	0.58	0.00	0.00
Avail Cap(c_a), veh/h	469	1560	696	413	1599	713	440	0	568	374	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	17.1	17.0	12.1	16.1	14.1	25.3	0.0	21.1	32.7	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.7	1.6	1.2	0.6	0.2	5.3	0.0	0.8	6.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.9	3.8	0.9	3.4	0.7	4.9	0.0	1.8	4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	17.9	18.6	13.3	16.7	14.4	30.6	0.0	21.9	39.2	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	C	A	C	D	A	A
Approach Vol, veh/h		969			708			367			217	
Approach Delay, s/veh		17.6			16.1			27.9			39.2	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	44.0	12.0	23.0	10.0	45.0		35.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	39.5	7.5	18.5	5.5	40.5		30.5				
Max Q Clear Time (g_c+I1), s	4.4	12.5	9.5	13.3	4.5	11.2		6.4				
Green Ext Time (p_c), s	0.0	4.6	0.0	0.5	0.0	3.5		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	880	71	19	796	0	11
Future Vol, veh/h	880	71	19	796	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	375	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	957	77	21	865	0	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1034	0	-	479
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	-	3.32
Pot Cap-1 Maneuver	-	-	668	-	0	533
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	668	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	533	-	-	668	-
HCM Lane V/C Ratio	0.024	-	-	0.031	-
HCM Control Delay (s)	11.9	-	-	10.6	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	181	18	27	132	187	179
Future Vol, veh/h	181	18	27	132	187	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	60	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	21	32	155	220	211

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	439	220	431	0	-	0
Stage 1	220	-	-	-	-	-
Stage 2	219	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	575	820	1129	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	559	820	1129	-	-	-
Mov Cap-2 Maneuver	559	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	817	-	-	-	-	-

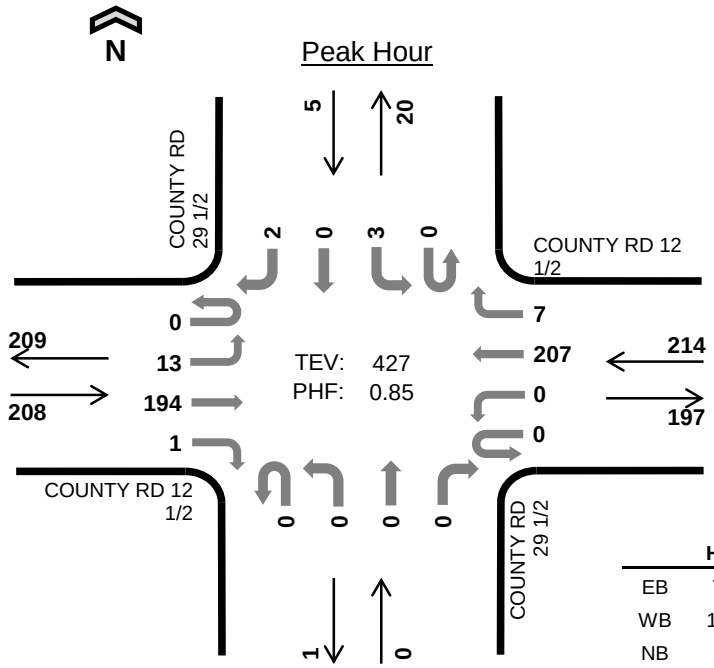
Approach	EB	NB	SB
HCM Control Delay, s	14.8	1.4	0
HCM LOS	B		

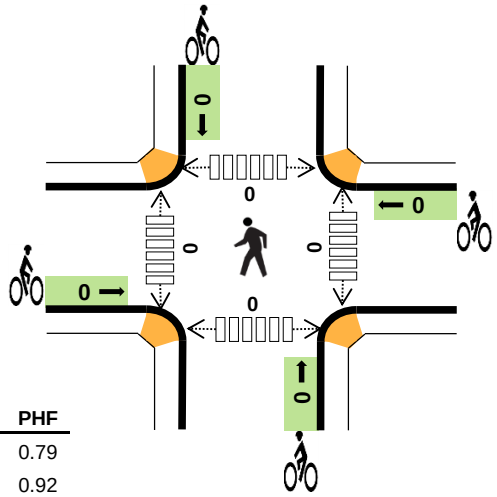
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1129	-	559	820	-	-
HCM Lane V/C Ratio	0.028	-	0.381	0.026	-	-
HCM Control Delay (s)	8.3	-	15.3	9.5	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	1.8	0.1	-	-

Traffic Count Data Sheets

COUNTY RD 29 1/2
COUNTY RD 12 1/2

Date: Tue, Aug 25, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	7.7%	0.79
WB	18.2%	0.92
NB	-	-
SB	0.0%	0.42
TOTAL	12.9%	0.85

Two-Hour Count Summaries

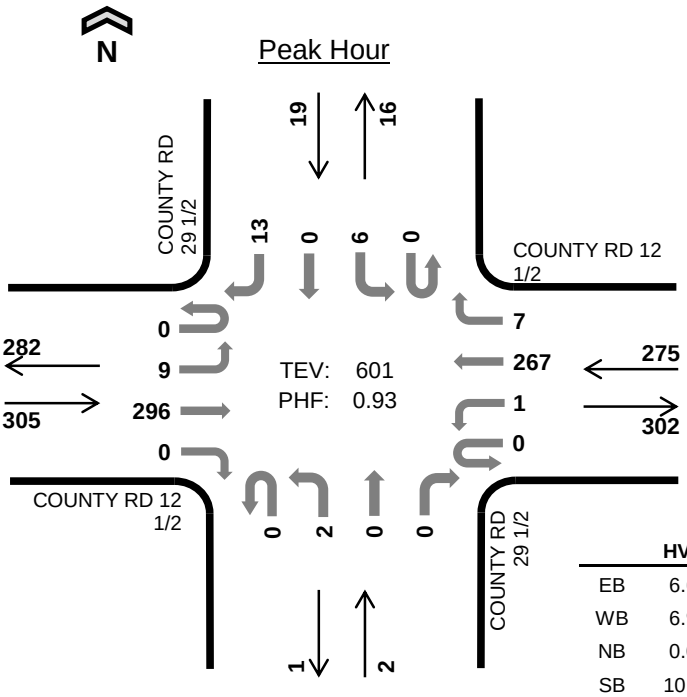
Interval Start	COUNTY RD 12 1/2 Eastbound				COUNTY RD 12 1/2 Westbound				COUNTY RD 29 1/2 Northbound				COUNTY RD 29 1/2 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**1**	**43**	**0**	**0**	**0**	**58**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**102**	0
7:15 AM	**0**	**1**	**39**	**0**	**0**	**0**	**46**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**92**	0
7:30 AM	**0**	**3**	**55**	**0**	**0**	**0**	**48**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**108**	0
7:45 AM	**0**	**8**	**57**	**1**	**0**	**0**	**55**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**125**	**427**
8:00 AM	0	5	38	0	0	0	50	3	0	0	0	0	0	1	0	1	98	423
8:15 AM	0	1	30	0	0	0	50	0	0	0	0	0	0	3	0	1	85	416
8:30 AM	1	1	34	0	0	0	50	0	0	0	0	0	0	2	0	0	88	396
8:45 AM	0	2	44	0	0	0	43	1	0	0	0	0	0	1	0	0	91	362
Count Total	1	22	340	1	0	0	400	11	0	0	0	0	0	10	0	4	789	0
Peak Hour	**0**	**13**	**194**	**1**	**0**	**0**	**207**	**7**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**427**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

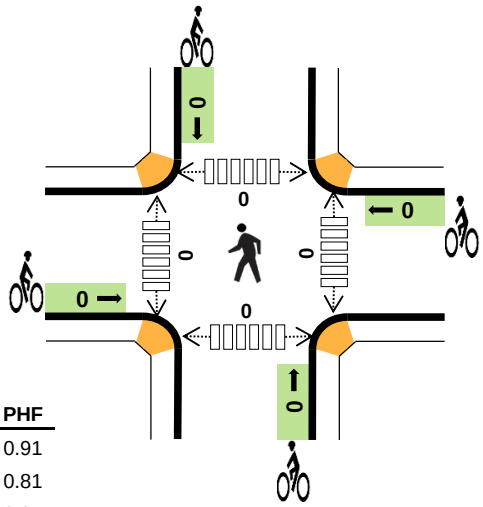
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**1**	**8**	**0**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**4**	**11**	**0**	**0**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**5**	**8**	**0**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**6**	**12**	**0**	**0**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	7	4	0	1	*12*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	7	7	0	1	*15*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	13	0	0	*17*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	7	4	0	1	*12*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	41	67	0	3	*111*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**16**	**39**	**0**	**0**	***55***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Mark Skaggs: (425) 250-0777 mark.skaggs@idaxdata.com

COUNTY RD 29 1/2
COUNTY RD 12 1/2



Date: Tue, Aug 25, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	6.6%	0.91
WB	6.9%	0.81
NB	0.0%	0.25
SB	10.5%	0.68
TOTAL	6.8%	0.93

Two-Hour Count Summaries

Interval Start	COUNTY RD 12 1/2 Eastbound				COUNTY RD 12 1/2 Westbound				COUNTY RD 29 1/2 Northbound				COUNTY RD 29 1/2 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	76	0	0	0	58	1	0	0	0	0	0	0	0	2	138	0
4:15 PM	0	0	69	1	0	0	71	0	0	0	0	0	0	2	0	4	147	0
4:30 PM	**0**	**3**	**81**	**0**	**0**	**0**	**58**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**147**	0
4:45 PM	**0**	**2**	**68**	**0**	**0**	**0**	**66**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	**143**	575
5:00 PM	**0**	**2**	**67**	**0**	**0**	**0**	**84**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**4**	**161**	598
5:15 PM	**0**	**2**	**80**	**0**	**0**	**1**	**59**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**150**	**601**
5:30 PM	0	2	81	0	0	0	60	0	0	0	0	0	0	0	0	0	143	597
5:45 PM	0	1	60	0	0	0	45	1	0	1	0	0	0	3	0	0	111	565
Count Total	0	13	582	1	0	1	501	9	0	3	0	0	0	11	0	19	1,140	0
Peak Hour	**0**	**9**	**296**	**0**	**0**	**1**	**267**	**7**	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**13**	**601**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	2	0	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	5	9	0	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**6**	**5**	**0**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**6**	**3**	**0**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**5**	**8**	**0**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**3**	**3**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	6	3	0	0	*9*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	6	8	0	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	42	41	0	2	*85*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**20**	**19**	**0**	**2**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

COLORADO STATE HWY 52

UNPLATTED
ASSESSED OWNER:
PATRICIA L. TERRY TRUST
REC. NO. 4362422

LOT A
RECORDED
EXEMPTION NO.
1471-04-3-RE-879
REC. NO. 02065102

ASSESSED OWNER:
PATRICIA L. TERRY TRUST
REC. NO. 4362422

ASSESSED OWNER:
APPEL FARMS HOA
REC. NO. 3922065

ASSESSED OWNER:
APPEL FARMS HOA
REC. NO. 3922065

S. GERRY AVENUE

SILVERADO LANE

MEADOWLARK PARKWAY

ROCK WREN STREET

SILVERADO LANE

SAGE GROUSE AVE.

WOOD THRUSH AVE.

BLUEBIRD AVE.

MOUNTAIN FLOWER AVE.

BARN OWL AVE.

HUMMINGBIRD AVE.

MOURNING DOVE AVE.

S. COLLEGE AVE.

MEADOWLARK PARKWAY

LAKE SPARROW STREET

LARK BUNTING STREET

ALL DETENTION POND
IMPROVEMENTS IN PHASE 1

MOUNTAIN SKY FILING NO. 1

MOUNTAIN SKY FILING NO. 1

PROPOSED WATER
FIRE HYDRANT (TYP.)

PROPOSED
WATER
MAIN (TYP.)

PROPOSED NON-POT
WATER MAIN (TYP.)

PROPOSED SANITARY
SEWER MAIN (TYP.)

PROPOSED SANITARY
SEWER MH (TYP.)

PROPOSED STORM
SEWER INLET (TYP.)

PROPOSED STORM
SEWER MAIN (TYP.)

PROPOSED STORM
SEWER MH (TYP.)

PROPOSED STORM
SEWER MH (TYP.)

PROPOSED STORM
SEWER OUTLET
STRUCTURE (TYP.)

PROPOSED SANITARY
SEWER MAIN (TYP.)

PROPOSED NON-POT
WATER MAIN (TYP.)

PROPOSED SANITARY
SEWER MH (TYP.)

PROPOSED STORM
SEWER FES (TYP.)

PROPOSED LEGEND

- PROPERTY LINE
- R.O.W.
- STORM SEWER
- SANITARY SEWER
- WATER LINE
- NON-POTABLE WATER

N

0 50 100 200

SCALE: 1" = 100'

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APPROVED	
PROJECT NO.	19032
HORZ. SCALE	
VERT. SCALE	

NOTES

NO.	DATE

MURATA FARMS

OVERALL UTILITY PLAN EXHIBIT

SHEET

OUP-EXH

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CTL | THOMPSON INCORPORATED

PRELIMINARY GEOTECHNICAL INVESTIGATION
MURATA FARMS (MURACO SUBDIVISION)
SOUTHWEST OF HIGHWAY 52 AND
COUNTY ROAD 29 ½
FORT LUPTON, COLORADO

Prepared For:

CORONADO WEST
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Attention: Eric Eckberg

Project No. DN50,219-115-R1

October 31, 2019

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TABLE OF CONTENTS

SCOPE 1
SUMMARY OF CONCLUSIONS 1
SITE CONDITIONS 2
PROPOSED DEVELOPMENT 3
INVESTIGATION 4
SITE GEOLOGY AND GEOLOGIC HAZARDS 4
- Shallow Groundwater 5
- Expansive Soil and Bedrock 5
- Seismicity 6
- Radioactivity 6
- Other Considerations 6

SUBSURFACE CONDITIONS 7
- Clay 7
- Sand 7
- Bedrock 7
- Groundwater 8

ESTIMATED POTENTIAL HEAVE 8
SITE DEVELOPMENT 9
- Excavation 9
- Dewatering 10
- Site Grading 10
- Sub-Excavation 11
- Slopes 12
- Utilities 12
- Underdrain 12
- Pavements 13

BUILDING CONSTRUCTION CONSIDERATIONS 13
- Foundations 13
- Slab-On-Grade Construction 14
- Below-Grade Areas 15
- Surface Drainage 15
- Concrete 16

RECOMMENDED FUTURE INVESTIGATIONS 16
GEOTECHNICAL RISK 17
LIMITATIONS 17

FIG. 1 – LOCATIONS OF EXPLORATORY BORINGS

FIG. 2 – LOCATIONS OF EXPLORATORY BORINGS AND CONCEPTUAL SITE DEVELOPMENT PLAN

FIG. 3 – APPROXIMATE ELEVATION AND DEPTH TO BEDROCK

FIG. 4 – APPROXIMATE ELEVATION AND DEPTH TO GROUNDWATER

FIG. 5 – PRELIMINARY RISK ASSESSMENT DUE TO EXPANSIVE SOIL AND BEDROCK

FIG. 6 – SEWER UNDERDRAIN DETAIL

FIG. 7 – CONCEPTUAL UNDERDRAIN SERVICE PROFILE

FIG. 8 – UNDERDRAIN CUTOFF WALL DETAIL

APPENDIX A – SUMMARY LOGS OF EXPLORATORY BORINGS

APPENDIX B – LABORATORY TEST RESULTS AND TABLE B-I

APPENDIX C – GUIDELINE SITE GRADING SPECIFICATIONS

APPENDIX D – GUIDELINE SUB-EXCAVATION SPECIFICATIONS

SCOPE

This report presents the results of our Preliminary Geotechnical Investigation of Murata Farms (Muraco Subdivision) located southwest of Highway 52 and County Road 29½ in Fort Lupton, Colorado (Fig. 1). The purpose of our investigation was to evaluate the subsurface conditions to assist in due diligence and planning of site development and residential/commercial construction. The scope was described in a Service Agreement (DN 19-0464) dated August 23, 2019.

This report is based on subsurface conditions found in our exploratory borings, results of field and laboratory tests, engineering analysis of field and laboratory data, and our experience. The report contains descriptions of the soil, bedrock and groundwater found in exploratory borings, site geology and geologic hazards, preliminary discussions of foundation and floor support alternatives, and preliminary design and construction criteria for site development, pavements, and surface and subsurface drainage. The discussions of foundation and floor system alternatives are intended for planning purposes only. Additional investigation will be necessary to delineate areas of subexcavation (if selected). Site-specific investigations will be necessary to design structures and improvements. A brief summary of our conclusions and recommendations follows, with more detailed discussion in the report.

SUMMARY OF CONCLUSIONS

1. We found no geologic hazards or geotechnical concerns which will preclude development of the site. The primary geotechnical concerns are shallow groundwater and expansive soil and bedrock.

2. Strata encountered in exploratory borings consisted of 4 to 25 feet of sandy clay and clean to clayey sand underlain in seven borings by weathered and comparatively unweathered claystone and interbedded claystone/sandstone bedrock. Claystone is predominant. The clay and claystone are expansive and we judge the sand is non-expansive.

3. Groundwater was measured at depths of about 5 to 21 feet below existing grades, or approximate elevations 4937 to 4966 feet (Fig. 4). Groundwater

will likely be encountered during deep utility installation. We recommend providing at least 3 feet, and preferably 5 feet of separation between groundwater and foundation excavations. Groundwater will fluctuate seasonally and may rise in response to irrigation, precipitation, land-use changes, and flow in Fulton Ditch.

4. We estimated total potential ground heave may range from less than 0.5 up to about 6.1 inches considering a depth of wetting of 24 feet below existing grade. The estimates are conservative (high). Footing foundations will be appropriate where the underlying soil and bedrock are low swelling or non-expansive, or if sub-excavation of expansive material is performed. Sub-excavation appears merited for about 40 percent of the site. Measures to control groundwater will be needed if sub-excavation is used. Additional investigation is recommended to delineate sub-excavation extent.

5. Pavement subgrade will likely consist of non-expansive sand or expansive clay or claystone or fill of similar composition. Clay and claystone have poor pavement support characteristics. Sand is considered better subgrade material. Mitigation of expansive subgrade consisting of sub-excavation may be necessary. The Town of Fort Lupton requires full-depth asphalt pavement sections for all public streets. We anticipate a minimum section of at least 5 to 6 inches of asphalt for local streets and 7 to 8 inches for residential collectors. Thicker asphalt may be necessary. Subgrade investigations should be performed after site grading.

6. Control of surface and subsurface drainage will be critical to the performance of foundations, slabs-on-grade and pavements. Overall surface drainage should be designed to provide rapid run-off of surface water away from structures, pavements and flatwork.

SITE CONDITIONS

Murata Farms is located southwest of State Highway 52 and County Road 29½ in Fort Lupton, Colorado (Fig. 1 and Photo 1). The site contains about 70-acres and is bordered by single-family residences to the west, Highway 52 to the north, County Road 29½ to the east, and vacant land to the south. Two existing single-family residences are present in the northwestern and south-central portions of the parcel. The ground surface slopes gently to the south with overall relief of about 35 feet. Ground cover consists primarily of grasses, weeds, and crop remnants. Fulton Ditch runs through the northeastern portion of the site. Multiple oil/gas wells are present in the northern portion.

Review of historical aerial photos indicate the property has been used primarily as farmland.

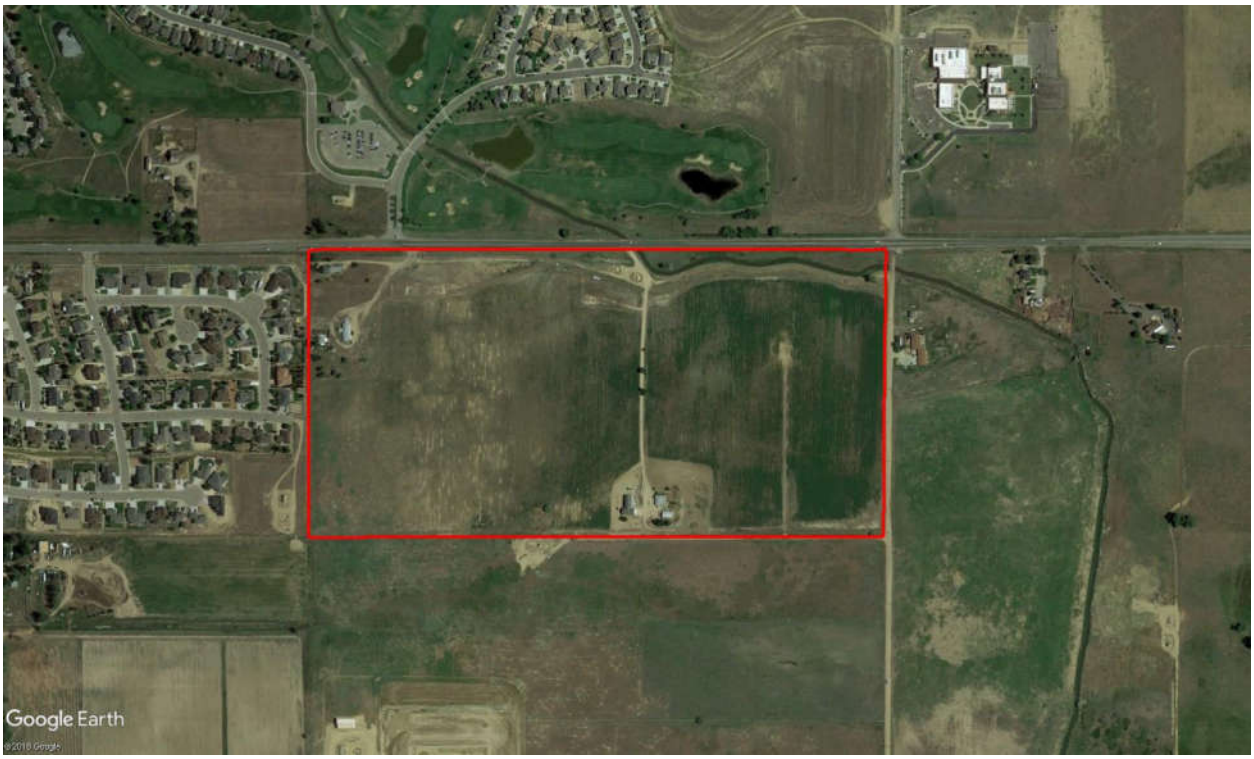


Photo 1 – Google Earth© Aerial Site Photo, May 2018

PROPOSED DEVELOPMENT

A conceptual site plan prepared by Henry Design Group indicates the parcel is being considered for primarily residential development (Fig. 2). A small commercial portion is shown in the northeastern corner. Residential areas may include single-family detached residences, paired homes, and townhomes. We anticipate residential structures will consist of one or two-story wood-framed structures with crawl spaces and/or basements. Several parks, open space, and a trail system may also be included.

INVESTIGATION

We investigated subsurface conditions by drilling 8 widely-spaced exploratory borings at the approximate locations shown on Fig. 1. The boring locations were surveyed by a representative of our firm using a Leica GS18 GPS unit referencing the North American Vertical Datum of 1988 (NAVD88). Prior to drilling, we contacted the Utility Notification Center of Colorado and local sewer and water districts to clear drilling locations for conflicts with buried utilities. The borings were advanced to 25 feet below the existing ground surface using 4-inch diameter, continuous-flight solid-stem auger and a truck-mounted CME-55 drill rig. Samples of the soil and bedrock were obtained at 5 feet intervals using 2.5-inch diameter (O.D.) modified California barrel samplers driven by an automatic 140-pound hammer falling 30 inches. Our representative observed drilling, logged the soil and bedrock encountered, and obtained samples. Summary logs of the exploratory borings are presented in Appendix A.

The samples were returned to our laboratory where they were examined by our engineer. Laboratory tests included dry density, moisture content, percent silt and clay-sized particles (passing the No. 200 sieve), Atterberg limits, swell-consolidation, and water-soluble sulfate concentration. Swell-consolidation tests were performed by wetting the samples under approximate overburden pressures (the pressure exerted by the overlying soil). Results of laboratory tests are presented in Appendix B.

SITE GEOLOGY AND GEOLOGIC HAZARDS

According to the Geologic Map of the Fort Lupton Quadrangle, Weld and Adams Counties (Soister, P.E.: Map GQ-397, 1965), the site is underlain by windblown, alluvial, and colluvial deposits of clay, silt, and sand underlain by sedimentary bedrock of the lower portion of the Dawson formation. The soil includes expansive clay. The bedrock includes expansive claystone.

Site geology and geologic hazards were evaluated through review of geologic maps, field observations, conditions found in our exploratory borings, and our experience with similar projects. No geologic hazards were identified which would preclude development of this site. The hazards identified are:

- Shallow groundwater
- Expansive soil and bedrock, and
- Regional issues of seismicity and radioactivity.

These hazards can be mitigated with proper planning, engineering, design and construction.

Shallow Groundwater

Groundwater was measured at depths of about 9.5 feet or less below existing grade in a majority of the borings. Shallow groundwater could limit use of basement residences. We recommend at least 3 feet, and preferably 5 feet of separation between foundation excavations and groundwater. Where basements are within 5 feet of groundwater, we advocate use of vapor retarders over a gravel layer below basement floor slabs. An option would be to raise site grades. Import fill may be needed. One alternative would be to plan non-basement residences in areas with shallow groundwater.

Shallow groundwater may also complicate site development such as utility installation. Contractors should be prepared to deal with wet soils, flat excavation slopes below groundwater, and temporary dewatering.

Expansive Soil and Bedrock

The clay and claystone bedrock encountered in our borings are expansive. There is risk that ground heave will damage pavements, slabs-on-grade and foundations.

Engineered design of grading, pavements, foundations, slabs-on-grade, and surface drainage can mitigate, but not eliminate, the potential risk.

Seismicity

Based on available mapping, we found no active faults within or near the site. The soil and bedrock units are not expected to respond unusually to seismic activity. According to the International Residential Code (IRC) for seismic design, we believe the site classifies as Site Class C or D.

Radioactivity

It is normal in the Front Range of Colorado and nearby eastern plains to measure radon gas in poorly ventilated spaces in contact with soil or bedrock. Radon 222 gas is considered a health hazard and is just one of several radioactive products in the chain of the natural decay of uranium into lead. Radioactive nuclides are common in the soil and bedrock underlying the subject site. Because these sources exist or will exist on most sites in the area, there is a potential for radon gas accumulation in poorly ventilated spaces. The amount of soil gas that can accumulate is a function of many factors, including the radionuclide activity of the soil and bedrock, construction methods and materials, soil gas pathways, and accumulation areas. The only reliable method to determine if a hazard exists is to perform radon testing of completed structures to determine the level of radon gas accumulation. Typical mitigation methods consist of sealing soil gas entry areas and ventilation of below-grade spaces. We recommend provisions for ventilation of foundation drain systems if a radon problem is discovered.

Other Considerations

We observed no evidence of unstable slopes. Erosion potential on the site is considered low due to gentle slopes and existing vegetation. The potential will increase during construction but should return to pre-construction rates or less if proper grading

practices, surface drainage design, and re-vegetation efforts are implemented. We did not identify significant economically recoverable, high quality aggregate or rare earth materials in our borings.

SUBSURFACE CONDITIONS

Strata encountered in our borings consisted of 4 to 25 feet of sandy clay and clean to clayey sand underlain in seven borings by weathered and comparatively unweathered claystone and interbedded claystone/sandstone bedrock. Pertinent engineering characteristics of the soil and bedrock are described in the following paragraphs.

Clay

Sandy, silty clay was encountered from the ground surface or within the sand in four borings. The clay was relatively moist and soft to stiff based on field penetration resistance test results. One sample swelled 0.2 percent when wetted. Two samples contained 56 and 65 percent silt and clay-sized particles, with the latter sample exhibiting moderate plasticity.

Sand

At least 4.5 feet of sand was found from the ground surface in six borings. The clean to silty sand was medium dense to dense and the clayey sand was very loose to medium dense. One sample of clayey sand compressed slightly when wetted. Five samples contained 12 to 49 percent silt and clay-sized particles. One clayey sand sample exhibited low plasticity. We judge the sand is non-expansive.

Bedrock

Bedrock consisted primarily of weathered and comparatively unweathered claystone and was encountered in seven borings at depths of about 4 to 19.5 feet, or

approximate elevations 4932 to 4966 feet (Fig. 3). Interbedded claystone/sandstone was encountered in TH-6 only. Weathered zones encountered in six borings ranged in thickness from about 1.5 to 8.5 feet. The unweathered bedrock is medium hard to very hard. Seven claystone samples swelled 1.6 to 10 percent when wetted. The average swell of the claystone was 3.6 percent. One sample of claystone contained 92 percent silt and clay-sized particles exhibited high plasticity. One interbedded claystone/sandstone sample contained 42 silt and clay-sized particles.

Groundwater

Groundwater was encountered during drilling in four borings at depths of about 13 to 15 feet. When checked 10 days after drilling on October 19, 2019, water was measured at depths of about 5 to 21 feet, or approximate elevations 4937 to 4966 feet (Fig. 4). Groundwater was generally shallower in borings adjacent to Fulton Ditch and on the central and eastern portions of the parcel where flood irrigation appeared to have occurred. Groundwater will likely be encountered during deep utility installation. We recommend providing at least 3 feet, and preferably 5 feet of separation between groundwater and foundation excavations. It is possible that groundwater levels may dip once flood irrigation on the parcel has stopped. Groundwater will fluctuate seasonally and may rise in response to irrigation, precipitation, land-use changes, and flow in Fulton Ditch.

ESTIMATED POTENTIAL HEAVE

Based on the subsurface profiles, swell-consolidation test results and our experience, we estimated the potential heave at the existing ground surface for each test hole location as shown in the table below. A depth of wetting of 24 feet was considered for the analysis. The estimates are conservative (high) because they assume full wetting and potential heave of material below groundwater. Due to widely spaced borings, variations from our estimates should be anticipated. It is not certain these movements will occur.

TABLE I
ESTIMATED POTENTIAL GROUND HEAVE
BASED ON 24-FEET DEPTH OF WETTING

Boring No.	Estimated Potential Heave at Existing Ground Surface (inches)
TH-1	1.5
TH-2	6.1
TH-3	4.6
TH-4	3.5
TH-5	<0.5
TH-6	<0.5
TH-7	1.0
TH-8	1.6

SITE DEVELOPMENT

The primary geotechnical concerns that we believe will influence development and building construction on this site are shallow groundwater and expansive soil and bedrock. These concerns can be mitigated with proper planning, engineering, design and construction. We believe there are no geologic or geotechnical constraints at this site that would preclude development. The following sections discuss site development recommendations.

Excavation

We believe the soil and bedrock penetrated by our exploratory borings can be excavated with typical heavy-duty equipment. Contractors should be familiar with applicable local, state and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Based on our investigation and OSHA standards, we anticipate the sandy clay and bedrock may classify as Type B soil and the sand as Type C. Type B and Type C soils require maximum slope inclinations of 1H:1V (horizontal to vertical) and 1.5H:1V for excavations in dry conditions, respectively. Flatter slopes will be necessary below groundwater. Contractors are required to identify the soils encountered in excavations

and refer to OSHA standards to determine appropriate slopes. Excavations deeper than 20 feet should be designed by a professional engineer.

Dewatering

Groundwater may be encountered in utility excavations. Temporary construction dewatering systems will probably be needed to properly install deep utilities for some areas of the site. We believe that dewatering for excavations which penetrate less than 3 to 5 feet below groundwater may be accomplished using conventional sump and pump methods in utility trenches. Deeper excavations may require more elaborate dewatering (such as well points).

The Town of Fort Lupton and/or the Colorado Department of Public Health may require dewatering permits. Our experience indicates periodic environmental testing is usually required with these permits, with reporting. Permitting requirements may also influence the construction schedule.

Site Grading

The on-site soils free of vegetation are suitable for use as site grading fill. Fill should be placed in thin loose lifts (8-inches or less), and be moisture-conditioned and compacted prior to placement of the next lift. Clay fill should be moisture-conditioned between optimum and 3 percent above optimum moisture content and compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698). Sand fill should be moisture-conditioned within 2 percent of optimum moisture content and compacted similarly. A representative of our firm should observe and test compaction of the fill during placement. Guidelines for site grading are presented in Appendix C.

Sub-Excavation

Our investigation indicates non-expansive sand and expansive clay and claystone bedrock are present at depths likely to influence performance of shallow foundations and slabs-on-grade. We calculated potential heave could range from less than 0.5 up to about 6.1 inches for an assumed depth of wetting of 24 feet. About 60 percent of the heave estimates were less than 2 inches. Figure 5 presents our interpretation of risk due to expansive soils and bedrock at each boring location. Based on the data and our evaluation, low risk conditions are present at 5 borings. Shallow foundations can likely be used without sub-excavation in low risk areas. We judge there is moderate risk due to expansive soils and bedrock at TH-4 and high risk at TH-2 and TH-3. If shallow foundations (footings) are desired, sub-excavation should be anticipated at the moderate and high risk locations. Measures to control groundwater will likely be needed if sub-excavation is used. Additional investigation will be necessary once plans are developed to better assess soil conditions and delineate areas that merit sub-excavation.

Many builder/developers choose to perform sub-excavation to reduce potential heave and provide a relatively uniform fill layer that is likely suitable for footings and slab-on-grade basement floors. Deep foundations (drilled piers) and structurally supported basement floor systems are also used on sites where sub-excavation is impractical..

The sub-excavation contractors should be chosen carefully to assure they have experience with fill placement at over-optimum moisture and have the necessary equipment. The contractors should provide a construction disc to break down fill materials and anticipate use of push-pull scraper operations and dozer assistance. The operation will be relatively slow. The presence of shallow groundwater will complicate sub-excavation. In order for the procedure to be performed properly, close contractor control of fill placement to specifications is required. Special precautions should be taken for compaction of fill at corners, access ramps, and along the perimeters of the sub-excavation as large compaction equipment cannot easily reach these areas. Clay fill

should be moisture-conditioned between optimum and 4 percent above optimum moisture content. Sand fill should have a moisture content within 2 percent of optimum. Fill should be compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698). Guideline specifications are presented in Appendix D. A representative of our firm should observe placement and test compaction of the fill. The fill should be tested to evaluate swell after placement to verify whether footing or pad-type foundations and slab-on-grade basement floors can be used.

Slopes

We recommend permanent cut and fill slopes be designed with a maximum slope of 3:1 (horizontal to vertical). Use of 4:1 slopes would be better to control erosion. If site constraints (property boundaries and streets) do not permit construction with recommended slopes, we should be contacted to evaluate the subsurface soils and steeper slopes.

Utilities

Water and sewer lines are usually constructed beneath paved roads. Compaction of trench backfill can have a significant effect on the life and serviceability of pavements. Trench backfill should be placed in thin, loose lifts (8 inches or less) and be moisture-conditioned and compacted as described in Site Grading. The placement and compaction of trench backfill should be observed and tested by a representative of our firm during construction.

Underdrain

With long-term development and subsequent irrigation, groundwater could rise. The water could lead to expansive soil related problems and frequent pumping of basement foundation drains in residential portions of the development. We advocate use of underdrains incorporated into the design of sanitary sewer systems in portions of

the development where basements are planned to provide a means to control water and allow gravity discharge from basement foundation drains. Conceptual sewer underdrain details are provided on Figs. 6 through 8. If the underdrains discharge to a detention pond or drainage, the potential for backflow of water from the discharge point into the underdrain and building foundation drains should be evaluated.

Pavements

Pavement subgrade soils will likely consist of non-expansive sand, expansive clay or claystone or fill of similar composition. Clay and claystone have poor pavement support characteristics. Sand is considered better subgrade material. Depending on site grading, mitigation of expansive subgrade consisting of sub-excavation may be necessary. Sub-excavation locations and depths should be based on additional investigation. The Town of Fort Lupton requires full-depth asphalt pavement sections for all public streets. We anticipate a minimum section of at least 5 to 6 inches of asphalt for local streets and 7 to 8 inches of asphalt for residential collectors. Thicker asphalt may be necessary. Subgrade investigation and pavement designs should be performed after grading is complete.

BUILDING CONSTRUCTION CONSIDERATIONS

The following discussions are preliminary and not intended for design or construction. After grading is completed, design-level investigations should be performed on a building-specific basis.

Foundations

Our investigation indicates non-expansive sand and expansive clay and claystone bedrock are present at depths likely to influence performance of shallow foundations and slabs-on-grade. Footing foundations are suitable where low swelling soils and bedrock are present, or if sub-excavation of expansive material is performed. Alterna-

tively, a deep foundation system such as drilled piers can be considered for areas with moderate to high swelling soils or bedrock. Post-tensioned slab-on-grade foundations may be considered where basements are not planned. Additional investigations should be conducted to more fully assess soil conditions.

Slab-On-Grade Construction

Structurally supported floors should be anticipated in all non-basement finished living space in residences unless post-tensioned slab-on-grade foundations are used. Slab-on-grade basement floors may be considered on low and moderate risk sites where potential heave is acceptable to builders and home buyers. Structurally-supported basement floors should be used on sites with high or very high risk of poor basement slab performance. Based on our widely-spaced borings, moderate to high risk conditions appear to be present for about 40 percent of the site.

Floor systems in commercial and retail buildings largely depend on the building use, size, and owner/operator's tolerance of floor movement. On high and some moderate risk sites owner-operators typically elect to over-excavate expansive soil to reduce potential floor movement and enhance floor performance versus using a structurally supported floor. In rare instances, structurally supported floors are used.

The performance of surface flatwork may be poor at this site where higher swell materials are present, unless sub-excavation is performed below these improvements. The following precautions will be required to reduce the potential for damage due to movement of conventional slab-on-grade floors:

1. Isolation of the slabs from foundation walls, columns or other slab penetrations using a slip-joint;

2. Voiding of interior partition walls at the top or bottom to allow slab movement to occur without transferring movement to the structure; and

3. Flexible water and gas connections to allow for slab movement. A flexible plenum above furnaces will be required.

Below-Grade Areas

Surface water can penetrate relatively permeable loose backfill soils located adjacent to structures and collect at the bottom of relatively impermeable excavations causing wet or moist conditions. If basements are not used in residences, crawl space drains should be planned. Foundation drains are not common for commercial and retail buildings with no below-grade areas. Below grade walls should be designed for lateral earth pressures. Foundation drains should ideally be connected to an underdrain system to provide a gravity outlet. The drains can be connected to a sump pit where water is removed by pumping if an underdrain is not provided.

Surface Drainage

The performance of improvements will be influenced by surface drainage. When developing an overall drainage scheme, consideration should be given to drainage around each building. The ground surface around buildings should be sloped to provide positive drainage away from the foundations. We typically recommend a slope of at least 10 percent for the first 10 feet surrounding residences with basements, where practical, and slopes of at least 5 percent for structures without basements. Where possible, drainage swales should slope at least 2 percent. Roof downspouts and other water collection systems should discharge well beyond the limits of backfill around structures.

For commercial and retail buildings, it may be more difficult to adhere to the aforementioned drainage criteria; particularly where surface flatwork connects to buildings. In this instance, provide as much slope as practical. ADA requirements may limit slope. Surface drainage should be considered when setting finished floor elevations.

Proper control of surface runoff is also important to control the erosion of surface soils. Concentrated sheet flow should not be directed over unprotected slopes. Water should not be allowed to pond at the crest of slopes. Permanent slopes should be prepared to reduce erosion.

Attention should be paid to compact the soils behind curb and gutter adjacent to streets and in utility trenches during the development. If surface drainage between preliminary development and construction phases is neglected, performance of the roadways, flatwork and foundations may be poor.

Concrete

Concrete in contact with soil can be subject to sulfate attack. We measured a water-soluble sulfate concentration of 0.19 percent in one sample from this site. For concentrations between 0.1 and 0.2 percent, ACI 332-08 *Code Requirements for Residential Concrete* indicates concrete shall be made with an ASTM C150 Type II cement, or an ASTM C595 or C1157 hydraulic cement meeting moderate sulfate-resistant hydraulic cement (MS) designation. We recommend additional testing during subsequent investigations.

Superficial damage may occur to the exposed surfaces of highly permeable concrete. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or shallow groundwater. Concrete should have a total air content of 6 percent ± 1.5 percent.

RECOMMENDED FUTURE INVESTIGATIONS

We recommend the following investigations and services:

1. Additional investigations to delineate potential sub-excavation extent;

2. Construction testing and observation during site development, including compaction testing of grading fill, utility trench backfill, and pavements;

3. Subgrade investigation and pavement designs after grading;

4. Design-level investigations for structures; and

5. Foundation installation observations.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the development will perform satisfactorily. It is critical that all recommendations in this report are followed during construction.

LIMITATIONS

Our borings were widely spaced to provide a preliminary picture of subsurface conditions for planning. We believe this investigation was conducted in a manner consistent with the level of care and skill ordinarily used by geotechnical engineers practicing under similar conditions. No warranty, express or implied, is made.

If we can be of further service in discussing either the contents of this report or the analysis of the influence of subsurface conditions on the design of the proposed development, please call.

CTL | THOMPSON, INC.

Chris Fitzsimmons, E.I.T.
Staff Engineer

Reviewed by:

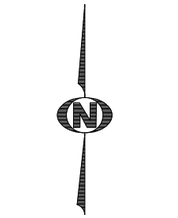


Ronald M. McOmber
Oct 31 2019

Ronald M. McOmber, P.E.
Chairman, Senior Principal

CF:RMM/cf/nn

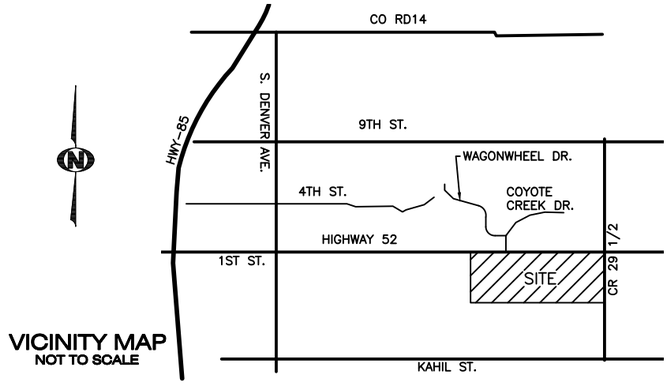
Via e-mail: eric@jehome.com



LEGEND:

TH–1 APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY



VICINITY MAP
NOT TO SCALE



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Locations of Exploratory Borings

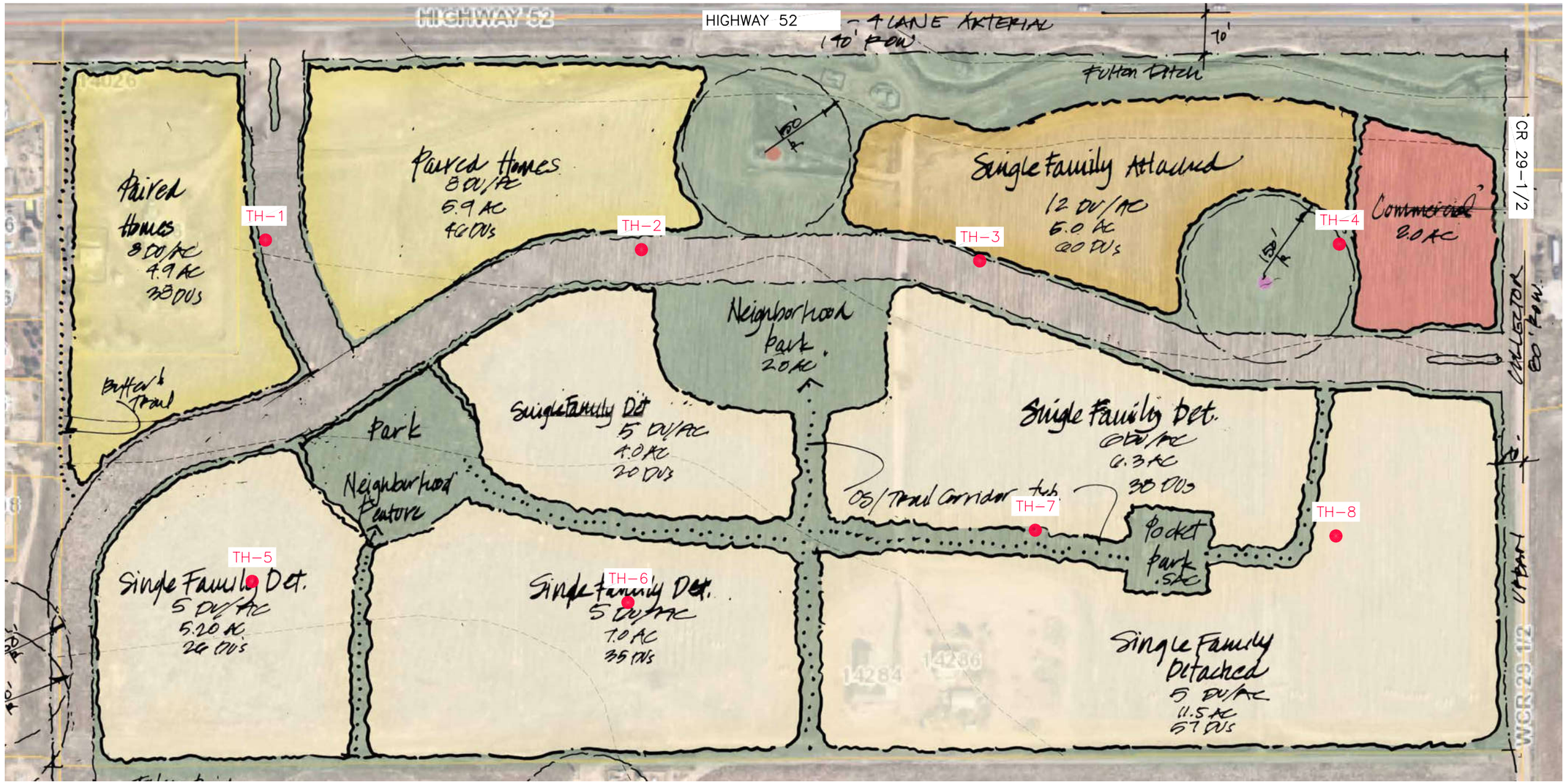
Fig. 1

LEGEND:

TH–1 APPROXIMATE LOCATION OF EXPLORATORY BORING

0 100 200

SCALE: 1" = 200'



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Locations of Exploratory Borings and Conceptual Site Development Plan

Fig. 2

LEGEND:

TH–1 — APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY

(17) — INDICATES APPROXIMATE DEPTH TO BEDROCK BELOW EXISTING GRADE (FEET)

[4951.5] — INDICATES BEDROCK ELEVATION (FEET)

BNE — INDICATES BEDROCK WAS NOT ENCOUNTERED

NOTES:
1) THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF DRILL HOLE DATA AND MAY NOT REFLECT LOCAL VARIATIONS.
2) "BEDROCK" REPRESENTS TOP OF WEATHERED OR COMPARATIVELY UNWEATHERED MATERIAL.

0 100 200

SCALE: 1" = 200'



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Approximate Elevation and Depth to Bedrock

Fig. 3

LEGEND:

TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY

(21) INDICATES MEASURED DEPTH TO GROUNDWATER (FEET)

[4947] INDICATES APPROXIMATE GROUNDWATER ELEVATION (FEET)

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF DRILL HOLE DATA AND MAY NOT REFLECT LOCAL VARIATIONS AND SEASONAL FLUCTUATIONS.

0 100 200

SCALE: 1" = 200'



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Approximate Elevation and Depth to Groundwater

Fig. 4

LEGEND:

TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY

LOW RISK

MODERATE RISK

HIGH RISK

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF LABORATORY TEST RESULTS AND DRILL HOLE DATA.

0 100 200

SCALE: 1" = 200'

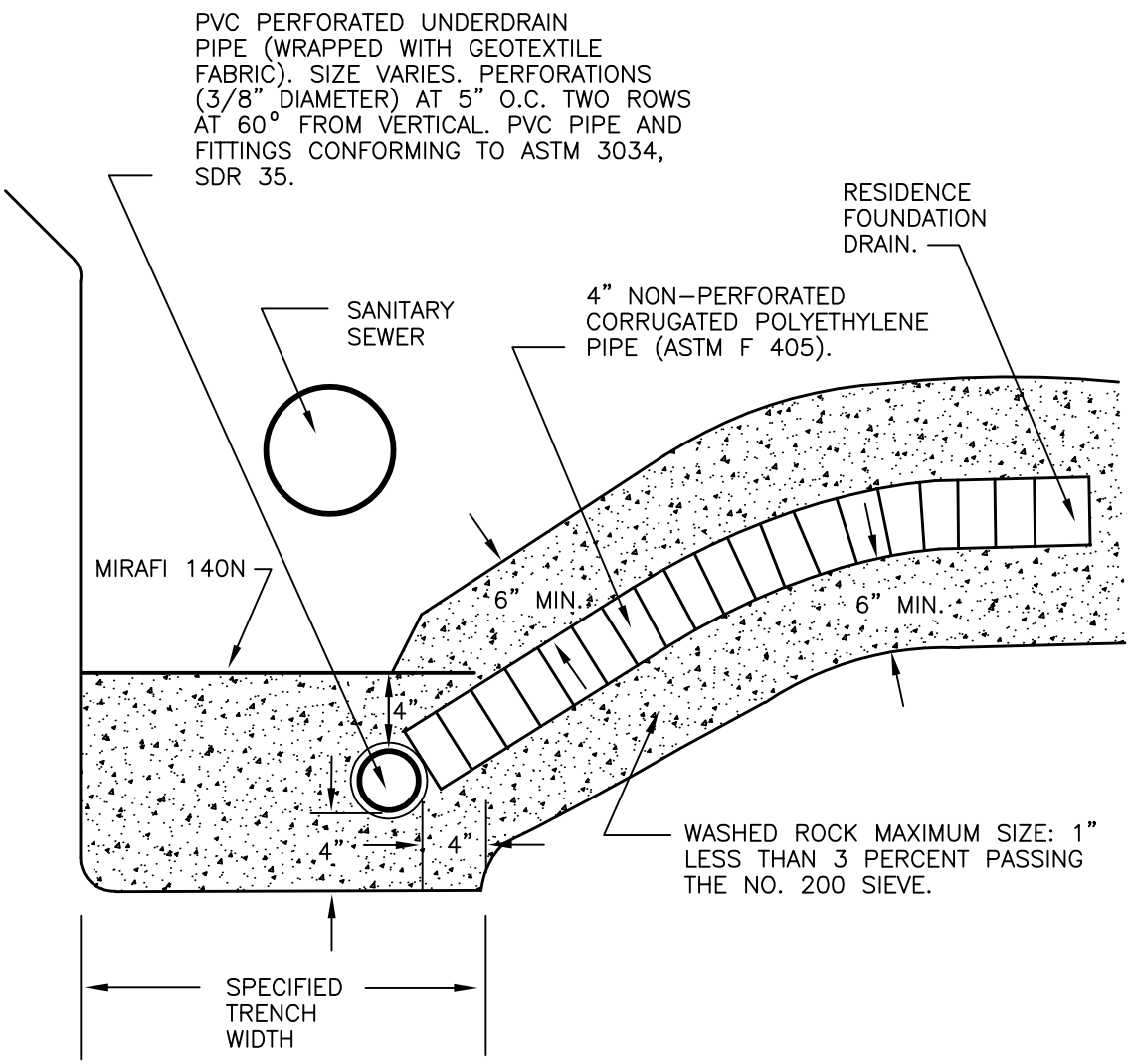


CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Preliminary Risk Assessment Due to Expansive Soil and Bedrock

Fig. 5

50-UNDERDRAIN_02



NOTE: NOT TO SCALE.

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Sewer Underdrain Detail

Fig. 6

50—UNDERDRAIN_06

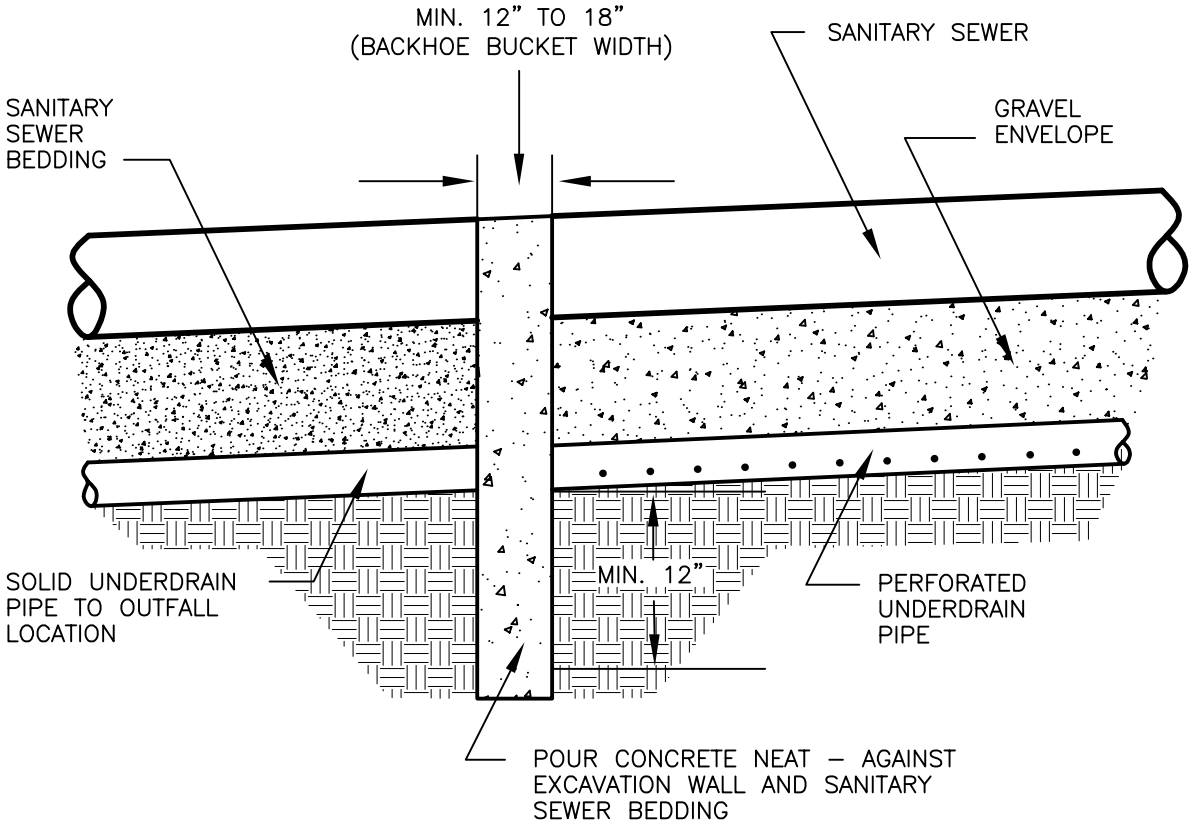
NOT TO SCALE

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Conceptual Underdrain Service Profile

Fig. 7

50-UNDERDRAIN_05



NOTE:
THE CONCRETE CUTOFF WALL SHOULD EXTEND INTO THE UNDISTURBED SOILS OUTSIDE THE UNDERDRAIN AND SANITARY SEWER TRENCH A MINIMUM DISTANCE OF 12 INCHES.

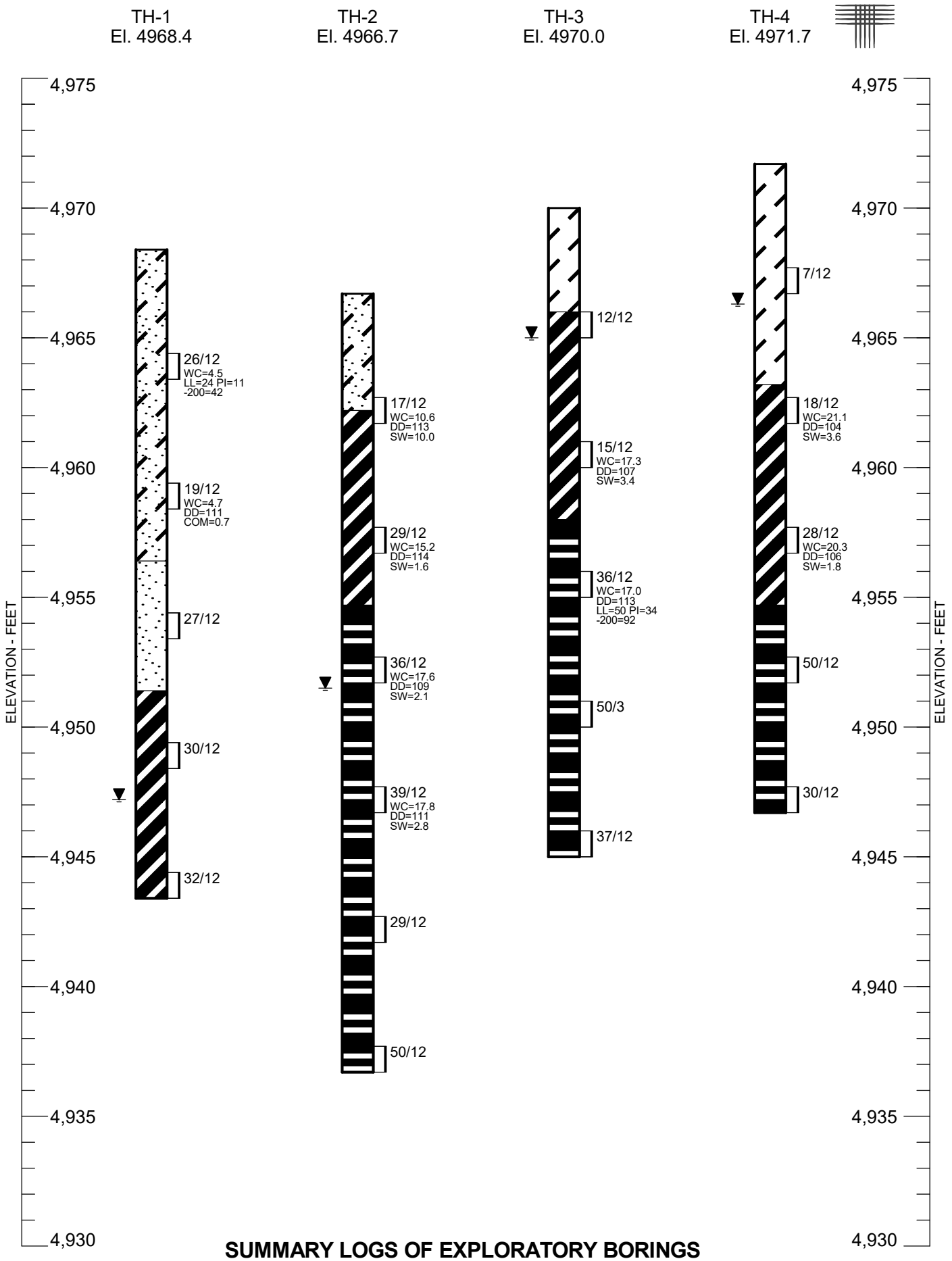
CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-115-R1

Underdrain Cutoff Wall Detail

Fig. 8

APPENDIX A

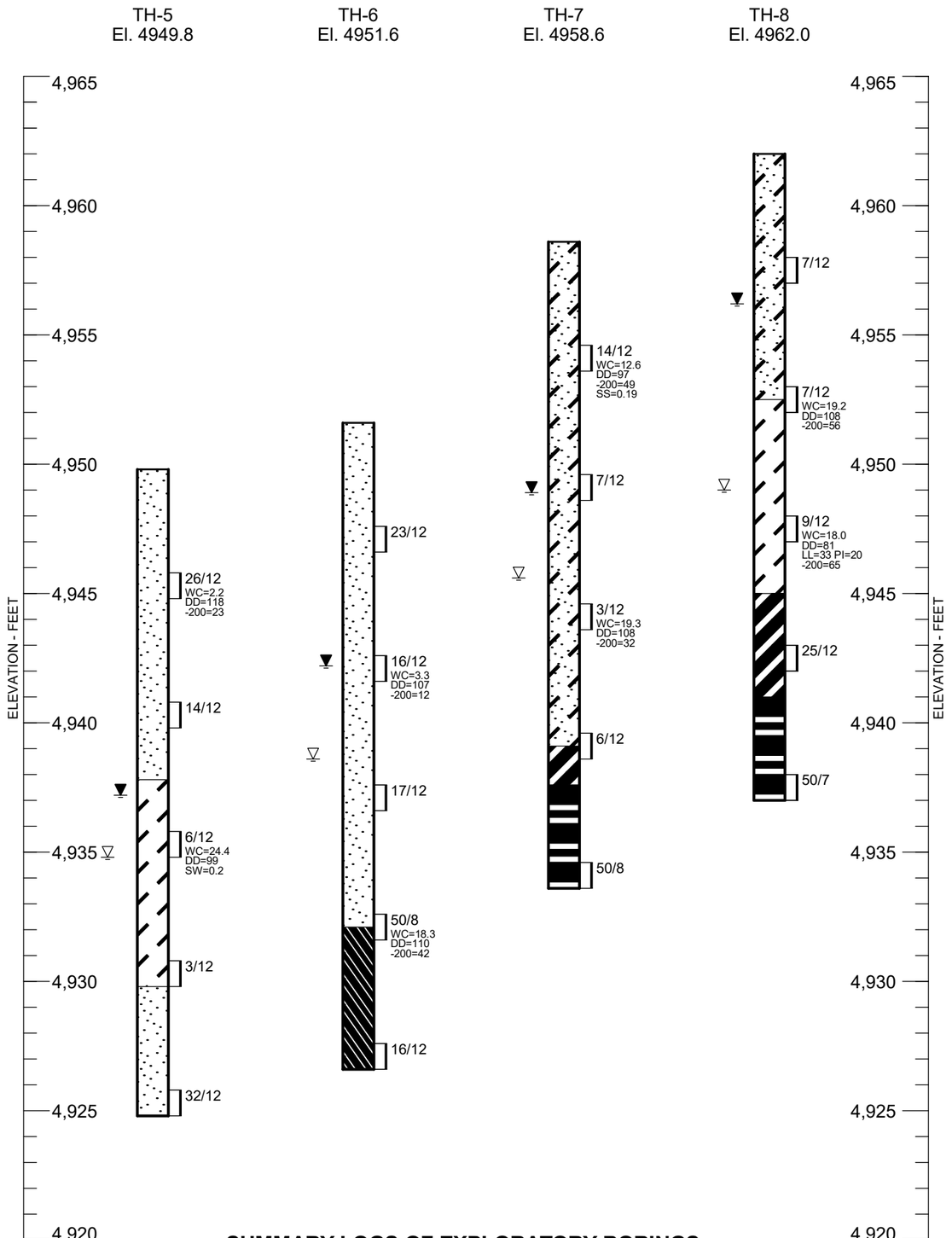
SUMMARY LOGS OF EXPLORATORY BORINGS



SUMMARY LOGS OF EXPLORATORY BORINGS

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

FIG. A- 1



SUMMARY LOGS OF EXPLORATORY BORINGS

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

LEGEND:

CLAY, SANDY TO VERY SANDY, SILTY, SOFT TO STIFF, MOIST TO VERY MOIST, BROWN, LIGHT BROWN, TAN (CL).

SAND, CLAYEY, VERY LOOSE TO MEDIUM DENSE, MOIST TO VERY MOIST, BROWN, TAN, GRAY, LIGHT BROWN (SC).

SAND, CLEAN TO SILTY, OCCASIONAL GRAVEL, MEDIUM DENSE TO DENSE, SLIGHTLY MOIST TO WET, BROWN, TAN, WHITE, GRAY (SP, SP-SM, SM).

WEATHERED CLAYSTONE, HIGHLY PLASTIC, SLIGHTLY MOIST, BROWN, RUST, GRAY.

BEDROCK, CLAYSTONE, SILTY AT TIMES, MEDIUM HARD TO VERY HARD, SLIGHTLY MOIST, BROWN, GRAY, RUST, TAN.

BEDROCK, INTERBEDDED CLAYSTONE/SANDSTONE, SILTY, MEDIUM HARD TO VERY HARD, SLIGHTLY MOIST, GRAY, TAN, RUST.

DRIVE SAMPLE. THE SYMBOL 26/12 INDICATES 26 BLOWS OF AN AUTOMATIC 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.

WATER LEVEL MEASURED AT TIME OF DRILLING.

WATER LEVEL MEASURED AFTER DRILLING ON OCTOBER 19, 2019.

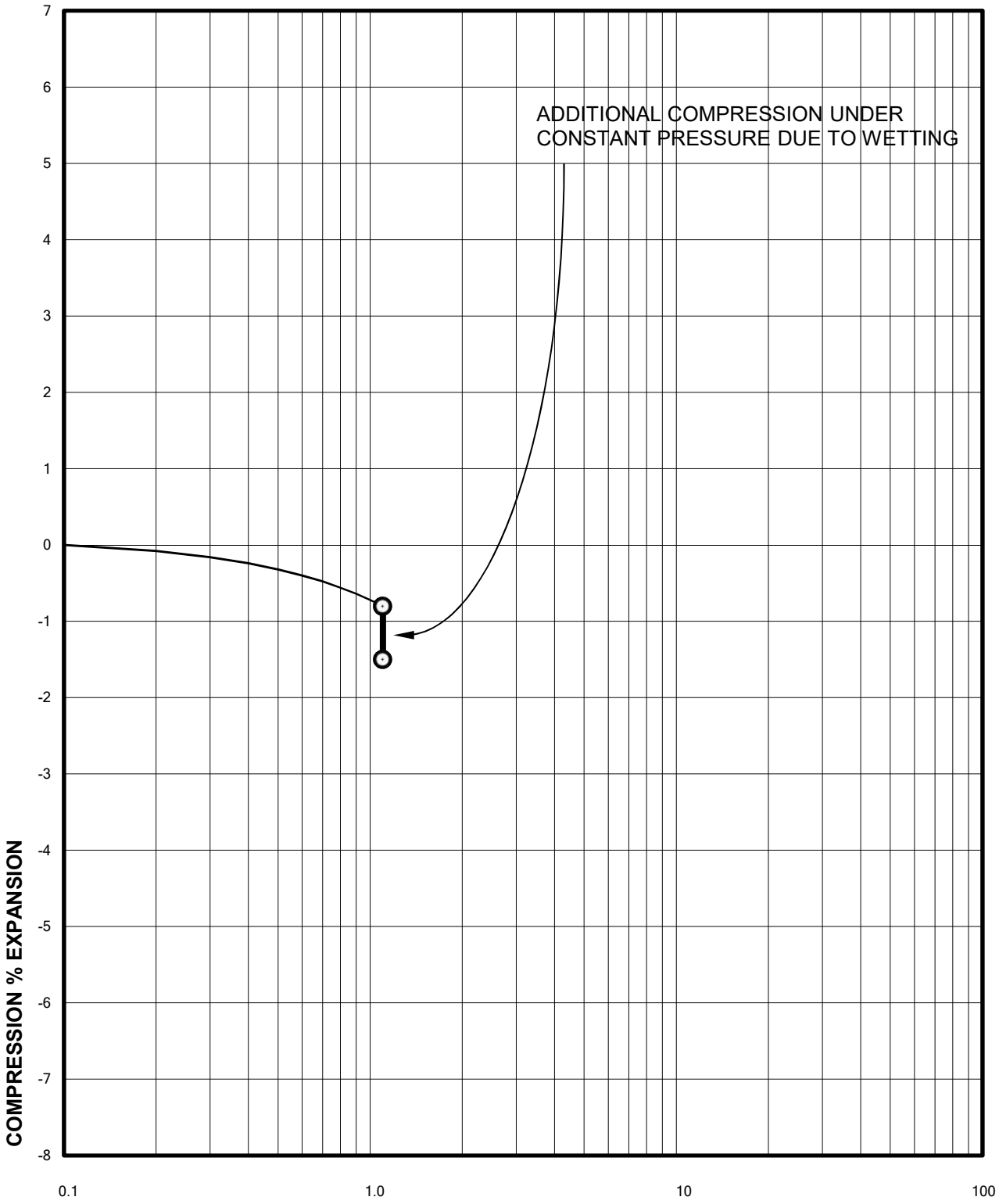
NOTES:

1. THE BORINGS WERE DRILLED ON OCTOBER 9, 2019 USING 4-INCH DIAMETER, CONTINUOUS-FLIGHT SOLID-STEM AUGER AND TRUCK-MOUNTED CME-55 DRILL RIG.
2. BORING LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND WERE SURVEYED BY A REPRESENTATIVE OF OUR FIRM USING A LEICA GS18 GPS UNIT REFERENCING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   COM - INDICATES COMPRESSION WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   SS - INDICATES WATER-SOLUBLE SULFATE CONTENT (%).
4. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS CONTAINED IN THIS REPORT.

FIG. A- 2

APPENDIX B

LABORATORY TEST RESULTS AND TABLE B-I



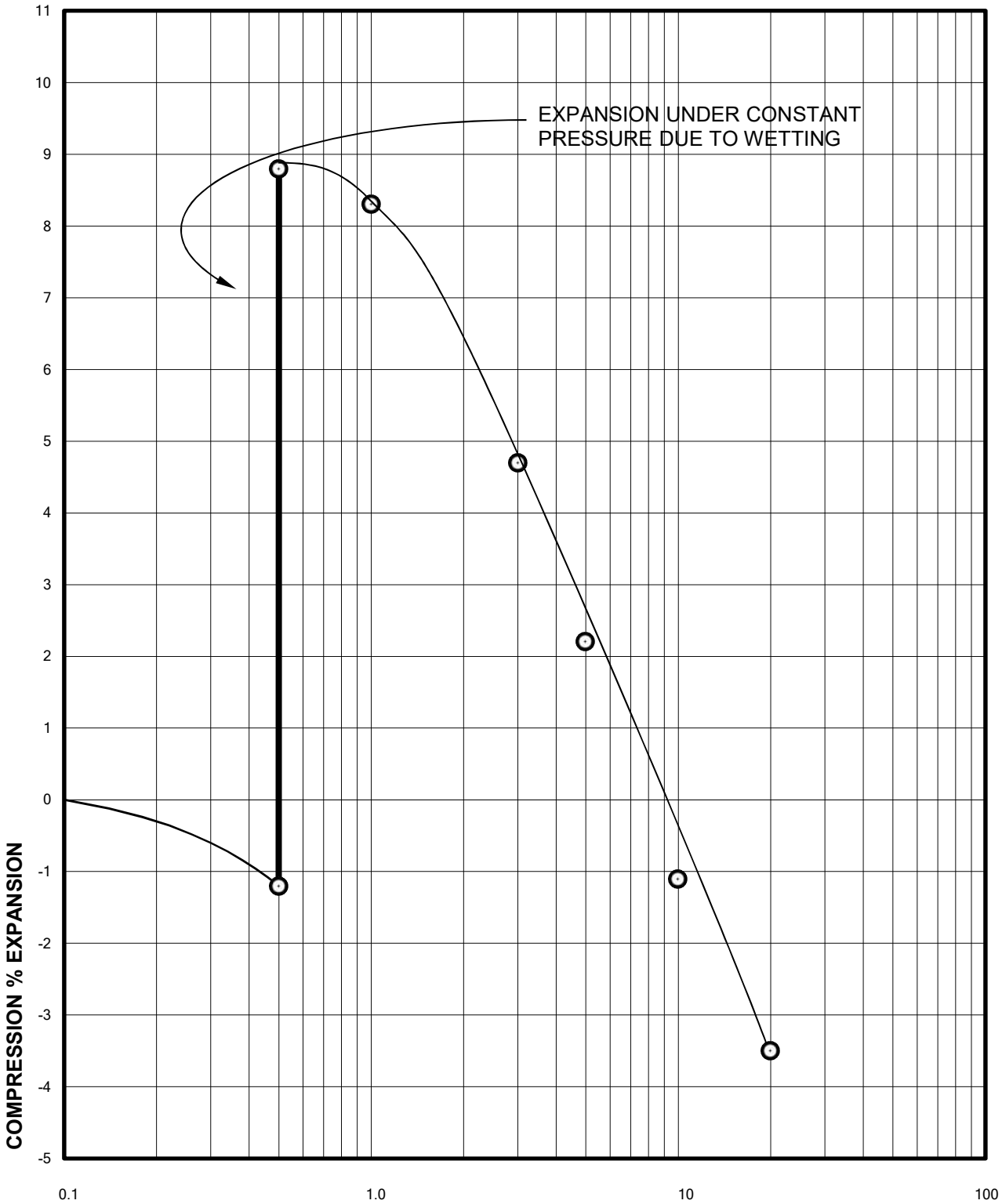
Sample of SAND, CLAYEY (SC)
From TH-1 AT 9 FEET

DRY UNIT WEIGHT= 111 PCF
MOISTURE CONTENT= 4.7 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

Swell Consolidation Test Results

FIG. B-1



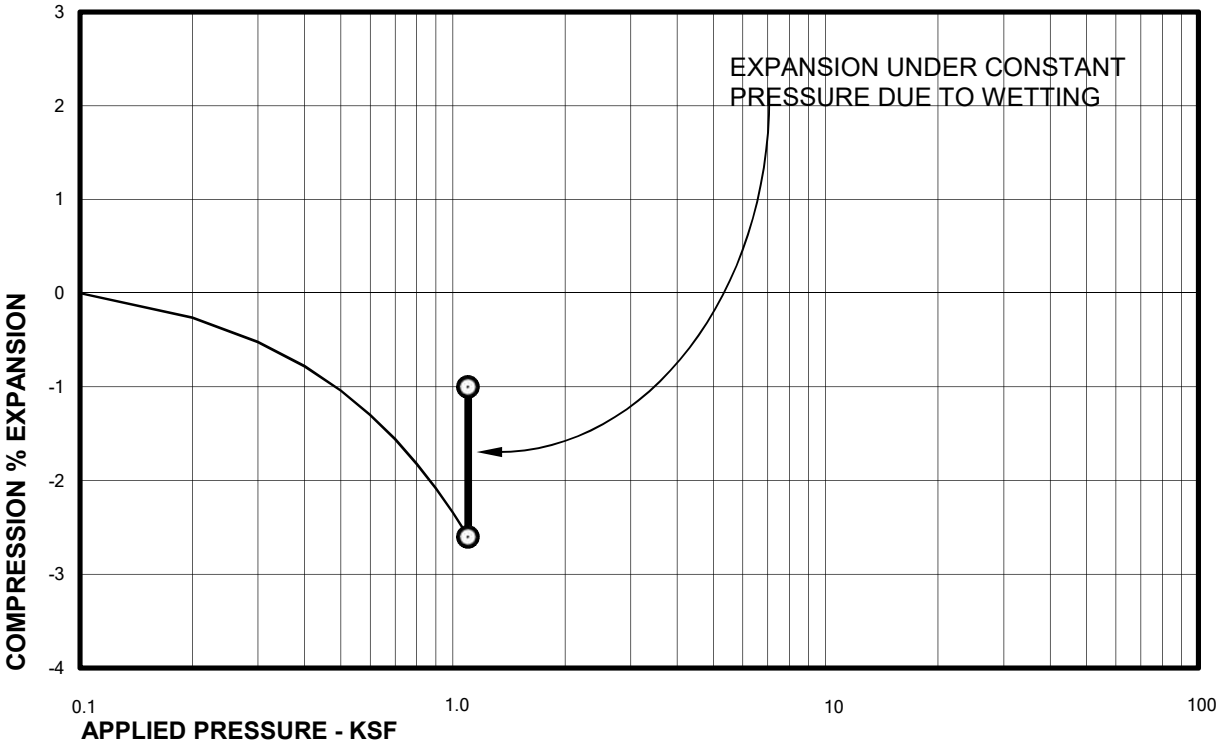
Sample of WEATHERED CLAYSTONE
From TH-2 AT 4 FEET

DRY UNIT WEIGHT= 113 PCF
MOISTURE CONTENT= 10.6 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

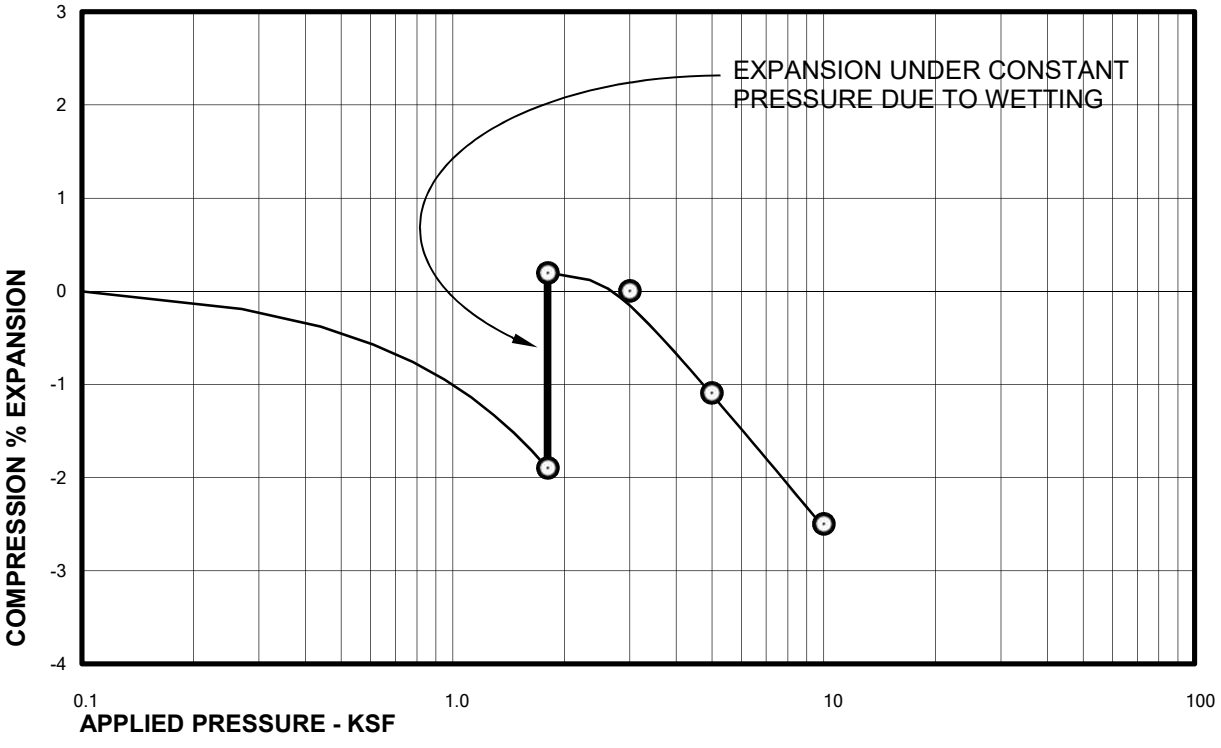
Swell Consolidation Test Results

FIG. B-2



Sample of WEATHERED CLAYSTONE
From TH-2 AT 9 FEET

DRY UNIT WEIGHT= 114 PCF
MOISTURE CONTENT= 15.2 %



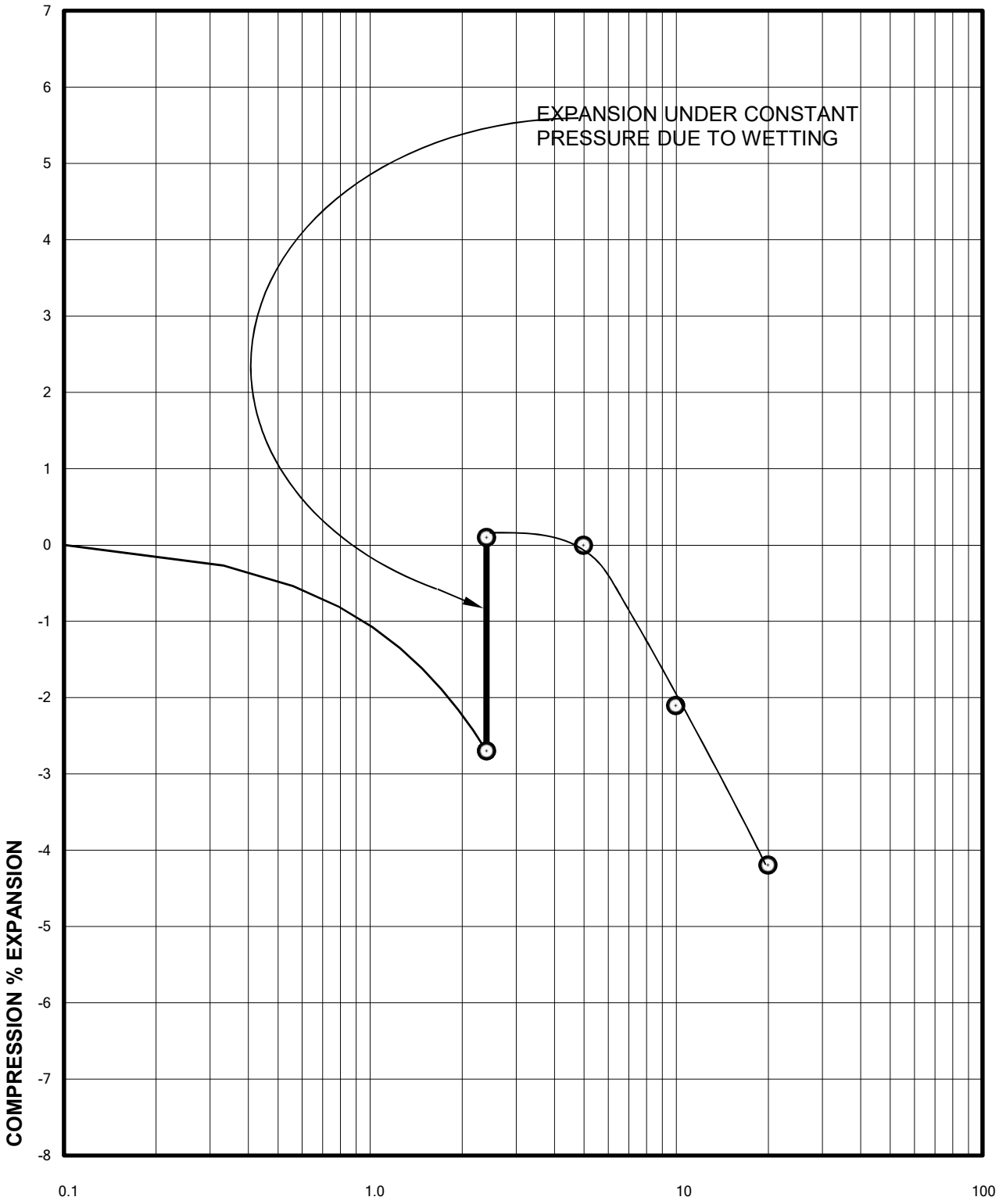
Sample of CLAYSTONE
From TH-2 AT 14 FEET

DRY UNIT WEIGHT= 109 PCF
MOISTURE CONTENT= 17.6 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

Swell Consolidation Test Results

FIG. B-3



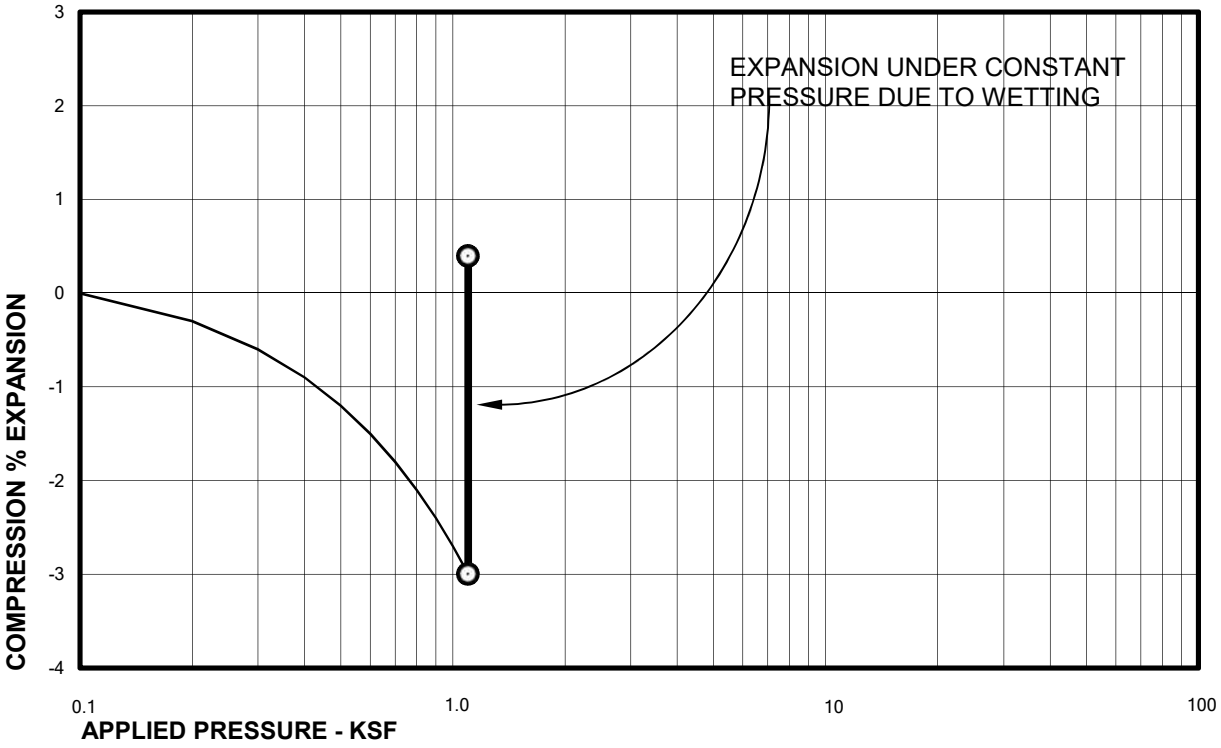
Sample of CLAYSTONE
From TH-2 AT 19 FEET

DRY UNIT WEIGHT= 111 PCF
MOISTURE CONTENT= 17.8 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

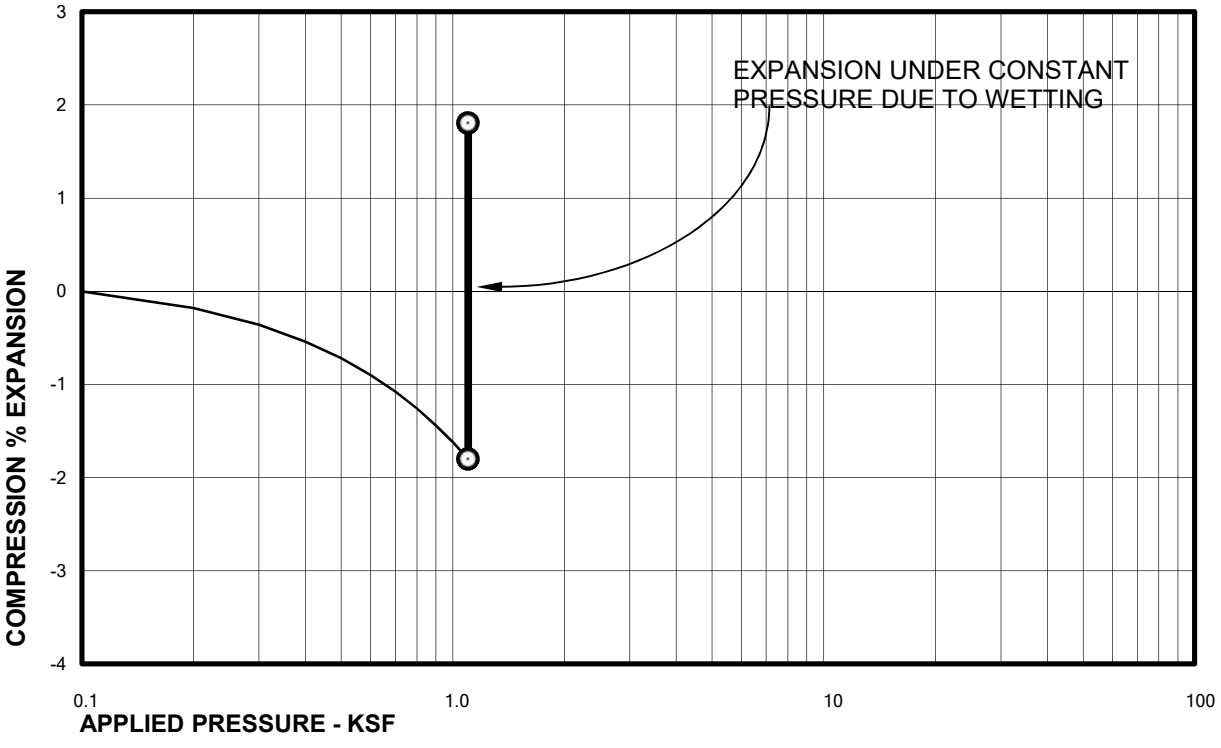
Swell Consolidation Test Results

FIG. B-4



Sample of WEATHERED CLAYSTONE
From TH-3 AT 9 FEET

DRY UNIT WEIGHT= 107 PCF
MOISTURE CONTENT= 17.3 %



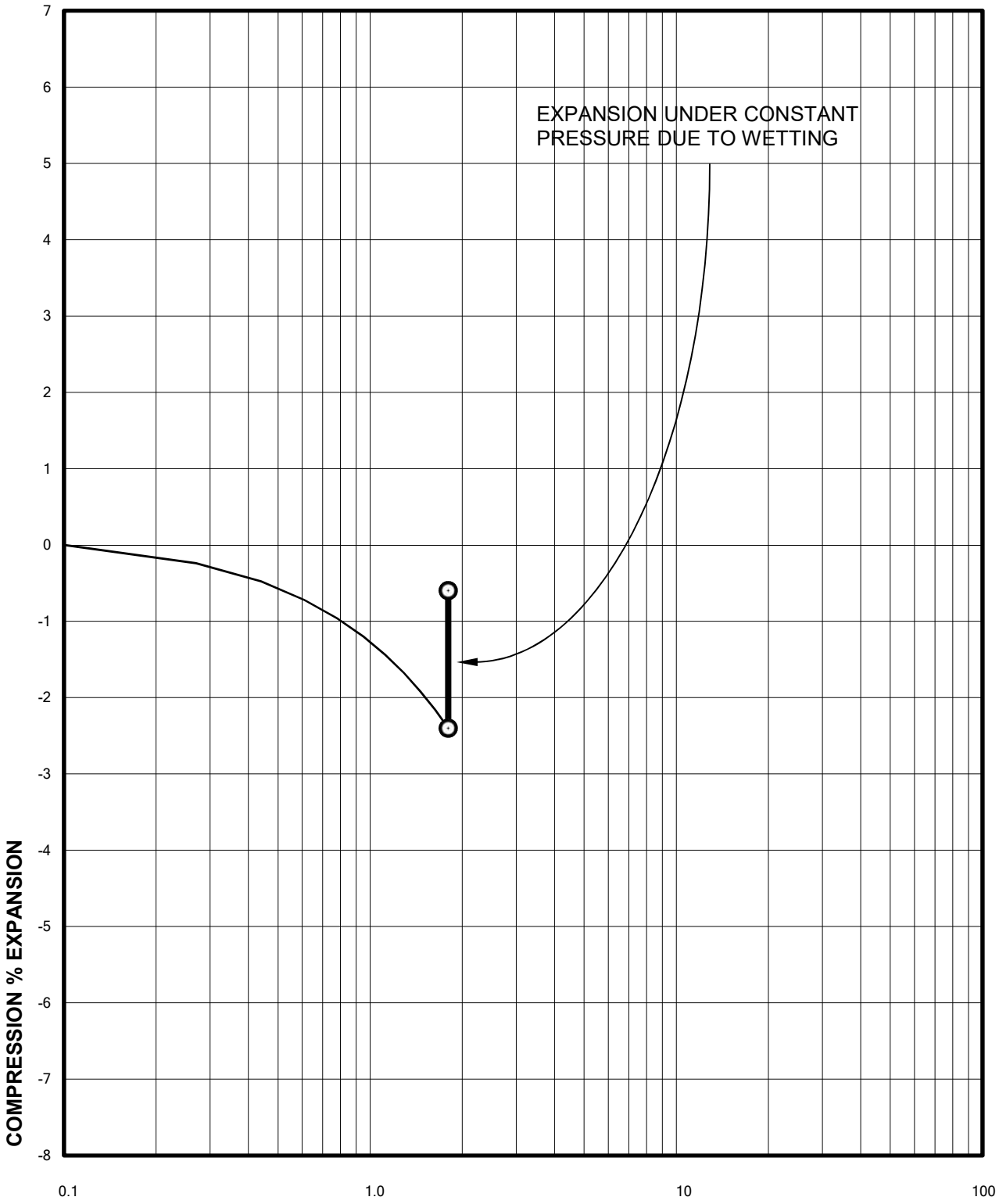
Sample of WEATHERED CLAYSTONE
From TH-4 AT 9 FEET

DRY UNIT WEIGHT= 104 PCF
MOISTURE CONTENT= 21.1 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

Swell Consolidation Test Results

FIG. B-5



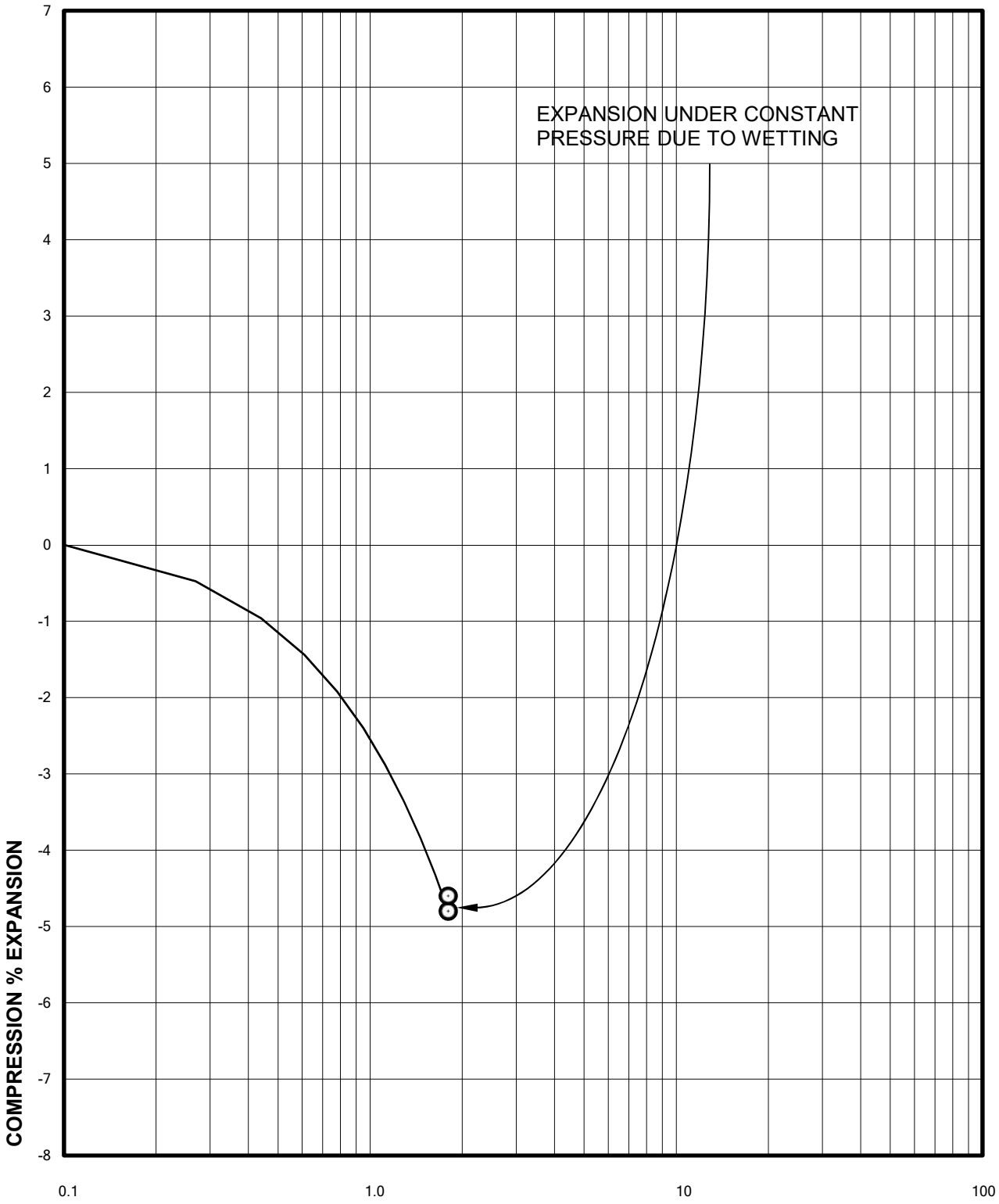
Sample of WEATHERED CLAYSTONE
From TH-4 AT 14 FEET

DRY UNIT WEIGHT= 106 PCF
MOISTURE CONTENT= 20.3 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

Swell Consolidation Test Results

FIG. B-6



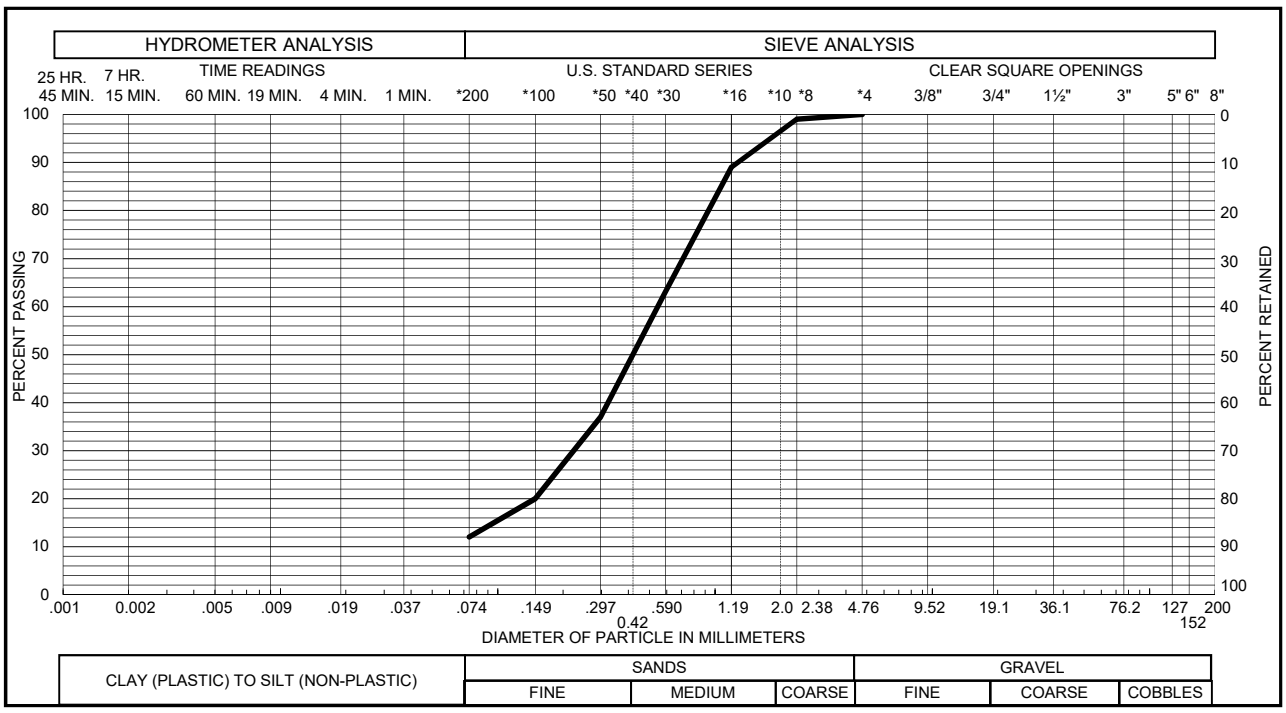
Sample of CLAY, SANDY (CL)
From TH-5 AT 14 FEET

DRY UNIT WEIGHT= 99 PCF
MOISTURE CONTENT= 24.4 %

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

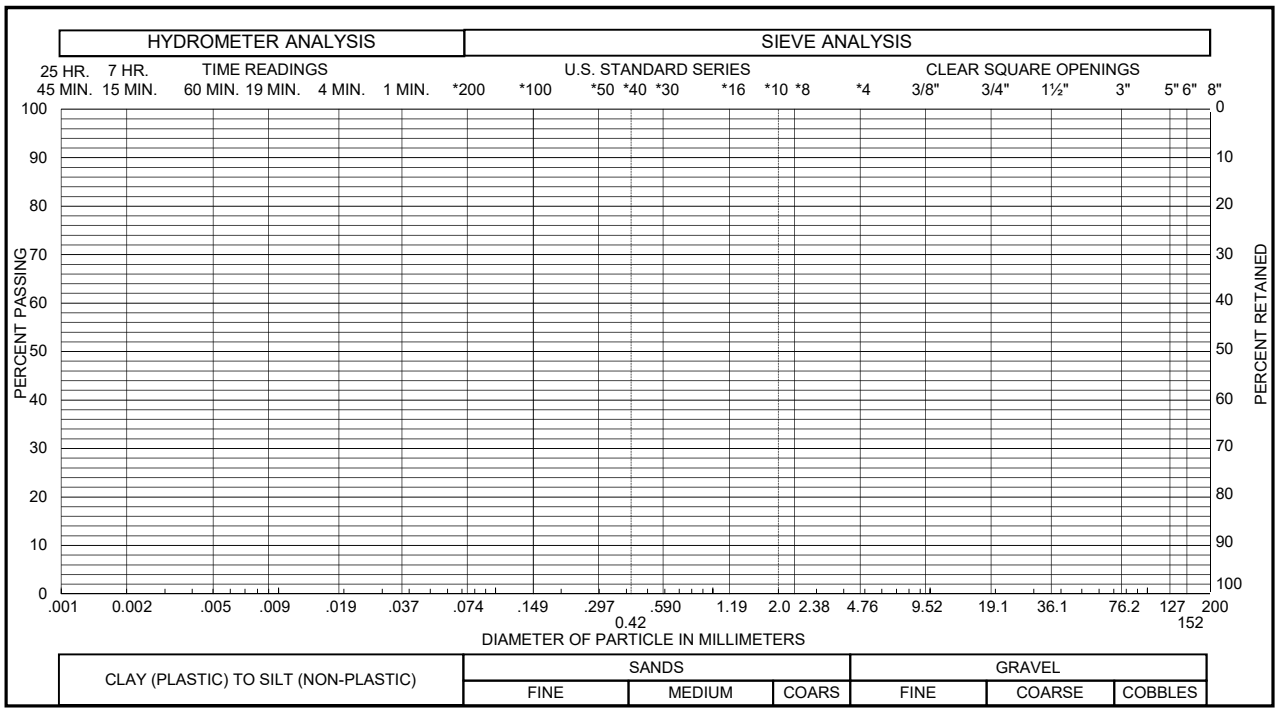
Swell Consolidation Test Results

FIG. B-7



Sample of SAND, SLIGHTLY SILTY (SP-SM)
From TH - 6 AT 9 FEET

GRAVEL 0 % SAND 88 %
SILT & CLAY 12 % LIQUID LIMIT
PLASTICITY INDEX



Sample of
From

GRAVEL % SAND %
SILT & CLAY % LIQUID LIMIT
PLASTICITY INDEX

Gradation Test Results

FIG. B-8

CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL|T PROJECT NO. DN50,219-115-R1

TABLE B - I

SUMMARY OF LABORATORY TEST RESULTS

BORING	DEPTH (ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL TEST DATA				ATTERBERG LIMITS		SOLUBLE SULFATE CONTENT (%)	PASSING NO. 200 SIEVE (%)	SOIL TYPE
				SWELL (%)	COMPRESSION (%)	APPLIED PRESSURE (psf)	SWELL PRESSURE (psf)	LIQUID LIMIT	PLASTICITY INDEX			
TH-1	4	4.5						24	11		42	SAND, CLAYEY (SC)
TH-1	9	4.7	111		0.7	1,100						SAND, CLAYEY (SC)
TH-2	4	10.6	113	10.0		500	12,000					WEATHERED CLAYSTONE
TH-2	9	15.2	114	1.6		1,100						WEATHERED CLAYSTONE
TH-2	14	17.6	109	2.1		1,800	7,200					CLAYSTONE
TH-2	19	17.8	111	2.8		2,400	13,000					CLAYSTONE
TH-3	9	17.3	107	3.4		1,100						WEATHERED CLAYSTONE
TH-3	14	17.0	113					50	34		92	CLAYSTONE
TH-4	9	21.1	104	3.6		1,100						WEATHERED CLAYSTONE
TH-4	14	20.3	106	1.8		1,800						WEATHERED CLAYSTONE
TH-5	4	2.2	118								23	SAND, SILTY (SM)
TH-5	14	24.4	99	0.2		1,800						CLAY, SANDY (CL)
TH-6	9	3.3	107								12	SAND, SLIGHTLY SILTY (SP-SM)
TH-6	19	18.3	110								42	INTERBEDDED CLAYSTONE/SANDSTONE
TH-7	4	12.6	97							0.19	49	SAND, CLAYEY (SC)
TH-7	14	19.3	108								32	SAND, CLAYEY (SC)
TH-8	9	19.2	108								56	CLAY, SANDY (CL)
TH-8	14	18.0	81					33	20		65	CLAY, SANDY (CL)

APPENDIX C

GUIDELINE SITE GRADING SPECIFICATIONS
Murata Farms (Muraco Subdivision)
Fort Lupton, Colorado

GUIDELINE SITE GRADING SPECIFICATIONS

Murata Farms (Muraco Subdivision)
Fort Lupton, Colorado

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve preliminary street and overlot grade elevations. These specifications shall also apply to compaction of excess cut materials that may be placed outside of the development boundaries.

2. GENERAL

The Soils Representative shall be the Owner's Representative. The Soils Representative shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall substantially remove all debris, vegetation, organics and other deleterious materials before excavation or fill placement. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. AREA TO BE FILLED

Debris, vegetation, organics and other deleterious materials shall be substantially removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction.

After the foundation for the fill has been cleared and scarified, it shall be disced or bladed until it is free from large clods, brought to the proper moisture content (optimum to 3 percent above optimum moisture content for clays and within 2 percent of optimum moisture content for sands) and compacted to at least 95 percent of maximum dry density as determined in accordance with ASTM D 698.

5. FILL MATERIALS

Fill soils shall be substantially free from debris, vegetation, organics and other deleterious materials, and shall not contain rocks or lumps having a diameter greater than six (6) inches. Claystone bedrock should be broken down to three (3) inches or smaller in size. Fill materials shall be obtained from cut areas shown on the plans or staked in the field by the Engineer.

On-site materials classifying as CL, CH, SC, SM, SW, SP, GP, GC and GM are acceptable.

6. MOISTURE CONTENT

Fill material classifying as CH, CL and SC shall be moisture-conditioned between optimum and 3 percent above optimum moisture content. Granular soils classifying as SM, SW, SP, GP, GC and GM shall be moisture conditioned to within 2 percent of optimum moisture content as determined from Proctor compaction tests. Sufficient laboratory compaction tests shall be made to determine the optimum moisture content for the various soils encountered in borrow areas.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Soils Representative, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor may be required to rake or disc the fill soils to provide uniform moisture content through the soils.

The application of water to embankment materials shall be made with any type of watering equipment approved by the Soils Representative, which will give the desired results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

7. COMPACTION OF FILL AREAS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum density. Fill shall be compacted to at least 95 percent of the maximum density as determined in accordance with ASTM D 698. At the option of the Soils Representative, soils classifying as SW, GP, GC, or GM may be compacted to 95 percent of maximum density as determined in accordance with ASTM D 1557 or 70 percent relative density for cohesionless sand soils. Fill materials shall be placed such that the thickness of loose materials does not exceed 10 inches and the compacted lift thickness does not exceed 6 inches.

Compaction as specified above, shall be obtained by the use of sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other equipment for soils classifying as CL, CH, or SC. Granular fill shall be compacted using vibratory equipment or other approved equipment. Compaction shall be accomplished while the fill material is at the specified moisture content. Compaction of each layer shall be continuous over the entire area. Compaction equipment shall make sufficient trips to ensure that the required density is obtained.

8. COMPACTION OF SLOPES

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until slopes are stable, but not too dense for planting, and there is no appreciable amount of loose soils on the slopes. Compaction of slopes may be done progressively in increments of three to five feet (3' to

5') in height or after the fill is brought to its total height. Permanent fill slopes shall not exceed 3:1 (horizontal to vertical).

9. PLACEMENT OF FILL ON NATURAL SLOPES

Where natural slopes are steeper than 20 percent in grade and the placement of fill is required, benches shall be cut at the rate of one bench for each 5 feet in height (minimum of two benches). Benches shall be at least 10 feet in width. Larger bench widths may be required by the Engineer. Fill shall be placed on completed benches as outlined within this specification.

10. DENSITY TESTS

Field density tests shall be made by the Soils Representative at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate that the density or moisture content of any layer of fill or portion thereof is not within specification, the particular layer or portion shall be reworked until the required density or moisture content has been achieved.

11. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Soils Representative indicates that the moisture content and density of previously placed materials are as specified.

12. NOTICE REGARDING START OF GRADING

The Contractor shall submit notification to the Soils Representative and Owner advising them of the start of grading operations at least three (3) days in advance of the starting date. Notification shall also be submitted at least 3 days in advance of any resumption dates when grading operations have been stopped for any reason other than adverse weather conditions.

13. REPORTING OF FIELD DENSITY TESTS

Density tests made by the Soils Representative, as specified under "Density Tests" above, shall be submitted progressively to the Owner. Dry density, moisture content, and percentage compaction shall be reported for each test taken.

14. DECLARATION REGARDING COMPLETED FILL

The Soils Engineer shall provide a written declaration stating that the site was filled with acceptable materials, and was placed in general accordance with the specifications.

APPENDIX D

GUIDELINE SUB-EXCAVATION SPECIFICATIONS
Murata Farms (Muraco Subdivision)
Fort Lupton, Colorado

Note: This guideline is intended for use with sub-excavation. If sub-excavation is not selected, the guidelines in Appendix C should be followed.

GUIDELINE SUB-EXCAVATION SPECIFICATIONS
Murata Farms (Muraco Subdivision)
Fort Lupton, Colorado

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve preliminary street and overlot grade elevations. These specifications shall also apply to compaction of excess cut materials that may be placed outside of the development boundaries.

2. GENERAL

The Soils Representative shall be the Owner's Representative. The Soils Representative shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall substantially remove all debris, vegetation, organics and other deleterious materials before excavation or fill placement. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. AREA TO BE FILLED

Debris, vegetation, organics and other deleterious materials shall be substantially removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction.

After the foundation for the fill has been cleared and scarified, it shall be disced or bladed until it is free from large clods, brought to the proper moisture content (between optimum and 4 percent above optimum moisture content for clays and within 2 percent of optimum moisture content for sands) and compacted to at least 95 percent of maximum dry density as determined in accordance with ASTM D 698.

5. FILL MATERIALS

Fill soils shall be substantially free from debris, vegetation, organics and other deleterious materials, and shall not contain rocks or lumps having a diameter greater than six (6) inches. Claystone bedrock should be broken down to three (3) inches or smaller in size. Fill materials shall be obtained from cut areas shown on the plans or staked in the field by the Engineer.

On-site materials classifying as CL, CH, SC, SM, SW, SP, GP, GC and GM are acceptable. Concrete, asphalt, and other deleterious materials or debris shall not be used as fill.

6. MOISTURE CONTENT

Fill materials shall be moisture-conditioned to within limits of optimum moisture content specified in “Moisture Content and Density Criteria”. Sufficient laboratory compaction tests shall be made to determine the optimum moisture content for the various soils encountered in borrow areas or imported to the site.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Soils Engineer, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor will be required to rake or disc the fill to provide uniform moisture content throughout the fill.

The application of water to embankment materials shall be made with any type of watering equipment that will give the desire results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

7. COMPACTION OF FILL MATERIALS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum density given in “Moisture Content and Density Criteria”. Fill materials shall be placed such that the thickness of loose material does not exceed 10 inches and the compacted lift thickness does not exceed 6 inches.

Compaction, as specified above, shall be obtained by the use of suitable equipment. Compaction shall be accomplished while the fill material is at the specified moisture content. Compaction of each layer shall be continuous over the entire area. Compaction equipment shall make sufficient trips to ensure that the required density is obtained.

8. MOISTURE CONTENT AND DENSITY CRITERIA

Fill material shall be substantially compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698, AASHTO T 99) between optimum and 4 percent above optimum moisture content for clays and within 2 percent of optimum moisture content for sands. Additional criteria for acceptance are presented in DENSITY TESTS.

9. DENSITY TESTS

Field density tests shall be made by the Soils Engineer at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate the density or moisture content of any layer of fill or portion thereof not within specifications, the particular layer or portion shall be reworked until the required density or moisture content has been achieved.

Allowable ranges of moisture content and density given in MOISTURE CONTENT AND DENSITY CRITERIA are based on design considerations. The moisture shall be controlled by the Contractor so that moisture content of the compacted earth fill, as determined by tests performed by the Soils Engineer, shall be within the limits given. The Soils Engineer will inform the Contractor when the placement moisture is less than or exceeds the limits specified and the Contractor shall immediately make adjustments in procedures as necessary to maintain placement moisture content within the specified limits, to satisfy the following requirements.

A. Moisture

1. The average moisture content of material tested each day shall not be less than 1 percent over optimum moisture content.

2. Material represented by samples tested having moisture lower than optimum will be rejected. Such rejected materials shall be reworked until moisture equal to or greater than optimum is achieved.

B. Density

1. The average dry density of material tested each day shall not be less than 95 percent of standard Proctor maximum dry density (ASTM D 698).

2. No more than 10 percent of the material represented by the samples tested shall be at dry densities less than 95 percent of standard Proctor maximum dry density (ASTM D 698).

3. Material represented by samples tested having dry density less than 95 percent of standard Proctor maximum dry density (ASTM D 698) will be rejected. Such rejected materials shall be reworked until a dry density equal to or greater than 95 percent of standard Proctor maximum dry density (ASTM D 698) is obtained.

10. OBSERVATION AND TESTING OF FILL

Observation by the Soils Engineer shall be sufficient during the placement of fill and compaction operations so that they can declare the fill was placed in general conformance with specifications. All observations necessary to test the placement of fill and observe compaction operations will be at the expense of the Owner.

11. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Soils Engineer indicates the moisture content and density of previously placed materials are as specified.

12. REPORTING OF FIELD DENSITY TESTS

Density tests made by the Soils Engineer, as specified under “Density Tests” above, shall be submitted progressively to the Owner. Dry density, moisture content and percentage compaction shall be reported for each test taken.

CTL | THOMPSON INCORPORATED

PHASE I ENVIRONMENTAL SITE ASSESSMENT
MURATA FARMS (MURACO SUBDIVISION)
14284 STATE HIGHWAY 52
FORT LUPTON, COLORADO

Prepared for:

CORONADO WEST
c/o JE HOME
2696 South Colorado Boulevard
Suite 329
Denver, Colorado 80222

Attention: Mr. Eric Eckberg

Project No. DN50,219-200-R1

September 30, 2019

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TABLE OF CONTENTS

GLOSSARY OF TERMS i

EXECUTIVE SUMMARY iii

1.0 INTRODUCTION 1
- 1.1 Purpose 1
- 1.2 Scope of Services 2
- 1.3 Limitations 2

2.0 SITE DESCRIPTION AND LOCATION 3
- 2.1 General Description of Site and Improvements 3
- 2.2 General Uses of Adjoining Properties 4

3.0 USER PROVIDED INFORMATION 4
- 3.1 Environmental Liens/Title Records 4
- 3.2 Activity and Use Limitations 4
- 3.3 Specialized Knowledge 5
- 3.4 Valuation Reduction for Environmental Issues 5
- 3.5 Commonly Known or Reasonably Ascertainable Information 5
- 3.6 Owner, Site Manager, and Occupant Information 5
- 3.7 Reason for Performing a Phase I ESA 5
- 3.8 Previous Environmental Site Assessments 6

4.0 RECORDS REVIEW 6
- 4.1 Physiography 6
- 4.2 Geology and Soils 6
- 4.3 Groundwater 6
- 4.4 Water Wells 7
- 4.5 Oil/Gas Wells 8
- 4.6 Physical Setting Analysis of Substance Migration 9

5.0 HISTORICAL USE INFORMATION 9
- 5.1 Historical Aerial Photographs and Topographic Maps 9
- 5.2 Sanborn Fire Insurance Maps 10
- 5.3 City Directory Listings 10
- 5.4 Assessor Records 10
- 5.5 Zoning/Land Use Records 10

6.0 REGULATORY AGENCY RECORDS 11
- 6.1 Summary of Findings 11
- 6.2 Local Government Records 12

7.0 SITE RECONNAISSANCE 12
- 7.1 Methodology and Limiting Conditions 12
- 7.2 Description of Site Structures and Roads 13
- 7.3 Site Observations 13
  - *7.3.1 Aboveground Storage Tanks* 14
  - *7.3.2 Air Emissions Sources* 14
  - *7.3.3 Cultivated Land/Crops* 15
  - *7.3.4 Drains, Sumps and Pits* 15
  - *7.3.5 Hazardous Materials Storage* 15

7.3.5.1 Outside 15
7.3.5.2 Storage Shed 16
7.3.5.3 Quonset Hut 16
7.3.6 Septic Systems or Leach Fields 16
7.3.7 Solid Waste or Disposal Areas 16
7.3.8 Stained Soil and/or Pavement 17
7.3.9 Surface Water, Streams, Ponds, or Lagoons 17
7.3.10 Transformers 17
7.3.11 Wells (Agricultural, Water Supply) 18
7.3.12 Wells (Oil or Natural Gas) 18
7.3.13 Drains or Sumps 18
7.4 Review of Adjacent Properties 18

8.0 INTERVIEWS 19
8.1 Owner, Site Manager and/or Occupants 19

9.0 DEVIATIONS 20
9.1 Exceptions and Deletions 20
9.2 Data Gaps 20

10.0 FINDINGS AND OPINION 21
10.1 Summary of Site Historical Use 21
10.2 Nearby Environmental Concerns 21
10.3 Storm Water Discharges Associated with Construction Activity 22

11.0 CONCLUSIONS 22

12.0 QUALIFICATIONS 23

REFERENCES 24

FIGURE 1 – TOPOGRAPHIC AREA MAP

FIGURE 2 – SITE MAP

APPENDIX A – SITE PHOTOGRAPHS

APPENDIX B – HISTORICAL AERIAL PHOTOGRAPHS

APPENDIX C – GEOSEARCH REPORT(S)

APPENDIX D – LOCAL GOVERNMENT RESPONSE

APPENDIX E – DWR PERMITS

APPENDIX F – RESUMES

GLOSSARY OF TERMS

1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane, also **DCA**
1,1-DCE	1,1-Dichloroethene
1,2-DCE	1,2-Dichloroethene, also **DCE**
AB	Abandoned Wellbore or Completion (COGCC)
AC	Active (COGCC)
AL	Abandoned Location (COGCC)
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AUL	Activity and Use Limitation
BF	Brownfields Management System
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CAP	Corrective Action Plan, also **CMWP** (Corrective Measures Work Plan)
CBGWQS	Colorado Basic Groundwater Quality Standards
CCOD	City and County of Denver
CDL	Clandestine Drug Laboratory Locations
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	CERCLA Information System
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CL	Closed (COGCC)
CLEANERS	Dry Cleaning Facility
COC	Chain of Custody, or Contaminants of Concern
COGCC	Colorado Oil and Gas Conservation Commission
CREC	Controlled REC
DA	Dry and Abandoned (COGCC)
DG	Drilling (COGCC)
DM	Domestic Well
DOE	Department of Energy
DPE	Dual Phase Extraction
DWR	Colorado Division of Water Resources
EISB	Enhanced In-Situ Bioremediation
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ERNSCO	Emergency Response Notification System
ERR	Environmental Records Review
HMWMD	Hazardous Materials and Waste Management Division (CDPHE)
HREC	Historical REC
HW	Hazardous Waste
HWS	Hazardous Waste Sites
HWSCA	HWS Corrective Action
HISTSWLF	Historical Solid Waste Landfills
ISCO	In-Situ Chemical Oxidation
LQG	Large Quantity Generator
LST	Leaking Storage Tank
LUSTTRUST	LST Trust Fund Sites
MCL	Maximum Contaminant Level
MCLG	MCL Goal
MDL	Method Detection Limit
MEK	Methyl Ethyl Ketone

MS4	Municipal Separate Storm Sewer System
MTBE	Methyl Tertiary-Butyl Ether
NAD	No Action Determination
NFA	No Further Action
NMA	Natural Monitored Attenuation
NRCS	Natural Resources Conservation Service
OPS	Colorado Department of Labor and Employment, Division of Oil and Public Safety
PA	Plugged and Abandoned (COGCC)
PAH	Polychlorinated Aromatic Hydrocarbons
PCE	Perchloroethylene (also Tetrachloroethylene)
ppb	Parts per Billion
ppm	Parts per Million
PQL	Practical Quantitation Limits
PR	Producing (COGCC)
PRB	Permeable Reactive Barriers
RBSL	Risk Based Screening Level, also **RSL**
RC	Recompleted (COGCC)
RCRA	The Resource Conservation and Recovery Act
RCRAC	RCRA Corrective Action Facility
RCRAGR08	RCRA Generator Facility, EPA Region 8
RCRANGR08	RCRA Non-Generator Facility, EPA Region 8
REC	Recognized Environmental Condition
RL	Reporting Limit
ROD	Record of Decision
RSL	Regional Screening Level
SDWA	Safe Drinking Water Act
SF	Superfund Site
SI	Shut In (COGCC)
SQG	Small Quantity Generator
SRG	Standards Remediation Goal
SVE	Soil Vapor Extraction
SWF	Solid Waste Facility
SWMP	Storm Water Management Plan
TA	Temporarily Abandoned (COGCC)
TCA	1,1,1-Trichloroethylene
TCE	Trichloroethylene
TEPH	Total Extractable Petroleum Hydrocarbons
TPH	Total Petroleum Hydrocarbons
TSD	Treatment, Storage, and Disposal
TVPH	Total Volatile Petroleum Hydrocarbons
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VISL	Vapor Intrusion Screening Level
VCRA	Voluntary Cleanup and Redevelopment Program, also **VCP**
WO	Waiting on Completion (COGCC)
WQCD	Water Quality Control Division
wrt	With Respect To
XX	Location (COGCC)

EXECUTIVE SUMMARY

This report presents the results of the Phase I Environmental Site Assessment (ESA) that was performed by CTL | Thompson, Inc. for Coronado West c/o JE Homes. The Site is located at 14284 State Highway 52 in Fort Lupton, Colorado.

The Phase I ESA was conducted in general conformance with the methods and procedures described in the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The Site, approximately 70.99 acres in size, currently consists of residential and agricultural land. The Site and surrounding area appear to have been primarily agricultural land with dispersed residences since at least the early 1900s until approximately 1999, when residential development began to appear in the surrounding area. Currently, there are two residences, a storage shed, and one Quonset hut along the south-central border, and oil and gas features in the north portion of the Site.

We found evidence of recognized environmental conditions in connection with the Site, primarily in the form of the oil and gas features on-site. There are two Crestone Peak wells along the northern border (including a tank battery), and a plugged and abandoned Kerr McGee well in the northeastern portion of the Site. Releases of hydrocarbon products are common during well operation and abandonment; there is limited environmental information on these wells.

In addition, during the Site visit, it was discovered that a fuel tank was removed from the Site prior to 2010 due to potential leaking in the southern portion of the Site, and a former water well pit for a pond project presented stressed vegetation.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

1.0 INTRODUCTION

This report was prepared by CTL | Thompson, Inc. (CTL) for Coronado West c/o JE Homes (Coronado) and presents the results of the Phase I Environmental Site Assessment (ESA) for the property located at 14284 State Highway 52 in Fort Lupton, hereto referred to as the "Site". The Phase I ESA was conducted in general accordance with CTL's Service Agreement DN19-0464, dated August 23, 2019, and subsequent authorization by Mr. John Cork on August 23, 2019.

1.1 Purpose

The purpose of the Phase I ESA was to identify Recognized Environmental Conditions (REC), to the extent feasible, pursuant to the methods and procedures described in the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessments, E 1527-13.

A REC is defined as the presence or likely presence of hazardous substances or petroleum products on a site under conditions that indicate an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products into structures on the Site or into the ground, groundwater, or surface water of the Site. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

ASTM Standard E1527-13 also has separate definitions for past conditions that would otherwise be considered a REC but have been addressed to the satisfaction of the applicable regulatory agencies and would either allow for generally unrestricted use of the Site (referred to as a Historical Recognized Environmental Condition, or HREC) or for use of the Site with various restrictions (referred to as a Controlled Recognized Environmental Condition, or CREC).

As per ASTM E1527-13, a business environmental risk is defined as a risk that may have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a property of commercial real estate, but not necessarily limited to the

environmental scope required to be investigated in this practice. Non-scope considerations that may be addressed in this type of risk are listed in Section 1.3.

1.2 Scope of Services

The scope of services for this assessment consisted of a records review, a Site reconnaissance, historical research, interviews, and documentation of findings in a report.

1.3 Limitations

This Phase I ESA was prepared in general accordance with ASTM Standard E 1527-13. There may be additional environmental issues present at the site that are outside the scope of this practice that include, but are not limited to, the following:

- Asbestos-containing materials;
- Radon;
- Lead-based paint;
- Lead in drinking water;
- Cultural and historic resources;
- Mold and fungi;
- Industrial hygiene;
- Indoor air quality;
- Health & safety;
- Ecological resources;
- Endangered species;
- Biological or infectious agents and pathogens;
- Wetlands;
- Jurisdictional waters of the U.S;
- Regulatory compliance;
- High voltage power lines; and,
- Mine subsidence.

CTL provided an opinion based upon the condition of the Site on the day it was observed and a review of existing and reasonably ascertainable regulatory records and historical information. Our scope did not include chemical testing of soil, groundwater, air, or building materials. Sampling and analysis lead to a more reliable assessment of environmental conditions. The opinion, conclusions, and recommendations of this report are not intended to be used or relied upon by a third party to this Agreement. With the written consent of our client, CTL may be available to contract

with other parties to provide an opinion or conduct additional environmental assessment services. Due to latent conditions and other contingencies which may become evident in the future, the current assessment does not result in any guarantee the subject Site is free and clear of hazardous materials. Should additional surface, subsurface or chemical data become available, the conclusions and recommendations contained in this report shall not be considered valid unless the data is reviewed, and the conclusions of this report are modified or approved in writing by our firm.

We believe that this investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of the project. No warranty, express or implied, is made.

2.0 SITE DESCRIPTION AND LOCATION

TABLE I
LOCATION AND DESCRIPTION

Descriptor	Description
Location	14284 State Highway 52 in Fort Lupton, Weld County, Colorado 80621
Township and Range	North ½ of Southwest ¼ of Section 4, Township 1 North, Range 66 West of the 6th Principal Meridian
USGS Quadrangle	Fort Lupton
Parcel Number(s)	147104000069
Legal Description per Assessor	FTL PT N2SW4 4-1-66 (MURATA FARMS ANNEX) LOT B REC EXEMPT RE-879
Current Use	Agricultural; Residential
Total Land Area	70.99 acres
Ownership	Perri M-J Company

The Site location and plan are shown in the attachments on Figure 1 (Area Map) and Figure 2 (Site Map).

2.1 General Description of Site and Improvements

The Site is agricultural land with two residential buildings and two storage buildings along the south-central border. Oil and gas features are located primarily in the north-central portion. Highway 52 and Weld County Road 29 ½ form the north and east boundaries, respectively. A photographic record of our Site reconnaissance is presented in **Appendix A**.

2.2 General Uses of Adjoining Properties

The Site is located within a rural, residential and agricultural corridor of Fort Lupton along State Highway 52. The adjoining properties generally consist of agricultural land, residential developments with associated golf courses, oil and gas operations, and an educational campus. Additional details regarding our observations of adjacent properties are presented in Section 7.4 of this report.

3.0 USER PROVIDED INFORMATION

Mr. Eric Eckberg of JE Home, responded to our Client Questionnaire via email on September 20, 2019. Mr. Perry Murata, president of M-J Perri Co. (M-J Perri) responded to our Owner Questionnaire on September 20, 2019 via email. A summary of Mr. Eckberg and Mr. Murata's responses to our questionnaires are below.

3.1 Environmental Liens/Title Records

An environmental lien is a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous material or petroleum products upon a property. Mr. Eckberg and Mr. Murata were not aware of existing environmental liens on the Site.

CTL was provided with title records available from Land Title Guarantee Company, Order No. ABC25165205 dated May 17, 2019. Based on a cursory review of the title exceptions in Schedule B – Section 2 "Exceptions", there were no obvious indications of environmental liens or AULs associated with environmental contamination. It should be noted that CTL's practitioners are not title professionals or attorneys, and our review of title documents does not necessarily eliminate the user's ASTM requirement to perform a search for environmental liens and AULs.

3.2 Activity and Use Limitations

Environmental AULs are legal or physical restrictions or limitations on the use of, or access to, a Site or facility to: 1) reduce or eliminate potential exposure to hazardous substances or petro-

leum products in the soil or groundwater on the property, or 2) prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions may include engineering controls, institutional controls, or land use restrictions. Mr. Eckberg and Mr. Murata were not aware of recorded environmental AULs in relation to the Site.

3.3 Specialized Knowledge

Mr. Eckberg and Mr. Murata were not aware of nor possessed specialized knowledge or experience associated with environmental concerns on the Site.

3.4 Valuation Reduction for Environmental Issues

Mr. Eckberg and Mr. Murata were not aware of valuation reduction of the Site because of environmental issues.

3.5 Commonly Known or Reasonably Ascertainable Information

Mr. Eckberg and Mr. Murata were not aware of nor possessed commonly known or reasonably ascertainable environmental information related to the Site, other than the knowledge of two operating oil and gas wells and a septic leach field on-Site.

3.6 Owner, Site Manager, and Occupant Information

Mr. Eckberg indicated that the Site is currently brokered by Commercial Brokers Alliance NOCO, LLC and owned by M-J Perri. Mr. Perry Murata is the owner's representative and has been associated with the Site since 1985. Further owner details are presented in Section 8.1 of this report. The Site is currently agricultural land and is currently occupied by two residences.

3.7 Reason for Performing a Phase I ESA

Coronado West c/o JE Home requested a Phase I ESA prior to acquisition of the Site.

3.8 Previous Environmental Site Assessments

Mr. Eckberg and Mr. Murata were not aware of previous ESAs for the Site.

4.0 RECORDS REVIEW

CTL reviewed existing sources listed in the **References** section to assess the soils, geologic and hydrogeologic conditions of the general vicinity of the Site.

4.1 Physiography

The regional topography slopes to the southwest as presented on the topographic map (Figure 1). The Site slopes downward to the southwest. The elevation of the Site is approximately 4,957 feet above mean sea level. The predominant surface water feature(s) in the vicinity of the Site are the Coyote Creek Golf Course ponds and a private pond, located approximately 235 feet north and 0.38 miles east of the Site, respectively. Additionally, Fulton Ditch, an irrigation ditch, crosses through the north-east boundary.

4.2 Geology and Soils

A forthcoming Preliminary Geotechnical Investigation report for the Site is to be completed by CTL under Project No. DN50,219-115. Once published, the report should be read in its entirety for more details.

The U.S. Department of Agriculture NRCS “Web Soil Survey” and U.S. Geological Survey map indicates that the Site soils are primarily Olney fine sandy loam and secondarily Otero and Vona sandy loams.

4.3 Groundwater

The forthcoming Preliminary Geotechnical Investigation report for should be read in its entirety for further details.

It is our experience that shallow, unconfined groundwater is generally controlled by topography. Based on topography, we estimate the general direction of groundwater flow below the Site is to the southwest.

4.4 Water Wells

Water wells were identified through the Colorado DWR online water well permit database. The database indicated the presence of two registered wells located on the Site, and eight water wells adjacent to the Site.

TABLE II
WELL DESCRIPTION AND APPROXIMATE DISTANCE AND DIRECTION FROM THE SITE

Well Name	Permit No.	Applicant	Uses	Abandon Date	Approximate Location wrt the Site
Testhole	12852-TH [4/13/1988]	Lee Murata	Monitoring/ Sampling	2/13/1991	West area on-Site
N/A	159404 [2/15/1991]	M-J Perri Company	Domestic Stock	N/A	South area on-Site
N/A	55090 [4/2/1972]	Joseph & Dolores Sack	Domestic	N/A	10 ft E
N/A	157773 [7/30/1990]	Patricia L. Terry	Domestic	N/A	200 W
N/A	275964 [11/14/2007]	Patricia L. Terry	Domestic	N/A	140 W
N/A	35223-F [6/15/1989]	Delta Environmental	Other/Monitoring	N/A	425 ft W*
Well #1	160719 [7/22/1991]	B.T. Griffith et al	Domestic Stock	N/A	920 ft WNW
Well #2	160718 [7/22/1991]	B.T. Griffith et al	Domestic Stock	N/A	1,020 ft NW
N/A	218835 [7/15/1999]	Lawrence J. Tenorio	Domestic	N/A	410 ft E
N/A	88814 [3/11/1977]	Maria Arellano	Domestic Stock	N/A	660 ft E

*Actual distance likely to be over ½ mile to the west based on the DWR Permit.

We do not believe the domestic use wells present RECs to the Site due to their use.

Limited information is available for the well named “Testhole”, but it appears to have been plugged and abandoned in 1991. Files in the DWR for the off-Site monitoring well under the Permit No. 35223-F indicate that the well was for contamination extraction from a release of gasoline into the soil and groundwater from the Anderson Oil Company service station in 1989. Records indicat-

ed an expected cleanup duration of approximately two years. Further details were not available and/or could not be found. We do not believe this presents evidence of a REC to the Site, because the section-township-range information puts this well over ½-mile to the west of the Site.

4.5 Oil/Gas Wells

Oil and gas wells were identified through the COGCC online database. The database indicated the presence of two operating or abandoned oil/gas wells on the Site, and three oil/gas wells adjacent to the Site.

TABLE III
WELL DESCRIPTION AND APPROXIMATE DISTANCE AND DIRECTION FROM THE SITE

Well Name	Permit No.	Facility ID	Operator	Status	Status Date	Location wrt the Site
TWOMBLY #12-4	20020572	263138	Crestone Peak Resources Operating, LLC	PR	3/1/2018	North Area on-Site
PERRI #11-4A	20085370	263148	Kerr McGee Oil & Gas Onshore, LP	PA	5/9/2018	East Area on-Site
ADDIE M. KING GAS UNIT #1	19980348	240569	Kerr McGee Oil & Gas Onshore, LP	SI	2/1/2019	150 ft S
HSR ATLER FEDERAL #9-5A	20082843	258607	Kerr McGee Oil & Gas Onshore, LP	SI	2/1/2019	190 ft W
HSR ATLER #10-5	010383	259403	Kerr McGee Oil & Gas Onshore, LP	PA	10/4/2016	185 ft W

The TWOMBLY #12-4 battery and well are still active and producing as of March 2018. The east well, PERRI #11-4A, was plugged and abandoned in May 2018. Although PERRI #11-4A is no longer operational, we find this and the TWOMBLY #12-4 battery and well to present RECs to the Site due to the nature of the media that is and was produced in these wells, and based on our experience with similar properties. Limited information is available on the Kerr McGee well, but the Crestone Peak well pad is discussed in further detail in Subsection 6.1. Site reconnaissance details are presented in Section 7.0. Due to their presence on the Site, we believe these wells present RECs to the Site.

4.6 Physical Setting Analysis of Substance Migration

A hypothetical spill of a hazardous or petroleum substance on the Site would be expected to migrate along the ground surface to the southwest. Off-site surface spills on the adjoining parcels to the northeast appear to have the highest potential to migrate on-site. Sources of contamination to groundwater beneath the Site, if present, would most likely be located to the northeast.

5.0 HISTORICAL USE INFORMATION

5.1 Historical Aerial Photographs and Topographic Maps

Historical aerial photographs of the Site and surrounding area were reviewed for 1937, 1948, 1953, 1963, 1969, 1975, 1978, 1984, 1988, 1993, 1999, 2004, 2005, 2006, 2009, 2011, 2013, and 2015; these are presented in **Appendix B**. USGS topographic maps were reviewed for 1902, 1949 (1964 ed.), 1949 (1994 ed.), 1950, 1954 (1977 ed.), 1958, 1961, 1965, 1982 (1983 ed.), 2010, and 2013. An interpretation of the aerial photographs and maps is presented, as follows:

TABLE IV
AERIAL PHOTOGRAPH AND TOPOGRAPHIC MAP SUMMARY

Date Range	Land and Features Description
1902	The Site and surrounding area appear generally vacant. Approximately five homesteads are depicted adjacent to the northwest and west of the Site. A creek is shown crossing through the center of the Site, and an unimproved road (Highway 52) is presented adjacent to the north.
1937 - 1958	The Site and surrounding area appear to be in agricultural use. Two nearby homesteads are depicted in the northwest corner and along the south border of the Site. A windmill is depicted along the south-southeastern border of the Site. The creek is labelled as the Fulton Ditch, and is depicted to only cross through the upper east border of the Site. Homesteads are also depicted adjacent to the east of the Site. An unimproved road is adjacent to the east, and a small pond is depicted further east-southeast.
1961 - 1969	The Site remains generally unchanged except that the buildings to the south are no longer depicted. The surrounding area remains generally unchanged.
1975 - 1982	The installation of oil and gas features are depicted along the northern and southern boundaries of the Site. Further oil and gas development is depicted in the surrounding areas.
1984 - 1988	The Site and surrounding area remain generally unchanged. Aims Community College is depicted to the northeast.
1993 - 1999	A residence is depicted along the southern border of the Site. Residential development is depicted to the northwest.

Date Range	Land and Features Description
2004 - 2015	The Site remains generally unchanged with some residential improvements in the northwest and south residences. Land adjacent to the north and west is under residential development, and agricultural activities slow down on the Site and in the surrounding area.

5.2 Sanborn Fire Insurance Maps

Sanborn fire insurance maps were a tool used by the fire insurance industry to evaluate property risk. The maps often show details of historic dwellings, commercial buildings, and factories, indicate property uses and addresses, and show locations of items such as wells, cisterns, and fuel storage tanks. Sanborn Fire Insurance Map coverage was not available for the Site.

5.3 City Directory Listings

Due to the historically undeveloped nature of the Site, city directory listings were not reviewed.

5.4 Assessor Records

We reviewed Weld County Assessor online files for the Site. The Site is currently owned by the Perri M-J Company. There are records of buildings: two 1-story single-family homes (one modular) built in 1920 and 2005 (1,040 ft² and 2,372 ft², respectively), and a 1,200 ft² Quonset hut built in 2000.

5.5 Zoning/Land Use Records

The Site is currently classified as single-family residential and agricultural land by Weld County.

6.0 REGULATORY AGENCY RECORDS

Regulatory agency records were provided by GeoSearch. The radius report, dated September 3, 2019, is presented in **Appendix C**.

6.1 Summary of Findings

The radius report did not present unmapped listings.

This section discusses those findings which are located topographically up-gradient of the Site or which otherwise may present an environmental concern to the Site. Findings not discussed were not considered RECs due to topography, distance, and/or regulatory status.

ECHOR08 is the U.S. EPA's Enforcement and Compliance History Online database. The database stores information from facilities listed as Clean Air Act stationary sources, Clean Water Act direct dischargers, RCRA hazardous waste handlers, Safe Drinking Water Act public water systems. Additionally, the database includes Toxic Release Inventory releases. The ICIS (formerly DOCKETS) is a case activity tracking and management system for civil, judicial, and administrative federal EPA enforcement cases for the aforementioned facilities, CERCLA, the Emergency Planning and Community-Right-to-Know-Act, Toxic Substance Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Marine Protection, Research, Sanctuaries Act.

The ECHO and ICIS listing for Crestone Peak TWOMBLY 12-4 Battery, located in the Northwest ¼ of the Southwest ¼ of Section 4 (Township 1 North, Range 66 West), is on the up-gradient portion of the Site. This facility received a notice of violation in March 2015 and is listed as a Civil Enforcement Case with a state/local penalty of 8,050 USD. The final order was issued, and the enforcement action was recorded in November 2015. No further information was available. Although the civil violation was corrected, the well pad is located on-site; again, we believe this oil and gas well pad/battery presents a REC to the Site.

6.2 Local Government Records

We contacted the Weld County Health and Environment Department (WCHED) regarding records related to the release of hazardous materials at the Site. Mr. Brad responded to our request for an ERR on September 20, 2019 via phone call. As per the phone call, there are no records on file at this address for closed/archived landfills, onsite water treatment systems, clandestine meth-amphetamine labs, spills or complaints, on or adjacent to the Site. We also contacted the City of Fort Lupton at Mr. Brad's suggestion regarding hazardous materials at or adjacent to the Site. Ms. Maria Peña, City Clerk, responded to our request for open records on September 25, 2019. As per the email response there are no records on file at this address for closed/archived landfills, onsite water treatment systems, clandestine methamphetamine labs, spills or complaints, on or adjacent to the Site.

We contacted the Fort Lupton Fire Department (FLFD) regarding records of hazardous materials at the Site. We have not yet received a response from FLFD. If we receive a response that alters the findings of this report, we will notify you in writing.

Local government responses are presented in **Appendix D**.

7.0 SITE RECONNAISSANCE

The following section discusses observations made during our Site reconnaissance.

7.1 Methodology and Limiting Conditions

Ms. Rannen Worsley conducted a Site visit on September 25, 2019. A driveway from County Road 29 ½ provided access to the Site. The majority of the Site was accessed by walking and driving. Ms. Glenice Murata accompanied us during the portion of our Site visit around the residences. A photographic record of our Site reconnaissance is presented in **Appendix A**.

7.2 Description of Site Structures and Roads

The Site is currently occupied by two residences along the south-central border of the Site, and a Quonset hut near the residences. There are oil and gas features primarily along the northern border. The northern and eastern portions of the Site are bound by Highway 52 and Weld County Road 29 ½.

7.3 Site Observations

During our reconnaissance, we specifically looked for obvious evidence of the Site features listed in Tables V and VI. Table V lists features typically observed outside of Site structures, and Table VI indicates features typically observed within the interior of structures located on the Site. An "X" located within each table indicates that the feature was readily observable. Those features which were observed on the Site are discussed in further detail within the following subsection(s).

TABLE V
EXTERIOR SITE FEATURES

X	Aboveground Storage Tanks	X	Stained Soil and/or Pavement
X	Air Emissions Sources		Stockpiles of Soil or Debris
X	Cultivated Land/Crops	X	Stressed Vegetation
X	Drains, Sumps, Pits	X	Surface Water, Streams, Ponds, Lagoons
X	Hazardous Material Storage	X	Transformers (Potential PCB)
	High Power Transmission Lines		Underground Storage Tanks
	Natural Gas Pipelines		Unidentified Piping Below Grade
	Odors		Unidentified Substance Containers
	Petroleum Pipelines	X	Vehicle Maintenance Areas
	Physical Irregularities		Waste Water Discharge
	Placed Fill or Imported Soils		Waste Treatment Processes
	Railroad Lines	X	Wells (Agricultural, Water Supply)
X	Septic Systems or Leach Fields		Wells (Monitoring)
X	Solid Waste or Disposal Areas	X	Wells (Oil or Natural Gas)

TABLE VI
INTERIOR SITE FEATURES

	Boilers	X	Hazardous Material Storage
	Chemical Mixing/Use Areas		Heating and Cooling Systems
X	Drains or Sumps		Hydraulic Lifts
	Elevators	X	Incineration Areas
	Emergency Generators		Odors
	Equipment Maintenance Areas		Staining or Corrosion
	Exhaust Hoods and Ducting		Unidentified Substance Containers

7.3.1 Aboveground Storage Tanks

A crude oil tank and produced water tank of approximately 300 and 100 barrels, respectively, were identified at Crestone Peak's TWOMBLY 12 Battery along the northern boundary of the Site, north of the west residence. The tanks appeared to be good condition. No obvious signs of staining or odors were observed in the surrounding area. The vegetation immediately adjacent to the west and north of the flare area appeared to be stressed.

An approximately 150-gallon capacity propane tank was identified north of the east residence and another was present to the south of the west residence. The tanks were in good condition.

An approximately 20-pound propane tank, a 45-pound propane tank, and a 20- to 30-gallon air compressor were identified inside the Quonset hut. Outside the Quonset, there was approximately one 30-pound, one 20-pound, and two 100-pound propane tanks on the west side. The majority of the tanks were old and rusty but did not appear to have severe damage.

7.3.2 Air Emissions Sources

A flare stack was identified in the west portion of the well pad in the north of the Site. The flare was not emitting at the time of the visit, but the battery does have an Air Pollution Control Division (APCDP) permit and is listed in the Regulatory Report. The listing did not appear to have air emission violations, and the flare area appeared to be in good condition with no obvious signs of staining or odors, although the vegetation bordering to the west and north was stressed.

7.3.3 Cultivated Land/Crops

Alfalfa is cultivated on approximately two-thirds of the agricultural portion of the property, primarily to the east. Ms. Murata stated that no herbicides or pesticides are used on the crops. The west field, where there are no crops, is covered in prairie dog holes. Ms. Murata did not indicate any chemicals used for prairie dog control but indicated that oil rags may be used in the future.

7.3.4 Drains, Sumps and Pits

A shallow pit was identified along the southern border, to the north of the oil and gas well pad adjacent to the south of the Site. No obvious signs of unusual odors or staining were observed; however, stressed and/or dried-out vegetation was identified within the pit. Two pipes were identified protruding into the pit approximately one foot bgs. Ms. Murata indicated that the pit is the location of an attempted water well system location for the purpose of creating an agricultural water supply pond sourced from Fulton Ditch. Ms. Murata said that the State notified them that this was not approved, so the project was abandoned. See further details about the well, “Testhole”, in Subsection 4.4.

7.3.5 Hazardous Materials Storage

7.3.5.1 Outside

Along the east side of the storage shed, there were approximately three 5-gallon buckets of hydraulic fluid and a gallon bottle of maintenance oil. One of the buckets and the bottle appeared to have some damage (melted/shrunken plastic), and there were de minimis stains on and surrounding the containers. The remaining buckets appeared to be in good condition.

Approximately 1-gallon and a 1-quart bottle of maintenance fluids were observed on the west side of the storage shed.

7.3.5.2 Storage Shed

In the storage shed, there were approximately three 1-gallon and one 1-pint paint cans and a 1-gallon maintenance oil bottle. The paint cans were rusted but did not appear to have further damage. No obvious signs of staining or unusual odors were observed.

7.3.5.3 Quonset Hut

In the Quonset hut, we observed approximately three 5-gallon fuel jerrycans and three 2.5-gallon empty fuel jerrycans, 11 gallons of maintenance/hydraulic fluid in 1- to 2.5-gallon bottles, a 2.5-gallon bucket of hydraulic cement, four 5-gallon buckets of hydraulic fluid/oil, three 1-gallon paint cans, five gallons total of insecticide and weed killer, two 1-gallon cans of mineral spirits/paint thinners, 1-gallon bottle of muriatic acid, a 14-ounce propane tank, and a can of spray paint and another of silicone lubricant. No obvious signs of staining or unusual odors were observed.

7.3.6 Septic Systems or Leach Fields

A septic leach field was identified next to the south side of the west residence. Ms. Murata stated that the leach field served both residences. She also pointed to the approximate direction of where the connections from the homes and to the leach field were based on the location of the sewer manhole to the east of the field. Also to the east of the field was a below grade pipe that rose above ground surface. Ms. Murata indicated that the pipe is the air source for the leach field. We did not observe obvious signs of staining or odors on or surrounding the leach field. Future development should take this feature into account.

7.3.7 Solid Waste or Disposal Areas

A patch of weeds to the east of the Quonset hut was identified by Ms. Murata as the possible location (she couldn't remember the exact location) of a fuel tank that used to be on-site for farming operations before 2010. Ms. Murata recounted that her father had thought that the fuel from the tank had been stolen, but police believed the tank was leaking instead. Ms. Murata's father soon thereafter had the tank removed from the property. Ms. Murata could not remember the year this happened, but she said it occurred before 2010. Now the patch is used for can and electronics

temporary placement for disposal. No obvious indications of staining or odors were observed, but this area should be disposed of properly for future development.

A disposal bin was observed on the south side of the Quonset hut. This was primarily, plastics and other trash. No obvious indications of staining or odors were observed.

A stockpile of wood and spent tires were located to the south and southwest of the Quonset, respectively. An incineration area in the form of a pit was identified between the wood stockpile and Quonset hut. Ms. Murata said this pit is used to burn unusable wood and wood scraps; she was not aware of the incineration of other materials. We did not observe unusual staining or odors coming from the pit or the stockpiles. The fire pit walls did have a wet stain appearance, but it was unclear whether this was from water for putting out the fire or from hazardous materials (no odors were observed).

7.3.8 Stained Soil and/or Pavement

The pavement outside the west side of the Quonset appeared to be used for tractor maintenance and where the tractor is parked when not in use. The concrete pavement underneath the tractor and behind the tractor presented some *de minimis* staining. *De minimis* staining was also observed around the hydraulic oil buckets on the east side of the shed and south side of the Quonset.

7.3.9 Surface Water, Streams, Ponds, or Lagoons

The Fulton Ditch crosses through the east half of the northern border. No obvious signs of staining or odors were observed along the bank, and no sheens were observed on the water. The ditch is used for irrigation for Murata Farms and other surrounding agricultural areas.

7.3.10 Transformers

Distribution power lines bordered the south, west, and north borders of the Site. Three pole-mounted transformers were identified; one south of the Quonset hut, and two dispersed along the northern boundary. The eastern most transformer appeared to be rusted and the others appeared to be in good condition. No unusual staining was observed on or near the transformers.

7.3.11 Wells (Agricultural, Water Supply)

A water well was observed north of the east residence in the southern portion of the Site. The well was attached to a single hand pump and distributed to two other hand pumps; one between the west residence and the Quonset, and another along the east side of the west residence.

7.3.12 Wells (Oil or Natural Gas)

Two wells, TWOMBLY 12-4 and 22-4 (operated by Crestone Peak) were identified along the northern border of the Site, to the north of the west residence. The wells appeared to be in good condition. No obvious signs of staining or odors were observed around the wells.

The former location of the Kerr McGee PERRI #11-4A well was found in the northeastern portion of the Site, in the east alfalfa field. The vegetation leading to the well and in the vicinity of the former well was stressed, as well as the former well location where patchy vegetation was present. No obvious indications of staining or odors were observed.

7.3.13 Drains or Sumps

A floor drain was identified in the northwest corner bathroom of the Quonset hut. No obvious signs of staining or unusual odors were observed.

7.4 Review of Adjacent Properties

General observations of properties adjacent to the Site were performed in conjunction with on-site observations made on September 25, 2019. Properties near the Site consists of single-family residences and associated golf course, gas and oil operations, and educational facilities. Properties immediately adjacent to the Site are described below, based on outdoor observations from the Site or nearby public streets.

TABLE VII
ADJACENT PROPERTY DESCRIPTIONS

Direction	Bounding Property Description
North	Highway 52, single-family residences with a golf course. A homestead is adjacent to the northwest. Aims Community College is to the northeast.
East	Weld County Road 29 ½, dispersed single-family residences, agricultural land, and oil and gas features
South	Agricultural land, dispersed single-family residences, and oil and gas features.
West	Single-family residences.

Observation of adjacent properties revealed visual indications of potential environmental concern. We did not observe evidence of landfills, lagoons, pits, or other waste treatment or disposal operations; underground storage tanks, spills, releases, or discharge of hazardous material which could negatively impact the Site, other than two oil and gas well pads located adjacent to the south and west. There were no obvious signs of staining or odors at the well pads except at the south well where there was staining observed around the well.

8.0 INTERVIEWS

8.1 Owner, Site Manager and/or Occupants

Mr. Perry Murata is the current co-landowner of the Site. Mr. Murata indicated that he has been associated with the Site since 1985 when the property was purchased. He stated that the Site is currently agricultural land with two residences and was historically agricultural land. Mr. Murata was not aware of previous ESAs. Mr. Murata was not aware of the storage of hazardous chemicals, petroleum storage tanks, or other obvious environmental concerns related to the property, other than the limited storage and use of Roundup weed control, a small quantity of fuel for the utility tractor, and the presence of two Crestone Peak tanks of approximately 6,000 to 8,000-gallon capacities on the north side of the property. He also indicated that there is a septic tank shared between the two residences, and an oil and gas battery located to the west and south of the residences on adjacent properties. Mr. Murata provided CTL with a copy of the well permit for the drinking water well on-site, see further details in Subsection 4.4.

Ms. Glenice Murata is also the current co-owner of the Site. Ms. Murata indicated that she has owned the Site since 2005. She stated that the Site is currently in use for the cultivation of

alfalfa. Ms. Murata was not aware of the storage of hazardous chemicals, petroleum storage tanks, or other obvious environmental concerns related to the property, other than the limited use of weed killer for use only around the house and the use of diesel fuel for the tractor contained within 2.5- to 5-gallon jerry cans. Both of these substances are used on an as-needed basis. She also confirmed the presence of the oil and gas well pads and the septic leach field. Ms. Murata also stated that the sump that was identified along the southern border of the Site is the location of a former attempt to create a well for the creation of a small pond sourced from the Fulton Ditch.

9.0 DEVIATIONS

9.1 Exceptions and Deletions

ASTM Standard E 1527-13 for Phase I Environmental Site Assessments, Subsection 8.3.2, states that “all obvious uses of the Site shall be identified from the present, back to the Site’s obvious first developed use, or back to 1940, whichever is earlier.” The term “developed use” includes agricultural uses (i.e., cultivated land/agricultural crops) and placement of fill. In our opinion, livestock rangeland is not a developed use.

The historical documentation for this assessment went back to 1902 on the basis of historical topographic maps, which showed the Site predominantly as vacant land. An aerial photograph from 1937 depicts a windmill along the southeast border of the Site. We were not able to ascertain the date of first development. Thus, the ASTM historical standard was not fully satisfied.

It is the opinion of CTL that obtaining earlier historical information would not be sufficiently useful, reasonably ascertainable, or change the likelihood for the presence of a REC on the Site.

9.2 Data Gaps

We have not yet received a response from the FLFD. If we receive a response that alters the findings of this report, we will notify you in writing. Based on the information presented in this report, we do not believe that this presents a significant data gap which would affect our ability to identify RECs associated with the Site.

10.0 FINDINGS AND OPINION

10.1 Summary of Site Historical Use

The Site currently consists of residential and agricultural property. The Site appears to have been primarily agricultural land with dispersed residences since at least the early 1900s until approximately 1999, when residential development began to appear in the surrounding area. Currently, there are two residences and a Quonset hut along the south-central border, and oil and gas features in the north-central portion of the Site.

Based on our understanding of the types of crops that are typically grown in Colorado, it is our belief that significant contamination from normal pesticides and herbicide application is unlikely. Application of pesticides and herbicides is more prevalent on fruits and vegetables, and less prevalent on field crops such as alfalfa, hay, and feed corn that are common in Colorado. Normal application of pesticides and herbicides is also subject to dilution and breakdown that occurs over time, due to sunlight and aeration in the upper portion of topsoil. As such, we do not believe that previous agricultural use at the Site presents a REC.

The Site was and is also used for oil and gas extraction. Hydrocarbon contamination/releases can commonly occur during well production and well abandonment. There are three wells on-Site, two producing and one abandoned. There is insufficient environmental data on these wells. We believe these present RECs to the Site on the basis of the nature of their past and current production and location, and based on our previous experience.

10.2 Nearby Environmental Concerns

There were no nearby facilities of environmental concern according to the regulatory report. However, two oil and gas well pads are located adjacent to the south and west of the Site. Although we did not find regulatory violations in relation to the wells, we believe oil and gas features present RECs to the Site based on our previous experience.

10.3 Storm Water Discharges Associated with Construction Activity

Under current Federal/state regulations, construction sites that disturb one acre, or are part of a larger development in which total disturbed area is equal to or greater than one acre, are required to apply for a General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) from the CDPHE. Some MS4s also require additional permitting for construction sites within their jurisdiction.

The General Permit application must be submitted to the CDPHE at least 10 days prior to the start of construction activities. The General Permit requires a SWMP to be developed, implemented, and modified as needed from before commencement of construction activities until final stabilization is complete and a Notice of Termination has been submitted to the CDPHE. Furthermore, the General Permit requires that site inspections be performed at least every 14 calendar days and within 24 hours following a storm event that causes significant movement of sediment on-site. The local MS4 may require more frequent inspections. Complete and current storm water management plans should be kept on-site. CTL can assist with your storm water management and compliance needs, if desired.

11.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM Practice E 1527-13 of the property known as Murata Farms (Muraco Subdivision), located at 14284 State Highway 52 in Fort Lupton, Colorado. Any exceptions to, or deletions from this practice are described in Section 9.1 of this report. This assessment has revealed no evidence of environmental conditions in connection with the property other than the following:

- **TWOMBLY #12-4**, a well and battery owned by Crestone Peak are on-site in the north-central portion of the Site and are still actively producing oil and gas. The west and north borders present stressed vegetation.
- **PERRI #11-4A**, a well owned by Kerr McGee is on-site in the northeastern portion of the Site and is plugged and abandoned; however, insufficient data on the closure is available. Vegetation in the former well location appears stressed.

- **Former Farm Fuel Tank**, a fuel tank formerly located on-site, described by Ms. Murata as having been removed due to potential leaking prior to 2010. Ms. Murata could not remember the exact date or size of the tank.

12.0 QUALIFICATIONS

This Phase I ESA was reviewed and supervised by Mr. Matthew Wardlow, a registered engineer in Colorado. Mr. Wardlow has performed or reviewed over 1,000 Phase I ESAs in the State of Colorado and has been practicing within the local environmental consulting profession for at least 20 years. The resumes of the individuals conducting this Phase I ESA are included in **Appendix F**.

I, Mr. Wardlow, declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject Site.

We believe that this ESA was conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of the project. No warranty, express or implied, is made.

If we can be of further service in discussing the contents of this report, please call.

CTL | THOMPSON, INC.

Rannen Worsley, E.I.T.
Environmental Scientist

Reviewed by:

Matthew L. Wardlow, P.E.
Environmental Department Manager – Denver Branch

RW:MLW/nn

Via e-mail: eric@jehome.com

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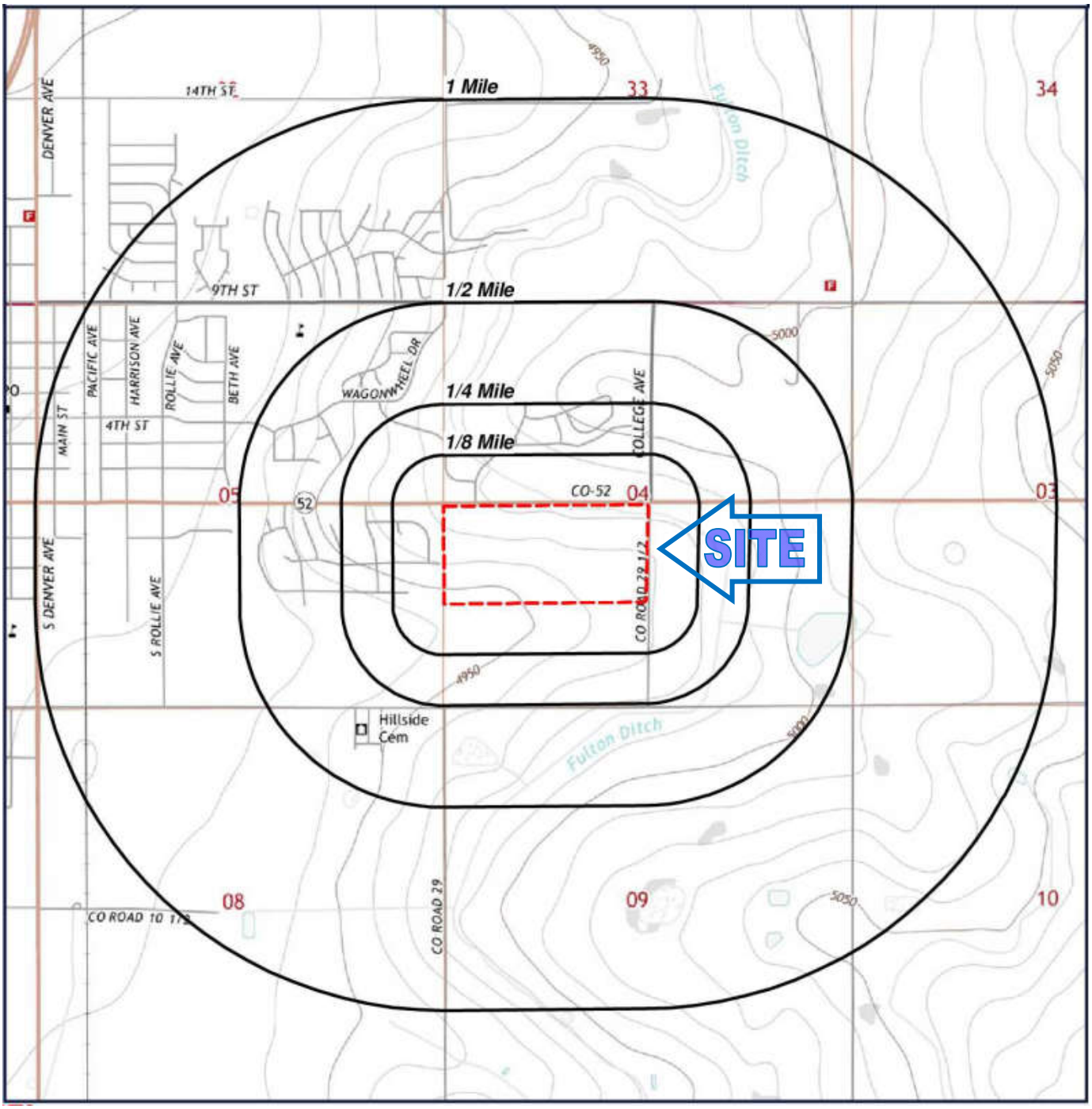


T 1 N

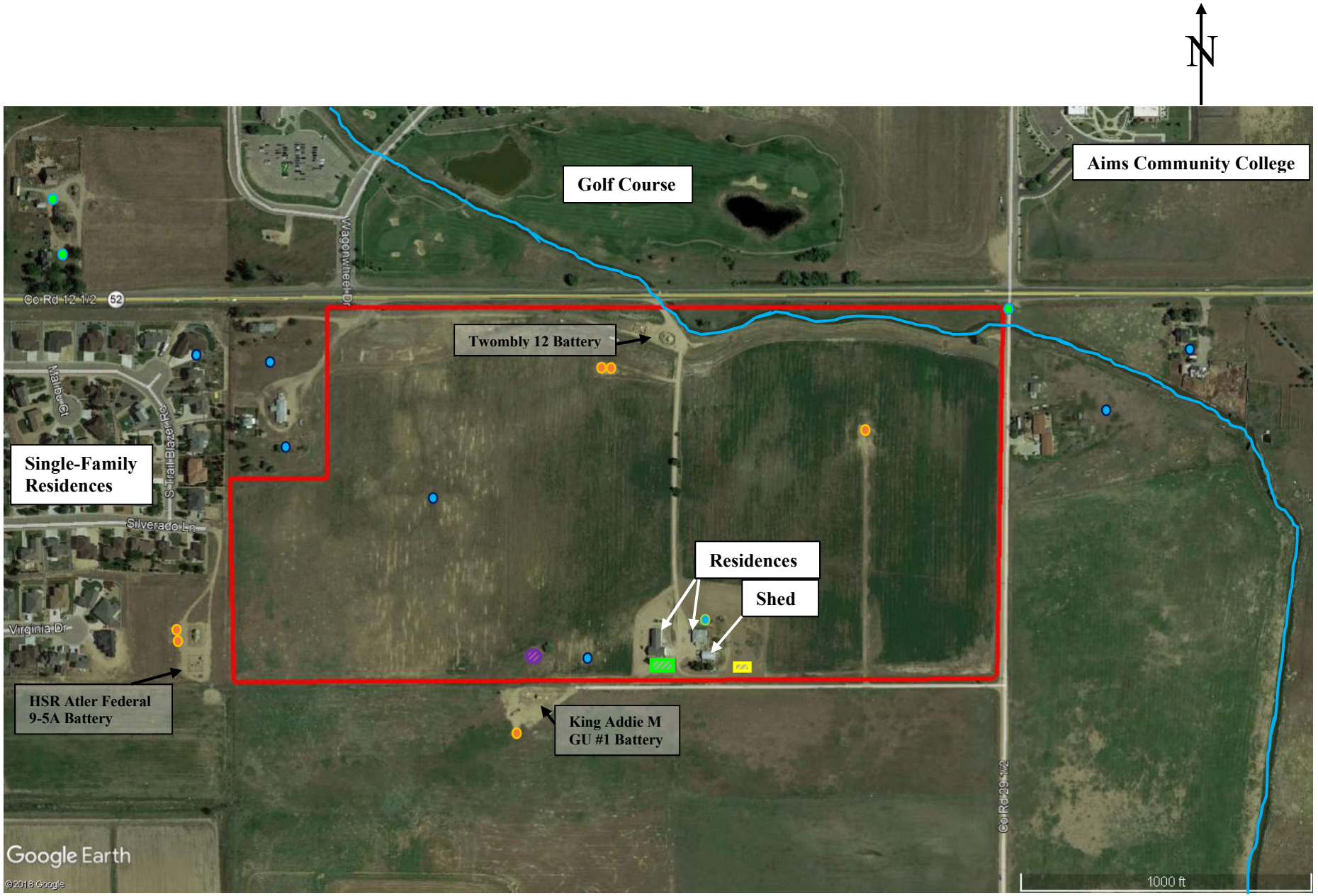
R 66 W

Source:
U.S.G.S. Topographic Map
Fort Lupton Quadrangle, Colorado
2013

Scale:
1" ≈ 2,000'

CORONADO WEST c/o JE HOME
MURATA FARMS
CTL PROJECT NO. DN50,219-200-R1

Figure 1
Topographic Map



CTL | T PROJECT NO. DN50,219-200

Figure 2
Site Plan

APPENDIX A

SITE PHOTOGRAPHS



Description: View to the south of Site.
Direction: South



Description: View across Site; alfalfa fields, residence, prairie dog holes.
Direction: North-northeast



Description: Kerr McGee oil and gas well pad.
Direction: West-southwest



Description: Kerr McGee oil and gas well; *de minimis* staining.
Direction: South

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SITE PHOTOGRAPHS

Murata Farms
September 25, 2019
CTL Project No. DN50,219-200



Description: Sump and piping in south-central portion of Site; dead vegetation.
Direction: East-northeast



Description: Kerr McGee well pad adjacent to southwest and west of Site.
Direction: West



Description: View across Site; single-family residences to the north.
Direction: North-northwest



Description: View across Site from Crestone Peak well pad.
Direction: South

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SITE PHOTOGRAPHS

Murata Farms
September 25, 2019
CTL Project No. DN50,219-200



Description: Crestone Peak battery and well pad.
Direction: Southeast



Description: Fulton Ditch (irrigation) and distribution lines along northeastern border of Site.
Direction: East-northeast



Description: View across Site on east side; alfalfa fields.
Direction: West



Description: View to the east of Site; residence and agricultural land.
Direction: East-northeast

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SITE PHOTOGRAPHS

Murata Farms
September 25, 2019
CTL Project No. DN50,219-200



Description: Former Kerr McGee well location; impacted vegetation.
Direction: North



Description: Current water well north of east residence.
Direction: North



Description: Propane tank on north side of and for east residence.
Direction: West



Description: Probable location of former fuel tank, east of Quonset hut.
Direction: East-southeast



Description: Quonset hut, shed and disposal bin.
Direction: West-northwest



Description: Quonset hut, shed, fire pit, wood debris.
Direction: West



Description: Tire debris, shed, and Quonset.
Direction: Northeast



Description: Inside storage shed.
Direction: East

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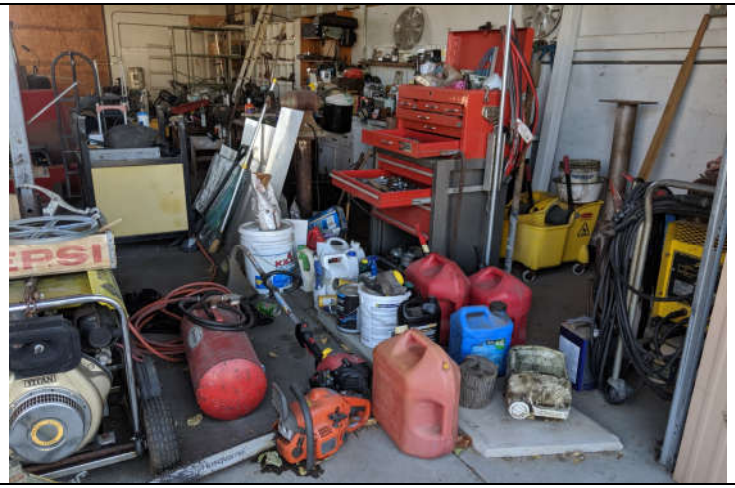
SITE PHOTOGRAPHS

Murata Farms
September 25, 2019
CTL Project No. DN50,219-200
Page 5 of 7



Description: Concrete staining west of Quonset under tractor.
Direction: Overhead/North



Description: Inside Quonset; gasoline cans, air compressors, tools, etc.
Direction: East-northeast



Description: Floor drain in bathroom of northwest corner of Quonset.
Direction: Overhead/Northwest



Description: Spent propane tanks on west side of Quonset.
Direction: North



Description: East residence.
Direction: North



Description: West residence, leach field, and propane tank.
Direction: West



Description: Cooling system on south side of west residence.
Direction: West



Description: Distribution lines on south side of Site.
Direction: Southeast

APPENDIX B

HISTORIC AERIAL PHOTOGRAPHS

GeoSearch
On time. On target. In touch.™

Historical Aerial Photographs

NEW: *GeoLens by Geosearch*

Target Property:

Murata Farms
14284 State Hwy 52
Fort Lupton, Weld, Colorado 80621

Prepared For:

CTL Thompson- Denver

Order #: 132098
Job #: 312560
Project #: DN50219
Date: 9/5/2019

Target Property Summary

Murata Farms
14284 State Hwy 52
Fort Lupton, Weld, Colorado 80621

USGS Quadrangle: ***Fort Lupton***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-104.791706387, 40.080097132), (-104.791684929, 40.076608168), (-104.782436673, 40.076673844), (-104.782366935, 40.076690263), (-104.782313291, 40.076760044), (-104.782221104, 40.080060457), (-104.782242561, 40.080122026), (-104.782264019, 40.080140496)

Aerial Research Summary

Date	Source	Scale	Frame
2015	USDA	1" = 500'	N/A
2013	USDA	1" = 500'	N/A
2011	USDA	1" = 500'	N/A
2009	USDA	1" = 500'	N/A
2006	USDA	1" = 500'	N/A
2005	USDA	1" = 500'	N/A
2004	USDA	1" = 500'	N/A
09/30/1999	USGS	1" = 500'	11685-47
06/26/1993	USGS	1" = 500'	N/A
07/05/1988	USGS	1" = 500'	1032-170
10/13/1984	USGS	1" = 500'	17-167
07/05/1978	USGS	1" = 500'	1-149
06/11/1975	USGS	1" = 500'	5-103
11/28/1969	USGS	1" = 500'	1-261
07/19/1963	ASCS	1" = 1000'	PI-15
09/25/1953	AMS	1" = 500'	6721
09/23/1948	USGS	1" = 500'	4-53
06/28/1937	ASCS	1" = 500'	5-75

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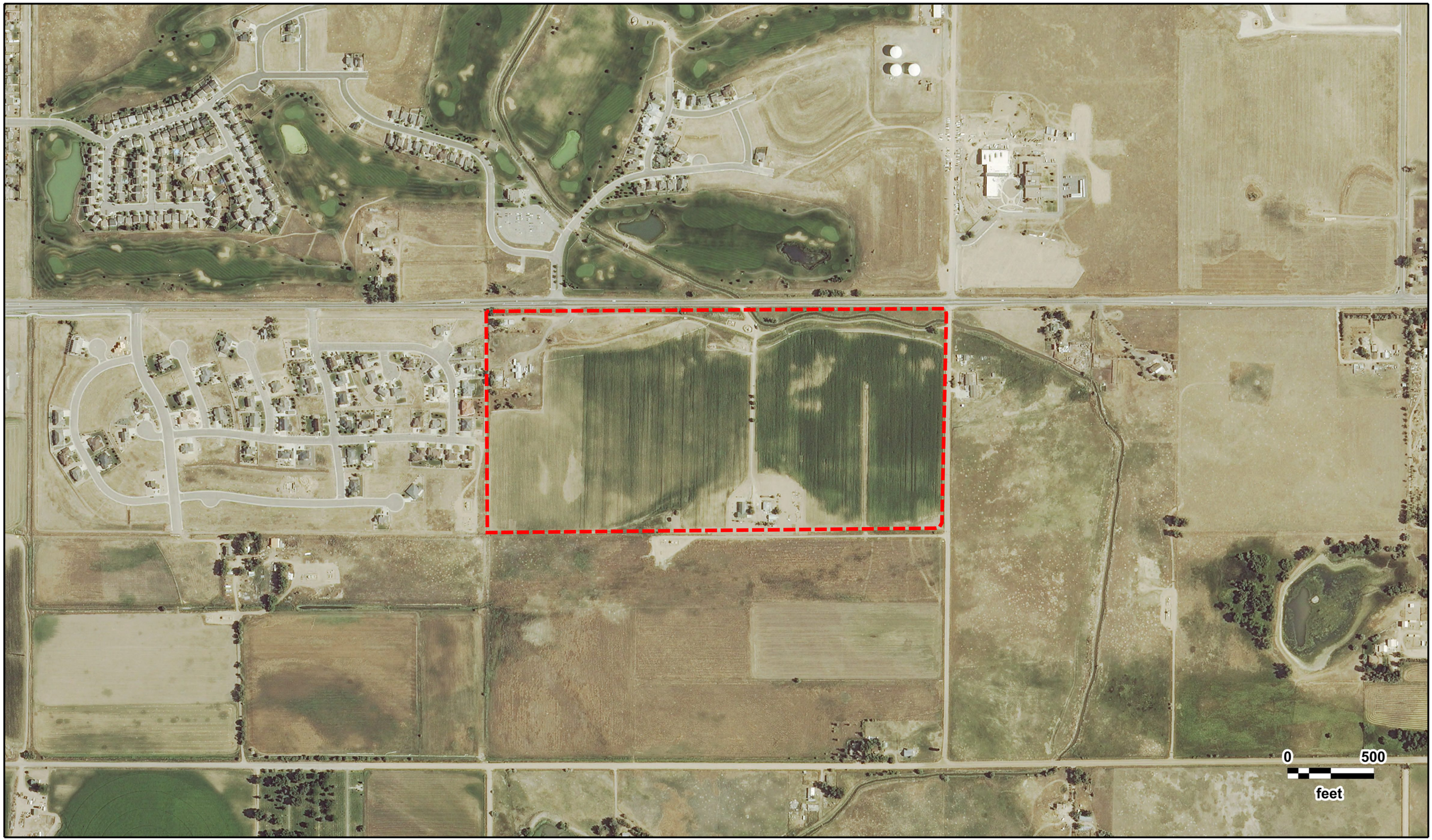
N
W E
S

Murata Farms
USDA
2015

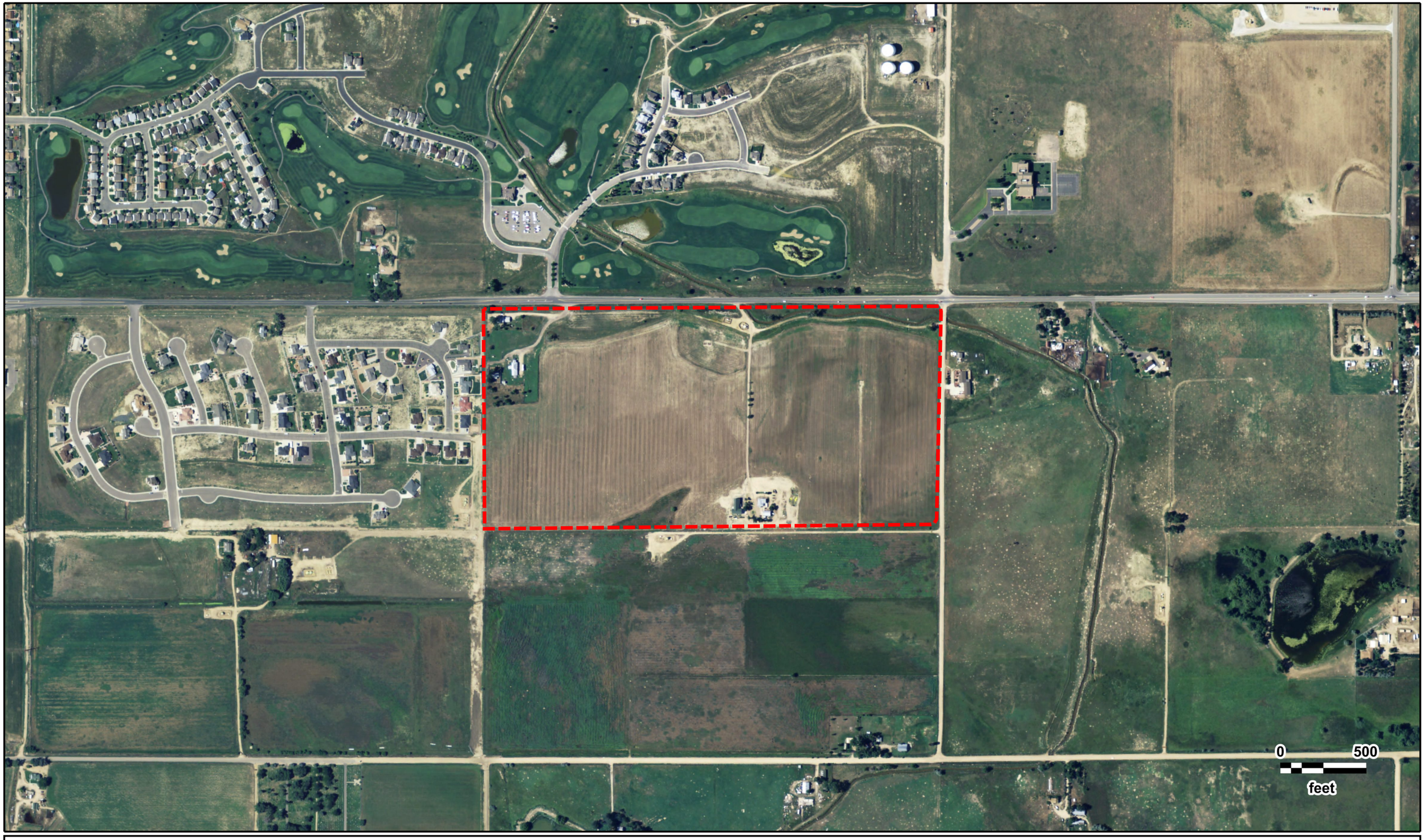
GeoSearch



N
W E
S

Murata Farms
USDA
2013

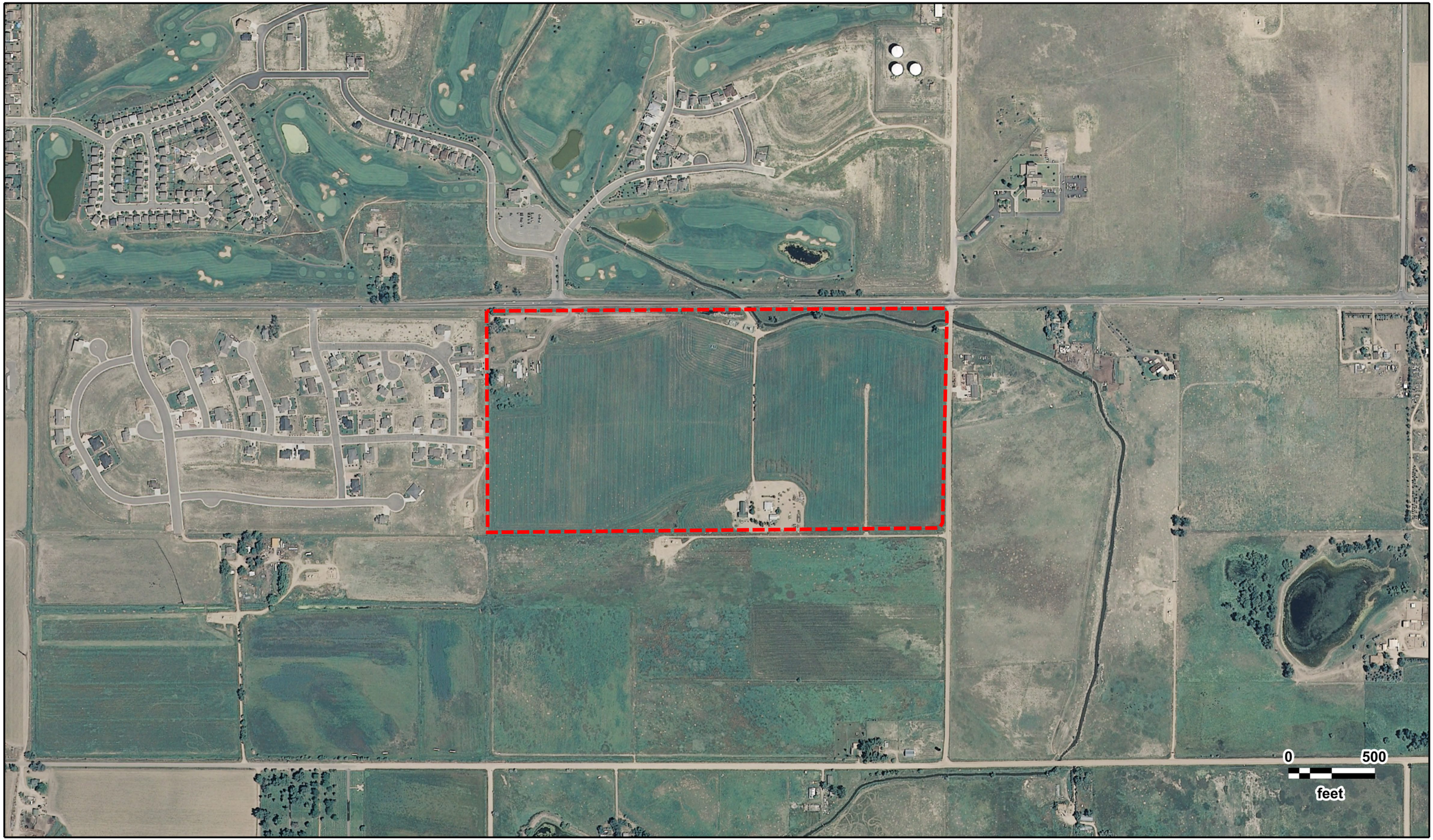
GeoSearch



N
W E
S

Murata Farms
USDA
2011

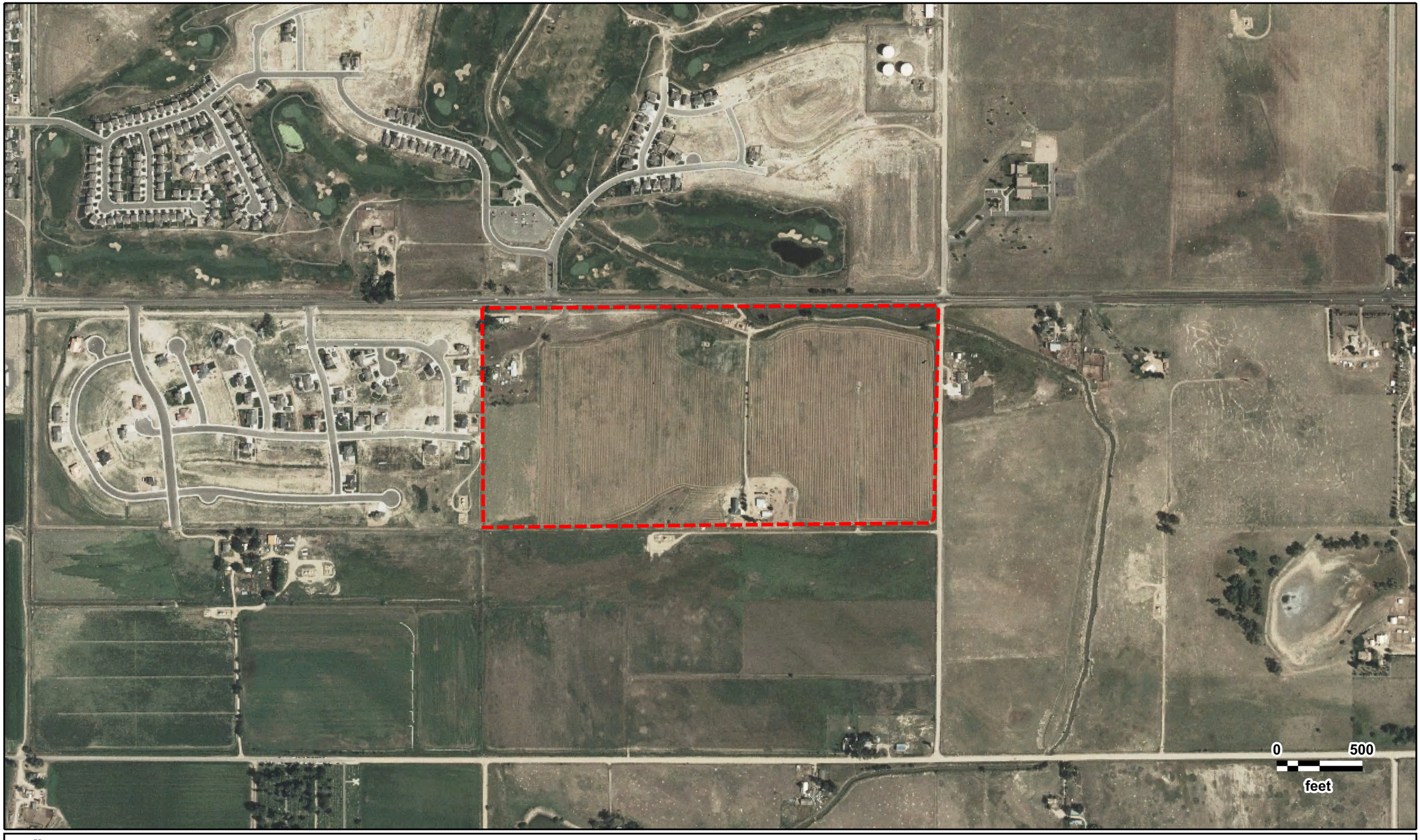
GeoSearch



N
W E
S

Murata Farms
USDA
2009

GeoSearch



N
W E
S

Murata Farms
USDA
2006

GeoSearch



N
W E
S

Murata Farms
USDA
2005

GeoSearch



N
W E
S

Murata Farms
USDA
2004

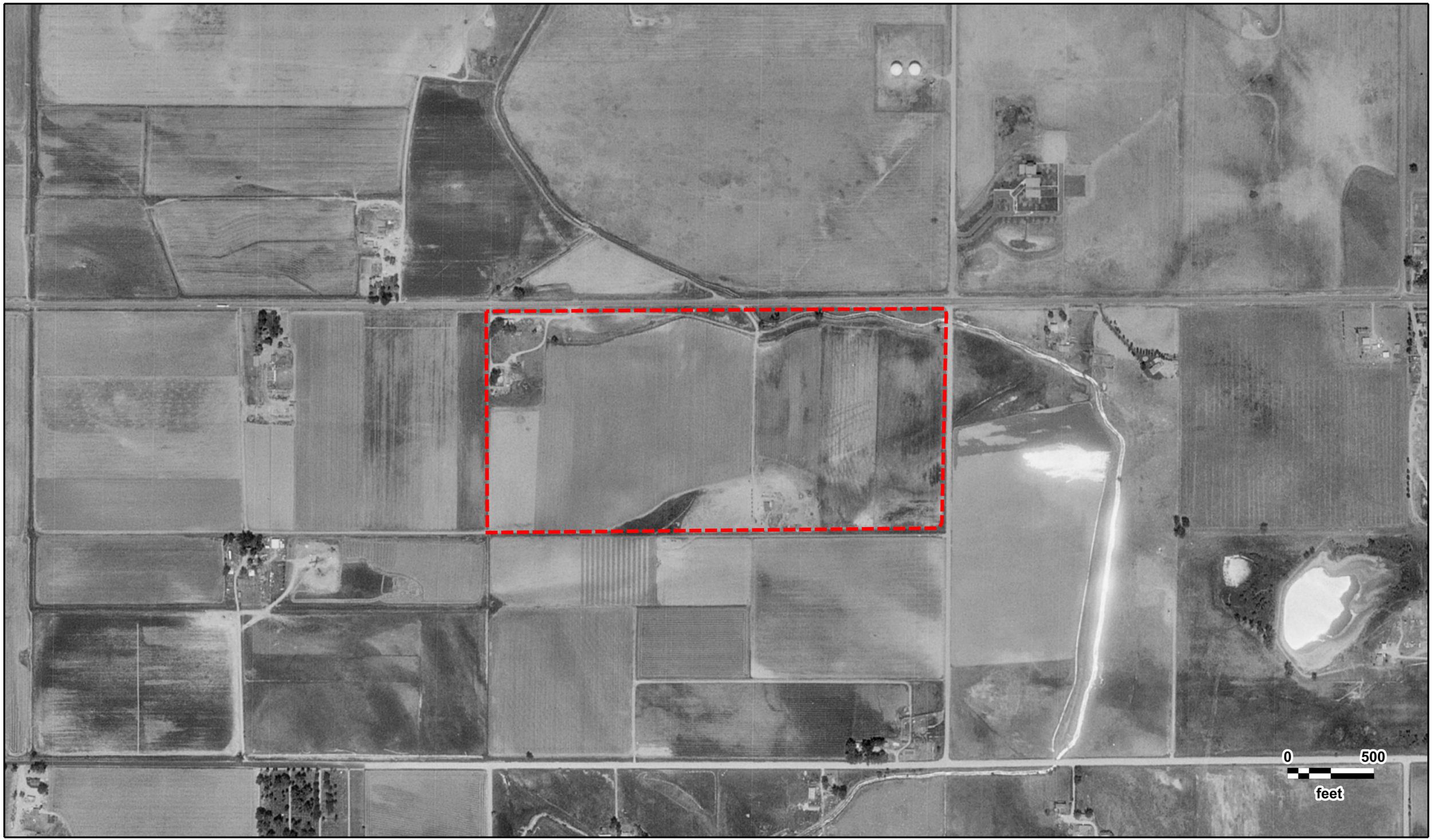
GeoSearch



N
W E
S

Murata Farms
USGS
09/30/1999

GeoSearch



N
W E
S

Murata Farms
USGS
06/26/1993

GeoSearch



N
W E
S

Murata Farms
USGS
07/05/1988

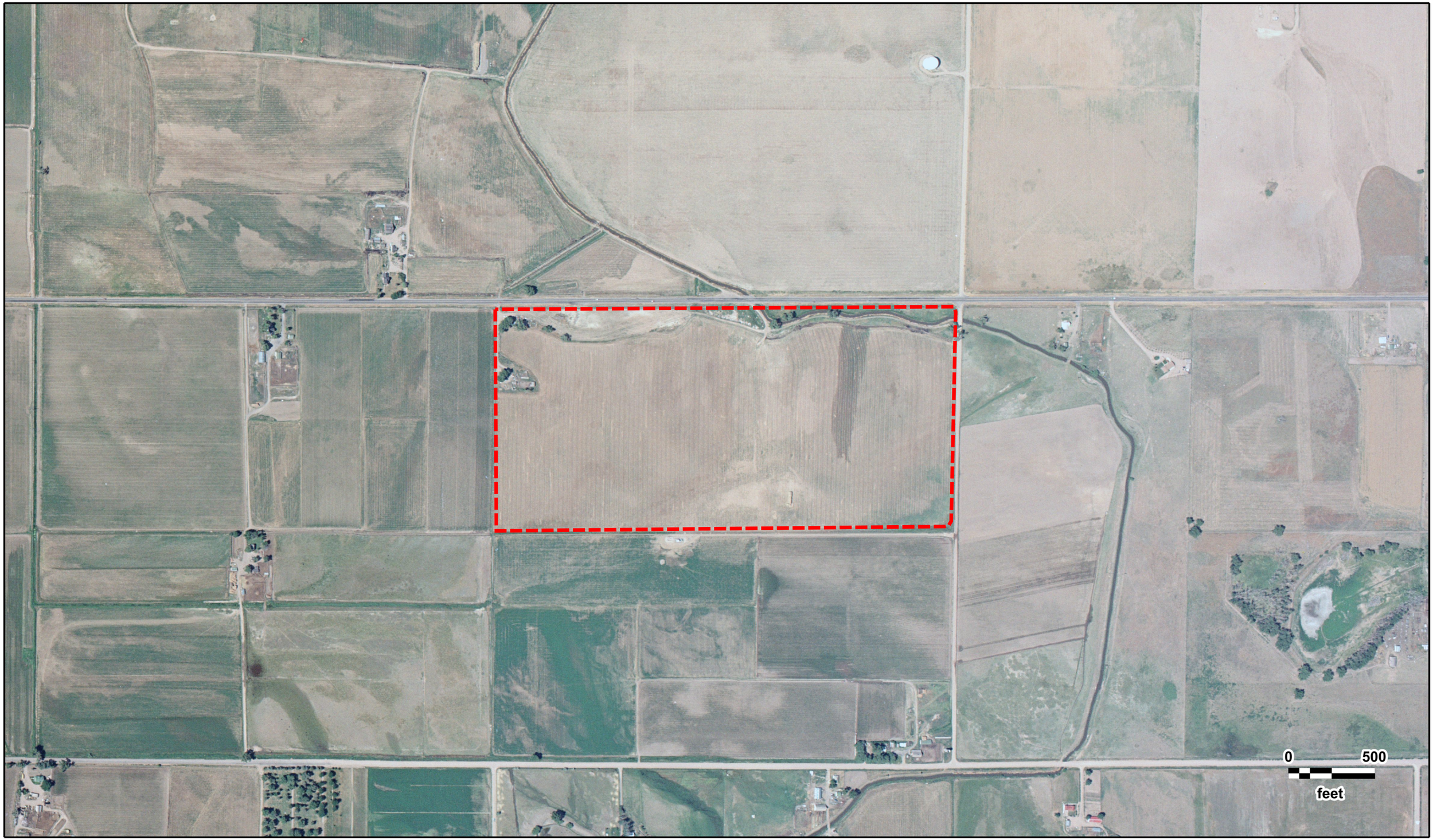
GeoSearch



N
W E
S

Murata Farms
USGS
10/13/1984

GeoSearch



N
W E
S

Murata Farms
USGS
07/05/1978

GeoSearch



N
W E
S

Murata Farms
USGS
06/11/1975

GeoSearch



N
W E
S

Murata Farms
USGS
11/28/1969

GeoSearch



N
W E
S

Murata Farms
ASCS
07/19/1963

GeoSearch



N
W E
S

Murata Farms
AMS
09/25/1953

GeoSearch



N
W E
S

Murata Farms
USGS
09/23/1948

GeoSearch



N
W E
S

Murata Farms
ASCS
06/28/1937

GeoSearch

APPENDIX C

GEOSEARCH REPORT(S)

GeoSearch
On time. On target. In touch.™

Radius Report

GeoLens by GeoSearch

Target Property:

Murata Farms
14284 State Hwy 52
Fort Lupton, Weld County, Colorado 80621

Prepared For:

CTL Thompson- Denver

Order #: 132098
Job #: 312559
Project #: DN50219
Date: 09/03/2019

Table of Contents

Target Property Summary 1

Database Summary 2

Database Radius Summary 7

Radius Map 12

Ortho Map 14

Topographic Map 15

Located Sites Summary 15

Elevation Summary 18

Unlocated Sites Summary 58

Environmental Records Definitions 60

Unlocatable Report . . . . . See Attachment

Zip Report . . . . . See Attachment

Disclaimer

This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquiries Rule (40 CFR Â§312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal,state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFRÂ§312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.

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Target Property Summary

Target Property Information

Murata Farms
14284 State Hwy 52
Fort Lupton, Colorado 80621

Coordinates
Area centroid (-104.78698, 40.0783838)
4,957 feet above sea level

USGS Quadrangle
Fort Lupton, CO

Geographic Coverage Information

County/Parish: Weld (CO)
ZipCode(s):
Fort Lupton CO: 80621

Database Summary

FEDERAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP/AP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP/AP
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSCO	0	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR	RCRAGR08	0	0	0.2500
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR	RCRANGR08	0	0	0.2500
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - NON-CORRACTS TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM	SEMS	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM ARCHIVED SITE INVENTORY	SEMSARCH	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	1.0000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - SUBJECT TO CORRECTIVE ACTION FACILITIES	RCRASUBC	0	0	1.0000

SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
CERCLIS LIENS	SFLIENS	0	0	TP/AP
EPA DOCKET DATA	DOCKETS	0	0	TP/AP
ENFORCEMENT AND COMPLIANCE HISTORY INFORMATION	ECHOR08	1	0	TP/AP
FACILITY REGISTRY SYSTEM	FRSCO	2	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	1	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	0	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP/AP

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR08	0	0	TP/AP
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	TP/AP
PERMIT COMPLIANCE SYSTEM	PCSR08	0	0	TP/AP
SEMS LIEN ON PROPERTY	SEMSLIENS	0	0	TP/AP
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP/AP
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	2	0	0.1250
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	0.1250
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR08	0	0	0.1250
TOXICS RELEASE INVENTORY	TRI	0	0	0.1250
ALTERNATIVE FUELING STATIONS	ALTFUELS	0	0	0.2500
BIENNIAL REPORTING SYSTEM	BRS	0	0	0.2500
FEMA OWNED STORAGE TANKS	FEMAUST	0	0	0.2500
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
INTEGRATED COMPLIANCE INFORMATION SYSTEM DRYCLEANERS	ICISCLEANERS	0	0	0.2500
MINE SAFETY AND HEALTH ADMINISTRATION MASTER INDEX FILE	MSHA	0	0	0.2500
MINERAL RESOURCE DATA SYSTEM	MRDS	0	0	0.2500
OPEN DUMP INVENTORY	ODI	0	0	0.5000
SURFACE MINING CONTROL AND RECLAMATION ACT SITES	SMCRA	0	0	0.5000
URANIUM MILL TAILINGS RADIATION CONTROL ACT SITES	USUMTRCA	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMER MILITARY NIKE MISSILE SITES	NMS	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM	FUSRAP	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000
SUB-TOTAL		6	0	

STATE (CO) LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
ENVIRONMENTAL REAL COVENANTS LIST	COVENANTS	0	0	TP/AP
ABOVEGROUND STORAGE TANK FACILITIES	AST	0	0	0.2500
HAZARDOUS WASTE SITES- GENERATOR	HWSG	0	0	0.2500
UNDERGROUND STORAGE TANK FACILITIES	UST	0	0	0.2500
HISTORICAL SOLID WASTE LANDFILLS	HISTSWLF	0	0	0.5000
LEAKING STORAGE TANK FACILITIES	LST	0	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS TRUST FUND SITES	LUSTTRUST	0	0	0.5000
SOLID WASTE FACILITIES	SWF	0	0	0.5000
VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM SITES	VCRA	0	0	0.5000
HAZARDOUS WASTE SITES- CORRECTIVE ACTION	HWSCA	0	0	1.0000
SUPERFUND SITES	SF	0	0	1.0000
SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
ASBESTOS ABATEMENT AND DEMOLITION PROJECTS	ASBESTOS	0	0	TP/AP
COLORADO DISCHARGE PERMIT SYSTEM FACILITIES	CDPS	0	0	TP/AP
URANIUM MILL TAILINGS SITES	UMTS	0	0	TP/AP
AIR POLLUTION CONTROL DIVISION PERMITTED FACILITIES	APCDP	3	0	0.1250
DRY CLEANING FACILITIES	CLEANERS	0	0	0.1250
SPILLS LISTING	SPILLS	0	0	0.1250
HAZARDOUS WASTE SITES- TREATMENT, STORAGE & DISPOSAL	HWSTSD	0	0	0.5000
METHANE GAS STUDY SITES	METHANESITES	0	0	0.5000
SUB-TOTAL		3	0	

Database Summary

LOCAL LISTING

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
WELD COUNTY SOLID WASTE FACILITIES	WCSWF	0	0	0.5000
SUB-TOTAL		0	0	

TRIBAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR08	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR08	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000
SUB-TOTAL		0	0	
TOTAL		9	0	

Database Radius Summary

FEDERAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
DOCKETS	0.0200	0	NS	NS	NS	NS	NS	0
EC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
ECHOR08	0.0200	1	NS	NS	NS	NS	NS	1
FRSCO	0.0200	2	NS	NS	NS	NS	NS	2
ICIS	0.0200	1	NS	NS	NS	NS	NS	1
ICISNPDES	0.0200	0	NS	NS	NS	NS	NS	0
LUCIS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
MLTS	0.0200	0	NS	NS	NS	NS	NS	0
NPDESR08	0.0200	0	NS	NS	NS	NS	NS	0
PADS	0.0200	0	NS	NS	NS	NS	NS	0
PCSR08	0.0200	0	NS	NS	NS	NS	NS	0
RCRASC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
SEMSLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SFLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SSTS	0.0200	0	NS	NS	NS	NS	NS	0
TSCA	0.0200	0	NS	NS	NS	NS	NS	0
AIRSAFS	0.1250	1	1	NS	NS	NS	NS	2
CDL	0.1250	0	0	NS	NS	NS	NS	0
ERNSCO	**0.1250**	**0**	**0**	**NS**	**NS**	**NS**	**NS**	**0**
HMIRSR08	0.1250	0	0	NS	NS	NS	NS	0
TRI	0.1250	0	0	NS	NS	NS	NS	0
ALTFUELS	0.2500	0	0	0	NS	NS	NS	0
BRS	0.2500	0	0	0	NS	NS	NS	0
FEMAUST	0.2500	0	0	0	NS	NS	NS	0
HISTPST	0.2500	0	0	0	NS	NS	NS	0
ICISCLEANERS	0.2500	0	0	0	NS	NS	NS	0
MRDS	0.2500	0	0	0	NS	NS	NS	0
MSHA	0.2500	0	0	0	NS	NS	NS	0
RCRAGR08	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
RCRANGR08	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
BF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
NLRRCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODI	0.5000	0	0	0	0	NS	NS	0
RCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SEMS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**

Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
SEMSARCH	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SMCRA	0.5000	0	0	0	0	NS	NS	0
USUMTRCA	0.5000	0	0	0	0	NS	NS	0
DNPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
DOD	1.0000	0	0	0	0	0	NS	0
FUDS	1.0000	0	0	0	0	0	NS	0
FUSRAP	1.0000	0	0	0	0	0	NS	0
NLRRCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
NMS	1.0000	0	0	0	0	0	NS	0
NPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
PNPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRASUBC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RODS	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		5	1	0	0	0	0	6

Database Radius Summary

STATE (CO) LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
ASBESTOS	0.0200	0	NS	NS	NS	NS	NS	0
CDPS	0.0200	0	NS	NS	NS	NS	NS	0
COVENANTS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
UMTS	0.0200	0	NS	NS	NS	NS	NS	0
APCDP	0.1250	2	1	NS	NS	NS	NS	3
CLEANERS	0.1250	0	0	NS	NS	NS	NS	0
SPILLS	0.1250	0	0	NS	NS	NS	NS	0
AST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
HWSG	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
UST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
HISTSWLF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
HWSTSD	0.5000	0	0	0	0	NS	NS	0
LST	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
LUSTTRUST	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
METHANESITES	0.5000	0	0	0	0	NS	NS	0
SWF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
VCRA	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
HWSCA	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
SF	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**

SUB-TOTAL		2	1	0	0	0	0	3

Database Radius Summary

LOCAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
WCSWF	0.5000	0	0	0	0	NS	NS	0
SUB-TOTAL		0	0	0	0	0	0	0

Database Radius Summary

TRIBAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR08	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
LUSTR08	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODINDIAN	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
INDIANRES	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		0	0	0	0	0	0	0
TOTAL		7	2	0	0	0	0	9

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



Target Property (TP)
ICIS
FRSCO
AIRSAFS

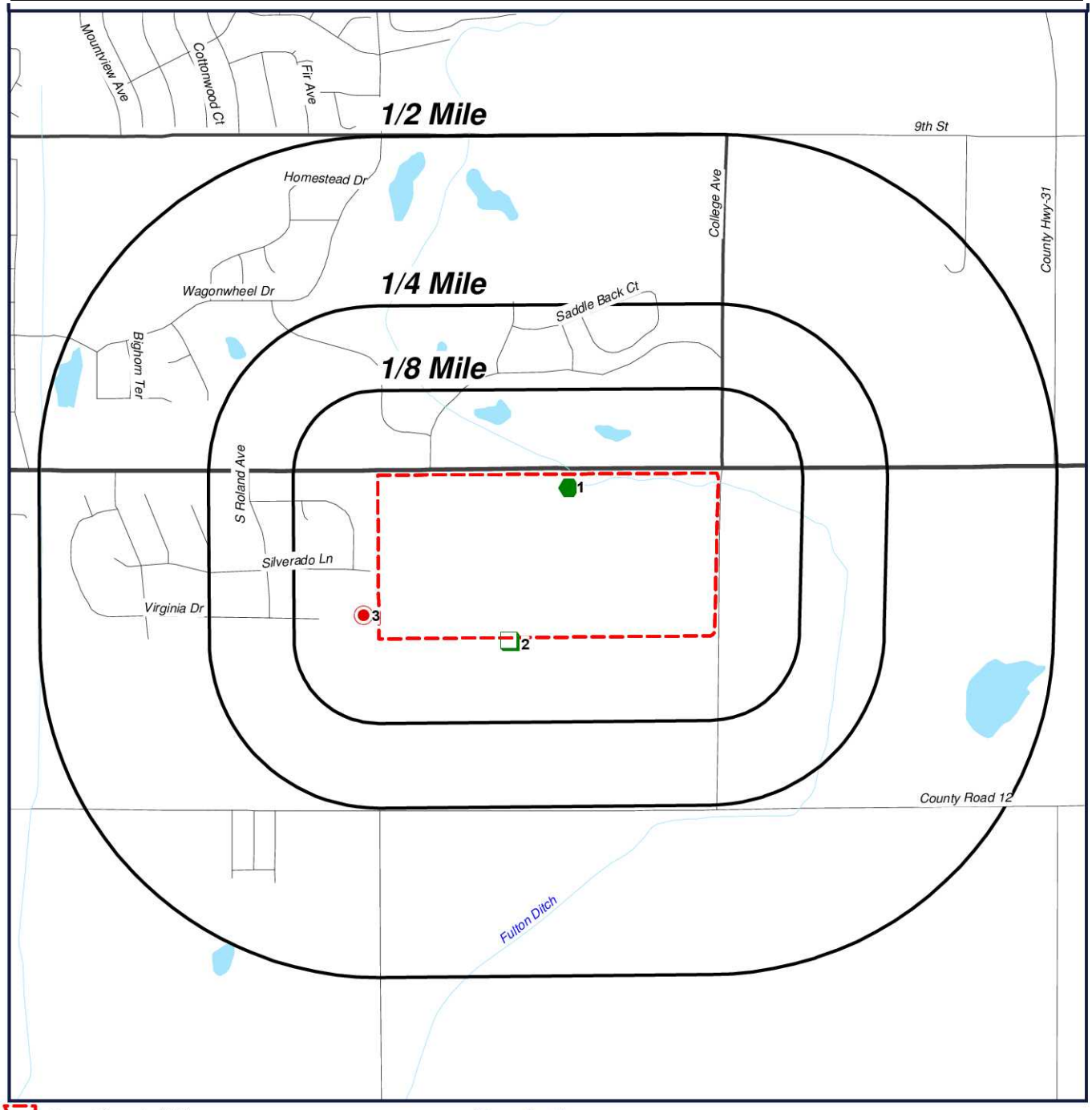
Murata Farms
14284 State Hwy 52
Fort Lupton, Colorado
80621

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

Click here to access Satellite view

Radius Map 2



Target Property (TP)
ICIS
FRSCO
AIRSAFS

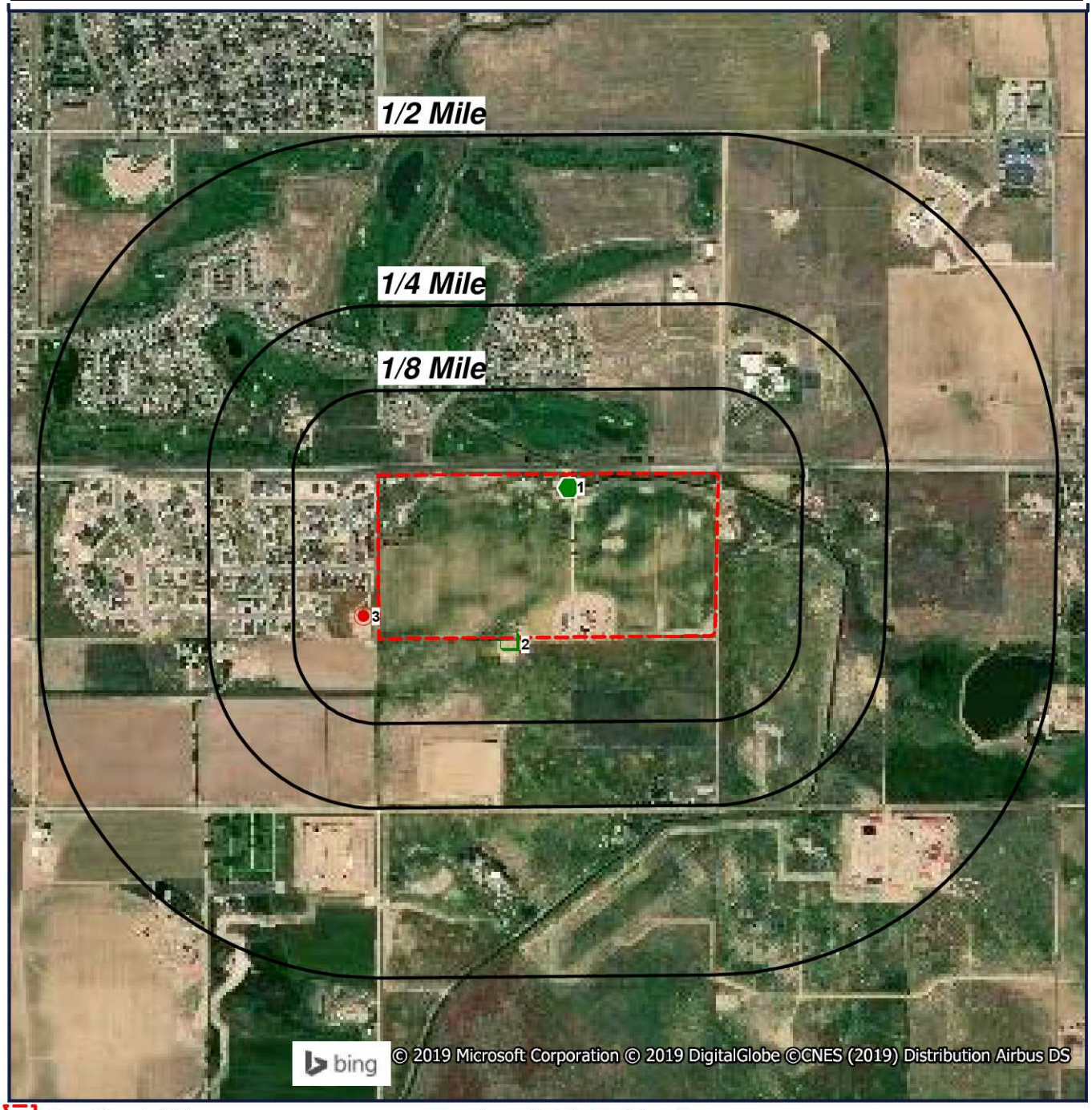
Murata Farms
14284 State Hwy 52
Fort Lupton, Colorado
80621

N
W E
S

0' 600' 1200' 1800'
SCALE: 1" = 1200'

[Click here to access Satellite view]

Ortho Map



Target Property (TP)
ICIS
FRSCO
AIRSAFS

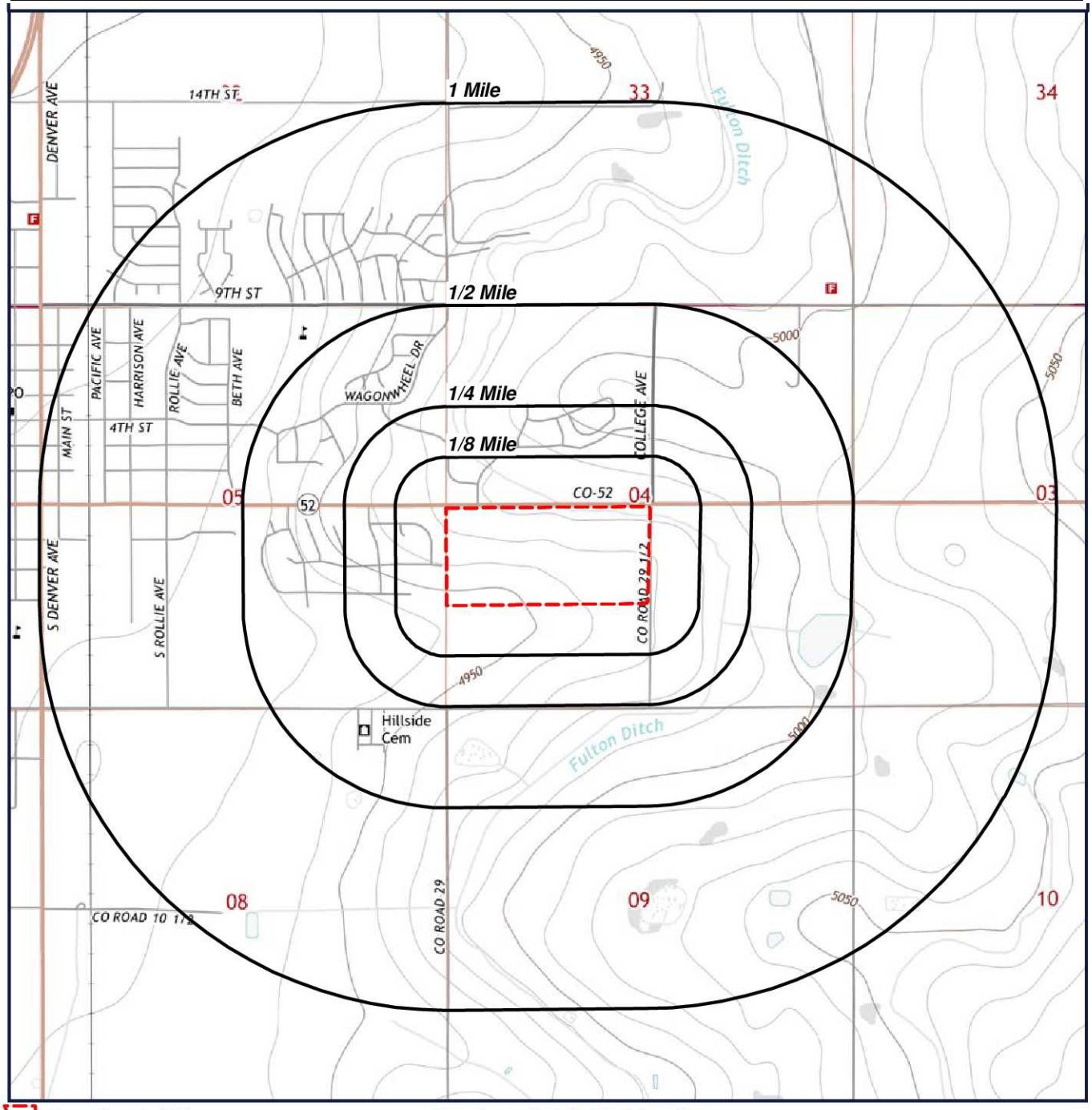
Quadrangle(s): Fort Lupton
Murata Farms
14284 State Hwy 52
Fort Lupton, Colorado
80621

N
W E
S

0' 600' 1200' 1800'
SCALE: 1" = 1200'

[Click here to access Satellite view]

Topographic Map



Target Property (TP)

Quadrangle(s): Fort Lupton
Source: USGS, 07/22/2013
Murata Farms
14284 State Hwy 52
Fort Lupton, Colorado
80621

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

[Click here to access Satellite view]

Located Sites Summary

*NOTE: Standard environmental records are displayed in **bold**.*

Map ID#	Database Name	Site ID#	Relative Elevation	Distance From Site	Site Name	Address	PAGE #
1	APCDP	123-3817	Higher (4,977 ft.)	TP	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON AREA, CO 80621	18
1	ECHOR08	110021359698	Higher (4,977 ft.)	TP	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON, CO 80621	23
1	FRSCO	110021359698	Higher (4,977 ft.)	TP	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON, CO 80621	24
1	ICIS	110021359698	Higher (4,977 ft.)	TP	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON AREA, CO 80621	25
2	AIRSAFS	1022523	Lower (4,948 ft.)	0.01 mi. S (53 ft.)	KERR-MCGEE 62261	SWSW-4-1N-66W, FORT LUPTON AREA, CO 80621	26
2	APCDP	123-1986	Lower (4,948 ft.)	0.01 mi. S (53 ft.)	KERR-MCGEE - 62261	SWSW-4-1N-66W, FORT LUPTON AREA, CO 80621	30
2	FRSCO	110021342000	Lower (4,948 ft.)	0.01 mi. S (53 ft.)	KERR-MCGEE TANK BATTERY #62261	SWSE SEC 4 T1N R66W, FORT LUPTON, CO 80621	43
3	AIRSAFS	1022864	Lower (4,945 ft.)	0.022 mi. W (116 ft.)	KERR-MCGEE 11068/11074	NESE 5-1N-66W, FORT LUPTON, CO 80621	44
3	APCDP	123-2332	Lower (4,945 ft.)	0.022 mi. W (116 ft.)	KERR-MCGEE 11068/11074	NESE 5-1N-66W, FORT LUPTON, CO 80621	48

Elevation Summary

Elevations are collected from the USGS 3D Elevation Program 1/3 arc-second (approximately 10 meters) layer hosted at the NGTOC. .

Target Property Elevation: 4957 ft.

*NOTE: Standard environmental records are displayed in **bold**.*

EQUAL/HIGHER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
1	APCDP	4,977 ft.	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON AREA, CO 80621	18
1	ECHOR08	4,977 ft.	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON, CO 80621	23
1	FRSCO	4,977 ft.	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON, CO 80621	24
1	ICIS	4,977 ft.	CRESTONE PEAK - TWOMBLY 12-4 BATTERY	NWSW SEC 4 T1N R66W, FORT LUPTON AREA, CO 80621	25

LOWER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
2	AIRSAFS	4,948 ft.	KERR-MCGEE 62261	SWSW-4-1N-66W, FORT LUPTON AREA, CO 80621	26
2	APCDP	4,948 ft.	KERR-MCGEE - 62261	SWSW-4-1N-66W, FORT LUPTON AREA, CO 80621	30
2	FRSCO	4,948 ft.	KERR-MCGEE TANK BATTERY #62261	SWSE SEC 4 T1N R66W, FORT LUPTON, CO 80621	43
3	AIRSAFS	4,945 ft.	KERR-MCGEE 11068/11074	NESE 5-1N-66W, FORT LUPTON, CO 80621	44
3	APCDP	4,945 ft.	KERR-MCGEE 11068/11074	NESE 5-1N-66W, FORT LUPTON, CO 80621	48

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 4,977 ft. (Higher than TP)

SITE INFORMATION

SITE ID: **123-3817**

FACILITY NAME: **CRESTONE PEAK - TWOMBLY 12-4 BATTERY**

ADDRESS: **NWSW SEC 4 T1N R66W**
FORT LUPTON AREA, CO 80621

PERMIT NAME: **CRESTONE PEAK - TWOMBLY 12-4 BATTERY**

FACILITY CLASSIFICATION: **0**

AIR PROGRAM

AIR PROGRAM CLASSIFICATION: 'A'=Major, 'B'=Minor, 'SM'=Synthetic Minor, 'ND'=No Major Source Threshold Defined, 'C'=Unknown, 'BLANK'= BLANK FIELD

AIR PROGRAM CLASS: **MINOR**

ACID PRECIPITATION: **BLANK** APEN EXEMPT: **BLANK** CFC TRACKING: **BLANK**

CONDENSATE STORAGE TANK: **B** FESOP (NON-TITLE V): **BLANK** MACT (SEC. 63 NESHAPS): **BLANK**

NESHAP: **BLANK** NON FEDERALLY REPORTABLE SOURCE: **BLANK** FEDERAL NSPS: **BLANK**

STATE NSPS: **BLANK** NSR: **BLANK** PSD: **BLANK** SIP SOURCE UNDER FEDERAL JURISDICTION: **BLANK**

SIP SOURCE: **BLANK** TITLE V PERMITS: **BLANK** NATIVE AMERICAN: **BLANK**

PLANT AIR PROGRAM: **OZONE, AREA N2081**

PROPERTY AREA: **NOT REPORTED**

COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**

DATE COMPLIANCE MONITORING SYSTEM: **01/27/04**

STANDARD INDUSTRIAL DESCRIPTION:

OIL AND GAS EXTRACTION - NATURAL GAS LIQUIDS

SITE CONTACT INFORMATION

CONTACT NAME: **TARYN WEINER**

CONTACT PHONE: **(303)774-3908**

SITE DESCRIPTION:**E&P CONDENSATE STORAGE TANK BATTERY**

COMMENTS:

NOT REPORTED

OWNER INFORMATION

OWNER CUSTOMER #: **9920108768**

OWNER NAME: **CRESTONE PEAK RESOURCES OPERATING, LLC**

ADDRESS: **10188 E. I-25 FRONTAGE RD.**
FIRESTONE, 08 80504

OWNER MAIL NAME: **TARYN WEINER**

OWNER MAIL PHONE: **(303)774-3908**

SITE OWNER DESCRIPTION: **E&P PRODUCTION FACILITY**

SITE POLLUTANT INFORMATION

EFFECTIVE YEAR OF INVENTORY: **2019**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2016**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.12113**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **2.42262**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2018**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.12113**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **2.42262**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.12113**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **2.42262**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2011**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **2.60985**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **2.60985**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2011**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
2.60985	**2.60985**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2011**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
2.60985	**2.60985**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2009**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
2.60985	**2.60985**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

STACK

EFFECTIVE YEAR OF INVENTORY: **2019**
EMISSION DATA SUBMITTED YEAR: **2016**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS CONTROLLED BY FLARE**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
5916.00000	**98.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.00000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2017**
EMISSION DATA SUBMITTED YEAR: **2011**
EMISSION RELEASE POINT (STACK): **CONDENSATE TANK FLASH EMISSIONS**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2009**
EMISSION RELEASE POINT (STACK): **CONDENSATE TANK FLASH EMISSIONS**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

STACK POLLUTANT

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.12113	**2.42262**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2011**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
2.60985	**2.60985**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

UNIT COMMENT

TANK NAME: CRESTONE PEAK - TWOMBLY 12-4 BATTERY

Back to Report Summary

Enforcement and Compliance History Information (ECHOR08)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 4,977 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **110021359698**
REGISTRY ID: **110021359698**
NAME: **CRESTONE PEAK - TWOMBLY 12-4 BATTERY**
ADDRESS: **NWSW SEC 4 T1N R66W**
FORT LUPTON, CO 80621
COUNTY: **WELD**
FACILITY LINK: *Facility Detail Report*

Back to Report Summary

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 4,977 ft. (Higher than TP)

FACILITY INFORMATION

REGISTRY ID: **110021359698**

NAME: **CRESTONE PEAK - TWOMBLY 12-4 BATTERY**

LOCATION ADDRESS: **NWSW SEC 4 T1N R66W**
FORT LUPTON, CO 80621

COUNTY: **WELD**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

ENCANA - TWOMBLY 12-4 BATTERY

PROGRAM/S LISTED FOR THIS FACILITY

EIS - EIS

AIRS/AFS - AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIRS FACILITY SYSTEM

AIR - AIR

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

1321 - NATURAL GAS LIQUIDS

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.

Back to Report Summary

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 4,977 ft. (Higher than TP)

SITE INFORMATION

GEOSEARCH ID: **110021359698**
REGISTRY ID: **110021359698**
NAME: **CRESTONE PEAK - TWOMBLY 12-4 BATTERY**
ADDRESS: **NWSW SEC 4 T1N R66W**
FORT LUPTON AREA CO 80621
STANDARD INDUSTRIAL CLASSIFICATION: **NATURAL GAS LIQUIDS**

REGIONAL DOCKETS

- NO REGIONAL DOCKETS REPORTED

RELATED ACTIVITIES

CASE NUMBER: **CO000A0000081230381700004**
ACTIVITY TYPE: **CASE FILE**
ACTIVITY STATUS DATE: **NOT REPORTED**

VIOLATIONS

- NO VIOLATIONS REPORTED

CASE IDENTIFIER

CASE NUMBER: **CO000A0000081230381700004**
FISCAL YEAR: **NOT REPORTED**
CASE NAME: **NOT REPORTED**
ACTIVITY TYPE: **ADMINISTRATIVE - INFORMAL**
ACTIVITY STATUS: **ACHIEVED**
ACTIVITY STATUS DATE: **3/30/2015**
LEAD: **STATE**
CASE STATUS DATE: **3/30/2015**
DOJ DOCKET NUMBER: **NOT REPORTED**
ENFORCEMENT OUTCOME: **NOT REPORTED**
MULTIMEDIA FLAG: **NOT REPORTED**
ENFORCEMENT SUMMARY:
NOT REPORTED

ENFORCEMENT TYPE

ENFORCEMENT TYPE: **NOTICE OF VIOLATION**

POLLUTANTS CITED

- NO POLLUTION CITED REPORTED

Back to Report Summary

Aerometric Information Retrieval System / Air Facility Subsystem (AIRSAFS)

MAP ID# 2

Distance from Property: 0.01 mi. (53 ft.) S
Elevation: 4,948 ft. (Lower than TP)

SITE INFORMATION

UNIQUE ID: **1022523**
PLANT ID: **1022523**
NAME: **KERR-MCGEE 62261**
ADDRESS: **SWSW-4-1N-66W**
FORT LUPTON AREA, CO 80621
CLASSIFICATION: **POTENTIAL UNCONTROLLED EMISSIONS <100 TONS/YEAR**
OPERATION STATUS: **OPERATING**
STATE COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
FACILITY TYPE: **PRIVATELY OWNED/OPERATED**
CURRENT HIGH PRIORITY VIOLATOR: **NOT REPORTED**
SIC DESCRIPTION: **ESTABLISHMENTS PRIMARILY ENGAGED IN PRODUCING LIQUID HYDROCARBONS FROM OIL AND GAS FIELD GASES.**

ENFORCEMENT ACTIONS

NO ENFORCEMENT ACTIONS REPORTED

AIR PROGRAM

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **VOLATILE ORGANIC COMPOUNDS**

HISTORICAL COMPLIANCE AIR PROGRAM LEVEL

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0904**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1304**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1102**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0901**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0802**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**

COMPLIANCE DATE (YYYQ): **0703**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1003**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1301**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0701**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0804**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0704**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1101**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1103**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0903**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1403**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0803**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1001**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1303**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0801**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0702**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0604**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1203**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1402**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1302**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1104**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0902**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1002**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1004**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1202**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1201**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1401**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1204**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

Back to Report Summary

MAP ID# 2

Distance from Property: 0.01 mi. (53 ft.) S
Elevation: 4,948 ft. (Lower than TP)

SITE INFORMATION

SITE ID: **123-1986**
FACILITY NAME: **KERR-MCGEE - 62261**
ADDRESS: **SWSW-4-1N-66W**
FORT LUPTON AREA, CO 80621
PERMIT NAME: **KERR-MCGEE - 62261**
FACILITY CLASSIFICATION: **0**

AIR PROGRAM

AIR PROGRAM CLASSIFICATION: 'A'=Major, 'B'=Minor, 'SM'=Synthetic Minor, 'ND'=No Major Source Threshold Defined, 'C'=Unknown, 'BLANK'= BLANK FIELD

AIR PROGRAM CLASS: **MINOR**
ACID PRECIPITATION: **BLANK** APEN EXEMPT: **BLANK** CFC TRACKING: **BLANK**
CONDENSATE STORAGE TANK: **B** FESOP (NON-TITLE V): **BLANK** MACT (SEC. 63 NESHAPS): **BLANK**
NESHAP: **BLANK** NON FEDERALLY REPORTABLE SOURCE: **BLANK** FEDERAL NSPS: **BLANK**
STATE NSPS: **BLANK** NSR: **BLANK** PSD: **BLANK** SIP SOURCE UNDER FEDERAL JURISDICTION: **BLANK**
SIP SOURCE: **BLANK** TITLE V PERMITS: **BLANK** NATIVE AMERICAN: **BLANK**
PLANT AIR PROGRAM: **OZONE, AREA N2081**
PROPERTY AREA: **NOT REPORTED**
COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**
DATE COMPLIANCE MONITORING SYSTEM: **01/27/04**
STANDARD INDUSTRIAL DESCRIPTION:
OIL AND GAS EXTRACTION - NATURAL GAS LIQUIDS

SITE CONTACT INFORMATION

CONTACT NAME: **CARISSA KREY**
CONTACT PHONE: **(720)929-6916**
SITE DESCRIPTION:**E&P CONDENSATE STORAGE TANK**
COMMENTS:
NOT REPORTED

OWNER INFORMATION

OWNER CUSTOMER #: **9920104636**
OWNER NAME: **KERR-MCGEE OIL & GAS ONSHORE LP**
ADDRESS: **P.O. BOX 173779**
DENVER, 08 80217
OWNER MAIL NAME: **CARISSA KREY**
OWNER MAIL PHONE: **(720)929-6916**
SITE OWNER DESCRIPTION: **OGCC#47120 NATURAL GAS COMPRES**

SITE POLLUTANT INFORMATION

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.10321**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.10321**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.91892**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **11.35046**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.04062**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.04062**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2018**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.10321**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.10321**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2018**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2014**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.91892	**11.35046**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2018**

POLLUTANT NAME: **NOX - NITROGEN OXIDES**

EMISSION DATA SUBMITTED YEAR: **2014**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2017**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2014**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10321	**0.10321**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**

POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10321	**0.10321**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10321	**0.10321**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **NOX - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **NOX - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:

(TONS PER YEAR): *(TONS PER YEAR):* *(TONS PER YEAR):*

0.91892 **11.35046** **0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:
(TONS PER YEAR): *(TONS PER YEAR):* *(TONS PER YEAR):*
0.91892 **11.35046** **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:
(TONS PER YEAR): *(TONS PER YEAR):* *(TONS PER YEAR):*
0.91892 **11.35046** **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2010**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:
(TONS PER YEAR): *(TONS PER YEAR):* *(TONS PER YEAR):*
0.00164 **0.03296** **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2010**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.94084	**18.81696**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00576	**0.02400**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10302	**0.10302**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **NOX - NITROGEN DIOXIDE**

EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04055	**0.04055**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
3.28800	**13.70000**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

STACK

EFFECTIVE YEAR OF INVENTORY: **2019**
EMISSION DATA SUBMITTED YEAR: **2014**
EMISSION RELEASE POINT (STACK): **CONDENSATE TANK FLASH EMISSIONS**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2019**
EMISSION DATA SUBMITTED YEAR: **2014**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS CONTROLLED BY COMBUSTOR**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
5916.00000	**98.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.00000**	**0.00000**

STACK TYPE DESCRIPTION:

A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2015**
EMISSION DATA SUBMITTED YEAR: **2010**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS (CONTROLLED)**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2008**
EMISSION RELEASE POINT (STACK): **CONDENSATE TANK FLASH EMISSIONS**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2008**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS CONTROLLED BY FLARE**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
5916.00000	**98.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.00000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

STACK POLLUTANT

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.36990	**0.36990**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10321	**0.10321**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.54902	**10.98056**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2010**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.94084	**18.81696**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2010**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00164	**0.03296**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **NO2 - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04062	**0.04062**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*

0.54800 **10.96000** **0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **NO2 - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.04055	**0.04055**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10302	**0.10302**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00096	**0.01920**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

UNIT COMMENT

-NO COMMENTS REPORTED

Back to Report Summary

Facility Registry System (FRSCO)

MAP ID# 2

Distance from Property: 0.01 mi. (53 ft.) S
Elevation: 4,948 ft. (Lower than TP)

FACILITY INFORMATION

REGISTRY ID: **110021342000**

NAME: **KERR-MCGEE TANK BATTERY #62261**

LOCATION ADDRESS: **SWSE SEC 4 T1N R66W**
FORT LUPTON, CO 80621

COUNTY: **WELD**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

KERR-MCGEE 62261

PROGRAM/S LISTED FOR THIS FACILITY

EIS - EIS

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

1321 - NATURAL GAS LIQUIDS

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.
211112 - NATURAL GAS LIQUID EXTRACTION.

Back to Report Summary

MAP ID# 3

Distance from Property: 0.022 mi. (116 ft.) W
Elevation: 4,945 ft. (Lower than TP)

SITE INFORMATION

UNIQUE ID: **1022864**
PLANT ID: **1022864**
NAME: **KERR-MCGEE 11068/11074**
ADDRESS: **NESE 5-1N-66W**
FORT LUPTON, CO 80621
CLASSIFICATION: **POTENTIAL UNCONTROLLED EMISSIONS <100 TONS/YEAR**
OPERATION STATUS: **OPERATING**
STATE COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
FACILITY TYPE: **PRIVATELY OWNED/OPERATED**
CURRENT HIGH PRIORITY VIOLATOR: **NOT REPORTED**
SIC DESCRIPTION: **ESTABLISHMENTS PRIMARILY ENGAGED IN PRODUCING LIQUID HYDROCARBONS FROM OIL AND GAS FIELD GASES.**

ENFORCEMENT ACTIONS

NO ENFORCEMENT ACTIONS REPORTED

AIR PROGRAM

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **VOLATILE ORGANIC COMPOUNDS**

HISTORICAL COMPLIANCE AIR PROGRAM LEVEL

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1403**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1202**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1002**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0904**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0803**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**

COMPLIANCE DATE (YYYQ): **1004**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0704**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1103**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1201**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1204**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0903**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0901**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1104**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1101**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1003**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1304**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0801**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1402**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1301**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0804**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0902**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1001**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1203**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1401**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1102**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0702**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1303**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1302**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0604**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0802**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0703**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0701**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

Back to Report Summary

MAP ID# 3

Distance from Property: 0.022 mi. (116 ft.) W
Elevation: 4,945 ft. (Lower than TP)

SITE INFORMATION

SITE ID: **123-2332**
FACILITY NAME: **KERR-MCGEE 11068/11074**
ADDRESS: **NESE 5-1N-66W**
FORT LUPTON, CO 80621
PERMIT NAME: **KERR-MCGEE 11068/11074**
FACILITY CLASSIFICATION: **0**

AIR PROGRAM

AIR PROGRAM CLASSIFICATION: 'A'=Major, 'B'=Minor, 'SM'=Synthetic Minor, 'ND'=No Major Source Threshold Defined, 'C'=Unknown, 'BLANK'= BLANK FIELD

AIR PROGRAM CLASS: **MINOR**
ACID PRECIPITATION: **BLANK** APEN EXEMPT: **BLANK** CFC TRACKING: **BLANK**
CONDENSATE STORAGE TANK: **B** FESOP (NON-TITLE V): **BLANK** MACT (SEC. 63 NESHAPS): **BLANK**
NESHAP: **BLANK** NON FEDERALLY REPORTABLE SOURCE: **BLANK** FEDERAL NSPS: **BLANK**
STATE NSPS: **BLANK** NSR: **BLANK** PSD: **BLANK** SIP SOURCE UNDER FEDERAL JURISDICTION: **BLANK**
SIP SOURCE: **BLANK** TITLE V PERMITS: **BLANK** NATIVE AMERICAN: **BLANK**
PLANT AIR PROGRAM: **OZONE, AREA N2081**
PROPERTY AREA: **NOT REPORTED**
COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**
DATE COMPLIANCE MONITORING SYSTEM: **01/27/04**
STANDARD INDUSTRIAL DESCRIPTION:
OIL AND GAS EXTRACTION - NATURAL GAS LIQUIDS

SITE CONTACT INFORMATION

CONTACT NAME: **KATHERINE DOOLITTLE**
CONTACT PHONE: **(720)929-6511**
SITE DESCRIPTION:**E&P CONDENSATE STORAGE TANK**
COMMENTS:
NOT REPORTED

OWNER INFORMATION

OWNER CUSTOMER #: **9920104636**
OWNER NAME: **KERR-MCGEE OIL & GAS ONSHORE LP**
ADDRESS: **P.O. BOX 173779**
DENVER, 08 80217
OWNER MAIL NAME: **CARISSA KREY**
OWNER MAIL PHONE: **(720)929-6916**
SITE OWNER DESCRIPTION: **OGCC#47120 NATURAL GAS COMPRES**

SITE POLLUTANT INFORMATION

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.16670**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **3.27822**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2018**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.16670**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **3.27822**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.16670**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **3.27822**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)* **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **CO - CARBON MONOXIDE**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.08164**
UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):* **0.08164**
EMISSIONS LIMIT: *(TONS PER YEAR):* **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
0.08164	**0.08164**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
0.08164	**0.08164**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**

POLLUTANT NAME: **NOX - NITROGEN DIOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS:	UNCONTROLLED ESTIMATED EMISSIONS:	EMISSIONS LIMIT:
(TONS PER YEAR):	*(TONS PER YEAR):*	*(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)

0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**

POLLUTANT NAME: **NOX - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2017**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.43429	**8.68580**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2016**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.43429	**8.68580**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.43429	**8.68580**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:

(TONS PER YEAR):	(TONS PER YEAR):	(TONS PER YEAR):
0.00354	**0.04800**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **110543 - HEXANE,N-**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03097	**0.42000**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2011**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
2.02075	**27.40000**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

STACK

EFFECTIVE YEAR OF INVENTORY: **2019**
EMISSION DATA SUBMITTED YEAR: **2016**
EMISSION RELEASE POINT (STACK): **CONDENSATE TANK FLASH EMISSIONS**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
9747.00000	**162.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
20.00000	**2.84000**	**0.00000**

STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2019**

EMISSION DATA SUBMITTED YEAR: **2016**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS CONTROLLED BY COMBUSTOR**
STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):* **5916.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):* **98.00000**
STACK HEIGHT: **20.00000**
STACK DIAMETER: **2.00000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2017**
EMISSION DATA SUBMITTED YEAR: **2012**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS CONTROLLED BY FLARE**
STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):* **5916.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):* **98.00000**
STACK HEIGHT: **20.00000**
STACK DIAMETER: **2.00000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2008**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS UNCONTROLLED**
STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):* **9747.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):* **162.00000**
STACK HEIGHT: **20.00000**
STACK DIAMETER: **2.84000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2008**
EMISSION RELEASE POINT (STACK): **FLASH EMISSIONS WITH FLARE**
STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):* **5916.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):* **98.00000**
STACK HEIGHT: **20.00000**
STACK DIAMETER: **2.00000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

STACK POLLUTANT

EFFECTIVE YEAR OF INVENTORY: **2019**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2016**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00293	**0.00293**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **2019**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2016**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.16376	**3.27528**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.08164	**0.08164**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*

0.43429 **8.68580** **0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **NO2 - NITROGEN DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03213	**0.03213**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00120	**0.00120**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **110543 - HEXANE,N-**

EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.01050	**0.01050**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
1.33575	**26.71500**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **71432 - BENZENE**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00234	**0.04680**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **NOT REPORTED**
POLLUTANT NAME: **110543 - HEXANE,N-**
EMISSION DATA SUBMITTED YEAR: **2008**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **YES**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.02047	**0.40950**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR)

0.00000

UNIT COMMENT

TANK NAME: 34001943

Back to Report Summary

Unlocated Sites Summary

This list contains sites that could not be mapped due to limited or incomplete address information.

No Records Found

DOCKETS EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 06/11/19

This database includes site locations where Engineering and/or Institutional Controls have been identified as part of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. The data displays remedy component information for Superfund decision documents issued in fiscal years 1982-2017, and it includes final and deleted NPL sites as well as sites with a Superfund Alternative Approach (SAA) agreement in place. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

ECHOR08 Enforcement and Compliance History Information

VERSION DATE: 03/09/19

The U.S. Environmental Protection Agency's Enforcement and Compliance History Online (ECHO) database, provides compliance and enforcement information for facilities nationwide. This database includes facilities regulated as Clean Air Act stationary sources, Clean Water Act direct dischargers, Resource Conservation and Recovery Act hazardous waste handlers, Safe Drinking Water Act public water systems along with other data, such as Toxics Release Inventory releases.

FRSCO Facility Registry System

VERSION DATE: 04/05/19

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

ICIS Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 03/09/19

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal

Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

ICISNPDES Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 07/09/17

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. This database is provided by the U.S. Environmental Protection Agency.

LUCIS Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 06/29/17

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements. Disclaimer: Due to agency regulations and policies, this database contains applicant/licensee location information which may or may not be related to the physical location per MLTS site.

NPDESR08 National Pollutant Discharge Elimination System

VERSION DATE: 04/01/07

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES database was collected from the U.S. Environmental Protection Agency (EPA) from December 2002 through April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data. This database includes permitted facilities located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

PADS PCB Activity Database System

VERSION DATE: 09/14/18

PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are

required to notify the U.S. Environmental Protection Agency of such activities.

PCSR08 Permit Compliance System

VERSION DATE: 08/01/12

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. PCS has been modernized, and no longer exists. National Pollutant Discharge Elimination System (ICIS-NPDES) data can now be found in Integrated Compliance Information System (ICIS).

RCRASC RCRA Sites with Controls

VERSION DATE: 04/24/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with institutional controls in place.

SEMSLIENS SEMS Lien on Property

VERSION DATE: 08/13/18

The U.S. Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs. This is a listing of SEMS sites with a lien on the property.

SFLIENS CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete. Please refer to the SEMSLIENS database as source of current data.

SSTS Section Seven Tracking System

VERSION DATE: 02/01/17

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/31/12

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 10/20/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 12/29/18

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

ERNSCO Emergency Response Notification System

VERSION DATE: 04/07/19

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

HMIRSR08 Hazardous Materials Incident Reporting System

VERSION DATE: 04/14/19

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

TRI Toxics Release Inventory

VERSION DATE: 12/31/16

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal and tribal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

ALTFUELS Alternative Fueling Stations

VERSION DATE: 03/01/19

Nationwide list of alternative fueling stations made available by the U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Bio-diesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE).

BRS Biennial Reporting System

VERSION DATE: 12/31/15

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

FEMAUST FEMA Owned Storage Tanks

VERSION DATE: 12/01/16

This is a listing of FEMA owned underground and aboveground storage tank sites. For security reasons, address information is not released to the public according to the U.S. Department of Homeland Security.

HISTPST Historical Gas Stations

VERSION DATE: NR

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

ICISCLEANERS Integrated Compliance Information System Drycleaners

VERSION DATE: 03/09/19

This is a listing of drycleaner facilities from the Integrated Compliance Information System (ICIS). The U.S. Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

MRDS Mineral Resource Data System

VERSION DATE: 03/15/16

MRDS (Mineral Resource Data System) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS.

MSHA Mine Safety and Health Administration Master Index File

VERSION DATE: 03/15/19

The Mine dataset lists all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970. It includes such information as the current status of each mine (Active, Abandoned, NonProducing, etc.), the current owner and operating company, commodity codes and physical attributes of the mine. Mine ID is the unique key for this data. This information is provided by the United States Department of Labor - Mine Safety and Health Administration (MSHA).

RCRAGR08 Resource Conservation & Recovery Act - Generator

VERSION DATE: 04/01/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA)

the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities currently generating hazardous waste. EPA Region 8 includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

RCRANGR08 Resource Conservation & Recovery Act - Non-Generator

VERSION DATE: 04/01/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities classified as non-generators. Non-Generators do not presently generate hazardous waste. EPA Region 8 includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

BF Brownfields Management System

VERSION DATE: 07/10/19

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment. This database included tribal brownfield sites.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 04/01/19

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

ODI Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

RCRAT Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities

VERSION DATE: 04/01/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities recognized as hazardous waste treatment, storage, and disposal sites (TSD).

SEMS Superfund Enterprise Management System

VERSION DATE: 06/11/19

The U.S. Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs.

SEMSARCH Superfund Enterprise Management System Archived Site Inventory

VERSION DATE: 06/11/19

The U.S. Environmental Protection Agency’s (EPA) Superfund Enterprise Management System Archived Site Inventory (List 8R Archived) replaced the CERCLIS NFRAP reporting system in 2015. This listing reflects sites at which the EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program.

SMCRA Surface Mining Control and Reclamation Act Sites

VERSION DATE: 03/19/19

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

USUMTRCA Uranium Mill Tailings Radiation Control Act Sites

VERSION DATE: 03/04/17

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste,

environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

DNPL Delisted National Priorities List

VERSION DATE: 06/11/19

This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

DOD Department of Defense Sites

VERSION DATE: 12/01/14

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

FUDS Formerly Used Defense Sites

VERSION DATE: 06/01/15

The Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. DISCLAIMER: This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

FUSRAP Formerly Utilized Sites Remedial Action Program

VERSION DATE: 03/04/17

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 04/01/19

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NMS Former Military Nike Missile Sites

VERSION DATE: 12/01/84

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

NPL National Priorities List

VERSION DATE: 06/11/19

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

PNPL Proposed National Priorities List

VERSION DATE: 06/11/19

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 04/01/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems

that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with corrective action activity.

RCRASUBC Resource Conservation & Recovery Act - Subject to Corrective Action Facilities

VERSION DATE: 04/01/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities subject to corrective actions.

RODS Record of Decision System

VERSION DATE: 05/14/19

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

Environmental Records Definitions - STATE (CO)

ASBESTOS Asbestos Abatement and Demolition Projects

VERSION DATE: 12/28/17

The Colorado Department of Public Health and Environment's Air Pollution Control Division assists schools and businesses to comply with air pollution laws regulating asbestos and asbestos containing materials. The regulation that governs asbestos in Colorado is the Colorado Air Quality Control Commission s Regulation No. 8, Part B, "Emission Standards for Asbestos." Notification is required for all demolitions of all facilities and all asbestos abatement projects that exceed the trigger levels, whatever is the lesser quantity. The notification requirements apply to both friable and non-friable asbestos materials. This database contains those related projects since January 2008.

CDPS Colorado Discharge Permit System Facilities

VERSION DATE: 02/03/19

The Colorado Department of Public Health & Environment's Water Quality Control Division regulates the Colorado Discharge Permit System. This system controls stormwater discharges from construction activities by requiring a Stormwater Construction Permit to reduce pollutants from entering streams, river, lakes and wetlands as a result of runoff from residential, commercial and industrial areas. This database also includes facilities with Industrial Stormwater Permits.

COVENANTS Environmental Real Covenants List

VERSION DATE: 08/20/19

This list of environmental covenants is maintained by the Colorado Division of Public Health and Environment. Senate Bill 01-145 gave authority to the Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. These covenants, which are recorded with the deed and run with the land, provide a mechanism to ensure that institutional controls that are part of environmental remediation projects are properly implemented and that engineered structures are protected and maintained, so that implemented remedies continue to be protective of human health and the environment for as long as any residual contamination remains a risk.

UMTS Uranium Mill Tailings Sites

VERSION DATE: 08/09/02

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act (UMTRA). These nine sites, know commonly as UMTRA sites, were remediated jointly by the State of Colorado and the U.S. Department of Energy during the late 1980's and early 1990's. Mill tailings were removed from 8 of the mill sites and relocated in engineered disposal cells. A disposal cell is designed to encapsulate the material, reduce radon emanation, and prevent the movement of water through the material. At one site, Maybell, CO, the tailings were stabilized in-place at the mill site. After remediation of the tailings was completed, the State and DOE began to investigate the residual impacts to groundwater at the mill sites. The groundwater phase of the UMTRA program is on-going. This database was provided by the Colorado Department of Public Health and Environment.

APCDP Air Pollution Control Division Permitted Facilities

VERSION DATE: 07/28/19

This list of Air Pollution Control Division Permitted Facilities is maintained by the Colorado Department of Public Health and Environment. The Stationary Sources Program evaluates and develops air permits for stationary sources in Colorado. The program inspects sources to determine compliance with air regulations and permit conditions and maintains a computerized inventory of air pollution emissions throughout the state.

CLEANERS Dry Cleaning Facilities

VERSION DATE: 07/29/19

This list of dry cleaners, which have obtained an air permit through the Air Pollution Control Division, is maintained by the Colorado Department of Public Health and Environment.

SPILLS Spills Listing

VERSION DATE: 07/31/19

The Colorado Department of Public Health and Environment's Division of Emergency Preparedness and Response maintains this listing of chemical spills and/or releases.

AST Aboveground Storage Tank Facilities

VERSION DATE: 08/13/19

This list of aboveground storage tank (AST) facilities is maintained by the Colorado Department of Public Health and Environment. Types of tanks included are: currently in use, never installed/existed, never installed-permit revoked, not regulated, other, pending installation, permanently closed, temporarily out of use.

HWSG Hazardous Waste Sites- Generator

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. This facility listing includes RCRA sites listed as generators of hazardous waste (Small Quantity Generators and Large Quantity Generators) and was provided by the Colorado Department of Public Health and Environment.
Small Quantity Generators (SQG) generate, in any calendar month, more than 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; and generate, in any calendar month, or accumulate at any time, no more than 1 kg (2.2 lbs.) of acute hazardous waste and no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste; and accumulate on-site no more than 6000 kg (13,200 lbs) of hazardous waste at any one time; or, the site is a Small Quantity Generator if the site met all other criteria for a Conditionally Exempt Small Quantity Generator, but accumulated, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste.

Large Quantity Generators (LQG) generate, in any calendar month, 1,000 kg (2,200 lbs.) or more of RCRA hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 1 kg (2.2 lbs.) of RCRA acute hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

UST Underground Storage Tank Facilities

VERSION DATE: 08/13/19

This list of underground storage tank (UST) facilities is maintained by the Colorado Department of Public Health and Environment. Types of tanks included are: currently in use, never installed/existed, never installed-permit revoked, not regulated, other, pending installation, permanently closed, temporarily out of use.

HISTSWLF Historical Solid Waste Landfills

VERSION DATE: NR

This historical solid waste landfills database contains data from the Hazardous Materials Waste Management Division (HMWMD) of the Colorado Department of Public Health and other various state and local agencies. In the early 1980s, the HMWMD conducted a survey of staff members and local agencies to compile this listing of sites that were known or thought to have waste issues. This Solid Waste Historical Data is not considered complete or verifiable and has not been maintained since the late 1980s. The HMWMD is not responsible and shall not be liable to the used for damages of any kind arising out of the use of this data or information.

HWSTSD Hazardous Waste Sites- Treatment, Storage & Disposal

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. TSD facilities treat, store, dispose, or recycle hazardous waste on site in units and therefore are subject to RCRA permitting requirements. Historic TSDs are facilities that have completed closure and/or post-closure of the RCRA Subtitle C Regulated Unit(s) or the Treatment/Storage/Disposal Unit is no longer regulated. This database was provided by the Colorado Department of Public Health and Environment.

LST Leaking Storage Tank Facilities

VERSION DATE: 08/13/19

This database of aboveground and underground storage tank facilities with confirmed releases is a compilation of several lists maintained by the Colorado Department of Labor and Employment. Currently In Use, Never Installed/Existed, Never Installed-Permit Revoked, Not Regulated, Other, Pending Installation, Permanently Closed, Temporarily Out of Use tanks are included in this data. The next set of data is obtained from the Active and Closed OPS Petroleum Release Events in Colorado database. This data includes the OPS Open Event locations, but also shows locations of closed events (releases that have been issued a No Further Action determination). The Events data utilized in this database includes the following status types: Brownfield,

Closed, Enforcement, LUST Trust, Open and State Lead. Please note some Events (confirmed releases) may not have a contaminant present.

LUSTTRUST Leaking Underground Storage Tanks Trust Fund Sites

VERSION DATE: 01/01/00

Suspected tank leaks have been discovered at the sites are included in this database, but the facility responsible for the leak has not been identified. The state's investigation and search for responsible parties is paid for out of the state's Leaking Underground Storage Tank (LUST) Trust Fund. This data was originally collected in 2002 from the Colorado Department of Labor & Employment, Division of Oil & Public Safety, State Fund Section by a former environmental database company known as Satisfi. Please refer to State LST database as source of current LUST Trust sites.

METHANESITES Methane Gas Study Sites

VERSION DATE: 01/01/81

This Investigation of Methane Gas Hazards report was prepared by the Denver Office of Emergency Preparedness in 1981. The purpose of this study was to assess the actual and potential generation, migration, explosive and related problems associated with specified landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. The Colorado Department of Health selected eight landfills as priorities due to population density and potential hazards to population and property.

SWF Solid Waste Facilities

VERSION DATE: 06/24/19

The Colorado Department of Public Health and Environment maintains this database of solid waste disposal facilities, transfer stations, recyclers, waste tire registrants, and waste grease registrants.

VCRA Voluntary Cleanup and Redevelopment Program Sites

VERSION DATE: 07/02/19

This list of Voluntary Cleanup and Redevelopment Program Sites is maintained by the Colorado Department of Public Health and Environment (CDPHE) and includes both voluntary cleanup and brownfield properties. The Voluntary Cleanup and Redevelopment program was created in 1994. The objective of the program is to facilitate the redevelopment and transfer of contaminated properties. Properties that sit untouched because of their real or perceived contamination can be rehabilitated using the CDPHE's Brownfields Program in conjunction with the Voluntary Cleanup Program. Cleanup decisions are based on existing standards and the proposed use of the property. The actual cleanup and verification is the owner's responsibility.

HWSCA Hazardous Waste Sites- Corrective Action

VERSION DATE: 06/30/03

Environmental Records Definitions - STATE (CO)

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the Hazardous and Solid Waste Amendments (HSWA) were added to RCRA providing for corrective action at facilities subject to RCRA. That same year, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. Corrective action may be implemented as part of a RCRA Hazardous Waste Permit, an Order, or a Corrective Action Plan pursuant to the Colorado Hazardous Waste Regulations. Corrective action is the process by which regulated facilities investigate and remediate, as necessary, all contamination (soil, ground water, surface water, air) associated with their releases into the environment. Historic Corrective Action Sites are facilities that have completed the RCRA Subtitle C corrective Action process. This database was provided by the Colorado Department of Public Health and Environment.

SF Superfund Sites

VERSION DATE: 07/23/19

This list of superfunds is maintained by the Colorado Department of Public Health and Environment. This list contains active, deleted and proposed "Superfund" hazardous waste sites, as well as those sites identified through the Natural Resource Damages section of Superfund legislation and one Private Non-Superfund Cleanup site. A site qualifies for the National Priorities List (NPL or Superfund list) when the U.S. Environmental Protection Agency (EPA) determines there is a release or threatened release of hazardous substances that may endanger public health, welfare or the environment. In Colorado, the lead agency for Superfund remediation may be either the EPA or the Colorado Department of Public Health and Environment.

WCSWF Weld County Solid Waste Facilities

VERSION DATE: 01/25/18

This list of solid waste facilities is maintained by the Weld County Public Health Department. The Weld County Code (WCC), Section 23-4-380 is the only section of the WCC that pertains to solid waste operations. The siting, permitting and regulation of solid waste disposal sites is an area of dual jurisdiction between Colorado Department of Public Health and Environment and Weld County. The primary regulations that govern composting and solid waste facilities are the Colorado Regulations Pertaining to Solid Waste Disposal Sites and Facilities (6 CCR 1007-2). These regulations are implemented by the Colorado Department of Public Health & Environment. The Weld County Department of Public Health & Environment interacts with compost and solid waste facilities through the receipt of complaints, the land use planning process for facilities having a Use by Special Review (USR) Permit, site inspections, and investigations.

Environmental Records Definitions - TRIBAL

USTR08 Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/16/18

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

LUSTR08 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 05/02/19

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

INDIANRES Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

APPENDIX D

LOCAL GOVERNMENT RESPONSE

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

City Clerk

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortlupton.org

September 25, 2019

Via E-mail

Rannen Worsley
1971 W 12th Ave.
Denver, CO 80204

Dear Rannen,

This letter is in response to your Open Records Request dated September 20, 2019.

Request: Documents on the release of hazardous wastes/materials such as closed/archived landfills, onsite water treatment systems, clandestine methamphetamine labs, spills or complains, on or adjacent to the site 14284 Hwy 52.

Response: The City has no documents on file pertaining to any hazardous wastes/materials such as closed/archived landfills, onsite water treatment systems, clandestine methamphetamine labs, spills or complains, on or adjacent to the site 14284 Hwy 52.

If you have any questions or comments, please free to contact me at 720.466.6101.

Sincerely,

Mari Peña

Mari Peña
City Clerk

APPENDIX E

DWR PERMITS

RECEIVED
FEB 17 1989
WATER RESOURCES
STATE ENGINEER
DIV.

**Delta
Environmental
Consultants, Inc.**

2637 Midpoint Drive, Suite F
Fort Collins, CO 80525
303 493-0800

Best Copy Available

February 15, 1989

State of Colorado
Office of the State Engineer
Division of Water Resources
1313 Sherman Street, Room 823
Denver, Colorado 80203

Attention: Mr. Kris Murthy

Subject: Information Exchange Regarding Well Permit
Anderson Oil Site
Fort Lupton, Colorado
Delta No. 30-88-106

Dear Mr. Murthy:

Enclosed please find the corrected permit to construct well application form. The well is to be used to recover contaminated ground water and product associated with a release of gasoline to the soil and ground water at the Anderson Oil Company service station in Fort Lupton. The duration of cleanup is expected to be approximately two years.

The treated ground water is to be discharged to the City of Fort Lupton sanitary sewer system. All of the tributary ground water diverted to the sanitary treatment plant will be discharged to the South Platte River.

The Colorado State Engineer's office has records of two registered wells within 1/4 mile of the site. The records do not give the precise locations and we have been unable to contact the owners. Injury to water rights between the pumping point and discharge point to the stream may occur, but it is important that we remediate the ground water so that the water does not become unfit for domestic use.

If you have any questions regarding this permit or project in general, please feel free to call me or Mr. Kenneth Napp at (303)493-0800.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Chester A. Hitchens

Chester A. Hitchens
Its Staff Professional

CAH/njl

cc: Mr. Ken Napp
Delta Environmental Consultants, Inc.

WRJ-5-Rev. 76

RECEIVED
FEB 0 8 1989
WATER RESOURCES
STATE ENGINEER
COLO.

COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

(X) A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
FOR: (X) A PERMIT TO INSTALL A PUMP
( ) REPLACEMENT FOR NO. _____
( ) OTHER _____
WATER COURT CASE NO. _____

02-08-89 2:30 P
032472 40.00
NNXOOR P0013
TTI 40.00
CHEQUE 40.00
CHG 0.00
TTM 1

(1) APPLICANT - mailing address

NAME Delta Environmental Consultants, Inc.
STREET 2637 Midpoint Drive, Suite F
CITY Fort Collins, Colorado 80525 (State) (Zip)
TELEPHONE NO. (303)493-0800

(2) LOCATION OF PROPOSED WELL

County Weld
✓ SW ¼ of the NW ¼, Section 5
Twp. 1 N (N,S), Rng. 66 W (E,W), _____ P.M.

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) 10
Average annual amount of ground water to be appropriated (acre-feet): 16.13
Number of acres to be irrigated: N/A
Proposed total depth (feet): 35.0
Aquifer ground water is to be obtained from:
South Platte Alluvium
Owner's well designation _____

GROUND WATER TO BE USED FOR:

( ) HOUSEHOLD USE ONLY - no irrigation (0)
( ) DOMESTIC (1)
( ) LIVESTOCK (2)
( ) COMMERCIAL (4)
( ) INDUSTRIAL (5)
( ) IRRIGATION (6)
( ) MUNICIPAL (8)
(X) OTHER (9) Ground Water Contamination Recovery
DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name R & R Well & Pump, Inc.
Street 145 16th Street P.O.Box 577
City Greeley, Colorado 80631 (State) (Zip)
Telephone No. (303)353-3118 Lic. No. 857

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 96902 / _____
Basin _____ Dist. _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

Au 2/10/89

APPLICATION APPROVED

PERMIT NUMBER _____
DATE ISSUED _____
EXPIRATION DATE _____

_____ (STATE ENGINEER)

BY _____

STATE OF COLORADO
OFFICE OF THE STATE ENGINEER
DIVISION OF WATER RESOURCES

1313 Sherman St. - Room 823
Denver, Colorado 80203
(303) 866-3581

TO: WELL PERMIT APPLICANT
RE: APPLICATION RECEIPT NO: 96902

Your application for a permit to construct a well is being returned for the reasons indicated below. The corrections and/or information we are requesting is required for evaluation of the application. The application, including all corrections, must be typed or neatly printed in BLACK INK. Pease initial and date in the margin adjoining and changes or additions to the application. Do not alter or change any questions on the application.

(1) The location in item no. 2 does not agree with the footage distances in item no. 6. The distances will place the well in NW 1/4 of SW 1/4.

(2) Please let us know what type of contamination will be removed?

(3) Where will the effluent from sanitary sewer system of City of Fort Lupton be discharged to the South Platte River? Do you have an agreement with the City so that the city will discharge all the ground water into the stream?

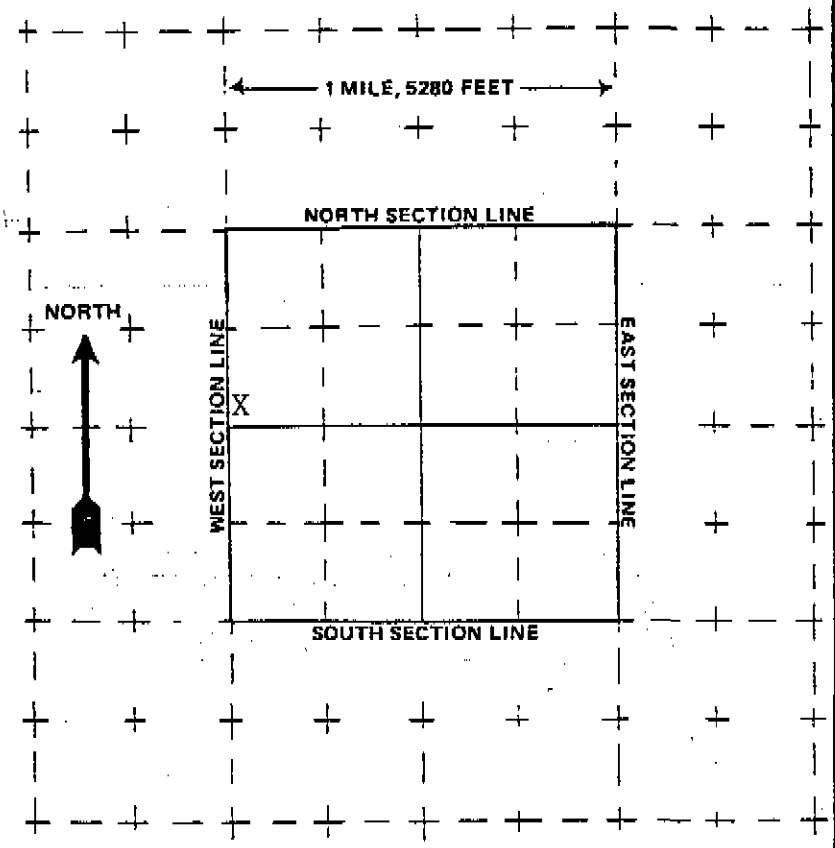
(4) What about the injury to other water rights between the pumping point and the discharge point to the stream?

(5) Please let us know the duration of this decontamination process.

Mr. Kris Murthy

DATE. 2/10/89

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)

An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year.
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

2500 ft. from South (north or south) sec. line

100 ft. from East (east or west) sec. line

LOT _____ BLOCK _____ FILING # _____

SUBDIVISION _____

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: Masonic Lodge

No. of acres N/A . Will this be the only well on this tract? Yes

(8) PROPOSED CASING PROGRAM

Plain Casing

12 in. from 0 ft. to 15 ft.

_____ in. from _____ ft. to _____ ft.

Perforated casing

12 in. from 15 ft. to 35 ft.

_____ in. from _____ ft. to _____ ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

N/A

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): N/A No. of acres: _____

Legal description: _____

(11) DETAILED DESCRIPTION of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used. Well is for removal of contaminated ground water for treatment. Treated water to be discharged to City of Fort Lupton sanitary sewer system.

(12) OTHER WATER RIGHTS used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

Chester A. Hitchcock

SIGNATURE OF APPLICANT(S)

RECEIVED
OCT 20 1989
WATER RESOURCES
ENGINEER

Delta
Environmental
Consultants, Inc.

2637 Midpoint Drive, Suite F
Fort Collins, CO 80525
303/493-0800
FAX: 303/493-0395

October 18, 1989

State of Colorado
Office of the State Engineer
Division of Water Resources
1313 Sherman Street, Room 823
Denver, Colorado 80203

Attention: Mr. Kris Murthy

Subject: Well Permit No. 035223-F
Anderson Oil Site
Fort Lupton, Colorado
Delta No. 30-88-106

Dear Mr. Murthy:

The purpose of this letter is to request permission to have the above-referenced well permit amended. We are permitted to discharge 10 gallons per minute (gpm) as part of a gasoline plume recovery project. We need to discharge at least 80 gpm to obtain adequate hydraulic containment and free product recovery at the site. On October 2, 1989, I talked to Mr. Allen Berryman, division engineer in Greeley, Colorado, about increasing the discharge. He informed me that it would not be a problem, but to contact you to have the permit amended.

When discharging at 17 gpm, we have measured approximately 0.36 feet of drawdown in the recovery well. Using appropriate well hydraulic equations, we estimated the transmissivity to range from 7600 to 9400 ft^2/day. If we increased the discharge to 80 gpm, then the drawdown in the recovery well would range from 1.3 to 1.7 feet. The nearest water well which could be effected is at least 600 feet to the west. The well is owned by the City of Fort Lupton and they are concerned if we don't increase our discharge their well may be impacted by the contamination.

If you have any questions, please contact me at (303)493-0800.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Chester A. Hitchens

Chester A. Hitchens
Project Manager

CAH/crl

cc: Myra Imhoff - Anderson Oil

APPENDIX F

RESUMES

RANNEN WORSLEY

Environmental Engineering
& Energy

1001 19th Street, Apt. 7
Golden, CO 80401
ranin2aw@gmail.com
720 413 6382

Education

- BS in Environmental Engineering / Graduated: May '18

  Colorado School of Mines / Golden, CO

  Major in Environmental Engineering // Minor in Energy
  Major Specific GPA: 3.30

Work Experience

- Environmental Scientist / May '18 - Present

  CTL | Thompson / Denver, CO

  Conduct and assist in the completion of Phase I & II Environmental Site Assessments
  Perform stormwater inspections for residential development and construction

- Environmental Engineering Intern / Jun '17 - Aug '17

  Phillips & Jordan / Franklin, TX

  Performed erosion control inspections for a large scale transmission line project
  Assisted in soil and soil amendment research and sampling for land reclamation

- Environmental Health & Safety Intern / May '16 - Aug '16

  Imerys Filtration / Lompoc, CA

  Performed hazardous waste & Method 22 emissions inspections
  Revised and condensed company wide safety data sheets
  Created compliance calendars for each U.S. site
  Revised the facility's chemical hygiene plan

- Assistant Manager & Senior Advisor / Jun '14 - Mar '16

  Vector Marketing / Aurora, CO

  Assisted in administration and advisement of East Denver District Office
  Sales and marketing of CUTCO products

- Ranch Assistant & Animal Husbandry / Aug '13 - May '16

  Violet Moon Ranch / Franktown, CO

  Worked with Icelandic sheep and alpaca
  Skirted wool and sheared animals

- International Student Office Receptionist / Aug '14 - May '18

  Colorado School of Mines / Golden, CO

  Assisted in everyday clerical work such as emails, file management, etc.
  Handled both telephone and in-person requests for information

Community Service

- Say Cheese, Nicaraguan Mission Fundraiser / Oct '16 - Sep '17

  Mines Without Borders Bridge and Water Project

- Media & Sound Production Technician / Aug '10 - Jun '15

  Centro Cristiano Casa de Oracion & New Covenant Fellowship Church

Extracurricular Activities

- Senior Design: Water Re-Use for Artisan Workshops / Sep '17 - May '18

  Project Manager for the design of a replicable water re-use system for Dym Textiles

- Mines Without Borders / Jan '15 - May '18

  Engineers Without Borders Mines Chapter - Media and Logistics Team

- EPICS II: Mines Innovation Competition / Jan '16 - Apr '16

  One of top ten project teams sponsored by Newmont Mining Corporation

Languages

English
Spanish

Interests

Climbing
Traveling
Reading
Painting

Software Skills

Office
SolidWorks & CAD
HEC-HMS
MAT Lab
GIS ArcMap

Personal Skills

Analytical
Creative
Initiative
Disciplined
Adaptable

Matthew L. Wardlow, P.E.

Environmental Department Manager

Office Location
Denver, Colorado

Years of Experience
20 Years

Professional Registration
Registered Professional Engineer: Colorado

Education
B.S. Engineering and Policy, Washington University, St. Louis, MO, 1993

Training & Certifications
40 Hour OSHA Training

Confined Space Training

Mold Remediation Technician

Training Principals of Forced Air Remediation

Asbestos Inspector
Air Monitoring Specialist
Designer

Professional Affiliations
American Society of Civil Engineers

American Society of Foundation Engineers

Colorado Environmental Management Society

Urban Land Institute

Mr. Wardlow has a variety of technical expertise in Phase I and II Environmental Site Assessments, CDPHE Voluntary Cleanup (VCP) applications, asbestos consultation, underground storage tank removals, site characterizations, and assessments under the National Environmental Policy Act. Mr. Wardlow reviews all environmental deliverables, making sure that the latest practices are followed. He has developed a reputation as a consistent and reliable consultant for his clients, which include the City & County of Denver, Auraria Campus and its colleges, and Boulder County. He encompasses a variety of project experience including brownfields, historical mine sites, medical facilities, and wastewater treatment plants.

Project Experience

Regency Athletic Complex at MSU Denver, Denver Colorado
2016 ACEC CO GRAND CONCEPTOR AWARD – Highest Engineering Honor
This former brownfield, located at the southern end of Auraria Campus, was the site of geotechnical and environmental issues from past industrial use. There was also the potential for settlement due to undocumented fill. Mr. Wardlow devised an idea using Deep Dynamic Compaction (DDC), which is a ground improvement technique that densifies the majority of soils and fills in-place by using a drop weight. CTL then provided on-site geotechnical and environmental inspection services, management of contaminants excavated, and also successfully entered the client into the State of Colorado Voluntary Cleanup Program. Measures were also taken to monitor air quality and vibrations from the impact. The solution was about 25% of the removal and replacement costs, and there has been no noticeable settlement.

Other Redevelopment/Voluntary Cleanup Projects:
Prepared Overall 2016 Auraria Campus Materials Management Plan
New Breckenridge Brewery – VCP – Remediation of Pesticides
Community College of Denver Confluence Building
Metro State Hotel and Hospitality Learning Center
Metro State Student Success Building
AHEC 5th Street Parking Garage – VCP – Coal Ash and Asbestos
Gold Hill Mesa - VCP - Subdivision Constructed on Mine Tailings
4th and Santa Fe – VCP Remediation of Chrome Plating Site
ConocoPhillips - Purchase/Redevelopment of 400-acre StorageTek

Other Major Projects and Clients
Denver Department of Environmental Health - 20+ P1 and P2 ESAs
CDOT - Over 30 Asbestos Surveys, Air Clearances of Buildings
Land Developers - Due Diligence Studies and SWMP Consultation
Urban Land Conservancy - P1 and P2 ESAs, IAQ Concerns
CU Boulder - Asbestos Consultant - Ketchum Hall, Hallett Hall
Homebuilders - Due Diligence, Mold and Moisture Consultation
Boulder County Risk Management - On-Call Industrial Hygienist
Boulder Valley School District - On-Call Asbestos Consultant
Regis University - P1 ESA of 7 Parcels of Campus

December 3, 2019

Coronado West c/o JE Home
2696 South Colorado Boulevard
Suite 329
Denver, Colorado 80222

Attention: Mr. Eric Eckberg

Subject: Limited Phase II Environmental Site Assessment
Murata Farms – Muraco Subdivision
Fort Lupton, Weld County, Colorado
Project No. DN50,219-205-L1

This letter was prepared by CTL | Thompson, Inc. (CTL) for Coronado West c/o JE Home (JE Home), and presents the final results of the Limited Phase II Environmental Site Assessment (ESA) that we conducted on the approximately 70.99-acre property located at 14284 Highway 52, southwest of the intersection of State Highway 52 and County Road 29 ½, in the City of Fort Lupton, Weld County, Colorado (the Site, Figure 1).

INTRODUCTION

We previously conducted a Phase I ESA for the Site, with report dated September 30, 2019, under our Project Number DN50,219-200-R1. In our report, we identified three recognized environmental conditions (RECs):

- **Crestone Peak Battery and Wells** – Oil and gas battery tank and wells are located along the north-central border of the Site, just southwest of the northern driveway into the property. These wells were installed circa 2002 and are currently active.

- **Abandoned Kerr McGee Well** – Abandoned oil and gas well located just north of approximately the center of the eastern alfalfa field, installed circa 2002 and abandoned in May 2018. Limited environmental documentation is available.

- **Former Farm Fuel Tank** – Approximate location of a previous fuel tank for farm vehicles, mainly the tractor. The Site resident, Ms. Glenice Murata, pointed out the general location of the former tank based on memory. The tank was removed prior to 2010 after finding that the tank was possibly leaking. As Ms. Murata recounts, the fuel levels in the tank were dropping and the fuel was thought to have been stolen. However, after a police investigation, it appeared that it was likely a tank leak based on wet soils a

policeman observed near the tank. The tank was removed soon thereafter. Neither the amount of fuel leaked, nor the date of release are known.

The purpose of our Limited Phase II ESA investigation was to evaluate possible environmental concerns on the Site associated with the RECs. The concern exists that soil and/or groundwater may be contaminated with Volatile Organic Compounds (VOCs) and/or Total Petroleum Hydrocarbons (TPH), from present and historic oil and gas activities that exist or took place at the Site from approximately 2002 to present.

Based on the potential for soil and/or groundwater contamination related to current and historic oil and gas and fueling activities on the Site, CTL drilled 10 test holes (TH-1 through TH-10) via four-inch solid-stem auger in select locations along the north- and south-central property boundaries of the Site and near the center of the eastern half of the Site on November 8, 2019.

During drilling of the 10 test holes, CTL screened soils to determine whether soil samples should be collected. After the test holes were completed and finished as temporary groundwater monitoring wells, CTL checked the test holes several days later for the presence of groundwater. If groundwater was present, a sample was collected. This report describes the methodology and results of our limited subsurface investigation.

SITE DESCRIPTION

The Site consists of approximately 70.99 acres of agricultural land occupied by a homestead, located at 14284 Highway 52, or southwest of the intersection of State Highway 52 and County Road 29 ½, in Fort Lupton, Weld County, Colorado. The Site is identified by the legal description *FTL PT N2SW4 1-4-66 (MURATA FARMS ANNEX) LOT B REC EXEMPT RE-879,* and is bordered to the north by State Highway 52, to the east by County Road 29 ½, to the south by agricultural land, and to the west by single-family residences. The Site contains gently sloping cropland and is vegetated with alfalfa and various grasses. Two residences, a small shed, and a Quonset hut lie in the west-central portion of the Site. The Site lies within the North half of the Southwest quarter of Section 4, Township 1 North, Range 66 West of the Sixth Principal Meridian in Fort Lupton, Weld County, Colorado. The Site is shown on Figure 1 (Site Map and Test Holes), Figure 2 (Groundwater Flow Map) shows the approximate groundwater flow direction, Figure 3 (Groundwater Results) shows the analytical results from groundwater samples, and Figure 4 (Soil Results) shows the analytical results from the soil samples.

LOCATION OF TEST HOLES

CTL chose test hole locations for this investigation based on locations presumed to be in the vicinity of and down-gradient to the abandoned Kerr McGee well and the former farm fuel tank location in the east half of the Site, and around the present Crestone Peak wells and battery tank located along the center of the northern border.

Although CTL was unable to verify the exact location of the former farm fuel tank, the tenant, Ms. Glenice Murata, had a recollection of the approximate location. Based on this and our observation of vegetation and land irregularities, we estimated the tank was likely located either near or on top of a small vegetated mound along the south-central border of the Site, or on the east-adjacent property. Therefore, CTL placed the 10 test holes along the north-central border (TH-1 through TH-5), in the center of the eastern half of the Site (TH-6 through TH-8), and along the south-central border of the property line (TH-9 and TH-10).

FIELD INVESTIGATION

Prior to mobilizing to the Site, CTL contacted Colorado 811 to locate public underground utilities, who contacted Tier 1 Member Facilities, to complete utility locates. A utility meet was scheduled for the investigation, and took place on Monday, November 4, 2019.

On Friday, November 8, 2019, CTL mobilized to the Site to observe sub-surface conditions from the drilling of 10 test holes (TH-1 through TH-10). Dakota Drilling, Inc. (Dakota) drilled the test holes to depths of approximately 20 feet below ground surface (bgs), which we believed would be within the groundwater table. The test holes were advanced using a four-inch diameter solid stem auger.

We used a MiniRAE 2000 Portable Photoionization Detector (PID), and our visual and olfactory observations to field-screen soils observed during drilling. The PID was calibrated to isobutylene. We screened soil samples from varying depths in the boreholes. During field screening, samples were placed in glass jars and resealable plastic bags for testing with the PID. The bagged samples were warmed and the vapor headspace inside the bags was then field-screened. The PID detects total vapor volatile organic compounds with the ionization potential of less than or equal to 10.6 eV. The PID does not provide a direct measure of compounds in the samples and it does not identify specific compounds, therefore, the results of field-screening are identified in units of parts per million volume (in air) (ppmv).

Based on field observations, soils beneath the Site generally consisted of silt with fine-grain sand from the ground surface to approximately eight to 10 feet bgs. Underlying the fill materials are silty sandy clays, silty fine sand, silty clays, and clay. Soils were screened in the field with a PID, and CTL made visual and olfactory observations to assess for indicators of potential contamination. Soil samples were collected when soils exhibited an elevated PID reading, visual and/or olfactory indicators, or both.

PID readings measured during the drilling event on November 8, 2019 ranged from 0.0 ppmv in TH-1 to 180 ppmv in TH-9. During drilling, we observed hydrocarbon-like odors primarily between depths of five and 15 feet bgs in all of the test holes except in TH-10 where a chemical, slightly sweet smell was observed; often, the intensity of these odors would increase with depth. TH-9 and TH-5 also exhibited slightly sweet odors intermixed with the observed hydrocarbon odors. We did not observe visual

indicators of contamination in the test holes except in TH-9 where the soil exhibited a gray color between 15 and 20 feet bgs. During the field investigation, we collected one soil sample each from TH-3, TH-4, TH-7, TH-8, and TH-9 at depths ranging between five to 15 feet bgs. During drilling, groundwater was encountered at depths ranging between 17 and 20 feet bgs in TH-2, TH-9, and TH-10.

Environmental protocol was used by CTL during drilling and field screening activities. Gloves and plastic bags were used by CTL to obtain and screen subsurface soils, and new gloves and bags were used after each test hole.

LABORATORY ANALYTICAL RESULTS

The laboratory results identified detectable amounts of TPH in soil and acetone in groundwater samples, further discussed below. Laboratory analytical results are presented in Attachment A.

SOILS

The soil samples were analyzed for VOCs by EPA Method 8260 and for TPH by Method 8015. TPH was detected at elevated concentrations in one of the five soil samples submitted for laboratory analysis as part of this investigation. No VOCs were detected in the soil samples submitted for laboratory analysis, except for total xylenes and trace hydrocarbon compounds commonly found in petroleum, or TPH, products. Soil sample analytical results are summarized in Table I (below).

TABLE I
SUMMARY OF SOIL SAMPLE RESULTS

Test Hole and Sample Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes (total)	GRO	DRO
TH-3 (5')	ND	ND	ND	ND	ND	ND
TH-4 (15')	ND	ND	ND	ND	ND	ND
TH-7 (10')	ND	ND	ND	ND	ND	ND
TH-8 (10')	ND	ND	ND	ND	ND	ND
TH-9 (15')	ND	ND	ND	0.0241	141	**1,780**
EPA RSL	**1.2**	**4,900**	**5.8**	**580**	**NS**	**NS**
CDPHE	**0.17**	**50**	**100**	**75**	**250***	**250***

All concentrations in milligrams per kilogram (mg/kg)
GRO – Gasoline Range Organics (C6 – C10)
DRO – Diesel Range Organics (C10 – C28)
ND – Non-Detect
NS – No Standard
RED – Exceeds EPA Regional Screening Level for Residential Soil
BOLD – Exceeds accepted residential soil standard, or Groundwater Protection Value of the Colorado Department of Public Health & Environment (CDPHE)
Note I: All remaining soil samples were below laboratory detection limits or are trace hydrocarbons from GROs and DROs, and are not included in Table I
(*) Note II: There is no established standard for TPH in soils; a commonly accepted standard is 250 mg/kg for residential use

GROUNDWATER

Seven groundwater samples were collected across the Site. After the groundwater wells were installed, they were allowed to stabilize before they were developed and sampled on November 14. After stabilization, depth to groundwater ranged from 3.22 feet bgs in TH-1 to 16.42 feet bgs in TH-6. TH-3, TH-4, and TH-7 were dry. Samples were analyzed for VOCs and TPH via EPA Methods 8260 and 8015, respectively. Acetone was detected in three of the groundwater samples submitted for laboratory analysis ranging in concentrations from 9.8 micrograms per liter (µg/L) in TH-8 to 12.4 µg/L in TH-6. Note that acetone is a common laboratory contaminant. All acetone concentrations are well below the CDPHE groundwater standard of 6,300 µg/L. Groundwater sample analytical results are summarized in Table II (below) and on Figure 3.

TABLE II
SUMMARIZED GROUNDWATER RESULTS

Test Hole	Groundwater Depths (ft bgs)	Acetone	BTEX	GRO	DRO
TH-1	3.22	ND	ND	ND	ND
TH-2	6.07	11.1	ND	ND	ND
TH-3	DRY	NS	NS	NS	NS
TH-4	DRY	NS	NS	NS	NS
TH-5	6.93	ND	ND	ND	ND
TH-6	16.42	12.4	ND	ND	ND
TH-7	DRY	NS	NS	NS	NS
TH-8	8.04	9.8	ND	ND	ND
TH-9	10.79	ND	ND	ND	ND
TH-10	10.03	ND	ND	ND	ND

All concentrations in micrograms per liter (µg/L)
GRO – Gasoline Range Organics (C6 – C10)
DRO – Diesel Range Organics (C10 – C28)
BTEX – Benzene, toluene, ethylbenzene, xylenes (total)
ND – Non-Detect
NS – Not Sampled (Dry Well)
RED – Exceeds EPA Regional Screening Level for Tap Water of 14,000 µg/L acetone, or EPA MCLs
BOLD – Exceeds CDPHE groundwater standard of 6,300 µg/L acetone
Note I: All remaining VOC results were below laboratory detection limits and not included in Table II
Note II: There is no groundwater or drinking water standard for TPH (GRO and DRO)

METHANE SCREENING

The three sampling wells surrounding the former Kerr McGee well in the eastern portion of the Site (TH-6 through TH-8) were screened for methane. The wells were capped and sealed with two-inch J-plugs with vapor screening valves. CTL allowed the wells to stabilize for a period of over 24 hours from time of drilling on November 14, 2019.

The wells were screened with a QRAE 3 PGM-2500 four-gas meter, which was calibrated to methane gas. The meter was connected to the J-plug valve and allowed to stabilize for about a minute. Methane was not detected in the screened wells.

SEARCH OF DOWN-GRADIENT WATER WELLS

CTL performed a desktop search of down-gradient water wells located on or to the southeast, south, and west-southwest of the Site using the Colorado Division of Water Resources (DWR) online water well permit database. According to the database, there are two wells located on the Site; one is a domestic water supply well (Permit No. 159404), with no well name, located in the south-central area of the Site. The database does not have record of the well's depth. The well was registered to the M-J Perri Company and was permitted in February 1991; the well is still active. The second on-site well is discussed after Table III.

Four other domestic-use wells were identified on the DWR database within 500 feet of the Site. Two of these wells are located to the east, approximately cross-gradient to the Site. The other two wells are located generally to the west of the Site. Both of these wells (Permit No. 157773 and 275964) are registered to Patricia L. Terry and were permitted in July 1990 and November 2007, respectively. The first is located approximately 200 feet to the west and the newest well is located approximately 140 feet west of the Site. According to the database, these are approximately 720 feet and 780 feet deep, respectively. These have not yet been abandoned.

Two groundwater monitoring wells are located on or within approximately 500 feet of the Site. These wells are listed below, on Table III.

TABLE III
GROUNDWATER MONITORING WELLS NEAR THE SITE

Well Name	Permit Number and Date	Well Owner	Well Depth	Distance from Site
Testhole	12852-TH [4/13/1988]	Lee Murata	42 feet bgs	West area on-Site
N/A	35223-F [6/15/1989]	Delta Environmental	41 feet bgs	425 feet west*

*Actual distance likely to be over ½ mile to the west based on the DWR Permit.

Limited information is available for the well named "Testhole", but it appears to have been plugged and abandoned in 1991. Ms. Murata was able to provide us with further details: She stated that the "Testhole" was an attempt to draw water from Fulton Ditch in the northeastern portion of the property for the purpose of an irrigation pond on-site; however, the State did not allow further construction of this feature.

Files in the DWR for the off-Site monitoring well under the Permit No. 35223-F indicate that the well was for contamination extraction from a release of gasoline into

the soil and groundwater from the Anderson Oil Company service station in 1989. Records indicated an expected cleanup duration of approximately two years. This well may be over ½ mile to the west. Further details were not available and/or could not be found.

CONCLUSIONS AND DISCUSSION

Groundwater samples were collected from seven of 10 temporary groundwater monitoring wells that were installed across the Site on November 8, 2019. Groundwater results and our observations indicate that the groundwater at the Site does not appear to have been significantly impacted by historic and current oil and gas activities located on the Site. Groundwater was encountered during drilling at depths ranging from 17 to 20 feet bgs. After the temporary groundwater monitoring wells were installed and groundwater was allowed to stabilize, depth to groundwater ranged from approximately 3.22 to 16.42 feet bgs.

Detectable levels of TPH including GROs were identified in one of the five soil samples that were submitted for laboratory analysis (TH-9 at 15 feet bgs). The concentration of DROs detected in the soil sample were above the soil standard of 500 mg/kg TPH (includes GROs), at 1,780 mg/kg DRO. The total (TPH) concentration, including GROs, in the soil sample was 1,921 mg/kg. Based on the results of the limited sampling and evaluation at the Site, laboratory analysis and our observations indicate that soils at the Site have not been significantly impacted by the historic oil and gas activities on-site, but has been impacted in the small area we believe was impacted by historic fuel storage for farm uses along the south-central border of the Site, to the east of the Site residences.

We believe that our investigation has provided a preliminary location of the TPH contamination in soil near or in the area previously used to store a fuel tank for farm use at the Site. We recommend excavation and proper disposal of impacted soil in this area. The Department of Oil and Public Safety (OPS) could then be contacted to obtain “courtesy closure” for this former, unregulated farm fuel tank.

LIMITATIONS

This letter was prepared for the use of Coronado West c/o JE Home in evaluating the subsurface at selected on-site locations at the property located southwest of the intersection of U.S. Highway 52 and County Road 29 ½ in Fort Lupton, Weld County, Colorado. Our sampling and analytical plan was designed using previously obtained environmental background information and our judgment and resulted in limited subsurface soil and groundwater evaluation. Chemical analyses were performed by Origins Laboratory in Denver, Colorado for specific parameters during this investigation. The accuracy and reliability of environmental studies are a reflection of the number and type of samples taken and extent of the analyses conducted. This investigation does not result in any guarantee that the Site is free and clear of hazardous materials other than those that may be indicated by CTL in this report.

We believe our environmental site evaluation was conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of the project. No warranty, express or implied, is made by CTL.

If you have any questions, or need additional information, please call.

Sincerely,

CTL | THOMPSON, INC.

Rannen Worsley, E.I.T.
Environmental Scientist

Reviewed by:

Matthew L. Wardlow, P.E.
Environmental Department Manager

Attachments: Figure 1 – Site Plan
Figure 2 – Groundwater Results
Figure 3 – Soil Results
Attachment A – Laboratory Analytical Report

RW:MLW/nn

Via e-mail: eric@jehome.com

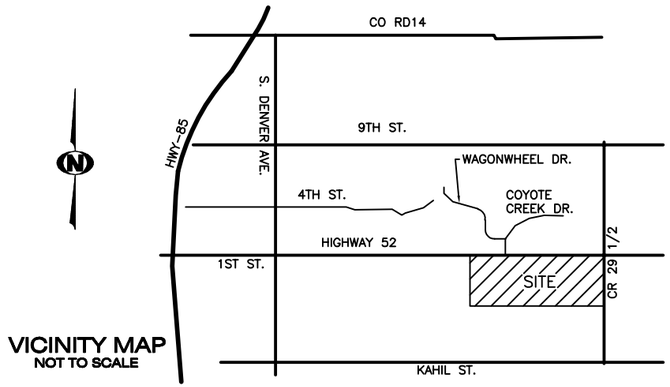
0 100 200

SCALE: 1" = 200'

LEGEND:

TH–1 APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY



VICINITY MAP
NOT TO SCALE



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-205-L1

Site Plan

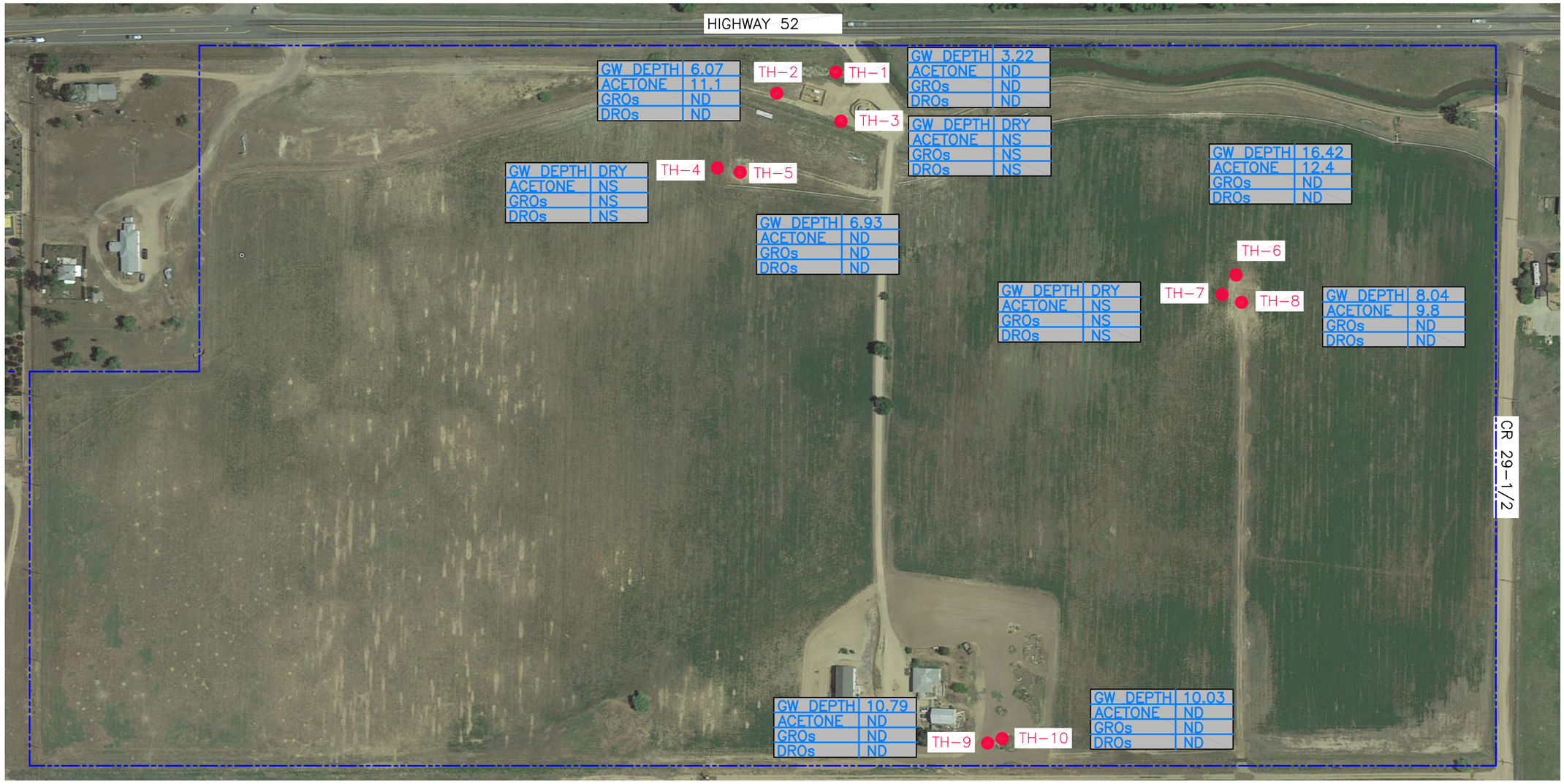
LEGEND:

TH–1 APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY

0 100 200

SCALE: 1" = 200'



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-205-L1

Groundwater Results

Fig. 2

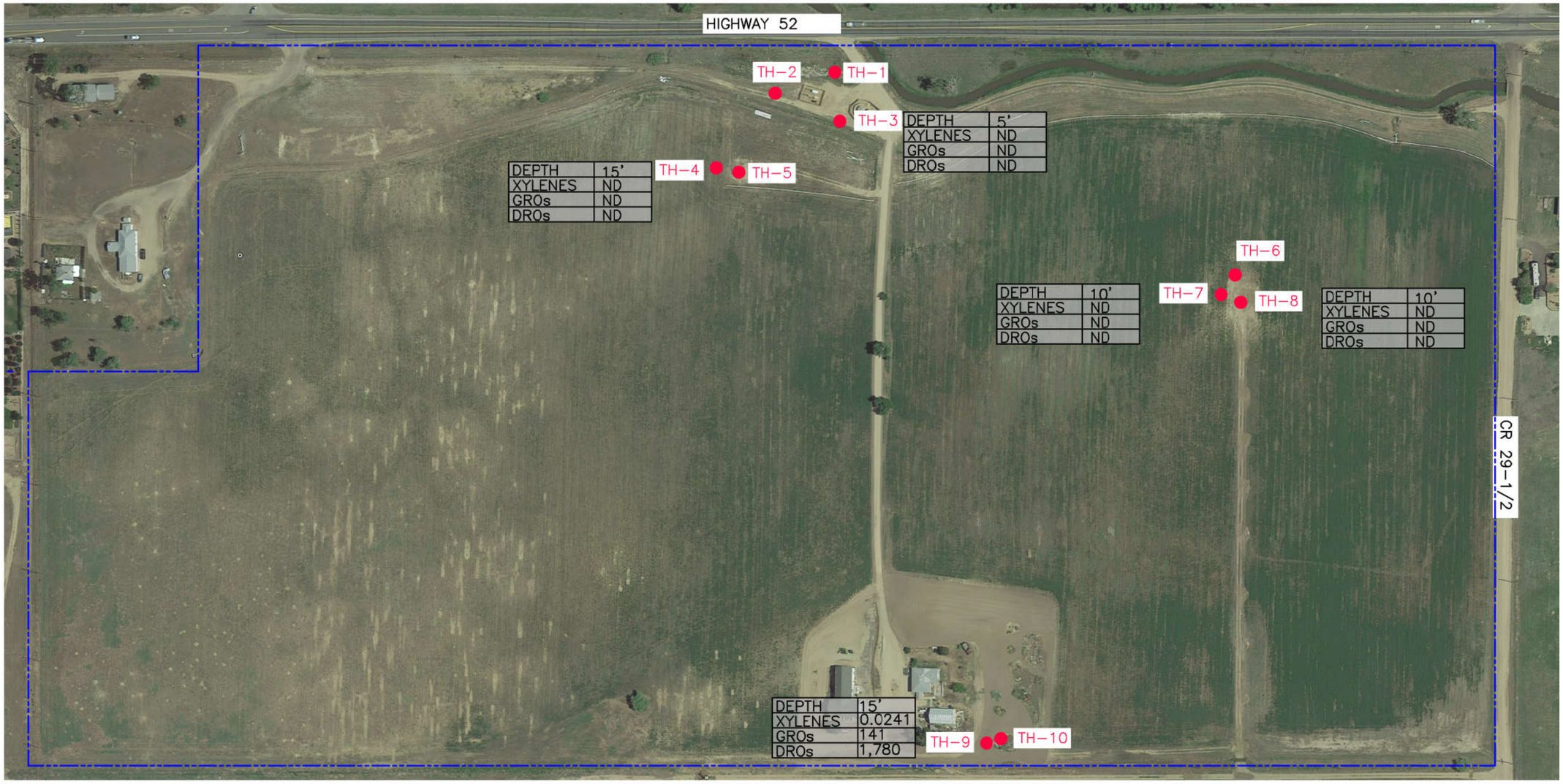
LEGEND:

TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

INDICATES SITE BOUNDARY

0 100 200

SCALE: 1" = 200'



CORONADO WEST
c/o JE HOME
MURATA FARMS (MURACO SUBDIVISION)
CTL\T Project No. DN50,219-205-L1

Soil Results

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS

ORIGINS LABORATORY, INC

November 20, 2019

CTL Thompson, Inc.
Rannen Worsley
1971 West 12th Avenue
Denver CO 80204

Project Name - Murata Farms **Project Number - DN50219.000-205**

Attached are your analytical results for Murata Farms received by Origins Laboratory, Inc. November 08, 2019. This project is associated with Origins project number Y911151-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com

THE NELAC INSTITUTE

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3 (5')	Y911151-01	Soil	November 8, 2019 8:37	11/08/2019 15:58
TH-4 (15')	Y911151-02	Soil	November 8, 2019 9:56	11/08/2019 15:58
TH-7 (10')	Y911151-03	Soil	November 8, 2019 13:24	11/08/2019 15:58
TH-8 (10')	Y911151-04	Soil	November 8, 2019 12:34	11/08/2019 15:58
TH-9 (15')	Y911151-05	Soil	November 8, 2019 14:16	11/08/2019 15:58

Per the email from Rannen on 11/13/19, GRO by 8015 was added to all samples.

Origins Laboratory, Inc.

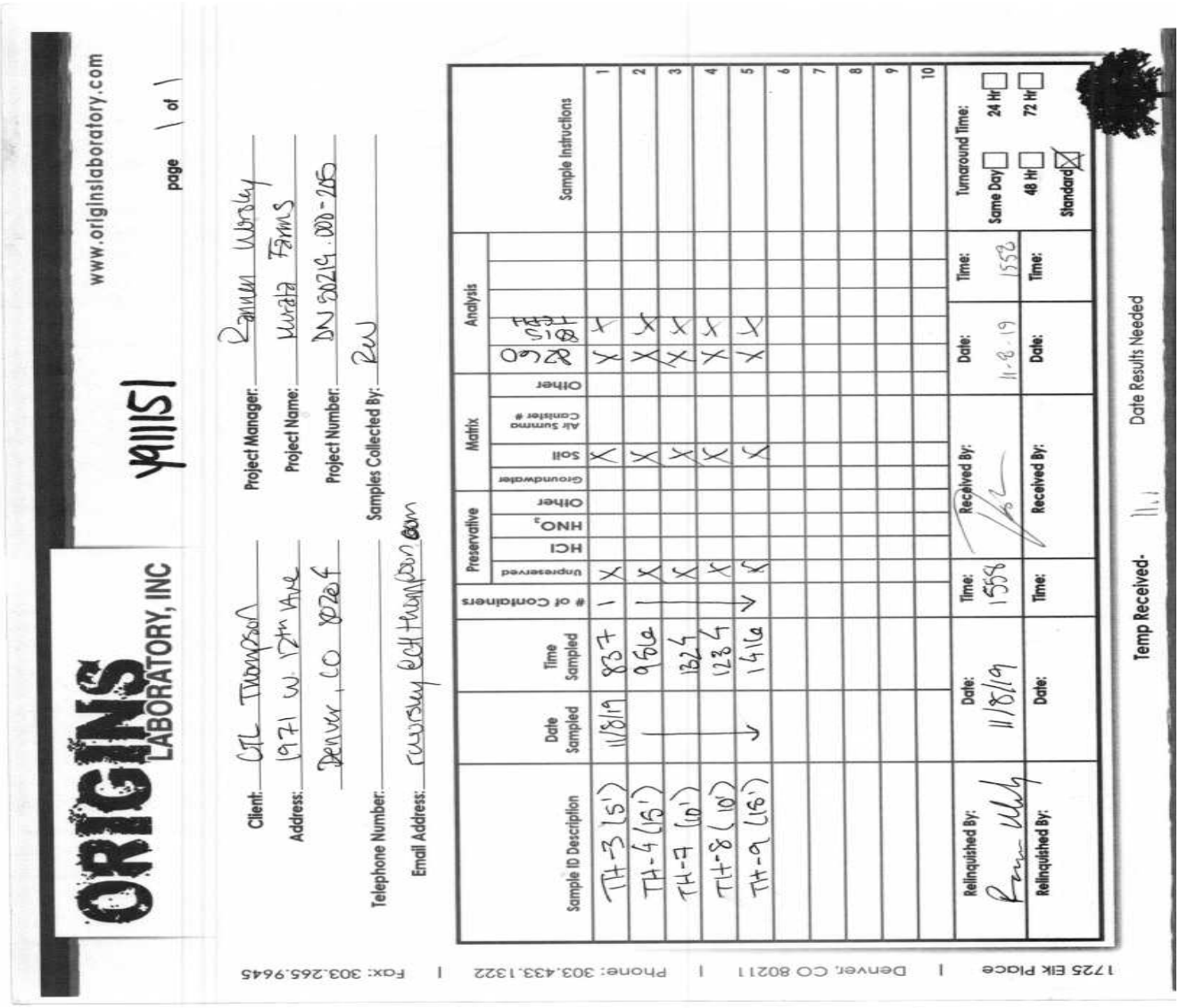
Jen Pellegrini, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ORIGINS LABORATORY, INC

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms



Origins Laboratory, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jen Pellegrini, Project Manager

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 491115.1
Client: CTL Thompson
Client Project ID: Murata Farms

Checklist Completed by: JG
Shipped Via: HD (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 11 / 8 / 2019
Airbill #: N/A

Matrix(s) Received: (Check all that apply): X Soil/Solid ____Water ____Other: ____

Cooler Number/Temperature: 1 / 11.1 °C ____/____ °C ____/____ °C ____/____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C[1]?		Y		Sampled same day
Is there ice present (document if blue ice is used)	Y			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		Y		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact[1]?	X			
Was adequate sample volume provided[1]?	X			
Are short holding time analytes or samples with HTs due within 48 hours present[1]?		X		
Is a chain-of-custody (COC) present and filled out completely[1]?	X			
Does the COC agree with the number and type of sample bottles received[1]?	X			
Do the sample IDs on the bottle labels match the COC[1]?	X			
Is the COC properly relinquished by the client with date and time recorded[1]?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.**			X	
Are samples preserved that require preservation and was it checked [1]? *(note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)*			X	

Additional Comments (if any):

[1]If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) 11/4/19 Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-3 (5')
11/8/2019 8:37:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-01 (Soil)

GRO (TVPH)/DRO (TEPH) by EPA 8015D

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B9K1104	KDK	11/11/2019	11/12/2019	U
Diesel (C10-C28)	ND	50.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*74.1 %*	*50-150*			"		"	"	

VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,1,1-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-3 (5')
11/8/2019 8:37:00AM

Origins Laboratory, Inc.
Y911151-01 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
2-Butanone	ND	0.0100	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
2-Hexanone	ND	0.0100	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	0.0100	"	"	"	KDK	"	"	U
Acetone	ND	0.0200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromoform	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-3 (5')
11/8/2019 8:37:00AM

Origins Laboratory, Inc.
Y911151-01 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromomethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
Carbon disulfide	ND	0.00500	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	0.00200	"	"	"	KDK	"	"	U
Chlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Chloroethane	ND	0.00500	"	"	"	KDK	"	"	U
Chloroform	ND	0.00200	"	"	"	KDK	"	"	U
Chloromethane	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Dibromomethane	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	0.00500	"	"	"	KDK	"	"	U
Iodomethane	ND	0.0150	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
m,p-Xylene	ND	0.00400	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	0.00200	"	"	"	KDK	"	"	U
Methylene Chloride	ND	0.0200	"	"	"	KDK	"	"	U
Naphthalene	ND	0.0100	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-3 (5')
11/8/2019 8:37:00AM

Origins Laboratory, Inc.
Y911151-01 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
n-Butylbenzene	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
n-Propylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
o-Xylene	ND	0.00200	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Styrene	ND	0.00200	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Trichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	0.00300	"	"	"	KDK	"	"	U
Vinyl chloride	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*115 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*98.0 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*101 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-4 (15')
11/8/2019 9:56:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-02 (Soil)

GRO (TVPH)/DRO (TEPH) by EPA 8015D

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B9K1104	KDK	11/11/2019	11/12/2019	U
Diesel (C10-C28)	ND	50.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*88.3 %*	*50-150*			"		"	"	

VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,1,1-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-4 (15')
11/8/2019 9:56:00AM

Origins Laboratory, Inc.
Y911151-02 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
2-Butanone	ND	0.0100	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
2-Hexanone	ND	0.0100	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	0.0100	"	"	"	KDK	"	"	U
Acetone	ND	0.0200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromoform	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-4 (15')
11/8/2019 9:56:00AM

Origins Laboratory, Inc.
Y911151-02 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromomethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
Carbon disulfide	ND	0.00500	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	0.00200	"	"	"	KDK	"	"	U
Chlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Chloroethane	ND	0.00500	"	"	"	KDK	"	"	U
Chloroform	ND	0.00200	"	"	"	KDK	"	"	U
Chloromethane	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Dibromomethane	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	0.00500	"	"	"	KDK	"	"	U
Iodomethane	ND	0.0150	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
m,p-Xylene	ND	0.00400	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	0.00200	"	"	"	KDK	"	"	U
Methylene Chloride	ND	0.0200	"	"	"	KDK	"	"	U
Naphthalene	ND	0.0100	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-4 (15')
11/8/2019 9:56:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-02 (Soil)

VOC by EPA 8260D

n-Butylbenzene	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
n-Propylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
o-Xylene	ND	0.00200	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Styrene	ND	0.00200	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Trichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	0.00300	"	"	"	KDK	"	"	U
Vinyl chloride	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*120 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*95.7 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*99.6 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-7 (10')
11/8/2019 1:24:00PM

Origins Laboratory, Inc.
Y911151-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
GRO (TVPH)/DRO (TEPH) by EPA 8015D									
Gasoline (C6-C10)	ND	50.0	mg/kg	1	B9K1104	KDK	11/11/2019	11/12/2019	U
Diesel (C10-C28)	ND	50.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*75.6 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,1,1-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-7 (10')
11/8/2019 1:24:00PM

Origins Laboratory, Inc.

Y911151-03 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
2-Butanone	ND	0.0100	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
2-Hexanone	ND	0.0100	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	0.0100	"	"	"	KDK	"	"	U
Acetone	ND	0.0200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromoform	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-7 (10')
11/8/2019 1:24:00PM

Origins Laboratory, Inc.
Y911151-03 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromomethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
Carbon disulfide	ND	0.00500	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	0.00200	"	"	"	KDK	"	"	U
Chlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Chloroethane	ND	0.00500	"	"	"	KDK	"	"	U
Chloroform	ND	0.00200	"	"	"	KDK	"	"	U
Chloromethane	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Dibromomethane	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	0.00500	"	"	"	KDK	"	"	U
Iodomethane	ND	0.0150	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
m,p-Xylene	ND	0.00400	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	0.00200	"	"	"	KDK	"	"	U
Methylene Chloride	ND	0.0200	"	"	"	KDK	"	"	U
Naphthalene	ND	0.0100	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-7 (10')
11/8/2019 1:24:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.
Y911151-03 (Soil)

VOC by EPA 8260D

n-Butylbenzene	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
n-Propylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
o-Xylene	ND	0.00200	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Styrene	ND	0.00200	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Trichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	0.00300	"	"	"	KDK	"	"	U
Vinyl chloride	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*119 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*98.6 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*100 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8 (10')
11/8/2019 12:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-04 (Soil)

GRO (TVPH)/DRO (TEPH) by EPA 8015D

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B9K1104	KDK	11/11/2019	11/12/2019	U
Diesel (C10-C28)	ND	50.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*76.4 %*	*50-150*			"		"	"	

VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/13/2019	U
1,1,1-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8 (10')
11/8/2019 12:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.
Y911151-04 (Soil)

VOC by EPA 8260D

1,2-Dichloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/13/2019	U
1,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
2-Butanone	ND	0.0100	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
2-Hexanone	ND	0.0100	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	0.0100	"	"	"	KDK	"	"	U
Acetone	ND	0.0200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromoform	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8 (10')
11/8/2019 12:34:00PM

Origins Laboratory, Inc.
Y911151-04 (Soil)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromomethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/13/2019	U
Carbon disulfide	ND	0.00500	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	0.00200	"	"	"	KDK	"	"	U
Chlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Chloroethane	ND	0.00500	"	"	"	KDK	"	"	U
Chloroform	ND	0.00200	"	"	"	KDK	"	"	U
Chloromethane	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Dibromomethane	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	0.00500	"	"	"	KDK	"	"	U
Iodomethane	ND	0.0150	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
m,p-Xylene	ND	0.00400	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	0.00200	"	"	"	KDK	"	"	U
Methylene Chloride	ND	0.0200	"	"	"	KDK	"	"	U
Naphthalene	ND	0.0100	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8 (10')
11/8/2019 12:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-04 (Soil)

VOC by EPA 8260D

n-Butylbenzene	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/13/2019	U
n-Propylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
o-Xylene	ND	0.00200	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Styrene	ND	0.00200	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Trichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	0.00300	"	"	"	KDK	"	"	U
Vinyl chloride	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*110 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*95.7 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*100 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9 (15')
11/8/2019 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-05 (Soil)

GRO (TVPH)/DRO (TEPH) by EPA 8015D

Gasoline (C6-C10)	**141**	50.0	mg/kg	1	B9K1104	KDK	11/11/2019	11/12/2019	
Diesel (C10-C28)	**1780**	50.0	"	"	"	KDK	"	"	
Surrogate: o-Terphenyl	*127 %*	*50-150*			"		"	"	

VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,1,1-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	0.00500	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	**0.122**	0.00200	"	"	"	KDK	"	"	
1,2-Dibromo-3-chloropropane	ND	0.00500	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	0.00200	"	"	"	KDK	"	"	U
1,2-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9 (15')
11/8/2019 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-05 (Soil)

VOC by EPA 8260D

1,2-Dichloroethane	ND	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
1,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	**0.0553**	0.00200	"	"	"	KDK	"	"	
1,3-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	0.00200	"	"	"	KDK	"	"	U
2-Butanone	ND	0.0100	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
2-Hexanone	ND	0.0100	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	0.00200	"	"	"	KDK	"	"	U
4-Isopropyltoluene	**0.0982**	0.00200	"	"	"	KDK	"	"	
4-Methyl-2-pentanone	ND	0.0100	"	"	"	KDK	"	"	U
Acetone	ND	0.0200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Bromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Bromoform	ND	0.00200	"	"	"	KDK	"	"	U
Bromomethane	ND	0.00200	"	"	"	KDK	"	"	U

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9 (15')
11/8/2019 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-05 (Soil)

VOC by EPA 8260D

Carbon disulfide	ND	0.00500	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	U
Carbon tetrachloride	ND	0.00200	"	"	"	KDK	"	"	U
Chlorobenzene	ND	0.00200	"	"	"	KDK	"	"	U
Chloroethane	ND	0.00500	"	"	"	KDK	"	"	U
Chloroform	ND	0.00200	"	"	"	KDK	"	"	U
Chloromethane	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	0.00200	"	"	"	KDK	"	"	U
Dibromomethane	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	0.00500	"	"	"	KDK	"	"	U
Iodomethane	ND	0.0150	"	"	"	KDK	"	"	U
Isopropylbenzene	**0.0272**	0.00200	"	"	"	KDK	"	"	
m,p-Xylene	**0.0192**	0.00400	"	"	"	KDK	"	"	
Methyl tert-Butyl Ether	ND	0.00200	"	"	"	KDK	"	"	U
Methylene Chloride	ND	0.0200	"	"	"	KDK	"	"	U
Naphthalene	ND	0.0100	"	"	"	KDK	"	"	U
n-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	0.00200	"	"	"	KDK	"	"	U

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Jen Pellegrini, Project Manager

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1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9 (15')
11/8/2019 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes

Origins Laboratory, Inc.

Y911151-05 (Soil)

VOC by EPA 8260D

o-Xylene	**0.00488**	0.00200	mg/kg	1	B9K1202	KDK	11/12/2019	11/12/2019	
sec-Butylbenzene	**0.138**	0.00200	"	"	"	KDK	"	"	
Styrene	ND	0.00200	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	0.00200	"	"	"	KDK	"	"	U
Trichloroethene	ND	0.00200	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	0.00300	"	"	"	KDK	"	"	U
Vinyl chloride	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*119 %*	*70-130*	"	"	"
Surrogate: Toluene-d8	*97.5 %*	*70-130*	"	"	"
Surrogate: 4-Bromofluorobenzene	*103 %*	*70-130*	"	"	"

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1104 - EPA 3580										
Blank (B9K1104-BLK1)					Prepared: 11/11/2019 Analyzed: 11/12/2019					
Gasoline (C6-C10)	ND	50.0	mg/kg							U
Diesel (C10-C28)	ND	50.0	"							U
Surrogate: o-Terphenyl	*50*		*"*	*50.0*		*101*	*50-150*			

Origins Laboratory, Inc.



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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1104 - EPA 3580										
LCS (B9K1104-BS1)					Prepared: 11/11/2019 Analyzed: 11/12/2019					
Gasoline (C6-C10)	969	50.0	mg/kg	1000		96.9	70-130			
Diesel (C10-C28)	958	50.0	"	1000		95.8	70-130			
Surrogate: o-Terphenyl	*53*		*"*	*50.0*		*105*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1104 - EPA 3580										
Matrix Spike (B9K1104-MS1)		**Source: Y911155-01**			Prepared: 11/11/2019 Analyzed: 11/12/2019					
Gasoline (C6-C10)	998	50.0	mg/kg	1000	ND	99.8	70-130			
Diesel (C10-C28)	981	50.0	"	1000	18.3	96.2	70-130			
Surrogate: o-Terphenyl	*53*		*"*	*50.0*		*105*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1104 - EPA 3580										
Matrix Spike Dup (B9K1104-MSD1)		**Source: Y911155-01**			Prepared: 11/11/2019 Analyzed: 11/12/2019					
Gasoline (C6-C10)	830	50.0	mg/kg	1000	ND	83.0	70-130	18.3	35	
Diesel (C10-C28)	824	50.0	"	1000	18.3	80.6	70-130	17.3	35	
Surrogate: o-Terphenyl	*41*		*"*	*50.0*		*82.6*	*50-150*			

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Blank (B9K1202-BLK1)					Prepared: 11/12/2019 Analyzed: 11/12/2019					
1,1,1,2-Tetrachloroethane	ND	0.00200	mg/kg							U
1,1,1-Trichloroethane	ND	0.00200	"							U
1,1,2,2-Tetrachloroethane	ND	0.00200	"							U
1,1,2-Trichloroethane	ND	0.00200	"							U
1,1-Dichloroethane	ND	0.00200	"							U
1,1-Dichloroethene	ND	0.00200	"							U
1,1-Dichloropropene	ND	0.00200	"							U
1,2,3-Trichlorobenzene	ND	0.00500	"							U
1,2,3-Trichloropropane	ND	0.00500	"							U
1,2,4-Trichlorobenzene	ND	0.00500	"							U
1,2,4-Trimethylbenzene	ND	0.00200	"							U
1,2-Dibromo-3-chloropropane	ND	0.00500	"							U
1,2-Dibromoethane (EDB)	ND	0.00200	"							U
1,2-Dichlorobenzene	ND	0.00200	"							U
1,2-Dichloroethane	ND	0.00200	"							U
1,2-Dichloropropane	ND	0.00200	"							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
1,3-Dichlorobenzene	ND	0.00200	"							U
1,3-Dichloropropane	ND	0.00200	"							U
1,4-Dichlorobenzene	ND	0.00200	"							U
2,2-Dichloropropane	ND	0.00200	"							U
2-Butanone	ND	0.0100	"							U
2-Chlorotoluene	ND	0.00200	"							U
2-Hexanone	ND	0.0100	"							U
4-Chlorotoluene	ND	0.00200	"							U
4-Isopropyltoluene	ND	0.00200	"							U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Blank (B9K1202-BLK1)				Prepared: 11/12/2019 Analyzed: 11/12/2019						
4-Methyl-2-pentanone	ND	0.0100	mg/kg							U
Acetone	ND	0.0200	"							U
Benzene	ND	0.00200	"							U
Bromobenzene	ND	0.00200	"							U
Bromochloromethane	ND	0.00200	"							U
Bromodichloromethane	ND	0.00200	"							U
Bromoform	ND	0.00200	"							U
Bromomethane	ND	0.00200	"							U
Carbon disulfide	ND	0.00500	"							U
Carbon tetrachloride	ND	0.00200	"							U
Chlorobenzene	ND	0.00200	"							U
Chloroethane	ND	0.00500	"							U
Chloroform	ND	0.00200	"							U
Chloromethane	ND	0.00200	"							U
cis-1,2-Dichloroethene	ND	0.00200	"							U
cis-1,3-Dichloropropene	ND	0.00200	"							U
Dibromochloromethane	ND	0.00200	"							U
Dibromomethane	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Hexachlorobutadiene	ND	0.00500	"							U
Iodomethane	ND	0.0150	"							U
Isopropylbenzene	ND	0.00200	"							U
m,p-Xylene	ND	0.00400	"							U
Methyl tert-Butyl Ether	ND	0.00200	"							U
Methylene Chloride	ND	0.0200	"							U
Naphthalene	ND	0.0100	"							U

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Jen Pellegrini, Project Manager

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Blank (B9K1202-BLK1)					Prepared: 11/12/2019 Analyzed: 11/12/2019					
n-Butylbenzene	ND	0.00200	mg/kg							U
n-Propylbenzene	ND	0.00200	"							U
o-Xylene	ND	0.00200	"							U
sec-Butylbenzene	ND	0.00200	"							U
Styrene	ND	0.00200	"							U
tert-Butylbenzene	ND	0.00200	"							U
Tetrachloroethene	ND	0.00200	"							U
Toluene	ND	0.00200	"							U
trans-1,2-Dichloroethene	ND	0.00200	"							U
trans-1,3-Dichloropropene	ND	0.00200	"							U
Trichloroethene	ND	0.00200	"							U
Trichlorofluoromethane	ND	0.00300	"							U
Vinyl chloride	ND	0.00200	"							U
Surrogate: 1,2-Dichloroethane-d4	*0.14*		"	*0.125*		*114*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*97.2*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.12*		"	*0.125*		*99.7*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
LCS (B9K1202-BS1)					Prepared: 11/12/2019 Analyzed: 11/12/2019					
1,1,1,2-Tetrachloroethane	0.0995	0.00200	mg/kg	0.100		99.5	70-130			
1,1,1-Trichloroethane	0.105	0.00200	"	0.100		105	70-130			
1,1,2,2-Tetrachloroethane	0.109	0.00200	"	0.100		109	70-130			
1,1,2-Trichloroethane	0.107	0.00200	"	0.100		107	70-130			
1,1-Dichloroethane	0.107	0.00200	"	0.100		107	70-130			
1,1-Dichloroethene	0.104	0.00200	"	0.100		104	70-130			
1,1-Dichloropropene	0.102	0.00200	"	0.100		102	70-130			
1,2,3-Trichlorobenzene	0.105	0.00500	"	0.100		105	70-130			
1,2,3-Trichloropropane	0.107	0.00500	"	0.100		107	70-130			
1,2,4-Trichlorobenzene	0.110	0.00500	"	0.100		110	70-130			
1,2,4-Trimethylbenzene	0.100	0.00200	"	0.100		100	70-130			
1,2-Dibromo-3-chloropropane	0.109	0.00500	"	0.100		109	70-130			
1,2-Dibromoethane (EDB)	0.107	0.00200	"	0.100		107	70-130			
1,2-Dichlorobenzene	0.0993	0.00200	"	0.100		99.3	70-130			
1,2-Dichloroethane	0.104	0.00200	"	0.100		104	70-130			
1,2-Dichloropropane	0.103	0.00200	"	0.100		103	70-130			
1,3,5-Trimethylbenzene	0.0991	0.00200	"	0.100		99.1	70-130			
1,3-Dichlorobenzene	0.101	0.00200	"	0.100		101	70-130			
1,3-Dichloropropane	0.107	0.00200	"	0.100		107	70-130			
1,4-Dichlorobenzene	0.101	0.00200	"	0.100		101	70-130			
2,2-Dichloropropane	0.107	0.00200	"	0.100		107	70-130			
2-Butanone	0.588	0.0100	"	0.500		118	70-130			
2-Chlorotoluene	0.105	0.00200	"	0.100		105	70-130			
2-Hexanone	0.603	0.0100	"	0.500		121	70-130			
4-Chlorotoluene	0.0990	0.00200	"	0.100		99.0	70-130			
4-Isopropyltoluene	0.0990	0.00200	"	0.100		99.0	70-130			

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CTL Thompson, Inc.
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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
LCS (B9K1202-BS1)					Prepared: 11/12/2019 Analyzed: 11/12/2019					
4-Methyl-2-pentanone	0.603	0.0100	mg/kg	0.500		121	70-130			
Acetone	0.577	0.0200	"	0.500		115	70-130			
Benzene	0.0960	0.00200	"	0.100		96.0	70-130			
Bromobenzene	0.103	0.00200	"	0.100		103	70-130			
Bromochloromethane	0.102	0.00200	"	0.100		102	70-130			
Bromodichloromethane	0.108	0.00200	"	0.100		108	70-130			
Bromoform	0.111	0.00200	"	0.100		111	70-130			
Bromomethane	0.103	0.00200	"	0.100		103	70-130			
Carbon disulfide	0.106	0.00500	"	0.100		106	70-130			
Carbon tetrachloride	0.104	0.00200	"	0.100		104	70-130			
Chlorobenzene	0.102	0.00200	"	0.100		102	70-130			
Chloroethane	0.0969	0.00500	"	0.100		96.9	70-130			
Chloroform	0.104	0.00200	"	0.100		104	70-130			
Chloromethane	0.114	0.00200	"	0.100		114	70-130			
cis-1,2-Dichloroethene	0.105	0.00200	"	0.100		105	70-130			
cis-1,3-Dichloropropene	0.106	0.00200	"	0.100		106	70-130			
Dibromochloromethane	0.112	0.00200	"	0.100		112	70-130			
Dibromomethane	0.104	0.00200	"	0.100		104	70-130			
Ethylbenzene	0.100	0.00200	"	0.100		100	70-130			
Hexachlorobutadiene	0.103	0.00500	"	0.100		103	70-130			
Iodomethane	0.0968	0.0150	"	0.100		96.8	70-130			
Isopropylbenzene	0.0989	0.00200	"	0.100		98.9	70-130			
m,p-Xylene	0.200	0.00400	"	0.200		100	70-130			
Methyl tert-Butyl Ether	0.105	0.00200	"	0.100		105	70-130			
Methylene Chloride	0.108	0.0200	"	0.100		108	70-130			
Naphthalene	0.107	0.0100	"	0.100		107	70-130			

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
LCS (B9K1202-BS1)					Prepared: 11/12/2019 Analyzed: 11/12/2019					
n-Butylbenzene	0.102	0.00200	mg/kg	0.100		102	70-130			
n-Propylbenzene	0.100	0.00200	"	0.100		100	70-130			
o-Xylene	0.0992	0.00200	"	0.100		99.2	70-130			
sec-Butylbenzene	0.0989	0.00200	"	0.100		98.9	70-130			
Styrene	0.101	0.00200	"	0.100		101	70-130			
tert-Butylbenzene	0.0972	0.00200	"	0.100		97.2	70-130			
Tetrachloroethene	0.102	0.00200	"	0.100		102	70-130			
Toluene	0.102	0.00200	"	0.100		102	70-130			
trans-1,2-Dichloroethene	0.103	0.00200	"	0.100		103	70-130			
trans-1,3-Dichloropropene	0.110	0.00200	"	0.100		110	70-130			
Trichloroethene	0.0997	0.00200	"	0.100		99.7	70-130			
Trichlorofluoromethane	0.100	0.00300	"	0.100		100	70-130			
Vinyl chloride	0.104	0.00200	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.14*		"	*0.125*		*109*	*70-130*			
Surrogate: Toluene-d8	*0.13*		"	*0.125*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.13*		"	*0.125*		*103*	*70-130*			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike (B9K1202-MS1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
1,1,1,2-Tetrachloroethane	0.103	0.00200	mg/kg	0.100	ND	103	70-130			
1,1,1-Trichloroethane	0.105	0.00200	"	0.100	ND	105	70-130			
1,1,2,2-Tetrachloroethane	0.114	0.00200	"	0.100	ND	114	70-130			
1,1,2-Trichloroethane	0.111	0.00200	"	0.100	ND	111	70-130			
1,1-Dichloroethane	0.106	0.00200	"	0.100	ND	106	70-130			
1,1-Dichloroethene	0.102	0.00200	"	0.100	ND	102	70-130			
1,1-Dichloropropene	0.0996	0.00200	"	0.100	ND	99.6	70-130			
1,2,3-Trichlorobenzene	0.106	0.00500	"	0.100	ND	106	70-130			
1,2,3-Trichloropropane	0.113	0.00500	"	0.100	ND	113	70-130			
1,2,4-Trichlorobenzene	0.109	0.00500	"	0.100	ND	109	70-130			
1,2,4-Trimethylbenzene	0.100	0.00200	"	0.100	ND	100	70-130			
1,2-Dibromo-3-chloropropane	0.117	0.00500	"	0.100	ND	117	70-130			
1,2-Dibromoethane (EDB)	0.109	0.00200	"	0.100	ND	109	70-130			
1,2-Dichlorobenzene	0.100	0.00200	"	0.100	ND	100	70-130			
1,2-Dichloroethane	0.110	0.00200	"	0.100	ND	110	70-130			
1,2-Dichloropropane	0.103	0.00200	"	0.100	ND	103	70-130			
1,3,5-Trimethylbenzene	0.0986	0.00200	"	0.100	ND	98.6	70-130			
1,3-Dichlorobenzene	0.0988	0.00200	"	0.100	ND	98.8	70-130			
1,3-Dichloropropane	0.111	0.00200	"	0.100	ND	111	70-130			
1,4-Dichlorobenzene	0.101	0.00200	"	0.100	ND	101	70-130			
2,2-Dichloropropane	0.105	0.00200	"	0.100	ND	105	70-130			
2-Butanone	0.616	0.0100	"	0.500	ND	123	70-130			
2-Chlorotoluene	0.102	0.00200	"	0.100	ND	102	70-130			
2-Hexanone	0.633	0.0100	"	0.500	ND	127	70-130			
4-Chlorotoluene	0.0988	0.00200	"	0.100	ND	98.8	70-130			
4-Isopropyltoluene	0.0963	0.00200	"	0.100	ND	96.3	70-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike (B9K1202-MS1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
4-Methyl-2-pentanone	0.636	0.0100	mg/kg	0.500	0.00764	126	70-130			
Acetone	0.598	0.0200	"	0.500	ND	120	70-130			
Benzene	0.0943	0.00200	"	0.100	ND	94.3	70-130			
Bromobenzene	0.102	0.00200	"	0.100	ND	102	70-130			
Bromochloromethane	0.104	0.00200	"	0.100	ND	104	70-130			
Bromodichloromethane	0.114	0.00200	"	0.100	ND	114	70-130			
Bromoform	0.118	0.00200	"	0.100	ND	118	70-130			
Bromomethane	0.104	0.00200	"	0.100	ND	104	70-130			
Carbon disulfide	0.102	0.00500	"	0.100	ND	102	70-130			
Carbon tetrachloride	0.103	0.00200	"	0.100	ND	103	70-130			
Chlorobenzene	0.0998	0.00200	"	0.100	ND	99.8	70-130			
Chloroethane	0.0974	0.00500	"	0.100	ND	97.4	70-130			
Chloroform	0.107	0.00200	"	0.100	ND	107	70-130			
Chloromethane	0.112	0.00200	"	0.100	ND	112	70-130			
cis-1,2-Dichloroethene	0.105	0.00200	"	0.100	ND	105	70-130			
cis-1,3-Dichloropropene	0.107	0.00200	"	0.100	ND	107	70-130			
Dibromochloromethane	0.116	0.00200	"	0.100	ND	116	70-130			
Dibromomethane	0.110	0.00200	"	0.100	ND	110	70-130			
Ethylbenzene	0.0974	0.00200	"	0.100	ND	97.4	70-130			
Hexachlorobutadiene	0.100	0.00500	"	0.100	ND	100	70-130			
Iodomethane	0.0954	0.0150	"	0.100	ND	95.4	70-130			
Isopropylbenzene	0.0975	0.00200	"	0.100	ND	97.5	70-130			
m,p-Xylene	0.193	0.00400	"	0.200	ND	96.7	70-130			
Methyl tert-Butyl Ether	0.112	0.00200	"	0.100	ND	112	70-130			
Methylene Chloride	0.113	0.0200	"	0.100	0.00482	109	70-130			
Naphthalene	0.112	0.0100	"	0.100	ND	112	70-130			

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Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike (B9K1202-MS1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
n-Butylbenzene	0.0995	0.00200	mg/kg	0.100	ND	99.5	70-130			
n-Propylbenzene	0.0973	0.00200	"	0.100	ND	97.3	70-130			
o-Xylene	0.0995	0.00200	"	0.100	ND	99.5	70-130			
sec-Butylbenzene	0.0973	0.00200	"	0.100	ND	97.3	70-130			
Styrene	0.0996	0.00200	"	0.100	ND	99.6	70-130			
tert-Butylbenzene	0.0970	0.00200	"	0.100	ND	97.0	70-130			
Tetrachloroethene	0.100	0.00200	"	0.100	ND	100	70-130			
Toluene	0.101	0.00200	"	0.100	ND	101	70-130			
trans-1,2-Dichloroethene	0.101	0.00200	"	0.100	ND	101	70-130			
trans-1,3-Dichloropropene	0.111	0.00200	"	0.100	ND	111	70-130			
Trichloroethene	0.0980	0.00200	"	0.100	ND	98.0	70-130			
Trichlorofluoromethane	0.100	0.00300	"	0.100	ND	100	70-130			
Vinyl chloride	0.101	0.00200	"	0.100	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.14*		"	*0.125*		*114*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*99.2*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.13*		"	*0.125*		*100*	*70-130*			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike Dup (B9K1202-MSD1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
1,1,1,2-Tetrachloroethane	0.100	0.00200	mg/kg	0.100	ND	100	70-130	2.97	20	
1,1,1-Trichloroethane	0.103	0.00200	"	0.100	ND	103	70-130	2.37	20	
1,1,2,2-Tetrachloroethane	0.111	0.00200	"	0.100	ND	111	70-130	2.35	20	
1,1,2-Trichloroethane	0.111	0.00200	"	0.100	ND	111	70-130	0.0900	20	
1,1-Dichloroethane	0.106	0.00200	"	0.100	ND	106	70-130	0.339	20	
1,1-Dichloroethene	0.101	0.00200	"	0.100	ND	101	70-130	0.911	20	
1,1-Dichloropropene	0.0982	0.00200	"	0.100	ND	98.2	70-130	1.39	20	
1,2,3-Trichlorobenzene	0.107	0.00500	"	0.100	ND	107	70-130	0.263	20	
1,2,3-Trichloropropane	0.108	0.00500	"	0.100	ND	108	70-130	4.82	20	
1,2,4-Trichlorobenzene	0.107	0.00500	"	0.100	ND	107	70-130	1.85	20	
1,2,4-Trimethylbenzene	0.0970	0.00200	"	0.100	ND	97.0	70-130	3.09	20	
1,2-Dibromo-3-chloropropane	0.113	0.00500	"	0.100	ND	113	70-130	3.63	20	
1,2-Dibromoethane (EDB)	0.109	0.00200	"	0.100	ND	109	70-130	0.256	20	
1,2-Dichlorobenzene	0.0986	0.00200	"	0.100	ND	98.6	70-130	1.55	20	
1,2-Dichloroethane	0.105	0.00200	"	0.100	ND	105	70-130	3.76	20	
1,2-Dichloropropane	0.104	0.00200	"	0.100	ND	104	70-130	0.714	20	
1,3,5-Trimethylbenzene	0.0959	0.00200	"	0.100	ND	95.9	70-130	2.80	20	
1,3-Dichlorobenzene	0.0976	0.00200	"	0.100	ND	97.6	70-130	1.18	20	
1,3-Dichloropropane	0.110	0.00200	"	0.100	ND	110	70-130	0.776	20	
1,4-Dichlorobenzene	0.100	0.00200	"	0.100	ND	100	70-130	0.835	20	
2,2-Dichloropropane	0.103	0.00200	"	0.100	ND	103	70-130	1.69	20	
2-Butanone	0.599	0.0100	"	0.500	ND	120	70-130	2.74	20	
2-Chlorotoluene	0.0994	0.00200	"	0.100	ND	99.4	70-130	2.91	20	
2-Hexanone	0.609	0.0100	"	0.500	ND	122	70-130	3.84	20	
4-Chlorotoluene	0.0951	0.00200	"	0.100	ND	95.1	70-130	3.78	20	
4-Isopropyltoluene	0.0949	0.00200	"	0.100	ND	94.9	70-130	1.47	20	

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Rannen Worsley
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Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike Dup (B9K1202-MSD1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
4-Methyl-2-pentanone	0.615	0.0100	mg/kg	0.500	0.00764	121	70-130	3.39	20	
Acetone	0.592	0.0200	"	0.500	ND	118	70-130	0.958	20	
Benzene	0.0944	0.00200	"	0.100	ND	94.4	70-130	0.127	20	
Bromobenzene	0.0989	0.00200	"	0.100	ND	98.9	70-130	2.85	20	
Bromochloromethane	0.106	0.00200	"	0.100	ND	106	70-130	1.80	20	
Bromodichloromethane	0.110	0.00200	"	0.100	ND	110	70-130	3.29	20	
Bromoform	0.114	0.00200	"	0.100	ND	114	70-130	3.64	20	
Bromomethane	0.111	0.00200	"	0.100	ND	111	70-130	6.61	20	
Carbon disulfide	0.102	0.00500	"	0.100	ND	102	70-130	0.393	20	
Carbon tetrachloride	0.102	0.00200	"	0.100	ND	102	70-130	0.941	20	
Chlorobenzene	0.101	0.00200	"	0.100	ND	101	70-130	1.45	20	
Chloroethane	0.104	0.00500	"	0.100	ND	104	70-130	6.63	20	
Chloroform	0.104	0.00200	"	0.100	ND	104	70-130	2.26	20	
Chloromethane	0.111	0.00200	"	0.100	ND	111	70-130	0.287	20	
cis-1,2-Dichloroethene	0.104	0.00200	"	0.100	ND	104	70-130	1.40	20	
cis-1,3-Dichloropropene	0.107	0.00200	"	0.100	ND	107	70-130	0.505	20	
Dibromochloromethane	0.116	0.00200	"	0.100	ND	116	70-130	0.189	20	
Dibromomethane	0.110	0.00200	"	0.100	ND	110	70-130	0.728	20	
Ethylbenzene	0.0946	0.00200	"	0.100	ND	94.6	70-130	2.94	20	
Hexachlorobutadiene	0.0965	0.00500	"	0.100	ND	96.5	70-130	3.76	20	
Iodomethane	0.0968	0.0150	"	0.100	ND	96.8	70-130	1.41	20	
Isopropylbenzene	0.0959	0.00200	"	0.100	ND	95.9	70-130	1.65	20	
m,p-Xylene	0.190	0.00400	"	0.200	ND	94.8	70-130	1.95	20	
Methyl tert-Butyl Ether	0.112	0.00200	"	0.100	ND	112	70-130	0.322	20	
Methylene Chloride	0.114	0.0200	"	0.100	0.00482	109	70-130	0.773	20	
Naphthalene	0.111	0.0100	"	0.100	ND	111	70-130	1.06	20	

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1202 - EPA 5030 (soil)										
Matrix Spike Dup (B9K1202-MSD1)		**Source: Y911159-01**			Prepared: 11/12/2019 Analyzed: 11/12/2019					
n-Butylbenzene	0.0966	0.00200	mg/kg	0.100	ND	96.6	70-130	3.00	20	
n-Propylbenzene	0.0945	0.00200	"	0.100	ND	94.5	70-130	2.96	20	
o-Xylene	0.0965	0.00200	"	0.100	ND	96.5	70-130	3.14	20	
sec-Butylbenzene	0.0950	0.00200	"	0.100	ND	95.0	70-130	2.37	20	
Styrene	0.0985	0.00200	"	0.100	ND	98.5	70-130	1.11	20	
tert-Butylbenzene	0.0957	0.00200	"	0.100	ND	95.7	70-130	1.39	20	
Tetrachloroethene	0.0998	0.00200	"	0.100	ND	99.8	70-130	0.160	20	
Toluene	0.101	0.00200	"	0.100	ND	101	70-130	0.0993	20	
trans-1,2-Dichloroethene	0.100	0.00200	"	0.100	ND	100	70-130	0.437	20	
trans-1,3-Dichloropropene	0.111	0.00200	"	0.100	ND	111	70-130	0.234	20	
Trichloroethene	0.0976	0.00200	"	0.100	ND	97.6	70-130	0.368	20	
Trichlorofluoromethane	0.104	0.00300	"	0.100	ND	104	70-130	4.03	20	
Vinyl chloride	0.108	0.00200	"	0.100	ND	108	70-130	5.82	20	
Surrogate: 1,2-Dichloroethane-d4	*0.14*		"	*0.125*		*109*	*70-130*			
Surrogate: Toluene-d8	*0.13*		"	*0.125*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.12*		"	*0.125*		*98.2*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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ORIGINS LABORATORY, INC

November 19, 2019

CTL Thompson, Inc.
Rannen Worsley
1971 West 12th Avenue
Denver CO 80204

Project Name - Murata Farms **Project Number - DN50219.000-205**

Attached are your analytical results for Murata Farms received by Origins Laboratory, Inc. November 14, 2019. This project is associated with Origins project number Y911247-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com

THE NELAC INSTITUTE

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-1	Y911247-01	Water	November 14, 2019 9:31	11/14/2019 14:25
TH-2	Y911247-02	Water	November 14, 2019 9:50	11/14/2019 14:25
TH-5	Y911247-03	Water	November 14, 2019 9:47	11/14/2019 14:25
TH-6	Y911247-04	Water	November 14, 2019 13:24	11/14/2019 14:25
TH-8	Y911247-05	Water	November 14, 2019 12:50	11/14/2019 14:25
TH-9	Y911247-06	Water	November 14, 2019 11:15	11/14/2019 14:25
TH-10	Y911247-07	Water	November 14, 2019 11:15	11/14/2019 14:25

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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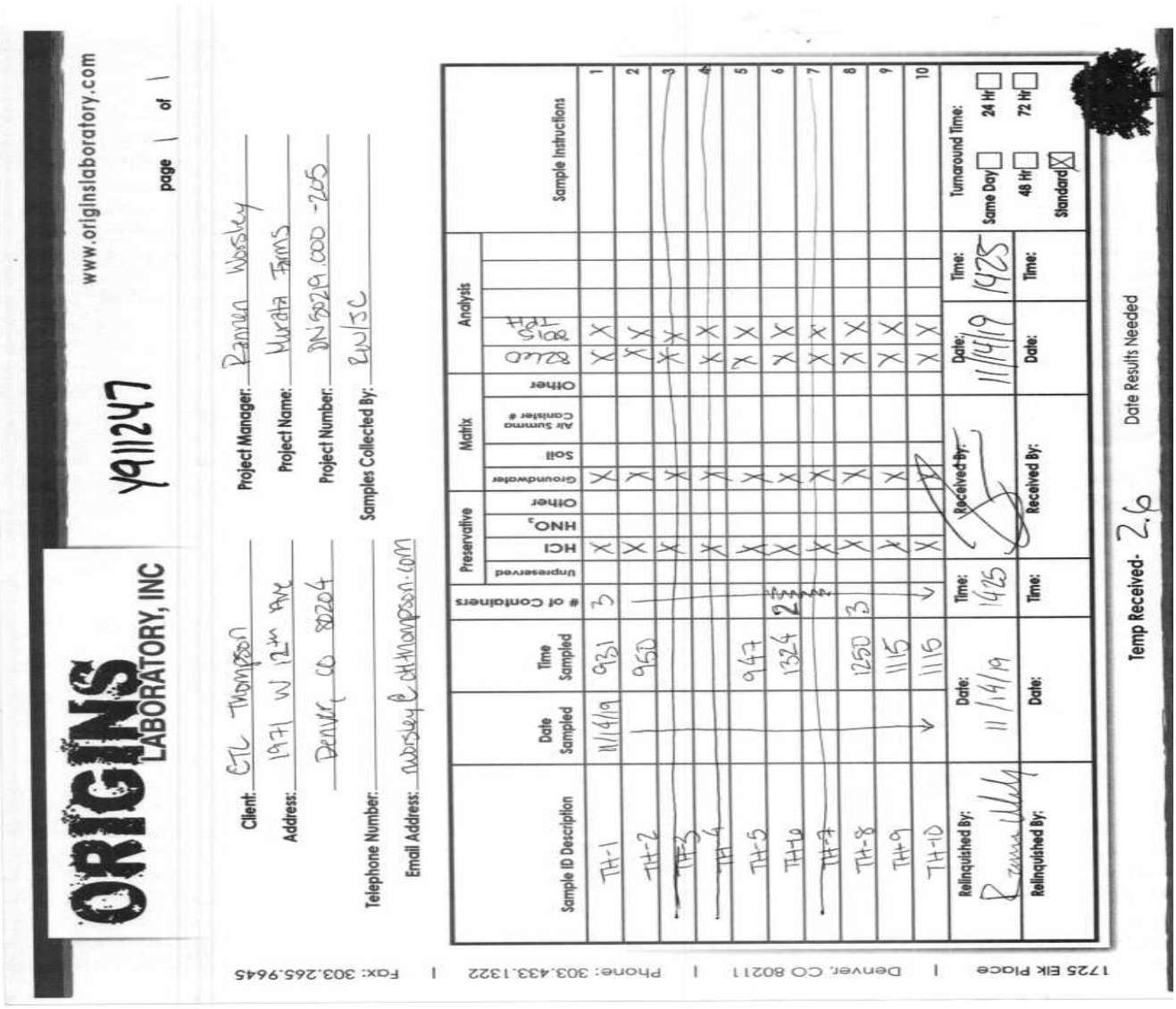
ORIGINS LABORATORY, INC

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms



Origins Laboratory, Inc.

Jen Pellegrini

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Jen Pellegrini, Project Manager

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4911247
Client: CTL Thompson
Client Project ID: Murata Farms

Checklist Completed by: JG
Shipped Via: HD (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 11/14/19
Airbill #: NA

Matrix(s) Received: (Check all that apply): ____Soil/Solid X Water ____Other: ____ (Describe)

Cooler Number/Temperature: 1 / 2.6 °c ____/____ °c ____/____ °c ____/____ °c

Thermometer ID: TOC3

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C[1]?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact[1]?	X			
Was adequate sample volume provided[1]?	X			
Are short holding time analytes or samples with HTs due within 48 hours present[1]?		X		
Is a chain-of-custody (COC) present and filled out completely[1]?	X			
Does the COC agree with the number and type of sample bottles received[1]?	X			
Do the sample IDs on the bottle labels match the COC[1]?	X			
Is the COC properly relinquished by the client with date and time recorded[1]?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.**		X		
Are samples preserved that require preservation and was it checked[1]? *(note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)*	X			HCl
Additional Comments (if any):				

[1]*If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.*

Reviewed by (Project Manager)

11/18/19
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-1
11/14/2019 9:31:00AM

Origins Laboratory, Inc.
Y911247-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*107 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-1
11/14/2019 9:31:00AM

Origins Laboratory, Inc.
Y911247-01 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	ND	8.00	"	"	"	KDK	"	"	U
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-1
11/14/2019 9:31:00AM

Origins Laboratory, Inc.
Y911247-01 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-1
11/14/2019 9:31:00AM

Origins Laboratory, Inc.
Y911247-01 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*127 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*94.7 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*100 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-2
11/14/2019 9:50:00AM

Origins Laboratory, Inc.
Y911247-02 (Water)

TPH-Carbon Chain by EPA 8015D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*96.2 %*	*50-150*			"		"	"	

VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-2
11/14/2019 9:50:00AM

Origins Laboratory, Inc.
Y911247-02 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	**11.1**	8.00	"	"	"	KDK	"	"	
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-2
11/14/2019 9:50:00AM

Origins Laboratory, Inc.
Y911247-02 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-2
11/14/2019 9:50:00AM

Origins Laboratory, Inc.
Y911247-02 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*123 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*95.7 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*102 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-5
11/14/2019 9:47:00AM

Origins Laboratory, Inc.
Y911247-03 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*105 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-5
11/14/2019 9:47:00AM

Origins Laboratory, Inc.
Y911247-03 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	ND	8.00	"	"	"	KDK	"	"	U
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-5
11/14/2019 9:47:00AM

Origins Laboratory, Inc.
Y911247-03 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-5
11/14/2019 9:47:00AM

Origins Laboratory, Inc.
Y911247-03 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*113 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*98.9 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*103 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-6
11/14/2019 1:24:00PM

Origins Laboratory, Inc.
Y911247-04 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*100 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-6
11/14/2019 1:24:00PM

Origins Laboratory, Inc.
Y911247-04 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	**12.4**	8.00	"	"	"	KDK	"	"	
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-6
11/14/2019 1:24:00PM

Origins Laboratory, Inc.
Y911247-04 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-6
11/14/2019 1:24:00PM

Origins Laboratory, Inc.
Y911247-04 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U
Surrogate: 1,2-Dichloroethane-d4	*132 %*	*70-130*			"		"	"	*S-07*
Surrogate: Toluene-d8	*95.6 %*	*70-130*			"		"	"	
Surrogate: 4-Bromofluorobenzene	*102 %*	*70-130*			"		"	"	

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8
11/14/2019 12:50:00PM

Origins Laboratory, Inc.
Y911247-05 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*95.6 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8
11/14/2019 12:50:00PM

Origins Laboratory, Inc.
Y911247-05 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	**9.80**	8.00	"	"	"	KDK	"	"	
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8
11/14/2019 12:50:00PM

Origins Laboratory, Inc.
Y911247-05 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-8
11/14/2019 12:50:00PM

Origins Laboratory, Inc.
Y911247-05 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*118 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*97.6 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*99.6 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-06 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*98.1 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-06 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	ND	8.00	"	"	"	KDK	"	"	U
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-06 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-9
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-06 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*118 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*97.5 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*102 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-10
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-07 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
TPH-Carbon Chain by EPA 8015D									
Gasoline (C6-C10)	ND	5.00	mg/L	1	B9K1811	KDK	11/18/2019	11/19/2019	U
Diesel (C10-C28)	ND	5.00	"	"	"	KDK	"	"	U
Residual Range Organics (C28-C40)	ND	20.0	"	"	"	KDK	"	"	U
Surrogate: o-Terphenyl	*97.0 %*	*50-150*			"		"	"	
VOC by EPA 8260D									
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-10
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-07 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
1,2-Dichlorobenzene	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	U
2-Butanone	ND	5.00	"	"	"	KDK	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	U
Acetone	ND	8.00	"	"	"	KDK	"	"	U
Benzene	ND	1.00	"	"	"	KDK	"	"	U
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	U
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-10
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-07 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Bromoform	ND	1.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
Bromomethane	ND	1.00	"	"	"	KDK	"	"	U
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	U
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	U
Chloroethane	ND	1.00	"	"	"	KDK	"	"	U
Chloroform	ND	1.00	"	"	"	KDK	"	"	U
Chloromethane	ND	1.00	"	"	"	KDK	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	U
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	U
Iodomethane	ND	10.0	"	"	"	KDK	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	U
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	U
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	U

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

TH-10
11/14/2019 11:15:00AM

Origins Laboratory, Inc.
Y911247-07 (Water)

VOC by EPA 8260D

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
Naphthalene	ND	4.00	ug/L	1	B9K1402	KDK	11/14/2019	11/15/2019	U
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	U
o-Xylene	ND	1.00	"	"	"	KDK	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Styrene	ND	1.00	"	"	"	KDK	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	U
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	U
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	*119 %*	*70-130*	*"*	*"*	*"*
Surrogate: Toluene-d8	*97.8 %*	*70-130*	*"*	*"*	*"*
Surrogate: 4-Bromofluorobenzene	*102 %*	*70-130*	*"*	*"*	*"*

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Blank (B9K1402-BLK1)					Prepared: 11/14/2019 Analyzed: 11/14/2019					
1,1,1,2-Tetrachloroethane	ND	1.00	ug/L							U
1,1,1-Trichloroethane	ND	1.00	"							U
1,1,2,2-Tetrachloroethane	ND	1.00	"							U
1,1,2-Trichloroethane	ND	1.00	"							U
1,1-Dichloroethane	ND	1.00	"							U
1,1-Dichloroethene	ND	1.00	"							U
1,1-Dichloropropene	ND	1.00	"							U
1,2,3-Trichlorobenzene	ND	5.00	"							U
1,2,3-Trichloropropane	ND	5.00	"							U
1,2,4-Trichlorobenzene	ND	5.00	"							U
1,2,4-Trimethylbenzene	ND	1.00	"							U
1,2-Dibromo-3-chloropropane	ND	5.00	"							U
1,2-Dibromoethane (EDB)	ND	1.00	"							U
1,2-Dichlorobenzene	ND	1.00	"							U
1,2-Dichloroethane	ND	1.00	"							U
1,2-Dichloropropane	ND	1.00	"							U
1,3,5-Trimethylbenzene	ND	1.00	"							U
1,3-Dichlorobenzene	ND	1.00	"							U
1,3-Dichloropropane	ND	1.00	"							U
1,4-Dichlorobenzene	ND	1.00	"							U
2,2-Dichloropropane	ND	1.00	"							U
2-Butanone	ND	5.00	"							U
2-Chlorotoluene	ND	1.00	"							U
2-Hexanone	ND	5.00	"							U
4-Chlorotoluene	ND	1.00	"							U
4-Isopropyltoluene	ND	1.00	"							U

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Blank (B9K1402-BLK1)				Prepared: 11/14/2019 Analyzed: 11/14/2019						
4-Methyl-2-pentanone	ND	5.00	ug/L							U
Acetone	ND	8.00	"							U
Benzene	ND	1.00	"							U
Bromobenzene	ND	1.00	"							U
Bromochloromethane	ND	1.00	"							U
Bromodichloromethane	ND	1.00	"							U
Bromoform	ND	1.00	"							U
Bromomethane	ND	1.00	"							U
Carbon disulfide	ND	5.00	"							U
Carbon tetrachloride	ND	1.00	"							U
Chlorobenzene	ND	1.00	"							U
Chloroethane	ND	1.00	"							U
Chloroform	ND	1.00	"							U
Chloromethane	ND	1.00	"							U
cis-1,2-Dichloroethene	ND	1.00	"							U
cis-1,3-Dichloropropene	ND	1.00	"							U
Dibromochloromethane	ND	1.00	"							U
Dibromomethane	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Hexachlorobutadiene	ND	5.00	"							U
Iodomethane	ND	10.0	"							U
Isopropylbenzene	ND	1.00	"							U
m,p-Xylene	ND	2.00	"							U
Methylene Chloride	ND	5.00	"							U
Methyl tert-Butyl Ether	ND	1.00	"							U
Naphthalene	ND	4.00	"							U

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Blank (B9K1402-BLK1)					Prepared: 11/14/2019 Analyzed: 11/14/2019					
n-Butylbenzene	ND	1.00	ug/L							U
n-Propylbenzene	ND	1.00	"							U
o-Xylene	ND	1.00	"							U
sec-Butylbenzene	ND	1.00	"							U
Styrene	ND	1.00	"							U
tert-Butylbenzene	ND	1.00	"							U
Tetrachloroethene	ND	1.00	"							U
Toluene	ND	1.00	"							U
trans-1,2-Dichloroethene	ND	1.00	"							U
trans-1,3-Dichloropropene	ND	1.00	"							U
Trichloroethene	ND	1.00	"							U
Trichlorofluoromethane	ND	1.00	"							U
Vinyl chloride	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	*67*		"	*62.5*		*107*	*70-130*			
Surrogate: Toluene-d8	*60*		"	*62.5*		*96.2*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*64*		"	*62.5*		*102*	*70-130*			

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Rannen Worsley
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Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
LCS (B9K1402-BS1)					Prepared: 11/14/2019 Analyzed: 11/14/2019					
1,1,1,2-Tetrachloroethane	48.5	1.00	ug/L	50.0		97.0	70-130			
1,1,1-Trichloroethane	54.2	1.00	"	50.0		108	70-130			
1,1,2,2-Tetrachloroethane	49.2	1.00	"	50.0		98.3	70-130			
1,1,2-Trichloroethane	49.9	1.00	"	50.0		99.8	70-130			
1,1-Dichloroethane	52.7	1.00	"	50.0		105	70-130			
1,1-Dichloroethene	52.3	1.00	"	50.0		105	70-130			
1,1-Dichloropropene	49.9	1.00	"	50.0		99.7	70-130			
1,2,3-Trichlorobenzene	50.1	5.00	"	50.0		100	70-130			
1,2,3-Trichloropropane	47.6	5.00	"	50.0		95.2	70-130			
1,2,4-Trichlorobenzene	52.2	5.00	"	50.0		104	70-130			
1,2,4-Trimethylbenzene	49.2	1.00	"	50.0		98.4	70-130			
1,2-Dibromo-3-chloropropane	48.6	5.00	"	50.0		97.2	70-130			
1,2-Dibromoethane (EDB)	48.5	1.00	"	50.0		97.0	70-130			
1,2-Dichlorobenzene	47.8	1.00	"	50.0		95.7	70-130			
1,2-Dichloroethane	48.8	1.00	"	50.0		97.6	70-130			
1,2-Dichloropropane	47.9	1.00	"	50.0		95.8	70-130			
1,3,5-Trimethylbenzene	49.1	1.00	"	50.0		98.2	70-130			
1,3-Dichlorobenzene	48.0	1.00	"	50.0		96.0	70-130			
1,3-Dichloropropane	49.1	1.00	"	50.0		98.3	70-130			
1,4-Dichlorobenzene	48.7	1.00	"	50.0		97.4	70-130			
2,2-Dichloropropane	53.1	1.00	"	50.0		106	70-130			
2-Butanone	256	5.00	"	250		103	70-130			
2-Chlorotoluene	49.1	1.00	"	50.0		98.2	70-130			
2-Hexanone	257	5.00	"	250		103	70-130			
4-Chlorotoluene	47.8	1.00	"	50.0		95.6	70-130			
4-Isopropyltoluene	48.7	1.00	"	50.0		97.5	70-130			

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Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
LCS (B9K1402-BS1)					Prepared: 11/14/2019 Analyzed: 11/14/2019					
4-Methyl-2-pentanone	260	5.00	ug/L	250		104	70-130			
Acetone	263	8.00	"	250		105	70-130			
Benzene	46.2	1.00	"	50.0		92.4	70-130			
Bromobenzene	47.4	1.00	"	50.0		94.8	70-130			
Bromochloromethane	48.8	1.00	"	50.0		97.5	70-130			
Bromodichloromethane	50.9	1.00	"	50.0		102	70-130			
Bromoform	50.6	1.00	"	50.0		101	70-130			
Bromomethane	58.6	1.00	"	50.0		117	70-130			
Carbon disulfide	52.5	5.00	"	50.0		105	70-130			
Carbon tetrachloride	53.1	1.00	"	50.0		106	70-130			
Chlorobenzene	48.7	1.00	"	50.0		97.4	70-130			
Chloroethane	53.7	1.00	"	50.0		107	70-130			
Chloroform	52.0	1.00	"	50.0		104	70-130			
Chloromethane	61.4	1.00	"	50.0		123	70-130			
cis-1,2-Dichloroethene	52.1	1.00	"	50.0		104	70-130			
cis-1,3-Dichloropropene	48.4	1.00	"	50.0		96.8	70-130			
Dibromochloromethane	51.5	1.00	"	50.0		103	70-130			
Dibromomethane	48.2	1.00	"	50.0		96.5	70-130			
Ethylbenzene	48.2	1.00	"	50.0		96.3	70-130			
Hexachlorobutadiene	52.0	5.00	"	50.0		104	70-130			
Iodomethane	48.6	10.0	"	50.0		97.3	70-130			
Isopropylbenzene	49.3	1.00	"	50.0		98.7	70-130			
m,p-Xylene	96.8	2.00	"	100		96.8	70-130			
Methylene Chloride	55.0	5.00	"	50.0		110	70-130			
Methyl tert-Butyl Ether	50.6	1.00	"	50.0		101	70-130			
Naphthalene	49.7	4.00	"	50.0		99.4	70-130			

Origins Laboratory, Inc.

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
LCS (B9K1402-BS1)					Prepared: 11/14/2019 Analyzed: 11/14/2019					
n-Butylbenzene	50.5	1.00	ug/L	50.0		101	70-130			
n-Propylbenzene	48.6	1.00	"	50.0		97.2	70-130			
o-Xylene	48.2	1.00	"	50.0		96.4	70-130			
sec-Butylbenzene	49.2	1.00	"	50.0		98.4	70-130			
Styrene	47.7	1.00	"	50.0		95.3	70-130			
tert-Butylbenzene	48.7	1.00	"	50.0		97.5	70-130			
Tetrachloroethene	50.1	1.00	"	50.0		100	70-130			
Toluene	49.7	1.00	"	50.0		99.4	70-130			
trans-1,2-Dichloroethene	51.6	1.00	"	50.0		103	70-130			
trans-1,3-Dichloropropene	49.6	1.00	"	50.0		99.2	70-130			
Trichloroethene	47.8	1.00	"	50.0		95.6	70-130			
Trichlorofluoromethane	55.9	1.00	"	50.0		112	70-130			
Vinyl chloride	59.3	1.00	"	50.0		119	70-130			
Surrogate: 1,2-Dichloroethane-d4	*67*		*"*	*62.5*		*107*	*70-130*			
Surrogate: Toluene-d8	*64*		*"*	*62.5*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*62*		*"*	*62.5*		*98.5*	*70-130*			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike (B9K1402-MS1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
1,1,1,2-Tetrachloroethane	51.3	1.00	ug/L	50.0	ND	103	70-130			
1,1,1-Trichloroethane	51.2	1.00	"	50.0	ND	102	70-130			
1,1,2,2-Tetrachloroethane	54.0	1.00	"	50.0	ND	108	70-130			
1,1,2-Trichloroethane	42.6	1.00	"	50.0	ND	85.2	70-130			
1,1-Dichloroethane	52.3	1.00	"	50.0	ND	105	70-130			
1,1-Dichloroethene	50.6	1.00	"	50.0	0.680	99.7	70-130			
1,1-Dichloropropene	48.8	1.00	"	50.0	ND	97.7	70-130			
1,2,3-Trichlorobenzene	53.4	5.00	"	50.0	0.320	106	70-130			
1,2,3-Trichloropropane	52.8	5.00	"	50.0	ND	106	70-130			
1,2,4-Trichlorobenzene	54.4	5.00	"	50.0	ND	109	70-130			
1,2,4-Trimethylbenzene	49.9	1.00	"	50.0	ND	99.7	70-130			
1,2-Dibromo-3-chloropropane	55.9	5.00	"	50.0	ND	112	70-130			
1,2-Dibromoethane (EDB)	52.2	1.00	"	50.0	ND	104	70-130			
1,2-Dichlorobenzene	49.6	1.00	"	50.0	ND	99.3	70-130			
1,2-Dichloroethane	50.6	1.00	"	50.0	ND	101	70-130			
1,2-Dichloropropane	51.0	1.00	"	50.0	ND	102	70-130			
1,3,5-Trimethylbenzene	48.5	1.00	"	50.0	ND	97.1	70-130			
1,3-Dichlorobenzene	49.2	1.00	"	50.0	ND	98.4	70-130			
1,3-Dichloropropane	52.1	1.00	"	50.0	ND	104	70-130			
1,4-Dichlorobenzene	49.5	1.00	"	50.0	ND	99.1	70-130			
2,2-Dichloropropane	48.4	1.00	"	50.0	ND	96.9	70-130			
2-Butanone	280	5.00	"	250	ND	112	70-130			
2-Chlorotoluene	49.7	1.00	"	50.0	ND	99.4	70-130			
2-Hexanone	289	5.00	"	250	ND	115	70-130			
4-Chlorotoluene	48.5	1.00	"	50.0	ND	96.9	70-130			
4-Isopropyltoluene	48.3	1.00	"	50.0	ND	96.5	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike (B9K1402-MS1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
4-Methyl-2-pentanone	290	5.00	ug/L	250	3.92	114	70-130			
Acetone	281	8.00	"	250	ND	112	70-130			
Benzene	46.8	1.00	"	50.0	ND	93.6	70-130			
Bromobenzene	49.6	1.00	"	50.0	ND	99.2	70-130			
Bromochloromethane	51.4	1.00	"	50.0	ND	103	70-130			
Bromodichloromethane	54.6	1.00	"	50.0	ND	109	70-130			
Bromoform	55.8	1.00	"	50.0	ND	112	70-130			
Bromomethane	55.2	1.00	"	50.0	ND	110	70-130			
Carbon disulfide	50.8	5.00	"	50.0	ND	102	70-130			
Carbon tetrachloride	50.3	1.00	"	50.0	ND	101	70-130			
Chlorobenzene	49.1	1.00	"	50.0	ND	98.2	70-130			
Chloroethane	50.3	1.00	"	50.0	ND	101	70-130			
Chloroform	51.8	1.00	"	50.0	ND	104	70-130			
Chloromethane	56.3	1.00	"	50.0	ND	113	70-130			
cis-1,3-Dichloropropene	49.4	1.00	"	50.0	ND	98.9	70-130			
Dibromochloromethane	55.9	1.00	"	50.0	ND	112	70-130			
Dibromomethane	52.8	1.00	"	50.0	ND	106	70-130			
Ethylbenzene	48.0	1.00	"	50.0	ND	95.9	70-130			
Hexachlorobutadiene	50.9	5.00	"	50.0	ND	102	70-130			
Iodomethane	47.9	10.0	"	50.0	ND	95.8	70-130			
Isopropylbenzene	48.7	1.00	"	50.0	ND	97.4	70-130			
m,p-Xylene	96.1	2.00	"	100	ND	96.1	70-130			
Methylene Chloride	58.7	5.00	"	50.0	2.65	112	70-130			
Methyl tert-Butyl Ether	53.0	1.00	"	50.0	ND	106	70-130			
Naphthalene	55.5	4.00	"	50.0	ND	111	70-130			
n-Butylbenzene	50.4	1.00	"	50.0	ND	101	70-130			

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Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike (B9K1402-MS1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
n-Propylbenzene	48.6	1.00	ug/L	50.0	ND	97.3	70-130			
o-Xylene	48.7	1.00	"	50.0	ND	97.4	70-130			
sec-Butylbenzene	49.0	1.00	"	50.0	ND	98.0	70-130			
Styrene	48.8	1.00	"	50.0	ND	97.6	70-130			
tert-Butylbenzene	48.1	1.00	"	50.0	ND	96.2	70-130			
Tetrachloroethene	898	1.00	"	50.0	660	476	70-130			QM-07
Toluene	49.6	1.00	"	50.0	ND	99.2	70-130			
trans-1,2-Dichloroethene	50.5	1.00	"	50.0	0.830	99.4	70-130			
trans-1,3-Dichloropropene	51.4	1.00	"	50.0	ND	103	70-130			
Trichloroethene	388	1.00	"	50.0	348	80.4	70-130			
Trichlorofluoromethane	51.0	1.00	"	50.0	ND	102	70-130			
Vinyl chloride	142	1.00	"	50.0	102	80.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	*66*		*"*	*62.5*		*105*	*70-130*			
Surrogate: Toluene-d8	*63*		*"*	*62.5*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*62*		*"*	*62.5*		*99.8*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike Dup (B9K1402-MSD1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
1,1,1,2-Tetrachloroethane	49.7	1.00	ug/L	50.0	ND	99.5	70-130	3.13	20	
1,1,1-Trichloroethane	50.9	1.00	"	50.0	ND	102	70-130	0.509	20	
1,1,2,2-Tetrachloroethane	52.6	1.00	"	50.0	ND	105	70-130	2.53	20	
1,1,2-Trichloroethane	43.4	1.00	"	50.0	ND	86.8	70-130	1.84	20	
1,1-Dichloroethane	53.0	1.00	"	50.0	ND	106	70-130	1.35	20	
1,1-Dichloroethene	50.3	1.00	"	50.0	0.680	99.2	70-130	0.516	20	
1,1-Dichloropropene	49.4	1.00	"	50.0	ND	98.8	70-130	1.18	20	
1,2,3-Trichlorobenzene	51.5	5.00	"	50.0	0.320	102	70-130	3.68	20	
1,2,3-Trichloropropane	51.6	5.00	"	50.0	ND	103	70-130	2.28	20	
1,2,4-Trichlorobenzene	53.1	5.00	"	50.0	ND	106	70-130	2.29	20	
1,2,4-Trimethylbenzene	48.7	1.00	"	50.0	ND	97.5	70-130	2.29	20	
1,2-Dibromo-3-chloropropane	54.1	5.00	"	50.0	ND	108	70-130	3.24	20	
1,2-Dibromoethane (EDB)	51.7	1.00	"	50.0	ND	103	70-130	1.10	20	
1,2-Dichlorobenzene	49.1	1.00	"	50.0	ND	98.3	70-130	1.03	20	
1,2-Dichloroethane	49.7	1.00	"	50.0	ND	99.4	70-130	1.85	20	
1,2-Dichloropropane	50.2	1.00	"	50.0	ND	100	70-130	1.48	20	
1,3,5-Trimethylbenzene	47.7	1.00	"	50.0	ND	95.5	70-130	1.66	20	
1,3-Dichlorobenzene	48.6	1.00	"	50.0	ND	97.1	70-130	1.33	20	
1,3-Dichloropropane	51.8	1.00	"	50.0	ND	104	70-130	0.712	20	
1,4-Dichlorobenzene	49.2	1.00	"	50.0	ND	98.3	70-130	0.790	20	
2,2-Dichloropropane	47.6	1.00	"	50.0	ND	95.3	70-130	1.67	20	
2-Butanone	273	5.00	"	250	ND	109	70-130	2.32	20	
2-Chlorotoluene	50.0	1.00	"	50.0	ND	99.9	70-130	0.562	20	
2-Hexanone	291	5.00	"	250	ND	116	70-130	0.759	20	
4-Chlorotoluene	47.7	1.00	"	50.0	ND	95.5	70-130	1.52	20	
4-Isopropyltoluene	47.8	1.00	"	50.0	ND	95.6	70-130	0.978	20	

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike Dup (B9K1402-MSD1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
4-Methyl-2-pentanone	290	5.00	ug/L	250	3.92	114	70-130	0.0276	20	
Acetone	271	8.00	"	250	ND	108	70-130	3.68	20	
Benzene	46.7	1.00	"	50.0	ND	93.4	70-130	0.214	20	
Bromobenzene	48.6	1.00	"	50.0	ND	97.3	70-130	1.93	20	
Bromochloromethane	51.2	1.00	"	50.0	ND	102	70-130	0.409	20	
Bromodichloromethane	53.2	1.00	"	50.0	ND	106	70-130	2.52	20	
Bromoform	54.6	1.00	"	50.0	ND	109	70-130	2.08	20	
Bromomethane	56.2	1.00	"	50.0	ND	112	70-130	1.76	20	
Carbon disulfide	50.3	5.00	"	50.0	ND	101	70-130	1.07	20	
Carbon tetrachloride	50.5	1.00	"	50.0	ND	101	70-130	0.278	20	
Chlorobenzene	49.6	1.00	"	50.0	ND	99.3	70-130	1.13	20	
Chloroethane	51.6	1.00	"	50.0	ND	103	70-130	2.53	20	
Chloroform	51.3	1.00	"	50.0	ND	103	70-130	1.01	20	
Chloromethane	59.2	1.00	"	50.0	ND	118	70-130	5.07	20	
cis-1,3-Dichloropropene	50.3	1.00	"	50.0	ND	101	70-130	1.74	20	
Dibromochloromethane	55.8	1.00	"	50.0	ND	112	70-130	0.215	20	
Dibromomethane	52.1	1.00	"	50.0	ND	104	70-130	1.39	20	
Ethylbenzene	47.7	1.00	"	50.0	ND	95.4	70-130	0.502	20	
Hexachlorobutadiene	50.0	5.00	"	50.0	ND	100	70-130	1.74	20	
Iodomethane	47.6	10.0	"	50.0	ND	95.3	70-130	0.544	20	
Isopropylbenzene	48.3	1.00	"	50.0	ND	96.6	70-130	0.804	20	
m,p-Xylene	94.7	2.00	"	100	ND	94.7	70-130	1.45	20	
Methylene Chloride	55.3	5.00	"	50.0	2.65	105	70-130	5.96	20	
Methyl tert-Butyl Ether	51.6	1.00	"	50.0	ND	103	70-130	2.68	20	
Naphthalene	54.0	4.00	"	50.0	ND	108	70-130	2.63	20	
n-Butylbenzene	49.1	1.00	"	50.0	ND	98.2	70-130	2.57	20	

Origins Laboratory, Inc.

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Jen Pellegrini, Project Manager

CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1402 - EPA 5030B (Water)										
Matrix Spike Dup (B9K1402-MSD1)		**Source: Y911184-01**			Prepared: 11/14/2019 Analyzed: 11/14/2019					
n-Propylbenzene	48.1	1.00	ug/L	50.0	ND	96.2	70-130	1.12	20	
o-Xylene	49.1	1.00	"	50.0	ND	98.3	70-130	0.859	20	
sec-Butylbenzene	48.0	1.00	"	50.0	ND	96.0	70-130	2.10	20	
Styrene	49.1	1.00	"	50.0	ND	98.2	70-130	0.613	20	
tert-Butylbenzene	47.7	1.00	"	50.0	ND	95.5	70-130	0.751	20	
Tetrachloroethene	886	1.00	"	50.0	660	451	70-130	1.41	20	QM-07
Toluene	50.0	1.00	"	50.0	ND	100	70-130	0.883	20	
trans-1,2-Dichloroethene	50.4	1.00	"	50.0	0.830	99.2	70-130	0.218	20	
trans-1,3-Dichloropropene	51.9	1.00	"	50.0	ND	104	70-130	0.910	20	
Trichloroethene	379	1.00	"	50.0	348	63.1	70-130	2.26	20	QM-07
Trichlorofluoromethane	51.7	1.00	"	50.0	ND	103	70-130	1.32	20	
Vinyl chloride	143	1.00	"	50.0	102	82.9	70-130	0.821	20	
Surrogate: 1,2-Dichloroethane-d4	*68*		*"*	*62.5*		*108*	*70-130*			
Surrogate: Toluene-d8	*63*		*"*	*62.5*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*61*		*"*	*62.5*		*98.0*	*70-130*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1811 - EPA 3511 Mod.										
Blank (B9K1811-BLK1)					Prepared: 11/18/2019 Analyzed: 11/19/2019					
Gasoline (C6-C10)	ND	5.00	mg/L							U
Diesel (C10-C28)	ND	5.00	"							U
Residual Range Organics (C28-C40)	ND	20.0	"							U
Surrogate: o-Terphenyl	*4.9*		*"*	*5.00*		*97.1*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1811 - EPA 3511 Mod.										
LCS (B9K1811-BS1)					Prepared: 11/18/2019 Analyzed: 11/19/2019					
Gasoline (C6-C10)	109	5.00	mg/L	100		109	70-130			
Diesel (C10-C28)	107	5.00	"	100		107	70-130			
Residual Range Organics (C28-C40)	112	20.0	"	100		112	70-130			
Surrogate: o-Terphenyl	*5.7*		*"*	*5.00*		*115*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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CTL Thompson, Inc.
1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1811 - EPA 3511 Mod.										
Matrix Spike (B9K1811-MS1)		**Source: Y911296-01**			Prepared: 11/18/2019 Analyzed: 11/19/2019					
Gasoline (C6-C10)	104	5.00	mg/L	100	ND	104	70-130			
Diesel (C10-C28)	104	5.00	"	100	1.80	102	70-130			
Residual Range Organics (C28-C40)	110	20.0	"	100	ND	110	70-130			
Surrogate: o-Terphenyl	*5.6*		*"*	*5.00*		*112*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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1971 West 12th Avenue
Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9K1811 - EPA 3511 Mod.										
Matrix Spike Dup (B9K1811-MSD1)		**Source: Y911296-01**			Prepared: 11/18/2019 Analyzed: 11/19/2019					
Gasoline (C6-C10)	105	5.00	mg/L	100	ND	105	70-130	1.15	20	
Diesel (C10-C28)	103	5.00	"	100	1.80	101	70-130	0.856	20	
Residual Range Organics (C28-C40)	107	20.0	"	100	ND	107	70-130	2.17	20	
Surrogate: o-Terphenyl	*5.6*		*"*	*5.00*		*112*	*50-150*			

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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Denver CO 80204

Rannen Worsley
Project Number: DN50219.000-205
Project: Murata Farms

Notes and Definitions

U Sample is Non-Detect.

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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2000'

AIMS COMMUNITY COLLEGE

COUNTY ROAD 12

COUNTY ROAD 12

COUNTY ROAD 29

200'

150'

TWOMBLY #12-4
CRESTONE PEAK
API #05-123-20841
PRODUCING

TWOMBLY #22-4
CRESTONE PEAK
API #05-123-20842
PRODUCING

400'

400'

PERRI #11-4A
KERR MCGEE
API #05-123-20766
PRODUCING

150'

500'

150' FROM
PROPERTY LINE

200'

2000' FROM
SCHOOL PROPERTY

500' FROM
ANY RESIDENCE

SILVERADO LANE

500'

200' FROM
ROAD OR OH UTILITY

OPEN AREA
14,284 SF
0.33 ACRES

150'

200'

200'

COUNTY ROAD 29

PROPOSED LEGEND

- 150' FROM PROPERTY LINE
- 200' FROM ANY ROAD/OVERHEAD UTILITY
- 500' FROM ANY RESIDENCE
- 2000' FROM SCHOOL PROPERTY
- 400' x 400' AREA
- OPEN SPACE

N

0 50 100 200

SCALE: 1" = 100'

Redland
WHERE GREAT PLACES BEGIN
720.283.6783 Office
1550 West Coal Mine Avenue
Littleton, Colorado 80120
REDLAND.COM

DRAWN	JLR
CHECKED	TJF
APPROVED	TJF
PROJECT NO.	19032
HORZ. SCALE	HORIZ. SCALE
VERT. SCALE	VERT. SCALE

NOTES

NO.	DATE

MURATA FARMS

SURFACE USE

SHEET 1

I:\2019\19032 - Murata Farms\CADD\Exhibits\19032 - Surface Use.dwg tobi Layout1 Mar 24, 2021 - 2:22pm jramirez

CITY OF Fort Lupton EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortlupton.org

May 7, 2021

Via U.S. Mail

U.S. Army Corp of Engineers
Denver Regulatory Office
9307 S. Wadsworth Blvd.
Littleton, CO 80128-6901

Re: Murata Farms Preliminary PUD Plat; Project No. LUP2021-0012; Plan No. PPL2021-0002

To Whom It May Concern,

The City of Fort Lupton is currently reviewing a land use application submitted for a preliminary PUD plat. I am enclosing application materials that were submitted by the applicant. Additional application documents can be found online at bit.ly/FLDevelopment. You will then need to scroll to the row that addresses the Murata Farms Preliminary PUD Plat.

Any comments relevant to this request would be appreciated. Please reply by **May 28, 2021**, so that we may give full consideration to your recommendation. The public hearings for this matter are scheduled for:

- Planning Commission: Thursday, June 10 at 6:00 PM; and
- City Council: Tuesday, July 6 at 7:00 PM

If you would like to have future referral requests sent via email, please forward me the contact information for the person I should forward them to at aknutson@fortluptonco.gov or call 303.857.6694.

Please do not hesitate to contact me with questions or concerns.

Sincerely,

Magaly Morales-Tejada

Magaly Morales- Tejada
City of Fort Lupton

Enclosures

Magaly Morales-Tejada

From: Hice-Idler - CDOT, Gloria <gloria.hice-idler@state.co.us>
Sent: Monday, May 10, 2021 4:55 PM
To: Magaly Morales-Tejada; Alyssa Knutson; Todd Hodges; Maria Lancto
Cc: Timothy Bilobran - CDOT; Allyson Mattson - CDOT
Subject: Murata Farms/City of Fort Lupton/SH 52

The TIS indicates that the developer is wanting a 3/4 access across from Coyote Creek Drive and a full movement access at WCR 29.5. The draft CO 52 ACP will allow a full movement at both locations. Before commenting further, the developer should confirm that they only want a 3/4 at Coyote Creek.

Gloria Hice-Idler
Rocksol Consulting

(970) 381-8629

10601 W. 10th Street, Greeley, CO 80634
gloria.hice-idler@state.co.us | www.codot.gov | www.cotrip.org



Magaly Morales-Tejada

From: Mettenbrink - DNR, Chris <chris.mettenbrink@state.co.us>
Sent: Thursday, May 20, 2021 11:31 AM
To: Magaly Morales-Tejada
Subject: Re: Referral Response Request: Murata Farms Preliminary PUD Plat LUP2021-0012

Magaly,

CPW commented on this project last March. We have no further comments beyond what we commented on then.

Thank you.

Chris

On Fri, May 7, 2021 at 4:18 PM Magaly Morales-Tejada <MMTejada@fortluptonco.gov> wrote:

> Good Afternoon,
>
> The documentation located at the following link is submitted to you for review and recommendation for a site plan being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/594.
>
> Any comments you consider relevant to this request would be appreciated. Please reply by **May 28 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.
>
> The Public Hearings for this matter are scheduled for:
>
> - Planning Commission: Thursday, June 10, 2021 at 6:00 PM; and
> - City Council: Tuesday, July 6, 2021 at 7:00 PM
>
> Your time in this matter is greatly appreciated!

Magaly Morales-Tejada

Planning assistant

130 S. McKinley Ave.

Fort Lupton, CO 80621

Direct: 720-466-6111

The information transmitted is intended only for the person or entity to which it is addressed and may contain CONFIDENTIAL material. If you receive this information in error, please delete or destroy the information.

--

Chris Mettenbrink
District Wildlife Manager- Wildlife Officer
Area 2- Fort Lupton

P 970.472.4405 | C 303.906.1979
4207 W. CR 16E, Loveland, CO 80537
Chris.Mettenbrink@state.co.us | www.cpw.state.co.us

May 18, 2021

Alyssa Knutson, Planning Assistant
City of Fort Lupton Planning Commission
Transmission via email: planningdept@fortluptonco.gov

Re: Murata Farms Preliminary PUD Plat
Case Nos. LUP2021-0012 and PPL2021-0002
Part of the N ½ SW ¼ of Sec. 4, T 2N, R 66W, 6th P.M.
Water Division 1, Water District 2, Weld County

Dear Alyssa Knutson:

We have received the May 7, 2021 above-referenced proposal for the Murata Farms Preliminary PUD Plat. Pursuant to section 30-28-136, C.R.S. the State Engineer's Office will provide an opinion on water supply plans for new subdivisions regarding material injury to existing water rights or the adequacy of the proposed plan if a referral is submitted to this office by the board of county commissioners. This referral was submitted to this office by the City of Fort Lupton ("City"); therefore, pursuant to the State Engineer's March 4, 2005 and March 11, 2011 memorandums to the county planning directors, this office will only perform a cursory review of the referral information and provide comments. The comments do not address the adequacy of the water supply plan for this project or the ability of the water supply plan to satisfy any County regulations or requirements. In addition, **the comments provided herein cannot be used to guarantee a viable water supply plan or infrastructure, the issuance of a well permit, or the physical availability of water**.

The proposal is for the rezoning and preliminary plat of a planned unit development on a 72.71-acre property located in the N ½ SW ¼ of Sec. 4, T 2N, R 66W, 6th P.M. The proposed uses on the subject property includes single-family detached residential, paired homes, townhomes, parks, trails, open space and commercial and office uses. The PUD will consist of 180 single-family detached homes, 58 paired homes, 61 townhomes, a commercial site, and parks and open space corridors, to be completed in phases. Phase 1 will create 95 single-family lots, Phase 2 will create 85 single-family lots, Phase 3 will create paired and townhome lots, and Phase 4 will create the commercial lot. The total number of lots in the subdivision was not specified.

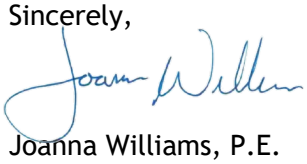
The estimated water demand and proposed uses for the subdivision were not provided. The proposed water supply source is service provided by the City of Fort Lupton.

A review of our records shows well permit no. 159404 located on the subject property. Well permit no. 159404 was issued February 15, 1991 pursuant to section 37-92-602(3)(b)(II)(A), C.R.S. as the only well on a tract of land of 35.27 acres described as a portion of N ½ SW ¼ of Sec. 4, T 1N, R 66W, 6th P.M. The well is permitted to produce from the not-nontributary Lower Arapahoe aquifer and to be used for ordinary household purposes inside one (1) single-family dwelling, the watering of poultry, domestic animals, and livestock on a farm or ranch, and the irrigation of not over one (1) acre of home gardens and lawns. It is unclear if the well is a proposed water source for one or more lots in the subdivision. If well no. 159404 is a proposed water source for the subdivision, the applicant should clarify whether the well will continue to operate under the presumption of non-injury after the subdivision subject to the provisions of section 37-90-602(3)(b)(IV), C.R.S., if the well will be covered by a court-approved augmentation plan, or if the well will be plugged and abandoned prior to subdivision approval.

According to the submitted material, the Mountain Sky detention and water quality pond will be expanded to collect stormwater runoff. The applicant should be aware that unless the pond meets the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), C.R.S., the pond may be subject to administration by this office. The applicant should review DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado, to ensure that the notification, construction and operation of the pond meet statutory and administrative requirements. The applicant is encouraged to use Colorado Stormwater Detention and Infiltration Facility Notification Portal to meet the notification requirements.

If you or the applicant have any questions, please contact Wenli Dickinson at 303-866-3581 x8206 or at Wenli.Dickinson@state.co.us.

Sincerely,



Joanna Williams, P.E.
Water Resource Engineer

Ec: Referral no. 27697
Well permit no. 159404 file
Applicants (plmurata@comcast.net and glenicetani7@gmail.com)

May 10, 2021

VIA E-MAIL

City of Fort Lupton Planning and Building Department
130 S. McKinley Ave
Fort Lupton, Colorado 80621
planningdept@fortlupton.org

NOTICE OF RIGHT-OF-WAY GRANT OWNED BY KERR-McGEE GATHERING LLC

Re: Murata Farms
M-J Perri Company– Property Owner
Township 1 North, Range 66 West, 6th P.M.
A portion of the N2SW4 of Section 4
Weld County, Colorado

City of Fort Lupton Planning and Building Department:

This letter is being sent by Kerr-McGee Gathering LLC ("KMGG") to inform you KMGG is the owner of a valid easement and pipeline located in the N2SW4 of Section 4, Township 1 North, Range 66 West for which the City of Fort Lupton Planning and Building Department ("Town") is reviewing Murata Farms. KMGG is submitting this comment timely, in accordance with the Town's procedural requirements.

The following are comments in support of this Notice:

1. KMGG is the owner of a valid Right-of-Way Grant that was executed on June 4, 2002 and recorded on November 4, 2002 with the Weld County Clerk and Recorder at reception number 3002202. Referenced Right-of-Way Grant contains pipeline number 16-02-311-3-EXT.

KMGG does not object to the proposed Murata Farms provided the applicant does not encroach on KMGG's pipelines and conforms to the terms of the Right-of-Way Grant identified above.

Please contact me at 970-515-1846 if you have any questions or comments about this matter.

Sincerely,

KERR-McGEE GATHERING LLC

Paul Gerrish
Senior Landman

cc: Murph Shelby, Senior Counsel
Sherry Bursey, Senior Counsel
Brett Cavanagh
Jake Billadeau
Heather Bennett
Kelly Reyos

Magaly Morales-Tejada

From: Kristen Thompson <kthompson@northernwater.org>
Sent: Friday, May 21, 2021 10:07 AM
To: Magaly Morales-Tejada
Cc: Alyssa Knutson; Todd Hodges; Maria Lancto
Subject: RE: Referral Response Request: Murata Farms Preliminary PUD Plat LUP2021-0012

Magaly,

We do not have a comment on this referral.

Thank you
Kris

Kristen Thompson | Inclusion Specialist
220 Water Ave | Berthoud, CO 80513
Direct: 970-622-2237
Main: 800-369-RAIN (7246)
www.northernwater.org
Facebook | Twitter | Instagram | LinkedIn
Disclaimer Notice: An allotment of Colorado-Big Thompson water is subject to the Water Conservancy Act, C.R.S 37-45-101 et seq, the authority of the Board of Directors of the Northern Colorado Water Conservancy District, and other relevant laws and regulations. The information provided in this email is not binding on Northern Water because the legal rights to Colorado-Big Thompson Project Allotments are subject to the continuing discretion of the Board of Directors of Northern Water and other legal limitations and requirements. Northern Water staff and counsel cannot provide you with legal advice, and you are advised to seek legal counsel with respect to the subject matter of this email. You also have an independent obligation to review and confirm the accuracy and completeness of any information provided to you by Northern Water, and to supplement or correct the records of Northern Water with respect to any errors or omissions.

From: Magaly Morales-Tejada <MMTejada@Fortluptonco.gov>
Sent: Friday, May 7, 2021 4:19 PM
Cc: Alyssa Knutson <AKnutson@Fortluptonco.gov>; Todd Hodges <thodges@Fortluptonco.gov>; Maria Lancto <MLancto@Fortluptonco.gov>
Subject: Referral Response Request: Murata Farms Preliminary PUD Plat LUP2021-0012

External Message - Please be cautious when replying or opening links or attachments in this email

Good Afternoon,

The documentation located at the following link is submitted to you for review and recommendation for a site plan being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/594.

Any comments you consider relevant to this request would be appreciated. Please reply by **May 28 2021**, so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearings for this matter are scheduled for:

- Planning Commission: Thursday, June 10, 2021 at 6:00 PM; and
- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

CITY OF
Fort Lupton
EST 1836

Public Works

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

MEMO

To: Todd Hodges
Alyssa Knutson

From: Roy Vestal

Date: May 19, 2021

Subject: Murata Farms Preliminary PUD Plat LUP2021-0012
Public Works Review

Public Works has reviewed the submitted documents for the above referenced development project with the following comments for inclusion with the Final Plat submittal.

1. **Drainage**
   a. The Preliminary Drainage Study is acceptable. A Final Drainage Study is required with the Final Plat.
   b. Pg 16, fourth paragraph - the pond and outlet structure will be owned and maintained by the City as a regional detention facility.

2. **Transportation**
   a. Additional ROW dedications are acceptable.
   b. Hwy 52 ROW and required ROW needs to be coordinated with CDOT.
   c. Access from S. Coyote Creek Drive requires coordination and cooperation with the 2 lots located in the northwest corner of the property. The north property should be pushed further south. Would prefer to combine one common access point for both properties.

3. **Landscape / Grading** - *Chapter 2 Design Standards*
   a. A SWMP and Stormwater Discharge permit must be acquired from CDPH&E. Please submit proof of prior to receiving construction permits. Please provide copy of permit from CDPH&E.

4. **Utilities**
   a. **Water - Chapter 3**
      i. *Section 3.12.01 Water System Utility Study* required.
      ii. Please include a network hydraulic modeling of the proposed development. We need to ensure the distribution system proposed will be adequate for future city growth.

iii. For final design of utilities, be attentive to water main separation from other utilities. Potable water main will require 10-feet separation from all other utilities. The nonpotable main may be closer than 10-feet to sanitary and storm. Likewise, services to lots - the potable water service must maintain 10-feet separation from other services.
iv. Silverado Lane is the looped connection to the water system.
v. The extension of the water main north along S Coyote Creek Dr may not be needed, if the hydraulic model is valid without the 3rd connection across Hwy 52.

b. Non Potable Irrigation

i. The nonpotable water main is located in S College Avenue.
ii. The nonpotable main extension up S Coyote Creek Dr should not be needed.

c. Sanitary Sewer - Chapter 4

i. *Section 4.12.00* A utility study is required.
ii. Sewer connection is in Silverado Lane.

d. Storm Sewer - Chapter 5

i. The proposed connection to the regional detention pond may need evaluation in light of the discovery of an oil pipeline located along the existing channel north bank. We could look at hydraulically connecting with culverts under the or over the pipe.

e. Roadway - Chapter 6

i. *Section 6.33.00* A Pavement Design Report is required prior to roadway paving. City preferred pavement section is a composite section of asphalt surface with Class VI base. (contrary to statement on page 2 paragraph 5.
ii. *Section 6.18.02* At the intersection of two public streets or a private driveway and a public street, sight distance shall be evaluated across a "sight distance triangle" where obstructions are restricted according to the following criteria. The site triangle needs to be pulled back to the ultimate roadway section.
iii. The sidewalk/trail along S College Ave does not have to meander so drastically. Separation from roadway is important.
iv. Participation with Hwy 52 / S College intersection improvements will be required.

f. Traffic Control - Chapter 8

i. The Traffic Study as submitted is acceptable.

5. **Public Improvement Agreement** – A Subdivision Improvements Agreement will be required for the construction of roadways, water, sewer and nonpotable water systems. See attached template.

6. **Mountain Sky Reimbursement Agreement** - The reimbursement agreement with Mountain Sky is being finalized with the completion of water main, nonpotable water main extensions and S College paving.
    a. **Amount of cost share are:**
        i. Water main - Additional tap fee per unit =$563.17
        ii. Non Potable water - Additional tap fee per unit =$214.12
        iii. South College Ave paving = $277,273.79
        iv. S College Ave Hwy 52 Improvements - Unknown

May 28, 2021

Fort Lupton Planning Department
130 S. McKinley Avenue
Fort Lupton, CO 80621
www.fortlupton.org

Re: Murata Farms Preliminary PUD Plat Project - No. LUP2021-0012; Plan No. PPL2021-0002

Dear Mr. Hodges and Ms. Knutson:

On behalf of United Power, Inc., thank you for inviting us to review and comment on the Murata Farms Preliminary PUD Plat Project - No. LUP2021-0012; Plan No. PPL2021-0002. After review of the information, we have the following comments:

- **Front or Rear Lot Distribution** – United Power requires continuous dry utility easements for reliable electric facility installation. This allows us to install electric facilities in a continuous manner for our loop feed which provides reliability. We prefer the separation of gas and electric. Typically, with electric in the rear of the subdivision lots. **We will need at least 8' wide dry utility easements, instead of the 6' wide utility easements shown on the plat.**

- **Tracts/Open Space/Parks** – United Power prefers dedicated blanket utility easement use within tracts as this gives us the opportunity to set above ground equipment, coordinated with the developer, and limit the impact to home lots. If Blanket utility easement(s) cannot be given, we will need an 8' to 10' wide dry utility easements along the perimeter of all tracts, along perimeter of tracts abutting roads, and through tracts between lots.

- **Streetlights** – When streetlight locations are identified in a subdivision, we need a 5' wide dry utility easement along one side of the lot closest to the streetlight location. All streetlight locations must be approved and signed off by the city/town, etc. Please note, if we do not get these through the platting process, we will have to get individual ones during the design which will slow United Power's ability to start construction significantly.

Please note, the property owner/developer/contractor must submit an application along with CAD data for new electric service via https://www.unitedpower.com/construction. United Power would like to work with these persons early in the construction process on getting an electric design prepared so that we can request any additional easements needed and hopefully have those easements dedicated on the plat rather than obtaining separate document(s). Obtaining easements via a separate document can be time consuming and could cause delays.

As a Reminder: No permanent structures are acceptable within the dry utility easement(s); such as, window wells, wing walls, retaining walls, basement walls, roof overhang, anything affixed to the house like decks, etc. United Power considers any structure that impedes the access, maintenance, and safety of our facilities a permanent structure. No exceptions will be allowed, and any encroachments could result in penalties.

Service will be provided according to the rules, regulations, and policies in effect by United Power at the time service is requested. We look forward to safely and efficiently providing reliable electric power and outstanding service.

Thank you,

Amber Mendoza

Amber Mendoza, RWA
ROW Agent
720.249.9315 | platreferral@unitedpower.com

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: **303.571.3306**
Facsimile: 303. 571. 3284
donna.l.george@xcelenergy.com

May 28, 2021

City of Fort Lupton Planning Department
130 South McKinley Avenue
Fort Lupton, CO 80621

Attn: Alyssa Knutson and Todd Hodges

Re: Murata Farms, Case # LUP2021-0012

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the preliminary PUD plat for **Murata Farms** and requests that the following language is added to the final plat:

> *Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

Please be aware PSCo owns and operates existing natural gas distribution facilities along County Road 29-1/2. The property owner/developer/contractor must complete the application process for any new natural gas service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

Additional easements may need to be acquired by separate document – be sure to ask the Designer to contact a Right-of-Way & Permits Agent in this event.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Donna George
Right of Way and Permits
Public Service Company of Colorado / Xcel Energy
Office: 303-571-3306 – Email: donna.l.george@xcelenergy.com

Fort Lupton Fire Protection District
1121 Denver Avenue • Fort Lupton, Colorado 80621
Office: (303)857-4603 • Fax: (303)857-6619 • Website: www.fortluptonfire.org

Date: 06/29/2021
Project name: Murata Farms Preliminary PUD Plat LUP2021-0012
Project address: Parcel #147104000069, Fort Lupton, CO 80621
FLFPD Project # R2021-0027
Plan reviewer: Taw Tamlin, Fire Marshal

The Fire District has reviewed the submittal review for **Murata Farms Preliminary PUD Plat LUP2021-0012** located at **Parcel #147104000069,** Fort Lupton, CO 80621. The submittal was reviewed for compliance with *2012 International Fire Code (IFC)* and National Fire Protection Association (*NFPA)* standards as adopted by the Fort Lupton Fire Protection District, the City Council of Fort Lupton and the Weld County Commissioners. The following specific requirements and conditions shall be met prior to operations.

Specific Requirements

1. Any property owner or authorized agent who intends to conduct an operation or business, or install or modify systems and equipment which is regulated by this code, or to cause any such work to be done, shall first make application to the fire code official and obtain the required permit. *2012 IFC, 105.1.1*

2. Application for a permit required by this code shall be made to the fire code official in such form and detail as prescribed by the fire code official. Applications for permits shall be accompanied by such plans as prescribed by the fire code official. *2012 IFC, 105.2*

    a. *Directions for submitting for plan reviews, Fee Schedule, and Plan Review Application can be found at https://fortluptonfire.org/contractors/*

3. The following items shall be submitted for review prior to construction.
    a. Site Plan showing,
        i. Width of fire department access roads
        ii. Hydrant Locations & Distancing
        iii. Street lengths to dead end

4. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1). 2012 IFC, D103.1

5. The minimum turning radius shall be determined by the fire code official. 2012 IFC, D103.3
    a. See attached document showing the minimum turning radius needed.

6. The minimum fire-flow and flow duration requirements for one- and two-family dwellings having a fire-flow calculation area that does not exceed 3,600 square feet (344.5 m2) shall be 1,000 gallons per minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for dwellings having a fire-flow calculation area in excess of 3,600 square feet (344.5m2) shall not be less than that specified in Table B105.1. 2012 IFC, B105.1

    a. Exception: A reduction in required fire-flow of 50 percent, as approved, is allowed when the building is equipped with an approved automatic sprinkler system.

7. The minimum number of fire hydrants available to a building shall not be less than that listed in Table C105.1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table C105.1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted. 2012 IFC, C103.1

8. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads and shall meet the requirements of Section D104.3. *2012 IFC, D107.1*

Exceptions:

    1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the International Fire Code, access from two directions shall not be required.

    2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

9. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses. *2012 IFC, 104.3*

10. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater. *2012 IFC, D105.1*

11. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building

cannot be viewed from the public way a monument, pole or other sign or means shall be used to identify the structure. Address numbers shall be maintained. *2021 IFC, 505.1*

Please contact Fire Marshal, Taw Tamlin at 303-857-4603 or ttamlin@ftluptonfire.com if you have questions or need further assistance.

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

CERTIFICATE OF MAILING

I, the undersigned, hereby certify that on the 25th day of May 2021, a true and correct copy of the foregoing Notice of Public Hearings for the Murata Farms Preliminary PUD Plat was sent via United States Mail, postage pre-paid, to the following addresses:

AIMS COMMUNITY COLLEGE
PO BOX
GREELEY, CO 80632

PERRI M-J COMPANY
14286 HWY 52
FORT LUPTON, CO 80621

ROWLEY DOWNS LAND COMPANY
260 KRAMERIA ST
DENVER, CO 80220

MELODY HOMES INC
9555 S KINGSTON CT
STE 200
DENVER, CO 80220

JUSTIN D BRUNICK
2441 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

MICHAEL JEROME PILLA
2425 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

SANDRA BAINES GARLAND
2401 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

VANG LONG
LOR YING
2349 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

KATHLEEN L TENORIO
LAWRENCE J TENORIO
5380 COUNTY ROAD 29 1/2
FORT LUPTON, CO 80621

VIRGINIA J RATERINK
GEORGE V RATERINK
13877 HIGHWAY 52
FORT LUPTON, CO 80621

PATRICIA L TERRY TRUST
1312 DENVER AVE
FORT LUPTON, CO 80621

MARIA R ARELLANO
JOSE JUAN ORNELAS-ARELLANO
14606 HWY 52
FORT LUPTON, CO 80621

FL MOUNTAIN SKY LLC
500 FAIRFAX ST
DENVER, CO 80220

ANNETTE LOUISE KOKOSZKA
2449 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

JORGE VARGAS
PATRICIA QUIROZ
2433 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

PABLO ANTONIO GUADARRAMA
2409 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

ALMA E DIAZ
JOSE LUIS DIAZ
2373 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

ERICA LINDA SILVA
FABIAN SILVA
2341 MOUNTAIN SKY DR
FORT LUPTON, CO 80621

GEORGE PAUL II TAYLOR
ANNA MARIE TAYLOR
1308 7TH ST
FORT LUPTON, CO 80621

V BAR S EIGHTY ACRES LLC
12032 HIGHWAY 52
FORT LUPTON, CO 80621

LI CAI RI
1937 TRAIL BLAZER RD
FORT LUPTON, CO 80621

SUSAN L DENNY
VAUNOLD D DENNY
116 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

JESSICA WEBB
JEREMY WEBB
156 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

AMELIA M SAENZ
216 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

DONNA RUTH BROOKS
DAVID MICHAEL BROOKS
1998 SILVERADO LN
FORT LUPTON, CO 80621

ANITA DELANEY
ROBERT A DELANEY
1982 SILVERADO LN
FORT LUPTON, CO 80621

JULIE GAMBERG
REID GAMBERG
1942 SILVERADO LN
FORT LUPTON, CO 80621

JACQUELINE M MOLLENDOR
138 SAN CHERRY ST
FORT LUPTON, CO 80621

GERARDO MANRIQUEZ
165 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

KATHRYN MARIE KING
1872 MALIBU CT
FORT LUPTON, CO 80621

BONNIE M LAMONTAGNE
CHARLES D LAMONTAGNE
1868 MALIBU CT
FORT LUPTON, CO 80621

LISA M GEIGER
BRYAN M WEIGEL
1957 TRAIL BLAZER RD
FORT LUPTON, CO 80621

HPA US1 LLC
120 S RIVERSIDE PLZ
STE 2000
CHICAGO, IL 60606

SUSAN E CHAVEZ
DEAN A CHAVEZ
166 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

CECILIA A FERNANDEZ
JOHNNY B FERNANDEZ
226 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

KAREN L MEALY
ROBERT L MEALY
1992 SILVERADO LN
FORT LUPTON, CO 80621

SHUMAKER LIVING TRUST
1962 SILVERADO LN
FORT LUPTON, CO 80621

KAREN HUFF
JONATHAN R ROBERTS
1941 SILVERADO LN
FORT LUPTON, CO 80621

JETTY J WHITE
KENNETH C WHITE
1981 SILVERADO LN
FORT LUPTON, CO 80621

JENNIFER CAROL MARTINEZ
RONALD CHAD MARTINEZ
155 S TRAIL BLAZER RD
FORT LUPTON, CO 80621

STACEY A BEAN
MICHAEL J BEAN
1870 MALIBU CT
FORT LUPTON, CO 80621

APPEL FARMS HOMEOWNERS ASSOC INC
PO BOX 30
FREDERICK, CO 80530

EDWARD LEE CROWE
1858 VIRGINIA DR
FORT LUPTON, CO 80621

PERRY D OLSON
1865 VIRGINIA DR
FORT LUPTON, CO 80621

PATRICIA DALE APEL
PHILIP T. APEL & PATRICIA DALE APEL TRUST
151 QUARTZ LANE
FLORENCE, SC 29056

VIRGINIA K EGGLESTON TRUST
VIRGINIA K EGGLESTON
4 TIMOTHY CT
NOVATO, CA 94949

ROBERT T EGGLESTON
PO BOX 4174
PAGOSA SPRINGS, CO 80117

KAREN Y. PETERS, AKA KAREN G. PETERS
4260 PEACH WAY
BOULDER, CO 80301

THE PETRAM GROUP, LLC
999 18th ST
#1650 S
DENVER, CO 80202

CRESTONE PEAK RESOURCES OPERATING LLC
1801 CALIFORNIA ST
STE 2500
DENVER, CO 80202

SUSAN FRANCIS
HOWARD FRANCIS
1875 VIRGINIA DR
FORT LUPTON, CO 80621

MORIAH TURNEY
BRANDON NGUYEN
1855 VIRGINIA DR
FORT LUPTON, CO 80621

GRIFFITH PROPERTIES
ROBERT C GRIFFITH
340 CENTURY ROAD
#239
DURANGO, CO 81301

BARBARA J. CONN REVOCABLE TRUST
BARBARA J. CONN
135 RIVERVIEW DR
DURANGE, CO 80301

RONALD K GRIFFITH
1836 WEST LAKE AVE
LITTLETON, CO 80120

RUSSELL E STEELE
2704 NE 87th ST
SEATTLE, WA 98115

KERR MCGEE OIL & GAS ONSHORE LP
C/O WILL VAUGHAN
1099 18th ST
#1800
DENVER, CO 80217

_____
City Official

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

CITY OF FORT LUPTON
NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Fort Lupton is in receipt of an application for a preliminary PUD plat referred to as the Murata Farms PUD Preliminary Plat, located at 14284 Highway 52 in Fort Lupton, Colorado, pursuant to the City of Fort Lupton Municipal Code Notice Requirements.

The public hearings are to be held before the Planning Commission on June 10, 2021, at 6:00 P.M., and before the City Council on July 6, 2021, at 7:00 P.M. or as soon as possible thereafter.

The public hearings shall be held at the Fort Lupton City Hall, 130 S. McKinley Avenue in Fort Lupton, Colorado. In the event that the City Hall is closed to the public at the time of the hearings due to COVID-19, the public hearings will be held remotely, accessible to the public by phone and internet. Information on how to attend the hearings will be provided in the agenda as posted on the City's website, www.fortluptonco.gov.

Further information is available through the City Planning and Building Department at (303) 857-6694.

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: MURATA FARMS PRELIMINARY PUD PLAT

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION

LOT B OF RECORDED EXEMPTION NUMBER 1471-04-3-RE 879 RECORDED AUGUST 14, 1986 UNDER RECEPTION NUMBER NO. 2065102, BEING A PORTION OF THE FOLLOWING DESCRIBED PROPERTY:

THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO,

EXCEPT THOSE PORTIONS CONVEYED IN DEED RECORDED DECEMBER 4, 1989 UNDER RECEPTION NO. 02199253 AND EXCEPT THE NORTH 50.00 FEET AND THE EAST 30.00 FEET THEREOF, RESERVED FOR STATE AND COUNTY ROW.

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: MURATA FARMS PRELIMINARY PUD PLAT

MURATA FARMS

PRELIMINARY PLAT / PUD

LOCATED IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO.

COVER SHEET

LEGAL DESCRIPTION

PER LAND TITLE GUARANTEE COMPANY COMMITMENT ORDER NO. ABC25165205, WITH AN EFFECTIVE DATE OF 05/07/2019 AT 5:00 P.M.

LOT B OF RECORDED EXEMPTION NUMBER 1471-04-3-RE 879 RECORDED AUGUST 14, 1986 UNDER RECEPTION NO. 2065102, BEING A PORTION OF THE FOLLOWING DESCRIBED PROPERTY:

THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO,

EXCEPT THOSE PORTIONS CONVEYED IN DEED RECORDED DECEMBER 4, 1989 UNDER RECEPTION NO. 02199253 AND EXCEPT THE NORTH 50.00 FEET AND THE EAST 30.00 FEET THEREOF, RESERVED FOR STATE AND COUNTY ROAD R.O.W.

BASIS OF BEARINGS

BASIS OF BEARINGS BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM GPS OBSERVATION BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 NORTH ZONE (NAD 83, 2011) REFERENCED TO THE NORTH LINE OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 66 WEST, SIXTH PRINCIPAL MERIDIAN BEING MONUMENTED AS SHOWN HEREON, TAKEN TO BEAR NORTH 89°17'03" EAST, A DISTANCE OF 2647.89 FEET.

FLOOD ZONE

FLOOD ZONE THE SUBJECT PROPERTY SHOWN HEREIN LIES WITHIN OTHER AREAS - ZONE X, AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP INDEX NO. 08123C2110E, MAP REVISED JANUARY 20, 2016 (PANEL NOT PRINTED).



VICINITY MAP
SCALE: 1" = 2000'

INDEX OF SHEETS	
SHEET #	SHEET TITLE
1	COVER SHEET
2	DEVELOPMENT STANDARDS
3	EXISTING CONDITIONS
4	SITE PLAN
5	SITE PLAN
6	SITE PLAN
7	SITE PLAN
8	SITE PLAN
9	PHASING PLAN
10	GRADING PLAN
11	GRADING PLAN
12	GRADING PLAN
13	GRADING PLAN
14	GRADING PLAN
15	GRADING PLAN
16	UTILITY PLAN
17	UTILITY PLAN
18	UTILITY PLAN
19	UTILITY PLAN
20	OVERALL LANDSCAPE PLAN
21	LANDSCAPE PLAN
22	LANDSCAPE PLAN
23	LANDSCAPE PLAN
24	LANDSCAPE PLAN
25	SITE DETAILS
26	TRAIL PLAN
27	REPRESENTATIVE ARCHITECTURE

LAND USE SUMMARY CHART		
LAND USE	RESIDENTIAL	
GROSS AREA	3,167,346	SF
	72.71	AC
ROW	712,244	SF
	16.35	AC
RESIDENTIAL LOTS	1,219,105	SF
	27.99	AC
TRACTS	585,182	SF
	13.43	AC
FUTURE DEVELOPMENT	650,705	SF
	14.94	AC
TOTAL LOTS	**180**	
DETACHED SINGLE FAMILY LOTS (60' LOTS)	25	
DETACHED SINGLE FAMILY LOTS (55' LOTS)	58	
DETACHED SINGLE FAMILY LOTS (50' LOTS)	97	
MIN DETACHED LOTS SIZE - 65' X 105' LOTS	6,300.0	SF
MIN DETACHED LOTS SIZE - 55' X 105' LOTS	5,775.0	SF
MIN DETACHED LOTS SIZE - 50' X 105' LOTS	5,250.0	SF
DENSITY (EXCLUDES FUTURE LOTS)	3.12	DU/AC

AREA SUMMARY					
DESCRIPTION	AREA (SF)	AREA(AC)	OWNERSHIP	MAINTENANCE RESPONSIBILITY	USE
RIGHT OF WAY	712,244	16.35	FORT LUPTON	FORT LUPTON	
RESIDENTIAL LOTS	1,219,105	27.99	PRIVATE	PRIVATE	
TOTAL	1,931,349	44.34			
TRACT A	24,047	0.55	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT B	7,700	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT C	7,700	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT D	7,628	0.18	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT E	72,248	1.66	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT F	3,478	0.08	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT G	10,837	0.25	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT H	9,083	0.21	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT I	11,803	0.27	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT J	91,397	2.10	METRO DISTRICT	METRO DISTRICT	DETENTION
TRACT K	52,106	1.20	METRO DISTRICT	METRO DISTRICT	PARK
TRACT L	2,433	0.06	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT M	3,923	0.09	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT N	257,336	5.91	METRO DISTRICT	METRO DISTRICT	OPENSPACE
TRACT O	7,170	0.16	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT P	808	0.02	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT Q	11,863	0.27	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TRACT R	3,622	0.08	METRO DISTRICT	METRO DISTRICT	LANDSCAPING
TOTAL	585,182	13.43			
Lot 1, Block 14	109,770	2.52	OWNER	OWNER	FUTURE COMMERCIAL
Lot 2, Block 14	223,286	5.13	OWNER	OWNER	FUTURE RESIDENTIAL
Lot 3, Block 14	317,649	7.29	OWNER	OWNER	FUTURE RESIDENTIAL
TOTAL	650,705	14.94			
TOTALS	3,167,236	72.71			

PROJECT TEAM

CIVIL ENGINEER

REDLAND
1500 W. CANAL CT.
LITTLETON, CO 80120
720.283.6783 voice
CONTACT: TRAVIS FRAZIER, P.E.

OWNER / DEVELOPER

CORONADO WEST
8655 S. PRIEST DRIVE
TEMPE, AZ 85285
303.285.1110 voice
CONTACT: ERIC ECKBERG

LANDSCAPE ARCHITECT/PLANNER

HENRY DESIGN GROUP
1501 WAZEE ST SUITE 1-C
DENVER, CO 80202
303.446.2368 voice
CONTACT: KAREN HENRY, PLA

TRAFFIC ENGINEER

FOX TUTTLE HERNANDEZ
TRANSPORTATION GROUP
P.O. BOX 19768
BOULDER, CO 80308
303.652.3571 voice
CONTACT: EMILY GROSS, PE

SURVEYOR

AZTEC CONSULTANTS, INC
300 E MINERAL AVE #1
LITTLETON, CO 80122
303.713.1898 1 VOICE
CONTACT: MIKE NOFFSINGER, PLS

BENCHMARK
NGS BENCHMARK 4907 (AZTEC #4907A). DISK ON PIPE LOCATED ON THE SOUTH SIDE 9TH STREET 175' MORE OR LESS EAST OF MAIN ST.
ELEVATION = **4908.22 (NAVD88)**

LANDSCAPE ARCHITECT / PLANNER: henry design group
ENGINEER: Redland
APPLICANT: CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

DRAWN: JLR
CHECKED: LJF
APPROVED: TJF
PROJECT NO.: 19032
HORZ. SCALE:
VERT. SCALE:

NO.	DATE	NOTES
1	2021-02-22	1st submittal

MURATA FARMS
PRELIMINARY PLAT / PUD
COVER SHEET

SHEET 1

U:\2019\19032- Murata Farms\CAD\Sheet Sets\Preliminary Plat\19032- Cover Sheet.dwg, tab: 1 COVER SHEET - Mar 26, 2021 - 3:37pm, thaber

ADDITIONAL INFORMATION AND DOCUMENTS ON THIS APPLICATION CAN BE FOUND AT BIT.LY/FLDEVELOPMENT AND SCROLLING DOWN TO THE ROW TITLED: MURATA FARMS PRELIMINARY PUD PLAT



PROPOSED LEGEND

- PROPERTY LINE
- R.O.W.
- LOT LINE
- SETBACK
- EASEMENT
- ROAD CENTERLINE
- CURB AND GUTTER
- SIDEWALK
- STORM SEWER
- SANITARY SEWER
- TRENCH DRAIN
- WATER LINE

LOT SITE TABULATION		
	25	65' WIDE LOT (PHASE 1)
	58	55' WIDE LOT (PHASE 1)
TOTAL	83	UNITS
	97	50' WIDE LOT (PHASE 2)
TOTAL	180	UNITS

N

0 50 100 200

SCALE: 1" = 100'

LANDSCAPE ARCHITECT / PLANNER: Henry design group

ENGINEER: Redland

APPLICANT: CORONADO WEST
Coronado West, LLC
8655 S. Priest Drive
Tempe, AZ 85284

DRAWN: JLR
CHECKED: TJF
APPROVED: TJF
PROJECT NO.: 3903
HORZ. SCALE:
VERT. SCALE:

NO	DATE	NOTES
1	2021-02-22	1st submittal
2	2021-05-06	2nd Submittal

MURATA FARMS
PRELIMINARY PLAT / PUD

PHASING PLAN

SHEET 9

I:\2019\19003 - Murata Farms\CADD\Revel Set\Preliminary Plat\19003 - Phasing Plan.dwg, tab: 9 PHASING PLAN, May 10, 2021 - 4:34pm, mgilardy

CITY OF
Fort Lupton
EST 1836
COME PAINT YOUR FUTURE WITH US

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Sign Posting Affidavit

Murata Farms Preliminary PUD Plat
Project No. LUP2021-0012 / Plan No. PPL2021-0002



Facing Hwy 52



Facing CR 29 ½

I, Alec Reutzel hereby acknowledge that the aforementioned property was posted in accordance with City Codes. Said public hearing notice was posted on this 26th day of May, 2021.

Signature of Owner or Owner's Representative; Sign Posted by Timberline Graphics.

The foregoing instrument was acknowledged before me by Alec Reutzel, this 2nd day of June, 2021. Witness my hand and seal.

My commission expires 9/20/2021.

Notary Public

KAREN Z. HENRY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19974016463
MY COMMISSION EXPIRES SEPTEMBER 20, 2021

Colorado Community Media
750 W. Hampden Ave. Suite 225
Englewood, CO 80110

City of Ft Lupton Legals
130 S McKinley Avenue
Fort Lupton CO 80621

Description: No. FLP222311 HEARING Murata Farms PUD

AFFIDAVIT OF PUBLICATION

State of Colorado }
County of Weld } ss

This Affidavit of Publication for the Fort Lupton Press, a weekly newspaper, printed and published for the County of Weld, State of Colorado, hereby certifies that the attached legal notice was published in said newspaper once in each week, for 1 successive week(s), the last of which publication was made 5/26/2021, and that copies of each number of said paper in which said Public Notice was published were delivered by carriers or transmitted by mail to each of the subscribers of said paper, according to their accustomed mode of business in this office.



For the Fort Lupton Press

State of Colorado }
County of Weld } ss

The above Affidavit and Certificate of Publication was subscribed and sworn to before by the above named Gerard Healey, publisher of said newspaper, who is personally known to me to be the identical person in the above certificate on 5/26/2021. Gerard Healey has verified to me that he has adopted an electronic signature to function as his signature on this document.

20004025550-155501

Carla Bethke
Notary Public
My commission ends April 11, 2022

CARLA BETHKE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20004025550
MY COMMISSION EXPIRES APRIL 11, 2022

Public Notice

CITY OF FORT LUPTON
NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Fort Lupton is in receipt of an application for a preliminary PUD plat referred to as the Murata Farms PUD Preliminary Plat, located at 14284 Highway 52 in Fort Lupton, Colorado, pursuant to the City of Fort Lupton Municipal Code Notice Requirements.

The public hearings are to be held before the Planning Commission on **June 10, 2021, at 6:00 P.M., and before the City Council on July 6, 2021, at 7:00 P.M.** or as soon as possible thereafter.

The public hearings shall be held at the Fort Lupton City Hall, 130 S. McKinley Avenue in Fort Lupton, Colorado. In the event that the City Hall is closed to the public at the time of the hearings due to COVID-19, the public hearings will be held remotely, accessible to the public by phone and internet. Information on how to attend the hearings will be provided in the agenda as posted on the City's website, www.fortluptonco.gov.

Further information is available through the City Planning and Building Department at (303) 857-6694.

ALL INTERESTED PERSONS MAY ATTEND.

LEGAL DESCRIPTION
LOT B OF RECORDED EXEMPTION NUMBER 1471-04-3-RE 879 RECORDED AUGUST 14, 1986 UNDER RECEPTION NUMBER NO. 2065102, BEING A PORTION OF THE FOLLOWING DESCRIBED PROPERTY:
THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO,
EXCEPT THOSE PORTIONS CONVEYED IN DEED RECORDED DECEMBER 4, 1989 UNDER RECEPTION NO. 02199253 AND EXCEPT THE NORTH 50.00 FEET AND THE EAST 30.00 FEET THEREOF, RESERVED FOR STATE AND COUNTY ROW.

Legal Notice No. FLP222311
First Publication: May 26, 2021
Last Publication: May 26, 2021
Publisher: Fort Lupton Press

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Mike Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald Ward 3

AM 2021-105

APPROVE A SUPPLEMENTAL BUDGET RESOLUTION FOR AN AMOUNT NOT TO EXCEED 8,127,140

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**
a. Resolution
b. Legal Notice

III. **Summary Statement:**

To facilitate compliance with the State Auditor concerning over budget items, we are proposing to do a supplemental appropriation of $8,127,140 to the 2021 budget.

IV. **Submitted by:** Leann Perino
Leann Perino, Finance Director

V. **Finance Reviewed** Leann Perino
Finance Director

VI. **Approved for Presentation:**
City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:**
City Clerk Date

IX. Detail of Issue/Request:

To facilitate compliance with the State Auditor concerning budget items, we are proposing a supplemental appropriation. This resolution will appropriate the following expenditures and reserves.

EXPENSES		
General Fund		
Windy Gap Firming	$	3,920,384
Utility Fund		
Windy Gap Firming		3,920,384
AM2021-034 Windy Gap Assessment		16,446
AM2021-041 SCADA Upgrades		10,631
AM2021-207 Well #5 Turbine Pump Repair		40,057
Street Sales Tax Fund		
AM2021-037 Kahil Paving		203,538
Library		
Payroll		15,700
Total Increase in Expenditures	$	8,127,140
RESERVES		
General Fund	*($*	*3,920,384)*
Utility Fund	*(*	*3,987,518)*
Street Sales Tax	*(*	*203,538)*
Library	*(*	*15,700)*
Total Decrease in Reserves		($8,127,140)

X. Legal/Political Considerations:

To be compliant with Colorado Revised Statutes 29-1-101, "Local Budget Law of Colorado", entities must follow statutory procedure to authorize spending in excess of the appropriation of the budget.

XI. Alternatives/Options:

None

XII. Financial Considerations:

The previously approved expenditures listed above require a supplemental budget appropriation to comply with state statutes.

XIII. Staff Recommendation:

Approve resolution appropriating expenditures in a net amount of $8,127,140

RESOLUTION NO. 2021RXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF FORT LUPTON APPROPRIATING NET EXPENDITURES OF $8,127,140 IN VARIOUS FUNDS FOR THE 2021 BUDGET.

WHEREAS, the City of Fort Lupton duly appropriated funding for all Funds in 2021 for all cash outlay from these funds; and

WHEREAS, certain funds are needed to cover expense that were unknown at the time of the budget adoption; and

WHEREAS, the City of Fort Lupton has determined that the appropriation of these items serve a valid public purpose for the benefit of the entire community;

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO, AS FOLLOWS:

Section 1

APPROPRIATION: That out of current and probable sources of the City of Fort Lupton, Colorado, for and during the year beginning the first day of January, 2021, there is hereby appropriated the following sums of money or that portion necessary for the purposes herein named:

EXPENSES		
General Fund	$	3,920,384
Utility Fund		3,987,518
Street Sales Tax		203,538
Library		15,700
Total Increase in Expenditures	$	8,127,140

Section 2

RESERVES: That the Budget appropriation herein summarized above does reflect uses exceeding sources. The variance is funded through use of Reserves in each fund listed:

RESERVES		
General Fund	$	(3,920,384)
Utility Fund		(3,987,518)
Street Sales Tax Fund		(203,538)
Library		(15,700)
Total Increase in Expenditures	$	(8,127,140)

The City Council hereby finds, determines and declares that this Resolution is necessary for the immediate preservation of the public peace, health and safety, and that it serves a valid public purpose.

APPROVED AND ADOPTED BY THE FORT LUPTON CITY COUNCIL THIS 6th DAY OF JULY 2021

City of Fort Lupton, Colorado

_____
Zo Stieber, Mayor

Attest:

_____
Maricela Peña, City Clerk

Approved as to form:

_____
Andy Ausmus, City Attorney

Colorado Community Media
750 W. Hampden Ave. Suite 225
Englewood, CO 80110

City of Ft Lupton Legals
130 S McKinley Avenue
Fort Lupton CO 80621

Description: FLP222338 Pub Hear Supp Budget Appropriation

Public Notice
Of Schedule Public Hearing

NOTICE IS HEREBY GIVEN TO THE RESIDENTS AND TAX PAYERS OF THE CITY OF FORT LUPTON THAT CITY COUNCIL WILL CONSIDER A SUPPLEMENTAL BUDGET APPROPRIATION 2021 BUDGET AT A MEETING OF THE BOARD ON TUESDAY JULY 6, 2021 AT 7:00 P.M. AT THE CITY ADMINISTRATION BUILDING 130 S. MCKINLEY AVENUE. ANY INTERESTED CITIZEN MAY INSPECT THE ABOVE-MENTIONED BUDGET DURING NORMAL OFFICE HOURS. ANY CITIZEN MAY APPEAR AT THE PUBLIC HEARING AND WILL BE GIVEN THE OPPORTUNITY TO COMMENT ON THE SAID BUDGET IF THEY SO DESIRE.

Legal Ad No.: FLP222338
First Publication: June 30, 2021
Last Publication: June 30, 2021
Published In: Fort Lupton Press

AFFIDAVIT OF PUBLICATION

State of Colorado }
County of Weld } ss

This Affidavit of Publication for the Fort Lupton Press, a weekly newspaper, printed and published for the County of Weld, State of Colorado, hereby certifies that the attached legal notice was published in said newspaper once in each week, for 1 successive week(s), the last of which publication was made 6/30/2021, and that copies of each number of said paper in which said Public Notice was published were delivered by carriers or transmitted by mail to each of the subscribers of said paper, according to their accustomed mode of business in this office.



For the Fort Lupton Press

State of Colorado }
County of Weld } ss

The above Affidavit and Certificate of Publication was subscribed and sworn to before me by the above named Gerard Healey, publisher of said newspaper, who is personally known to me to be the identical person in the above certificate on 6/30/2021. Gerard Healey has verified to me that he has adopted an electronic signature to function as his signature on this document.

20004025550-626565

Carla Bethke
Notary Public
My commission ends April 11, 2022

CARLA BETHKE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20004025550
MY COMMISSION EXPIRES APRIL 11, 2022

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Mike Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald Ward 3

AM 2021-106

FUND $7,840,768 WINDY GAP FIRMING CONSTRUCTION IN CASH FROM THE UTILITY FUND AND THE GENERAL FUND AND SEND NOTIFICATION TO NORTHERN COLORADO WATER CONSERVANCY DISTRICT (NCWCD).

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**
a. NCWCD Capital Cash Funding Letter
b. NCWCD Funding Election Notification

III. **Summary Statement:**

The Windy Gap Firming Project is moving forward with the construction phase. NCWCD has requested participants elect a funding option, cash or group financing.

IV. **Submitted by:** Leann Perino
Leann Perino, Finance Director

V. **Finance Reviewed** Leann Perino
Finance Director

VI. **Approved for Presentation:**
City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:**
City Clerk Date

IX. Detail of Issue/Request:

The Windy Gap Firming Project is moving forward with the construction phase. NCWCD has requested participants elect a funding option, cash or group financing. In previous discussions with NCWCD staff has indicated the City's would participate in the group financing for the entire amount.

The City now believes there are sufficient funds in the utility fund and the general fund to cash fund the project. Cash funding would save the utility Fund approximately $7 million in interest over the life of the loan.

NCWCD is requiring cash funding entity contributions by August 10, 2021.

X. Legal/Political Considerations:

As a participant in the project the City is required to pay their share of the capital contribution.

XI. Alternatives/Options:

None.

XII. Financial Considerations:

The City has $3,920,384 available in the utility fund to contribute cash funding to the project. The remaining $3,920,384 can be contributed from the general fund. Cash funding will require a supplemental budget resolution.

XIII. Staff Recommendation:

Staff recommends cash funding the project.

Chimney Hollow
Reservoir Project

NOTICE TO PARTICIPANTS OF CAPITAL C&E FUNDING CASH PAYMENT DUE DATE

To: WGFP Cash Allottees
From: Jeff Drager, P.E.
Date: June 4, 2021

Each WGFP Allottee has a Capital C&E Funding Obligation for Initial C&E of $6,588.88 per unit. To the extent a WGFP Allottee satisfies all or a portion of its Capital C&E Funding Obligation through a Capital C&E Funding Cash Payment pursuant to Section 7 of the Allotment Contract, notice is hereby given that the due date for the entire amount of a WGFP Allottee's Capital C&E Funding Cash Payment is August 10, 2021 at or before 3:00 pm, Mountain Daylight Time. This allows the Enterprise to ensure that the required funds are available at the time of sale of Windy Gap Financing at 9:00 am, Eastern Daylight Time on August 11, 2021.

Pursuant to Section 7.3.3. of the Allotment Contract, each Cash Allottee has agreed that sixty (60) days before a Capital C&E Funding Cash Payment is due, the Cash Allottee will place the funds to be provided to the WGFP Enterprise in an escrow account and schedule such funds for release to the WGFP Enterprise on the cash due date. The escrow due date is therefore June 11, 2021. Without waiving its rights under the Allotment Contract, it is acceptable to the WGFP Enterprise for a Cash Allottee to delay the required payment to the escrow fund until August 6, 2021 at 5:00 pm, Mountain Daylight Time if the Allottee represents to the WGFP Enterprise in writing by June 11, 2021 that that it will make its Capital C&E Funding Cash Payment to escrow or to the WGFP Enterprise directly by August 6, 2021.

Section 7.3.3. also allows that a Cash Allottee may forgo an escrow arrangement and release and provide such funds directly to the WGFP Enterprise in advance of the Capital C&E Funding Cash Payment due date in its discretion.

CAPITAL C&E FUNDING CASH PAYMENT DUE DATES:

7.3.1 Capital C&E Funding Cash Payment Due Date: August 10, 2021 at 3:00 pm MDT

7.3.3 Escrow Account Due Date: June 11, 2021 at 5:00 pm MDT.

7.3.3. Alternate Escrow Due Date with Representation: August 6, 2021 at 5:00 pm MDT

Chimney Hollow Reservoir Project

NOTICE TO PARTICIPANTS OF INTENT TO SELL WGFP FINANCING

To: Fort Lupton
From: Jeff Drager, P.E.
Date: May 4, 2021

Per the executed WGFP Allotment Contract, Fort Lupton has a Capital C&E Funding Obligation for Initial C&E. Fort Lupton is hereby notified pursuant to Section 6.2.1.1 of the Allotment Contract of the WGFP Enterprise's intent to sell bonds and incur WGFP Financing Obligations for Initial C&E. Below is Fort Lupton's chosen means of payment at the time of Allotment Contract execution, adjusted to reflect the revised Initial C&E amount. Please confirm or redline the information below.

Targeted Construction Start Date: August 2, 2021*
Targeted Bond Sale Date: July 14, 2021 (Date Cash Payment due to WGFP Enterprise)
Initial C&E Amount: $6,588.88 per Unit ($592,999,200 Total)

Fort Lupton's WGFP Allotment: 1,190 Units
Fort Lupton's Capital C&E Funding Obligation: $ 7,840,767.20

Fort Lupton's Chosen Means of Payment

0 Units in Cash @ $6,588.88/unit = $ 0.00 Capital C&E Funding Cash Payment

1,190 Units in Pooled Financing @ $6,588.88/unit = $ 7,840,767.20 WGFP Financing**

**If participating in WGFP Financing check one box below:

[ ] 20-yr (90-10) Arrangement

[✓] 30-yr Level Debt Service Arrangement

Check one:

[ ] I confirm Fort Lupton's original chosen means of payment, as represented above, is correct.

[ ] I confirm Fort Lupton's chosen means of payment is as redlined above.

_____
Signature

_____ _____
Title Date

*Section 6.2.1.1 of the Allotment Contract provides 3 months from date of this notice to change the chosen means of payment. To maintain the construction start date, the WGFP Enterprise is requesting confirmation within 1 month so that the bonds can be rated in June 2021 and sold in July 2021.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-095

AUTHORIZE WORK ORDER TO JACOBS (OMI) FOR CH2M HILL ENGINEERS, INC FOR MAXIMUM NOT TO EXCEED $37,275.00 FOR PROFESSIONAL SERVICES FOR THE DEVELOPMENT OF A REQUEST FOR PROPOSAL (RFQ) FOR ENGINEERING SERVICES FOR THE PLANNING, PERMITTING, AND DESIGN OF A FORCE MAIN AND LIFT STATION TO CONVEY WASTEWATER TO THE METRO WASTEWATER RECLAMATION DISTRICT REGIONAL NORTHERN PLANT.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. CH-2020-4 Work Order #4

III. **Summary Statement:**

CH2M HILL Engineers, Inc. (Jacobs Engineering) is the current provider of engineering services for the City Wastewater Treatment Plant, Water Treatment Plant, Distribution, Collection System repairs, maintenance and operational projects for the City of Fort Lupton. Under the Master Agreement, Appendix J, between the City and CH2M Hill.

The City is in need of professional assistance in developing a complex Request for Proposal for Engineering Services for the planning, permitting and design of a force main and lift station to convey wastewater to the Metro Wastewater Reclamation District's regional Northern Treatment Plant.

IV. **Submitted by:** Roy Vestal, Public Works Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

The City has determined that entering into an agreement with the Metro Wastewater Reclamation District's (MWRD) Regional Northern Treatment Plant may be a preferred alternative to expanding the City's Wastewater Treatment Plant (WWTP). Joining the regional facility will require:

- ✓ *Investment in a lift station and force main to convey Fort Lupton wastewater to the Northern Treatment Plant*
- ✓ *Execution of an agreement with the Metro Reclamation District for treatment capacity with initial system connection investments fees and annual operating and maintenance fees.*
- ✓ *Updated Utility Plan*

The City is pursuing a bond loan from the State Revolving Fund (SRF) and procurement of engineering services are subject to the qualification- based selection requirements. During the planning phase of the design, cost and benefits of the regionalization alternative will be compared to the cost and benefits of the City's WWTP Expansion. Upon Selection of the preferred alternative, the City will authorize design by the selected consultant.

The following are the Tasks that will be performed by CH2M Hill (Jacobs Engineering). Detail of Tasks are on WORK ORDER- CH-2020-4 attached.

Task 1 – Request for Proposal Assistance
Task 1.1 Prepare Request for Proposals
Task 1.2 Design and Review Assistance – Allowance
Task 1.3 Project Management

X. Legal/Political Considerations:

Not Applicable

XI. Alternatives/Options:

Approve Work Order
Restrict Work Order to just the RFQ preparation
Have City Engineer prepare RFQ.

XII. Financial Considerations:

This is an unbudgeted item from the Utility Fund and will require supplemental appropriation.

XIII. Staff Recommendation:

Staff recommends approval of the Work Order to CH2M for professional services to complete a Request for Proposal for the support of developing an RFQ for selection of a Consultant for the planning, permitting and design activities for the wastewater force main, lift station and regional wastewater treatment plant connection.

WORK ORDER

PURSUANT TO A MASTER AGREEMENT BETWEEN
THE CITY OF FORT LUPTON
AND
OPERATIONS MANAGEMENT INTERNATIONAL, INC
CH2M HILL Engineers, Inc.

WORK ORDER NUMBER:	CH-2020-4
PROJECT TITLE:	Work Order #4
MASTER AGREEMENT EFFECTIVE DATE:	August 5, 2019
OWNER'S REPRESENTATIVE:	Glenda McCarroll
WORK ORDER COMMENCEMENT DATE:	June 17, 2021
WORK ORDER COMPLETION DATE:	June 16, 2022

MAXIMUM FEE: (time and reimbursable direct costs): $ 37,275 Not to exceed without City approval.

PROJECT DESCRIPTION/SCOPE OF SERVICES: Services shall include design and consulting input on Water Treatment Plant, Distribution, Wastewater Treatment Plant, Collection System repairs, maintenance, and operational projects located in Fort Lupton. Refer to Attachment A – Scope of Services and Attachment B-Fee Sheet.

CH2M HILL Engineers, Inc. (ENGINEER) agrees to perform the services identified above and on the attached forms in accordance with the terms and conditions contained herein and in the Master Agreement, Appendix J, between the parties. In the event of a conflict between or ambiguity in the terms of the Master Agreement and this Work Order (including the attached forms) the Master Agreement, Appendix J, shall control.

The attached forms consisting of (7) pages are hereby accepted and incorporated herein, by this reference, and Notice to Proceed is hereby given after all parties have signed this document.

ENGINEER: CH2M HILL Engineers, Inc.

By: _____ Date: _____

Name: _____ Title: _____

OWNER'S ACCEPTANCE & EXECUTION:

This Work Order and the attached Contract Documents are hereby accepted and incorporated herein by this reference.

ACCEPTANCE: _____ Date: _____

Name, Project Manager

ATTACHMENT A

WORK ORDER SCOPE OF SERVICES

Work Order # CH-2020-4 Design and Repair –Scope of Services

Engineer will provide services as detailed hereinafter.

CH2M HILL Engineers, Inc. (ENGINEER), a wholly owned subsidiary of Jacobs Engineering Group Inc., agrees to furnish City of Fort Lupton (CITY) engineering services for the development of a Request for Proposal (RFP) for Engineering Services for the planning, permitting and design of a force main and lift station to convey wastewater to the Metro Wastewater Reclamation District's regional Northern Treatment Plant. The work is based on the following task descriptions. ENGINEER's basis for estimating engineering costs for the project is based on the elements included in the task descriptions.

It is understood that the CITY will designate Glenda McCarroll as the primary point of contact with respect to the work performed under this agreement, with authority to transmit instructions, receive information, interpret and define CITY policies and decisions relative to elements pertinent to the work covered by this Agreement.

Objective

Support the CITY with the Development of a RFP for selection of a Consultant for the planning, permitting and design activities for the wastewater force main, kift station and regional Wastewater Treatment plant connection.

Background

The Fort Lupton Wastewater Treatment Plant operates under the Colorado discharge permit system Permit number CO0021440. The City received a compliance schedule from Colorado Department of Public Health and Environment (CDPHE) in its most recent permit renewal effective July 1, 2018. The compliance schedule is to:

- Achieve the total inorganic nitrogen and total phosphorous final limits,
- Achieve the recoverable arsenic final limits.

The compliance schedule is provided below:

Compliance Schedule(s)

a. Total Inorganic Nitrogen and Total Phosphorous Final Limits - In order to meet Total Inorganic Nitrogen and Total Phosphorous final limits, the following schedule for compliance is included in the permit.

Code	Event	Description	Due Date
06599	Hire a Consultant/ Professional Engineer	Submit a letter of notification that a Colorado licensed engineering consultant has been obtained and funding has been secured for planning aspects	01/31/2019
CS011	Plan, Report, or Scope of Work	Submit a letter of notification that Preliminary Effluent Limits (PELs) have been received and report progress in obtaining funding for design and construction aspects	01/31/2020
73905	Engineering Plan	Submit a letter of notification that funding has been obtained for design and construction aspects, and final plans specifications have been submitted to the Division. Note that a Site Application and a preliminary design must be submitted and approved by the Division prior to final plans and specifications.	01/31/2021
CS015	Commence Required Work or On-Site Construction	Submit a letter of notification that Final Design Approval has been received from the Division and construction has commenced.	01/31/2022
CS010	Status/Progress Report	Submit a construction progress report summarizing the progress in construction or other activities.	07/31/2022
CS016	Complete Required Work or On-Site Construction	Complete construction of facilities or other appropriate actions, which will allow the permittee to meet the final limitations.	01/31/2023

b. Activities to Meet Total Recoverable Arsenic Final Limits - In order to meet Total Recoverable Arsenic limitations, the following schedule is included in the permit.

Code	Event	Description	Due Date
43699	Facility Evaluation Plan	Submit a report that identifies sources of arsenic to the wastewater treatment facility and identifies strategies to control these sources or treatment alternatives such that compliance with the final limitations may be attained.	December 31, 2025
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control sources such that compliance with the final limitations may be attained.	December 31, 2026
CS017	Achieve Final Compliance with Emissions or Discharge Limits	Submit study results that show compliance has been attained with the final limitations.	December 31, 2027

In preparation of the regulation requirement the CITY has conducted the following studies and evaluations:

- Fort Lupton Engineering Report Utility Plan, September 2014 prepared by J&T Consulting Inc.
- Wastewater Treatment Expansion Study, 2016 prepared by SEH
- Wastewater Expansion Evaluation Preliminary Design Report 2021 Prepared by Burns and McDonnel

The CITY has determined that entering into an agreement with the Metro Wastewater Reclamation District's (MWRD) Regional Northern Treatment Plant may be a preferred alternative to expanding the CITY's Wastewater Treatment Plant (WWTP). This alternative was previously evaluated during the 2014 Utility Plan update but was not selected as the preferred option at that time. Since the completion of the 2014 Utility Plan, the Northern Treatment Plant has been constructed and the cost for participation is more defined. Joining the regional facility will require:

- Investment in a lift station and force main to convey Fort Lupton wastewater to the Northern Treatment Plant
- Execution of an agreement with the Metro Reclamation District for treatment capacity with initial system connection investments fees and annual operating and maintenance fee.
- Updated Utility Plan

The CITY is interested in issuing a Request for Proposals (RFP) for the planning, permitting and design of a lift station and force main to covey wastewater to the regional Northern Treatment Plant. The CITY is pursuing a loan from the State Revolving Fund (SRF) and procurement of engineering services are subject to the qualification-based selection requirements. During the planning phase of the design, cost and benefits of the regionalization alternative will be compared to the cost and benefits of the CITY's WWTP expansion. Upon selection of the preferred alternative the CITY will authorize the design by the selected Consultant.

Task 1 – Request for Proposal Assistance

Task 1.1 – Prepare Request for Proposals

ENGINEER will prepare a RFP for Engineering Services for the planning, permitting and design of a force main and lift station to convey wastewater from the existing WWTP to the MWRD regional Northern Treatment Plant. The RFP will comply with the SRF requirements for qualification-based selection. The RFP will include:

- Request for Proposals Introduction
- Proposal instructions and information
- Terms and Conditions
- Anticipated Scope of Work
  - Pre-design and Alternative Evaluation
  - Preliminary Design
  - Final Design
  - SRF Program Requirements Including Environmental Assessment
  - Permitting Assistance
  - Schedule

- Qualification and Selection criteria
- Informational items

The RFP will be sufficient to allow the CITY to rank and select design firms for interview and subsequent negotiation of final scope and fee with the preferred Consultant.

ENGINEER will attend the following meetings under this task.

- RFP kickoff Meeting with the CITY - Discuss project scope and schedule, identify CITY participants in RFP process
- RFP Review Meeting - Review the Draft RFP with CITY Selection committee prior to posting on Bid Net
- RFP Evaluation Meeting - review the received proposals and provide selection recommendation, and schedule interviews (if desired)
- Scope and Fee Negotiation Meeting- Meet with the selected Consultant to negotiate final scope, fee and schedule.

ENGINEER will assist the CITY in evaluation of the RFP's received and negotiation with the preferred firm to meet the CITY's objectives.

Deliverables:

- RFP Draft and Final
- Selection Documentation

Assumptions:

- CITY Purchasing Department will be responsible for managing the Bid Net site and uploading the RFP and addendums through Rocky Mountain E-purchasing portal
- CITY legal department will provide Professional Services Agreement and will provide a Standard Agreement as necessary with terms and condition to be included with the RFP
- CITY selection committee will be responsible for Consultant selection, ENGINEER will provide recommendations and selection summary based on CITY selection committee comments.
- ENGINEER will prepare a RFP compliant with the SRF requirements

Task 1.2 – Design Review Assistance- Allowance

ENGINEER will assist the CITY in the review of the proposed force main and lift station and coordination with Metro wastewater district. An allowance of 96 hours is assumed.

Deliverables:

- Technical Memorandum with review comments.

Task 1.3 – Project Management

Engineer's PM will prepare and submit to the Owner's PM, on a monthly basis, a brief cost and schedule status report. The report will include a narrative description of progress to-date, actual costs for each item, estimates of percent complete, and potential cost variances. The invoices and status reports will accompany the Monthly invoices under the Operations and Maintenance Contract.

ENGINEER's project engineer will attend by phone a 1 hour kickoff workshop with CITY staff to confirm the project scope, address technical issues, establish expectations, roles and responsibilities, establish a decision-making process, and advance the design approach for the project.

Deliverables:

The following deliverables will be prepared for this task:

- Project Status Reports and Invoices

Payment

Compensation will be on a time and expense basis with labor billed at rates shown in **Attachment 1**. Subconsultant expenses will be billed at actual cost plus a 5 percent markup, and direct expenses at actual cost. The hourly billing rates will include allowances for salary, benefits, overhead, and profit. Other expenses will include travel, printing, mailing, copying, supplies, and other similar costs incurred in performance of the work. ENGINEER's fee estimate is presented in **Attachment 1**. ENGINEER will make reasonable efforts to complete the work within this budget and will keep the CITY informed of progress toward that end so that the budget or work effort can be adjusted if found necessary. ENGINEER will not exceed the total budgetary amount without prior written approval from the CITY.

List of Attachments

Attachment 1 –Fee

Attachment B

Attachment B -- Fee Sheet Work Order: CH-2020 -4 Lift Station and Forcemain Assistance City of Fort Lupton Oncall Services		*year*	QC Al Paquet	Project Manager Brad Schutt	Pipeline Brian Folsom	**Total Labor**	**Total Labor Cost**	Subconsultant Utility, Survey, and Geotech	Markup on Subconsultant (5%)	Travel/TDA Expense	Miscellaneous Expense	**Total Expenses/ Subcontracts Cost**	**Total**
	Per Diem Code/Classification		3	6	4								
			$ 235	$ 165	$ 210								
1.0	**Request for Proposals Assistance**		**42**	**80**	**64**	**186**	**36,510**	**-**	**-**	**375**	**380**	**765**	**37,275**
1.1	Prepare Request for Proposals		24	24	24	**72**	$ 14,640			$ 45	$ 40	$ 85	$ 14,725
1.2	Design Review Assistance		16	40	40	**96**	$ 18,760			$ 300	$ 300	$ 600	$ 19,360
1.3	Project Management		2	16		**18**	$ 3,110			$ 30	$ 40	$ 80	$ 3,190
Total			**42**	**80**	**64**	**186**	**$ 36,510**	$ -	$ -	$ 375	$ 380	**$ 765**	**$ 37,275**

Assumptions Used in Developing this Scope of Services

The ENGINEER's estimate of engineering costs for the project is based on the elements included in task descriptions above, and the following assumptions:

1. CITY will examine information submitted by ENGINEER and render in writing or otherwise provide decisions and requested data within two weeks.
2. CITY will give prompt notice to ENGINEER whenever CITY observes or becomes aware of any development that affects the scope or timing of ENGINEER's services, or of any defect in the work of ENGINEER.
3. ENGINEER will provide the CITY with deliverables as defined respectively in this scope of work and as defined in specific work request.
4. Deliverables will be distributed electronically via email (pdf format).
5. Meetings with the CITY will be held at the CITY's office or treatment plants.
6. In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the project, ENGINEER has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, ENGINEER makes no warranty that CITY's actual project costs, financial aspects, economic feasibility, or schedules will not vary from ENGINEER's opinions, analyses, projections, or estimates. If CITY wishes greater assurance as to any element of project cost, feasibility, or schedule, CITY will employ an independent cost estimator, contractor, or other appropriate advisor.
7. ENGINEER is not responsible for the accuracy of data provided by others.
8. The work for this project will occur over a 18 month time period from the date of authorization to proceed, expected by June 2021 and the utility plan work may occur in parallel with the RRP and other ENGINEER's alternatives analysis.
9. CITY to manage the Bid Net procurement process
10. CITY reports and management areas and plans are accurate and complete
    - Growth management area
    - Growth management plan
    - Picture Fort Lupton, A Plan for Our Communities Future, 2018 (Comprehensive Plan)
    - Fort Lupton WWTF Expansion Project, Site Application Engineering Report, March 26, 2020
    - Preliminary Engineering Report/Utility Plan, September 2014
11. A Collection System Condition Assessment and Stormwater Management Plan will not need to be completed as part of this project and are not included in the scope.
12. Compensation will be on a time and expense basis with labor billed at hourly rates and direct expenses at actual cost or standard billing rates. The hourly billing rates include allowances for salary, benefits, overhead, and profit. Other expenses will include travel, printing, mailing, copying, supplies, and other similar costs incurred in performance of the work. A summary of the assumed level of effort and budgetary amount for the Engineer's services is presented in the Fee Schedule Attachment B. The Engineer will make reasonable efforts to complete the work within this budget and will keep the City informed of progress toward that end so that the budget or work effort can be adjusted if found necessary. The Engineer will not exceed the total budgetary amount without prior written approval from the CITY.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-096

APPROVE WORK ORDER FOR JACOBS (OMI) FOR CH2M, INC. ENGINEERS, INC FOR NOT TO EXCEED $112,500.00 FOR PROFESSIONAL SERVICES FOR THE UPDATE OF THE CITY'S UTILITY PLAN

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. CH-2020 Work Order #5

III. **Summary Statement:**

CH2M HILL Engineers, Inc. (Jacobs Engineering) are the current provider of engineering services for the City Wastewater Treatment Plant, Water Treatment Plant, Distribution, Collection System repairs, maintenance and operational projects for the City of Fort Lupton. Under the Master Agreement, Appendix J, between the City and CH2M Hill.

The City is in need of professional assistance in updating and or creating a Utility Plan consistent with the selected alternative for treatment based upon the outcome of a lift station and routing study to be completed by others.

IV. **Submitted by:** Roy Vestal, Public Works Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

The City has determined that entering into an agreement with the Metro Wastewater Reclamation District's (MWRD) Regional Northern Treatment Plant may be a preferred alternative to expanding the City's Wastewater Treatment Plant (WWTP). Joining the regional facility will require:

- ✓ *Investment in a lift station and force main to convey Fort Lupton wastewater to the Northern Treatment Plant*
- ✓ *Execution of an agreement with the Metro Reclamation District for treatment capacity with initial system connection investments fees and annual operating and maintenance fees.*
- ✓ *Updated Utility Plan*

The following are the Tasks that will be performed by CH2M Hill (Jacobs Engineering). Detail of Tasks are on WORK ORDER- CH-2020-5 attached.

Task 1- Utility Plan Revision for Regionalization
Task 1.1 Executive Summary
Task 1.2 Introduction
Task 1.3 Existing Conditions
Task 1.4 Future Conditions
Task 1.5 Receiving Water Quality
Task 1.6 Wastewater Treatment and Collection System Improvements
Task 1.7 Service Area Nonpoint Source Improvements
Task 1.8 System Management and Financial Plan
Task 1.9 NFRWQPA 208 AWQMP Data Summary
Task 1.10 Appendices and Final Utility Plan Report Production
Task 1.11 Meetings Regarding Draft Utility Plan
Task 1.12 Project Management

X. Legal/Political Considerations:

Not Applicable.

XI. Alternatives/Options:

Approve Work Order
Solicit additional proposals from other engineers

XII. Financial Considerations:

This is an unbudgeted item from the Utility Fund and will require supplemental appropriation.

XIII. Staff Recommendation:

Staff recommends approval of this Work Order for professional services to complete a Request for Proposal for the support of updating the City Utility Plan for the planning, permitting and design activities for the wastewater force main, lift station and regional wastewater treatment plant connection or possible expansion to the existing WWTP.

WORK ORDER

PURSUANT TO A MASTER AGREEMENT BETWEEN
THE CITY OF FORT LUPTON
AND
OPERATIONS MANAGEMENT INTERNATIONAL, INC
CH2M HILL Engineers, Inc.

WORK ORDER NUMBER:	CH-2020-5
PROJECT TITLE:	Work Order #5
MASTER AGREEMENT EFFECTIVE DATE:	August 5, 2019
OWNER'S REPRESENTATIVE:	Glenda McCarroll
WORK ORDER COMMENCEMENT DATE:	June 18, 2021
WORK ORDER COMPLETION DATE:	June 17, 2022

MAXIMUM FEE: (time and reimbursable direct costs): $ 112,500 Not to exceed without City approval.

PROJECT DESCRIPTION/SCOPE OF SERVICES: Services shall include design and consulting input on Water Treatment Plant, Distribution, Wastewater Treatment Plant, Collection System repairs, maintenance, and operational projects located in Fort Lupton. Refer to Attachment A – Scope of Services and Attachment B-Fee Sheet.

CH2M HILL Engineers, Inc. (ENGINEER) agrees to perform the services identified above and on the attached forms in accordance with the terms and conditions contained herein and in the Master Agreement, Appendix J, between the parties. In the event of a conflict between or ambiguity in the terms of the Master Agreement and this Work Order (including the attached forms) the Master Agreement, Appendix J, shall control.

The attached forms consisting of (11) pages are hereby accepted and incorporated herein, by this reference, and Notice to Proceed is hereby given after all parties have signed this document.

ENGINEER: CH2M HILL Engineers, Inc.

By: _____ Date: _____

Name: _____ Title: _____

OWNER'S ACCEPTANCE & EXECUTION:

This Work Order and the attached Contract Documents are hereby accepted and incorporated herein by this reference.

ACCEPTANCE: _____ Date: _____

Name, Project Manager

ATTACHMENT A

WORK ORDER SCOPE OF SERVICES

Work Order # CH-2020-5 Design and Repair –Scope of Services

Engineer will provide services as detailed hereinafter.

CH2M HILL Engineers, Inc. (ENGINEER), a wholly owned subsidiary of Jacobs Engineering Group Inc., agrees to furnish City of Fort Lupton (CITY) engineering services for amending of the Utility Plan which will be based upon the outcome of development of a Request for Proposal (RFP) for Engineering Services for the planning, permitting and design of a force main and lift station to convey wastewater to the Metro Wastewater Reclamation District's regional Northern Treatment Plant and ENGINEER will amend the Utility Plan based upon the study (by others) results . The work is based on the following task descriptions. ENGINEER's basis for estimating engineering costs for the project is based on the elements included in the task descriptions.

It is understood that the CITY will designate Glenda McCarroll as the primary point of contact with respect to the work performed under this agreement, with authority to transmit instructions, receive information, interpret and define CITY policies and decisions relative to elements pertinent to the work covered by this Agreement.

Objective

Provide update to the CITY's Utility Plan consistent with the selected alternative for treatment based upon the outcome of a lift station and routing study to be completed by others.

Background

The Fort Lupton Wastewater Treatment Plant operates under the Colorado discharge permit system Permit number CO0021440. The City received a compliance schedule from Colorado Department of Public Health and Environment (CDPHE) in its most recent permit renewal effective July 1, 2018. The compliance schedule is to:

- Achieve the total inorganic nitrogen and total phosphorous final limits,
- Achieve the recoverable Arsenic final limits.

The compliance schedule is provided below:

Compliance Schedule(s)

a. Total Inorganic Nitrogen and Total Phosphorous Final Limits - In order to meet Total Inorganic Nitrogen and Total Phosphorous final limits, the following schedule for compliance is included in the permit.

Code	Event	Description	Due Date
06599	Hire a Consultant/ Professional Engineer	Submit a letter of notification that a Colorado licensed engineering consultant has been obtained and funding has been secured for planning aspects	01/31/2019
CS011	Plan, Report, or Scope of Work	Submit a letter of notification that Preliminary Effluent Limits (PELs) have been received and report progress in obtaining funding for design and construction aspects	01/31/2020
73905	Engineering Plan	Submit a letter of notification that funding has been obtained for design and construction aspects, and final plans specifications have been submitted to the Division. Note that a Site Application and a preliminary design must be submitted and approved by the Division prior to final plans and specifications.	01/31/2021
CS015	Commence Required Work or On-Site Construction	Submit a letter of notification that Final Design Approval has been received from the Division and construction has commenced.	01/31/2022
CS010	Status/Progress Report	Submit a construction progress report summarizing the progress in construction or other activities.	07/31/2022
CS016	Complete Required Work or On-Site Construction	Complete construction of facilities or other appropriate actions, which will allow the permittee to meet the final limitations.	01/31/2023

b. Activities to Meet Total Recoverable Arsenic Final Limits - In order to meet Total Recoverable Arsenic limitations, the following schedule is included in the permit.

Code	Event	Description	Due Date
43699	Facility Evaluation Plan	Submit a report that identifies sources of arsenic to the wastewater treatment facility and identifies strategies to control these sources or treatment alternatives such that compliance with the final limitations may be attained.	December 31, 2025
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control sources such that compliance with the final limitations may be attained.	December 31, 2026
CS017	Achieve Final Compliance with Emissions or Discharge Limits	Submit study results that show compliance has been attained with the final limitations.	December 31, 2027

In preparation of the regulation requirement the CITY has conducted the following studies and evaluations:

- Fort Lupton Engineering Report Utility Plan, September 2014 prepared by J&T Consulting Inc.
- Wastewater Treatment Expansion Study, 2016 prepared by SEH
- Wastewater Expansion Evaluation Preliminary Design Report 2021 Prepared by Burns and McDonnel

The CITY has determined that entering into an agreement with the Metro Wastewater Reclamation District's (MWRD) Regional Northern Treatment Plant may be a preferred alternative to expanding the CITY's Wastewater Treatment Plant (WWTP). This alternative was previously evaluated during the 2014 Utility Plan update but was not selected as the preferred option at that time. Since the completion of the 2014 Utility Plan, the Northern Treatment Plant has been constructed and the cost for participation is more defined. Joining the regional facility would require:

- Investment in a lift station and force main to convey Fort Lupton wastewater to the Northern Treatment Plant
- Execution of an agreement with the Metro Reclamation District for treatment capacity with initial system connection investments fees and annual operating and maintenance fee.
- Updated Utility Plan

The CITY is interested in issuing a Request for Proposals (RFP) for the planning, permitting and design of a lift station and force main to covey wastewater to the regional Northern Treatment Plant. The CITY is pursuing a loan from the State Revolving Fund (SRF) and procurement of engineering services are subject to the qualification based selection requirements. During the planning phase of the design, cost and benefits of the regionalization alternative will be compared to the cost and benefits of the CITY's WWTP expansion. Upon completion of a study by others comparing the cost of a lift station and force main, the CITY will update the Utility Plan.

Task 1 Utility Plan Revision for Regionalization

If the connection with MWRD is selected as the preferred option by the City, ENGINEER will update the CITY's Utility Plan for the lift station and force main. Discussions with North Front Range Water Quality Planning Association indicated that a new utility plan would be more efficient than submitting an Amendment to the existing Utility Plan as this approach requires the existing sections be brought up to current standards.

The purpose of this task is to prepare a Wastewater Utility Plan (Utility Plan) in accordance with the North Front Range Water Quality Planning Association's (NFRWQPA's) Wastewater Utility Plan Guidance Manual (Guidance Manual), current version as of January 2020. The tasks described below follow the outline of and are based upon the Guidance Manual's format checklist for ease of review by NFRWQPA reviewers. The Utility Plan will be developed from information provided by the CITY related to:

- Metro Reclamation District Northern Treatment Plant
- Recent 2021 Wastewater Treatment Evaluation by Burns and McDonnel
- CITY's Comprehensive Plan
- 2014 City of Fort Lupton Utility Plan by J&T Consulting Inc.

The tasks below identify the section numbering that will be used in the Utility Plan.

Task 1.1 – Executive Summary

An executive summary will be written for the Utility Plan to summarize the main focus areas of the report and near-term capital improvement projects that are recommended.

Task 1.2 – Introduction

An Introduction for the Utility Plan will be written as described below:

- 201 Background—ENGINEER will develop this section that will include a general discussion about the history and location of the CITY and Utility Plan's purpose.
- 202 Facilities Plan Summary—ENGINEER will develop this section that will include a general discussion about the CITY's current wastewater planning considerations. The CITY's past planning efforts will also be discussed.
- 203 Summary of Utility Plan Structure—ENGINEER will develop this section that will include a list of the Utility Plan's contents.

Task 1.3 – Existing Conditions

The Existing Conditions section of the Utility Plan will be written as described below:

- 301 Current Planning Service Area—ENGINEER will develop this section that will describe the CITY's wastewater utility service area (WUSA), growth management area (GMA), and current 208 service area boundary (current WUSA). This section will be based upon the CITY's Comprehensive Plan as well as the NFRWQPA 208 Area Water Quality Management Plan (AWQMP). CITY staff will provide service area boundaries for the 20-year planning period. A single geographic information system (GIS) map will be developed by the ENGINEER showing the current and projected WUSA and projected GMA, along with the edges of any surrounding 208 service areas. ENGINEER will present the CITY's population forecasts in this section.
- 302 Current Wastewater Flows and Loads –ENGINEER will develop this section to describe current wastewater flows and loads to the CITY's wastewater treatment plant (WWTP) based on data from the past three years. The following will be included:
  - Flow and load peaking factors.
  - An assessment of Infiltration and inflow (I/I) and per capita wastewater flows.
  - Nitrogen and phosphorus loading on the WWTP.
  - Current effluent limitations.
  - Preliminary Effluent Limits (PELs) obtained from the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE) for a treatment plant expansion option (assuming these have been applied for previously as part of other planning work to date by the CITY).
- 303 Current Wastewater Treatment System - ENGINEER will incorporate previous planning work into this section that will describe the CITY's treatment facilities. (effort assumes these sections have been previously developed as part of other planning work to date by the CITY). The following subsections shall be incorporated:
  - Description of Existing System.
  - Current Process Flow Schematic.
  - Current Site Plan.
  - Performance of Existing System.
  - Existing Air Quality Permit. ENGINEER will review CDPHE requirements for air quality permits for the WWTP. The CITY will provide a copy of applicable existing permits.
  - Existing Site Stormwater Management Plan. ENGINEER will review CDPHE requirements for a stormwater permit for the WWTP site. The CITY does not currently have a stormwater management plan for the WWTP site.

- Existing Site Characterization. ENGINEER will incorporate this section from previous work that will include a brief discussion about floodplains in the vicinity of the existing WWTP site. ENGINEER will use FEMA floodplain maps to illustrate the floodplain and its proximity to the WWTP.
- Existing Facility Emergency Response Protocols. Engineer will use existing plant protocols to present.
- Existing Biosolids Management Program.
- Condition Assessment of Existing Treatment System and Needs Recommendations incorporated from the Site Application Engineering Report, 2020.

▪ 304 Existing Wastewater Collection System - ENGINEER will develop this section that will describe the CITY's wastewater collection system. (effort assumes these sections have been previously developed as part of other planning work to date by the CITY). The following subsections shall be developed:

- Description of existing system including layout and inventory of pipe sizes and materials.
- Description of existing lift stations including capacity and features.
- Collection System Infiltration/Inflow. I/I information on the existing system will be presented from the CITY's Site Application Engineering Report, 2020 and the Preliminary Engineering Report/Utility Plan, 2015.
- Pretreatment Program—The ENGINEER will develop this section that will describe the CITY's existing Pretreatment Program. This section will be based upon program information provided by the CITY. It is assumed that an analysis of the program or a pretreatment investigation will not be required. ENGINEER will prepare a brief discussion on future pretreatment-related needs due to growth.
- Recommendations for Collection System Improvements for existing facilities. ENGINEER will develop this section based on recommendations in the CITY's Site Application Engineering Report, 2020 and the Preliminary Engineering Report/Utility Plan, 2015.

- 305 Existing Service Area Nonpoint Source Contributions - ENGINEER will develop this section that will describe the CITY's nonpoint source contributions to the South Platte. The following subsections shall be developed:

- Description of existing nonpoint sources and stormwater collection system. ENGINEER will identify, locate on a map from the CITY's GIS system, and characterize (to the extent data are readily available) or estimate nonpoint sources of pollution which may include agriculture, livestock operations, urban stormwater outside of a Municipal Separate Storm Sewer System (MS4), mining related activity, and/or other effects. The CITY will provide information on their stormwater system from the CITY's GIS. ENGINEER will review Colorado State University's eRAMS database (https://erams.com/) for information on nonpoint sources within the CITY's service area.
- ENGINEER will identify recommended best management practices (BMPs) to control nonpoint source pollution. Estimate load reductions which may reasonably be achieved through BMP implementation over the 20-year planning period.

Task 1.4 – Future Conditions

The Future Conditions section of the Utility Plan will be written as described below (effort assumes these sections have been previously developed as part of other planning work to date by the CITY):

▪ 401 Population and Land Use Projections—ENGINEER will develop this section based on information from the CITY's Comprehensive Plan and the AWQMP. The CITY's projected population growth along with growth in its GMA and WUSA will be presented.

▪ 402 Wastewater Flow and Load Projections—ENGINEER will develop this section that will describe the CITY's wastewater flow and load projections for a 20-year period. This section will be based upon the population projections from the task above and as documented in the CITY's Wastewater Master Plan.

- 403 Projected Wastewater Flow Characterization—ENGINEER will develop this section to discuss projected I/I and per capita loadings from residential, commercial, and industrial sources for future planning.
- 404 Future Interceptor and Lift Station Collection System Alignments—ENGINEER will develop this section that will address future capacities of the Wastewater Collection Interceptors and Lift Stations for a 20-year planning period.
- 405 Future Service Area Nonpoint Source Contributions—ENGINEER will develop this section that will briefly discuss future stormwater infrastructure needs to address nonpoint sources for a 20-year planning period. The CITY does not have a City-wide stormwater management plan. The ENGINEER will not be producing a City-wide stormwater management plan as part of the Utility Plan.

Task 1.5 — Receiving Water Quality

The Water Quality Characterization section of the Utility Plan will not be developed for the connection to the MWRD.

Task 1.6 — Wastewater Treatment and Collection System Improvements

The Wastewater Treatment Plant improvements will not be included for the connection to the MWRD.

Collection System Improvements section of the Utility Plan will be written as described below:

- 601 Development and Screening of Collection System Improvement Alternatives — This section will include discussion of alternatives for improvements to the collection system and will include the following:
  - Discussion of feasibility of optimizing the performance of the existing facility to meet future requirements.
  - Discussion of consolidating wastewater treatment with another nearby utility (MWWRD).
  - Discussion of wastewater reuse as an alternative for meeting future water quality standards.
- 602 Collection System Evaluation Matrix — This section will include discussion of screened alternatives for improvements to the wastewater treatment and collection system (up to two each) and will include the following:
  - Description of alternatives.
  - Monetary Costs [capital and annual operation & maintenance(O&M)].
  - Energy Costs.
  - Performance with respect to PELs.
  - Ease of implementation.
  - Environmental issues.
- 603 Collection System Alternative Selection — This section will include recommendation of selected alternatives for improvements to the wastewater treatment and collection system and will include the following:
  - Discussion of selected alternatives and any green elements to be incorporated into the projects. The term “green” refers to alternative technologies which result in water or energy efficiencies for the treatment facilities.
  - Discussion of emergency standby power needs.
  - Odor control considerations.
  - Future air quality requirements.
  - Site stormwater management plan requirements.
  - Floodplain and geotechnical site characteristics. Geotechnical reports from the 2014 Utility Plan and 2021 Preliminary Design Report will be utilized.

- Listing of National Environmental Protection Act (NEPA) Components for State Revolving Fund (SRF) loan program which will be required.
- Record of public participation for SRF program.

Task 1.7 — Service Area Nonpoint Source Improvements

The Service Area Nonpoint Source Improvements section of the Utility Plan will be written as described below.

- 701 Nonpoint Source Service Area Improvements — This section will include a description of alternatives for improvements to the CITY's stormwater system for controlling nonpoint sources of pollutants.
- 702 Service Area Nonpoint Source Alternatives Evaluation of Best Management Practices (BMPs) — This section will include discussion of alternatives for stormwater BMPs. ENGINEER will evaluate alternative BMPs to control nonpoint source pollution, based on publicly available information and tools, and factors which may include considerations of cost (capital, O&M, 20-year net present value cost), energy cost, performance relative to water quality standards and protective uses, constructability, and environmental issues. ENGINEER will estimate costs, water quality performance, environmental consideration, and constructability (access, right of way, materials, feasibility of construction) of alternative BMPs (up to three will be evaluated). ENGINEER will provide support for opportunities for public review and comment in the process of selection of the preferred BMP and plan. It is assumed that CITY staff will lead public processes and that for efficiency and expediency, the CITY's public processes may address other requirements in parallel with the Utility Plan. This task will provide support for up to two (2) brief virtual public meetings, including preparation of up to 5-10 PowerPoint slides, and taking notes of public comments and discussions.
- 703 Service Area Nonpoint Source Alternatives Plan Selection — This section will include discussion of alternatives for improvements to the wastewater treatment and collection system and will include the following: Document the alternatives analysis in a matrix/table. Prepare a description of the selected plan including treatment capabilities, anticipated load reductions or increases, green infrastructure elements, and the public participation in the process of selecting the preferred plan.

Task 1.8 — System Management and Financial Plan

The Management and Financial Plans section of the Utility Plan will be written as described below.

- 801 Wastewater Management Plan—ENGINEER will develop this section that will include a general discussion about the CITY's wastewater management plan with information provided by the CITY. Operations requirements per CDPHE will be discussed. An implementation schedule for upcoming capital projects identified in the Utility Plan will be presented.
- 802 Arrangements for Implementation—Evidence of site ownership for the WWTP site will be presented along with applicable active intergovernmental agreements needed for the upcoming projects.
- 803 Financial Management Plan—The CITY will develop this section which will address the following:
  - Rate and charge structures.
  - Financial solvency should growth not occur.
  - Institutional arrangements to guarantee payment of charges from large connectors and from other governmental connectors.
  - Interest in applying for an SRF loan to finance infrastructure or improvements.
  - Significant industrial users under pretreatment regulations.
  - Proposed method of financing recommended projects.
  - Impact of recommended projects on current typical residential monthly rates and plant investment fees.

Task 1.9 — NFRWQPA 208 AWQMP Data Summary

ENGINEER will provide discussion of the following items to support the 208 AWQMP:

- 901 Agency Summary Data Table 4 and 5 per the NFRWQPA Utility Plan Guidance Document.
- 902 eRAMS Center for Comprehensive, Optimal and Effective Abatement of Nutrients (CLEAN) Dashboard Report.
- 903 eRAMS Watershed Assessment.

Task 1.10 – Appendices and Final Utility Plan Report Production

ENGINEER will prepare draft and final Utility Plan reports for the CITY's review. The report will include all sections as described in Tasks 1 through 9 above plus necessary appendices to support the above sections.

The CITY will provide consolidated written comments on the draft and final Utility Plan report within two weeks of receipt. The ENGINEER will appropriately address comments on the sections prepared by the ENGINEER and the CITY will appropriately address comments on the sections prepared by the CITY.

ENGINEER will appropriately address comments from NFRWQPA on the draft Utility Plan. Draft and final documents will be provided in PDF format.

Task 1.11 – Meetings Regarding Draft Utility Plan

The ENGINEER will attend the following meetings with CITY staff and the NFRWQPA representatives as noted below and in the attached fee estimate:

1. One project initiation meeting with CITY.
2. Up to six progress meetings with CITY via phone.
3. One meeting to discuss Utility Plan review with NFRWQPA Utility Planning Committee.
4. One meeting to discuss Utility Plan revisions following review with NFRWQPA Utility Planning Committee.

Assumption:

- Approvals and meetings with Denver Regional Council of Governments (DRCOG) not required and MWRD will update their own utility plan and coordinate with DRCOG.

Schedule and Deliverables

The project schedule is presented below.

Adoption of MWRD Connection by City Council
120 days following adoption – Submit Draft Utility Plan to CITY for Review
250 days following adoption – Submit Draft Utility Plan to NFRWQPA for Review
335 days following adoption – NFRWQPA Meeting
365 days following adoption – Submit Final Utility Plan to NFRWQPA
400 days following adoption – Approval of Utility Plan by NFRWQPA

Engineer will update the daft schedule above, based on status of MWRD agreement, and force main and lift station design information by Others. Schedule update will also include dates for public meeting and public notifications required for utility plan adoption.

Task 1.12 – Project Management

Engineer's PM will prepare and submit to the Owner's PM, on a monthly basis, a brief cost and schedule status report. The report will include a narrative description of progress to-date, actual costs for each item, estimates of percent complete, and potential cost variances. The invoices and status reports will accompany the Monthly invoices under the Operations and Maintenance Contract.

ENGINEER's project engineer will attend by phone a 1 hour kickoff workshop with CITY staff to confirm the project scope, address technical issues, establish expectations, roles and responsibilities, establish a decision-making process, and advance the design approach for the project.

Deliverables:

The following deliverables will be prepared for this task:

- Project Status Reports and Invoices

Payment

Compensation will be on a time and expense basis with labor billed at rates shown in **Attachment 1**. Subconsultant expenses will be billed at actual cost plus a 5 percent markup, and direct expenses at actual cost. The hourly billing rates will include allowances for salary, benefits, overhead, and profit. Other expenses will include travel, printing, mailing, copying, supplies, and other similar costs incurred in performance of the work. ENGINEER's fee estimate is presented in **Attachment 1**. ENGINEER will make reasonable efforts to complete the work within this budget and will keep the CITY informed of progress toward that end so that the budget or work effort can be adjusted if found necessary. ENGINEER will not exceed the total budgetary amount without prior written approval from the CITY.

List of Attachments

Attachment 1 –Fee

Attachment B

Attachment B -- Fee Sheet Work Order: CH-2020 -5 Utility Plan Assistance City of Fort Lupton Oncall Services		year	QC Al Paquet	Project Manager Brad Schutt	Pipeline Brian Folsom	Kile Snider STC	Pat Nelson Regulatory Specialist	Tiffany McEachen Sr. Water Resources Engineer	Madalyn Murphy Project Engineer	Jeremy Quan GIS/Graphics	Office/Administration	**Total Labor**	**Total Labor Cost**	Subconsultant Utility, Survey, and Geotech	Markup on Subconsultant (5%)	Travel/TDA Expense	Miscellaneous Expense	**Total Expenses/ Subcontracts Cost**	**Total**
	Per Diem Code/Classification		3	6	4	2	2	5	8	6	19								
			$ 235	$ 165	$ 210	$ 240	$ 240.00	$ 190.00	$ 130.00	$ 165.00	$ 90.00								
1.0	**208 Utility Plan Revision for Regionalization**		**50**	**152**	**-**	**74**	**46**	**53**	**203**	**42**	**20**	**640**	**110,820**	**-**	**-**	**630**	**1,060**	**1,680**	**112,500**
1.1	Executive Summary		4	16		4	-	-	4	4	-	**32**	$ 5,720			$ 60	$ 100	$ 160	$ 5,880
1.2	Introduction		-	6		-	-	-	-	-	2	**8**	$ 1,170			$ 60	$ 100	$ 160	$ 1,330
1.3	Existing Conditions		10	20		14	2	2	32	16	-	**96**	$ 16,670			$ 60	$ 100	$ 160	$ 16,830
1.4	Future Conditions		10	22		8	4	2	8	4	-	**58**	$ 10,940			$ 60	$ 100	$ 160	$ 11,100
1.5	Receiving Stream Water Quality		4					18	28			**50**	$ 8,000			$ -	$ -	$ -	$ 8,000
1.6	Collection System Improvements		-	16		5	4	-	24	4	4	**57**	$ 8,940			$ 60	$ 100	$ 160	$ 9,100
1.7	Service Area Improvements		-	-		2	-	18	28	12	-	**60**	$ 9,520			$ 60	$ 100	$ 160	$ 9,680
1.8	System Management and Financial Plan		2	16		8	-	-	-	2	-	**28**	$ 5,360			$ 60	$ 100	$ 160	$ 5,520
1.9	NFRWQPA 208 Regional Data Summary		2	-		2	28	-	-	-	-	**32**	$ 7,670			$ 60	$ 100	$ 160	$ 7,830
1.10	Appendincies and Final Report Production		8	8		16	6	4	72	-	14	**128**	$ 19,860			$ 60	$ 100	$ 160	$ 20,020
1.11	Meetings		4	16		15	2	9	7	-	-	**53**	$ 10,280			$ 60	$ 100	$ 160	$ 10,440
1.12	Project Management		6	32								**38**	$ 6,690			$ 30	$ 60	$ 80	$ 6,770
Total			**50**	**152**	**-**	**74**	**46**	**53**	**203**	**42**	**20**	**640**	**$ 110,820**	$ -	$ -	$ 630	$ 1,060	**$ 1,680**	**$ 112,500**

Assumptions Used in Developing this Scope of Services

The ENGINEER's estimate of engineering costs for the project is based on the elements included in task descriptions above, and the following assumptions:

1. CITY will examine information submitted by ENGINEER and render in writing or otherwise provide decisions and requested data within two weeks.
2. CITY will give prompt notice to ENGINEER whenever CITY observes or becomes aware of any development that affects the scope or timing of ENGINEER's services, or of any defect in the work of ENGINEER.
3. ENGINEER will provide the CITY with deliverables as defined respectively in this scope of work and as defined in specific work request.
4. Deliverables will be distributed electronically via email (pdf format).
5. Meetings with the CITY will be held at the CITY's office or treatment plants.
6. In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the project, ENGINEER has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, ENGINEER makes no warranty that CITY's actual project costs, financial aspects, economic feasibility, or schedules will not vary from ENGINEER's opinions, analyses, projections, or estimates. If CITY wishes greater assurance as to any element of project cost, feasibility, or schedule, CITY will employ an independent cost estimator, contractor, or other appropriate advisor.
7. ENGINEER is not responsible for the accuracy of data provided by others.
8. The work for this project will occur over a 15 month time period from the date of authorization to proceed, expected by June 2021 and the utility plan work may occur in parallel with the RRP and other ENGINEER's alternatives analysis.
9. CITY to manage the Bid Net procurement process
10. CITY reports and management areas and plans are accurate and complete
    - Growth management area
    - Growth management plan
    - Picture Fort Lupton, A Plan for Our Communities Future, 2018 (Comprehensive Plan)
    - Fort Lupton WWTF Expansion Project, Site Application Engineering Report, March 26, 2020
    - Preliminary Engineering Report/Utility Plan, September 2014
11. A Collection System Condition Assessment and Stormwater Management Plan will not need to be completed as part of this project and are not included in the scope.
12. Compensation will be on a time and expense basis with labor billed at hourly rates and direct expenses at actual cost or standard billing rates. The hourly billing rates include allowances for salary, benefits, overhead, and profit. Other expenses will include travel, printing, mailing, copying, supplies, and other similar costs incurred in performance of the work. A summary of the assumed level of effort and budgetary amount for the Engineer's services is presented in the Fee Schedule Attachment B. The Engineer will make reasonable efforts to complete the work within this budget and will keep the City informed of progress toward that end so that the budget or work effort can be adjusted if found necessary. The Engineer will not exceed the total budgetary amount without prior written approval from the CITY.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-107

APPROVE A RESOLUTION ACCEPTING THE WILLOW BEND SUBDIVISION FINAL PLAT AND FINAL PUD PLAN FOR A SINGLE LOT SUBDIVISION LOCATED EAST AND ADJACENT TO COUNTY ROAD 29 (AKA NORTHRUP AVENUE), AND SOUTH AND ADJACENT TO 14TH STREET IN PART OF SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Proposed Resolution
b. Land Use Application & Project Description
c. Willow Bend Subdivision Final Plat & Final PUD Plan
d Landscape Plan Drawings
e. Development Reports & Traffic Studies
f. Proposed Elevations
g. Response to Referrals from Preliminary Plat
h. Referral Responses

III. **Summary Statement:**

The applicant, Sun Land Development, has applied for approval of a Final Plat and Final PUD Plan for the City Council's consideration for the Willow Bend Subdivision. The Final Plat and Final PUD Plan is located east and adjacent to County Road 29 (also known as Northrup Avenue), and south and adjacent to 14th Street right of way in Fort Lupton. The proposal is for a residential subdivision that will include one parcel of land with 449 lease spaces for single-family manufactured homes on approximately 127.52 acres, more or less. The proposed development will include an amenity center, pocket parks, and interconnecting trails.

IV. **Submitted by:** _____ City Planner

V. **Finance Reviewed** _____ Finance Director

VI. **Approved for Presentation:** _____ City Administrator

VII. **Attorney Reviewed** _____ Approved _____ Pending Approval

VIII. **Certification of Council Approval:** _____ City Clerk _____ Date

IX. Detail of Issue/Request:

The applicant, Sun Land Development, has applied for approval of a Final Plat and Final PUD Plan the City Council's consideration for the Willow Bend Subdivision.

The site that is the subject of the Final Plat and Final PUD Plan is located east and adjacent to County Road 29 (also known as Northrup Avenue), and south and adjacent to 14th Street right of way in Fort Lupton (the "Property"). The Final Plat and Final PUD Plan is for a residential subdivision that will include one parcel of land with 449 lease spaces for single-family manufactured homes on approximately 127.52 acres, more or less. The proposed development will include an amenity center, pocket parks, and interconnecting trails.

Additional information on this application can be found in the attached Staff Report and other supportive documents. Other submittal documents may not be included with this packet, but can be available for review upon request.

X. Legal/Political Considerations:

The final plat and PUD plan is being reviewed under the final plat provisions of the Subdivision Regulations of the Fort Lupton Municipal Code. Section 17-23 states that a final plat is to be reviewed by Council, and does not require Planning Commission review. The Code requires that a subdivision improvements agreement be submitted by the applicant for review by the City Attorney and City Council. A subdivision improvements agreement has been addressed in the conditions of approval included on the proposed resolution.

This is the final step in the major subdivision process. The first step is approval of a sketch plat (reviewed and approved on March 3, 2020), and the second step is approval of the preliminary plat and preliminary PUD plan (approved on January 19, 2021).

Notifications are not required for a final plat; however, referral agencies were provided with the submittal documents for review. All referral comments received are enclosed with this Action Memorandum.

The subdivision is currently zoned PUD Planned Unit Development. The zoning permits residential uses within the R-1, R-1A, R-2 and R-3 portion of the Municipal Code. The Comprehensive Plan designates this area as Single Family Detached. The proposed use complies with the current zoning and comprehensive plan designation.

XI. Alternatives/Options:

The City Council has the following three options for each request:

a) Approve the proposed resolution.
b) Approve the proposed resolution with conditions.
c) Continue the meeting for additional information or further study.
d) Deny the proposed resolution.

XII. Financial Considerations:

All applicable land use application fees have been paid and a fee deposit has been submitted to cover costs related to the application.

XIII. Staff Recommendation:

Staff recommends conditional approval of the Willow Bend Subdivision Final Plat and Final PUD Plan.

RESOLUTION NO. 2021Rxxx

A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING THE FINAL PLAT OF THE WILLOW BEND FINAL PLAT AND FINAL PUD PLAN FOR A SINGLE LOT SUBDIVISION FOR A MANUFACTURED HOME COMMUNITY LOCATED EAST AND ADJACENT TO COUNTY ROAD 29 (AKA NORTHRUP AVENUE), AND SOUTH AND ADJACENT TO 14TH STREET IN PART OF SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, Sun Willow Bend LLC ("Applicant") has applied for approval of the Willow Bend Final Plat and Final PUD Plan for a single lot subdivision for a manufactured home community; and

WHEREAS, the Fort Lupton City Council held a public hearing on July 6, 2021, for the purpose of reviewing the Willow Bend Final Plat and Final PUD Plan; and

WHEREAS, after review of the application for a Final Plat and Final PUD Plan, and consideration of staff comments, Applicant's presentation, and any public input, the City Council finds that the Final Plat is in conformance with the Colorado Revised Statutes, City codes and policies, and Comprehensive Plan adopted by the City; and

NOW THEREFORE BE IT RESOLVED that the Fort Lupton City Council reviewed the plans and supporting documentation, all referral comments and any citizen input in response to this application. Based upon review of the applicable policies and goals in the Fort Lupton Comprehensive Plan, review of the Subdivision and Zoning Regulations, an analysis of referral comments and facts presented on this date, the City Council hereby recommends approval of the Willow Bend Final Plat and Final PUD Plan located in Part of Section 33, Township 2 North, Range 66 West of the 6th P.M., City of Fort Lupton, County of Weld, State of Colorado with the following conditions:

I. Prior to recording of the Final Plat:

A. The title of the Final Plat shall be updated to include the Project No. LUP2021-0015 and Plan No. FPL2021-0002.

B. Any redline comments provided by City staff shall be made to the Final Plat and/or Final PUD Plan.

C. Applicant shall update street names in accordance with the comments received from the GIS Technician.

D. Referral comments that impact the layout of the Final Plat and/or Final PUD Plan shall be incorporated into the maps, including providing easements as required by utility companies.

E. The following note shall be added to the Final Plat and Final PUD Plan:

1. Unless specifically modified by a PUD plan, all provisions of the City's Code and adopted standards and specifications shall apply within PUD Districts.

II. Prior to the Start of Construction:

A. Applicant shall provide written evidence that the comments from the Public Works Director have been adequately addressed.

B. Applicant shall submit final construction drawings for review and approval.

C. Applicant shall provide written evidence that any comments from the Fort Lupton Fire Protection District have been adequately addressed.

D. Applicant shall provide written acknowledgement of the comments from United Power have been adequately addressed. Utility easements will need to be shown on the plat.

E. Applicant shall provide updated information concerning the finalization of updated surface use agreements.

F. Applicant shall provide written evidence that the comments from the Weld County Public Works Department have been adequately addressed.

G. Applicant shall provide written evidence that comments from the Weld County School District RE-8 have been adequately addressed.

H. Applicant shall provide written evidence that the comments from CDOT have been adequately addressed.

I. Applicant shall specifically identify and delineate trees that will be preserved on the property, pursuant to the tree inventory report results.

J. Applicant shall provide written evidence that the comments from Colorado Parks and Wildlife have been adequately addressed.

K. Applicant shall provide written evidence that the comments from the Division of Water Resources have been adequately addressed.

APPROVED AND PASSED BY A MAJORITY VOTE OF THOSE ELECTED TO THE CITY COUNCIL OF THE CITY OF FORT LUPTON, COLORADO THIS 6th DAY OF JULY, 2021.

City of Fort Lupton, Colorado

_____

Zo Stieber, Mayor

Attest:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

CITY OF Fort Lupton EST 1836

Planning & Building

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

Project No. LUP2020-0031

Land Use Application Form

A. CONTACT INFORMATION

1) Property Owner Name: Coyote Creek North, LLC

Company: N/A

Phone: 770-339-8841 Email: bleino@fullerre.com

Address: 5300 DTC Parkway, Ste 100, Greenwood Village, CO 80111

Preferred method of contact? Email: Phone: Mail:

2) Representative Name: Nikki Jeffries

Company: Sun Land Development

Phone: 248-892-0889 cell Email: njeffries@sunriseland.com

Address: c/o Atwell, Two Towne Square, Ste 700, Southfield, MI 48034

Preferred method of contact? Email: X Phone: Mail:

3) Billing Contact *(where invoices should be directed to)*: Nikki Jeffries

Billing Company: Sun Communities, Inc.

Phone: 248-892-0889 Email: njeffries@sunlanddev.com

Address: 27777 Franklin Road, Ste 200, Southfield, MI 48034

B. SITE DESCRIPTION

Site Address: Southeast corner of 14th Street & Northrup Avenue

Parcel Number: 130933000043

Existing Zone Classification: PUD Proposed Zone Classification: PUD

Water Type: Municipal Name: City of Fort Lupton

Sewage Type: Municipal District Name or Location Hauled to: City of Fort Lupton

C. APPLICATION TYPE (CHECK ALL THAT APPLY)

	Sketch Plat		Administrative Site Plan	X	PUD Plan (Preliminary & Final)
	Preliminary Plat		Special Use Permit		Variance
X	Final Plat		Oil & Gas Permit		Administrative Variance
	Minor Subdivision		Annexation & Initial Zone		Appeal
	Amended Plat		Change of Zone		Other: _____
	Site Plan		Comp Plan Amendment		

Project No. LUP2020-0031

D. PROJECT DESCRIPTION

Project Name: Willow Bend

Please provide a short description of the proposed project in the space provided below:

Willow Bend is a proposed 449 unit manufactured home community in the City of Fort Lupton, Colorado. The community will have a clubhouse, pool, amenity center, and privately maintained parks along with an internal trail system. The project will have private internal roadways and utilities, which will connect to the City's existing public water & sewer systems

E. REQUIRED DOCUMENTS

For an application to be considered complete, and for planning staff to begin review and schedule any applicable public hearings, this Land Use Application Form must be fully completed and all required attachments included. Planning staff will review the application for completeness and will provide notice to the representative and/or owner whether the application has been deemed complete.

F. CERTIFICATIONS

Representative Certification

By signing this application, I attest that I am acting with the knowledge and consent of all owners of the property that is the subject of this application, and that I have been designated to act as the representative for the project described in this land use application. I further certify that all information submitted with this application is true and accurate to the best of my knowledge.

Representative: _____ Date: _____

Nicole A. Jeffries

Owner Certification

I hereby certify that I am the legal owner of record of the property that is the subject of this application. I authorize the representative listed on this application, if any, to communicate directly with City officials and to submit documentation and information regarding this application on my behalf.

Owner: _____ Date: _____

Robert R. Leino, Managing Member ~ Coyote Creek, LLC

For Office Use Only

Received Date: _____

If the application is not complete, state reasons why it is incomplete:

_____

_____

_____

Deemed Complete Date: _____

Fees Submitted: _____ Escrow Submitted: _____

Instructions for Submitting the Land Use Application Form

DEFINITIONS

Words in the singular include the plural and words in the plural include the singular.

Application refers to the official submittal to the City of Fort Lupton's Planning Department for review of the proposed land use development identified in the land use application form. The application includes the form, all materials submitted for review of the project, including those documents required under the Land Use Regulations of the Municipal Code, and any additional information provided.

Project refers to the land use development identified on the land use application form and application materials.

Property refers to the land that is being proposed for development as described in the land use application form and application materials.

A. CONTACT INFORMATION

1) Provide contact information for all owners of any property that is the subject of the application. If the contact information for all property owners will not fit on the space provided, submit a separate sheet for the additional owners.
2) Provide contact information for all persons, firms or businesses that are authorized by the owners identified in Section A(1) to work on the land use application, including, but not limited to, discussing the project, submitting application materials, and attending meeting and hearings. If the contact information for all representatives will not fit on the space provided, submit a separate sheet for the additional representatives.
3) Provide contact and mailing information for the person that should receive all invoices for the project. If this person changes at any time, contact the Planning Department immediately to update this information.

B. SITE DESCRIPTION

Provide all information requested. Parcel numbers and address information may be found at the Weld County Property Portal at https://www.co.weld.co.us/maps1/propertyportal/. Current zoning can be found at https://www.fortluptonco.gov/405/Zoning.

C. APPLICATION TYPE

Select the land use application that is applicable to the project. If there are multiple land use application types being submitted to run concurrently, select all that apply. The land use application types will be identified during the required pre-application meeting. If you have any questions about this, please contact the Planning Department at 303.857.6694 or planningdept@fortluptonco.gov.

D. PROJECT DESCRIPTION

Please select a project name that will be referenced throughout the project and a description of what the project entails. If you need more space for the project description, please attach a separate sheet.

E. REQUIRED DOCUMENTS

Required documents will be discussed during the pre-application meeting with the Planning Department. If any documents are missing, the acceptance of the application may be delayed until the submittal is complete.

F. CERTIFICATIONS

Representative Certification. Provide the signature of all authorized representatives in this section.
Owner Certification. Provide the signature of all owners of properties included in the application in this section.

For any other questions, please contact the Planning Department at 303.857.6694 or planningdept@fortluptonco.gov.

ATWELL

CONSULTING. ENGINEERING. CONSTRUCTION.

Sun Communities
Willow Bend

Project Description
April 23, 2021

General Description/Site Features and Proposed Land Uses

The property (Site) is located on the south side of future 14th Street and east of future Northrup Avenue. The eastern and southern property boundaries are constrained by the Fulton Ditch. The property is approximately 127.5 acres with existing PUD zoning. The proposed land use includes 449 single family manufactured homes with associated amenities that will include a clubhouse and pool, dog park, pocket parks and interconnecting trails. The overall project density is 3.52 du/ac. The Site will be operated as a land lease manufactured home community built to HUD standards.

There is currently one gas producing well on the Site, which will be plugged and abandoned by the operator. There are gas collection facilities on the north side of future 14th Street that will remain and have been incorporated in the development plans for the Site. There are also two plugged and abandoned gas wells on the Site, which have a 75-foot setback associated with the well locations.

A wetlands investigation was completed and a request for Jurisdictional Determination was submitted to the US Army Corps of Engineers. The determination concluded that the wetlands present on the Site are not jurisdictional and do not need to be preserved with development. A copy of the determination was included as part of the Preliminary Plat-PUD submittal package. There has been high groundwater historically on the Site as noted in the geotechnical report prepared by AG Wassenaar. An additional geotechnical investigation was performed by BBA Water Consultants, Inc. The source of the water contributing to the high ground water levels was inconclusive, so additional monitoring of ground water test holes are still underway by AG Wassenaar. When completed, this information, along with additional recommendations made by BBA Water Consultants, Inc and AG Wassenaar, will be incorporated, as needed, into the final construction plans included with this submittal.

Compliance with the City of Fort Lupton Comprehensive Plan

The proposed development integrates the goals set out in the Comprehensive Plan in the following ways:

Growth and Development

143 Union Boulevard, Suite 700, Lakewood, CO 80228 Tel: 303.462.1100 Fax: 303.825.7110

www.atwell-group.com

The Site is designated as single family residential in the Fort Lupton 2018 Comprehensive Plan and meets the intent of the stated goal of providing greater housing diversity in the City. The Site is designated as a Residential Growth Area in the Comprehensive Plan.

The Site will have two trail connections to the proposed Cottonwood Greens development, which is adjacent to the Site on the east side of the Fulton Ditch. The Site has a similar density to the Mountview Subdivision, informally known as the Trees subdivision, which is adjacent to the Site at the southwest corner. The Site is designed to provide connections to existing and adjacent neighborhoods. In addition, the layout provides continuous, direct, convenient, and safe pedestrian pathways to adjacent subdivisions and proposed parks.

Transportation and Mobility

The project will include the construction and/or funding for the construction of the south half of 14th Street along the Site's frontage, which is identified as a need in the Comprehensive Plan. The construction of 14th Street will be coordinated with the proposed Cottonwood Greens development, which will ultimately provide a paved roadway section from County Road 29 to County Road 31. The project will also construct the east half of Northrup Avenue, ultimately providing a paved connection from 9th Street to 14th Street.

This plan provides a safe and efficient transportation network that accommodates pedestrians, vehicles and bicycles. The main entrance is located on Northrup Avenue. The internal roads and trails will be private and maintained by the Owner. The Site is planned to encourage walking and biking through the community with connections to future adjacent neighborhoods.

Parks, Open Space and Environmental Features

The proposed parks, open space and trails within the development will provide high quality recreational opportunities for neighborhood residents and also create connections to future neighborhoods and uses beyond the project boundaries. As part of this project, the Fulton Ditch Trail will be constructed from 14th Street north to the property boundary, which is on the Fort Lupton Proposed Trails Master Plan. In addition, portions of the Fulton Ditch Trail will be constructed with the Cottonwood Greens development, with two proposed connections from the Site. This will eventually provide pedestrian access to Aims Community College and other destinations surrounding Fort Lupton. In addition, this project will construct the public sidewalks along 14th Street and Northrup Avenue.

Public Facilities and Services

The proposed development is a logical extension of the City of Fort Lupton public services without placing additional burdens on existing residents and businesses. Infrastructure will be provided to meet the requirements of the Comprehensive Plan and the Land Use Code. Water will be provided by the City of Fort Lupton. The existing 8" water main in Northrup Avenue at the southwest corner of the Site will be extended north to 14th Street where it will connect with a proposed 12" main in 14th Street which will extend along the entire frontage of

the Site. The 12" water main will connect to the extension in 14th Street proposed by the Cottonwood Greens project. All water mains outside of the public lines described above and serving the individual home sites will be privately owned and maintained by the Owner. Master Meters will be provided at the connection points to the public system.

A non-potable water line will be extended into the site to provide irrigation water for irrigated areas. Which will include the open space and park sites. The non-potable system within the Site will be privately owned and maintained by the owner.

Sewer will be provided by the City of Fort Lupton through connections to an existing public 10" sanitary sewer main that runs diagonally through the Site and then flows west in 14th Street. All sewer mains within the Site serving the individual home sites will be privately owned and maintained by the Owner.

Stormwater will be treated using appropriate water quality measures, with on-site detention being utilized throughout the site to maintain stormwater releases at or below agreed upon historic rates from the Site. Stormwater will be conveyed using a series of storm drains, swales and the street sections to the detention pond located in the north-west corner of the Site. This onsite pond will release into the existing roadside ditch on the south side of 14th Street and flow to the west into Golden's Pond, which provides additional regional drainage detention in this area.

Planned Phasing

The project is proposed to be constructed in four phases. Each phase will include the necessary infrastructure for the lots, including the private roads, storm water facilities and utilities. Each phase will include a portion of the trail system through the project.

Phase 1 consists of 217 manufactured home sites and their required infrastructure. Phase 1 will include the construction of the east half of Northrup Avenue from the main entrance going south as well as the connection of the off-site utilities. Phase 1 will also include construction of the amenity center which includes the clubhouse, pool, playground, sports courts, and maintenance building.

Phase 2 consists of 124 MH sites and their required infrastructure. In addition, Phase 2 will include the construction of a community park within the Site, which will include a shade structure, tot lot, open play areas and dog park. The pocket park on the SE portion of the Site will also be constructed in Phase 2.

Phase 3 consists of 79 MH sites and their required infrastructure.

Phase 4 consists of 29 MH sites and their required infrastructure (all north of 14th Street). In addition, the northern pocket park including shade structure and open play area will be constructed. If easements or ROW have been secured, Phase 4 will also include the construction of the south half of 14th Street and the construction of Northrup Avenue from the

main entrance to the intersection at 14th Street. In addition, the Fulton Ditch Trail from 14th Street north to the northern property line will be constructed as during Phase 4.

Forecast of Projected Construction Timing

The construction of Willow Bend infrastructure is described above, with the first phase of development anticipated to take nine to twelve months, and the subsequent phases anticipated to be constructed in six months. The commencement of the initial phase of infrastructure is anticipated to occur shortly after approval of the required entitlements/permits from the City of Fort Lupton. While the ultimate commencement of future phases of construction will be based on the market absorption of delivered lots and time of year, the final phase of development is currently expected to be completed by the middle of 2024.

Public Services

Fire and Police Protection

Law enforcement for the property will be provided by the Fort Lupton Police Department. It is not anticipated that there would be special security needs or a specific need for additional officers.

Fire protection for the property will be provided by Fort Lupton Fire Department. Fort Lupton Fire Station #2 is located southeast of the Site at the corner of County Road 31 and 9th Street. It is not anticipated that the project would pose special fire hazards. Fire prevention requirements, fire detection, fire lanes, emergency access, etc. will be provided as required by code.

Schools

The project is within the Weld RE-8 School District. We are working with the District to identify and address any impacts of this project. The developer will continue to work with the School District to determine the need for a school site requirement. It is anticipated that cash-in-lieu will be the means to meet the school site dedication requirement.

Recreation and Open Space

The project will include pocket parks, an amenity center with clubhouse and pool, playgrounds, and a dog park as well as open spaces and trails, to provide active and passive recreation opportunities.

Traffic Statement

The property is bordered by future 14th Street to the north, future Northrup Avenue to the west and the Fulton Ditch to the south and east. A Supplemental Traffic Study (STS) was included with the Preliminary PUD-Plat submittal and is also included with this submittal. The STS updated the original Traffic Impact Study submitted with the Sketch Plan to determine the feasibility of using only the access to Northrup Avenue for all traffic. The STS assumes 14th Street is constructed at a much latter phase when the necessary Right-of-

Way is obtained. The STS indicates that the Northrup Avenue access point as a single point of access is feasible for the foreseeable future. A temporary, secondary emergency access point off Northrup Avenue, south of the main access point, has been provided as reflected on the PUD site plan. The key overall conclusions from the original report, based on ultimate buildout of Northrup Avenue and 14th Street, are summarized below:

- The Project is expected to generate approximately 2,330 daily trips, 120 trips during the AM peak hour and 215 trips during the PM peak hour.
- Currently the two study intersections of US 85 at 14th Street and Northrup Avenue at 9th Street are operating at acceptable levels.
- Under the future 2040 conditions it was assumed that Northrup Avenue would be extended north of 14th Street as a two-lane collector. 14th Street would be improved to a 4-lane arterial street.
- Under 2040 projected conditions, the traffic at US 85 and 14th Street will experience long delays. A future junior interchange was suggested for this location in the CDOT *US 85 Planning and Environmental linkages (PEL) Study.* The findings of this study support that recommendation.
- Under 2040 projected conditions, the north and southbound traffic at Northrup Avenue and 14th Street will experience long delays. The future traffic volumes at this location suggest that signalization may be appropriate. With a signal, this intersection would operate acceptably in 2040.
- The northbound direction of traffic at the proposed Access Street B at 14th Street will experience long delays during the PM peak hour. These volumes are very low and this is typical for intersections of local streets with 4-lane arterials. The City Engineer has indicated that this location may need to be restricted to right-in/right-out only for both the north and southbound directions. If the applicant desires full movement for the northbound direction, it was suggested that this intersection be moved to the west which is what the PUD site plans indicates.
- Under 2040 conditions a southbound left-turn lane would be needed on Northrup Avenue at the proposed Access Street A.

Statement of Commercial Mineral Deposits

There are currently oil & gas facilities within the property but there are no known commercial mineral deposits on-site.

Public Land Dedication

Land dedication for Parks is calculated at 3 residents per single family detached unit and 2.5 residents per Townhome unit. Based on historic data from the developer, the average occupancy of a manufactured home is less than 3 residents and the land dedication is based on the townhome rate. With the current site plan, the total number of manufactured housing units is 449, resulting in 1,123 residents. Calculating the land dedication at 10 acres / 1000 persons, the required dedicated open space would be 11.23 acres. Open

space to be dedicated to the City includes the open space and trail corridor along the Fulton Ditch, Tracts A, B, and C, which meets the required open space dedication.

WILLOW BEND PUD FILING NO. 1

PROJECT NO. LUP2020-0031
PLAN NO. PPL2020-0004

LOCATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
127.52 ACRES

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2" ALUMINUM CAP STAMPED "ALPHA ENGNRG 1997 25937" AND AT THE EAST END BY A FOUND 2-1/2" ALUMINUM CAP STAMPED "GREENHORNE & O'MARA INC. 1993 PLS 28656". SAID NORTH LINE BEARS NORTH 89°58'12" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO;

COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER SOUTH 00°10'09" EAST 30.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 14-1/2 (14TH STREET) AS DESCRIBED IN BOOK 76 AT PAGE 126 WELD COUNTY RECORDS, AND THE **POINT OF BEGINNING**;

THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE NORTH 89°58'06" EAST 2645.50 FEET TO A POINT ON THE EAST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID EAST LINE NORTH 00°08'34" WEST 30.00 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 33 NORTH 00°08'25" WEST 1842.81 FEET TO THE CENTERLINE OF FULTON DITCH;

THENCE ALONG THE CENTERLINE OF FULTON DITCH THE FOLLOWING TWENTY-SIX (26) COURSES:

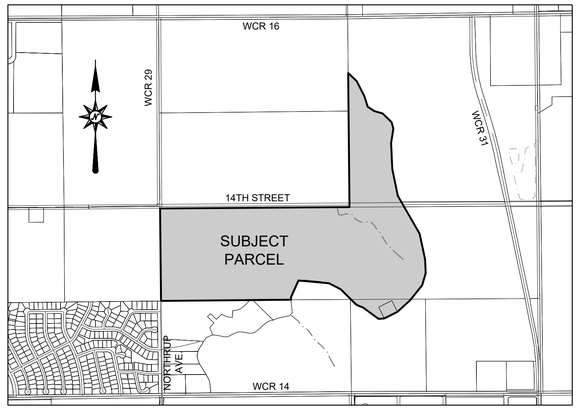
1. SOUTH 46°09'18" EAST 161.51 FEET;
2. SOUTH 26°34'39" EAST 237.74 FEET;
3. SOUTH 17°06'19" EAST 155.42 FEET;
4. SOUTH 56°18'27" EAST 109.68 FEET;
5. SOUTH 73°59'11" EAST 122.24 FEET;
6. SOUTH 45°26'22" EAST 173.40 FEET;
7. SOUTH 15°54'54" EAST 92.77 FEET;
8. SOUTH 09°11'44" WEST 208.08 FEET;
9. SOUTH 02°10'36" EAST 360.14 FEET;
10. SOUTH 11° 12'41" EAST 382.04 FEET;
11. SOUTH 29°24'52" EAST 143.19 FEET;
12. SOUTH 29°31'20" EAST 467.66 FEET;
13. SOUTH 11°45'35" EAST 367.88 FEET;
14. SOUTH 02°13'20" EAST 191.53 FEET;
15. SOUTH 16°42'35" WEST 177.01 FEET;
16. SOUTH 39°03'23" WEST 269.72 FEET;
17. SOUTH 47°56'22" WEST 237.78 FEET;
18. SOUTH 63°33'42" WEST 205.14 FEET;
19. SOUTH 85°19'19" WEST 82.20 FEET;
20. NORTH 53°17'11" WEST 266.98 FEET;
21. NORTH 67° 19'06" WEST 102.80 FEET;
22. NORTH 44°49'06" WEST 306.80 FEET;
23. NORTH 62°30'49" WEST 185.28 FEET;
24. NORTH 84°27'39" WEST 426.41 FEET;
25. SOUTH 24°35'11" WEST 259.79 FEET;
26. SOUTH 04°39'12" EAST 31.82 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH HALF OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID SOUTH LINE SOUTH 89°54'18" WEST 1818.70 FEET TO A POINT ON THE WEST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID WEST LINE NORTH 00°09'06" WEST 1291.08 FEET TO THE **POINT OF BEGINNING**.

SUBJECT TO WELD COUNTY ROAD RIGHT-OF-WAY.

CONTAINING 5,554,830 SQUARE FEET, OR 127.52 ACRES, MORE OR LESS.



VICINITY MAP
SCALE: 1"=1000'

DEDICATION:

KNOW ALL MEN BY THESE PRESENTS THAT WE, COYOTE CREEK NORTH, LLC, A COLORADO LIMITED LIABILITY COMPANY, BEING THE SOLE OWNERS OF THE LAND DESCRIBED HEREIN, HAVE CAUSED SAID LAND TO BE LAID OUT AND PLATTED UNDER THE NAME OF WILLOW BEND PUD FILING NO. 1, AND DO HEREBY DEDICATE TO THE CITY OF FORT LUPTON AND ITS LICENSEES FOR PUBLIC USE FOREVER ALL STREETS, ALLEYS AND UTILITY EASEMENTS AS INDICATED HEREON. IN COMPLIANCE WITH THE CITY OF FORT LUPTON SUBDIVISION REGULATIONS AND BY CONTRACTUAL AGREEMENT, THE LANDOWNERS SHALL BEAR ALL EXPENSES INVOLVED IN IMPROVEMENTS.

IN WITNESS WHEREOF, WE HAVE HEREUNTO SET OUR HANDS AND SEALS THIS _____ DAY OF _____ 20____,

COYOTE CREEK NORTH, LLC, A COLORADO LIMITED LIABILITY COMPANY

BY: _____
ITS: _____

BY: _____

TITLE: _____

NOTARY CERTIFICATE:

STATE OF COLORADO)
)SS
COUNTY OF WELD)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME BY _____ OF COYOTE CREEK NORTH, LLC

THIS _____ DAY OF _____ 20____, WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES: _____

_____
NOTARY PUBLIC

OWNER'S APPROVAL:

KNOW ALL MEN BY THESE PRESENTS, THAT WE COYOTE CREEK NORTH, LLC, BEING THE SOLE OWNER(S) OF THE LAND DESCRIBED HEREIN, AND WE ARE ALL OF THE MORTGAGEES AND HOLDERS OF LIENS UPON THE PROPERTY, AND EACH AND ALL HEREBY CONSENT TO THIS PLAT AND JOIN THE CONVEYANCE AND DEDICATION OF ALL STREETS, ROADS, ALLEYS, EASEMENTS, PUBLIC WAYS AND PLACES SHOWN HEREON.

IN WITNESS WHEREOF, WE HAVE HEREUNTO SET OUR HANDS AND SEALS THIS _____ DAY OF _____, 20__,

STATE OF COLORADO,)
) SS
COUNTY OF WELD)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME BY ON THIS _____DAY OF _____, 20__,

WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES _____,

_____
NOTARY PUBLIC

THESE EASEMENTS ARE DEDICATED TO THE CITY OF FORT LUPTON FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF ELECTRIC, GAS, TELEVISION, CABLE, AND TELECOMMUNICATIONS FACILITIES (DRY UTILITIES). UTILITY EASEMENTS SHALL ALSO BE GRANTED WITHIN ANY ACCESS EASEMENTS AND PRIVATE STREETS IN THE SUBDIVISION. PERMANENT STRUCTURES, IMPROVEMENTS, OBJECTS, BUILDINGS, WELLS, WATER METERS AND OTHER OBJECTS THAT MAY INTERFERE WITH THE UTILITY FACILITIES OR USE THEREOF (INTERFERING OBJECTS) SHALL NOT BE PERMITTED WITHIN SAID UTILITY EASEMENTS AND THE UTILITY PROVIDERS, AS GRANTEES, MAY REMOVE ANY INTERFERING OBJECTS AT NO COST TO SUCH GRANTEES, INCLUDING, WITHOUT LIMITATION, VEGETATION. PUBLIC SERVICE COMPANY OF COLORADO (PSCO) AND ITS SUCCESSORS RESERVE THE RIGHT TO REQUIRE ADDITIONAL EASEMENTS AND TO REQUIRE THE PROPERTY OWNER TO GRANT PSCO AN EASEMENT ON ITS STANDARD FORM.

SURVEYOR'S CERTIFICATE:

I, MICHAEL LLOYD POOL, A DULY REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT OF WILLOW BEND PUD FILING NO. 1 WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THIS PLAT HAS BEEN PREPARED IN COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO AT THE TIME OF THIS SURVEY AND WITHIN MY CONTROL, AND IS ACCURATE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

COLORADO LICENSED
MICHAEL LLOYD POOL
38304
PROFESSIONAL LAND SURVEYOR

_____
MICHAEL LLOYD POOL, PLS
COLORADO REG. NO. 38304
FOR AND ON BEHALF OF ATWELL, LLC

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATE SHOWN HEREON.

SURVEYOR'S IMPROVEMENT CERTIFICATE:

I HEREBY CERTIFY THAT, ON THE DATE SHOWN, A FIELD SURVEY WAS CONDUCTED UNDER MY SUPERVISION OF THE ABOVE-DESCRIBED PROPERTY, AND THAT ALL BUILDING IMPROVEMENTS, EASEMENTS AND RIGHTS-OF-WAY IN EVIDENCE OR KNOWN TO ME ARE CORRECTLY SHOWN ON THE ABOVE PLAT. I FURTHER CERTIFY THAT THERE ARE NO ENCROACHMENTS BY AND/OR ON THIS PROPERTY, UNLESS OTHERWISE NOTED.

COLORADO LICENSED
MICHAEL LLOYD POOL
38304
PROFESSIONAL LAND SURVEYOR

_____
MICHAEL LLOYD POOL, PLS
COLORADO REG. NO. 38304
FOR AND ON BEHALF OF ATWELL, LLC

CITY ENGINEER'S APPROVAL:

APPROVED THIS _____ DAY OF _____, 20__,

_____
CITY ENGINEER

PLANNING COMMISSION RECOMMENDATION:

RECOMMENDED THIS _____ DAY OF _____, 20_____, BY RESOLUTION NO. _____,

_____
CHAIRPERSON, FORT LUPTON
PLANNING COMMISSION

MAYOR'S CERTIFICATE:

THIS IS TO CERTIFY THAT A PLAT OF THE ABOVE-DESCRIBED PROPERTY WAS APPROVED BY RESOLUTION NO. _____ OF THE CITY OF FORT LUPTON PASSED AND ADOPTED ON THE _____ DAY OF _____, A.D. 20___ AND THAT THE MAYOR OF THE CITY OF FORT LUPTON, AS AUTHORIZED BY SAID RESOLUTION ON BEHALF OF THE CITY OF FORT LUPTON, HEREBY ACKNOWLEDGES AND ADOPTS THE SAID PLAT UPON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED THEREON.

ATTEST:

_____ _____
MAYOR CITY CLERK
(SEAL)

CITY ADMINISTRATOR'S APPROVAL:

APPROVED THIS _____ DAY OF _____, 20_____,

_____
CITY ADMINISTRATOR

CITY WATER AND SEWER DEPARTMENT APPROVAL:

APPROVED THIS _____ DAY OF _____, 20_____,

_____
DIRECTOR OF PUBLIC WORKS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET 1 OF 11

FILE NO. 19001956-FINL PLAT
DATE 03/28/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19001956

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WILLOW BEND PUD FILING NO. 1

LOCATED IN SECTION 13, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031
PLAN NO. PPL2020-0004

0' 200' 400' 600'
SCALE: 1" = 200'

DEVELOPER/APPLICANT
SUN COMMUNITIES
ANASTASIYA SHORT
27777 FRANKLIN ROAD, SUITE 220
SOUTHFIELD, MICHIGAN 48034 (248)-208-2543

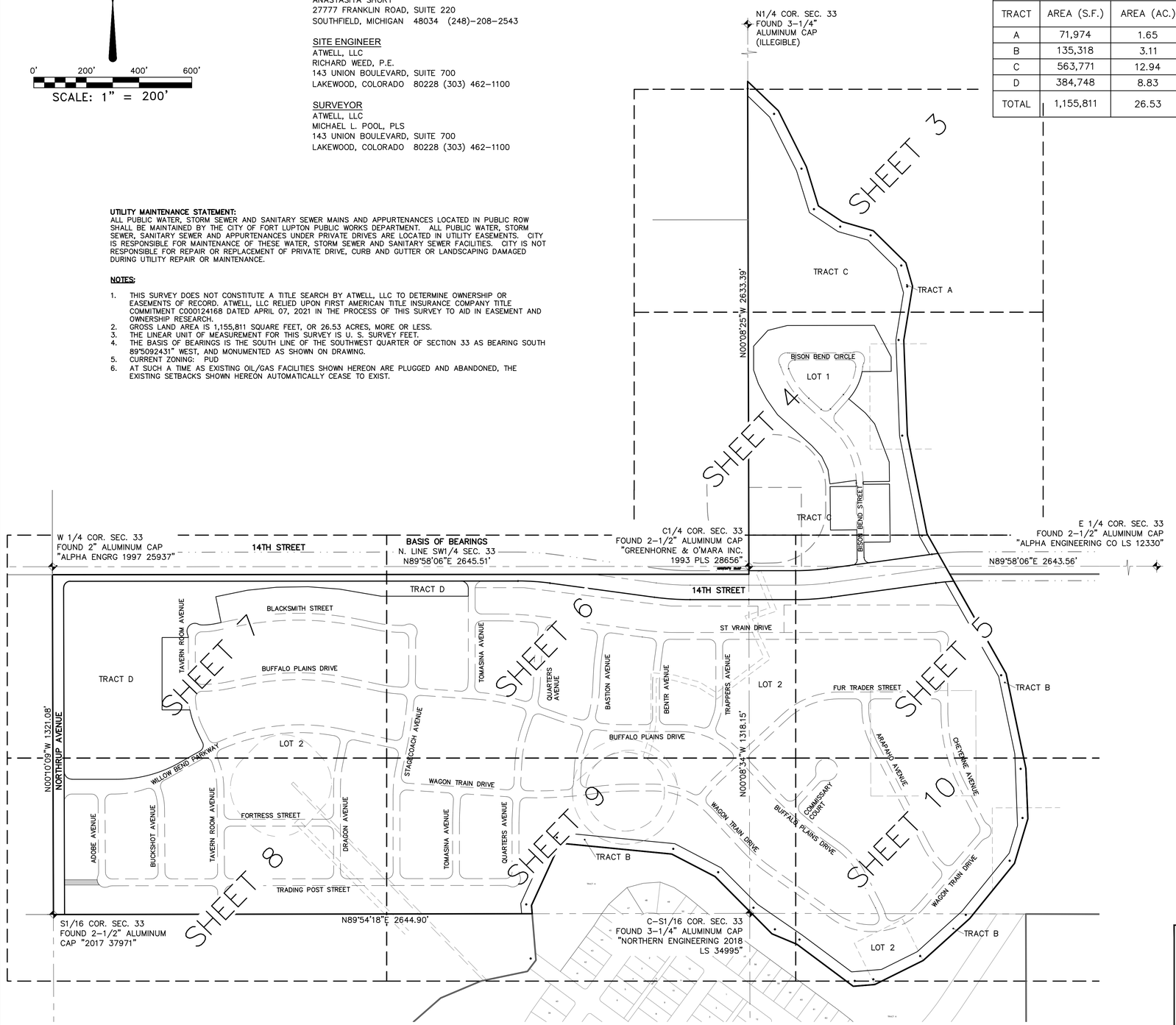
SITE ENGINEER
ATWELL, LLC
RICHARD WEED, P.E.
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, COLORADO 80228 (303) 462-1100

SURVEYOR
ATWELL, LLC
MICHAEL L. POOL, PLS
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, COLORADO 80228 (303) 462-1100

UTILITY MAINTENANCE STATEMENT:
ALL PUBLIC WATER, STORM SEWER AND SANITARY SEWER MAINS AND APPURTENANCES LOCATED IN PUBLIC ROW SHALL BE MAINTAINED BY THE CITY OF FORT LUPTON PUBLIC WORKS DEPARTMENT. ALL PUBLIC WATER, STORM SEWER, SANITARY SEWER AND APPURTENANCES UNDER PRIVATE DRIVES ARE LOCATED IN UTILITY EASEMENTS. CITY IS RESPONSIBLE FOR MAINTENANCE OF THESE WATER, STORM SEWER AND SANITARY SEWER FACILITIES. CITY IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF PRIVATE DRIVE, CURB AND GUTTER OR LANDSCAPING DAMAGED DURING UTILITY REPAIR OR MAINTENANCE.

NOTES:

1. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY ATWELL, LLC TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. ATWELL, LLC RELIED UPON FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT C000124168 DATED APRIL 07, 2021 IN THE PROCESS OF THIS SURVEY TO AID IN EASEMENT AND OWNERSHIP RESEARCH.
2. GROSS LAND AREA IS 1,155,811 SQUARE FEET, OR 26.53 ACRES, MORE OR LESS.
3. THE LINEAR UNIT OF MEASUREMENT FOR THIS SURVEY IS U. S. SURVEY FEET.
4. THE BASIS OF BEARINGS IS THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 33 AS BEARING SOUTH 89°50'24.31" WEST, AND MONUMENTED AS SHOWN ON DRAWING.
5. CURRENT ZONING: PUD
6. AT SUCH A TIME AS EXISTING OIL/GAS FACILITIES SHOWN HEREON ARE PLUGGED AND ABANDONED, THE EXISTING SETBACKS SHOWN HEREON AUTOMATICALLY CEASE TO EXIST.



TRACT SUMMARY TABLE					
TRACT	AREA (S.F.)	AREA (AC.)	USE	OWNERSHIP	MAINTENANCE
A	71,974	1.65	PUBLIC OPEN SPACE/UTILITIES/FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
B	135,318	3.11	PUBLIC OPEN SPACE/UTILITIES/FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
C	563,771	12.94	PUBLIC OPEN SPACE/UTILITIES/FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
D	384,748	8.83	PRIVATE OPEN SPACE/DRAINAGE/UTILITIES	SUN COMMUNITIES, INC.	SUN COMMUNITIES, INC.
TOTAL	1,155,811	26.53			

LAND SUMMARY CHART			
TYPE	AREA (S.F.)	AREA (AC.)	% OF TOTAL
LOTS 1 & 2	4,156,730	95.43	74.83
TRACTS A, B & C (PUBLIC OPEN SPACE)	771,063	17.7	13.88
TRACT D (PRIVATE OPEN SPACE)	384,748	8.83	6.93
PUBLIC RIGHT-OF-WAY	242,289	5.56	4.36
TOTAL	5,554,830	127.52	100

LEGEND
- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- SHEET INDEX

WILLOW BEND PUD ZONING REQUIREMENTS TABLE		
PARCEL	PROPOSED PUD ZONE	R-1A ZONE
AREA (AC.)	127.52	
ALLOWABLE LAND USE	SFD	SFD
PERMITTED DENSITY (UNITS/ACRE)	4	6.7
MAXIMUM UNITS	450	
MINIMUM SITE SIZE (S.F.)	5500	6500
MINIMUM SITE WIDTH AT STREET (FT.)	40 (1)	30
MAXIMUM BUILDING COVERAGE (FOR STRUCTURES ONLY)	45%	
PRINCIPAL BUILDING		
MAXIMUM HEIGHT (FT.)	35	35
MINIMUM SETBACK FOR ALL STRUCTURES FROM 14TH STREET (FT.)	25	N/A
MINIMUM SETBACK FOR ALL STRUCTURES FROM NORTHRUP AVENUE (FT.)	25	N/A
MINIMUM FRONT YARD SETBACK FRO PRINCIPAL BUILDINGS (FT.)	24	25
MINIMUM FRONT YARD SETBACK – GARAGE (GARAGE DOOR SIDE) (FT.)	24	25
MINIMUM SIDE YARD SETBACK (FT.)	5	5
MINIMUM REAR YARD SETBACK (FT.)	10	20
MINIMUM CORNER SIDE YARD SETBACK (FT.)	15	20
MINIMUM DWELLING SIZE (S.F.)	900	900
ACCESSORY USE		
MAXIMUM HEIGHT (FT.)	15	N/A
MAXIMUM ACCESSORY BUILDING SIZE (S.F.)	600	1000
FRONT SETBACK (NOT ALLOWED IN FRONT YARD)	N/A	N/A
MINIMUM SIDE YARD SETBACK (FT.)	5	5
MINIMUM CORNER SETBACK (FT.)	15	20
MINIMUM REAR SETBACK (FT.)	8	5
PARKING REQUIREMENTS		
OFFSTREET SPACES PER UNIT	3	2

(1) FOR SITES FRONTING CUL-DE-SACS/KNUCKLES/EYEBROWS THE MINIMUM SITE WIDTH AT STREET CAN BE REDUCED TO A MINIMUM OF 20 FEET.

COLORADO LICENSED
MICHAEL LLOYD POOL
38304
PROFESSIONAL LAND SURVEYOR

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET 2 OF 11

FILE NO. 19001956-FINL PLAT
DATE 03/28/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19001956

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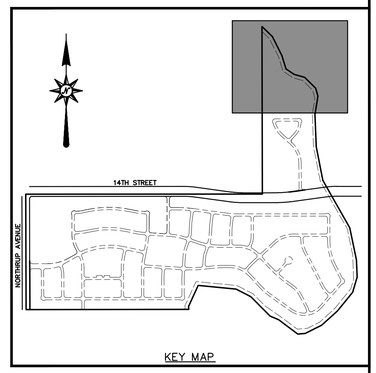
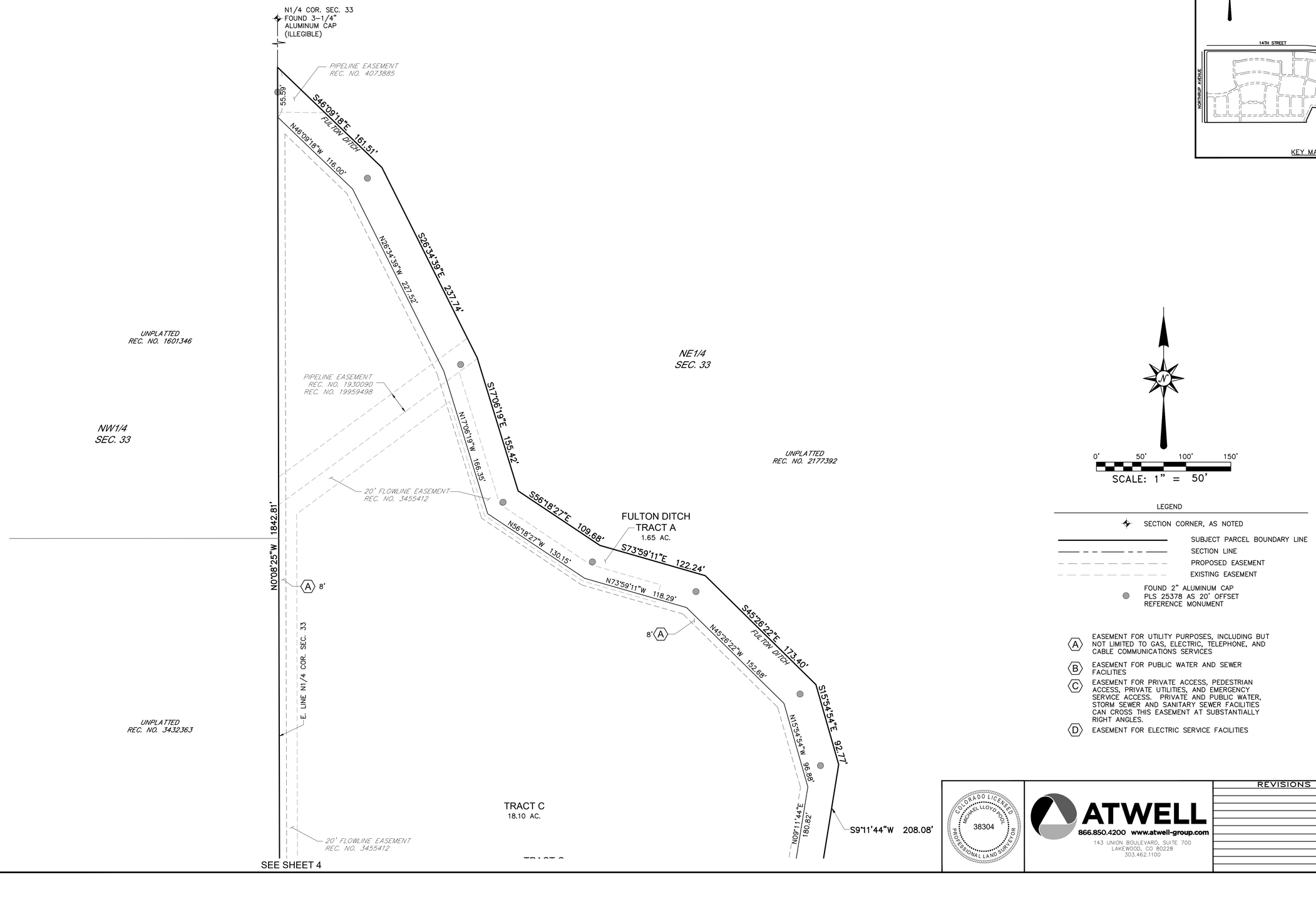
k:\19001956\dwg\survey\19001956--final plat.dwg Savedate:4/17/2021 2:01 PM Plotdate:4/20/2021 2:38 PM

WILLOW BEND PUD FILING NO. 1

LOCATED IN SECTION 13, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031
PLAN NO. PPL2020-0004





LEGEND

- SECTION CORNER, AS NOTED
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- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT

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(B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES

(C) EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, PRIVATE UTILITIES, AND EMERGENCY SERVICE ACCESS. PRIVATE AND PUBLIC WATER, STORM SEWER AND SANITARY SEWER FACILITIES CAN CROSS THIS EASEMENT AT SUBSTANTIALLY RIGHT ANGLES.

(D) EASEMENT FOR ELECTRIC SERVICE FACILITIES

COLORADO LICENSED
MICHAEL LLOYD POOL
38304
PROFESSIONAL LAND SURVEYOR

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET 3 OF 11

FILE NO.	19001956-FINL PLAT
DATE	03/28/2021
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CHECK BY	MLP
JOB NO.	19001956

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WILLOW BEND PUD FILING NO. 1

LOCATED IN SECTION 13, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031
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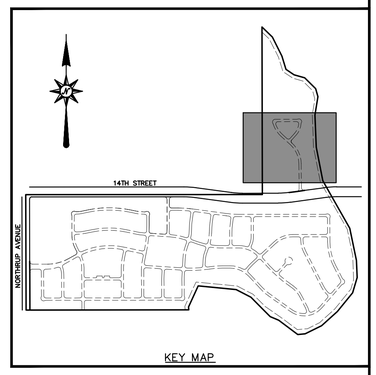

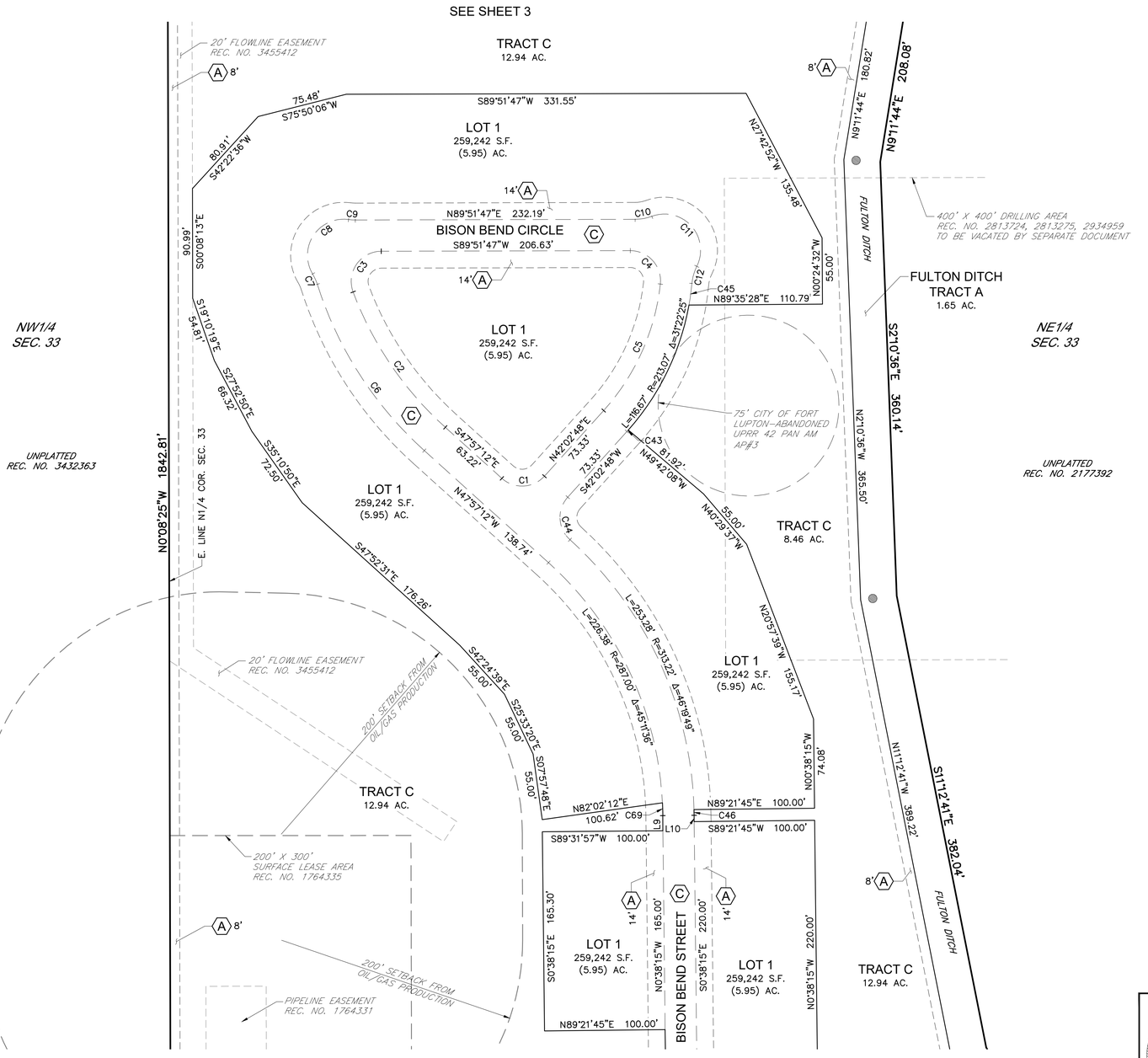

0' 50' 100' 150'
SCALE: 1" = 50'

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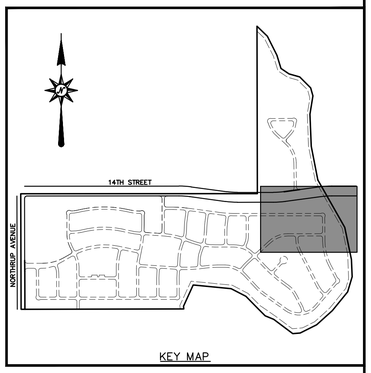

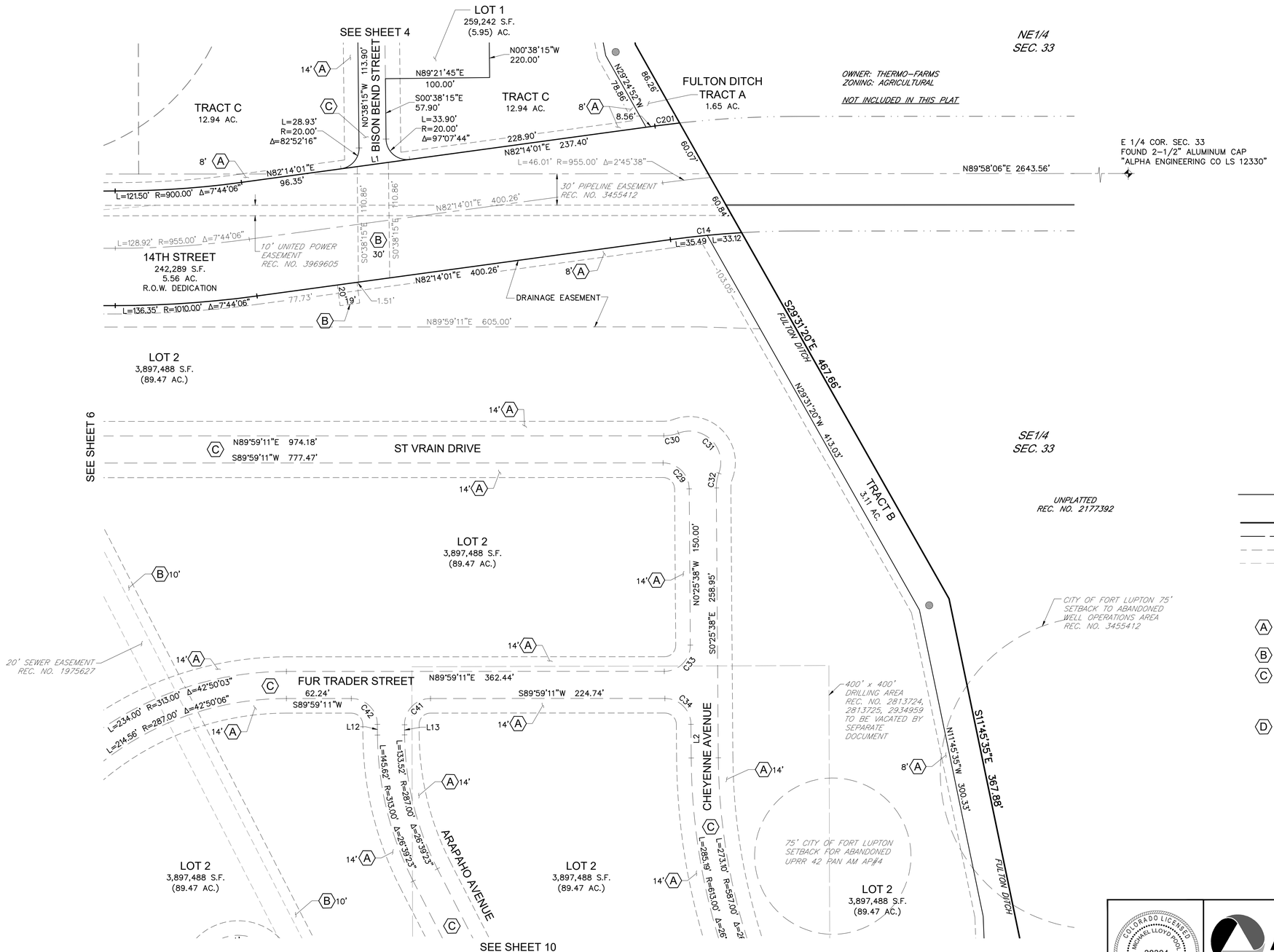

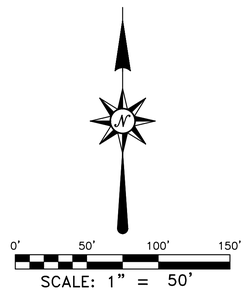

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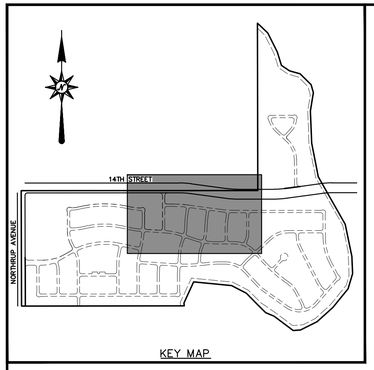

KEY MAP

SEE SHEET 4

NE1/4 SEC. 33

UNPLATTED
REC. NO. 3432363

NW1/4 SEC. 33

200' SETBACK FROM OIL/GAS PRODUCTION

PIPELINE EASEMENT REC. NO. 1764331

TRACT C
12.94 AC.

C1/4 COR. SEC. 33
FOUND 2-1/2" ALUMINUM CAP
"GREENHORNE & O'MARA INC.
1993 PLS 28656"

BASIS OF BEARINGS
N. LINE SW1/4 SEC. 33
N89°58'06"E 2645.51'

N0°08'25"W 1842.81'
N0°08'34"W 30.00'
N89°58'06"E 177.46'
13.75'
591.15'
N89°58'06"E 2645.50'

25' R.O.W. DEDICATION
N89°58'06"E 1701.36'
83.20'
134.46'
L=121.55' R=900.00' Δ=7°44'18"
S82°17'35"E 241.71'
L=128.96' R=955.00' Δ=7°44'13"
N89°58'12"E 223.03'
N89°58'06"E 177.49'

TRACT D
8.83 AC.
N0°01'02"W 29.06'
S89°58'58"W 331.59'

N89°59'10"E 185.29'
S82°17'35"E 399.91'
S82°51'56"E 563.21'

14TH STREET
242,289 S.F.
5.56 AC.
R.O.W. DEDICATION

SW1/4 SEC. 33
SE1/4 SEC. 33

L=136.38' R=1010.00' Δ=7°44'13"
N89°58'12"E 223.03'
N89°58'06"E 177.49'
S89°56'23"E 330.00'
DRAINAGE EASEMENT

S0°01'02"E 71.81'
S0°01'02"E 295.29'
S0°00'49"E 100.00'
N0°00'00"E 104.52'

ST VRAIN DRIVE
L=162.44' R=1213.00' Δ=7°40'21"
N89°58'58"E 72.91'
L=120.13' R=1187.00' Δ=5°47'55"
S82°20'40"E 150.00'
S82°20'40"E 380.85'
L=132.11' R=987.00' Δ=7°40'09"
N82°20'40"W 116.85'
S89°59'11"W 120.11'

LOT 2
3,897,488 S.F.
(89.47 AC.)

SEE SHEET 7

STAGECOACH AVENUE
N0°01'02"W 98.14'
N0°01'02"W 97.01'
N0°01'02"W 295.29'

TOMASINA AVENUE
N0°01'02"W 176.56'

QUARTERS AVENUE
S7°39'20"W 95.98'
N7°39'20"E 96.60'
S7°39'20"W 73.21'
S7°39'20"W 73.21'
S2°33'46"W 85.69'
N2°33'46"E 85.69'

BASTION AVENUE
N0°02'05"W 117.19'

BENT AVENUE
S0°02'05"E 117.19'

TRAPPERS AVENUE
N0°00'49"W 203.22'
S0°00'49"E 203.22'

20' SEWER EASEMENT
REC. NO. 1975627

20' FLOWLINE EASEMENT
REC. NO. 3455412
TO BE VACATED BY
SEPARATE DOCUMENT

E. LINE NW1/4 SEC. 33
W. LINE NE1/4 SEC. 33

BUFFALO PLAINS DRIVE
N86°09'42"W 150.04'
N86°09'42"W 210.64'
L=166.23' R=763.00' Δ=12°28'58"
L=175.02' R=737.00' Δ=13°36'22"
L=123.68' R=1487.00' Δ=4°59'48"
L=175.29' R=1513.00' Δ=6°38'17"
N89°57'55"E 82.88'
N89°57'55"E 51.56'
S89°57'55"W 210.44'
L=217.00' R=287.00' Δ=43°19'19"

FUR TRADER STREET
N47°09'05"E 190.17'
S47°09'05"W 189.71'

69.21'
N70°35'11"W 67.10'
N70°35'11"W
=147.62' R=513.00' Δ=16°29'13"
=140.14' R=487.00' Δ=16°29'13"

SEE SHEET 5

SEE SHEET 9

LEGEND

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0' 50' 100' 150'
SCALE: 1" = 50'

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REVISIONS

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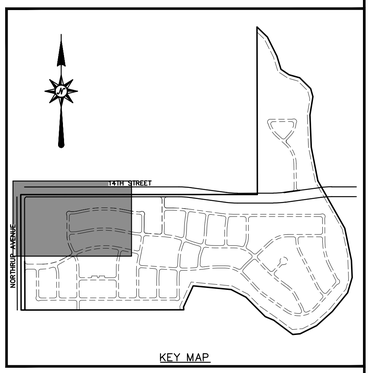

UNPLATTED
REC. NO. 3432363

W1/4 COR. SEC. 33
FOUND 2" ALUMINUM CAP
"ALPHA ENGRG 1997 25937"

N. LINE SW 1/4 SEC. 33
N89°58'12"E 2645.51'

N89°58'06"E 2645.50'

14TH STREET

30'

25' R.O.W. DEDICATION

N89°58'06"E 1701.20'

C200

D 8'

122.61'
S78°28'31"W

111.43'
S84°05'59"W

119.35'
S89°03'39"W

119.35'
N85°37'46"W

160.37'
N80°19'11"W

S89°58'58"W
331.59'

TRACT D
8.83 AC.

LOT 2
3,897,488 S.F.
(89.47 AC.)

S11°32'51"E
100.00'

S78°27'10"W
23.14'

55.23'
S78°27'09"W

BLACKSMITH STREET

L=485.60' R=1187.00' Δ=23°26'23"

L=474.96' R=1161.00' Δ=23°26'23"

A 14'

C

51.53'
N78°06'28"W

51.53'
N78°06'28"W

L=107.35' R=513.00' Δ=11°59'22"

C97 C98 C181 C182

78.37'
S78°27'09"W

99.79'
S89°58'58"W

C99 C100

42.5' R.O.W. DEDICATION

UNPLATTED
REC. NO. 2539249

W. LINE N 1/2, SW 1/4 SEC. 33
N00°10'09"W 1321.15'

N0°10'09"W 1291.08'

NORTHRUP AVENUE

698.03'

D 8'

TRACT D
8.83 AC.

275.00'
S00°01'02"E

S0°01'02"E 212.62'

TAVERN ROOM AVENUE

S0°01'02"E 150.02'

A 14'

LOT 2
3,897,488 S.F.
(89.47 AC.)

L=393.14' R=961.00' Δ=23°26'23"

L=382.51' R=935.00' Δ=23°26'23"

BUFFALO PLAINS DRIVE

N78°27'09"E 75.95'

S78°27'09"W 75.95'

C101 C183 C184 C102

S78°06'28"E 117.10'

N78°06'28"W 117.10'

LOT 2
3,897,488 S.F.
(89.47 AC.)

C71 C187

N90°00'00"E
105.47'

14' A

C72 C

S26°00'53"E
50.10'

C103

S60°25'39"W
28.60'

75' SETBACK FOR CITY OF FORT LUPTON FOR ABANADONED BROWN RED W 33-12 LOCATION

SEE SHEET 8

L=481.41' R=765.00' Δ=36°03'22"

L=442.19' R=735.00' Δ=34°28'13"

WILLOW BEND PARKWAY

S78°06'28"E 207.82'

N78°06'28"W 150.00'

C104 C106 C107 C108

DRAGON AVENUE

LOT 2
3,897,488 S.F.
(89.47 AC.)

LOT 2
3,897,488 S.F.
(89.47 AC.)

SEE SHEET 6

N

0' 50' 100' 150'

SCALE: 1" = 50'

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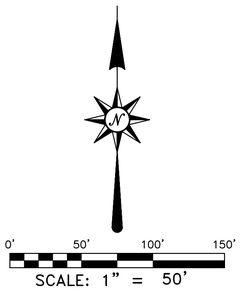

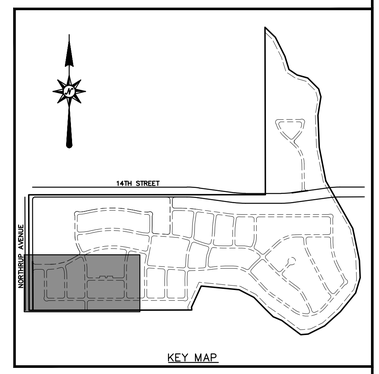

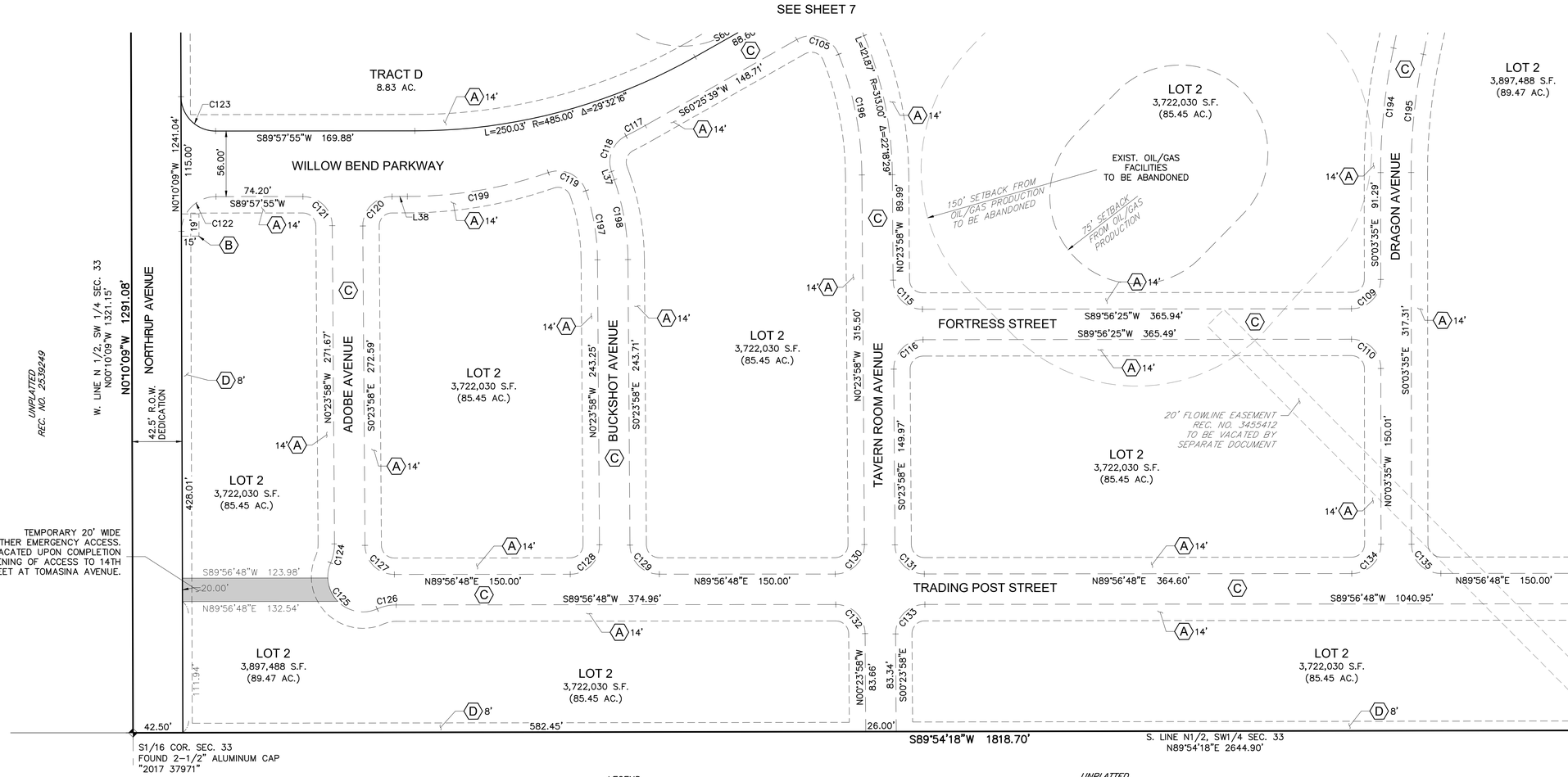

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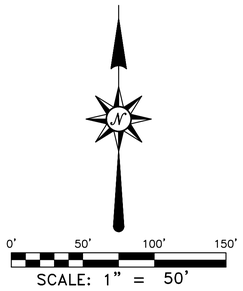

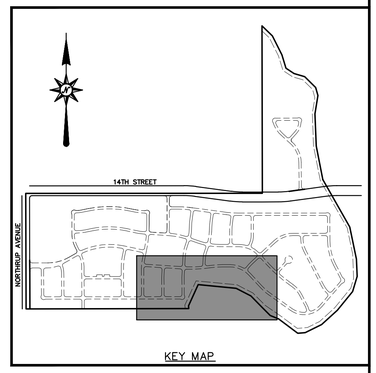

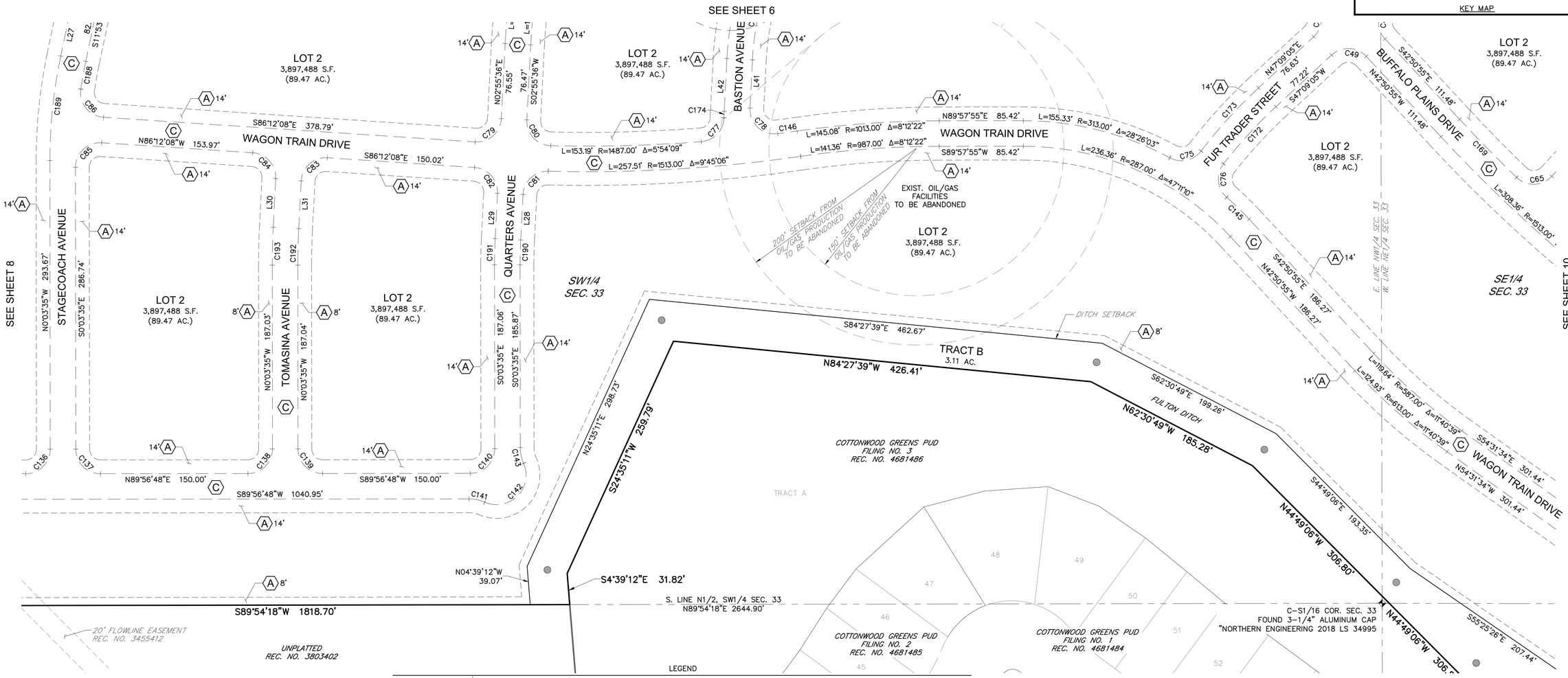

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143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET 9 OF 11

FILE NO.	19001956-FINAL PLAT
DATE	03/28/2021
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19001956

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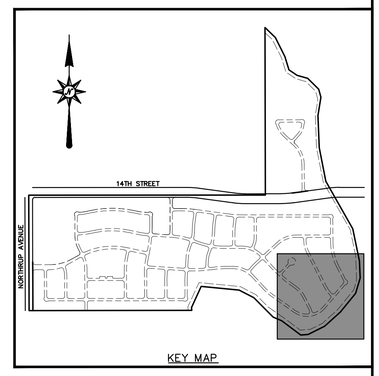
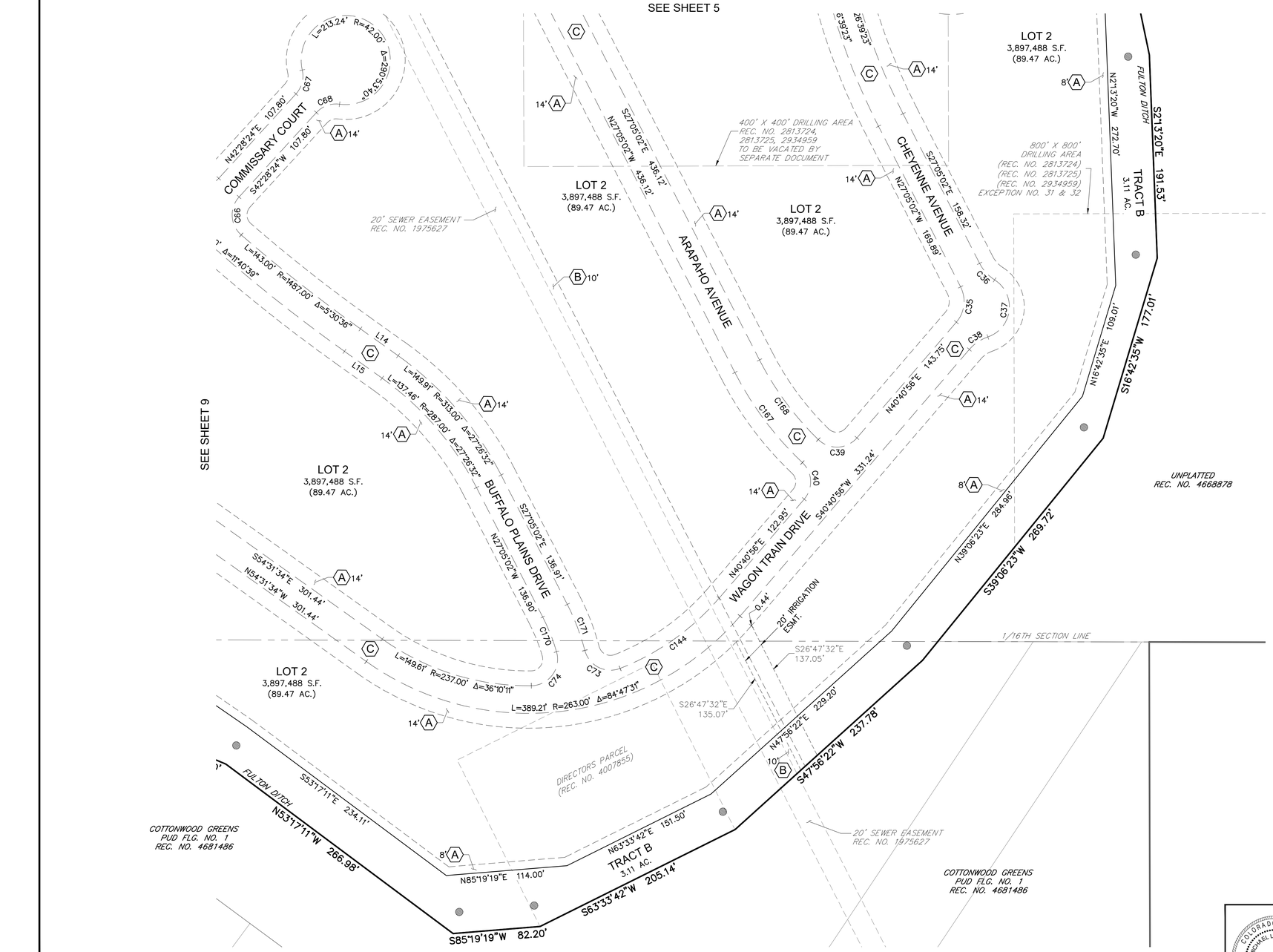
WILLOW BEND PUD FILING NO. 1

LOCATED IN SECTION 13, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031
PLAN NO. PPL2020-0004





0' 50' 100' 150'
SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
- (A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
- (B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
- (C) 26' WIDE EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, PRIVATE UTILITIES, AND EMERGENCY SERVICE ACCESS. PRIVATE AND PUBLIC WATER, STORM SEWER AND SANITARY SEWER FACILITIES CAN CROSS THIS EASEMENT AT SUBSTANTIALLY RIGHT ANGLES.
- (D) EASEMENT FOR ELECTRIC SERVICE FACILITIES

COLORADO LICENSED
MICHAEL LLOYD PICO
38304
PROFESSIONAL LAND SURVEYOR

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REVISIONS

SHEET 10 OF 11

FILE NO.	19001956-FINL PLAT
DATE	03/28/2021
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JOB NO.	19001956

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WILLOW BEND PUD FILING NO. 1

LOCATED IN SECTION 13, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031
PLAN NO. PPL2020-0004

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C1	90°00'00"	25.00'	39.27'
C2	27°23'02"	287.00'	137.17'
C3	110°25'57"	25.00'	48.19'
C4	96°22'34"	25.00'	42.05'
C5	35°48'28"	187.00'	116.87'
C6	30°23'17"	313.00'	166.01'
C7	13°27'53"	40.00'	9.40'
C8	128°52'32"	30.00'	67.48'
C9	7°58'57"	40.00'	5.57'
C10	20°16'05"	40.00'	14.15'
C11	136°59'09"	30.00'	71.73'
C12	21°14'44"	40.00'	14.83'
C13	1°21'07"	1010.00'	23.83'
C14	4°22'04"	900.00'	68.61'
C15	90°00'52"	28.60'	44.93'
C16	83°33'44"	28.60'	41.71'
C17	90°00'00"	25.00'	39.27'
C18	90°00'00"	25.00'	39.27'
C19	91°52'27"	25.00'	40.09'
C20	90°00'00"	25.00'	39.27'
C21	90°00'00"	25.00'	39.27'
C22	90°00'00"	25.00'	39.27'
C23	91°49'48"	25.00'	40.07'
C24	1°49'48"	1013.00'	32.36'
C25	83°57'50"	25.00'	36.64'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C26	1°37'59"	1013.00'	28.87'
C27	90°00'00"	25.00'	39.27'
C28	90°00'00"	25.00'	39.27'
C29	89°35'11"	25.00'	39.09'
C30	20°41'29"	40.00'	14.45'
C31	130°58'08"	30.00'	68.58'
C32	20°41'29"	40.00'	14.45'
C33	90°24'49"	25.00'	39.45'
C34	89°35'11"	25.00'	39.09'
C35	67°45'57"	30.00'	35.48'
C36	30°31'08"	40.00'	21.31'
C37	128°48'13"	30.00'	67.44'
C38	30°31'08"	40.00'	21.31'
C39	93°32'14"	25.00'	40.81'
C40	87°15'32"	25.00'	38.07'
C41	90°24'49"	25.00'	39.45'
C42	89°35'11"	25.00'	39.09'
C43	0°08'43"	657.91'	1.67'
C44	90°00'00"	25.00'	39.27'
C45	4°52'10"	213.38'	18.13'
C46	0°39'29"	411.77'	4.73'
C47	87°00'20"	25.00'	37.96'
C48	90°00'00"	25.00'	39.27'
C49	90°00'01"	25.00'	39.27'
C50	93°51'51"	25.00'	40.96'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C51	84°46'34"	25.00'	36.99'
C52	82°18'38"	25.00'	35.91'
C53	90°00'00"	25.00'	39.27'
C54	90°00'00"	25.00'	39.27'
C55	97°03'54"	25.00'	42.35'
C56	78°21'58"	25.00'	34.19'
C57	96°02'21"	25.00'	41.91'
C58	88°26'50"	25.00'	38.59'
C59	83°35'02"	25.00'	36.47'
C60	90°00'00"	25.00'	39.27'
C61	91°58'09"	25.00'	40.13'
C62	96°12'44"	25.00'	41.98'
C63	88°52'51"	25.00'	38.78'
C64	90°00'00"	25.00'	39.27'
C65	91°29'22"	25.00'	39.92'
C66	91°29'22"	25.00'	39.92'
C67	55°26'50"	25.00'	24.19'
C68	55°26'50"	25.00'	24.19'
C69	2°07'21"	287.00'	10.63'
C70	6°25'24"	28.60'	3.21'
C71	10°43'49"	313.00'	58.62'
C72	15°16'03"	313.00'	83.40'
C73	96°48'29"	25.00'	42.24'
C74	105°34'14"	25.00'	46.06'
C75	80°57'20"	25.00'	35.32'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C76	86°32'38"	25.00'	37.76'
C77	84°03'32"	25.00'	36.68'
C78	100°24'12"	25.00'	43.81'
C79	90°52'16"	25.00'	39.65'
C80	91°29'22"	25.00'	39.92'
C81	88°35'03"	25.00'	38.65'
C82	89°07'44"	25.00'	38.89'
C83	90°52'16"	25.00'	39.65'
C84	89°07'44"	25.00'	38.89'
C85	93°51'28"	25.00'	40.95'
C86	94°43'05"	25.00'	41.33'
C87	90°00'00"	25.00'	39.27'
C88	91°34'04"	25.00'	39.95'
C89	91°29'22"	25.00'	39.92'
C90	91°29'22"	25.00'	39.92'
C91	88°35'03"	25.00'	38.65'
C92	88°35'03"	25.00'	38.65'
C93	90°04'48"	25.00'	39.30'
C94	23°35'35"	40.00'	16.47'
C95	23°44'04"	40.00'	16.57'
C96	137°15'49"	30.00'	71.87'
C97	23°31'26"	40.00'	16.42'
C98	137°16'56"	30.00'	71.88'
C99	17°23'05"	40.00'	12.14'
C100	90°38'07"	25.00'	39.55'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C101	90°00'00"	25.00'	39.27'
C102	93°00'28"	25.00'	40.58'
C103	86°26'32"	25.00'	37.72'
C104	88°08'57"	25.00'	38.46'
C105	98°07'44"	25.00'	42.82'
C106	88°42'25"	25.00'	38.71'
C107	91°25'22"	25.00'	39.89'
C108	90°00'00"	25.00'	39.27'
C109	90°00'00"	25.00'	39.27'
C110	90°00'00"	25.00'	39.27'
C115	89°39'38"	25.00'	39.12'
C116	90°20'22"	25.00'	39.42'
C117	2°55'09"	365.00'	18.60'
C118	82°24'37"	25.00'	35.96'
C119	90°28'42"	25.00'	39.48'
C120	90°21'53"	25.00'	39.43'
C121	89°38'07"	25.00'	39.11'
C122	90°08'04"	29.50'	46.41'
C123	89°51'56"	29.50'	46.27'
C124	23°46'00"	40.00'	16.59'
C125	137°14'49"	30.00'	71.86'
C126	23°49'35"	40.00'	16.63'
C127	89°39'14"	25.00'	39.12'
C128	90°20'46"	25.00'	39.42'
C129	89°39'14"	25.00'	39.12'

LINE DATA TABLE		
LINE #	DIRECTION	LENGTH
L1	N82°14'01"E	66.51'
L2	N0°25'38"W	32.34'
L3	S3°50'18"W	9.68'
L4	N3°50'18"E	9.83'
L5	N21°01'41"E	27.10'
L6	S21°01'41"W	28.73'
L7	N7°39'20"E	57.18'
L8	S7°39'20"W	62.40'
L9	N0°38'15"W	12.52'
L10	S0°38'15"E	5.27'
L12	N0°25'38"W	10.25'
L13	S0°25'38"E	9.71'
L14	S54°31'34"E	43.51'
L15	N54°31'34"W	43.51'
L21	N19°24'49"E	38.88'
L22	S19°24'49"W	50.70'
L23	S19°24'49"W	38.28'
L24	N19°24'49"E	37.86'
L25	S86°09'42"E	13.08'
L26	N86°09'42"W	13.08'
L27	N11°53'32"E	42.55'
L28	S2°55'36"W	46.27'
L29	S2°55'36"W	46.20'
L30	N2°55'36"E	49.63'
L31	N2°55'36"E	48.48'

LINE DATA TABLE		
LINE #	DIRECTION	LENGTH
L37	S19°03'49"E	7.47'
L38	S89°57'55"W	13.07'
L41	S2°55'36"W	49.16'
L42	N2°55'36"E	53.75'
L43	S2°33'46"W	62.30'
L44	S2°33'46"W	62.30'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C130	90°20'46"	25.00'	39.42'
C131	89°39'14"	25.00'	39.12'
C132	89°39'14"	25.00'	39.12'
C133	90°20'46"	25.00'	39.42'
C134	90°00'24"	25.00'	39.27'
C135	89°59'36"	25.00'	39.27'
C136	90°00'24"	25.00'	39.27'
C137	89°59'36"	25.00'	39.27'
C138	90°00'24"	25.00'	39.27'
C139	89°59'36"	25.00'	39.27'
C140	90°00'24"	25.00'	39.27'
C141	23°37'42"	40.00'	16.50'
C142	137°15'48"	30.00'	71.87'
C143	23°37'42"	40.00'	16.50'
C144	27°54'41"	237.00'	115.45'
C145	5°49'34"	313.00'	31.83'
C146	0°45'51"	1487.00'	19.83'
C147	3°51'20"	513.00'	34.52'
C148	3°51'20"	487.00'	32.77'
C149	5°05'33"	313.00'	27.82'
C150	5°05'33"	287.00'	25.51'
C151	8°39'55"	287.00'	43.40'
C152	10°26'05"	313.00'	57.00'
C153	6°32'14"	737.00'	84.09'
C154	6°02'21"	763.00'	80.42'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C155	11°51'59"	513.00'	106.25'
C156	11°14'33"	539.00'	105.76'
C157	5°05'33"	587.00'	52.17'
C158	5°05'33"	613.00'	54.48'
C159	7°41'24"	737.00'	98.92'
C160	7°41'24"	763.00'	102.41'
C161	21°02'30"	213.00'	78.22'
C162	21°02'30"	187.00'	68.68'
C163	6°46'31"	737.00'	87.15'
C164	7°48'52"	763.00'	104.07'
C165	15°50'20"	313.00'	86.53'
C166	15°26'22"	313.00'	84.34'
C167	19°29'34"	313.00'	106.49'
C168	18°41'48"	287.00'	93.65'
C169	3°11'19"	1487.00'	82.76'
C170	10°48'59"	187.00'	35.30'
C171	12°29'07"	213.00'	46.41'
C172	9°16'57"	487.00'	78.90'
C173	9°42'27"	513.00'	86.92'
C174	1°27'03"	263.00'	6.66'
C175	16°29'13"	313.00'	90.07'
C176	16°29'13"	287.00'	82.59'
C177	2°26'23"	1513.00'	64.43'
C178	2°21'58"	1487.00'	61.41'
C179	11°59'22"	513.00'	107.35'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C180	11°50'43"	487.00'	100.68'
C181	11°57'49"	237.00'	49.49'
C182	12°09'56"	263.00'	55.84'
C183	11°31'49"	487.00'	98.00'
C184	11°31'49"	513.00'	103.24'
C185	8°03'14"	487.00'	68.46'
C186	8°03'14"	513.00'	72.11'
C187	23°13'06"	287.00'	116.30'
C188	3°22'35"	487.00'	28.70'
C189	11°57'08"	513.00'	107.01'
C190	2°59'11"	487.00'	25.38'
C191	2°59'11"	513.00'	26.74'
C192	2°59'11"	713.00'	37.16'
C193	2°59'11"	739.00'	38.52'
C194	11°57'08"	513.00'	107.01'
C195	11°57'08"	487.00'	101.59'
C196	21°02'39"	287.00'	105.41'
C197	18°23'49"	187.00'	60.04'
C198	18°39'52"	213.00'	69.39'
C199	19°14'24"	365.00'	122.57'
C200	89°58'11"	25.00'	39.26'
C201	1°21'07"	1010.00'	23.83'

PROJECT NO. LUP2020-0031 & PLAN NO. PL2020-0004

COLORADO LICENSED
MICHAEL LLOYD PUGH
38304
PROFESSIONAL LAND SURVEYOR

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LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET
11
OF 11

FILE NO.	19001956-FINL PLAT
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WILLOW BEND

FINAL PLANNED UNIT DEVELOPMENT

SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO

PROJECT NO. LUP2020-0031 & PLAN NO. PPL2020-0004

LEGEND

- PROPERTY BOUNDARY
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED CATCH CURB & GUTTER
- PROPOSED SPILL CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- EXISTING SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED SANITARY
- SS — EXISTING SANITARY (# = SIZE)
- S — PROPOSED SANITARY SERVICE
- PROPOSED STORM
- EXISTING STORM
- PROPOSED WATER
- W — EXISTING WATER
- W — PROPOSED WATER SERVICE
- PROPOSED HYDRANT
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- FO — EXISTING FIBER OPTIC
- GAS — EXISTING GAS

BENCHMARK

VERTICAL DATUM: NAVD 88 – GEOID MODEL 12B ELEVATIONS BASED ON NGS "U 260 RESET" WITH PUBLISHED ELEVATION OF 4893.9'.

BASIS OF BEARING

THE EAST LINE OF THE SOUTHEAST QUARTER OF SECTION 33 AS BEARING NORTH 00° 09' 31" WEST.

CONTACT LIST

OWNER:
SUN COMMUNITIES, INC.
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 45114
(248) 208-2556
CONTACT: JOHN B. MCLAREN

PLANNING & LANDSCAPING:
RVI
120 SOUTH ASH AVENUE
SUITE 201
TEMPE, AZ 85281
(480) 994-0994
CONTACT: BRITTANY GEIST

SURVEYOR:
ATWELL, LLC.
143 UNION BLVD.,
SUITE 700
LAKEWOOD, CO 80228
(303) 462-1100
CONTACT: BRIAN RITZ

CIVIL ENGINEER:
ATWELL, LLC.
143 UNION BLVD.,
SUITE 700
LAKEWOOD, CO 80228
(720) 541-6601
CONTACT: RICK WEED

UNITED POWER (ELEC):
P.O. BOX 929
BRIGHTON, CO 80601
(720) 659-0551
CONTACT: HECTOR AVENDANO

CITY OF FORT LUPTON:
130 S. McKINLEY AVE.
FORT LUPTON, CO 80621
(720) 857-6694
CONTACT: ROY VESTAL

XCEL ENERGY(GAS):
5460 W. 60TH AVE.
ARVADA, CO 80003
(720) 895-4999
CONTACT: DONNA SANDERS

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2" ALUMINUM CAP STAMPED "ALPHA ENGNRG 1997 25937" AND AT THE EAST END BY A FOUND 2-1/2" ALUMINUM CAP STAMPED "GREENHORNE & O'MARA INC. 1993 PLS 28656". SAID NORTH LINE BEARS NORTH 89°58'12" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO;

COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER SOUTH 00°10'09" EAST 30.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 14-1/2 (14TH/ STREET) AS DESCRIBED IN BOOK 76 AT PAGE 126 WELD COUNTY RECORDS, AND THE POINT OF BEGINNING;

THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE NORTH 89°58'06" EAST 2645.50 FEET TO A POINT ON THE EAST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID EAST LINE NORTH 00°08'34" WEST 30.00 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 33 NORTH 00°08'25" WEST 1842.81 FEET TO THE CENTERLINE OF FULTON DITCH;

THENCE ALONG THE CENTERLINE OF FULTON DITCH THE FOLLOWING TWENTY-SIX (26) COURSES:

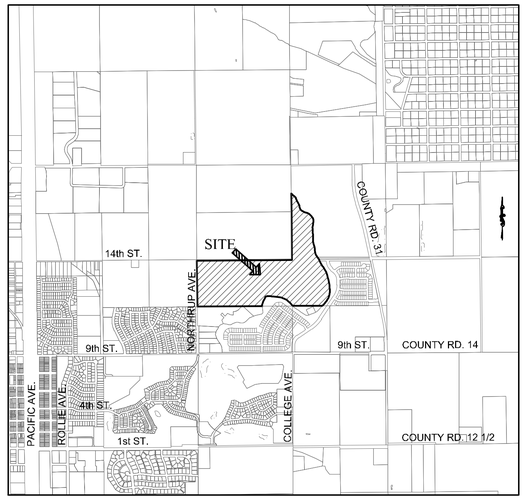
1. SOUTH 46°09'18" EAST 161.51 FEET;
2. SOUTH 26°34'39" EAST 237.74 FEET;
3. SOUTH 17°06'19" EAST 155.42 FEET;
4. SOUTH 56°18'27" EAST 109.68 FEET;
5. SOUTH 73°59'11" EAST 122.24 FEET;
6. SOUTH 45°26'22" EAST 173.40 FEET;
7. SOUTH 15°54'54" EAST 92.77 FEET;
8. SOUTH 09°11'44" WEST 208.08 FEET;
9. SOUTH 02°10'36" EAST 360.14 FEET;
10. SOUTH 11° 12'41" EAST 382.04 FEET;
11. SOUTH 29°24'52" EAST 143.19 FEET;
12. SOUTH 29°31'20" EAST 467.66 FEET;
13. SOUTH 11°45'35" EAST 367.88 FEET;
14. SOUTH 02°13'20" EAST 191.53 FEET;
15. SOUTH 16°42'35" WEST 177.01 FEET;
16. SOUTH 39°03'23" WEST 269.72 FEET;
17. SOUTH 47°56'22" WEST 237.78 FEET;
18. SOUTH 63°33'42" WEST 205.14 FEET;
19. SOUTH 85°19'19" WEST 82.20 FEET;
20. NORTH 53°17'11" WEST 266.98 FEET;
21. NORTH 67° 19'06" WEST 102.80 FEET;
22. NORTH 44°49'06" WEST 306.80 FEET;
23. NORTH 62°30'49" WEST 185.28 FEET;
24. NORTH 84°27'39" WEST 426.41 FEET;
25. SOUTH 24°35'11" WEST 259.79 FEET;
26. SOUTH 04°39'12" EAST 31.82 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH HALF OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID SOUTH LINE SOUTH 89°54'18" WEST 1818.70 FEET TO A POINT ON THE WEST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID WEST LINE NORTH 00°09'06" WEST 1291.08 FEET TO THE POINT OF BEGINNING.

SUBJECT TO WELD COUNTY ROAD RIGHT-OF-WAY.

CONTAINING 5,554,830 SQUARE FEET, OR 127.52 ACRES, MORE OR LESS.



VICINITY MAP
SCALE: 1"=2,000'

WILLOW BEND PUD ZONING REQUIREMENTS TABLE

PARCEL	"PROPOSED PUD ZONE"	R-1A ZONE
AREA (AC)	127.5200	
ALLOWABLE LAND USE	SFD	SFD
PERMITTED DENSITY (UNITS/AC)	4	6.7
MAXIMUM UNITS	450	
MINIMUM SITE SIZE (SF)	5500	6500
MINIMUM SITE WIDTH AT STREET (FT) (1)	40 (1)	30
MAXIMUM BUILDING COVERAGE (FOR STRUCTURES ONLY)	45%	
PRINCIPAL BUILDING		
MAXIMUM HEIGHT (FT)	35	35
MINIMUM SETBACK FOR ALL STRUCTURES FROM 14TH STREET (FT)	25	NA
MINIMUM SETBACK FOR ALL STRUCTURES FROM NORTHRUP AVE. (FT)	25	NA
MINIMUM FRONT YARD SETBACK FOR PRINCIPAL BUILDING (FT)	24	25
MINIMUM FRONT YARD SETBACK - GARAGE (GARAGE DOOR SIDE) (FT)	24	25
MINIMUM SIDE YARD SETBACK (FT)	5	5
MINIMUM REAR YARD SETBACK (FT)	10	20
MINIMUM CORNER SIDE YARD SETBACK (FT)	15	20
MINIMUM DWELLING SIZE (SF)	900	900
ACCESSORY USE		
MAXIMUM HEIGHT (FT)	15	NA
MAXIMUM ACCESSORY BUILDING SIZE (SF)	600	1000
FRONT SETBACK (NOT ALLOWED IN FRONT YARD)	NA	NA
MINIMUM SIDE SETBACK (FT)	5	5
MINIMUM CORNER SETBACK (FT)	15	20
MINIMUM REAR SETBACK (FT)	8	5
PARKING REQUIREMENTS		
OFFSTREET SPACES PER UNIT	3	2

(1) For sites fronting Cul-de-Sacs/Knuckles/Eyebrows the "Minimum Site Width At Street" can be reduced to a minimum of 20 feet.

SHEET INDEX	
SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	TYPICAL ROAD SECTIONS & DETAILS
4	PHASING PLAN
5	TYPICAL SITE DETAILS
6	EXISTING CONDITIONS MAP
SITE PLANS	
7	OVERALL & PHASING PLAN
8	AREA 1
9	AREA 2
10	AREA 3
11	AREA 4
12	AREA 5
13	AREA 6
14	AREA 7
15	AREA 8
16	LINE AND CURVE TABLES
LANDSCAPE PLANS	
L0.00	COVER
L1.00	CONCEPTUAL LANDSCAPE PLAN
L2.00	FENCE DETAILS

TRACT SUMMARY TABLE

TRACT	AREA (S.F.)	AREA (AC.)	USE	OWNERSHIP	MAINTENANCE
A	71,974	1.65	PUBLIC OPEN SPACE/UTILITIES/FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
B	135,318	3.11	PUBLIC OPEN SPACE/UTILITIES/FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
C	563,771	12.94	PUBLIC OPEN SPACE/UTILITIES	CITY OF FORT LUPTON	SUN COMMUNITIES, INC.
D	384,748	8.83	PRIVATE OPEN SPACE/DRAINAGE/UTILITIES	SUN COMMUNITIES, INC.	SUN COMMUNITIES, INC.
TOTAL	1,155,811	26.53			

LAND SUMMARY CHART

TYPE	AREA (S.F.)	AREA (AC.)	% OF TOTAL
LOTS 1 & 2 (MANUFACTURED HOUSING SITES)	4,156,730	95.43	74.83
TRACTS A, B & C (PUBLIC OPEN SPACE)	771,063	17.7	13.88
TRACT D (DETENTION POND)	384,748	8.83	6.93
PUBLIC RIGHT-OF-WAY	242,289	5.56	4.36
TOTAL	5,554,830	127.52	100

THESE PLANS WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF FORT LUPTON RULES AND REGULATIONS.

RICHARD J. WEED, P.E. DATE
COLORADO NO. 22076
FOR AND ON BEHALF OF ATWELL, LLC.
(720) 541-6601
RWEED@ATWELL-GROUP.COM

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PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004

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NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
COVER SHEET

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 1

CAD FILE: 19001956-COVER-FINAL PUD.DWG

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VESTING NOTE

APPROVAL OF THIS DOCUMENT ESTABLISHES VESTED PROPERTY RIGHTS PURSUANT TO ARTICLE 68, TITLE 24, COLORADO REVISED STATUTES.

ENGINEERING NOTES

1. LOCATION OF ALL EXISTING UTILITIES (PRIVATE OR PU8UC) SHALL BE IDENTIFIED OR VERIFIED BY CONTRACTOR PRIOR TO MOBILIZATION, CONSTRUCTION OR ORDERING OF MATERIALS. FOR INFORMATION CONTACT DENVER INTER-UTILITY GROUP, 1-800-922-1987 OR LOCAL AGENCY. PRIVATE ENTITY. OR OTHER ASSOCIATED ENTITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL. REPLACEMENT. AND DELAY RELATED TO UNVERIFIED EXISTING CONDITIONS WHERE THE CONTRACTOR FINDS CONFLICTS OR DISCREPANCIES THEY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

2. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE WORK SHOWN ON THE CONSTRUCTION PLANS OR DESCRIBED IN THE SPECIFICATIONS IN A SATISFACTORY MANNER. UNLESS OTHERWISE PROVIDED THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS TO COMPLETE THE WORK.

3. SITE "REFERENCE LINES" AS INDICATED ON THE PRELIMINARY PLAT/PUD DRAWING ARE SHOWN FOR PURPOSES OF ESTABLISHING AND MAINTAINING SPECIFIC SITE SETBACK CRITERIA FOR THE UNITS SET ON EACH SITE. THE SITES WILL REMAIN UNDER THE OWNERSHIP OF THE COMMUNITY ESTABLISHED BY THE DEVELOPER OR FUTURE ASSIGNS. INDIVIDUAL FEE SIMPLE LOTS ARE NOT, AND WILL NOT BE CREATED BY THIS PRELIMINARY AND FINAL PLAT.

WILLOW BEND PUD ZONE DISTRICT STANDARDS

1. INTENT. THIS PUD ZONE DISTRICT IS INTENDED TO PROVIDE FOR THE ESTABLISHMENT OF SINGLE-FAMILY USES ON STANDARD SIZE SITES, INCLUDING THE NECESSARY APPURTENANT AND ACCESSORY FACILITIES AND USES ASSOCIATED WITH SUCH LIVING AREAS. THE INDIVIDUAL SITES DEPICTED ON THIS PUD WILL BE OWNED BY THE DEVELOPER OR FUTURE ASSIGNS.

2. DEFINITIONS. REFER TO CHAPTER 16, SECTION 16-6 OF THE FORT LUPTON, COLORADO MUNICIPAL CODE

3. PERMITTED USES.
   a. SINGLE-FAMILY DWELLINGS, INCLUDING HOMES BUILT ON SITE, HUD-APPROVED MODULAR HOMES, AND HUD-APPROVED FACTORY-BUILT HOMES.
   b. HOME OCCUPATIONS.
   c. ACCESSORY BUILDINGS TYPICALLY FOUND WITH THE ABOVE PERMITTED USES.

4. BUILDING HEIGHT. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

5. SETBACKS. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

6. ACCESSORY BUILDING SETBACKS. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

7. MINIMUM LOT AREA. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

8. MINIMUM SQUARE FEET OF FLOOR AREA (DWELLING SIZE). REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT

9. LOT FRONTAGE. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT. MINIMUM LOT FRONTAGE IS MEASURED AT FRONT SETBACK.

10. NO ENCROACHMENTS INTO EASEMENTS BY PERMANENT BUILDINGS WILL BE ALLOWED.

11. YARDS AND SETBACKS.
    a. EVERY PART OF A REQUIRED YARD OR SETBACK SHALL BE OPEN AND UNOBSTRUCTED, EXCEPT FROM THE ORDINARY PROJECTION OF SILLS, CORNICES, ORNAMENTAL FEATURES AND EAVES; PROVIDED, HOWEVER, THAT NONE OF THE ABOVE PROJECTIONS SHALL PROJECT INTO A SIDE YARD MORE THAN TWENTY-FOUR (24) INCHES.
    b. UNCOVERED PORCHES OR DECKS IN FRONT YARDS LESS THAN THIRTY (30) INCHES ABOVE FINISHED GRADE MAY EXTEND NOT MORE THAN TEN (10) FEET INTO THE REQUIRED FRONT YARD SETBACK.
    c. COVERED PORCHES OR DECKS THAT ARE OPEN ON AT LEAST THREE (3) SIDES WITH NO WALLS OR SCREENS AND LESS THAN (30) INCHES ABOVE FINISHED GRADE MAY EXTEND NOT MORE THAN SIX (6) FEET INTO THE REQUIRED FRONT YARD SETBACKS.

12. ACCESSORY BUILDINGS STANDARDS.
    a. SIZE. ACCESSORY BUILDINGS SHALL BE NO LARGER IN AREA THAN SIX HUNDRED (600) SQUARE FEET.
    b. THE USE OF ACCESSORY BUILDINGS WILL GENERALLY BE LIMITED TO THE PARKING OF MOTOR VEHICLES AND THE STORAGE OF PERSONAL BELONGINGS. HOME OCCUPATIONS MAY BE CONDUCTED IN ACCESSORY BUILDINGS, SUBJECT TO APPLICABLE LAWS.
    c. SETBACKS. SETBACKS FOR ACCESSORY BUILDINGS SHALL BE AS SPECIFIED IN THE PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.
    d. DESIGN. ACCESSORY BUILDINGS SHALL BE DESIGNED AND CONSTRUCTED TO BE COMPATIBLE WITH THE PRINCIPAL BUILDING.

13. HOME OCCUPATIONS.
    a. IT IS THE INTENT OF THE CITY TO PERMIT COMMERCIAL ACTIVITIES TO BE CONDUCTED WITHIN DWELLINGS IN SPECIFIED ZONING DISTRICTS AND ON A LIMITED BASIS WHEN THE NATURE OF THE ACTIVITIES DOES NOT ATTRACT LARGE NUMBERS OF CUSTOMERS OR CLIENTS AND IS NOT EVIDENT OR DETRIMENTAL TO THE PEACE, ENJOYMENT AND QUALITY OF LIFE IN THE SURROUNDING NEIGHBORHOOD.
    b. STANDARDS FOR HOME OCCUPATIONS. HOME OCCUPATIONS MUST MEET THE FOLLOWING STANDARDS:
       (1) OTHER THAN RESIDENTS OF THE DWELLING CONTAINING THE HOME OCCUPATION, THERE SHALL BE NO MORE THAN ONE (1) ADDITIONAL FULL- OR PART-TIME EMPLOYEE WORKING AT THE SITE OF THE HOME OCCUPATION.
       (2) THE EMPLOYEE AND CLIENTS MAY PARK IN OFF-STREET PARKING SPACES ON THE SITE OF THE HOME OCCUPATION.
       (3) SPACE USED BY THE HOME OCCUPATION SHALL NOT EXCEED FIVE HUNDRED (500) SQUARE FEET OR THIRTY PERCENT (30%) OF THE TOTAL FLOOR AREA OF THE DWELLING, WHICHEVER IS LESS. THE HOME OCCUPATION SHALL BE CONDUCTED ENTIRELY WITHIN THE DWELLING OR DESIGNATED ACCESSORY BUILDINGS.
       (4) THE HOME OCCUPATION SHALL BE CLEARLY INCIDENTAL AND SECONDARY TO THE USE OF THE DWELLING FOR DWELLING PURPOSES AND MUST NOT CHANGE THE RESIDENTIAL CHARACTER THEREOF.
       (5) THERE SHALL BE NO CHANGE IN THE OUTSIDE APPEARANCE OF THE DWELLING OR OF THE PREMISES OR OTHER VISIBLE EVIDENCE OF THE CONDUCT OF SUCH HOME OCCUPATION, EXCEPT FOR A LIMITED AMOUNT OF SIGNAGE AS SPECIFIED IN THIS CHAPTER.
       (6) THERE SHALL BE NO EXTERIOR STORAGE ON THE PREMISES OF MATERIAL, MERCHANDISE OR EQUIPMENT USED AS A PART OF THE HOME OCCUPATION.
       (7) NO EQUIPMENT OR PROCESS SHALL BE USED IN SUCH HOME OCCUPATION WHICH CREATES ANY GLARE, FUMES, ODORS, NOISE OR OTHER OBJECTIONABLE CONDITIONS DETECTABLE TO THE NORMAL SENSES AT THE UNIT SITE LINE.
       (8) HOME OCCUPATIONS MAY NOT GENERATE MORE THAN TEN (10) BUSINESS-RELATED VEHICLE TRIPS PER DAY.
       (9) THE FOLLOWING USES SHALL NOT BE PERMITTED AS HOME OCCUPATIONS: MOTOR VEHICLE, BOAT OR TRAILER REPAIR OR SERVICE; MACHINE OR WELDING SHOPS; SEXUALLY ORIENTED BUSINESSES; OR ANY OTHER

ARCHITECTURAL GUIDELINES

1. REFER TO WILLOW BEND PUD ZONING REQUIREMENTS TABLE ON SHEET 1.

RESIDENTIAL DESIGN STANDARDS VARIANCES

OWNER/DEVELOPER HAS BEEN GRANTED VARIANCES TO SECTION IV, ITEMS C, E, F & G OF THE CITY OF FORT LUPTON RESIDENTIAL DESIGN STANDARDS. THE EXISTING STANDARD AND THE APPROVED VARIANCE IS NOTED IN THE TABLE BELOW.

EXISTING STANDARD	WILLOW BEND PUD STANDARD
SECTION IV: RESIDENTIAL LOT & BUILDING DESIGN **IV.C MIX OF RESIDENTIAL LOT DIMENSIONS**	
NO MORE THAN 40% OF ANY ONE LOT SIZE, UNLESS AGREED TO OTHERWISE BY THE CITY OF FORT LUPTON	THE SITES SHOWN ON THE PUD ARE NOT FEE SIMPLE LOTS. THE SITE REFERENCE LINES ARE REPRESENTATIVE OF THE SPACE ALLOCATED FOR A PARTICULAR UNIT TYPE SET ON A RESPECTIVE SITE, I.E. PERPINDICULAR UNIT (PERPINDICULAR TO STREET), PARALLEL UNIT (UNIT PARALLEL TO STREET) AND CORNER UNITS. SITES WILL TYPICALLY HAVE A WIDTH OF 55', 110' AND 70', RESPECTIVELY WHILE LOT DEPTHS WILL TYPICALLY BE 100', 70' AND 100', RESPECTIVELY. MORE THAN 40% OF THE SITES CAN BE PERPENDICULAR TYPE SITES WHILE THE REMAINING SITES WILL BE MADE UP OF CORNER AND PARALLEL SITES..
IV.E MIX OF DIFFERENT HOUSING MODELS REQUIRED EACH HOME ELEVATION USED SHALL SUBSTANTIALLY AND DISTINCTLY DIFFER FROM OTHER HOME ELEVATIONS IN AT LEAST 4 OF THE FOLLOWING AREAS:	
1. PLACEMENT OF ALL WINDOWS AND DOORS ON THE FRONT FAÇADE (AT LEASET 2' VERTICAL OR HORIZONTIAL VARIATION IN SIZE OR LOCATION REQUIRED). THE USE OF DIFFERENT MATERIALS ON THE FRONT FAÇADE IS REQUIRED.	SOME VARIATIONS IN PLACEMENT OF WINDOWS AND DOORS ON FRONT FAÇADE SHALL BE PROVIDED. THE VARIATIONS ARE NOT REQUIRED ON ALL DOORS AND WINDOWS AND IN SOME CASES CAN BE LESS THAN 2'.THE USE OF DIFFERENT MATERIALS ON THE FRONT FAÇADE IS REQUIRED.
2. SUBSTANTIAL VARIATION IN LOCATION AND/OR PROPORTION OF GARAGES AND GARAGE DOORS.	WHERE GARAGES ARE PROVIDED, SUBSTANTIAL VARIATION IN LOCATION AND/OR PORPORTION OF GARAGES AND GARAGE DOORS, IS NOT REQUIRED.
3. THE WIDTH OF THE FRONT FAÇADE ELEVATION MUST DIFFER MORE THAN 2'.	THIS REQUIREMENT IS WAIVED.
4. VARIATION IN THE LOCATION AND PROPORTION OF FRONT PORCHES.	THIS REQUIREMENT IS WAIVED.
5. SUBSTANTIAL VARIATIIONS IN ROOFLINES AND/OR IN THE ANGLE OF ROOF RUNS. ROOFS SHALL HAVE A MINIMUM PITCH OF 4:12.	WHERE POSSIBLE ROOF LINES SHALL BE VARIED. ROOFS SHALL HAVE A MINIMUM PITCH OF 3:12.
6. USE OF ROOF DORMERS.	THIS REQUIREMENT IS WAIVED.
7. A VARIATION OF UNIT TYPES: RANCH, TWO-STORY, AND SPLIT-LEVEL.	THIS REQUIREMENT IS WAIVED.
8. WINDOW SHAPES THAT ARE SUBSTANTIALLY DIFFERENT.	SOME DIFFERENT WINDOW SHAPES SHALL BE INCORPORATED.
9. OTHER DISTINCT AND SUBSTANTIAL DESIGN VARIATIONS APPROVED BY THE CITY.	N/A
10. AT LEAST FOUR DIFFERENT HOME ELEVATIONS WILL BE PROVIDED WITH AS MANY OF THE ABOVE VARIATIONS AS POSSIBLE.	AT LEAST FOUR DIFFERENT HOME ELEVATIONS WILL BE PROVIDED WITH AS MANY OF THE ABOVE VARIATIONS AS POSSIBLE.
IV.F MIX OF ROOF COLORS	
WHERE ASPHALT SHINGLES ARE USED, EACH SUBDIVISION OF 50 UNITS OR MORE SHALL USE AT LEAST FOUR (4) DISTINCT COLORS OF ROOF MATERIALS DISTRIBUTED IN ROUGHLY EQUAL PROPORTIONS THROUGHOUT.	WHERE ASPHALT SHINGLES ARE USED, EACH SUBDIVISION OF 50 UNITS OR MORE SHALL USE AT LEAST TWO (2) DISTINCT COLORS OF ROOF MATERIALS DISTRIBUTED IN ROUGHLY EQUAL PROPORTIONS THROUGHOUT.
IV.G REAR ELEVATIONS	
A HORIZONTIAL OR VERTICAL OFFSET, PROJECTION, OR RECESS OF TWELVE (12) INCHES OR GREATER IS REQUIRED ON ALL REAR ELEVATIONS.	THIS REQUIREMENT IS WAIVED.

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
GENERAL NOTES

CLIENT
SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

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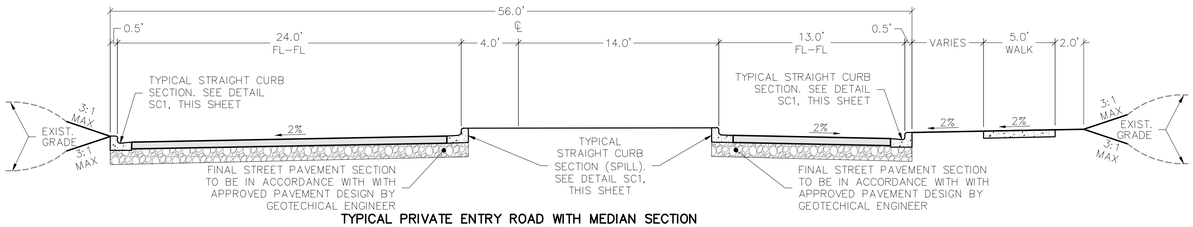
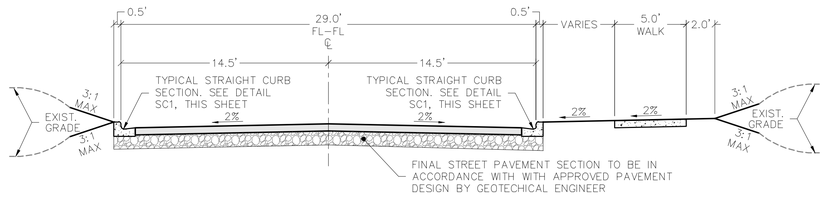
JOB 19001956
SHEET NO. 2

CAD FILE: 19001956-COVER-FINAL PUD.DWG

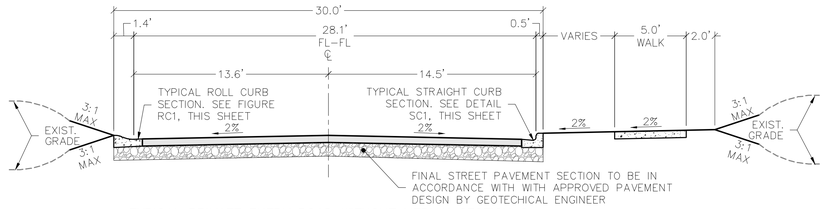
LAST SAVED BY: TNGUYEN ON: 5/15/2020 11:34:38 AM



TYPICAL PRIVATE ENTRY ROAD WITH MEDIAN SECTION
1:5 HOR.



TYPICAL PRIVATE ENTRY ROAD WITHOUT MEDIAN SECTION 1
1:5 HOR.



TYPICAL PRIVATE ENTRY ROAD WITHOUT MEDIAN SECTION 2
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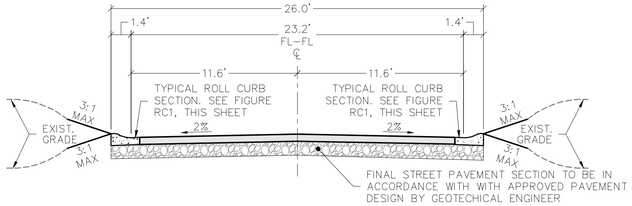
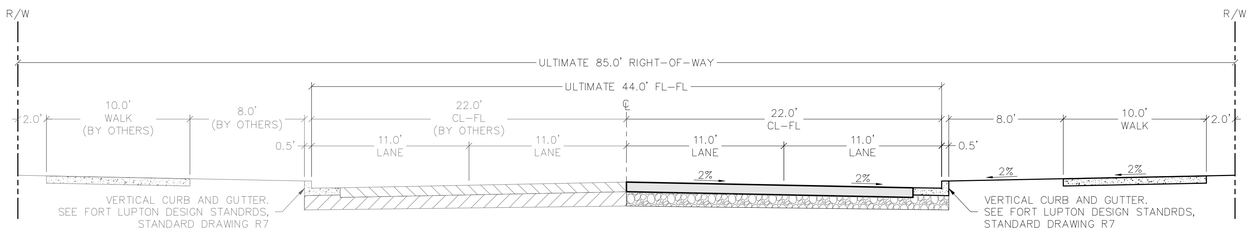
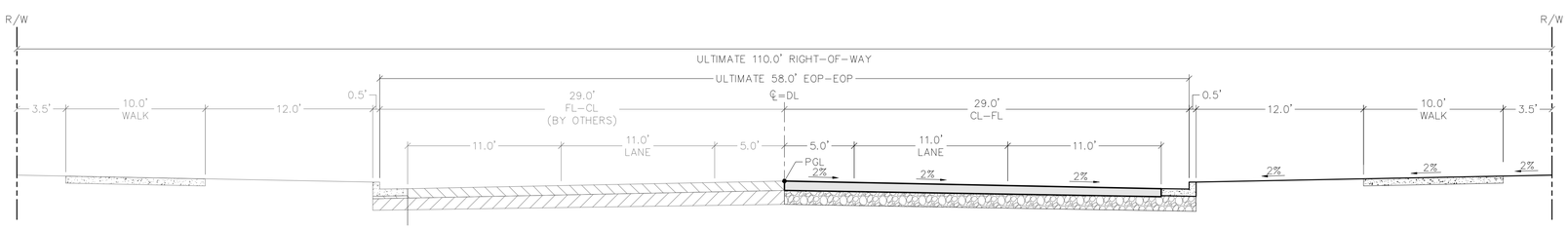


TYPICAL PRIVATE ROAD SECTION
1:5 HOR



PUBLIC ROADWAY SECTION (NORTHRUP AVENUE)
1:5 HOR.



PUBLIC ROADWAY SECTION (14TH STREET/CR 14½)
1:5 HOR.

SUN COMMUNITIES, INC.
MANUFACTURED HOME COMMUNITIES
DEVELOPMENT CRITERIA & DESIGN STANDARDS

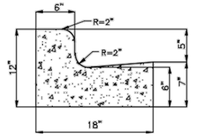


FIGURE SC1
Typical Straight Curb Section

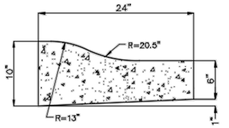


FIGURE RC1
Typical Roll Curb Section

SUN COMMUNITIES, INC.
MANUFACTURED HOME COMMUNITIES
DEVELOPMENT CRITERIA & DESIGN STANDARDS

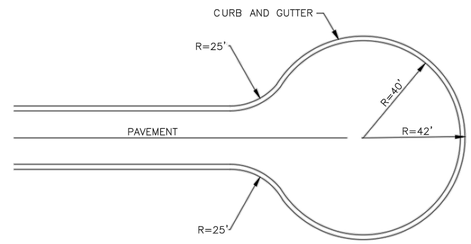
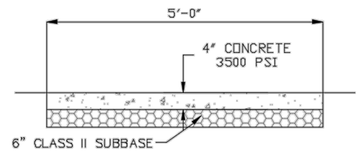


FIGURE CDS
Cul-De-Sac Plan View Standard



NOTES:
1. CONSTRUCTION SHALL BE TO LOCAL SPECIFICATIONS.
2. ALL CONCRETE SHALL HAVE A 2% MAXIMUM CROSS SLOPE

FIGURE CW1
Concrete Walk Detail

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SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
TYPICAL ROAD SECTIONS & DETAILS

CLIENT
SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 3

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

CAD FILE: 19001956-DETAILS-FINAL PUD.DWG

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PHASING NOTES

PHASE 1
217 MANUFACTURED HOME SITES
AMENITY CENTER (INCLUDES CLUBHOUSE, POOL, PLAYGROUND, SPORTS COURTS & MAINTENANCE BUILDING)
WESTERN DETENTION POND AREA
NORTHRUP AVENUE PAVING FROM THE WILLOW BEND MAIN ENTRANCE GOING SOUTH
ENTRANCE BOULEVARD WITH ENTRY SIGNAGE
EMERGENCY ACCESS TO NORTHRUP AVENUE
PRIVATE STREETS A – F, H, I, K & L IN THEIR ENTIRETY
PRIVATE STREETS G, J & M TO PHASE LINE
UTILITIES
- SANITARY — AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECT TO EXISTING MANHOLE IN 14TH STREET.
- WATER — 8" PUBLIC WATERMAIN IN NORTHRUP AVENUE FROM CONNECTION POINT AT THE SOUTH PROPERTY LINE TO ENTRANCE BOULEVARD AND ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 1 UNITS AND AMENITY CENTER.
- STORM — AS NEEDED TO SERVE SITES WITHIN PHASE.
- ELECTRIC — AS NEEDED TO SERVE SITES WITHIN PHASE.
- GAS — AS NEEDED TO SERVE SITES WITHIN PHASE.

TRAILWAYS SHOWN AS PART OF PHASE 1
LANDSCAPING WITHIN PHASE 1

PHASE 2
124 MH SITES
COMMUNITY PARK (INCLUDES SHADE STRUCTURE, TOT LOT, OPEN PLAY AREA & DOG PARK)
POCKET PARK ON SE PORTION OF SITE
PRIVATE STREETS N, O, P & T IN THEIR ENTIRETY
PRIVATE STREETS G, J, M & Q TO PHASE LINE(S)
UTILITIES
- SANITARY — AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO EXISTING SEWER TRAVERSING SITE, OTHER PORTIONS CONNECT TO SEWER WITHIN PHASE 1.
- WATER — 12"PUBLIC WATERMAIN IN 14TH/ STREET FROM CONNECTION POINT AT EAST PROPERTY LINE WITH 12"WATERMAIN CONSTRUCTED BY COTTONWOOD GREENS, TO THE POINT WHERE IT ENTERS THE WILLOW BEND SITE IN THE NORTHEAST CORNER OF THE PROPERTY AND ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED, INCLUDING WATERLINES WITHIN PHASE 3, TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 2 UNITS.
- STORM — AS NEEDED TO SERVE SITES WITHIN PHASE.
- ELECTRIC — AS NEEDED TO SERVE SITES WITHIN PHASE.
- GAS — AS NEEDED TO SERVE SITES WITHIN PHASE.

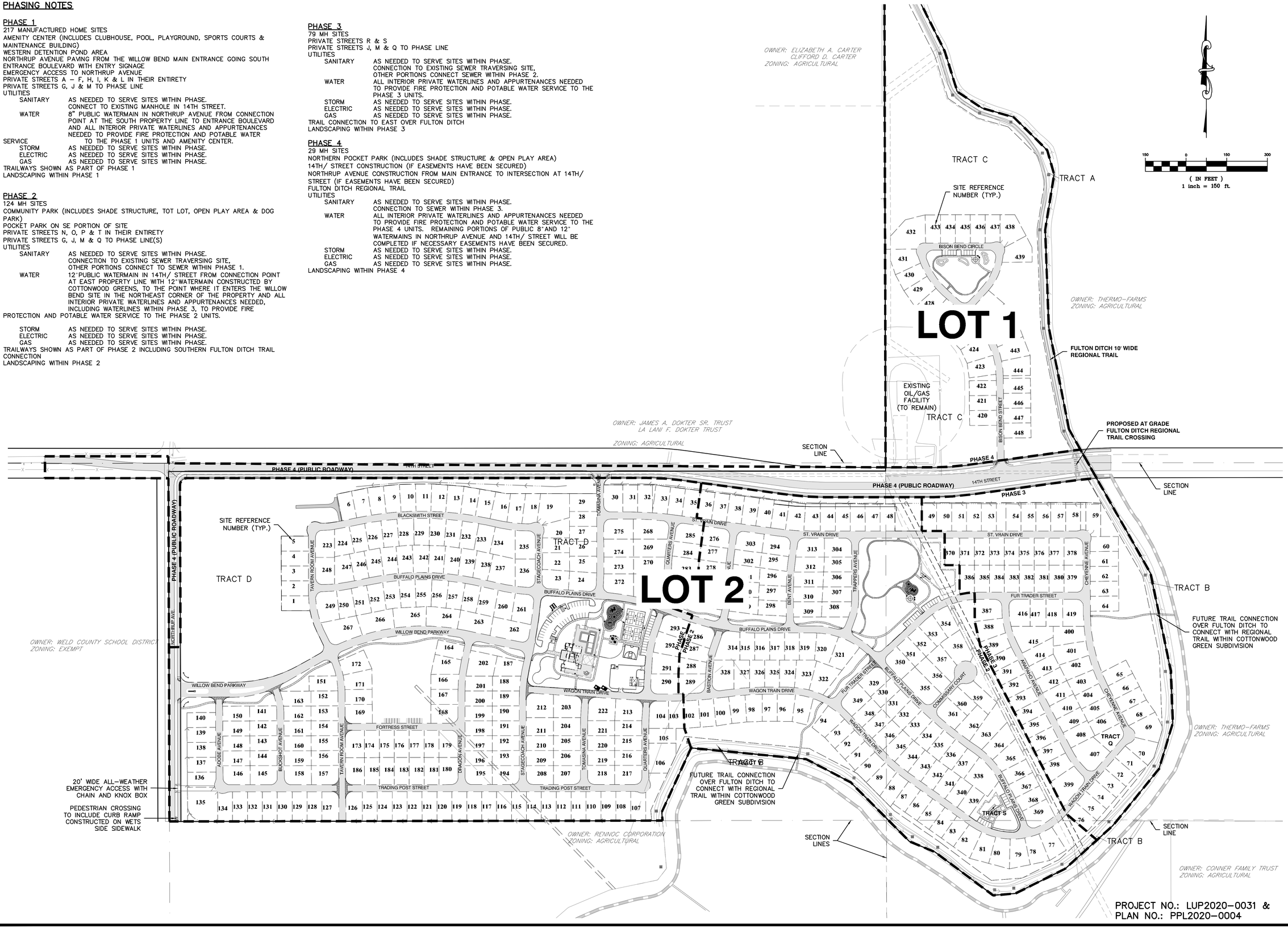
TRAILWAYS SHOWN AS PART OF PHASE 2 INCLUDING SOUTHERN FULTON DITCH TRAIL CONNECTION
LANDSCAPING WITHIN PHASE 2

PHASE 3
79 MH SITES
PRIVATE STREETS R & S
PRIVATE STREETS J, M & Q TO PHASE LINE
UTILITIES
- SANITARY — AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO EXISTING SEWER TRAVERSING SITE, OTHER PORTIONS CONNECT SEWER WITHIN PHASE 2.
- WATER — ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 3 UNITS.
- STORM — AS NEEDED TO SERVE SITES WITHIN PHASE.
- ELECTRIC — AS NEEDED TO SERVE SITES WITHIN PHASE.
- GAS — AS NEEDED TO SERVE SITES WITHIN PHASE.

TRAIL CONNECTION TO EAST OVER FULTON DITCH
LANDSCAPING WITHIN PHASE 3

PHASE 4
29 MH SITES
NORTHERN POCKET PARK (INCLUDES SHADE STRUCTURE & OPEN PLAY AREA)
14TH/ STREET CONSTRUCTION (IF EASEMENTS HAVE BEEN SECURED)
NORTHRUP AVENUE CONSTRUCTION FROM MAIN ENTRANCE TO INTERSECTION AT 14TH/ STREET (IF EASEMENTS HAVE BEEN SECURED)
FULTON DITCH REGIONAL TRAIL
UTILITIES
- SANITARY — AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO SEWER WITHIN PHASE 3.
- WATER — ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 4 UNITS. REMAINING PORTIONS OF PUBLIC 8"AND 12" WATERMAINS IN NORTHRUP AVENUE AND 14TH/ STREET WILL BE COMPLETED IF NECESSARY EASEMENTS HAVE BEEN SECURED.
- STORM — AS NEEDED TO SERVE SITES WITHIN PHASE.
- ELECTRIC — AS NEEDED TO SERVE SITES WITHIN PHASE.
- GAS — AS NEEDED TO SERVE SITES WITHIN PHASE.

LANDSCAPING WITHIN PHASE 4



PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
PHASING PLAN

CLIENT
SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 4

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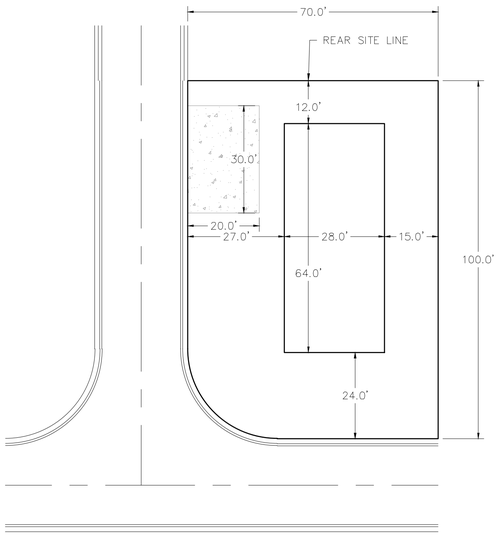
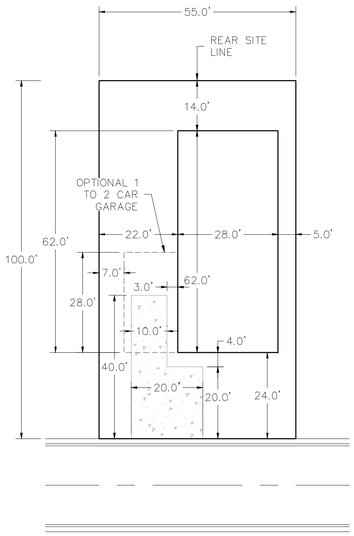
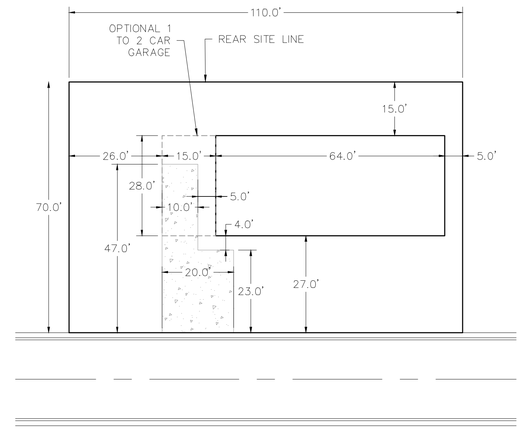


TYPICAL END SITE/PRIVATE ROADWAY
1:20 HOR.



TYPICAL PERPENDICULAR SITE/PRIVATE ROADWAY
1:20 HOR.



TYPICAL PARALLEL SITE/PRIVATE ROADWAY
1:20 HOR.

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PLAN NO.: PPL2020-0004

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SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
TYPICAL SITE DETAILS

CLIENT
SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

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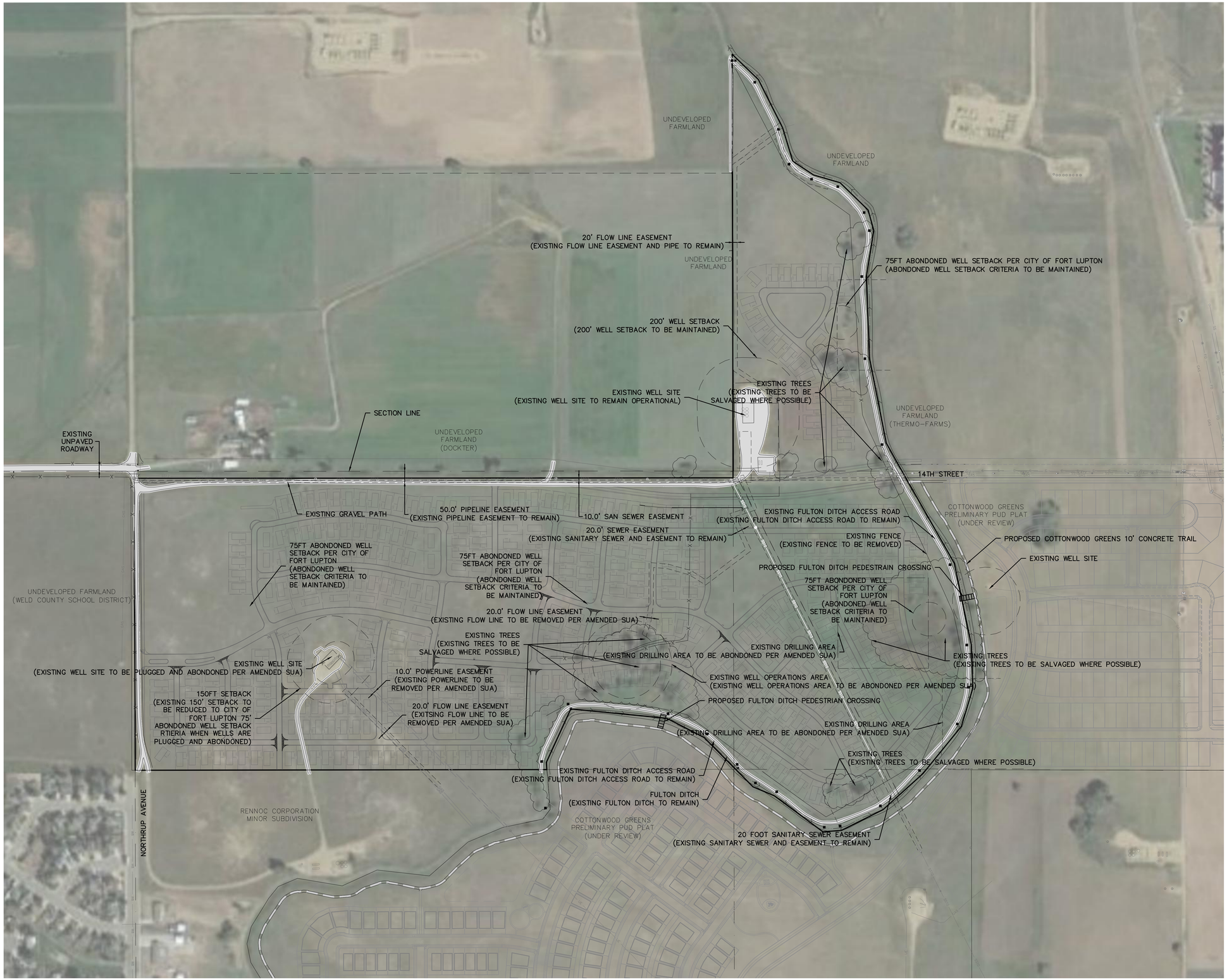
P.M. RW
JOB 19001956
SHEET NO. 5

CAD FILE: 19001956-DETAILS-FINAL PUD.DWG



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PLAN NO.: PPL2020-0004

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WILLOW BEND
FORT LUPTON, COLORADO

FINAL PLANNED UNIT DEVELOPMENT
EXISTING CONDITIONS MAP

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

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CAD FILE: 19001956-EXISTING CONDITIONS_FINAL PUD.DWG

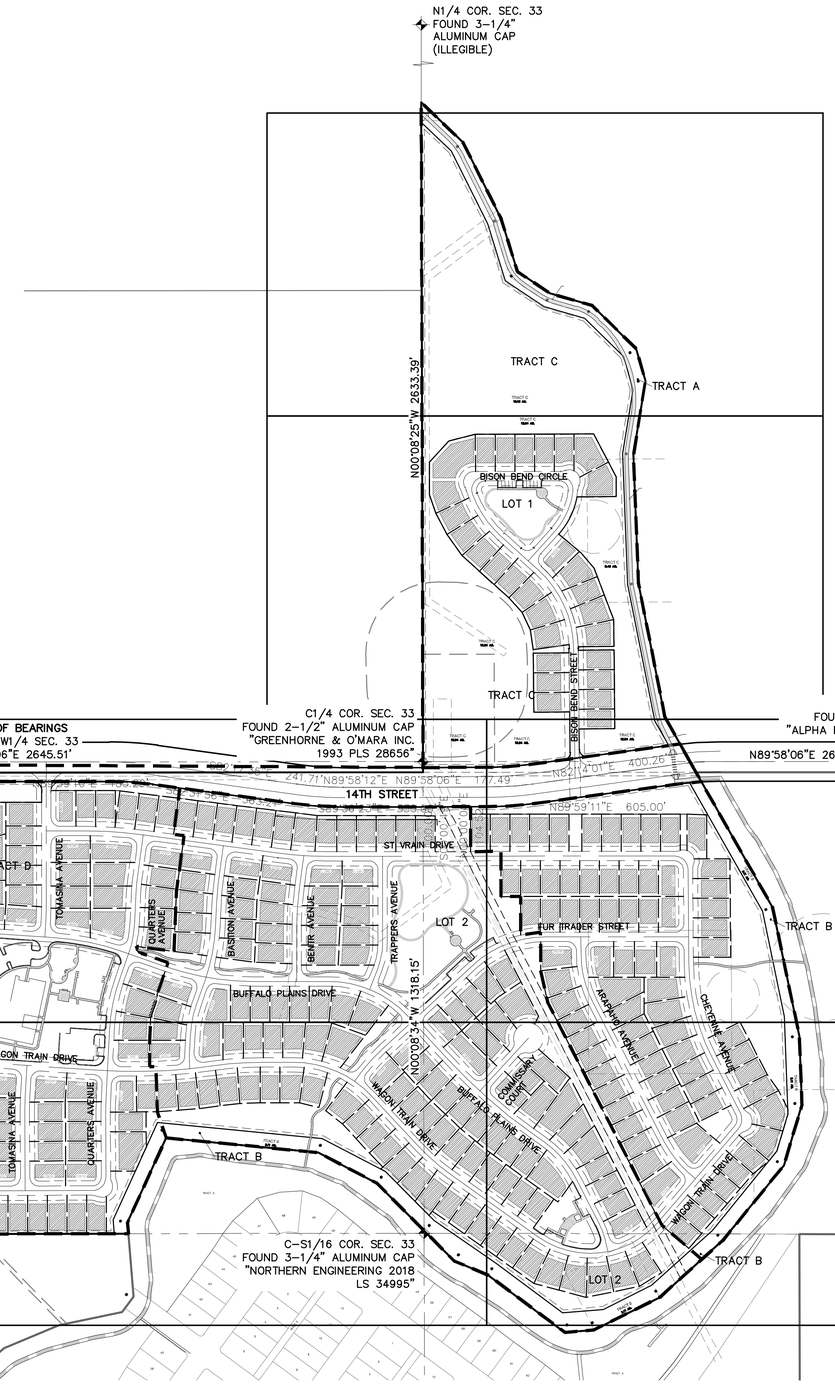
WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004

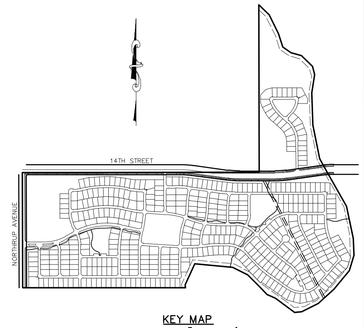
0' 200' 400' 600'

SCALE: 1" = 200'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- SHEET INDEX
- SITE REFERENCE LINE (NOT PLATTED LOT)
- BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)





KEY MAP
SCALE: 1" = 800'

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SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
OVERALL & PHASING PLAN

CLIENT

DATE 5/15/2020

REVISIONS

DR. TN | CH. JP/SB
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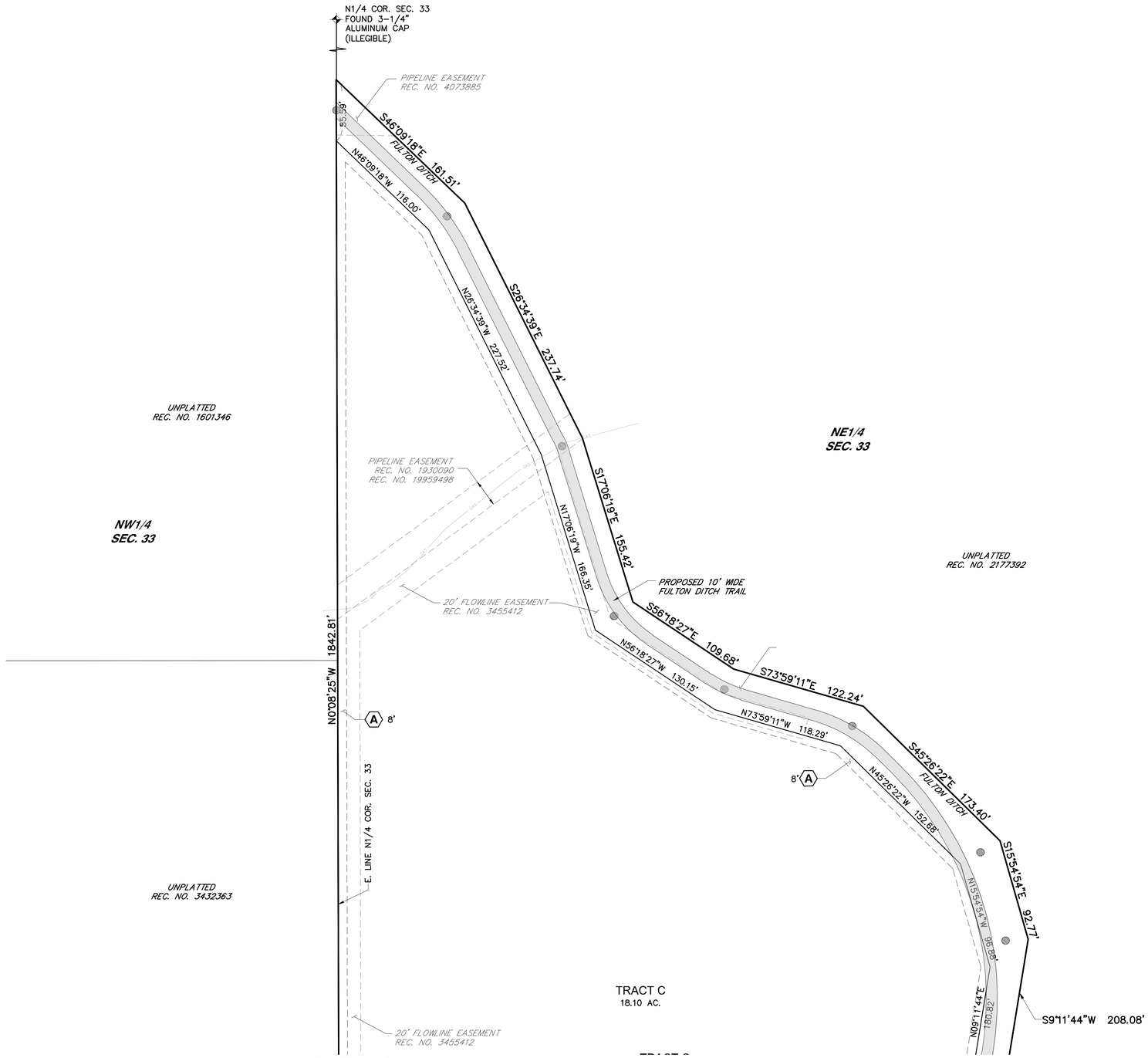
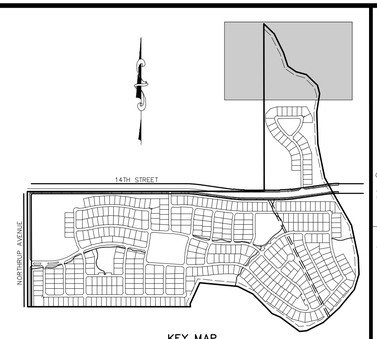
JOB 19001956
SHEET NO. 7

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

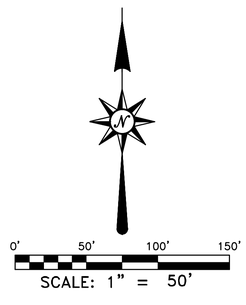
CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG
LAST SAVED BY: TIMOTHY NEWBERRY ON: 5/15/2020 11:44:39 AM

WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'



SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
- FULTON DITCH TRAIL
- FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
- E — PROPOSED ELECTRIC LINE
- GAS — GAS — PROPOSED GAS LINE
- PROPOSED SANITARY SEWER
- PROPOSED WATER LINE
- PROPOSED STORM SEWER

FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT

XXX / X,XXX S.F. REFERENCE SITE NUMBER & AREA

- (A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
- (B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
- (C) EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
- (D) EASEMENT FOR ELECTRIC SERVICE FACILITIES

BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
AREA 1

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

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P.M. RW
JOB 19001956
SHEET NO. 8

CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

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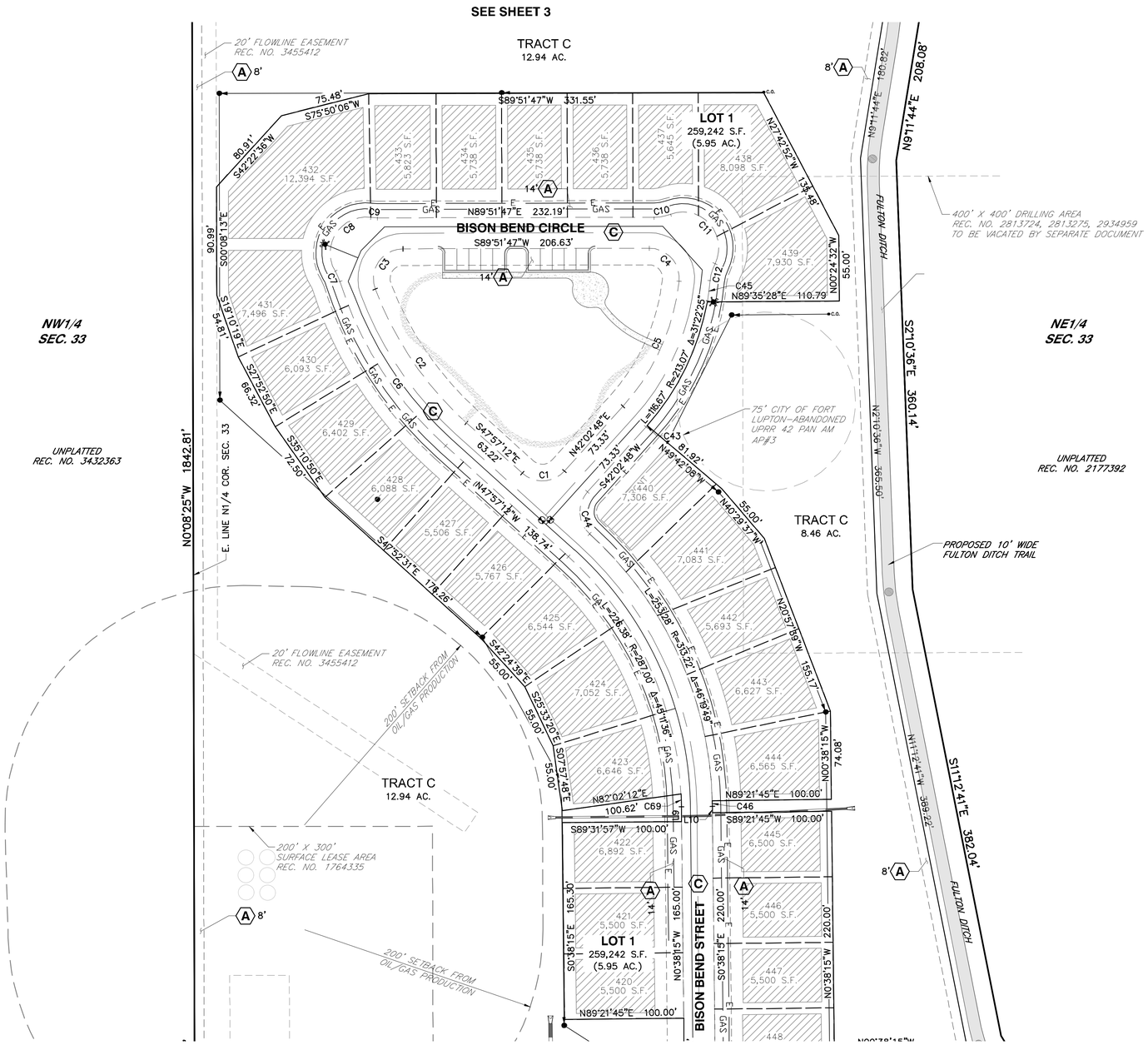
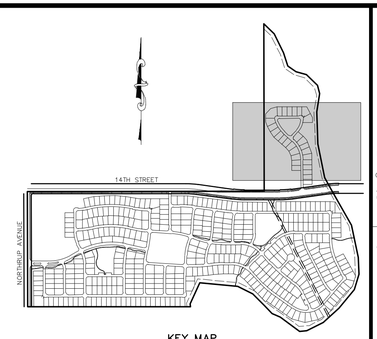
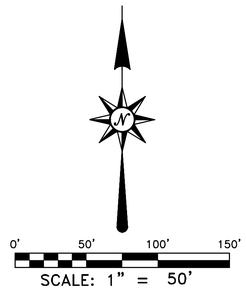
WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'



SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
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BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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SOUTHFIELD, MI 48114
(248) 208-2556
JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
AREA 2

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 9

CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

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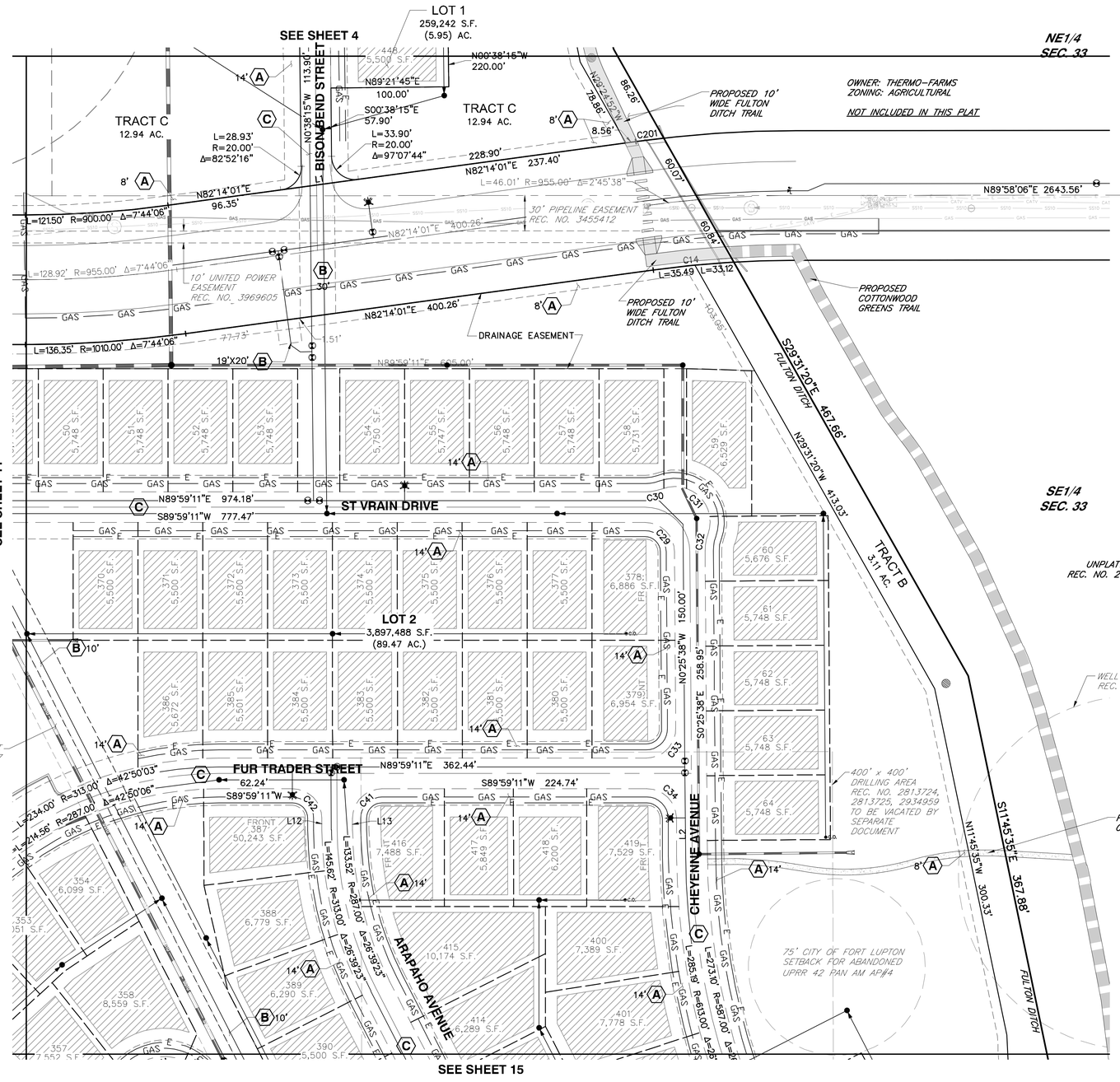
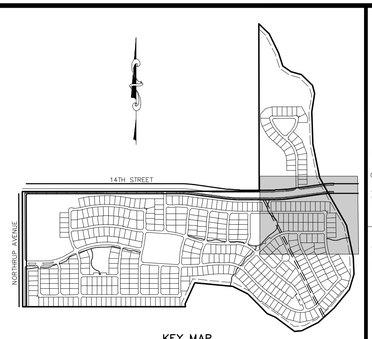
WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'

0' 50' 100' 150'
SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
- FULTON DITCH TRAIL
- FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
- PROPOSED ELECTRIC LINE
- PROPOSED GAS LINE
- PROPOSED SANITARY SEWER
- PROPOSED WATER LINE
- PROPOSED STORM SEWER

FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT

XXX / X,XXX S.F. — REFERENCE SITE NUMBER & AREA

(A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES

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(C) EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS

(D) EASEMENT FOR ELECTRIC SERVICE FACILITIES

BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)

PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004

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WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
AREA 3

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN | CH. JP/SB
P.M. RW

JOB 19001956
SHEET NO. 10

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WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
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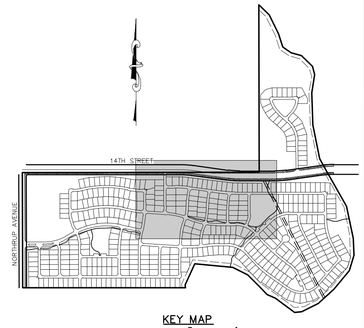
UNPLATTED
REC. NO. 3432363

0' 50' 100' 150'
SCALE: 1" = 50'



KEY MAP
SCALE: 1" = 800'

SEE SHEET 4

NW1/4 SEC. 33

NE1/4 SEC. 33

TRACT C
12.94 AC.

C1/4 COR. SEC. 33
FOUND 2-1/2" ALUMINUM CAP
"GREENHORNE & O'MARA INC.
1993 PLS 28656"

N0°08'25"W 1842.81'

BASIS OF BEARINGS
N. LINE SW1/4 SEC. 33
N89°58'06"E 2645.51'

N89°58'06"E 2645.50'

N89°58'06"E 177.46'

13.75'

591.15'

25' R.O.W. DEDICATION

N89°58'06"E 1701.36'

83.20'

134.46'

L=121.55' R=900.00' Δ=7°44'18"

S82°17'35"E 241.71'

L=128.96' R=955.00' Δ=7°44'13"

N89°58'12"E 223.03'

N89°58'06"E 177.49'

TRACT D
8.83 AC.

N00°01'02"W 29.06'

S89°58'58"W 331.59'

N89°59'10"E 185.29'

S82°17'35"E 399.91'

S82°51'56"E 563.21'

L=136.38' R=1010.00' Δ=7°44'13"

SW1/4 SEC. 33

SE1/4 SEC. 33

N89°58'12"E 223.03'

N89°58'06"E 177.49'

S89°56'23"E 330.00'

DRAINAGE EASEMENT

LOT 2
3,897,488 S.F.
(89.47 AC.)

ST VRAIN DRIVE

L=120.13' R=1187.00' Δ=5°47'55"

N89°58'58"E 72.91'

L=162.44' R=1213.00' Δ=7°40'21"

S82°20'40"E 150.00'

S82°20'40"E 380.85'

L=132.11' R=987.00' Δ=7°40'09"

N82°20'40"W 116.85'

S89°59'11"W 120.11'

ST VRAIN DRIVE

SEE SHEET 12

SEE SHEET 10

STAGECOACH AVENUE

TOMASINA AVENUE

QUARTERS AVENUE

BASTION AVENUE

BENT AVENUE

TRAPPERS AVENUE

N86°09'42"W 150.04'

N86°09'42"W 210.64'

L=166.23' R=763.00' Δ=12°28'58"

L=175.02' R=787.00' Δ=13°36'22"

BUFFALO PLAINS DRIVE

S89°57'55"W 210.44'

L=217.00' R=287.00' Δ=43°19'19"

N89°57'55"E 82.88'

N89°57'55"E 51.56'

20' SEWER EASEMENT REC. NO. 1975627

20' FLOWLINE EASEMENT REC. NO. 3455412 TO BE VACATED BY SEPARATE DOCUMENT

E. LINE NW1/4 SEC. 33
W. LINE NE1/4 SEC. 33

FUR TRADER STREET

N47°09'05"E 190.17'

S47°09'05"W 189.71'

LOT 2
3,897,488 S.F.
(89.47 AC.)

SEE SHEET 14

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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CLIENT
SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
AREA 4

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

DR. TN CH. JP/SB
P.M. RW

JOB 19001956
SHEET NO. 11

CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004

0' 50' 100' 150'
SCALE: 1" = 50'

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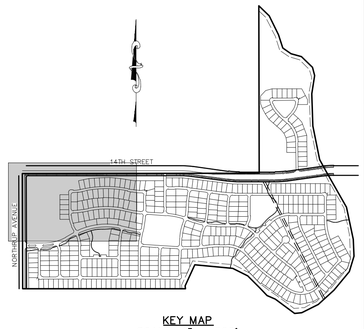

KEY MAP
SCALE: 1" = 800'

OWNER: JAMES A. DOKTER SR. TRUST
LA LANI F. DOKTER TRUST
ZONING: AGRICULTURAL

NOT INCLUDED IN THIS PLAT

W1/4 COR. SEC. 33
FOUND 2" ALUMINUM CAP
"ALPHA ENGRG 1997 25937"

N. LINE SW 1/4 SEC. 33
N89°58'12"E 2645.51'
N89°58'06"E 2645.50'
N89°58'06"E 1701.20'

14TH STREET
30'
25' R.O.W. DEDICATION
8'

W. LINE N 1/2, SW 1/4 SEC. 33
N00°10'09"W 1321.15'
N0°10'09"W 1291.08'

NORTHRUP AVENUE
42.5' R.O.W. DEDICATION
698.03'

UNPLATTED
REC. NO. 2539249

TRACT D
8.83 AC.

TRACT D
8.83 AC.
160.37'
S89°58'58"W
331.59'

BLACKSMITH STREET
TAVERN ROOM AVENUE
BUFFALO PLAINS DRIVE
WILLOW BEND PARKWAY
DRAGON AVENUE

LOT 2
3,897,488 S.F.
(89.47 AC.)

UNPLATTED
REC. NO. 3432363

75' SETBACK FOR CITY OF FORT LUPTON FOR ABANADONED BROWN RED W 33-12 LOCATION

SEE SHEET 11
SEE SHEET 13

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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SITE PLAN
AREA 5

SUN COMMUNITIES, INC.

DATE 5/15/2020

REVISIONS

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P.M. RW

JOB 19001956
SHEET NO. 12

CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

DESCRIPTION CONTENT PROVIDED BY THE PLANNING TEAM AND/OR CITY OF FORT LUPTON

WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004

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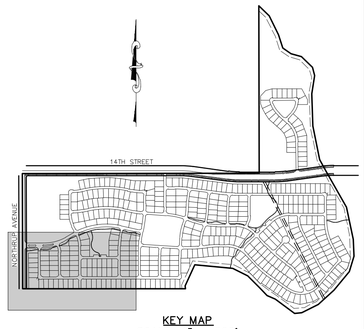

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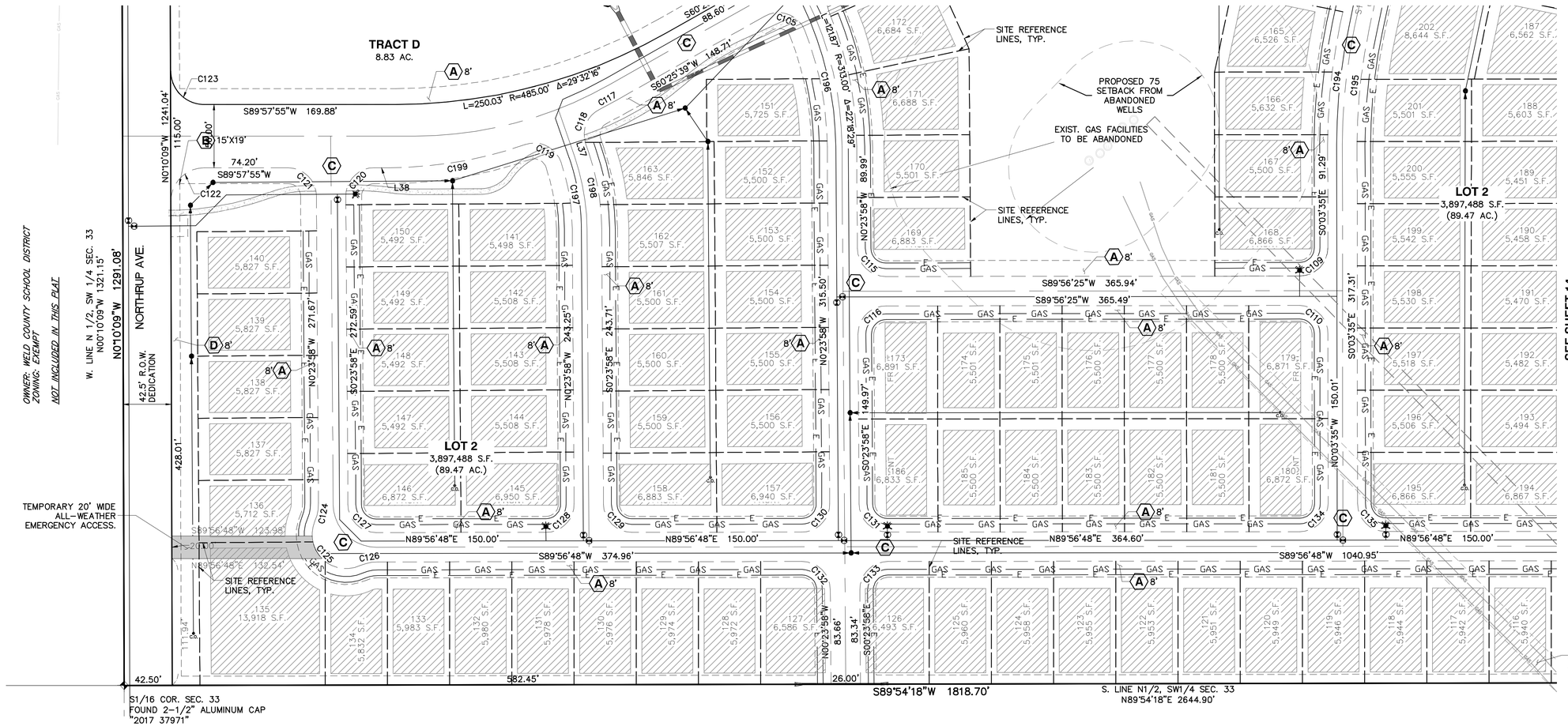

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SITE PLAN
AREA 6

DATE 5/15/2020

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JOB 19001956
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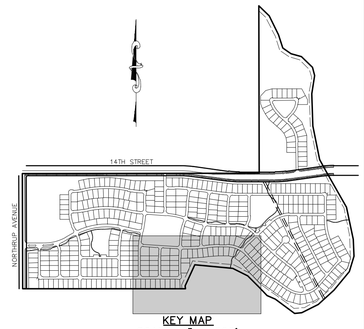

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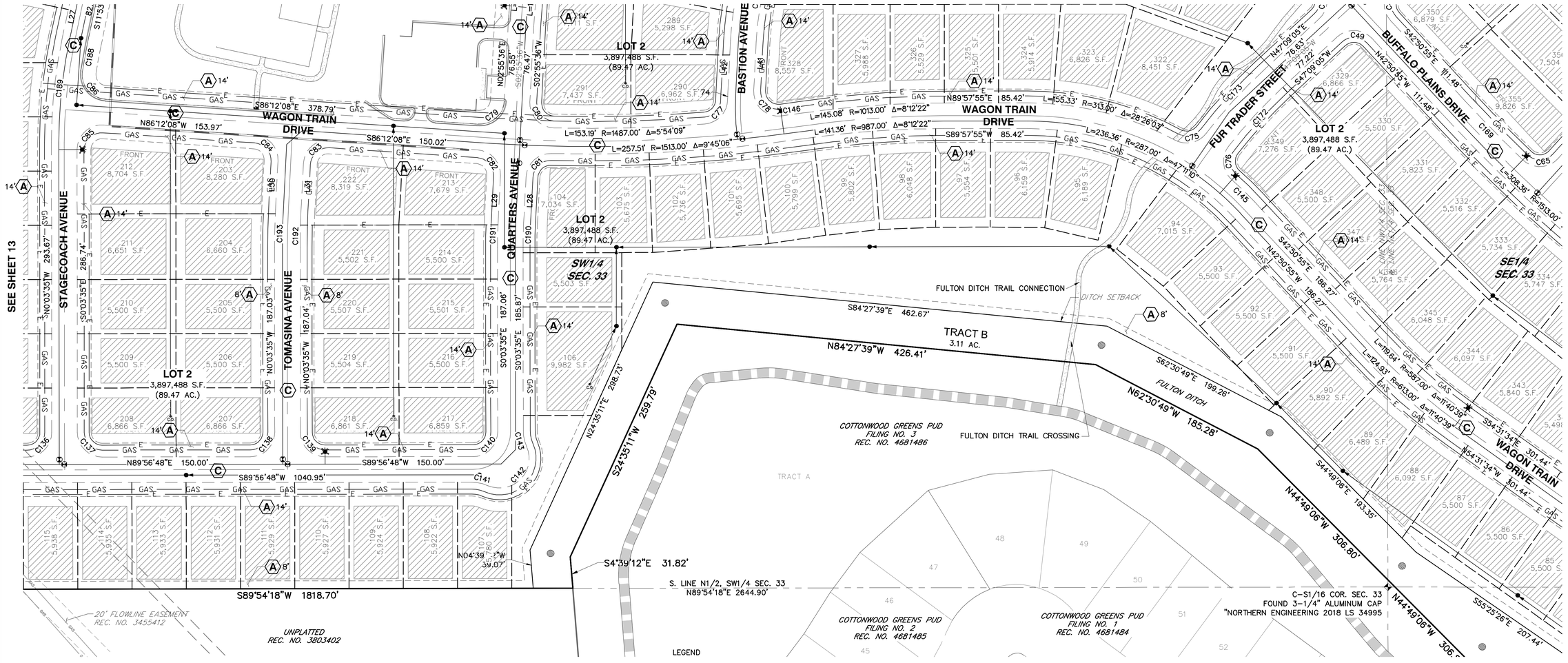

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AREA 7

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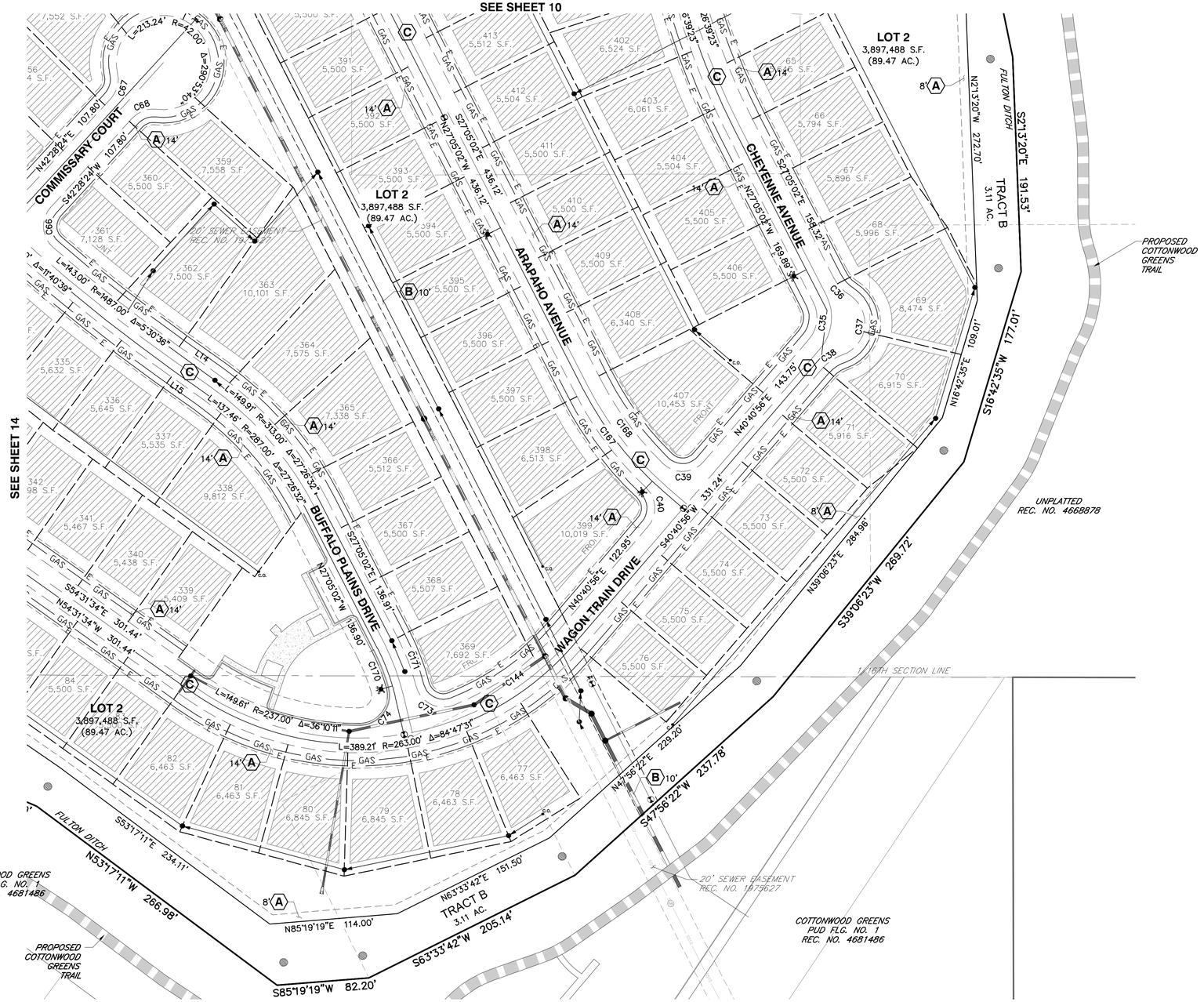
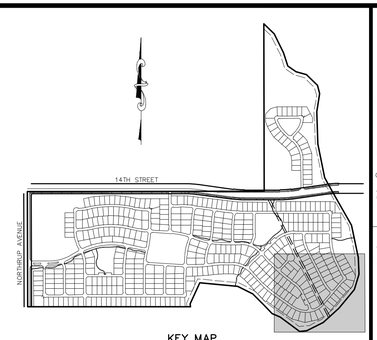
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
- FULTON DITCH TRAIL
- FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
- E — PROPOSED ELECTRIC LINE
- GAS — GAS — PROPOSED GAS LINE
- PROPOSED SANITARY SEWER
- PROPOSED WATER LINE
- PROPOSED STORM SEWER

FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT

XXX / X,XXX S.F. — REFERENCE SITE NUMBER & AREA

(A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES

(B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES

(C) EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS

(D) EASEMENT FOR ELECTRIC SERVICE FACILITIES

BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

811 Know what's below. Call before you dig.

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NOTICE:
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CLIENT
SUN COMMUNITIES
WILLOW BEND
FORT LUPTON, COLORADO
FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
AREA 8

SUN COMMUNITIES

DATE 5/15/2020

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CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

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WILLOW BEND
FINAL PLANNED UNIT DEVELOPMENT
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C1	90°00'00"	25.00'	39.27'
C2	27°23'02"	287.00'	137.17'
C3	110°25'57"	25.00'	48.19'
C4	96°22'34"	25.00'	42.05'
C5	35°48'28"	187.00'	116.87'
C6	30°23'17"	313.00'	166.01'
C7	13°27'53"	40.00'	9.40'
C8	128°52'32"	30.00'	67.48'
C9	7°58'57"	40.00'	5.57'
C10	20°16'05"	40.00'	14.15'
C11	136°59'09"	30.00'	71.73'
C12	21°14'44"	40.00'	14.83'
C13	1°21'07"	1010.00'	23.83'
C14	4°22'04"	900.00'	68.61'
C15	90°00'52"	28.60'	44.93'
C16	83°33'44"	28.60'	41.71'
C17	90°00'00"	25.00'	39.27'
C18	90°00'00"	25.00'	39.27'
C19	91°52'27"	25.00'	40.09'
C20	90°00'00"	25.00'	39.27'
C21	90°00'00"	25.00'	39.27'
C22	90°00'00"	25.00'	39.27'
C23	91°49'48"	25.00'	40.07'
C24	1°49'48"	1013.00'	32.36'
C25	83°57'50"	25.00'	36.64'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C26	1°37'59"	1013.00'	28.87'
C27	90°00'00"	25.00'	39.27'
C28	90°00'00"	25.00'	39.27'
C29	89°35'11"	25.00'	39.09'
C30	20°41'29"	40.00'	14.45'
C31	130°58'08"	30.00'	68.58'
C32	20°41'29"	40.00'	14.45'
C33	90°24'49"	25.00'	39.45'
C34	89°35'11"	25.00'	39.09'
C35	67°45'57"	30.00'	35.48'
C36	30°31'08"	40.00'	21.31'
C37	128°48'13"	30.00'	67.44'
C38	30°31'08"	40.00'	21.31'
C39	93°32'14"	25.00'	40.81'
C40	87°15'32"	25.00'	38.07'
C41	90°24'49"	25.00'	39.45'
C42	89°35'11"	25.00'	39.09'
C43	0°08'43"	657.91'	1.67'
C44	90°00'00"	25.00'	39.27'
C45	4°52'10"	213.38'	18.13'
C46	0°39'29"	411.77'	4.73'
C47	87°00'20"	25.00'	37.96'
C48	90°00'00"	25.00'	39.27'
C49	90°00'01"	25.00'	39.27'
C50	93°51'51"	25.00'	40.96'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C51	84°46'34"	25.00'	36.99'
C52	82°18'38"	25.00'	35.91'
C53	90°00'00"	25.00'	39.27'
C54	90°00'00"	25.00'	39.27'
C55	97°03'54"	25.00'	42.35'
C56	78°21'58"	25.00'	34.19'
C57	96°02'21"	25.00'	41.91'
C58	88°26'50"	25.00'	38.59'
C59	83°35'02"	25.00'	36.47'
C60	90°00'00"	25.00'	39.27'
C61	91°58'09"	25.00'	40.13'
C62	96°12'44"	25.00'	41.98'
C63	88°52'51"	25.00'	38.78'
C64	90°00'00"	25.00'	39.27'
C65	91°29'22"	25.00'	39.92'
C66	91°29'22"	25.00'	39.92'
C67	55°26'50"	25.00'	24.19'
C68	55°26'50"	25.00'	24.19'
C69	2°07'21"	287.00'	10.63'
C70	6°25'24"	28.60'	3.21'
C71	10°43'49"	313.00'	58.62'
C72	15°16'03"	313.00'	83.40'
C73	96°48'29"	25.00'	42.24'
C74	105°34'14"	25.00'	46.06'
C75	80°57'20"	25.00'	35.32'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C76	86°32'38"	25.00'	37.76'
C77	84°03'32"	25.00'	36.68'
C78	100°24'12"	25.00'	43.81'
C79	90°52'16"	25.00'	39.65'
C80	91°29'22"	25.00'	39.92'
C81	88°35'03"	25.00'	38.65'
C82	89°07'44"	25.00'	38.89'
C83	90°52'16"	25.00'	39.65'
C84	89°07'44"	25.00'	38.89'
C85	93°51'28"	25.00'	40.95'
C86	94°43'05"	25.00'	41.33'
C87	90°00'00"	25.00'	39.27'
C88	91°34'04"	25.00'	39.95'
C89	91°29'22"	25.00'	39.92'
C90	91°29'22"	25.00'	39.92'
C91	88°35'03"	25.00'	38.65'
C92	88°35'03"	25.00'	38.65'
C93	90°04'48"	25.00'	39.30'
C94	23°35'35"	40.00'	16.47'
C95	23°44'04"	40.00'	16.57'
C96	137°15'49"	30.00'	71.87'
C97	23°31'26"	40.00'	16.42'
C98	137°16'56"	30.00'	71.88'
C99	17°23'05"	40.00'	12.14'
C100	90°38'07"	25.00'	39.55'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C101	90°00'00"	25.00'	39.27'
C102	93°00'28"	25.00'	40.58'
C103	86°26'32"	25.00'	37.72'
C104	88°08'57"	25.00'	38.46'
C105	98°07'44"	25.00'	42.82'
C106	88°42'25"	25.00'	38.71'
C107	91°25'22"	25.00'	39.89'
C108	90°00'00"	25.00'	39.27'
C109	90°00'00"	25.00'	39.27'
C110	90°00'00"	25.00'	39.27'
C115	89°39'38"	25.00'	39.12'
C116	90°20'22"	25.00'	39.42'
C117	2°55'09"	365.00'	18.60'
C118	82°24'37"	25.00'	35.96'
C119	90°28'42"	25.00'	39.48'
C120	90°21'53"	25.00'	39.43'
C121	89°38'07"	25.00'	39.11'
C122	90°08'04"	29.50'	46.41'
C123	89°51'56"	29.50'	46.27'
C124	23°46'00"	40.00'	16.59'
C125	137°14'49"	30.00'	71.86'
C126	23°49'35"	40.00'	16.63'
C127	89°39'14"	25.00'	39.12'
C128	90°20'46"	25.00'	39.42'
C129	89°39'14"	25.00'	39.12'

LINE DATA TABLE

LINE #	DIRECTION	LENGTH
L1	N82°14'01"E	66.51'
L2	N0°25'38"W	32.34'
L3	S3°50'18"W	9.68'
L4	N3°50'18"E	9.83'
L5	N21°01'41"E	27.10'
L6	S21°01'41"W	28.73'
L7	N7°39'20"E	57.18'
L8	S7°39'20"W	62.40'
L9	N0°38'15"W	12.52'
L10	S0°38'15"E	5.27'
L12	N0°25'38"W	10.25'
L13	S0°25'38"E	9.71'
L14	S54°31'34"E	43.51'
L15	N54°31'34"W	43.51'
L21	N19°24'49"E	38.88'
L22	S19°24'49"W	50.70'
L23	S19°24'49"W	38.28'
L24	N19°24'49"E	37.86'
L25	S86°09'42"E	13.08'
L26	N86°09'42"W	13.08'
L27	N11°53'32"E	42.55'
L28	S2°55'36"W	46.27'
L29	S2°55'36"W	46.20'
L30	N2°55'36"E	49.63'
L31	N2°55'36"E	48.48'

LINE DATA TABLE

LINE #	DIRECTION	LENGTH
L37	S19°03'49"E	7.47'
L38	S89°57'55"W	13.07'
L41	S2°55'36"W	49.16'
L42	N2°55'36"E	53.75'
L43	S2°33'46"W	62.30'
L44	S2°33'46"W	62.30'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C130	90°20'46"	25.00'	39.42'
C131	89°39'14"	25.00'	39.12'
C132	89°39'14"	25.00'	39.12'
C133	90°20'46"	25.00'	39.42'
C134	90°00'24"	25.00'	39.27'
C135	89°59'36"	25.00'	39.27'
C136	90°00'24"	25.00'	39.27'
C137	89°59'36"	25.00'	39.27'
C138	90°00'24"	25.00'	39.27'
C139	89°59'36"	25.00'	39.27'
C140	90°00'24"	25.00'	39.27'
C141	23°37'42"	40.00'	16.50'
C142	137°15'48"	30.00'	71.87'
C143	23°37'42"	40.00'	16.50'
C144	27°54'41"	237.00'	115.45'
C145	5°49'34"	313.00'	31.83'
C146	0°45'51"	1487.00'	19.83'
C147	3°51'20"	513.00'	34.52'
C148	3°51'20"	487.00'	32.77'
C149	5°05'33"	313.00'	27.82'
C150	5°05'33"	287.00'	25.51'
C151	8°39'55"	287.00'	43.40'
C152	10°26'05"	313.00'	57.00'
C153	6°32'14"	737.00'	84.09'
C154	6°02'21"	763.00'	80.42'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C155	11°51'59"	513.00'	106.25'
C156	11°14'33"	539.00'	105.76'
C157	5°05'33"	587.00'	52.17'
C158	5°05'33"	613.00'	54.48'
C159	7°41'24"	737.00'	98.92'
C160	7°41'24"	763.00'	102.41'
C161	21°02'30"	213.00'	78.22'
C162	21°02'30"	187.00'	68.68'
C163	6°46'31"	737.00'	87.15'
C164	7°48'52"	763.00'	104.07'
C165	15°50'20"	313.00'	86.53'
C166	15°26'22"	313.00'	84.34'
C167	19°29'34"	313.00'	106.49'
C168	18°41'48"	287.00'	93.65'
C169	3°11'19"	1487.00'	82.76'
C170	10°48'59"	187.00'	35.30'
C171	12°29'07"	213.00'	46.41'
C172	9°16'57"	487.00'	78.90'
C173	9°42'27"	513.00'	86.92'
C174	1°27'03"	263.00'	6.66'
C175	16°29'13"	313.00'	90.07'
C176	16°29'13"	287.00'	82.59'
C177	2°26'23"	1513.00'	64.43'
C178	2°21'58"	1487.00'	61.41'
C179	11°59'22"	513.00'	107.35'

CURVE DATA TABLE

CURVE #	DELTA	RADIUS	LENGTH
C180	11°50'43"	487.00'	100.68'
C181	11°57'49"	237.00'	49.49'
C182	12°09'56"	263.00'	55.84'
C183	11°31'49"	487.00'	98.00'
C184	11°31'49"	513.00'	103.24'
C185	8°03'14"	487.00'	68.46'
C186	8°03'14"	513.00'	72.11'
C187	23°13'06"	287.00'	116.30'
C188	3°22'35"	487.00'	28.70'
C189	11°57'08"	513.00'	107.01'
C190	2°59'11"	487.00'	25.38'
C191	2°59'11"	513.00'	26.74'
C192	2°59'11"	713.00'	37.16'
C193	2°59'11"	739.00'	38.52'
C194	11°57'08"	513.00'	107.01'
C195	11°57'08"	487.00'	101.59'
C196	21°02'39"	287.00'	105.41'
C197	18°23'49"	187.00'	60.04'
C198	18°39'52"	213.00'	69.39'
C199	19°14'24"	365.00'	122.57'
C200	89°58'11"	25.00'	39.26'
C201	1°21'07"	1010.00'	23.83'

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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WILLOW BEND
FORT LUPTON, COLORADO

FINAL PLANNED UNIT DEVELOPMENT
SITE PLAN
LINE AND CURVE TABLES

DATE 5/15/2020

REVISIONS

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SHEET NO. 16

CAD FILE: 19001956-SITE PLAN-FINAL PUD.DWG

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LANDSCAPE CONSTRUCTION NOTES
FOR
WILLOW BEND
FINAL PUD
FORT LUPTON, COLORADO
SUN COMMUNITIES

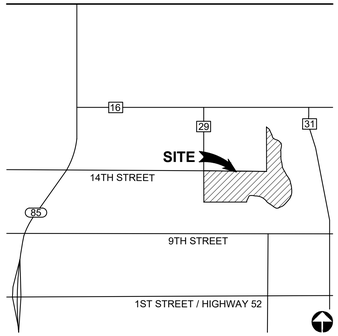
GENERAL CONSTRUCTION NOTES

1. THESE NOTES ARE TO BE USED FOR GENERAL REFERENCE IN CONJUNCTION WITH, AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATIONS, APPROVED ADDENDA, AND CHANGE ORDERS ASSOCIATED WITH THESE LANDSCAPE IMPROVEMENT DOCUMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND SHALL NOTIFY ALL UTILITY COMPANIES WITH UTILITIES ON SITE PRIOR TO THE CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL ADHERE TO ALL APPLICABLE LOCAL, STATE AND/OR FEDERAL LAWS OR REGULATIONS PERTAINING TO THE PROJECT.
3. IN ALL CASES WHERE A CONFLICT MAY OCCUR, SUCH AS BETWEEN ITEMS COVERED IN SPECIFICATIONS AND NOTES ON THE DRAWINGS, OR BETWEEN GENERAL NOTES AND SPECIFIC DETAILS, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED AND HE OR SHE WILL INTERPRET THE INTENT OF THE CONTRACT DOCUMENTS.
4. A QUALIFIED SUPERVISOR SHALL BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION.
5. DETAILS NOTED AS "TYPICAL" SHALL APPLY IN ALL CASES UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.
6. LANDSCAPE CONTRACTOR SHALL INSPECT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE AND/OR OWNER ALL EXISTING CONDITIONS PRIOR TO THE START OF ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE UNDER THIS CONTRACT TO REPAIR AND/OR REPLACE, AT THEIR OWN EXPENSE, ANY STRUCTURES, FENCES, WALLS, PLANT MATERIAL, OR OTHER ITEMS DESTROYED DURING CONSTRUCTION. LIKEWISE THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY AND ALL DAMAGES TO ADJACENT PROPERTIES OR ANY OTHER AREAS OUTSIDE THE CONTRACT LIMITS. THE DAMAGED ITEMS/AREAS WILL BE RESTORED TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE OWNER'S AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL PLANT MATERIAL LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE LOCATIONS OF EXISTING AND FUTURE UNDERGROUND SERVICES AND IMPROVEMENTS WHICH MAY CONFLICT WITH THE WORK TO BE DONE. PRIOR TO THE START OF WORK, ALL UNDERGROUND UTILITIES ARE TO BE LOCATED AND PROTECTED. CONTRACTOR IS RESPONSIBLE FOR THE INITIAL CALL AND FUTURE UPDATES TO BLUE STAKE AT 602-263-1100. EXISTING UNDERGROUND SERVICES SHALL NOT BE DISTURBED OR REMOVED WITHOUT APPROVAL OF THE OWNER'S AND/OR OWNER'S AUTHORIZED REPRESENTATIVE, UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
8. CONTRACTOR SHALL PROVIDE BARRICADES AND TRAFFIC CONTROL ALONG PUBLIC STREETS IF REQUIRED DURING CONSTRUCTION.
9. PLANTING AND IRRIGATION DESIGN MAY BE MODIFIED TO ADAPT TO WALK CONFIGURATIONS THAT DIFFER FROM THESE PLANS, AND DUE TO GRADE LIMITATIONS ON SITE.
10. REFER TO ENGINEERING PLANS FOR DRAINAGE FLOWS. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE THAT THESE ARE PROVIDED FOR AND NOT IMPAIRED WITH OBSTRUCTIONS.
11. NO PART OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER IMMEDIATELY.
12. COORDINATE AND COOPERATE WITH ALL CONTRACTORS OF ATTACHED, ADJOINING AND/OR INTERFACING WORK TO INSURE ORDERLY AND EFFICIENT COMPLETION OF ALL WORK.
13. ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES (FEDERAL, STATE, LOCAL, AND HEALTH DEPARTMENTS), EXCEPT WHERE REQUIREMENTS OF CONTRACT DOCUMENTS ARE MOST STRINGENT.
14. ALL EXISTING PLANT MATERIAL SHALL REMAIN UNLESS OTHERWISE NOTED.
15. ANY PLANT MATERIAL THAT MUST BE REMOVED DUE TO CONSTRUCTION MUST BE APPROVED BY OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE. NOTIFY OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO REMOVAL AND/OR RELOCATION OF ALL PLANTS.
16. IF ANY EXISTING PLANT MATERIAL THAT IS TO REMAIN IS DAMAGED BY CONTRACTOR, THE CONTRACTOR SHALL REPLACE THE DAMAGED PLANT WITH A NEW ONE OF THE SAME SIZE AND VARIETY AT NO COST TO THE OWNER.
17. DO NOT DISTURB SOIL WITHIN BRANCH SPREAD OF TREES OR SHRUBS TO REMAIN WITHOUT APPROVAL OF THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
18. ANY DISCREPANCIES BETWEEN THE PLANS AND CONDITIONS ON SITE SHALL BE REPORTED IMMEDIATELY TO THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
19. CONTRACTOR SHALL PROVIDE OWNER WITH ALL WARRANTY INFORMATION, INSTRUCTION MANUALS AND ANY OTHER PRODUCT INFORMATION FOR ALL NEW EQUIPMENT OR MACHINERY INSTALLED ON THE SITE WITHIN TWO WEEKS AFTER SUBSTANTIAL COMPLETION.
20. NO DESIGN MODIFICATIONS SHALL BE MADE WITHOUT THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE APPROVAL.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR HAULING AND LEGALLY DISPOSING OF MATERIALS DESIGNATED TO BE REMOVED. PROVIDE RECEIPTS FOR DUMPING TO OWNER FOR THEIR FILES.
22. ALL BASE INFORMATION IS FROM OTHER PROJECT TEAM MEMBERS AS LISTED IN THE 'PROJECT TEAM' LIST ON THIS SHEET. A THOROUGH ATTEMPT HAS BEEN MADE TO KEEP UP TO DATE WITH THE MOST CURRENT BASE INFORMATION. HOWEVER, DISCREPANCIES MAY EXIST BETWEEN THESE PLANS AND OTHER TEAM MEMBERS PLANS. IN ALL CASES THE ENGINEERS PLANS SHALL HAVE PRECEDENCE OVER THE LANDSCAPE PLANS FOR FINAL PROJECT CONFIGURATION.
23. ALL SIDEWALKS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. REFER TO CIVIL ENGINEERING PLANS FOR FINAL LAYOUT, GRADES, FINISHES, DETAILS, AND METHODS OF CONSTRUCTION. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS, OR INSTALLATION THAT IS BEYOND OUR CONTROL.
24. SIGHT LINES AND VISIBILITY TRIANGLES ARE SHOWN ON THESE PLANS FOR REFERENCE ONLY. REFER TO ENGINEERING PLANS OR GOVERNING MUNICIPALITY FOR SPECIFIC GUIDELINES. IN CASES WHERE THERE IS MORE THAN ONE GOVERNING BODY, THE MOST RESTRICTIVE GUIDELINE SHALL PREVAIL.
25. ALL WALLS AND VERTICAL SITE FEATURES DESIGNED IN THE INTEREST OF THIS PROJECT ARE SCHEMATIC IN NATURE. POTENTIAL CONSTRUCTION DETAILING AND TECHNIQUES ARE SHOWN FOR DESIGN INTENT CLARIFICATION ONLY. THE CONTRACTOR SHALL HAVE THE ULTIMATE RESPONSIBILITY TO ENSURE THAT ALL CONSTRUCTED ELEMENTS ON THIS PROJECT ARE STRUCTURALLY SOUND AND ARE BUILT WITHIN ALL APPLICABLE CITY, STATE, AND FEDERAL GUIDELINES. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS, OR INSTALLATION.
26. SHOP DRAWING REVIEWS WILL BE DONE TO ENSURE THAT PRODUCT DATA, MATERIALS, AND SAMPLES MEET OR EXCEED THE ORIGINAL DESIGN INTENT OF THESE DRAWINGS ONLY. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS OR INSTALLATION RESULTING FROM THE PRODUCTION OF ANY SHOP DRAWINGS.

SUBMITTAL HISTORY

DATE	DESCRIPTION / COMMENTS
07/20/20	PRE PLAT 1ST SUBMITTAL
09/08/20	PRE PLAT 2ND SUBMITTAL
04/21/20	PRE PLAT 3RD SUBMITTAL
04/21/20	FINAL PUD 1ST SUBMITTAL

VICINITY MAP



PROJECT TEAM

DISCIPLINE	CONTACT INFORMATION
OWNER	SUN COMMUNITIES TOM O'BRANOVIC (tobranovic@suncommunities.com) 27777 FRANKLIN ROAD, SUITE 200 SOUTHFIELD, MICHIGAN 48034 248.208.2610
LANDSCAPE ARCHITECT	RVi PLANNING + LANDSCAPE ARCHITECTURE DOUG CRAIG (dcraig@rviplanning.com) BRITTANY GEIST (bgeist@rviplanning.com) 120 S. ASH AVENUE TEMPE, ARIZONA 85281 480.994.0994
CIVIL ENGINEER	ATWELL, LLC SPENCER CRABB (scrabb@atwell-group.com) TWO TOWNE SQUARE, SUITE 700 SOUTHFIELD, MICHIGAN 48076 248.447.2062 RICK WEED (rweed@atwell-group.com) 143 UNION BOULEVARD, SUITE 700 LAKEWOOD, COLORADO 80228 720.541.6601

SHEET INDEX

NUMBER	DESCRIPTION
L0.00	COVER SHEET
L1.00	CONCEPTUAL LANDSCAPE PLAN
L2.00	FENCE DETAILS

COMMON ABBREVIATIONS

SYMBOL	DEFINITION	SYMBOL	DEFINITION	SYMBOL	DEFINITION
@	AT	EOP	EDGE OF PAVEMENT	OC	ON CENTER
AVG	AVERAGE	EQ	EQUAL	P/L	PROPERTY LINE
BPU	BACKFLOW PREVENTION UNIT	EX	EXISTING	POC	POINT OF CONNECTION
BOC	BACK OF CURB	FF	FINISH FLOOR	PUE	PUBLIC UTILITY EASEMENT
BTH	BROWN TRUNK HEIGHT	FG	FINISH GRADE	PSI	POUNDS PER SQUARE INCH
BW	BOTTOM OF WALL	FL	FLOW LINE	R, RAD	RADIUS
CAL	CALIPER	FOC	FACE OF CURB	R/W	RIGHT OF WAY (R.O.W.)
CB	CATCH BASIN	FT	FEET	SF	SQUARE FEET
CF	CUBIC FEET	GAL	GALLONS	STD	STANDARD
CJ	CONTROL JOINT	GPH	GALLONS PER HOUR	SDL	SIGHT DISTANCE LINE
CL	CENTERLINE	GPM	GALLONS PER MINUTE	SIM	SIMILAR
CLR	CLEAR	HORIZ	HORIZONTAL	SJ	SCORE JOINT
CMU	CONCRETE MASONRY UNIT	HP	HIGH POINT	SVT	SIGHT VISIBILITY TRIANGLE
CONC	CONCRETE	HT	HEIGHT	S/W	S/W
CONT	CONTINUOUS	LF	LINEAR FEET	TBS	TO BE SELECTED
Ø, DIA	DIAMETER	LOC	LIMIT OF CONSTRUCTION	TW	TOP OF WALL
DG	DECOMPOSED GRANITE	L/S	LANDSCAPE	TYP	TYPICAL
EA	EACH	MAX	MAXIMUM	VERT	VERTICAL
EJ	EXPANSION JOINT	MIN	MINIMUM	w/	WITH
ELEV	ELEVATION	NTS	NOT TO SCALE		

GENERAL SCOPE OF WORK

1. THE SCOPE OF WORK FOR THIS PROJECT INCLUDES COMPLETE LANDSCAPING IMPROVEMENTS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN VERIFY QUESTIONS ON SCOPE OF WORK PRIOR TO SUBMITTING A BID.
2. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS INCLUDING WATER, EQUIPMENT AND INCIDENTALS AS SHOWN, SPECIFIED AND REQUIRED TO PERFORM LANDSCAPING WORK. THE EXTENT OF THE LANDSCAPING WORK IS SHOWN ON THE DRAWINGS AND IN THE SCHEDULES. THE TYPES OF LANDSCAPING REQUIRED MAY INCLUDE THE FOLLOWING:
   A. AESTHETIC FINISH GRADING
   B. BOULDER PLACEMENT
   C. INSTALLATION OF TREES, SHRUBS, GROUNDCOVERS, AND ANY OTHER NURSERY STOCK
   D. INSTALLATION OF TURF AREAS
   E. DECOMPOSED GRANITE AND PRE-EMERGENT APPLICATIONS (2)
   F. MULCHES, AND ALL OTHER MATERIAL NECESSARY TO COMPLETE THE PLANTING JOB AS SPECIFIED
   G. MISCELLANEOUS LANDSCAPE MATERIALS AND IMPROVEMENTS
   H. FERTILIZERS AND SOIL AMENDMENTS
   I. MAINTENANCE WORK AS SPECIFIED UNTIL COMPLETION OF THE CONTRACT
   J. GUARANTEES
3. OBTAIN ALL PERMITS AND PAY REQUIRED FEES TO ANY GOVERNMENTAL AGENCY HAVING JURISDICTION OVER THE WORK. ARRANGE INSPECTIONS REQUIRED BY LOCAL AGENCIES AND ORDINANCES DURING THE COURSE OF CONSTRUCTION AS REQUIRED.
4. COORDINATE AND COOPERATE WITH OTHER CONTRACTORS WORKING ON THE SITE FOR SUCCESSFUL COMPLETION OF THE PROJECT.
5. BEFORE COMMENCING WORK ON THE SITE, BECOME THOROUGHLY ACQUAINTED WITH LAYOUT OF ALL UNDERGROUND UTILITIES AND STRUCTURES OVER THE ENTIRE SITE. ALL REQUISITE REPAIRS TO DAMAGE CAUSED BY WORK OF THIS SECTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
6. THE IRRIGATION WORK CONSISTS OF INSTALLING A COMPLETE UNDERGROUND SPRINKLER, EMITTER, AND BUBBLER SYSTEM FOR ALL TURF AND LANDSCAPED AREAS AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED, INCLUDING THE FURNISHING OF ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS INCLUDING WATER AND IN PERFORMING ALL OPERATION IN CONNECTION WITH THE CONSTRUCTION OF THE IRRIGATION SYSTEM. WORK SHALL INCLUDE FURNISHING AND INSTALLING ALL PLASTIC AND COPPER PIPE AND FITTINGS, AUTOMATIC CONTROL VALVES, VALVE ACCESS BOXES, ELECTRIC COMPUTERIZED CENTRAL CONTROLLERS, ELECTRIC WIRE, TELEPHONE ACCESS LINE (IF REQUIRED), ETC., AS REQUIRED FOR A COMPLETE SYSTEM AS SHOWN ON THE DRAWINGS AND AS CALLED FOR IN THESE SPECIFICATIONS OR AS MAY BE REQUIRED FOR PROPER OPERATION OF THE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS OF WATER USED IN CONNECTION WITH THE INSTALLATION OF THE IRRIGATION SYSTEM.
7. UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS, THE CONSTRUCTION OF THE IRRIGATION SYSTEM SHALL INCLUDE THE FURNISHING, INSTALLING AND TESTING OF ALL MAINS, LATERALS, RISERS, AND FITTINGS, THE FURNISHING AND INSTALLING OF IRRIGATION HEADS, CONTROL VALVES, CONTROLLERS, LOW AND HIGH VOLTAGE ELECTRIC WIRE, TELEPHONE ACCESS LINE TO CENTRAL CONTROL UNIT (IF REQUIRED), POINT OF CONNECTION, CONTROLS, RESTORATION OF EXISTING IMPROVEMENTS, EXCAVATION AND BACKFILL, AND ALL OTHER WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS REQUIRED FOR A COMPLETE SYSTEM.
8. WHENEVER ANY MATERIAL IS SPECIFIED BY NAME AND/OR NUMBER, SUCH SPECIFICATIONS SHALL BE DEEMED TO BE USED FOR THE PURPOSE OF FACILITATING A DESCRIPTION OF THE MATERIALS AND ESTABLISHING QUALITY, AND SHALL BE DEEMED AND CONSTRUED TO BE FOLLOWED BY THE WORDS "OR APPROVED EQUAL." NO SUBSTITUTIONS WILL BE PERMITTED WHICH HAVE NOT BEEN SUBMITTED FOR APPROVAL PRIOR TO BIDDING.
9. LANDSCAPE CONTRACTOR SHALL CALL FOR "BLUE STAKE" AS REQUIRED. EXERCISE EXTREME CAUTION IN ALL PLANTING OPERATIONS, AS THERE MAY BE UNDERGROUND ELECTRIC AND TELEPHONE CABLES, SEWER LINES AND WATER LINES THROUGHOUT THE ENTIRE AREA. CONTRACTOR SHALL STUDY AND BE FAMILIAR WITH THE LOCATION OF THESE OBSTRUCTIONS AND UNDERGROUND UTILITIES. PLACE PLANTINGS WHERE SHOWN ON THE PLANS. IF THERE ARE OBSTRUCTIONS OR UNDERGROUND UTILITIES, RELOCATE PLANTS CLEAR OF ANY INTERFERENCE. LANDSCAPE CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED BY THEM TO OBSTRUCTIONS AND UNDERGROUND UTILITIES AT NO EXPENSE TO THE OWNER.
10. MAINTAIN UNINTERRUPTED WATER SERVICE TO BUILDING DURING NORMAL WORKING HOURS. ARRANGE FOR TEMPORARY WATER SHUT-OFF WITH ARCHITECT/ENGINEER DURING INSTALLATION OF IRRIGATION SYSTEM, IF NECESSARY.
11. ALL WORK AND MATERIALS TO BE IN FULL ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF SAFETY ORDERS OF DIVISION OF INDUSTRIAL SAFETY; THE UNIFORM BUILDING CODE, M.A.G. SPECIFICATIONS AND OTHER APPLICABLE LAWS OR REGULATIONS, INCLUDING ALL CITY CODES. NOTHING IN THESE SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. SHOULD THE CONSTRUCTION DOCUMENTS, OR INSTRUCTION, BE AT VARIANCE WITH THE AFOREMENTIONED RULES AND REGULATIONS, NOTIFY LANDSCAPE ARCHITECT AND GET INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK AFFECTED. IF LANDSCAPE ARCHITECT IS NOT NOTIFIED OF ANY VARIANCE IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR ASSUMES ANY AND ALL RESPONSIBILITY FOR THE WORK DONE.
12. CLEAN UP SHALL BE MADE DAILY AS EACH PORTION OF THE WORK PROGRESSES. REFUSE AND EXCESS DIRT SHALL BE REMOVED FROM THE SITE, AND WALKS AND PAVING SHALL BE SWEPT OR WASHED DOWN DAILY. ANY DAMAGE SHALL BE REPAIRED TO ORIGINAL CONDITIONS AT CONTRACTOR'S EXPENSE. LEAVE WORK IN CLEAN CONDITION.
13. SUBMIT DETAILED OPERATION AND MAINTENANCE DATA FOR ALL EQUIPMENT AND ACCESSORIES PROVIDED UNDER THESE PLANS INCLUDING ASSEMBLY AND PART LISTS FOR EACH TYPE OF VALVE, EMITTER, ETC., FURNISHED TO THE ENGINEER/OWNER'S REPRESENTATIVE.

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Tempe, Arizona 85281
Tel: 480.994.0994
www.rviplanning.com

WILLOW BEND
FINAL PUD
FORT LUPTON, COLORADO

PROJECT NO : 19001925
DATE : 04/21/2021
DRAWN: MB/KWN
REVIEWED: BG

REVISIONS
1
2
3
4
5

COVER

L0.00

1ST SUBMITTAL

PROJECT NO.: LUP2019-0039 &
PLAN NO.: SPL2019-0005

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\1-SD\4-SHEETS\1925-SD-L0.00.dwg 4/20/2021 mark.tailor

CONCEPT PLANT SCHEDULE

CANOPY TREE - 2.5" Cal. B & B
Acer freemanii `Autumn Blaze` / Autumn Blaze Maple
Aesculus glabra / Ohio Buckeye
Betula nigra `Heritage` / Heritage River Birch
Populus deltoides / Plains Cottonwood

ORNAMENTAL TREE - 2.0" Cal. B & B
Acer ginnala / Amur Maple
Acer tataricum `GarAnn` / Hot Wings Tatarian Maple
Amelanchier alnifolia / Serviceberry
Populus tremuloides / Quaking Aspen

EVERGREEN TREE - 6-8' Height B & B
Picea pungens / Colorado Green Spruce
Picea pungens `Glauca` / Colorado Blue Spruce
Pinus edulis / Pinon Pine
Pinus longaeva / Bristlecone Pine
Pinus nigra / Austrian Black Pine
Pinus ponderosa / Ponderosa Pine

SHRUBS AND GROUND COVERS - 5 Gal. and 1 Gal. Cont.
Agastache cana / Double Bubblemint
Aquilegia x `McKana Hybrids` / McKana Hybrids Columbine
Aronia arbutifolia `Brilliantissima` / Chokeberry
Berberis t. `Atropurpurea` / Purple Leafed Barberry
Bouteloua gracilis / Blue Grama Grass
Calamagrostis x a. `Karl Foerster` / Karl Foerster Feather Reed Grass
Caragana arborescens / Siberian Peashrub
Caryopteris x clandonensis `Dark Knight` / Blue Mist Shrub
Centranthus ruber / Red Valerian
Cercocarpus montanus / Mountain Mohogany
Chrysothamnus nauseosus / Dwarf Rabbitbush
Delphinium x `Summer Skies` / Larkspur
Echinacea purpurea / Purple Coneflower
Euonymus alatus `Compactus` / Dwarf Burning Bush
Festuca glauca `Elijah Blue` / Blue Fescue
Gaillardia x grandiflora / Blanket Flower
Helictotrichon sempervirens / Blue Avena Grass
Heuchera s. `Splendens` / Red Coral Bells
Iberis sempervirens `Snowflake` / Snowflake Evergreen Candytuft
Iris sibirica / Caesar's Brother Siberian Iris
Juniperus horizontalis `Blue Chip` / Blue Chip Juniper
Juniperus horizontalis `Hughes` / Hughes Juniper
Juniperus sabina `Buffalo` / Buffalo Juniper
Leucanthemum x superbum `Alaska` / Alaska Shasta Daisy
Lupinus `Russell Hybrids` / Russell Hybrid Lupine
Mahonia aquifolium `Compacta` / Compact Oregon Grape Holly
Mahonia fremontii / Fremont's Mahonia
Mahonia repens / Creeping Oregon Grape Holly
Penstemon strictus / Rocky Mountain Penstemon
Perovskia atriplicifolia / Russian Sage
Pinus mugo `Mops` / Mops Mugo Pine
Pinus mugo `Slowmound` / Slowmound Mugo Pine
Potentilla f. `McKay's White` / McKay's White Cinquefoil
Potentilla fruticosa / Shrubby Conquefoil
Pulsatilla vulgaris / European Pasque Flower
Quercus gambelii / Gambel Oak
Ratibida columnifera / Prairie Coneflower
Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac
Ribes alpinum `Green Mound` / Green Mound Alpine Currant
Rosa foetida bicolor / Austrian Copper Rose
Rudbeckia f. `Goldstrum` / Black Eyed Susan
Salix purpurea `Nana` / Dwarf Blue Arctic Willow
Salvia sylvestris / May Night Salvia
Sedum s. `Autumn Joy` / Autumn Joy Sedum
Spiraea j. `Anthony Waterer` / Anthony Waterer Spirea
Syringa patula `Miss Kim` / Miss Kim Lilac
Viburnum lantana `Mohican` / Mohican Viburnum

NATIVE SEED MIX
TBD

TURF
Festuca x `Bolero Plus` / Bolero Fescue

WALL AND FENCE LEGEND

- 6' HEIGHT SOLID CEDAR PERIMETER FENCE
- 4' HEIGHT 3-RAIL FENCE
- COLUMN



0 75' 150' 300'
SCALE: 1" = 150'-0"

PROJECT NO.: LUP2019-0039 &
PLAN NO.: SPL2019-0005

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Tempe, Arizona 85281
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WILLOW BEND
FINAL PUD
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/21/2021
DRAWN:	MB/KWN
REVIEWED:	BG

REVISIONS
1
2
3
4
5

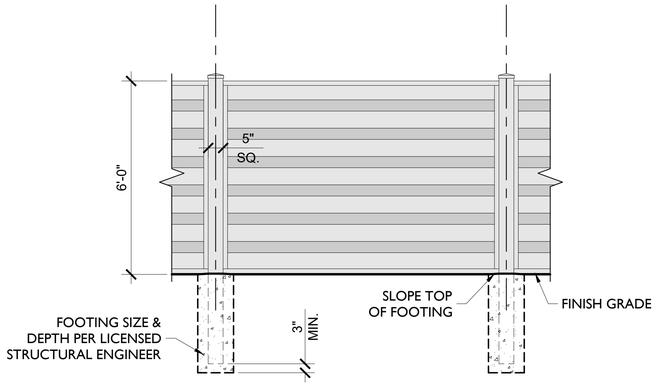
CONCEPTUAL LANDSCAPE PLAN

L1.00

1ST SUBMITTAL

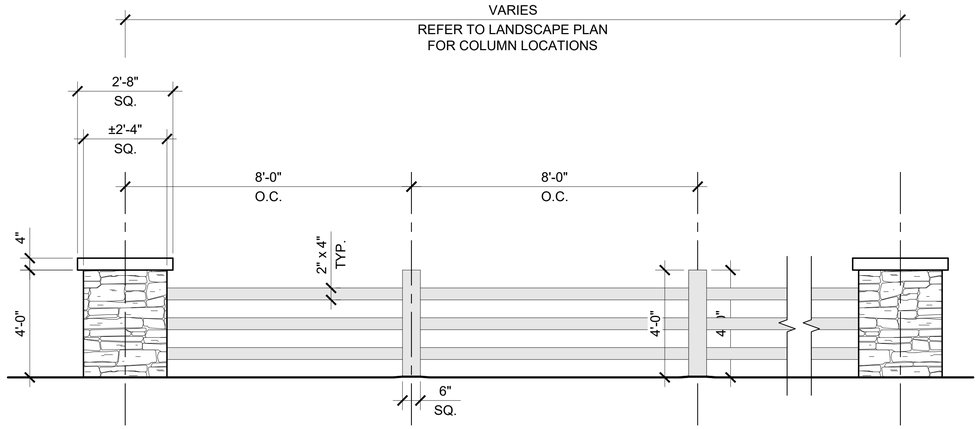
L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\1-SD\5-SHEETS\19025-SD-L1.00.dwg 4/20/2021 mark ballor

NOTE:
- PICKETS FACING ROAD SIDE ARE VERTICAL
- PICKETS FACING HOME SIDE ARE HORIZONTAL



1 6' HT CEDAR PRIVACY FENCE

SCALE: 1/2" = 1'-0"



2 4' HT SPLIT RAIL FENCE

SCALE: 1/2" = 1'-0"

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WILLOW BEND
FINAL PUD
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PROJECT NO :	19001925
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REVIEWED:	BG

REVISIONS
1
2
3
4
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FENCE DETAILS

L2.00

1ST SUBMITTAL

PROJECT NO.: LUP2019-0039 &
PLAN NO.: SPL2019-0005

L:\19001925-Ault on ranch (fort lupton)\6-19001925-landscape\1-SD\5-SHEETS\1925-SD-L3.00.dwg 4/20/2021 mark hallor

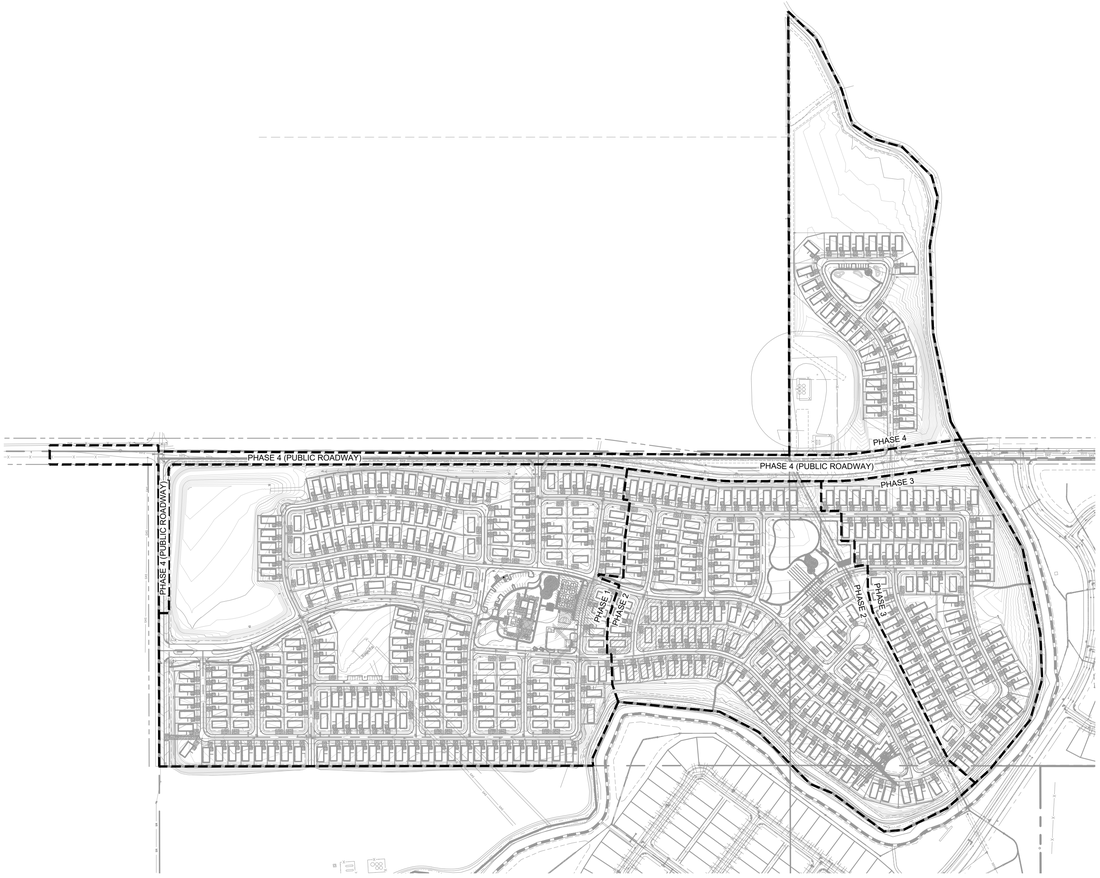
LANDSCAPE CONSTRUCTION DOCUMENTS
FOR
WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO
SUN COMMUNITIES

SUBMITTAL HISTORY

DATE	DESCRIPTION / COMMENTS
07/20/20	PRE PLAT 1ST SUBMITTAL
09/08/20	PRE PLAT 2ND SUBMITTAL
04/23/21	FINAL PLAT 1ST SUBMITTAL

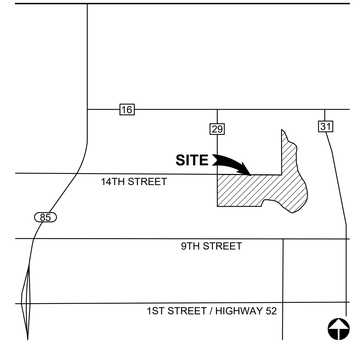
PROJECT TEAM

DISCIPLINE	CONTACT INFORMATION
OWNER	SUN COMMUNITIES TOM O'BRANOVIC (tobranovic@suncommunities.com) 27777 FRANKLIN ROAD, SUITE 200 SOUTHFIELD, MICHIGAN 48034 248.208.2610
LANDSCAPE ARCHITECT	RVi PLANNING + LANDSCAPE ARCHITECTURE DOUG CRAIG (dcraig@rviplanning.com) BRITTANY GEIST (bgeist@rviplanning.com) 120 S. ASH AVENUE TEMPE, ARIZONA 85281 480.994.0994
CIVIL ENGINEER	ATWELL, LLC SPENCER CRABB (scrabb@atwell-group.com) TWO TOWNE SQUARE, SUITE 700 SOUTHFIELD, MICHIGAN 48076 248.447.2062 RICK WEED (rweed@atwell-group.com) 143 UNION BOULEVARD, SUITE 700 LAKEWOOD, COLORADO 80228 720.541.6601
ARCHITECT	RSP ARCHITECTS JOE ELLIS (joe.ellis@rsparch.com) 502 SOUTH COLLEGE AVE., SUITE 203 TEMPE, ARIZONA 85281 480.889.2012



0 150' 300' 600'
SCALE: 1" = 300'-0"

VICINITY MAP



SHEET INDEX

NUMBER	DESCRIPTION
L0.00	COVER SHEET
L0.01	GENERAL NOTES
L0.02	PLANTING NOTES
L0.03	TREE INVENTORY PLAN
L1.00	WALL, FENCE, AND SIGN PLAN
L2.00	HARDSCAPE REFERENCE PLAN
L2.01 THRU L2.05	HARDSCAPE ENLARGEMENT PLAN
L3.01	LOT TYPICALS- HARDSCAPE AND PLANTING
L4.01 THRU L4.06	HARDSCAPE DETAILS
L5.00	PLANTING REFERENCE PLAN
L5.01 THRU L5.31	PLANTING PLAN
L6.01	PLANTING DETAILS
IR7.00	IRRIGATION NOTES AND SCHEDULE
IR7.01	IRRIGATION REFERENCE PLAN
IR7.02 THRU IR7.32	IRRIGATION PLAN
IR8.00 THRU IR 8.03	IRRIGATION DETAILS

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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
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4
5

COVER SHEET

L0.00

SHEET 01 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L0.00-L0.01.dwg

GENERAL CONSTRUCTION NOTES

1. THESE NOTES ARE TO BE USED FOR GENERAL REFERENCE IN CONJUNCTION WITH, AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATIONS, APPROVED ADDENDA, AND CHANGE ORDERS ASSOCIATED WITH THESE LANDSCAPE IMPROVEMENT DOCUMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND SHALL NOTIFY ALL UTILITY COMPANIES WITH UTILITIES ON SITE PRIOR TO THE CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL ADHERE TO ALL APPLICABLE LOCAL, STATE AND/OR FEDERAL LAWS OR REGULATIONS PERTAINING TO THE PROJECT.
3. IN ALL CASES WHERE A CONFLICT MAY OCCUR, SUCH AS BETWEEN ITEMS COVERED IN SPECIFICATIONS AND NOTES ON THE DRAWINGS, OR BETWEEN GENERAL NOTES AND SPECIFIC DETAILS, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED AND HE OR SHE WILL INTERPRET THE INTENT OF THE CONTRACT DOCUMENTS.
4. A QUALIFIED SUPERVISOR SHALL BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION.
5. DETAILS NOTED AS "TYPICAL" SHALL APPLY IN ALL CASES UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.
6. LANDSCAPE CONTRACTOR SHALL INSPECT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE AND/OR OWNER ALL EXISTING CONDITIONS PRIOR TO THE START OF ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE UNDER THIS CONTRACT TO REPAIR AND/OR REPLACE, AT THEIR OWN EXPENSE, ANY STRUCTURES, FENCES, WALLS, PLANT MATERIAL, OR OTHER ITEMS DESTROYED DURING CONSTRUCTION. LIKEWISE THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY AND ALL DAMAGES TO ADJACENT PROPERTIES OR ANY OTHER AREAS OUTSIDE THE CONTRACT LIMITS. THE DAMAGED ITEMS/AREAS WILL BE RESTORED TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE OWNER'S AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL PLANT MATERIAL LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE LOCATIONS OF EXISTING AND FUTURE UNDERGROUND SERVICES AND IMPROVEMENTS WHICH MAY CONFLICT WITH THE WORK TO BE DONE. PRIOR TO THE START OF WORK, ALL UNDERGROUND UTILITIES ARE TO BE LOCATED AND PROTECTED. CONTRACTOR IS RESPONSIBLE FOR THE INITIAL CALL AND FUTURE UPDATES TO BLUE STAKE AT 602-263-1100. EXISTING UNDERGROUND SERVICES SHALL NOT BE DISTURBED OR REMOVED WITHOUT APPROVAL OF THE OWNER'S AND/OR OWNER'S AUTHORIZED REPRESENTATIVE, UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
8. CONTRACTOR SHALL PROVIDE BARRICADES AND TRAFFIC CONTROL ALONG PUBLIC STREETS IF REQUIRED DURING CONSTRUCTION.
9. PLANTING AND IRRIGATION DESIGN MAY BE MODIFIED TO ADAPT TO WALK CONFIGURATIONS THAT DIFFER FROM THESE PLANS, AND DUE TO GRADE LIMITATIONS ON SITE.
10. REFER TO ENGINEERING PLANS FOR DRAINAGE FLOWS. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE THAT THESE ARE PROVIDED FOR AND NOT IMPAIRED WITH OBSTRUCTIONS.
11. NO PART OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER IMMEDIATELY.
12. COORDINATE AND COOPERATE WITH ALL CONTRACTORS OF ATTACHED, ADJOINING AND/OR INTERFACING WORK TO INSURE ORDERLY AND EFFICIENT COMPLETION OF ALL WORK.
13. ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES (FEDERAL, STATE, LOCAL, AND HEALTH DEPARTMENTS), EXCEPT WHERE REQUIREMENTS OF CONTRACT DOCUMENTS ARE MOST STRINGENT.
14. ALL EXISTING PLANT MATERIAL SHALL REMAIN UNLESS OTHERWISE NOTED.
15. ANY PLANT MATERIAL THAT MUST BE REMOVED DUE TO CONSTRUCTION MUST BE APPROVED BY OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE. NOTIFY OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO REMOVAL AND/OR RELOCATION OF ALL PLANTS.
16. IF ANY EXISTING PLANT MATERIAL THAT IS TO REMAIN IS DAMAGED BY CONTRACTOR, THE CONTRACTOR SHALL REPLACE THE DAMAGED PLANT WITH A NEW ONE OF THE SAME SIZE AND VARIETY AT NO COST TO THE OWNER.
17. DO NOT DISTURB SOIL WITHIN BRANCH SPREAD OF TREES OR SHRUBS TO REMAIN WITHOUT APPROVAL OF THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
18. ANY DISCREPANCIES BETWEEN THE PLANS AND CONDITIONS ON SITE SHALL BE REPORTED IMMEDIATELY TO THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
19. CONTRACTOR SHALL PROVIDE OWNER WITH ALL WARRANTY INFORMATION, INSTRUCTION MANUALS AND ANY OTHER PRODUCT INFORMATION FOR ALL NEW EQUIPMENT OR MACHINERY INSTALLED ON THE SITE WITHIN TWO WEEKS AFTER SUBSTANTIAL COMPLETION.
20. NO DESIGN MODIFICATIONS SHALL BE MADE WITHOUT THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE APPROVAL.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR HAULING AND LEGALLY DISPOSING OF MATERIALS DESIGNATED TO BE REMOVED. PROVIDE RECEIPTS FOR DUMPING TO OWNER FOR THEIR FILES.
22. ALL BASE INFORMATION IS FROM OTHER PROJECT TEAM MEMBERS AS LISTED IN THE 'PROJECT TEAM' LIST ON THIS SHEET. A THOROUGH ATTEMPT HAS BEEN MADE TO KEEP UP TO DATE WITH THE MOST CURRENT BASE INFORMATION. HOWEVER, DISCREPANCIES MAY EXIST BETWEEN THESE PLANS AND OTHER TEAM MEMBERS PLANS. IN ALL CASES THE ENGINEERS PLANS SHALL HAVE PRECEDENCE OVER THE LANDSCAPE PLANS FOR FINAL PROJECT CONFIGURATION.
23. ALL SIDEWALKS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. REFER TO CIVIL ENGINEERING PLANS FOR FINAL LAYOUT, GRADES, FINISHES, DETAILS, AND METHODS OF CONSTRUCTION. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS, OR INSTALLATION THAT IS BEYOND OUR CONTROL.
24. SIGHT LINES AND VISIBILITY TRIANGLES ARE SHOWN ON THESE PLANS FOR REFERENCE ONLY. REFER TO ENGINEERING PLANS OR GOVERNING MUNICIPALITY FOR SPECIFIC GUIDELINES. IN CASES WHERE THERE IS MORE THAN ONE GOVERNING BODY, THE MOST RESTRICTIVE GUIDELINE SHALL PREVAIL.
25. ALL WALLS AND VERTICAL SITE FEATURES DESIGNED IN THE INTEREST OF THIS PROJECT ARE SCHEMATIC IN NATURE. POTENTIAL CONSTRUCTION DETAILING AND TECHNIQUES ARE SHOWN FOR DESIGN INTENT CLARIFICATION ONLY. THE CONTRACTOR SHALL HAVE THE ULTIMATE RESPONSIBILITY TO ENSURE THAT ALL CONSTRUCTED ELEMENTS ON THIS PROJECT ARE STRUCTURALLY SOUND AND ARE BUILT WITHIN ALL APPLICABLE CITY, STATE, AND FEDERAL GUIDELINES. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS, OR INSTALLATION.
26. SHOP DRAWING REVIEWS WILL BE DONE TO ENSURE THAT PRODUCT DATA, MATERIALS, AND SAMPLES MEET OR EXCEED THE ORIGINAL DESIGN INTENT OF THESE DRAWINGS ONLY. RVi UNDER NO CIRCUMSTANCES ASSUMES RESPONSIBILITY FOR UNFORESEEN CONFLICTS, ENGINEERING, STRUCTURAL CALCULATIONS OR INSTALLATION RESULTING FROM THE PRODUCTION OF ANY SHOP DRAWINGS.

GENERAL SCOPE OF WORK

1. THE SCOPE OF WORK FOR THIS PROJECT INCLUDES COMPLETE LANDSCAPING IMPROVEMENTS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN VERIFY QUESTIONS ON SCOPE OF WORK PRIOR TO SUBMITTING A BID.
2. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS INCLUDING WATER, EQUIPMENT AND INCIDENTALS AS SHOWN, SPECIFIED AND REQUIRED TO PERFORM LANDSCAPING WORK. THE EXTENT OF THE LANDSCAPING WORK IS SHOWN ON THE DRAWINGS AND IN THE SCHEDULES. THE TYPES OF LANDSCAPING REQUIRED MAY INCLUDE THE FOLLOWING:
   A. AESTHETIC FINISH GRADING
   B. BOULDER PLACEMENT
   C. INSTALLATION OF TREES, SHRUBS, GROUNDCOVERS, AND ANY OTHER NURSERY STOCK
   D. INSTALLATION OF TURF AREAS
   E. DECOMPOSED GRANITE AND PRE-EMERGENT APPLICATIONS (2)
   F. MULCHES, AND ALL OTHER MATERIAL NECESSARY TO COMPLETE THE PLANTING JOB AS SPECIFIED
   G. MISCELLANEOUS LANDSCAPE MATERIALS AND IMPROVEMENTS
   H. FERTILIZERS AND SOIL AMENDMENTS
   I. MAINTENANCE WORK AS SPECIFIED UNTIL COMPLETION OF THE CONTRACT
   J. GUARANTEES
3. OBTAIN ALL PERMITS AND PAY REQUIRED FEES TO ANY GOVERNMENTAL AGENCY HAVING JURISDICTION OVER THE WORK. ARRANGE INSPECTIONS REQUIRED BY LOCAL AGENCIES AND ORDINANCES DURING THE COURSE OF CONSTRUCTION AS REQUIRED.
4. COORDINATE AND COOPERATE WITH OTHER CONTRACTORS WORKING ON THE SITE FOR SUCCESSFUL COMPLETION OF THE PROJECT.
5. BEFORE COMMENCING WORK ON THE SITE, BECOME THOROUGHLY ACQUAINTED WITH LAYOUT OF ALL UNDERGROUND UTILITIES AND STRUCTURES OVER THE ENTIRE SITE. ALL REQUISITE REPAIRS TO DAMAGE CAUSED BY WORK OF THIS SECTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
6. THE IRRIGATION WORK CONSISTS OF INSTALLING A COMPLETE UNDERGROUND SPRINKLER, EMITTER, AND BUBBLER SYSTEM FOR ALL TURF AND LANDSCAPED AREAS AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED, INCLUDING THE FURNISHING OF ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS INCLUDING WATER AND IN PERFORMING ALL OPERATION IN CONNECTION WITH THE CONSTRUCTION OF THE IRRIGATION SYSTEM. WORK SHALL INCLUDE FURNISHING AND INSTALLING ALL PLASTIC AND COPPER PIPE AND FITTINGS, AUTOMATIC CONTROL VALVES, VALVE ACCESS BOXES, ELECTRIC COMPUTERIZED CENTRAL CONTROLLERS, ELECTRIC WIRE, TELEPHONE ACCESS LINE (IF REQUIRED), ETC., AS REQUIRED FOR A COMPLETE SYSTEM AS SHOWN ON THE DRAWINGS AND AS CALLED FOR IN THESE SPECIFICATIONS OR AS MAY BE REQUIRED FOR PROPER OPERATION OF THE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS OF WATER USED IN CONNECTION WITH THE INSTALLATION OF THE IRRIGATION SYSTEM.
7. UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS, THE CONSTRUCTION OF THE IRRIGATION SYSTEM SHALL INCLUDE THE FURNISHING, INSTALLING AND TESTING OF ALL MAINS, LATERALS, RISERS, AND FITTINGS, THE FURNISHING AND INSTALLING OF IRRIGATION HEADS, CONTROL VALVES, CONTROLLERS, LOW AND HIGH VOLTAGE ELECTRIC WIRE, TELEPHONE ACCESS LINE TO CENTRAL CONTROL UNIT (IF REQUIRED), POINT OF CONNECTION, CONTROLS, RESTORATION OF EXISTING IMPROVEMENTS, EXCAVATION AND BACKFILL, AND ALL OTHER WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS REQUIRED FOR A COMPLETE SYSTEM.
8. WHENEVER ANY MATERIAL IS SPECIFIED BY NAME AND/OR NUMBER, SUCH SPECIFICATIONS SHALL BE DEEMED TO BE USED FOR THE PURPOSE OF FACILITATING A DESCRIPTION OF THE MATERIALS AND ESTABLISHING QUALITY, AND SHALL BE DEEMED AND CONSTRUED TO BE FOLLOWED BY THE WORDS "OR APPROVED EQUAL." NO SUBSTITUTIONS WILL BE PERMITTED WHICH HAVE NOT BEEN SUBMITTED FOR APPROVAL PRIOR TO BIDDING.
9. LANDSCAPE CONTRACTOR SHALL CALL FOR "BLUE STAKE" AS REQUIRED. EXERCISE EXTREME CAUTION IN ALL PLANTING OPERATIONS, AS THERE MAY BE UNDERGROUND ELECTRIC AND TELEPHONE CABLES, SEWER LINES AND WATER LINES THROUGHOUT THE ENTIRE AREA. CONTRACTOR SHALL STUDY AND BE FAMILIAR WITH THE LOCATION OF THESE OBSTRUCTIONS AND UNDERGROUND UTILITIES. PLACE PLANTINGS WHERE SHOWN ON THE PLANS. IF THERE ARE OBSTRUCTIONS OR UNDERGROUND UTILITIES, RELOCATE PLANTS CLEAR OF ANY INTERFERENCE. LANDSCAPE CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED BY THEM TO OBSTRUCTIONS AND UNDERGROUND UTILITIES AT NO EXPENSE TO THE OWNER.
10. MAINTAIN UNINTERRUPTED WATER SERVICE TO BUILDING DURING NORMAL WORKING HOURS. ARRANGE FOR TEMPORARY WATER SHUT-OFF WITH ARCHITECT/ENGINEER DURING INSTALLATION OF IRRIGATION SYSTEM, IF NECESSARY.
11. ALL WORK AND MATERIALS TO BE IN FULL ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF SAFETY ORDERS OF DIVISION OF INDUSTRIAL SAFETY; THE UNIFORM BUILDING CODE, M.A.G. SPECIFICATIONS AND OTHER APPLICABLE LAWS OR REGULATIONS, INCLUDING ALL CITY CODES. NOTHING IN THESE SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. SHOULD THE CONSTRUCTION DOCUMENTS, OR INSTRUCTION, BE AT VARIANCE WITH THE AFOREMENTIONED RULES AND REGULATIONS, NOTIFY LANDSCAPE ARCHITECT AND GET INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK AFFECTED. IF LANDSCAPE ARCHITECT IS NOT NOTIFIED OF ANY VARIANCE IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR ASSUMES ANY AND ALL RESPONSIBILITY FOR THE WORK DONE.
12. CLEAN UP SHALL BE MADE DAILY AS EACH PORTION OF THE WORK PROGRESSES. REFUSE AND EXCESS DIRT SHALL BE REMOVED FROM THE SITE, AND WALKS AND PAVING SHALL BE SWEPT OR WASHED DOWN DAILY. ANY DAMAGE SHALL BE REPAIRED TO ORIGINAL CONDITIONS AT CONTRACTOR'S EXPENSE. LEAVE WORK IN CLEAN CONDITION.
13. SUBMIT DETAILED OPERATION AND MAINTENANCE DATA FOR ALL EQUIPMENT AND ACCESSORIES PROVIDED UNDER THESE PLANS INCLUDING ASSEMBLY AND PART LISTS FOR EACH TYPE OF VALVE, EMITTER, ETC., FURNISHED TO THE ENGINEER/OWNER'S REPRESENTATIVE.

COMMON ABBREVIATIONS

SYMBOL	DEFINITION	SYMBOL	DEFINITION	SYMBOL	DEFINITION
@	AT	EOP	EDGE OF PAVEMENT	OC	ON CENTER
AVG	AVERAGE	EQ	EQUAL	P/L	PROPERTY LINE
BPU	BACKFLOW PREVENTION UNIT	EX	EXISTING	POC	POINT OF CONNECTION
BOC	BACK OF CURB	FF	FINISH FLOOR	PUE	PUBLIC UTILITY EASEMENT
BTH	BROWN TRUNK HEIGHT	FG	FINISH GRADE	PSI	POUNDS PER SQUARE INCH
BW	BOTTOM OF WALL	FL	FLOW LINE	R, RAD	RADIUS
CAL	CALIPER	FOC	FACE OF CURB	R/W	RIGHT OF WAY (R.O.W.)
CB	CATCH BASIN	FT	FEET	SF	SQUARE FEET
CF	CUBIC FEET	GAL	GALLONS	STD	STANDARD
CJ	CONTROL JOINT	GPH	GALLONS PER HOUR	SDL	SIGHT DISTANCE LINE
CL	CENTERLINE	GPM	GALLONS PER MINUTE	SIM	SIMILAR
CLR	CLEAR	HORIZ	HORIZONTAL	SJ	SCORE JOINT
CMU	CONCRETE MASONRY UNIT	HP	HIGH POINT	SVT	SIGHT VISIBILITY TRIANGLE
CONC	CONCRETE	HT	HEIGHT	S/W	S/W
CONT	CONTINUOUS	LF	LINEAR FEET	TBS	TO BE SELECTED
Ø, DIA	DIAMETER	LOC	LIMIT OF CONSTRUCTION	TW	TOP OF WALL
DG	DECOMPOSED GRANITE	L/S	LANDSCAPE	TYP	TYPICAL
EA	EACH	MAX	MAXIMUM	VERT	VERTICAL
EJ	EXPANSION JOINT	MIN	MINIMUM	w/	WITH
ELEV	ELEVATION	NTS	NOT TO SCALE		

HARDSCAPE GENERAL NOTES

1. THESE NOTES ARE GENERAL AND MAY BE SUPERSEDED BY EITHER THE SPECIFICATIONS OR LOCAL TRADE PRACTICES.
2. ALL FORMWORK ALIGNMENT SHALL BE STRAIGHT AND EVEN. RADII AND CURVES ARE TO HAVE SMOOTH, CONTINUOUS TRANSITIONS WITHOUT ABRUPT CHANGES OR BENDS. JOINT LOCATIONS NOT SPECIFICALLY INDICATED ON THE PLANS SHALL BE EVENLY SPACED AND VISUALLY UNOBTRUSIVE.
3. ALL REINFORCING STEEL, DOWELS, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE FIRMLY SECURED IN THE PROPER POSITION PRIOR TO PLACING CONCRETE.
4. ALL FLATWORK SHALL BE LAID WITH A CONSTANT SLOPE BETWEEN TWO SPOT ELEVATIONS. CHANGES IN SLOPE SHALL BE ACCOMPLISHED IN A GRADUAL MANNER. ALL HARDSCAPE SHALL SLOPE AWAY FROM BUILDINGS AT 1% SLOPE UNLESS NOTED OTHERWISE ON DRAWINGS.
5. NEW CONCRETE PAVING SHALL MATCH EXISTING IN COLOR AND TEXTURE, UNLESS NOTED OTHERWISE ON DRAWINGS.
6. IT IS RECOMMENDED THAT THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED GEOTECHNICAL ENGINEER TO PERFORM NECESSARY TESTING AND INSPECTIONS FOR QUALITY CONTROL TO ENSURE THAT THE REQUIREMENTS REFERENCED ARE COMPLIED WITH.
7. THE LANDSCAPE ARCHITECT AND STRUCTURAL ENGINEER ASSUMES NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED IN THE DRAWINGS.
8. ALL STEEL SURFACES SHALL BE CLEAN AND FREE OF OILS, BURRS, WELD RESIDUE AND OTHER DELETERIOUS MATERIALS PRIOR TO FINISHING.
9. CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS BASED ON FIELD DIMENSIONS, FOR ALL STEEL ELEMENTS PRIOR TO CONSTRUCTION, FOR REVIEW BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL SUBMIT FINISH SAMPLE FOR REVIEW BY OWNER AND/OR LANDSCAPE ARCHITECT.
10. MEMBER SIZES INDICATED ARE FOR DESIGN INTENT ONLY. CONTRACTOR SHALL ENGINEER FOR STRUCTURAL INTEGRITY. FIELD VERIFY DIMENSIONS OF ADJACENT AND ADJOINING WORK. REPORT ANY DISCREPANCIES TO OWNER AND/OR LANDSCAPE ARCHITECT.
11. WELD CONNECTIONS CONTINUOUS AND SOLID. REMOVE ANY SPLATTER AND SLAG AND GRIND WELDS SMOOTH. PREPARE SURFACE FOR PAINTING TO CLEAN, SMOOTH, AND FREE OF OBJECTIONABLE MATERIAL. WASH, STEAM CLEAN, SANDBLAST, OR WIRE BRUSH TO BASE METAL.
12. BOLTS TO BE CADMIUM PLATED OR STAINLESS STEEL.
13. CAP EXPOSED ENDS OF TUBING.
14. REINFORCING MARKED "CONTINUOUS" MAY BE SPLICED WITH A LAP OF 30 BAR DIAMETERS (2'-0" MINIMUM) IN CONCRETE, 40 BAR DIAMETERS (2'-6" MINIMUM IN MASONRY), UNLESS NOTED OTHERWISE.
15. ALL REINFORCING SHALL BE SUPPORTED IN CONFORMANCE WITH "THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE STRUCTURES" LATEST EDITION.
16. REINFORCING SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS OTHERWISE INDICATED:
   A. WALLS @ 1-1/2"
   B. FORMED SURFACE IN CONTACT WITH EARTH @ 2"
   C. SURFACE DEPOSITED DIRECTLY AGAINST EARTH @ 3"
17. ANY DOWELS USED SHALL BE EQUAL IN SIZE AND SPACING TO VERTICAL BARS.
18. MASONRY UNITS: SHALL BE GRADE "N" TYPE I CONFORMING TO LATEST ASTM STANDARD SPECIFICATION C-90 AND MANUFACTURED IN ACCORDANCE WITH "CONCRETE MASONRY ASSOCIATION" STANDARDS. SPECIALTY BLOCK SHALL BE AS NOTED ON PLANS.
19. MORTAR: SHALL BE TYPE S, CONFORMING TO ASTM C270, WITH A 28 DAY COMPRESSIVE STRENGTH OF 1800 PSI.
20. GROUT: FRESHLY PREPARED AND UNIFORMLY MIXED. GROUT SHALL BE COMPOSED BY VOLUME OF 1 PART PORTLAND CEMENT AND 2 1/4 TO 3 PARTS SAND, TO WHICH MAY BE ADDED NOT MORE THAN ONE-TENTH PART LIME. WATER SHALL BE ADDED TO PRODUCE CONSISTENCY FOR POURING WITHOUT SEGREGATION OF THE CONSTITUENTS. GROUT SHALL ATTAIN A COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
21. PORTLAND CEMENT: SHALL BE TYPE II AND CONFORM TO LATEST ASTM STANDARD SPECIFICATION C-150.
22. WATERPROOF ALL MASONRY BELOW GRADE.

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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO : 19001925
DATE : 04/23/2021
DRAWN: KWN/MB
REVIEWED: BG/DC

REVISIONS
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GENERAL NOTES

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SHEET 02 OF 88

1ST SUBMITTAL

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PLANTING WARRANTY & MAINTENANCE NOTES

1. MAINTAIN ALL AREAS INCLUDED IN THE CONTRACT ON A WEEKLY BASIS DURING THE PROGRESS OF WORK, A 90 DAY MAINTENANCE PERIOD, AND UNTIL THE FINAL ACCEPTANCE OF WORK IS RECEIVED IN WRITING.
2. UPON ACCEPTANCE AFTER THE 90 DAY MAINTENANCE PERIOD, THE CONTRACTOR SHALL FURNISH A WRITTEN WARRANTY ON ALL PLANT MATERIAL AGREEING TO GUARANTEE THE CONTINUED GROWTH OF ACTIVE PLANT MATERIAL FOR THE SPECIFIED GUARANTEE PERIODS. ALL GUARANTEE PERIODS COMMENCE FROM THE TIME OF FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
3. THE CONTRACTOR SHALL WATER AND MAINTAIN ALL LANDSCAPE MATERIAL DURING THE MAINTENANCE PERIOD. THE OWNER WILL WATER AND MAINTAIN THE LANDSCAPE MATERIAL DURING THE WARRANTY PERIOD. THE CONTRACTOR SHALL INSPECT THE LANDSCAPE MATERIALS PERIODICALLY DURING THE WARRANTY PERIOD AND SHALL NOTIFY THE OWNER IN WRITING, IF, IN THE CONTRACTOR'S OPINION, THE LANDSCAPE MATERIALS ARE NOT RECEIVING PROPER CARE.
4. ALL TREES, PALMS, CACTI, ACCENTS, AND TURF SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) YEAR AND ALL SHRUBS, GROUNDCOVERS, AND OTHER NON SPECIFIED PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF 90 DAYS FROM THE DATE OF FINAL ACCEPTANCE. THE GUARANTEE SHALL BE AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND THE LANDSCAPE CONTRACTOR'S CONTROL.
5. ANY PLANT MATERIALS WHICH ARE NOT APPROVED PRIOR TO OCTOBER 1 OF THE CALENDAR YEAR IN WHICH THEY ARE INSTALLED, SHALL BE FURTHER GUARANTEED UNTIL MAY 15 OF THE FOLLOWING CALENDAR YEAR.
6. ALL PLANT MATERIALS MUST BE MAINTAINED IN HEALTH AND VIGOR AND BE ALLOWED TO ATTAIN NATURAL SIZE AND SHAPE IN ACCORDANCE WITH THE ORIGINALLY APPROVED LANDSCAPE PLAN.
7. REFER TO BOOK SPECIFICATIONS, IF INCLUDED IN THIS DOCUMENT SET, FOR ADDITIONAL INFORMATION ON THE SPECIFICS OF THE ANTICIPATED WARRANTY.
8. LANDSCAPE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER TYPEWRITTEN MAINTENANCE GUIDELINES AT FINAL WALK-THRU AND PRIOR TO FINAL ACCEPTANCE OF WORK.
9. IF TURF IS USED ON THIS PROJECT THE LANDSCAPE CONTRACTOR SHALL REAPPLY SEED OR SOD IN ALL AREAS WHICH HAVE DEVELOPED BARE SPOTS HALFWAY THROUGH THE MAINTENANCE PERIOD. AREAS WHICH CANNOT BE RESEEDED FOR SUMMER GROWTH DUE TO CONTRACTOR'S INABILITY TO RESEED DURING PROPER GROWING SEASON SHALL BE OVERSEEDED OR SODDED WITH GRASS APPROPRIATE FOR THE CURRENT SEASON, CARED FOR THROUGHOUT THE OFF SEASON, AND PROPERLY SEEDED AT THE NEXT APPROPRIATE GROWING SEASON. THESE ARRANGEMENTS MUST BE MADE WITH THE OWNER PRIOR TO CONDITIONAL ACCEPTANCE OF THE WORK AND MAY REQUIRE A MONETARY HOLD-BACK.
10. COST FOR REPLACEMENTS DURING THE WARRANTY PERIOD IS ASSUMED PART OF THE BID QUOTATIONS AND THEREFORE WILL NOT RESULT IN ANY ADDITIONAL COST TO THE OWNER OR LANDSCAPE ARCHITECT.

EXISTING LANDSCAPE NOTES

1. BEFORE WORK BEGINS ON THE PROJECT, THE LANDSCAPE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH OWNER AND/OR THE GENERAL CONTRACTOR TO REVIEW THE PROJECT. THE OWNER AND/OR OWNER'S AUTHORIZED REPRESENTATIVE IS TO APPROVE ANY CHANGES PRIOR TO THE START OF ANY WORK.
2. ALL DEMOLITION AREAS SHALL BE FLAGGED FOR APPROVAL PRIOR TO DEMOLITION.
3. ALL EXISTING PLANT MATERIAL SHALL REMAIN UNLESS OTHERWISE NOTED. SHOULD ANY CONFLICTS ARISE BETWEEN THE EXISTING PLANT MATERIAL ON-SITE AND PROPOSED IMPROVEMENTS SHOWN ON THE PLANS THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IMMEDIATELY.

SEED MIX SCHEDULE

BOTANICAL NAME	COMMON NAME	LBS/AC.	NOTE:
BOUTELOUA GRACILIS	BLUE GRAMA	1.8	DRILL RATE: 13.58lbs/PLS/ac, Broadcast: 27.16 lbs/PLS/ac
SPOOBOLUS CRYPTANDRUS	SAND DROPSEED	0.2	
BOUTELOUA CURTIPENDULA	SIDEOATS GRAMA	6.3	
PASCOPYRUM SMITHII	WESTERN WHEATGRASS	8.2	
BOUTELOUA DACTYLOIDES	BUFFALO GRASS	10.7	
DISTHICHLIS SPICATA	INLAND SALTGRASS	0.6	
ARTEMISIA FRIGIDA	PASTURE SAGE	0.01	
GAILLARDIA ARTISTATA	BLANKET FLOWER	0.05	
RATIBIDA COLUMNIFERA	PRAIRIE CONEFLOWER	0.1	
DALEA PURPUREA	PURPLE PRAIRIECLOVER	0.3	
LINUM LEWISII	BLUE FLAX	0.4	

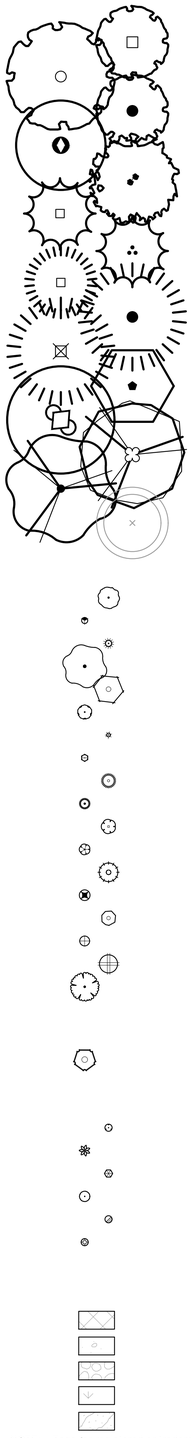
NATIVE SEED MIX NOTES

1. THE TIME OF YEAR SEEDING IS TO OCCUR SHOULD BE OCTOBER THROUGH EARLY MAY.
2. PREPARE SOIL AS NECESSARY AND APPROPRIATE FOR NATIVE SEED MIX SPECIES THROUGH LOOSENING AND ADDITION OF AMENDMENTS THAT PROMOTE WATER ABSORPTION AND RELEASE, THEN SEED IN TWO DIRECTIONS TO DISTRIBUTE SEED EVENLY OVER ENTIRE AREA. DRILL SEED ALL INDICATED AREAS AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING OPERATIONS.
3. IF CHANGES ARE TO BE MADE TO SEED MIX BASED ON SITE CONDITIONS THEN APPROVAL MUST BE PROVIDED BY CITY ENVIRONMENTAL PLANNER.
4. APPROPRIATE NATIVE SEEDING EQUIPMENT WILL BE USED (STANDARD TURF SEEDING EQUIPMENT OR AGRICULTURE EQUIPMENT SHALL NOT BE USED).
5. DRILL SEED APPLICATION RECOMMENDED PER SPECIFIED APPLICATION RATE TO NO MORE THAN ½ INCH DEPTH. FOR BROADCAST SEEDING INSTEAD OF DRILL SEEDING METHOD DOUBLE SPECIFIED APPLICATION RATE. REFER TO NATIVE SEED MIX TABLE FOR SPECIES, PERCENTAGES AND APPLICATION RATES.
6. PREPARE A WEED MANAGEMENT PLAN TO ENSURE THAT WEEDS ARE PROPERLY MANAGED BEFORE, DURING AND AFTER SEEDING ACTIVITIES.
7. AFTER SEEDING THE AREA SHALL BE COVERED WITH CRIMPED STRAW, JUTE MESH, OR OTHER APPROPRIATE METHODS.
8. WHERE NEEDED, TEMPORARY IRRIGATION SHOULD BE PROVIDED UNTIL SEED IS GERMINATED THEN WHEN THE SEED FROM IRRIGATION. IF IRRIGATION IS USED, THE IRRIGATION SYSTEM FOR SEEDED AREAS SHALL BE FULLY OPERATIONAL AT THE TIME OF SEEDING AND SHALL ENSURE 100% HEAD TO HEAD COVERAGE OVER ALL SEEDED AREAS. ALL METHODS AND REQUIREMENTS IN THE APPROVED IRRIGATION PLAN SHALL BE FOLLOWED.
9. CONTRACTOR SHALL MONITOR SEEDED AREA FOR PROPER IRRIGATION, EROSION CONTROL, GERMINATION AND RESEEDING AS NEEDED TO ESTABLISH COVER.
10. THE APPROVED NATIVE SEED MIX AREA IS INTENDED TO BE MAINTAINED IN A NATURAL LIKE LANDSCAPE AESTHETIC. DO NOT MOW DURING HOT, DRY PERIODS. DO NOT MOW LOWER THAN 6 TO 8 INCHES IN HEIGHT TO AVOID INHIBITING NATIVE PLANT GROWTH.
11. NATIVE SEED AREA WILL BE CONSIDERED ESTABLISHED WHEN SEVENTY PERCENT VEGETATIVE COVER IS REACHED WITH LESS THAN TEN PERCENT OF COVER CONSISTING OF NOXIOUS WEEDS, NO BARE SPOTS LARGER THAN ONE FOOT SQUARE, AND/OR UNTIL DEEMED ESTABLISHED BY CITY PLANNING SERVICES AND EROSION CONTROL.
12. THE DEVELOPER AND/OR LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ADEQUATE SEEDLING COVERAGE AND GROWTH AT THE TIME OF FINAL STABILIZATION, AS DEFINED BY STATE AND LOCAL AGENCIES. IF FINAL STABILIZATION IS NOT ACHIEVED TO THE SATISFACTION OF THE AGENCY, THE DEVELOPER AND/OR LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL CORRECTIVE MEASURES TO SATISFY FINAL VEGETATIVE REQUIREMENTS FOR CLOSEOUT.

PLANTING GENERAL NOTES

1. VERIFY PLANT QUANTITIES PRIOR TO BIDDING AND INSTALLATION. QUANTITIES ARE LISTED FOR CONVENIENCE ONLY, THE ACTUAL NUMBER OF SYMBOLS INDICATED ON THE PLANTING PLANS SHALL HAVE PRIORITY OVER QUANTITIES LISTED WITHIN THE LANDSCAPE MATERIAL SCHEDULE. THE CONTRACTOR SHALL FURNISH ALL PLANT MATERIAL NECESSARY TO COMPLETE THE PLANTINGS AS SHOWN ON THE PLANS.
2. CLARIFICATION OF DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE SITE SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND/OR OWNER'S AUTHORIZED REPRESENTATIVE IMMEDIATELY.
3. THE LANDSCAPE ARCHITECT AND/OR OWNER'S AUTHORIZED REPRESENTATIVE IS TO APPROVE ANY PLANT MATERIAL SUBSTITUTIONS.
4. ALL PLANT MATERIAL MUST BE MAINTAINED IN HEALTH AND VIGOR, AND BE ALLOWED TO ATTAIN NATURAL SIZE AND SHAPE IN ACCORDANCE WITH ARIZONA NURSERY ASSOCIATION SPECIFICATIONS.
5. ALL PLANT MATERIAL MAY BE INSPECTED PRIOR TO ACCEPTANCE. THE LANDSCAPE ARCHITECT AND/OR OWNER'S AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO REFUSE ANY PLANT MATERIAL DEEMED UNACCEPTABLE, EVEN AFTER DELIVERY TO SITE.
6. PLANT TREES AND SHRUBS PLUMB AND FACED TO GIVE THE BEST APPEARANCE OR RELATIONSHIP TO ADJACENT PLANTS, STRUCTURES, AND VIEWS. IF ANY SOIL NUTRIENT DEFICIENCIES EXIST, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AMEND THE SOIL.
7. PLANTING METHODS, SOIL AMENDMENT QUANTITIES (IF ANY), AND PREPARATION METHODS SHALL BE INSTALLED ACCORDING TO THE PLANTING SPECIFICATIONS AND DETAILS.
8. ALL PLANTING AREAS SHALL RECEIVE WEED CONTROL/PRE-EMERGENT PER THE GUIDELINES SET FORTH WITHIN THE SPECIFICATIONS AND DETAILS. REAPPLY AS NECESSARY TO COMPLETELY KILL NOXIOUS MATERIAL. REMOVE ALL DEAD AND/OR DYING DEBRIS PRIOR TO FINAL ACCEPTANCE.
9. ALL TREES LOCATED WITHIN SIGHT DISTANCE AREAS MUST BE TRIMMED TO 6'-0" CLEARANCE ABOVE FINISHED GRADE.
10. UNLESS OTHERWISE NOTED ON PLANS, ROCK/BARK MULCH SHALL EXTEND UNDER ALL PLANTINGS AND BE RAKED UNIFORMLY ALONG CONCRETE FLATWORK, CURBS AND ETC.
11. THE FINISH GRADE OF LANDSCAPE AREAS RECEIVING ROCK/BARK MULCH MUST BE GRADED 2-1/2" BELOW CONCRETE OR OTHER ADJACENT PAVED SURFACES PRIOR TO INSTALLATION OF THE MULCH. FINISH GRADE OF LANDSCAPE AREAS RECEIVING TURF MUST BE GRADED 1-1/2" BELOW CONCRETE OR OTHER PAVED SURFACES PRIOR TO INSTALLATION OF TURF.
12. BOULDERS, IF USED, TO BE SURFACE SELECT GRANITE WITH A MINIMUM OF SHARP EDGES AND/OR CRACKING. ANY EXPOSED SURFACE SCARRING THAT MAY HAVE OCCURRED DURING TRANSPORTING OR CONSTRUCTION IS TO BE EONITED WITH NO ADDITIONAL COST TO THE OWNER.
13. STAKE ALL NURSERY GROWN TREE STOCK A MINIMUM OF 12" OUT FROM EDGE OF PLANTING WELL. THE EDGE OF ALL TREE PLANTING WELLS SHALL BE A MINIMUM OF 2 FEET AWAY FROM ALL CURB AND SIDEWALKS AND A MINIMUM OF 12 FEET AWAY FROM ALL BUILDING FOUNDATIONS. THE EDGE OF ALL SHRUB PLANTING WELLS SHALL BE A MINIMUM OF 18" AWAY FROM ALL CURB AND SIDEWALKS AND A MINIMUM OF 3 FEET AWAY FROM ALL BUILDING FOUNDATIONS.
14. LANDSCAPE CONTRACTOR SHALL CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO EACH APPLICATION OF PRE-EMERGENT FOR VERIFICATION. CONTRACTOR SHALL PROVIDE OWNER WITH PROOF OF PRE-EMERGENT APPLICATION NO MORE THAN 7 DAYS AFTER EACH APPLICATION WITHOUT EXCEPTION.
15. ALL TREES WITHIN TURF AREAS SHALL BE INSTALLED WITH TEMPORARY PVC ARBOR GUARDS.
16. ALL TURF AREAS SHALL BE GRADED SMOOTH AND APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLING SOD OR SEED. ALL AREAS TO RECEIVE TURF SHALL BE COMPLETELY FREE OF ANY RUTS, TRENCH SETTLING, OR ANY MATERIAL OVER 1/2" IN DIAMETER PRIOR TO SOD OR SEED INSTALLATION.
17. LANDSCAPE CONTRACTOR IS REQUIRED TO OBTAIN ANY REQUIRED PERMITS FOR ALL ON-SITE AND OFF-SITE IMPROVEMENTS OUTLINED WITHIN THIS SET OF PLANS AND/OR ANY OTHER ADDITIONAL WORK THEY MAY PERFORM IN THE INTEREST OF THIS PROJECT.
18. ROCK/BARK MULCH SHALL BE AS SPECIFIED IN THE LANDSCAPE MATERIAL SCHEDULE. ALL PLANTING AREAS, UNLESS OTHERWISE NOTED ON THE PLANS, SHALL RECEIVE A UNIFORM APPLICATION OF THE SPECIFIED MATERIAL. CONTRACTOR SHALL SUBMIT A SAMPLE TO THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO SCHEDULING MASS DELIVERY. OWNER MAY REQUEST THAT AN INITIAL LOAD OF MATERIAL BE DELIVERED TO THE SITE AND BE SPREAD BY THE LANDSCAPE CONTRACTOR FOR THE OWNER'S APPROVAL PRIOR TO MATERIAL APPLICATION ON THE REMAINDER OF THE SITE.
19. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO COORDINATE WITH THE OWNER THE FINAL LAYOUT OF ALL HARDSCAPE ITEMS FOR THIS PROJECT. OWNER MAY REQUEST ALL HARDSCAPE ITEMS (HEADERS, SIDEWALKS, FLATWORK, ETC.) BE STAKED AND/OR CHALKED OUT FOR THEIR APPROVAL PRIOR TO INITIAL POUR.
20. LANDSCAPE CONTRACTOR SHALL PRUNE ALL TREES AFTER INSTALLATION SO THAT NO BRANCH IS TOUCHING FINAL GRADE AND TRIM CANOPIES/BRANCHING TO A CLEAN AND NEAT APPEARANCE. ALL DEAD AND/OR DYING MATERIAL SHALL BE PRUNED FROM THE TREE PRIOR TO FINAL ACCEPTANCE.
21. WATER TEST ALL TREE PLANTING WELLS PRIOR TO PLANTING. IF TREE WELLS DO NOT PROPERLY DRAIN, REFER TO THE HARDPAN PLANTING DETAIL FOR ADDITIONAL INFORMATION.
22. REFER TO GENERAL CONSTRUCTION NOTES ON THE COVER SHEET FOR ADDITIONAL INFORMATION THAT RELATES TO THE SCOPE OF WORK IN THIS SECTION. ALSO REFER TO ANY WRITTEN SPECIFICATION, SHOULD THEY ACCOMPANY THESE DRAWINGS, FOR ADDITIONAL REQUIREMENTS NOT COVERED WITHIN THESE PLANS.

LANDSCAPE MATERIAL SCHEDULE



TREES BOTANICAL / COMMON NAME	SIZE	QTY	COMMENTS
Acer ginnala AMUR MAPLE	24" BOX	49	
Acer platanoides NORWAY MAPLE	24" BOX	86	
Acer tataricum `GarAnn` TM HOT WINGS TATARIAN MAPLE	24" BOX	53	
Fraxinus americana `Autumn Purple` AUTUMN PURPLE ASH	24" BOX	6	
Koelreuteria paniculata GOLDEN RAIN TREE	15 GAL	64	
Picea pungens COLORADO SPRUCE	24" BOX	54	
Picea pungens `Glauca` COLORADO BLUE SPRUCE	24" BOX	18	
Pinus edulis PINON PINE	24" BOX	33	
Pinus nigra AUSTRIAN BLACK PINE	24" BOX	45	
Pinus ponderosa PONDEROSA PINE	24" BOX	37	
Prunus cerasifera PURPLE-LEAF PLUM	15 GAL	47	
Quercus gambelii GAMBLE OAK	24" BOX	9	
Quercus macrocarpa BURR OAK	24" BOX	55	
Tilia americana AMERICAN LINDEN	24" BOX	57	
Existing Tree TO BE REMOVED			

SHRUBS & ACCENTS BOTANICAL / COMMON NAME	SIZE	QTY	COMMENTS
Aronia arbutifolia `Brilliantissima` BRILLIANT RED CHOKEBERRY	5 GAL	168	
Bouteloua gracilis BLUE GRAMA GRASS	5 GAL	291	
Calamagrostis x acutiflora `Karl Foerster` KARL FOERSTER FEATHER REED GRASS	5 GAL	585	
Caragana arborescens SIBERIAN PEASHRUB	5 GAL	29	
Cercocarpus montanus MOUNTAIN MAHOGANY	5 GAL	45	
Euonymus fortunei `Coloratus` WINTER CREEPER	5 GAL	616	
Helictotrichon sempervirens BLUE OAT GRASS	5 GAL	2,748	
Mahonia repens CREEPING MAHONIA	5 GAL	57	
Pinus mugo `Mops` DWARF MOUNTAIN PINE	5 GAL	301	
Pinus mugo `Slowmound` SLOWMOUND MOUNTAIN PINE	5 GAL	265	
Potentilla fruticosa BUSH CINQUEFOIL	5 GAL	22	
*Potentilla fruticosa `McKay`s White`* MCKAY`S WHITE BUSH CINQUEFOIL	5 GAL	89	
Rhus aromatica `Gro-Low` GRO-LOW FRAGRANT SUMAC	5 GAL	232	
Ribes alpinum `Green Mound` GREEN MOUND ALPINE CURRANT	5 GAL	216	
Rosa foetida bicolor AUSTRIAN COPPER ROSE	5 GAL	100	
Spiraea japonica `Anthony Waterer` ANTHONY WATERER SPIREA	5 GAL	157	
Syringa pubescens patula `Miss Kim` MISS KIM LILAC	5 GAL	91	
Viburnum lantana `Mohican` MOHICAN WAYFARING VIBURNUM	5 GAL	36	

GROUNDCOVER BOTANICAL / COMMON NAME	SIZE	QTY	COMMENTS
Juniperus sabina `Buffalo` BUFFALO JUNIPER	1 GAL	182	

PERENNIALS BOTANICAL / COMMON NAME	SIZE	QTY	COMMENTS
Echinacea purpurea PURPLE CONEFLOWER	1 GAL	75	
*Iris sibirica `Caesar`s Brother`* CAESAR`S BROTHER SIBERIAN IRIS	1 GAL	28	
Penstemon strictus ROCKY MOUNTAIN PENSTEMON	1 GAL	65	
Perovskia atriplicifolia RUSSIAN SAGE	1 GAL	57	
Rudbeckia fulgida sullivantii `Goldsturm` BLACK-EYED SUSAN	1 GAL	13	
Salvia x sylvestris `May Night` MAY NIGHT SALVIA	1 GAL	43	

MISCELLANEOUS BOTANICAL / COMMON NAME	SIZE	QTY	COMMENTS
UNDISTURBED LANDSCAPE AREA	-	-	-
COBBLE	4" - 12"	264,981 S.F.	4" DEPTH, FIELD VERIFYS.F., REFER TO DETAIL
ROCK MULCH COLOR: 'MOUNTAIN GRANITE'	1/2" SCREENED	6,179 S.F.	4" DEPTH, FIELD VERIFY S.F., REFER TO DETAIL 5 / L6.01
FESCUE BLEND	SOD	84,799 S.F.	FIELD VERIFY S.F.
HYDROSEED MIX '1'		1,095,197 S.F.	REFER TO HYDROSEED MIX. SCHED., FIELD VERIFY S.F.

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811 — THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING NOTES

L0.02

SHEET 03 OF 88

1ST SUBMITTAL

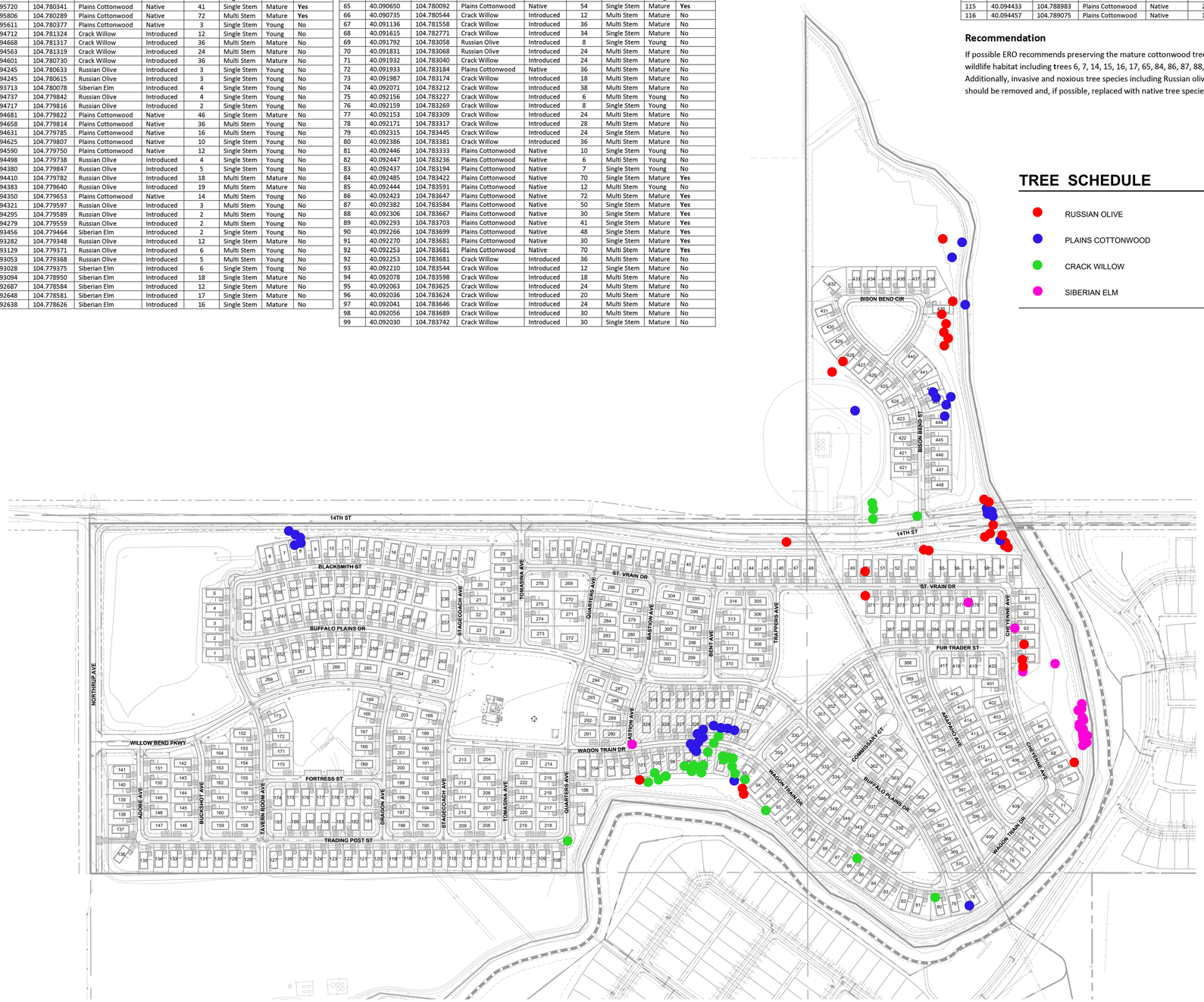
L:\19001925-Alton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L0.02.dwg

Table 1. Tree Inventory

Label	Latitude	Longitude	Species	Status	DBH (inches)	Growth Form	Age Class	Aesthetic and Habitat Values
1	40.095661	104.781555	Plains Cottonwood	Native	4	Multi Stem	Young	No
2	40.096062	104.781856	Russian Olive	Introduced	3	Single Stem	Young	No
3	40.096159	104.781698	Russian Olive	Introduced	3	Single Stem	Young	No
4	40.097393	104.780372	Russian Olive	Introduced	4	Single Stem	Young	No
5	40.097359	104.780110	Plains Cottonwood	Native	55	Single Stem	Mature	No
6	40.097203	104.780260	Plains Cottonwood	Native	74	Multi Stem	Mature	**Yes**
7	40.096728	104.780086	Plains Cottonwood	Native	70	Multi Stem	Mature	**Yes**
8	40.096771	104.780246	Russian Olive	Introduced	5	Single Stem	Young	No
9	40.096634	104.780394	Russian Olive	Introduced	6	Single Stem	Young	No
10	40.096538	104.780341	Russian Olive	Introduced	6	Multi Stem	Young	No
11	40.096457	104.780369	Russian Olive	Introduced	5	Multi Stem	Young	No
12	40.096405	104.780334	Russian Olive	Introduced	3	Multi Stem	Young	No
13	40.096327	104.780378	Russian Olive	Introduced	3	Single Stem	Young	No
14	40.095847	104.780506	Plains Cottonwood	Native	68	Multi Stem	Mature	**Yes**
15	40.095812	104.780484	Plains Cottonwood	Native	38	Single Stem	Mature	**Yes**
16	40.095720	104.780341	Plains Cottonwood	Native	41	Single Stem	Mature	**Yes**
17	40.095806	104.780289	Plains Cottonwood	Native	72	Multi Stem	Mature	**Yes**
18	40.095611	104.780377	Plains Cottonwood	Native	3	Single Stem	Young	No
19	40.094712	104.781324	Crack Willow	Introduced	12	Single Stem	Young	No
20	40.094668	104.781317	Crack Willow	Introduced	36	Multi Stem	Mature	No
21	40.094563	104.781319	Crack Willow	Introduced	24	Multi Stem	Mature	No
22	40.094601	104.780730	Crack Willow	Introduced	36	Multi Stem	Mature	No
23	40.094245	104.780633	Russian Olive	Introduced	3	Single Stem	Young	No
24	40.094245	104.780615	Russian Olive	Introduced	3	Single Stem	Young	No
25	40.093713	104.780078	Siberian Elm	Introduced	4	Single Stem	Young	No
26	40.094737	104.779842	Russian Olive	Introduced	4	Single Stem	Young	No
27	40.094717	104.779816	Russian Olive	Introduced	2	Single Stem	Young	No
28	40.094681	104.779822	Plains Cottonwood	Native	46	Single Stem	Mature	No
29	40.094658	104.779814	Plains Cottonwood	Native	36	Multi Stem	Young	No
30	40.094631	104.779785	Plains Cottonwood	Native	16	Multi Stem	Young	No
31	40.094625	104.779807	Plains Cottonwood	Native	10	Single Stem	Young	No
32	40.094590	104.779750	Plains Cottonwood	Native	12	Single Stem	Young	No
33	40.094498	104.779738	Russian Olive	Introduced	4	Single Stem	Young	No
34	40.094380	104.779847	Russian Olive	Introduced	5	Single Stem	Young	No
35	40.094410	104.779782	Russian Olive	Introduced	18	Multi Stem	Mature	No
36	40.094383	104.779640	Russian Olive	Introduced	19	Multi Stem	Mature	No
37	40.094350	104.779653	Plains Cottonwood	Native	14	Multi Stem	Young	No
38	40.094321	104.779597	Russian Olive	Introduced	3	Multi Stem	Young	No
39	40.094295	104.779589	Russian Olive	Introduced	2	Multi Stem	Young	No
40	40.094279	104.779559	Russian Olive	Introduced	2	Multi Stem	Young	No
41	40.093456	104.779464	Siberian Elm	Introduced	2	Single Stem	Young	No
42	40.093282	104.779348	Russian Olive	Introduced	12	Single Stem	Mature	No
43	40.093129	104.779371	Russian Olive	Introduced	6	Multi Stem	Young	No
44	40.093053	104.779368	Russian Olive	Introduced	5	Multi Stem	Young	No
45	40.093028	104.779375	Siberian Elm	Introduced	6	Single Stem	Young	No
46	40.093094	104.778950	Siberian Elm	Introduced	18	Single Stem	Mature	No
47	40.092687	104.778584	Siberian Elm	Introduced	12	Single Stem	Mature	No
48	40.092648	104.778581	Siberian Elm	Introduced	17	Single Stem	Mature	No
49	40.092638	104.778626	Siberian Elm	Introduced	16	Single Stem	Mature	No
50	40.092499	104.778568	Siberian Elm	Introduced	14	Single Stem	Mature	No
51	40.092484	104.778567	Siberian Elm	Introduced	20	Single Stem	Mature	No
52	40.092482	104.778583	Siberian Elm	Introduced	10	Single Stem	Young	No
53	40.092496	104.778616	Siberian Elm	Introduced	4	Single Stem	Young	No
54	40.092471	104.778615	Siberian Elm	Introduced	8	Single Stem	Mature	No
55	40.092465	104.778601	Siberian Elm	Introduced	3	Single Stem	Young	No
56	40.092452	104.778590	Siberian Elm	Introduced	14	Single Stem	Mature	No
57	40.092414	104.778590	Siberian Elm	Introduced	8	Single Stem	Mature	No
58	40.092400	104.778589	Siberian Elm	Introduced	3	Single Stem	Young	No
59	40.092386	104.778583	Siberian Elm	Introduced	12	Single Stem	Mature	No
60	40.092375	104.778549	Siberian Elm	Introduced	6	Single Stem	Young	No
61	40.092330	104.778566	Siberian Elm	Introduced	18	Single Stem	Mature	No
62	40.092302	104.778550	Siberian Elm	Introduced	4	Single Stem	Young	No
63	40.092286	104.778566	Siberian Elm	Introduced	5	Single Stem	Mature	No
64	40.092081	104.778700	Russian Olive	Introduced	4	Multi Stem	Young	No
65	40.090650	104.780092	Plains Cottonwood	Native	54	Single Stem	Mature	**Yes**
66	40.090735	104.780544	Crack Willow	Introduced	12	Multi Stem	Mature	No
67	40.091136	104.781558	Crack Willow	Introduced	36	Multi Stem	Mature	No
68	40.091615	104.782771	Crack Willow	Introduced	34	Single Stem	Mature	No
69	40.091792	104.783058	Russian Olive	Introduced	8	Single Stem	Young	No
70	40.091831	104.783068	Russian Olive	Introduced	24	Multi Stem	Mature	No
71	40.091932	104.783040	Crack Willow	Introduced	24	Multi Stem	Mature	No
72	40.091933	104.783184	Plains Cottonwood	Native	36	Multi Stem	Mature	No
73	40.091987	104.783174	Crack Willow	Introduced	18	Multi Stem	Mature	No
74	40.092071	104.783212	Crack Willow	Introduced	38	Multi Stem	Mature	No
75	40.092156	104.783227	Crack Willow	Introduced	6	Multi Stem	Young	No
76	40.092159	104.783269	Crack Willow	Introduced	8	Single Stem	Young	No
77	40.092153	104.783309	Crack Willow	Introduced	24	Multi Stem	Mature	No
78	40.092171	104.783317	Crack Willow	Introduced	28	Multi Stem	Mature	No
79	40.092315	104.783445	Crack Willow	Introduced	24	Single Stem	Mature	No
80	40.092386	104.783381	Crack Willow	Introduced	36	Multi Stem	Mature	No
81	40.092446	104.783333	Plains Cottonwood	Native	10	Single Stem	Young	No
82	40.092447	104.783236	Plains Cottonwood	Native	6	Multi Stem	Young	No
83	40.092437	104.783194	Plains Cottonwood	Native	7	Single Stem	Young	No
84	40.092485	104.783422	Plains Cottonwood	Native	70	Single Stem	Mature	**Yes**
85	40.092444	104.783591	Plains Cottonwood	Native	12	Multi Stem	Young	No
86	40.092423	104.783647	Plains Cottonwood	Native	72	Multi Stem	Mature	**Yes**
87	40.092382	104.783584	Plains Cottonwood	Native	50	Single Stem	Mature	**Yes**
88	40.092306	104.783667	Plains Cottonwood	Native	30	Single Stem	Mature	**Yes**
89	40.092293	104.783703	Plains Cottonwood	Native	41	Single Stem	Mature	**Yes**
90	40.092266	104.783699	Plains Cottonwood	Native	48	Single Stem	Mature	**Yes**
91	40.092270	104.783681	Plains Cottonwood	Native	30	Single Stem	Mature	**Yes**
92	40.092253	104.783681	Plains Cottonwood	Native	70	Multi Stem	Mature	**Yes**
92	40.092253	104.783681	Crack Willow	Introduced	36	Multi Stem	Mature	No
93	40.092210	104.783544	Crack Willow	Introduced	12	Single Stem	Mature	No
94	40.092078	104.783598	Crack Willow	Introduced	18	Multi Stem	Mature	No
95	40.092063	104.783625	Crack Willow	Introduced	24	Multi Stem	Mature	No
96	40.092036	104.783624	Crack Willow	Introduced	20	Multi Stem	Mature	No
97	40.092041	104.783646	Crack Willow	Introduced	24	Multi Stem	Mature	No
98	40.092056	104.783689	Crack Willow	Introduced	30	Multi Stem	Mature	No
99	40.092030	104.783742	Crack Willow	Introduced	30	Single Stem	Mature	No
100	40.092073	104.783843	Crack Willow	Introduced	36	Multi Stem	Mature	No
101	40.091974	104.784101	Crack Willow	Introduced	6	Multi Stem	Young	No
102	40.091959	104.784185	Crack Willow	Introduced	24	Multi Stem	Mature	No
103	40.092006	104.784216	Crack Willow	Introduced	36	Multi Stem	Mature	No
104	40.091924	104.784323	Crack Willow	Introduced	36	Multi Stem	Mature	No
105	40.091937	104.784415	Russian Olive	Introduced	24	Single Stem	Mature	No
106	40.091335	104.785400	Crack Willow	Introduced	38	Multi Stem	Mature	No
107	40.092318	104.784541	Siberian Elm	Introduced	28	Single Stem	Mature	No
108	40.094342	104.782477	Russian Olive	Introduced	6	Single Stem	Young	No
109	40.094031	104.781434	Russian Olive	Introduced	8	Single Stem	Young	No
110	40.093792	104.781443	Russian Olive	Introduced	6	Single Stem	Young	No
111	40.094398	104.788887	Plains Cottonwood	Native	2	Single Stem	Young	No
112	40.094373	104.788884	Plains Cottonwood	Native	4	Multi Stem	Young	No
113	40.094359	104.788937	Plains Cottonwood	Native	4	Multi Stem	Young	No
114	40.094349	104.788969	Plains Cottonwood	Native	3	Single Stem	Young	**Yes**
115	40.094433	104.788983	Plains Cottonwood	Native	24	Multi Stem	Mature	No
116	40.094457	104.789075	Plains Cottonwood	Native	18	Multi Stem	Young	No

Recommendation

If possible ERO recommends preserving the mature cottonwood trees that provide aesthetic value and wildlife habitat including trees 6, 7, 14, 15, 16, 17, 65, 84, 86, 87, 88, 89, 90, 91, 92, and 114. Additionally, invasive and noxious tree species including Russian olive, Siberian elm, and crack willow should be removed and, if possible, replaced with native tree species.



TREE SCHEDULE

		QTY.
●	RUSSIAN OLIVE	30
●	PLAINS COTTONWOOD	34
●	CRACK WILLOW	29
●	SIBERIAN ELM	22
	TOTAL:	115

0 100' 200' 400'

SCALE: 1" = 200'-0"

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DOUGLAS CRAIG 441
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WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
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2.
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TREE INVENTORY PLAN

L0.03

SHEET 04 OF 88

1ST SUBMITTAL

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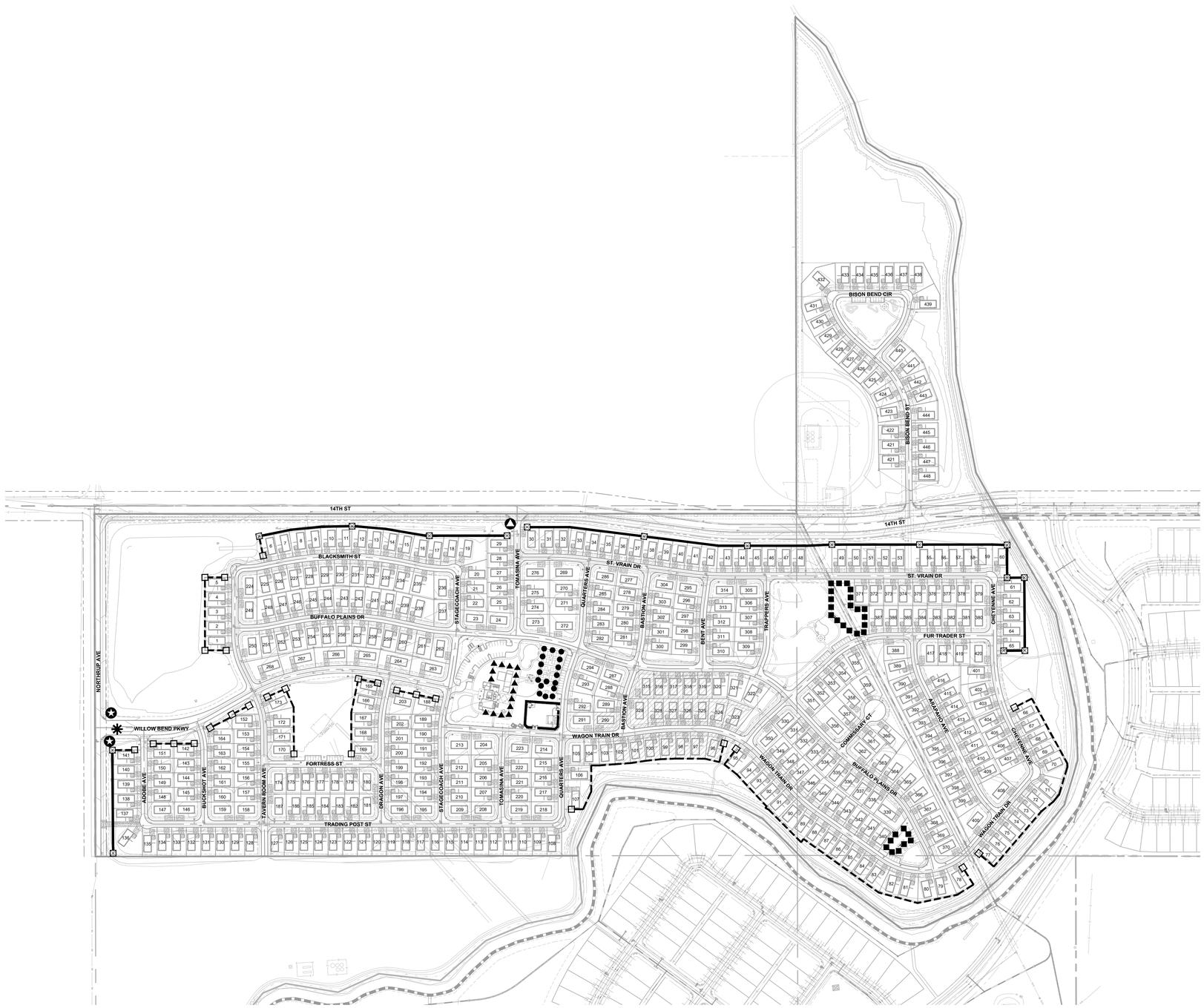

WALL,FENCE AND SIGN LEGEND

- 6' HEIGHT PRIVACY FENCE, SEE DETAIL 3/L4.02
- 4' HEIGHT 3-RAIL FENCE, SEE DETAIL 1/L4.02
- RAIL FENCE COLUMN, SEE DETAIL 1/L4.02
- PRIVACY FENCE COLUMN, SEE DETAIL 4/L4.02
- DOG PARK FENCE, SEE AMENITY SCHEDULE
- POOL FENCE, SEE DETAIL 5/L4.02
- SPORT COURT FENCE, SEE DETAIL 5/L4.01
- MEDIAN MONUMENT, SEE DETAIL 2/L4.04
- CORNER MONUMENT 'A', SEE DETAIL 2/L4.05
- CORNER MONUMENT 'B', SEE DETAIL 1/L4.04

WALL NOTES

1. THESE NOTES ARE GENERAL AND MAY BE SUPERSEDED BY EITHER THE SPECIFICATIONS OR LOCAL TRADE PRACTICES.
2. FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOIL OR COMPACTED FILL.
3. THE EXPOSED UPPERMOST SOIL TO RECEIVE FILL SHALL BE SCARIFIED 6" DEEP, MOISTURE CONDITIONED TO ±3% OF OPTIMUM DENSITY CURVE FOR EACH TYPE OF SOIL ENCOUNTERED AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY PER ASTM D-2922 OR D-3017.
4. FILL MATERIAL SHALL BE PREDOMINANTLY GRANULAR, NON-EXPANSIVE, CLEAN OF ALL ORGANIC OR DETRITUS SUBSTANCES, AND HAVE A PLASTICITY INDEX LESS THAN SEVEN (7). BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY IN HORIZONTAL 8" LIFTS.
5. EXCAVATIONS FOR FOUNDATIONS SHALL BE NEAT TO LINES OF FOOTINGS. ALL LOOSE MATERIAL SHALL BE REMOVED FROM SURFACE TO RECEIVE CONCRETE.
6. ALLOWABLE SOIL BEARING PRESSURES AT FOOTING ON COMPACTED SOIL: 1500 PSI.
7. CONCRETE MIX DESIGN FOR FOOTINGS SHALL BE MAG CLASS 'B' (2500 PSI), UNLESS OTHERWISE NOTED ON DRAWINGS.
8. NO PIPES OR DUCTS SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED.
9. CONCRETE FOOTINGS SHALL BE CONTINUOUS POUR TO GREATEST EXTENT PRACTICAL. STEP FOOTINGS IN EVEN BLOCK INCREMENTS.
10. WALL CONTRACTOR TO BE RESPONSIBLE FOR STRUCTURAL CALCULATIONS OF THE WALLS.
11. SUBMIT TEST REPORTS FOR CONCRETE MIX DESIGNS TO LANDSCAPE ARCHITECT FOR REVIEW.
12. WATERPROOF AND GROUT SOLID RETAINING WALLS TO HIGH GRADE, IF APPLICABLE.
13. ALL IRON/STEEL WORK TO BE OF HIGHEST QUALITY WITH WELDS GROUND SMOOTH. ALL IRON WORK, EXCEPT WHERE NOTED, TO BE PRIMED AND PAINTED. PAINT COLOR TO BE SELECTED BY OWNER AND/OR LANDSCAPE ARCHITECT.
14. VERIFY HEIGHTS AND SLOPES AND TURNDOWNS BEFORE POURING FOOTINGS.
15. NEW WALL FINISHES SHALL MATCH EXISTING SURFACES, UNLESS OTHERWISE NOTED ON DRAWINGS.
16. GROUT SOLID ALL CMU CELLS AND VOIDS BELOW GRADE AND/OR CONTAINING REBAR.

ALL WALL LOCATIONS AND ALIGNMENTS ARE SCHEMATIC. WALLS SHALL NOT BE INSTALLED IN RIGHT-OF-WAYS, UTILITY EASEMENTS, OR SIGHT VISIBILITY TRIANGLES. CONTRACTOR TO STAKE WALL CORNERS AND TURN POINTS AND GET CLIENT AND/OR LANDSCAPE ARCHITECT APPROVAL PRIOR TO INSTALLATION.

0 100' 200' 400'

SCALE: 1" = 200'-0"

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Tempe, Arizona 85281
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www.rviplanning.com

DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
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2
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4
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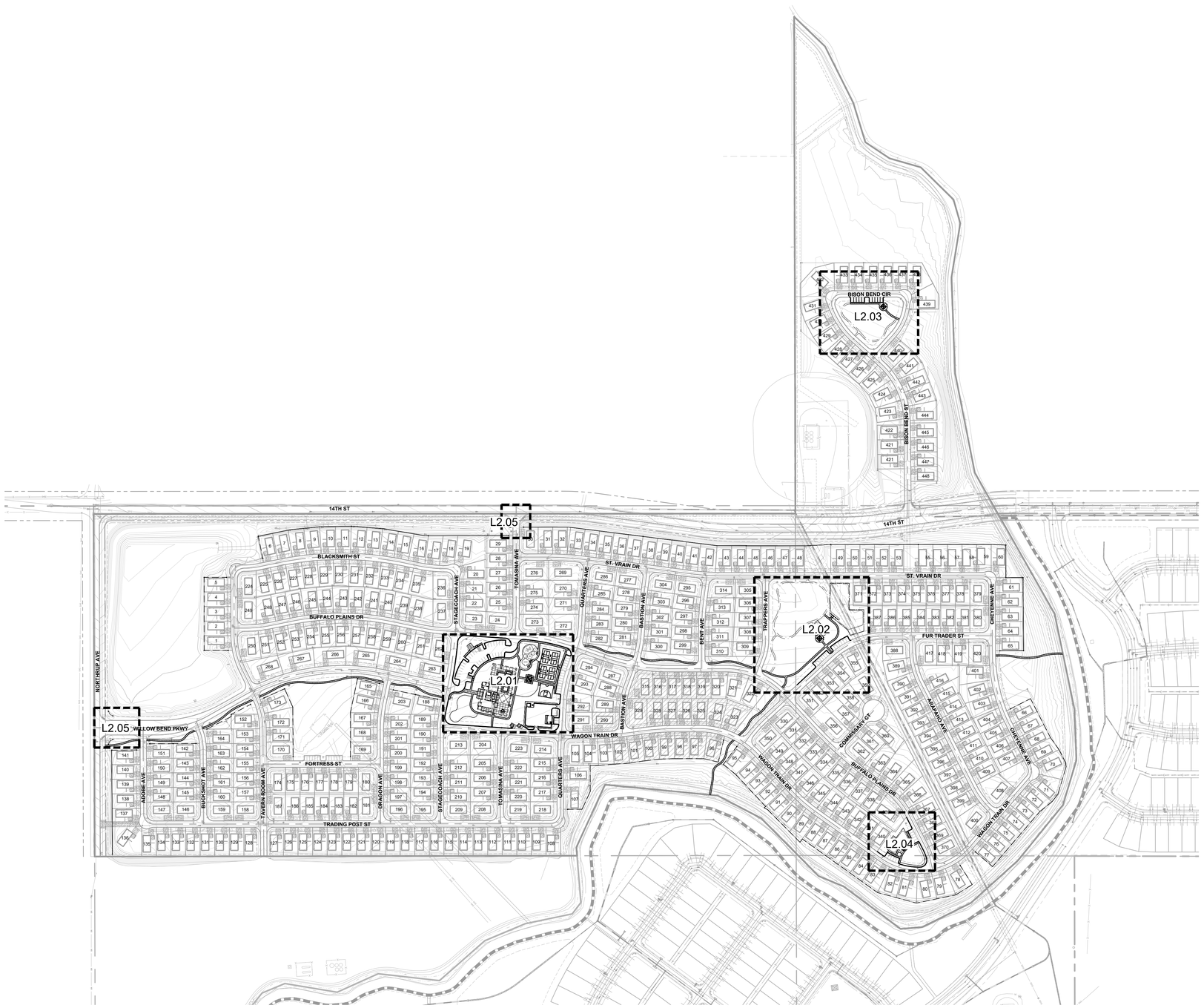
WALL, FENCE, AND SIGN PLAN

L1.00

SHEET 05 OF 88

1ST SUBMITTAL

L:\19001925-Adon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L 1.00.dwg



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HARDSCAPE REFERENCE PLAN

L2.00

SHEET 06 OF 88

1ST SUBMITTAL

L:\19001925-Ault on ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L2.00.dwg

HARDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
2. UTILITIES, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
3. FIRE HYDRANT - TREES AND SHRUBS TO MAINTAIN A 3'-0" CLEARANCE
4. CHARGING STATION, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
5. RAMPS & CROSSWALKS, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
6. MAINTENANCE GATE, REFER TO DETAIL 1 / L4.06
7. PARKING, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
8. STEEL EDGING, REFER TO DETAIL 8 / L6.01
9. POOL BARRIER FENCE & GATE, REFER TO DETAILS 5-7 / L4.02
10. SPORTS COURT FENCING, REFER TO DETAIL 5 / L4.01
11. PRIVACY FENCE, REFER TO DETAIL 3 / L4.02
12. SPLIT RAIL FENCE, REFER TO DETAIL 1 / L4.02
13. SPLIT RAIL FENCE COLUMN, REFER TO DETAIL 1 / L4.02
14. OPEN SPACE SIDEWALK, REFER TO PAVING SCHEDULE
15. POOL, REFER TO DESIGN-BUILD CONTRACTOR'S DRAWINGS
16. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
17. SIGHT/STREET LIGHT, REFER TO ELECTRICAL ENGINEERING PLANS FOR MORE INFORMATION.
18. 6"x18" REINFORCED CONCRETE HEADER, REFER TO DETAIL 7 / L4.03
19. REINFORCED CONCRETE TURN-DOWN, REFER TO DETAIL 8 / L4.03
20. PLAY EQUIPMENT BY OWNER
21. ACCESSIBLE RAMP TO PLAY AREA, REFER TO DETAIL 1 / L4.03
22. MAILBOX STRUCTURE, REFER TO ARCHITECTURAL
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24. MEDIAN MONUMENT, REFER TO DETAIL 2 / L4.04
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27. STABILIZED DECOMPOSED GRANITE TRAIL, REFER TO PAVING SCHEDULE
28. FESTOON LIGHTING, REFER TO DETAIL 2 / L4.02
29. BBQ COUNTER, REFER TO DETAIL 1 / L4.05
30. FIREPIT, REFER TO DETAIL 9 / L4.03
31. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

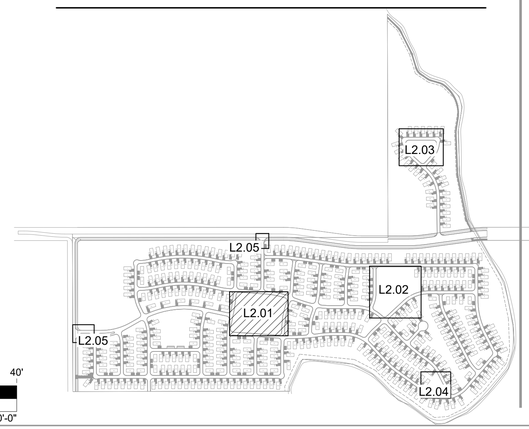
PAVING SCHEDULE

- STANDARD GRAY CONCRETE w/ MEDIUM BROOM FINISH. REFER TO DETAILS 4-5 / L4.03
- STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03
- STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS, REFER TO DETAIL 3 / L4.03
- ENGINEERED WOOD FIBER (EWF), 12" DEPTH, AVAILABLE FROM ROBERTSON RECREATIONAL SURFACES (www.lotturf.com, 800.858.0519). INCLUDE HEAVY DUTY WEAR MATS UNDER ALL SWING BAYS AND AT ALL SLIDE EXITS. INSTALL PER MFR'S. SPEC'S.
- ARTIFICIAL TURF, AVAILABLE FROM EASY TURF (www.easyturf.com, 866.327.9887). NUTMEG LUSH, REFER TO DETAIL 6 / L4.03

AMENITY SCHEDULE

A	ITEM	RAMADA
	COLOR	ROOF: 'CORTEN AZP RAW' FRAME: RAL7021 'BLACK GREY'
	SPECIFICATIONS	MESA RAMADA W/ 1 3/4" RIB HT. STANDING SEAM ROOF PANELS. STRUCTURAL TO BE PROVIDED BY MFR. INSTALL PER MFR. SPEC'S. SIZE PER PLAN.
	MANUFACTURER	CLASSIC RECREATION (www.shadesun.com, 800.697.2195) WESTERN STATES (www.metalroofing.com, 877.787.5467)
	QUANTITY	2 @ 15' SQUARE, 1 @ 20' SQUARE
B	ITEM	POOL OUTDOOR SHOWER
	COLOR	BROWN
	SPECIFICATIONS	500SM INSTALL PER MFR. SPEC'S
	MANUFACTURER	MOST DEPENDABLE FOUNTAINS (www.mostdependable.com 800-552-6331)
	QUANTITY	1
C	ITEM	BENCH
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	6' CREEKVIEW BENCH W/ BACK (CW26-KSA). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	8
D	ITEM	TRASH RECEPTACLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	32 GALLON CREKVIEW TRASH RECEPTACLE (CW3-32-KSA) W/ GALVANIZED LINER (GL-32). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	12
E	ITEM	CHARCOAL BBQ GRILL
	COLOR	NA
	SPECIFICATIONS	J-20--B2
	MANUFACTURER	PILOT ROCK (pilotrock.com, 800-762-5002)
	QUANTITY	2
F	ITEM	PET WASTE STATION
	COLOR	N/A
	SPECIFICATIONS	ALL ALUMINUM PET STATION (1003A-L). INSTALL PER MFR. SPEC'S. DOGIPOT (www.dogipot.com, 800.364. 7681)
	MANUFACTURER	
	QUANTITY	2
G	ITEM	BASKETBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL. SEE 1-5 / L4.01
	MANUFACTURER	N/A
	QUANTITY	1
H	ITEM	PICKLEBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL.
	MANUFACTURER	N/A
	QUANTITY	
I	ITEM	PICNIC TABLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	40" CREEKVIEW PICNIC TABLE (CW6-2SQ-KSA). SURFACE MOUNT ON CONCRETE. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	2
J	ITEM	ADIRONDACK CHAIR
	COLOR	'CHOCOLATE BROWN ON BLACK'
	SPECIFICATIONS	COMFO-BACK ADIRONDACK CHAIR (PATC2400)
	MANUFACTURER	KAUFFMAN LAWN FURNITURE (www.kauffmanlawnfurniture.com, 330.893.3149)
	QUANTITY	7
K	ITEM	DOG PARK FENCING
	COLOR	'SIGNAL BLACK'
	SPECIFICATIONS	ARCHITECTURAL FENCE
	MANUFACTURER	OMEGA FENCE SYSTEMS (www.omegafence.com, 1.800.836.6342)
	QUANTITY	FIELD VERIFY
L	ITEM	PICKLEBALL BENCH
	COLOR	'CAST BRONZE' FRAME W/ WEATHERED WOOD PLANKS
	SPECIFICATIONS	1107-06P, SURFACE MOUNT
	MANUFACTURER	PW ATHLETIC (www.pwathletic.com, 1.800.836.6342)
	QUANTITY	8

KEY MAP



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COLORADO 811 — THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
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HARDSCAPE ENLARGEMENT PLAN

L2.01

SHEET 07 OF 88

1ST SUBMITTAL

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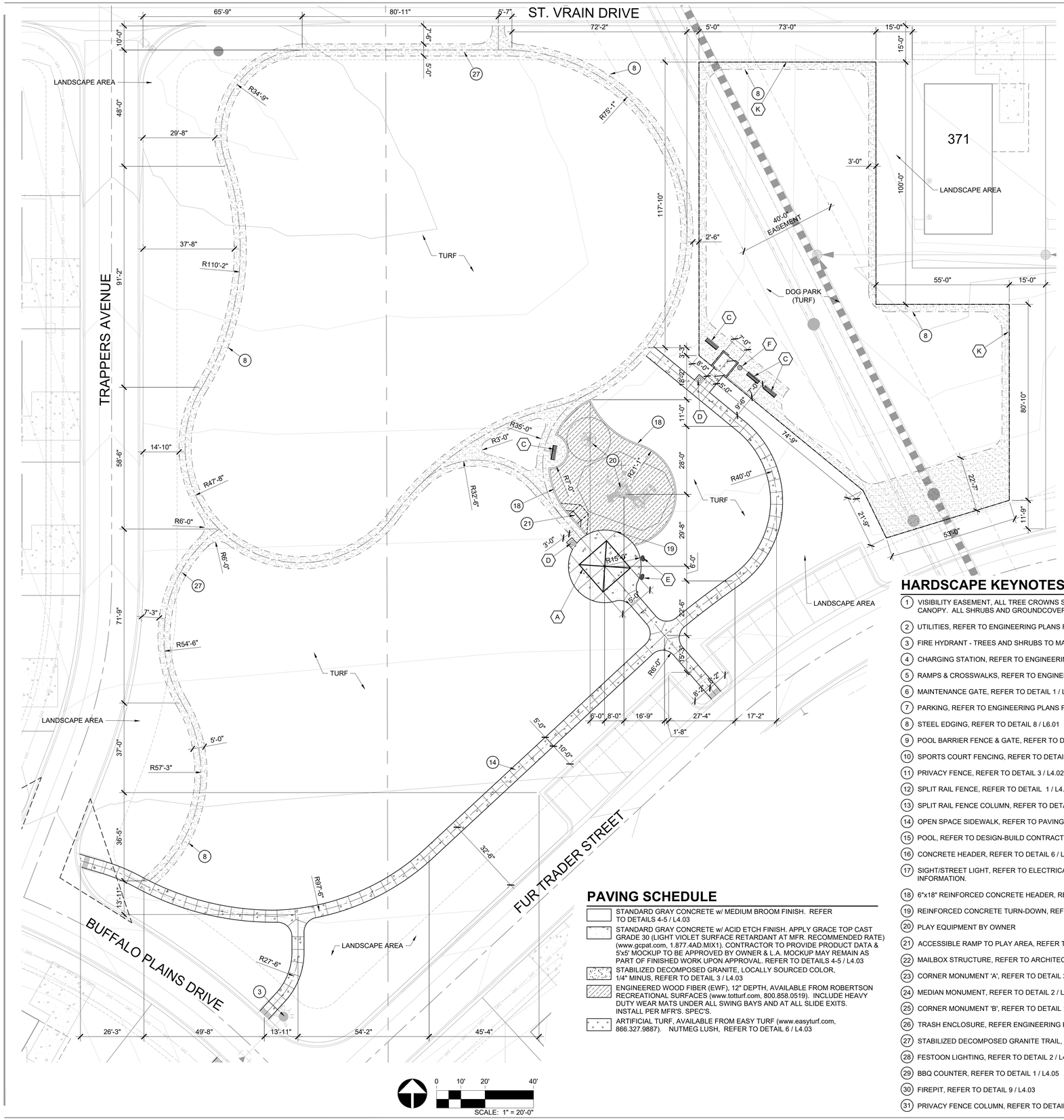

AMENITY SCHEDULE

A	ITEM	RAMADA
	COLOR	ROOF: 'CORTEN AZP RAW' FRAME: RAL7021 'BLACK GREY'
	SPECIFICATIONS	MESA RAMADA W/ 1 3/4" RIB HT. STANDING SEAM ROOF PANELS. STRUCTURAL TO BE PROVIDED BY MFR. INSTALL PER MFR. SPEC'S. SIZE PER PLAN.
	MANUFACTURER	CLASSIC RECREATION (www.shadesun.com, 800.697.2195) WESTERN STATES (www.metalroofing.com, 877.787.5467)
	QUANTITY	2 @ 15' SQUARE, 1 @ 20' SQUARE
B	ITEM	POOL OUTDOOR SHOWER
	COLOR	BROWN
	SPECIFICATIONS	500SM INSTALL PER MFR. SPEC'S
	MANUFACTURER	MOST DEPENDABLE FOUNTAINS (www.mostdependable.com 800-552-6331)
	QUANTITY	1
C	ITEM	BENCH
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	6' CREEKVIEW BENCH W/ BACK (CW26-KSA). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	8
D	ITEM	TRASH RECEPTACLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	32 GALLON CREEKVIEW TRASH RECEPTACLE (CW3-32-KSA) W/ GALVANIZED LINER (GL-32). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	12
E	ITEM	CHARCOAL BBQ GRILL
	COLOR	NA
	SPECIFICATIONS	J-20--B2
	MANUFACTURER	PILOT ROCK (pilotrock.com, 800-762-5002)
	QUANTITY	2
F	ITEM	PET WASTE STATION
	COLOR	N/A
	SPECIFICATIONS	ALL ALUMINUM PET STATION (1003A-L). INSTALL PER MFR. SPEC'S. DOGIPOT (www.dogipot.com, 800.364. 7681)
	MANUFACTURER	
	QUANTITY	2
G	ITEM	BASKETBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL. SEE 1-5 / L4.01
	MANUFACTURER	N/A
	QUANTITY	1
H	ITEM	PICKLEBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL.
	MANUFACTURER	N/A
	QUANTITY	
I	ITEM	PICNIC TABLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	40" CREEKVIEW PICNIC TABLE (CW6-2SQ-KSA). SURFACE MOUNT ON CONCRETE. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	2
J	ITEM	ADIRONDACK CHAIR
	COLOR	'CHOCOLATE BROWN ON BLACK'
	SPECIFICATIONS	COMFO-BACK ADIRONDACK CHAIR (PATC2400)
	MANUFACTURER	KAUFFMAN LAWN FURNITURE (www.kauffmanlawnfurniture.com, 330.893.3149)
	QUANTITY	7
K	ITEM	DOG PARK FENCING
	COLOR	'SIGNAL BLACK'
	SPECIFICATIONS	ARCHITECTURAL FENCE
	MANUFACTURER	OMEGA FENCE SYSTEMS (www.omegafence.com, 1.800.836.6342)
	QUANTITY	FIELD VERIFY
L	ITEM	PICKLEBALL BENCH
	COLOR	'CAST BRONZE' FRAME W/ WEATHERED WOOD PLANKS
	SPECIFICATIONS	1107-06P, SURFACE MOUNT
	MANUFACTURER	PW ATHLETIC (www.pwathletic.com, 1.800.836.6342)
	QUANTITY	8

HARDSCAPE KEYNOTES

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PAVING SCHEDULE

- STANDARD GRAY CONCRETE w/ MEDIUM BROOM FINISH. REFER TO DETAILS 4-5 / L4.03
- STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03
- STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS, REFER TO DETAIL 3 / L4.03
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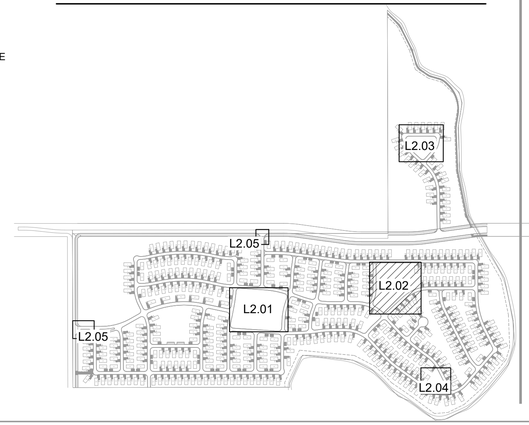
KEY MAP



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LICENSED LANDSCAPE ARCHITECT

COLORADO 811 UTILITY NOTIFICATION CENTER, INC.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
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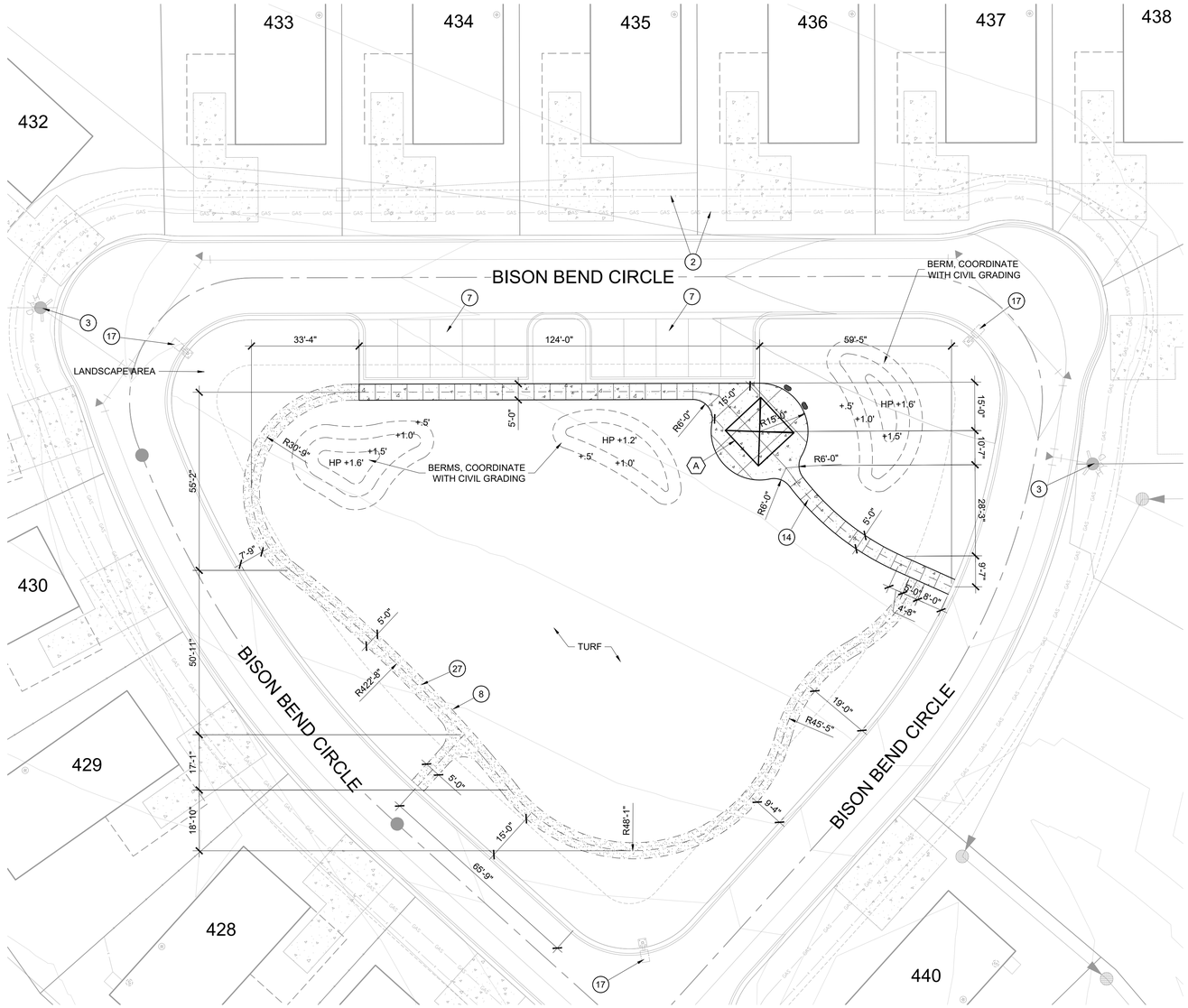
HARDSCAPE ENLARGEMENT PLAN

L2.02

SHEET 08 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L2.01-L2.05.dwg



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15. POOL, REFER TO DESIGN-BUILD CONTRACTOR'S DRAWINGS
16. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
17. SIGHT/STREET LIGHT, REFER TO ELECTRICAL ENGINEERING PLANS FOR MORE INFORMATION.
18. 6"x18" REINFORCED CONCRETE HEADER, REFER TO DETAIL 7 / L4.03
19. REINFORCED CONCRETE TURN-DOWN, REFER TO DETAIL 8 / L4.03
20. PLAY EQUIPMENT BY OWNER
21. ACCESSIBLE RAMP TO PLAY AREA, REFER TO DETAIL 1 / L4.03
22. MAILBOX STRUCTURE, REFER TO ARCHITECTURAL
23. CORNER MONUMENT 'A', REFER TO DETAIL 2 / L4.05
24. MEDIAN MONUMENT, REFER TO DETAIL 2 / L4.04
25. CORNER MONUMENT 'B', REFER TO DETAIL 1 / L4.04
26. TRASH ENCLOSURE, REFER ENGINEERING PLANS FOR MORE INFORMATION
27. STABILIZED DECOMPOSED GRANITE TRAIL, REFER TO PAVING SCHEDULE
28. FESTOON LIGHTING, REFER TO DETAIL 2 / L4.02
29. BBQ COUNTER, REFER TO DETAIL 1 / L4.05
30. FIREPIT, REFER TO DETAIL 9 / L4.03
31. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

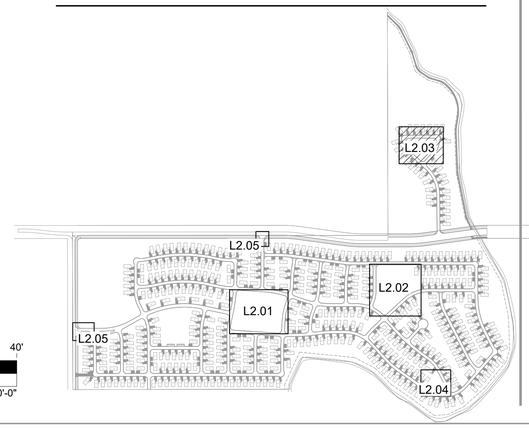
PAVING SCHEDULE

- STANDARD GRAY CONCRETE w/ MEDIUM BROOM FINISH. REFER TO DETAILS 4-5 / L4.03
- STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03
- STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS, REFER TO DETAIL 3 / L4.03
- ENGINEERED WOOD FIBER (EWF), 12" DEPTH, AVAILABLE FROM ROBERTSON RECREATIONAL SURFACES (www.totturf.com, 800.858.0519). INCLUDE HEAVY DUTY WEAR MATS UNDER ALL SWING BAYS AND AT ALL SLIDE EXITS. INSTALL PER MFR'S. SPEC'S.
- ARTIFICIAL TURF, AVAILABLE FROM EASY TURF (www.easyturf.com, 866.327.9887). NUTMEG LUSH, REFER TO DETAIL 6 / L4.03

AMENITY SCHEDULE

A	ITEM	RAMADA
	COLOR	ROOF: 'CORTEN AZP RAW' FRAME: RAL7021 'BLACK GREY'
	SPECIFICATIONS	MESA RAMADA W/ 1 3/4" RIB HT. STANDING SEAM ROOF PANELS. STRUCTURAL TO BE PROVIDED BY MFR. INSTALL PER MFR. SPEC'S. SIZE PER PLAN.
	MANUFACTURER	CLASSIC RECREATION (www.shadesun.com, 800.697.2195) WESTERN STATES (www.metalroofing.com, 877.787.5467)
	QUANTITY	2 @ 15' SQUARE, 1 @ 20' SQUARE
B	ITEM	POOL OUTDOOR SHOWER
	COLOR	BROWN
	SPECIFICATIONS	500SM INSTALL PER MFR. SPEC'S
	MANUFACTURER	MOST DEPENDABLE FOUNTAINS (www.mostdependable.com 800-552-6331)
	QUANTITY	1
C	ITEM	BENCH
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	6' CREEKVIEW BENCH W/ BACK (CW26-KSA). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	8
D	ITEM	TRASH RECEPTACLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	32 GALLON CREEKVIEW TRASH RECEPTACLE (CW3-32-KSA) W/ GALVANIZED LINER (GL-32). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	12
E	ITEM	CHARCOAL BBQ GRILL
	COLOR	NA
	SPECIFICATIONS	J-20--B2
	MANUFACTURER	PILOT ROCK (pilotrock.com, 800-762-5002)
	QUANTITY	2
F	ITEM	PET WASTE STATION
	COLOR	N/A
	SPECIFICATIONS	ALL ALUMINUM PET STATION (1003A-L). INSTALL PER MFR. SPEC'S. DOGIPOT (www.dogipot.com, 800.364. 7681)
	MANUFACTURER	
	QUANTITY	2
G	ITEM	BASKETBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL. SEE 1-5 / L4.01
	MANUFACTURER	N/A
	QUANTITY	1
H	ITEM	PICKLEBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL.
	MANUFACTURER	N/A
	QUANTITY	
I	ITEM	PICNIC TABLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	40" CREEKVIEW PICNIC TABLE (CW6-2SQ-KSA). SURFACE MOUNT ON CONCRETE. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	2
J	ITEM	ADIRONDACK CHAIR
	COLOR	'CHOCOLATE BROWN ON BLACK'
	SPECIFICATIONS	COMFO-BACK ADIRONDACK CHAIR (PATC2400)
	MANUFACTURER	KAUFFMAN LAWN FURNITURE (www.kauffmanlawnfurniture.com, 330.893.3149)
	QUANTITY	7
K	ITEM	DOG PARK FENCING
	COLOR	'SIGNAL BLACK'
	SPECIFICATIONS	ARCHITECTURAL FENCE
	MANUFACTURER	OMEGA FENCE SYSTEMS (www.omegafence.com, 1.800.836.6342)
	QUANTITY	FIELD VERIFY
L	ITEM	PICKLEBALL BENCH
	COLOR	'CAST BRONZE' FRAME W/ WEATHERED WOOD PLANKS
	SPECIFICATIONS	1107-06P, SURFACE MOUNT
	MANUFACTURER	PW ATHLETIC (www.pwathletic.com, 1.800.836.6342)
	QUANTITY	8

KEY MAP



0 10' 20' 40'

SCALE: 1" = 20'-0"

RVi
120 S. Ash Avenue
Tempe, Arizona 85281
Tel: 480.994.0994
www.rviplanning.com

DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811 YOU MARK IT. WE'LL FLAG IT.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
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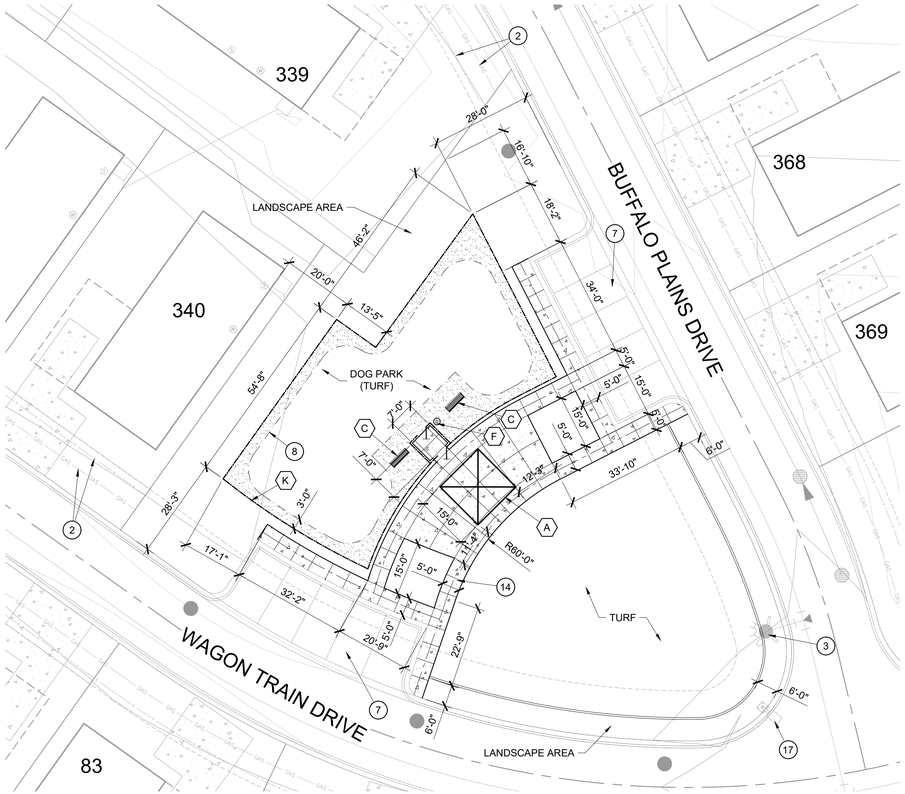
HARDSCAPE ENLARGEMENT PLAN

L2.03

SHEET 09 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\05-19001925-landscape\3-CD\3-SHEETS\1925-CD-L2.01-L2.05.dwg



HARDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
2. UTILITIES, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
3. FIRE HYDRANT - TREES AND SHRUBS TO MAINTAIN A 3'-0" CLEARANCE
4. CHARGING STATION, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
5. RAMPS & CROSSWALKS, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
6. MAINTENANCE GATE, REFER TO DETAIL 1 / L4.06
7. PARKING, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
8. STEEL EDGING, REFER TO DETAIL 8 / L6.01
9. POOL BARRIER FENCE & GATE, REFER TO DETAILS 5-7 / L4.02
10. SPORTS COURT FENCING, REFER TO DETAIL 5 / L4.01
11. PRIVACY FENCE, REFER TO DETAIL 3 / L4.02
12. SPLIT RAIL FENCE, REFER TO DETAIL 1 / L4.02
13. SPLIT RAIL FENCE COLUMN, REFER TO DETAIL 1 / L4.02
14. OPEN SPACE SIDEWALK, REFER TO PAVING SCHEDULE
15. POOL, REFER TO DESIGN-BUILD CONTRACTOR'S DRAWINGS
16. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
17. SIGHT/STREET LIGHT, REFER TO ELECTRICAL ENGINEERING PLANS FOR MORE INFORMATION.
18. 6"x18" REINFORCED CONCRETE HEADER, REFER TO DETAIL 7 / L4.03
19. REINFORCED CONCRETE TURN-DOWN, REFER TO DETAIL 8 / L4.03
20. PLAY EQUIPMENT BY OWNER
21. ACCESSIBLE RAMP TO PLAY AREA, REFER TO DETAIL 1 / L4.03
22. MAILBOX STRUCTURE, REFER TO ARCHITECTURAL
23. CORNER MONUMENT 'A', REFER TO DETAIL 2 / L4.05
24. MEDIAN MONUMENT, REFER TO DETAIL 2 / L4.04
25. CORNER MONUMENT 'B', REFER TO DETAIL 1 / L4.04
26. TRASH ENCLOSURE, REFER ENGINEERING PLANS FOR MORE INFORMATION
27. STABILIZED DECOMPOSED GRANITE TRAIL, REFER TO PAVING SCHEDULE
28. FESTOON LIGHTING, REFER TO DETAIL 2 / L4.02
29. BBQ COUNTER, REFER TO DETAIL 1 / L4.05
30. FIREPIT, REFER TO DETAIL 9 / L4.03
31. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

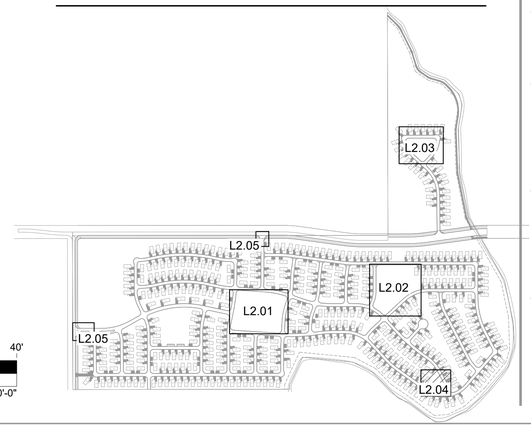
PAVING SCHEDULE

- STANDARD GRAY CONCRETE w/ MEDIUM BROOM FINISH. REFER TO DETAILS 4-5 / L4.03
- STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03
- STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS. REFER TO DETAIL 3 / L4.03
- ENGINEERED WOOD FIBER (EWF), 12" DEPTH, AVAILABLE FROM ROBERTSON RECREATIONAL SURFACES (www.totturf.com, 800.858.0519). INCLUDE HEAVY DUTY WEAR MATS UNDER ALL SWING BAYS AND AT ALL SLIDE EXITS. INSTALL PER MFR'S. SPEC'S.
- ARTIFICIAL TURF, AVAILABLE FROM EASY TURF (www.easyturf.com, 866.327.9887). NUTMEG LUSH, REFER TO DETAIL 6 / L4.03

AMENITY SCHEDULE

A	ITEM	RAMADA
	COLOR	ROOF: 'CORTEN AZP RAW' FRAME: RAL7021 'BLACK GREY'
	SPECIFICATIONS	MESA RAMADA W/ 1 3/4" RIB HT. STANDING SEAM ROOF PANELS. STRUCTURAL TO BE PROVIDED BY MFR. INSTALL PER MFR. SPEC'S. SIZE PER PLAN.
	MANUFACTURER	CLASSIC RECREATION (www.shadesun.com, 800.697.2195) WESTERN STATES (www.metalroofing.com, 877.787.5467)
	QUANTITY	2 @ 15' SQUARE, 1 @ 20' SQUARE
B	ITEM	POOL OUTDOOR SHOWER
	COLOR	BROWN
	SPECIFICATIONS	500SM INSTALL PER MFR. SPEC'S
	MANUFACTURER	MOST DEPENDABLE FOUNTAINS (www.mostdependable.com 800-552-6331)
	QUANTITY	1
C	ITEM	BENCH
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	6' CREEKVIEW BENCH W/ BACK (CW26-KSA). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	8
D	ITEM	TRASH RECEPTACLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	32 GALLON CREEKVIEW TRASH RECEPTACLE (CW3-32-KSA) W/ GALVANIZED LINER (GL-32). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	12
E	ITEM	CHARCOAL BBQ GRILL
	COLOR	NA
	SPECIFICATIONS	J-20--B2
	MANUFACTURER	PILOT ROCK (pilotrock.com, 800-762-5002)
	QUANTITY	2
F	ITEM	PET WASTE STATION
	COLOR	N/A
	SPECIFICATIONS	ALL ALUMINUM PET STATION (1003A-L). INSTALL PER
	MANUFACTURER	MFR. SPEC'S. DOGIPOT (www.dogipot.com, 800.364. 7681)
	QUANTITY	2
G	ITEM	BASKETBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL. SEE 1-5 / L4.01
	MANUFACTURER	N/A
	QUANTITY	1
H	ITEM	PICKLEBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL.
	MANUFACTURER	N/A
	QUANTITY	N/A
I	ITEM	PICNIC TABLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	40" CREEKVIEW PICNIC TABLE (CW6-2SQ-KSA). SURFACE MOUNT ON CONCRETE. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	2
J	ITEM	ADIRONDACK CHAIR
	COLOR	'CHOCOLATE BROWN ON BLACK'
	SPECIFICATIONS	COMFO-BACK ADIRONDACK CHAIR (PATC2400)
	MANUFACTURER	KAUFFMAN LAWN FURNITURE (www.kauffmanlawnfurniture.com, 330.893.3149)
	QUANTITY	7
K	ITEM	DOG PARK FENCING
	COLOR	'SIGNAL BLACK'
	SPECIFICATIONS	ARCHITECTURAL FENCE
	MANUFACTURER	OMEGA FENCE SYSTEMS (www.omegafence.com, 1.800.836.6342)
	QUANTITY	FIELD VERIFY
L	ITEM	PICKLEBALL BENCH
	COLOR	'CAST BRONZE' FRAME W/ WEATHERED WOOD PLANKS
	SPECIFICATIONS	1107-06P, SURFACE MOUNT
	MANUFACTURER	PW ATHLETIC (www.pwathletic.com, 1.800.836.6342)
	QUANTITY	8

KEY MAP



0 10' 20' 40'
SCALE: 1" = 20'-0"

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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
Know what's below. Call before you dig.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO : 19001925
DATE : 04/23/2021
DRAWN: KWN/MB
REVIEWED: BG/DC

REVISIONS
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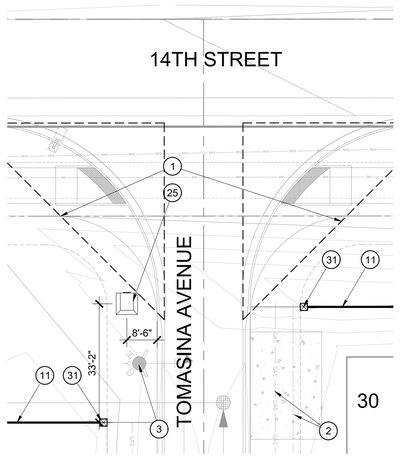
HARDSCAPE ENLARGEMENT PLAN

L2.04

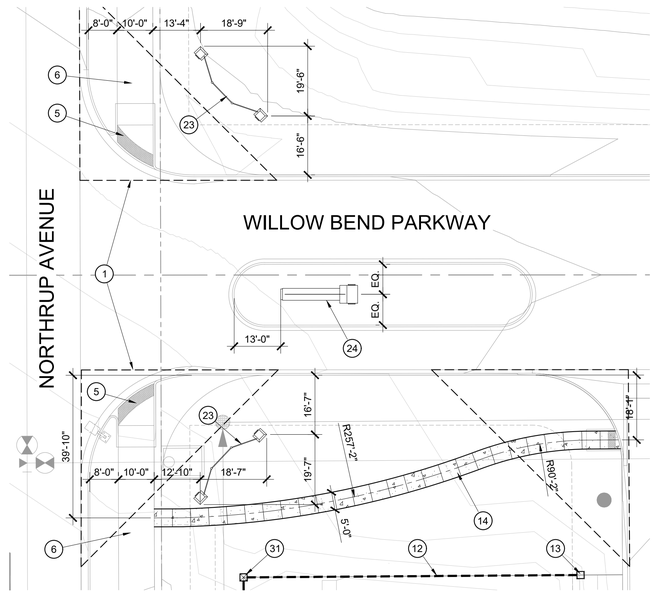
SHEET 10 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\c3-CD\3-SHEETS\1925-CD-L2.01-L2.05.dwg



1 NORTH ENTRANCE



2 WEST ENTRANCE

HARDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
2. UTILITIES, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
3. FIRE HYDRANT - TREES AND SHRUBS TO MAINTAIN A 3'-0" CLEARANCE
4. CHARGING STATION, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
5. RAMPS & CROSSWALKS, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
6. MAINTENANCE GATE, REFER TO DETAIL 1 / L4.06
7. PARKING, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
8. STEEL EDGING, REFER TO DETAIL 8 / L6.01
9. POOL BARRIER FENCE & GATE, REFER TO DETAILS 5-7 / L4.02
10. SPORTS COURT FENCING, REFER TO DETAIL 5 / L4.01
11. PRIVACY FENCE, REFER TO DETAIL 3 / L4.02
12. SPLIT RAIL FENCE, REFER TO DETAIL 1 / L4.02
13. SPLIT RAIL FENCE COLUMN, REFER TO DETAIL 1 / L4.02
14. OPEN SPACE SIDEWALK, REFER TO PAVING SCHEDULE
15. POOL, REFER TO DESIGN-BUILD CONTRACTOR'S DRAWINGS
16. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
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19. REINFORCED CONCRETE TURN-DOWN, REFER TO DETAIL 8 / L4.03
20. PLAY EQUIPMENT BY OWNER
21. ACCESSIBLE RAMP TO PLAY AREA, REFER TO DETAIL 1 / L4.03
22. MAILBOX STRUCTURE, REFER TO ARCHITECTURAL
23. CORNER MONUMENT 'A', REFER TO DETAIL 2 / L4.05
24. MEDIAN MONUMENT, REFER TO DETAIL 2 / L4.04
25. CORNER MONUMENT 'B', REFER TO DETAIL 1 / L4.04
26. TRASH ENCLOSURE, REFER ENGINEERING PLANS FOR MORE INFORMATION
27. STABILIZED DECOMPOSED GRANITE TRAIL, REFER TO PAVING SCHEDULE
28. FESTOON LIGHTING, REFER TO DETAIL 2 / L4.02
29. BBQ COUNTER, REFER TO DETAIL 1 / L4.05
30. FIREPIT, REFER TO DETAIL 9 / L4.03
31. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

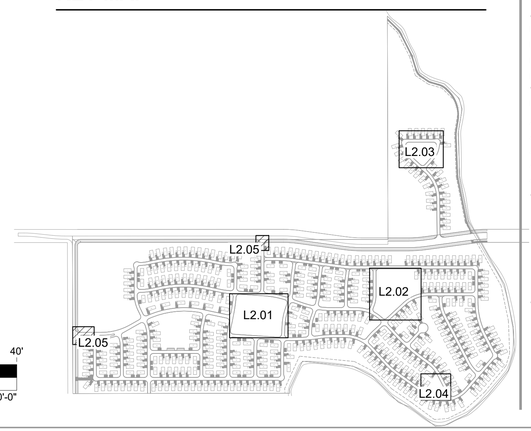
PAVING SCHEDULE

- STANDARD GRAY CONCRETE w/ MEDIUM BROOM FINISH. REFER TO DETAILS 4-5 / L4.03
- STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03
- STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS, REFER TO DETAIL 3 / L4.03
- ENGINEERED WOOD FIBER (EWF), 12" DEPTH, AVAILABLE FROM ROBERTSON RECREATIONAL SURFACES (www.totturf.com, 800.858.0519). INCLUDE HEAVY DUTY WEAR MATS UNDER ALL SWING BAYS AND AT ALL SLIDE EXITS. INSTALL PER MFR'S. SPEC'S.
- ARTIFICIAL TURF, AVAILABLE FROM EASY TURF (www.easyturf.com, 866.327.9887). NUTMEG LUSH, REFER TO DETAIL 6 / L4.03

AMENITY SCHEDULE

A	ITEM	RAMADA
	COLOR	ROOF: 'CORTEN AZP RAW' FRAME: RAL7021 'BLACK GREY'
	SPECIFICATIONS	MESA RAMADA W/ 1 3/4" RIB HT. STANDING SEAM ROOF PANELS. STRUCTURAL TO BE PROVIDED BY MFR. INSTALL PER MFR. SPEC'S. SIZE PER PLAN.
	MANUFACTURER	CLASSIC RECREATION (www.shadesun.com, 800.697.2195) WESTERN STATES (www.metalroofing.com, 877.787.5467)
	QUANTITY	2 @ 15' SQUARE, 1 @ 20' SQUARE
B	ITEM	POOL OUTDOOR SHOWER
	COLOR	BROWN
	SPECIFICATIONS	500SM INSTALL PER MFR. SPEC'S
	MANUFACTURER	MOST DEPENDABLE FOUNTAINS (www.mostdependable.com 800-552-6331)
	QUANTITY	1
C	ITEM	BENCH
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	6' CREEKVIEW BENCH W/ BACK (CW26-KSA). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	8
D	ITEM	TRASH RECEPTACLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	32 GALLON CREEKVIEW TRASH RECEPTACLE (CW3-32-KSA) W/ GALVANIZED LINER (GL-32). SURFACE MOUNT ON CONCRETE. ALL OTHERS TO BE IN-GROUND MOUNT USING OPTIONAL BURY EXTENSION. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	12
E	ITEM	CHARCOAL BBQ GRILL
	COLOR	NA
	SPECIFICATIONS	J-20--B2
	MANUFACTURER	PILOT ROCK (pilotrock.com, 800-762-5002)
	QUANTITY	2
F	ITEM	PET WASTE STATION
	COLOR	N/A
	SPECIFICATIONS	ALL ALUMINUM PET STATION (1003A-L). INSTALL PER MFR. SPEC'S. DOGIPOT (www.dogipot.com, 800.364. 7681)
	MANUFACTURER	
	QUANTITY	2
G	ITEM	BASKETBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL. SEE 1-5 / L4.01
	MANUFACTURER	N/A
	QUANTITY	1
H	ITEM	PICKLEBALL COURT
	COLOR	TO BE SELECTED
	SPECIFICATIONS	POST TENSIONED SLAB FOR COURT. CONTRACTOR TO SUBMIT SHOP DRAWINGS & PRODUCT SUBMITTAL FOR REVIEW & APPROVAL.
	MANUFACTURER	N/A
	QUANTITY	
I	ITEM	PICNIC TABLE
	COLOR	ALUMINUM W/ WOOD GRAIN FINISH
	SPECIFICATIONS	40" CREEKVIEW PICNIC TABLE (CW6-2SQ-KSA). SURFACE MOUNT ON CONCRETE. INSTALL PER MFR. SPEC'S.
	MANUFACTURER	KEYSTONE RIDGE (www.keystoneridgedesigns.com, 800.284.8208)
	QUANTITY	2
J	ITEM	ADIRONDACK CHAIR
	COLOR	'CHOCOLATE BROWN ON BLACK'
	SPECIFICATIONS	COMFO-BACK ADIRONDACK CHAIR (PATC2400)
	MANUFACTURER	KAUFFMAN LAWN FURNITURE (www.kauffmanlawnfurniture.com, 330.893.3149)
	QUANTITY	7
K	ITEM	DOG PARK FENCING
	COLOR	'SIGNAL BLACK'
	SPECIFICATIONS	ARCHITECTURAL FENCE
	MANUFACTURER	OMEGA FENCE SYSTEMS (www.omegafence.com, 1.800.836.6342)
	QUANTITY	FIELD VERIFY
L	ITEM	PICKLEBALL BENCH
	COLOR	'CAST BRONZE' FRAME W/ WEATHERED WOOD PLANKS
	SPECIFICATIONS	1107-06P, SURFACE MOUNT
	MANUFACTURER	PW ATHLETIC (www.pwathletic.com, 1.800.836.6342)
	QUANTITY	8

KEY MAP



0 10' 20' 40'
SCALE: 1" = 20'-0"

RVi
120 S. Ash Avenue
Tempe, Arizona 85281
Tel: 480.994.0994
www.rviplanning.com

DOUGLAS CRAIG 441 — 03/07/2008 Original Date of Licensure — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

COLORADO 811 — THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

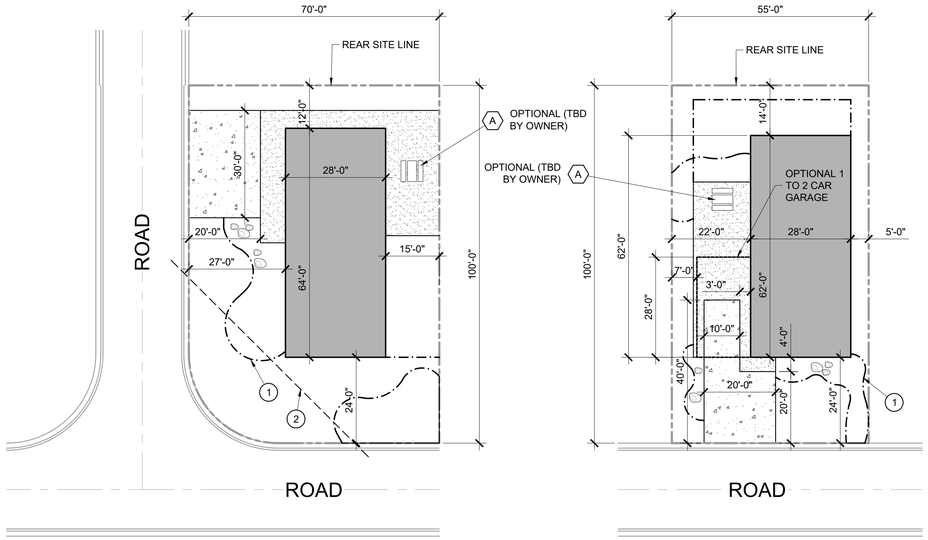
HARDSCAPE ENLARGEMENT PLAN

L2.05

SHEET 11 OF 88

1ST SUBMITTAL

L:\19001925-Fulton ranch (fort lupton)\6-19001925-landscape\5-CD\3-SHEET\5-1925-CD-L2.01-L2.05.dwg

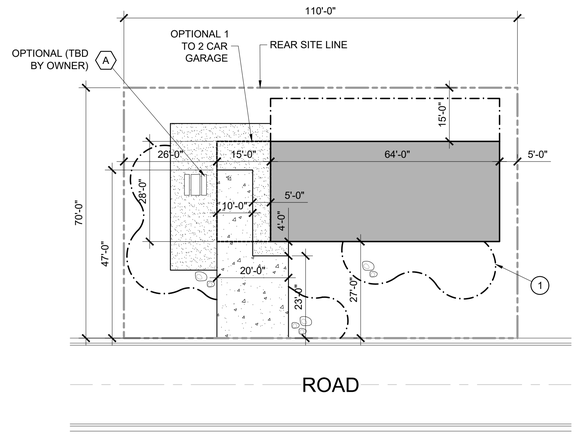


1 END SITE / PRIVATE ROADWAY - HARDSCAPE

0 10' 20' 40'
SCALE: 1" = 20'-0"

2 PERPENDICULAR SITE / PRIVATE ROADWAY - HARDSCAPE

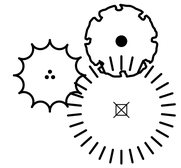
0 10' 20' 40'
SCALE: 1" = 20'-0"



3 PARALLEL SITE / PRIVATE ROADWAY - HARDSCAPE

0 10' 20' 40'
SCALE: 1" = 20'-0"

LANDSCAPE MATERIAL SCHEDULE - TYPICAL LOTS



TREES BOTANICAL / COMMON NAME	SIZE
Acer tataricum `GarAnn` TM HOT WINGS TATARIAN MAPLE	24" BOX
Picea pungens `Glauca` COLORADO BLUE SPRUCE	24" BOX
Pinus ponderosa PONDEROSA PINE	24" BOX



SHRUBS & ACCENTS BOTANICAL / COMMON NAME	SIZE
Calamagrostis x acutiflora `Karl Foerster` KARL FOERSTER FEATHER REED GRASS	5 GAL
Mahonia repens CREEPING MAHONIA	5 GAL
Pinus mugo `Mops` DWARF MOUNTAIN PINE	5 GAL
Rhus aromatica `Gro-Low` GRO-LOW FRAGRANT SUMAC	5 GAL
Ribes alpinum `Green Mound` GREEN MOUND ALPINE CURRANT	5 GAL

MISCELLANEOUS BOTANICAL / COMMON NAME	SIZE
COBBLE	4" - 12"
ROCK MULCH COLOR: 'MOUNTAIN GRANITE'	1/2" SCREENED
FESCUE BLEND	SOD

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

HARDSCAPE KEYNOTES - TYPICAL LOTS

1. STEEL EDGING, REFER TO DETAIL 8 / L6.01
2. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".

PAVING SCHEDULE - TYPICAL LOTS

STANDARD GRAY CONCRETE w/ ACID ETCH FINISH. APPLY GRACE TOP CAST GRADE 30 (LIGHT VIOLET SURFACE RETARDANT AT MFR. RECOMMENDED RATE) (www.gcpat.com, 1.877.4AD.MIX1). CONTRACTOR TO PROVIDE PRODUCT DATA & 5'x5' MOCKUP TO BE APPROVED BY OWNER & L.A. MOCKUP MAY REMAIN AS PART OF FINISHED WORK UPON APPROVAL. REFER TO DETAILS 4-5 / L4.03

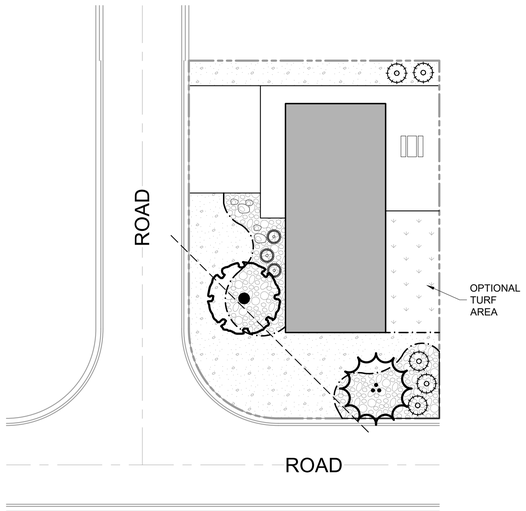
STABILIZED DECOMPOSED GRANITE, LOCALLY SOURCED COLOR, 1/4" MINUS, REFER TO DETAIL 3 / L4.03

AMENITY SCHEDULE - TYPICAL LOTS

A	**ITEM**	PICNIC TABLE
	COLOR	TBD
	SPECIFICATIONS	BREAKWATER PICNIC TABLE, 6', ALUMINUM
	MANUFACTURER	KEYSTONE RIDGE (keystoneridgedesigns.com, 800-284-8208)

BOULDER SCHEDULE

ITEM	SIZE
EXTRA SMALL BOULDERS	1X1X1 - 2X2X2
SMALL BOULDERS	2X2X2 - 3X3X3

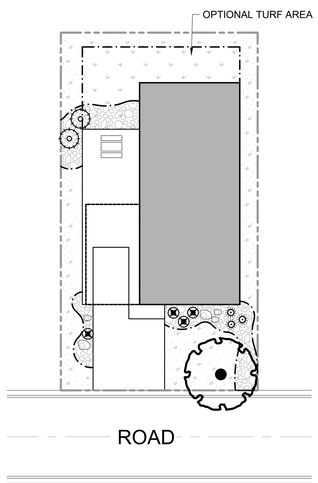


4 END SITE / PRIVATE ROADWAY - PLANTING

TYPICAL QUANTITIES

NOTE: FINAL QUANTITIES ARE BY OWNER APPROVAL
- MINIMUM 1 TREE, MAXIMUM 2 TREES
- MINIMUM 7 SHRUBS, MAXIMUM 9 SHRUBS
- MINIMUM 5 BOULDERS, MAXIMUM 7 BOULDERS
(REFER TO BOULDER SCHEDULE FOR SIZING)

0 10' 20' 40'
SCALE: 1" = 20'-0"

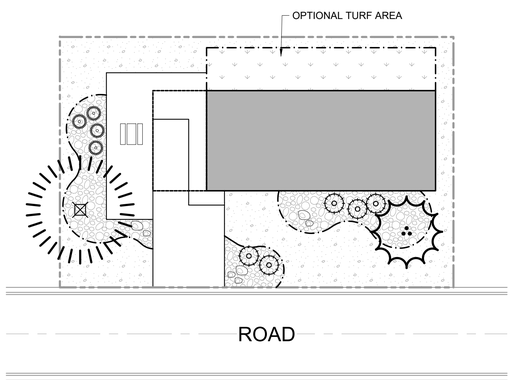


5 PERPENDICULAR SITE / PRIVATE ROADWAY - PLANTING

TYPICAL QUANTITIES

NOTE: FINAL QUANTITIES ARE BY OWNER APPROVAL
- MINIMUM 1 TREE, MAXIMUM 2 TREES
- MINIMUM 7 SHRUBS, MAXIMUM 9 SHRUBS
- MINIMUM 5 BOULDERS, MAXIMUM 7 BOULDERS
(REFER TO BOULDER SCHEDULE FOR SIZING)

0 10' 20' 40'
SCALE: 1" = 20'-0"



6 PARALLEL SITE / PRIVATE ROADWAY - PLANTING

TYPICAL QUANTITIES

NOTE: FINAL QUANTITIES ARE BY OWNER APPROVAL
- MINIMUM 1 TREE, MAXIMUM 2 TREES
- MINIMUM 7 SHRUBS, MAXIMUM 9 SHRUBS
- MINIMUM 5 BOULDERS, MAXIMUM 7 BOULDERS
(REFER TO BOULDER SCHEDULE FOR SIZING)

0 10' 20' 40'
SCALE: 1" = 20'-0"

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FORT LUPTON, COLORADO

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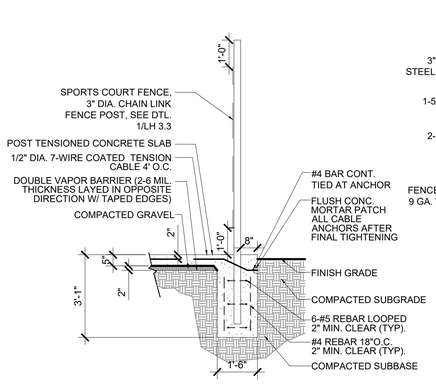
LOT TYPICALS- HARDSCAPE AND PLANTING

L3.01

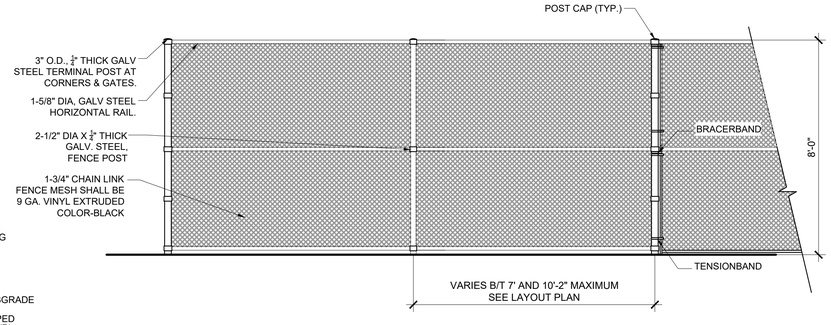
SHEET 08 OF 88

1ST SUBMITTAL

L:\19001925-Fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L3.01.dwg



CHAIN LINK FENCE THROUGH POST TENSION SLAB



NOTES:
1. ALL CORNER AND GATE POSTS SHALL BE 3" DIA, POWDERCOATED GRAY (RAL 7004) WITH .1233 WALL THICKNESS.

2. ALL LINE POSTS SHALL BE 2-1/2" DIA, POWDERCOATED GRAY (RAL 7004) WITH .1084 WALL THICKNESS.

3. ALL HORIZONTAL RAILS SHALL BE 1-5/8" DIA, POWDERCOATED GRAY WITH .0934 WALL THICKNESS. SPACE RAILS AT TOP MIDDLE AND BOTTOM OF POSTS.

4. ALL FITTINGS SHALL BE VINYL COATED 22-25 MIL PVC COATING BONDED TO CORE WIRE, COLOR: GRAY (RAL 7004).

5. 1-3/4" CHAIN LINK FENCE MESH SHALL BE 9 GA. VINYL EXTRUDED TO MATCH EXISTING.

6. ALL MESH TO BE MOUNTED TO POST AND RAILS WITH TENSION BARS.

7. PROVIDE SHOP DRAWINGS FOR APPROVAL TO OWNERS REP. PRIOR TO CONSTRUCTION.

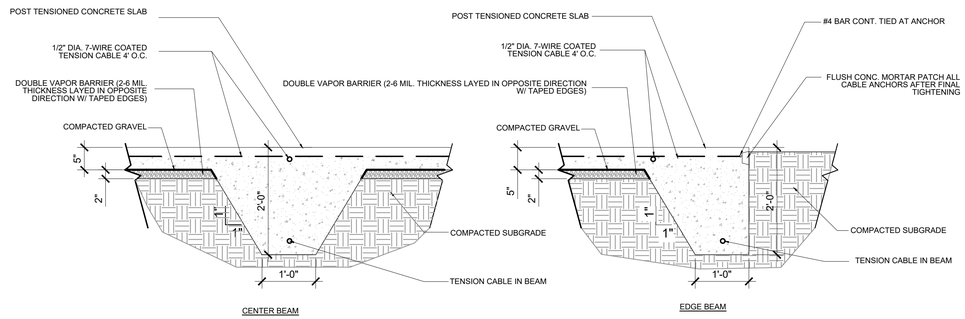
5 SPORTS COURT FENCE - CHAIN LINK

SCALE: 3/8" = 1'-0"

HARDSCAPE SCHEDULE

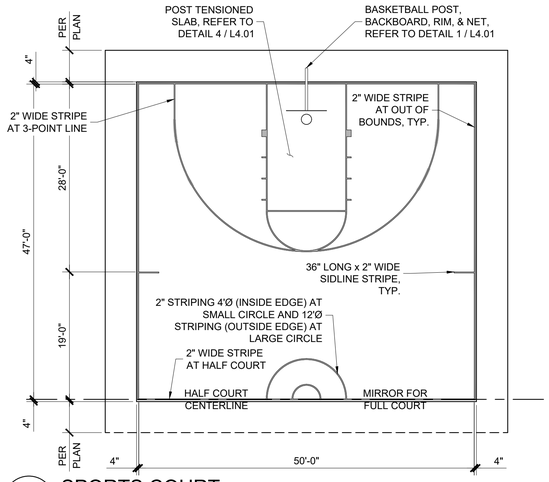
A	ITEM	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	ITEM	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	ITEM	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	ITEM	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	ITEM	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S. McNICHOLS (www.mcnichols.com, 877.759.5128)
	MANUFACTURER	DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	ITEM	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	ITEM	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE
	SPECIFICATIONS	STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	ITEM	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	ITEM	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	ITEM	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	¾" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	ITEM	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-

NOTE:
POST-TENSIONED SLAB DETAILS ARE DIAGRAMMATIC IN NATURE AND FOR REFERENCE ONLY. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, SIGNED AND SEALED BY A STATE OF TEXAS PROFESSIONAL ENGINEER FOR REVIEW.



4 SPORTS COURT-TENSION SLAB

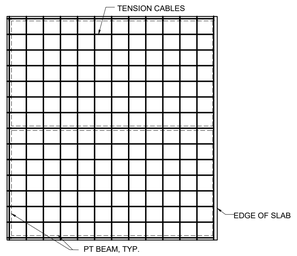
SCALE: 3/4" = 1'-0"



3 SPORTS COURT

SCALE: 3/32" = 1'-0"

NOTES:
1. POST-TENSIONED SLAB PLAN IS DIAGRAMMATIC IN NATURE AND FOR REFERENCE ONLY.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, SIGNED AND SEALED BY A STATE OF TEXAS PROFESSIONAL ENGINEER FOR REVIEW.
3. THE CONTRACTOR SHALL BE AN EXPERIENCED SPORT COURT BUILDER SKILLED AT INSTALLATION OF POST-TENSIONED SLABS. MUST SUBMIT DOCUMENTATION OF QUALIFICATIONS INCLUDING 2 PROJECTS OF SIMILAR SIZE OR GREATER WITH THE LAST FIVE (5) YEARS.

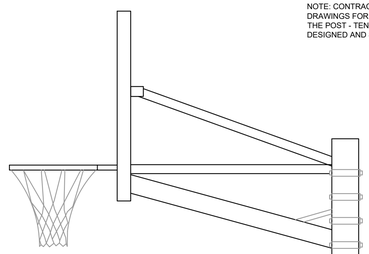


POST TENSIONED SCHEMATIC PLAN (FOR REFERENCE ONLY)

2 SPORTS COURT-TENSION SLAB

SCALE: NTS

NOTE: CONTRACTOR SHALL PROVIDE STRUCTURAL DESIGN SHOP DRAWINGS FOR THE BASKETBALL FOOTING DESIGN TO BE INTEGRAL WITH THE POST - TENSIONED SLAB SPORT COURT. DRAWINGS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER

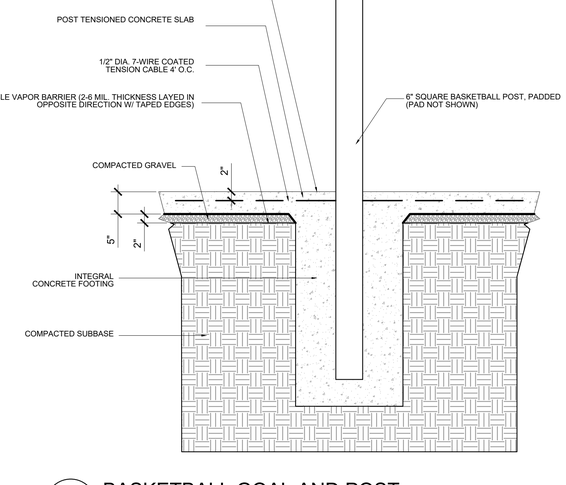


CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL BASKETBALL PRODUCT DATA INCLUDING PADDED POST, BACKBOARD AND GOAL.

BASKETBALL GOAL AND POST SYSTEM BY GARED SPORTS, OR APPROVED EQUAL; INSTALL PER MANUFACTURERS SPECS PH: 800.757.6081

6" SQUARE POST OUTDOOR BASKETBALL SYSTEM
MODEL #GP106G72
EXTENSION ARM: 72"
BACKBOARD : BB72G50 GLASS
GOAL: 8800 ENDURANCE BREAKAWAY

SPORT COURT PAINT BY CALIFORNIA PRODUCTS PLEXIPAVE COLOR COATING SYSTEM(OR APPROVED EQUAL)
PHONE # 978-623-9980 - INSTALL PER MANUFACTURER'S SPECS. COLOR SCHEME TO BE REVIEWED AND APPROVED OWNER AND OWNER'S REP.



1 BASKETBALL GOAL AND POST

SCALE: 3/4" = 1'-0"

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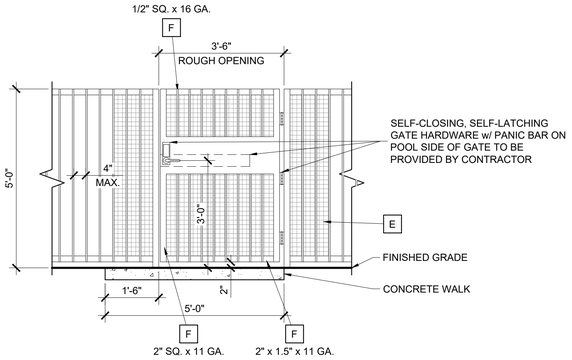
HARDSCAPE DETAILS

L4.01

SHEET 13 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\IE-19001925-landscape\3-CD\3-SHEETS\1925-CD1-L4.01-L4.02.dwg

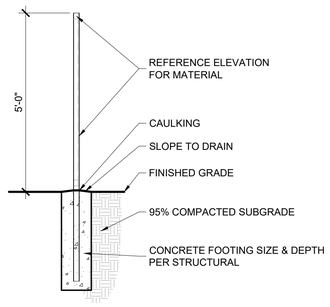


7 POOL GATE ELEVATION

SCALE: 1/2" = 1'-0"

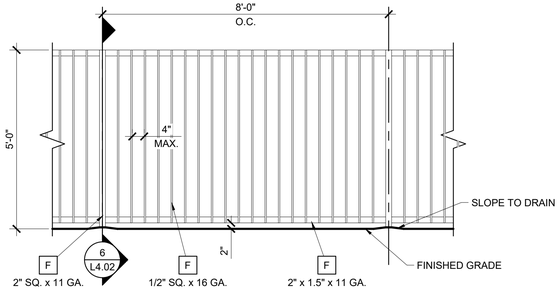
NOTE:

- Refer to structural for footing size & depth & all reinforcing sizes and quantities.



6 POOL FENCE SECTION

SCALE: 1/2" = 1'-0"

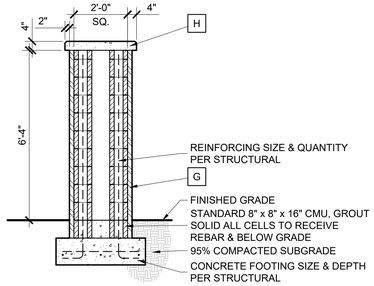


5 POOL FENCE ELEVATION

SCALE: 1/2" = 1'-0"

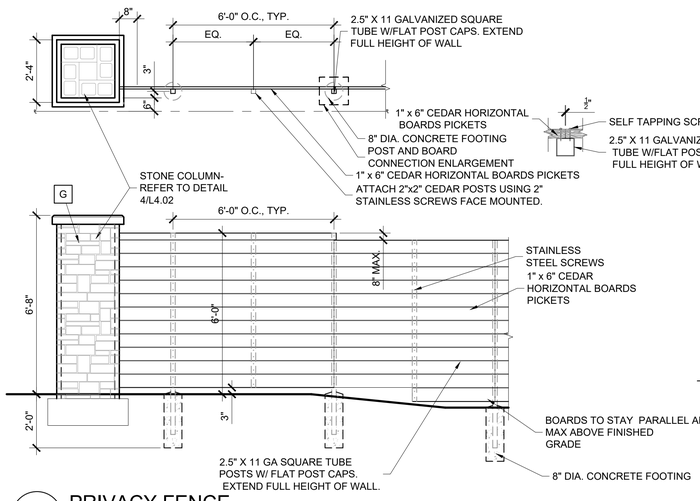
NOTE:

- Refer to structural for footing size & depth & all reinforcing sizes and quantities.
- Refer to wall plan and planting plans for column locations

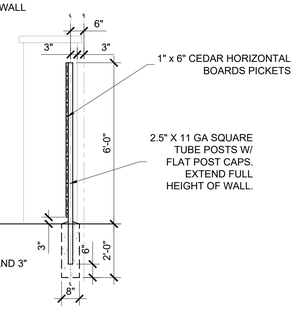


4 STONE COLUMN

SCALE: 3/8" = 1'-0"

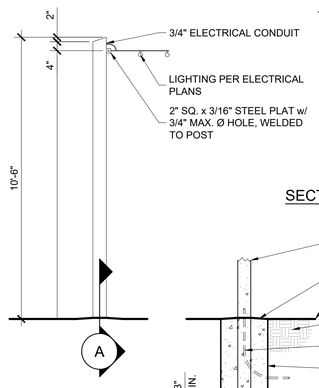


NOTES:
1. USE SIMPSON STRONG-TIE HANGER #FB24 FOR 1" X 6" BOARDS (OR SIMILAR) TO ATTACH RAILS TO POSTS
2. BOTH SIDES OF FENCE TO BE FINISHED WITH SHERWIN WILLIAMS Woodscapes EXTERIOR PLOYURETHANE SEMI-TRANSPARENT STAIN. COLOR CHARWOOD (TO MATCH AMENITY CENTER WOOD STAIN). 2 COATS
3. CEDAR PANELS SHALL BE GRADE C
4. CONTRACTOR TO PROVIDE SAMPLE AND MOCK UP BEFORE INSTALLATION



3 PRIVACY FENCE

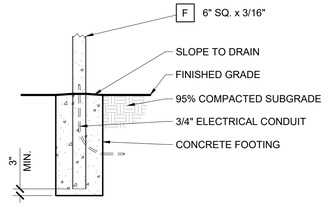
SCALE: 3/8" = 1'-0"



NOTE:

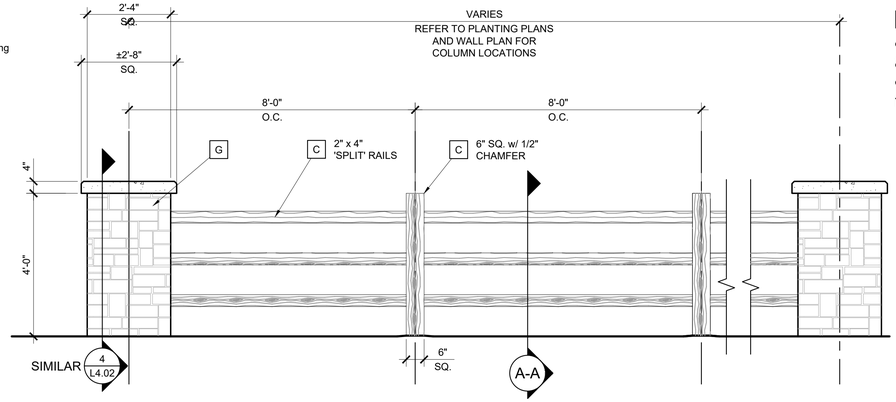
- Refer to structural for footing & reinforcing size / spacing

SECTION 'A'



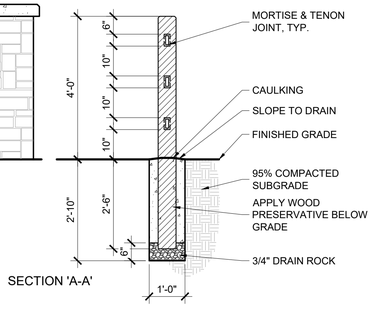
2 FESTOON LIGHTING POLE

SCALE: 3/8" = 1'-0"



NOTE:

- Refer to structural for footing size & depth & all reinforcing sizes and quantities.
- Refer to wall plan and planting plans for column locations



SECTION 'A-A'

1 4' HT 3-RAIL FENCE

SCALE: 1/2" = 1'-0"

HARDSCAPE SCHEDULE

A	ITEM	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	ITEM	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	ITEM	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	ITEM	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	ITEM	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S. McNICHOLS (www.mcnichols.com, 877.759.5128)
	MANUFACTURER	DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	ITEM	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	ITEM	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	SPECIFICATIONS	
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	ITEM	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	ITEM	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	ITEM	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	¾" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	ITEM	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-

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COLORADO 811 — THE NATIONAL NOTIFICATION CENTER

WILLOW BEND

FINAL PLAT

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1 -
2 -
3 -
4 -
5 -

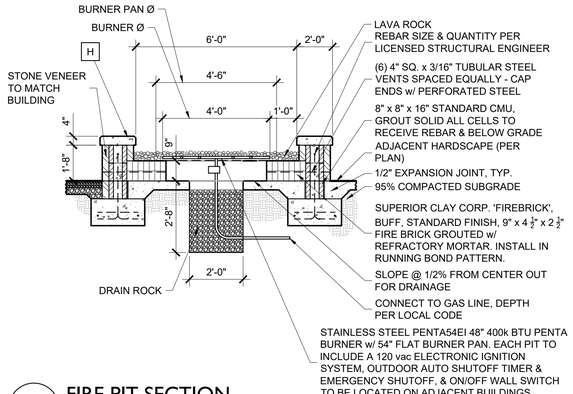
HARDSCAPE DETAILS

L4.02

SHEET 14 OF 88

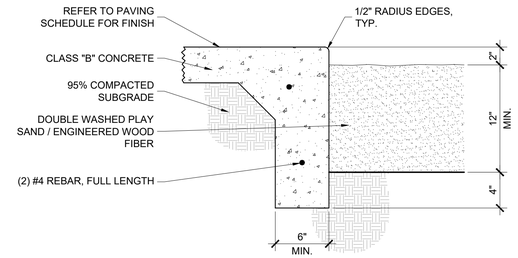
1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\IS-19001925-landscape\3-CD\3-SHEETS\1925-CD3-L4.01-L4.02.dwg



9 FIRE PIT SECTION

SCALE: 3/8" = 1'-0"

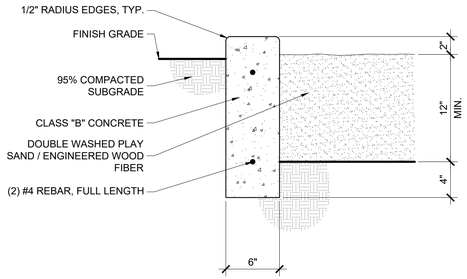


8 REINFORCED CONCRETE TURN DOWN

SCALE: 1 1/2" = 1'-0"

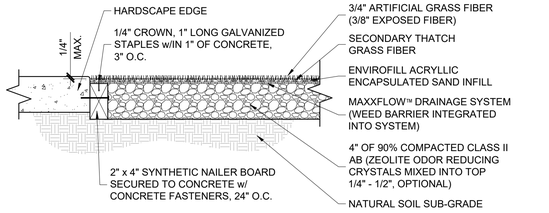
NOTE:

- Primary control joints occur @ 8'-0" O.C.
- Expansion joints to occur @ a max. spacing of 100'-0" O.C. and between all adjacent concrete surfaces.



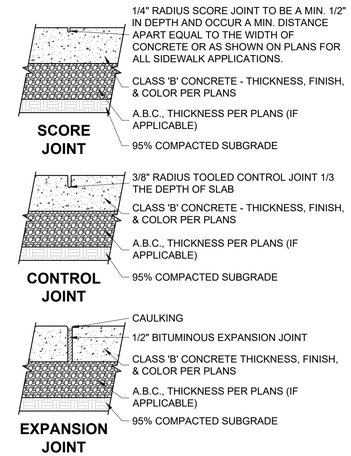
7 6"x18" REINFORCED CONCRETE HEADER

SCALE: 1 1/2" = 1'-0"



6 ARTIFICIAL TURF

SCALE: 1 1/2" = 1'-0"

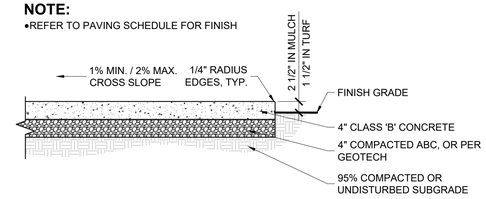


5 CONCRETE JOINTS

SCALE: 1 1/2" = 1'-0"

NOTE:

- REFER TO PAVING SCHEDULE FOR FINISH

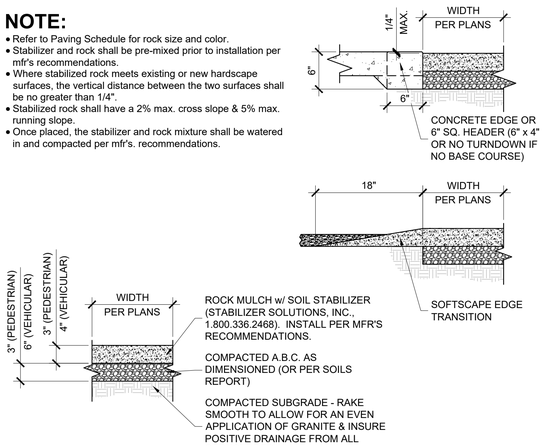


4 CONCRETE WALK

SCALE: 3/4" = 1'-0"

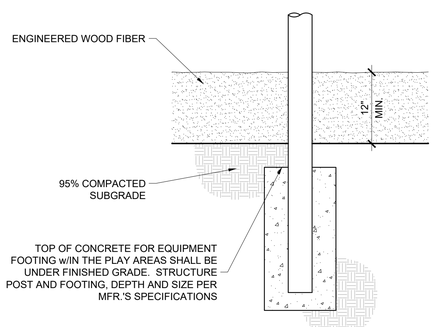
NOTE:

- Refer to Paving Schedule for rock size and color.
- Stabilizer and rock shall be pre-mixed prior to installation per mfr's recommendations.
- Where stabilized rock meets existing or new hardscape surfaces, the vertical distance between the two surfaces shall be no greater than 1/4".
- Stabilized rock shall have a 2% max. cross slope & 5% max. running slope.
- Once placed, the stabilizer and rock mixture shall be watered in and compacted per mfr's. recommendations.



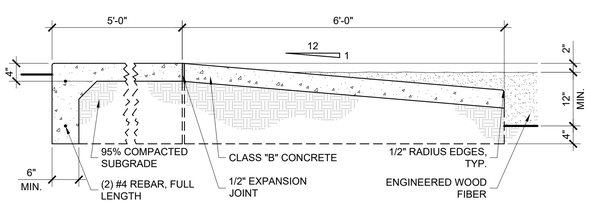
3 STABILIZED DECOMPOSED GRANITE

SCALE: NTS



2 CONCRETE FOOTING WITHIN PLAY AREA

SCALE: 1" = 1'-0"



1 ACCESSIBLE RAMP TO PLAY AREA

SCALE: 3/4" = 1'-0"

HARDSCAPE SCHEDULE

A	ITEM	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	ITEM	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	ITEM	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	ITEM	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	ITEM	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	McNICHOLS (www.mcnichols.com, 877.759.5128) DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	ITEM	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	ITEM	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE
	SPECIFICATIONS	STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	ITEM	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	ITEM	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	ITEM	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	3/8" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	ITEM	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-

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COLORADO 811 — www.colorado811.org

WILLOW BEND

FINAL PLAT

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS

1.
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4.
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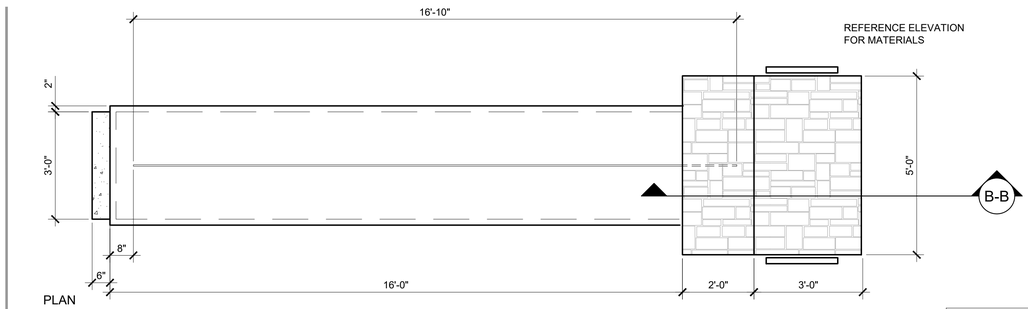
HARDSCAPE DETAILS

L4.03

SHEET 15 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\06-19001925-landscape\03-CD\3-SHEETS\19025-CD-L4.01-L4.02.dwg

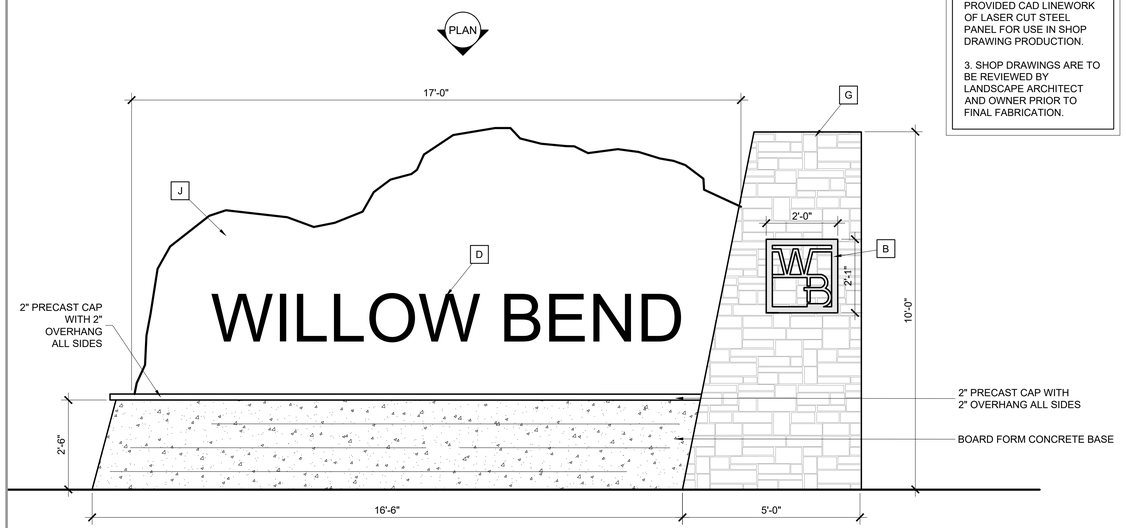


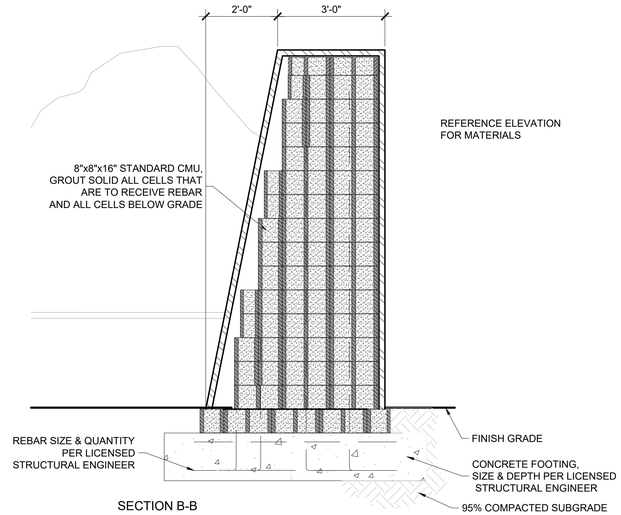
SIGN NOTES:

1. CONTRACTOR TO PROVIDE SIGNED AND SEALED STRUCTURAL DRAWINGS FOR ALL SIGNS.

2. CONTRACTOR WILL BE PROVIDED CAD LINEWORK OF LASER CUT STEEL PANEL FOR USE IN SHOP DRAWING PRODUCTION.

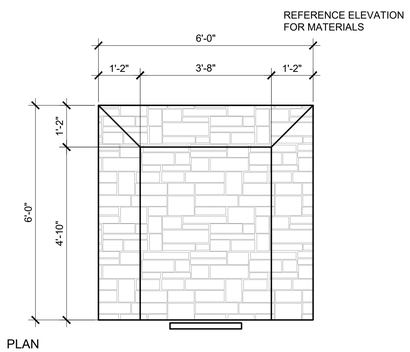
3. SHOP DRAWINGS ARE TO BE REVIEWED BY LANDSCAPE ARCHITECT AND OWNER PRIOR TO FINAL FABRICATION.

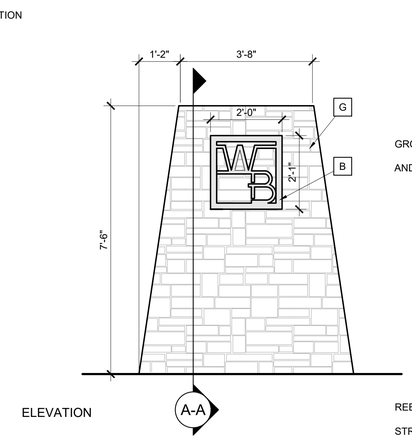


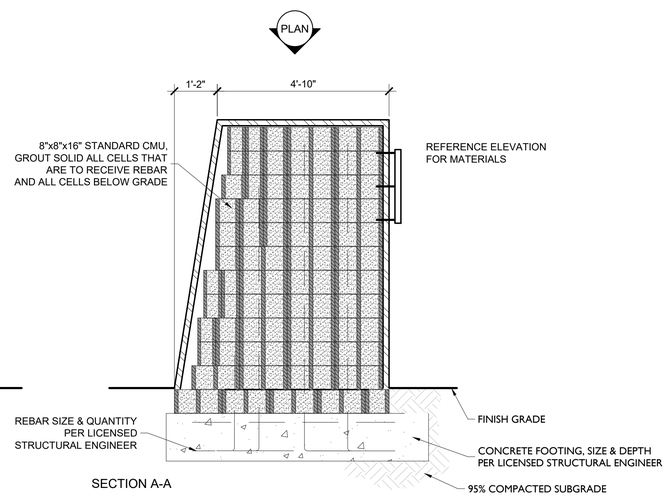


2 MEDIAN MONUMENT

SCALE: 1/2" = 1'-0"







1 CORNER MONUMENT 'B'

SCALE: 1/2" = 1'-0"

HARDSCAPE SCHEDULE

A	ITEM	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	ITEM	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	ITEM	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	ITEM	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	ITEM	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	McNICHOLS (www.mcnichols.com, 877.759.5128) DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	ITEM	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	ITEM	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE
	SPECIFICATIONS	STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	ITEM	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	ITEM	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	ITEM	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	¼" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	ITEM	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-

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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG. WE FLAG. IT'S THE LAW.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
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5

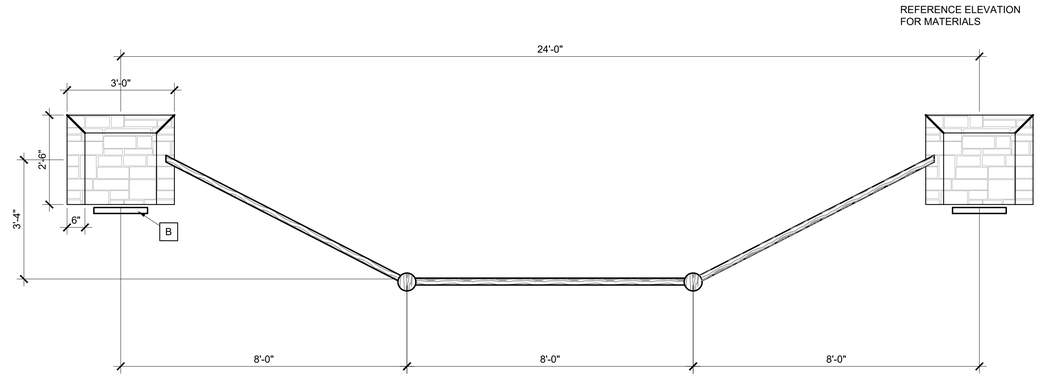
HARDSCAPE DETAILS

L4.04

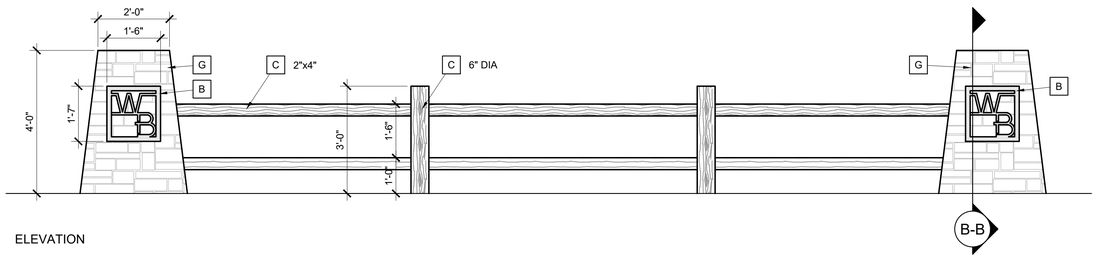
SHEET 16 OF 88

1ST SUBMITTAL

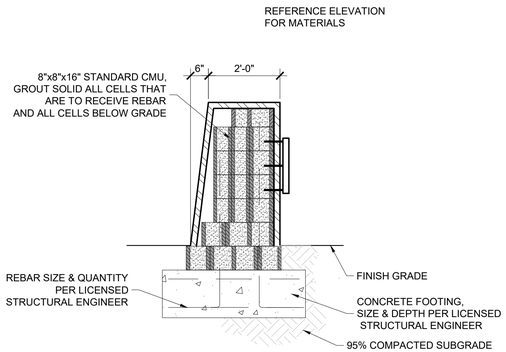
L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEET\S19251-CD-L4.01-L4.02.dwg



PLAN



ELEVATION



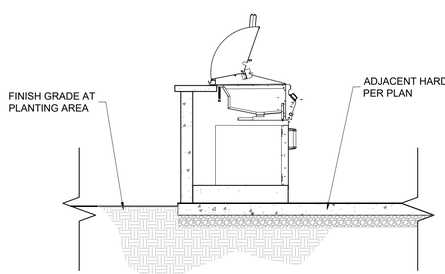
SECTION B-B

HARDSCAPE SCHEDULE

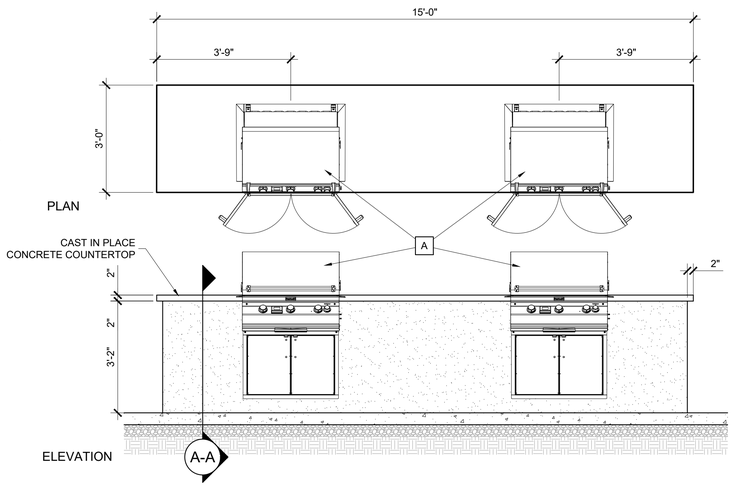
A	ITEM	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	ITEM	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	ITEM	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	ITEM	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	ITEM	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S. McNICHOLS (www.mcnichols.com, 877.759.5128)
	MANUFACTURER	DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	ITEM	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	ITEM	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE
	SPECIFICATIONS	STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	ITEM	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	ITEM	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	ITEM	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	¾" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	ITEM	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-

2 CORNER MONUMENT 'A'

SCALE: 1/2" = 1'-0"



SECTION A-A



ELEVATION

1 BBQ COUNTER

SCALE: 1/2" = 1'-0"

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Tel: 480.994.0994
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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
www.colorado811.org

WILLOW BEND

FINAL PLAT

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
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5.

HARDSCAPE DETAILS

L4.05

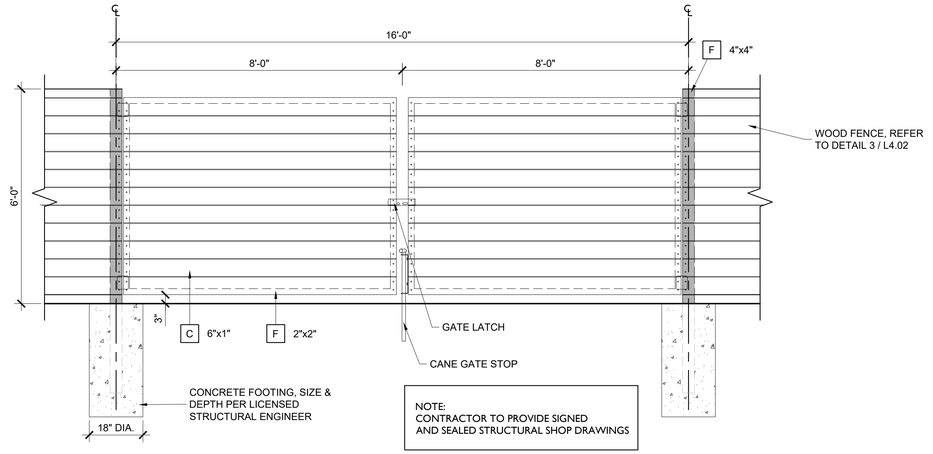
SHEET 17 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\11925-CD-L4.01-L4.02.dwg

HARDSCAPE SCHEDULE

A	**ITEM**	GAS BBQ GRILL
	COLOR	-
	FINISH	STAINLESS STEEL
	SPECIFICATIONS	MODEL BI-36 ESTATE SERIES ELITE BUILT IN GRILL, (2) DOUBLE ACCESS DOORS MODEL HD-I
	MANUFACTURER	CROWN VERITY (www.crownverity.com, 888-505-7240)
B	**ITEM**	STEEL LOGO PLAQUE PIN MOUNTED TO WALLS
	COLOR	-
	FINISH	POWDERCOAT
	SPECIFICATIONS	CUSTOM DESIGN
	MANUFACTURER	LOCAL SIGN MANUFACTURER
C	**ITEM**	CEDAR LUMBER
	COLOR	NATURAL
	FINISH	MILLED
	SPECIFICATIONS	SIZES PER PLANS & DETAILS. ALL LUMBER TO BE TREATED w/ CLEAR THOMPSON'S WATER SEALER, OR EQUAL.
	MANUFACTURER	LOCAL LUMBER SUPPLIER
D	**ITEM**	LETTERING
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	'WILLOW BEND' SHALL BE 2" DEEP FABRICATED ALUMINUM LETTERS w/ SOLID BACK PIN MOUNTED TO SIGN FACE. 'ARIAL' FONT FOR ALL TEXT. ALL HEIGHTS PER PLANS & DETAILS. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL SIGN MFR. DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
E	**ITEM**	WOVEN WIRE MESH
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	1.5" SQ. OPENING, CARBON STEEL, COLD ROLLED, INTERCRIMP WEAVE, 10 GAUGE (.135") WIRE Ø. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	McNICHOLS (www.mcnichols.com, 877.759.5128) DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
F	**ITEM**	TUBULAR STEEL
	COLOR	'BLACK' DEA002
	FINISH	FLAT PAINT
	SPECIFICATIONS	ALL SIZES PER PLANS & DETAILS. ALL TUBULAR STEEL ENDS SHALL BE CAPPED. ALL WELDS & SHARP CORNERS / EDGES SHALL BE GROUND SMOOTH. PRIME & PAINT PER PAINT MFR'S. SPEC'S.
	MANUFACTURER	LOCAL STEEL SUPPLIER DUNN EDWARDS (www.dunnedwards.com, 800.DE.PAINT)
G	**ITEM**	STONE VENEER
	COLOR	'GREYCLIFFE'
	FINISH	ROCKY MOUNTAIN LEDGE
	SPECIFICATIONS	STONE VENEER w/ GRAY MORTAR AND TIGHT FITTING JOINTS. INSTALL w/ SELF-FURRED GALVANIZED EXPANDED METAL LATHE PER MFR. SPEC'S.
	MANUFACTURER	CORONADO STONE (www.coronado.com, 719.470.7381)
H	**ITEM**	PRECAST CONCRETE CAP
	COLOR	NATURAL GRAY
	FINISH	SMOOTH
	SPECIFICATIONS	SIZE PER PLANS & DETAILS. TOP EDGE SHALL HAVE 3/4" CHAMFER.
	MANUFACTURER	LOCAL SUPPLIER
I	**ITEM**	SMOOTH FACE BLOCK
	COLOR	T.B.D.
	FINISH	NA
	SPECIFICATIONS	ALL BLOCK SIZES PER PLANS & DETAILS. JOINTS SHALL BE CONCAVE.
	MANUFACTURER	LOCAL SUPPLIER
J	**ITEM**	STEEL PANEL
	COLOR	'RUST TEXTURE' T091-BR47
	FINISH	POWDERCOAT
	SPECIFICATIONS	$\frac{1}{4}$" THICK, TOP EDGE SHALL BE LASER CUT FOR IRREGULAR EDGE. CLEAN, PREP AND POWDERCOAT PER MFR. SPEC'S.
	MANUFACTURER	CARDINAL (www.cardinal paint.com, 303-286-1876)
K	**ITEM**	-
	COLOR	-
	FINISH	-
	SPECIFICATIONS	-
	MANUFACTURER	-



I MAINTENANCE YARD - VEHICULAR GATE

SCALE: 1/2" = 1'-0"

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03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
WWW.NOTIFYCOLORADO.ORG

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

HARDSCAPE DETAILS

L4.06

SHEET 18 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L4.01-L4.02.dwg

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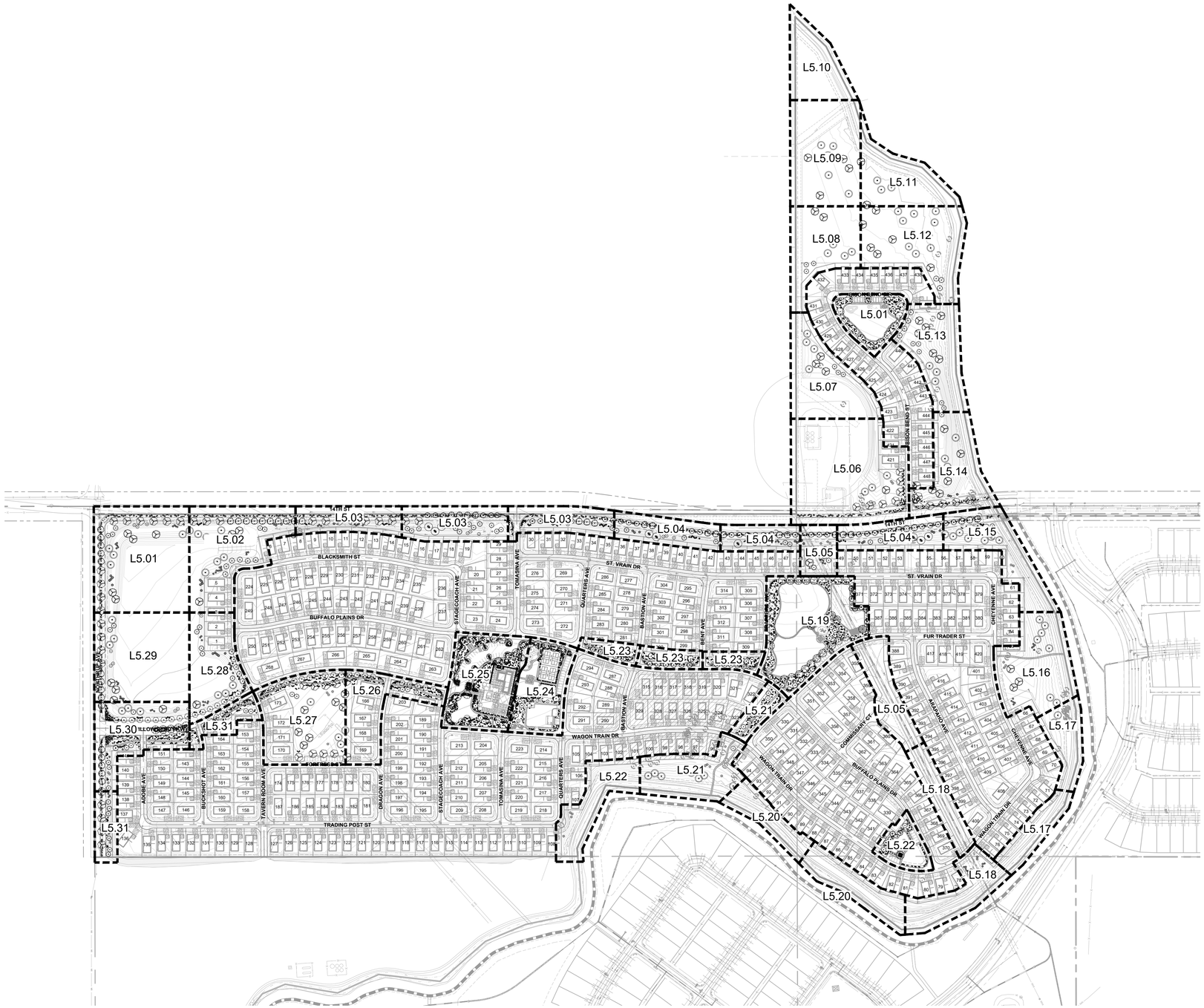
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO



0 100' 200' 400'
SCALE: 1" = 200'-0"

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

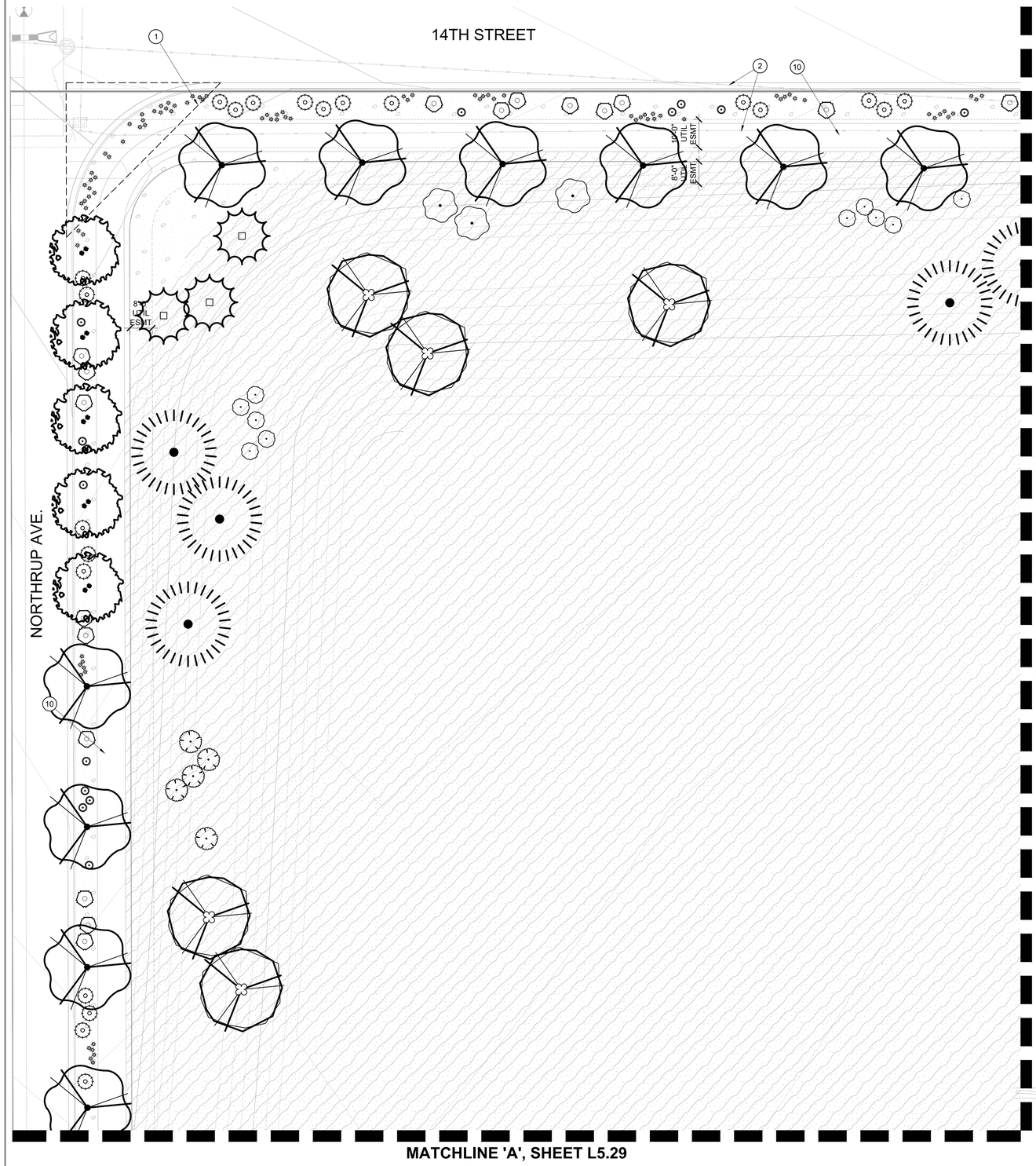
PLANTING REFERENCE PLAN

L5.00

SHEET 19 OF 88

1ST SUBMITTAL

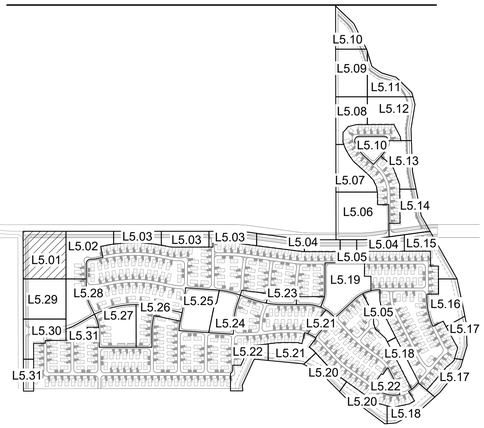
L:\19001925-Fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEET\5-19001925-CD-L5.00.dwg



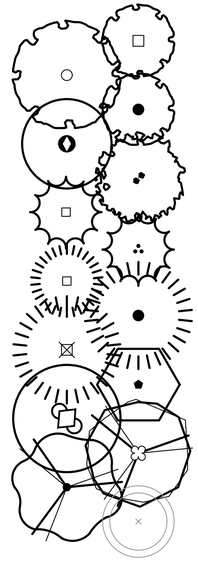
LANDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
2. UTILITIES, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
3. FIRE HYDRANT - TREES AND SHRUBS TO MAINTAIN A 3'-0" CLEARANCE
4. DRAINAGE SWALE, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
5. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
6. POOL BARRIER FENCE & GATE, REFER TO DETAIL 5 / L4.02
7. PRIVACY FENCE, REFER TO DETAIL 3 / L4.02
8. SPLIT RAIL FENCE, REFER TO DETAIL 1 / L4.02
9. ACCESS DRIVE, REFER TO ENGINEERING PLANS FOR MORE INFORMATION
10. SIDEWALK, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
11. SPLIT RAIL FENCE COLUMN, REFER TO DETAIL 1 / L4.02
12. OPEN SPACE SIDEWALK, REFER TO PAVING SCHEDULE
13. STEEL EDGE, REFER TO DETAIL 8 / L6.01
14. STABILIZED DG TRAIL, REFER TO PAVING SCHEDULE
15. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

KEY MAP



LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

Fraxinus americana `Autumn Purple`
AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

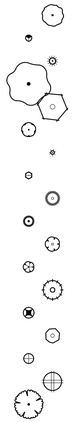
Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM



GROUNDCOVER
BOTANICAL / COMMON NAME

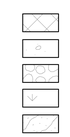
Juniperus sabina `Buffalo`
BUFFALO JUNIPER



PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME



UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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COLORADO 811
THINK BEFORE YOU DIG

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

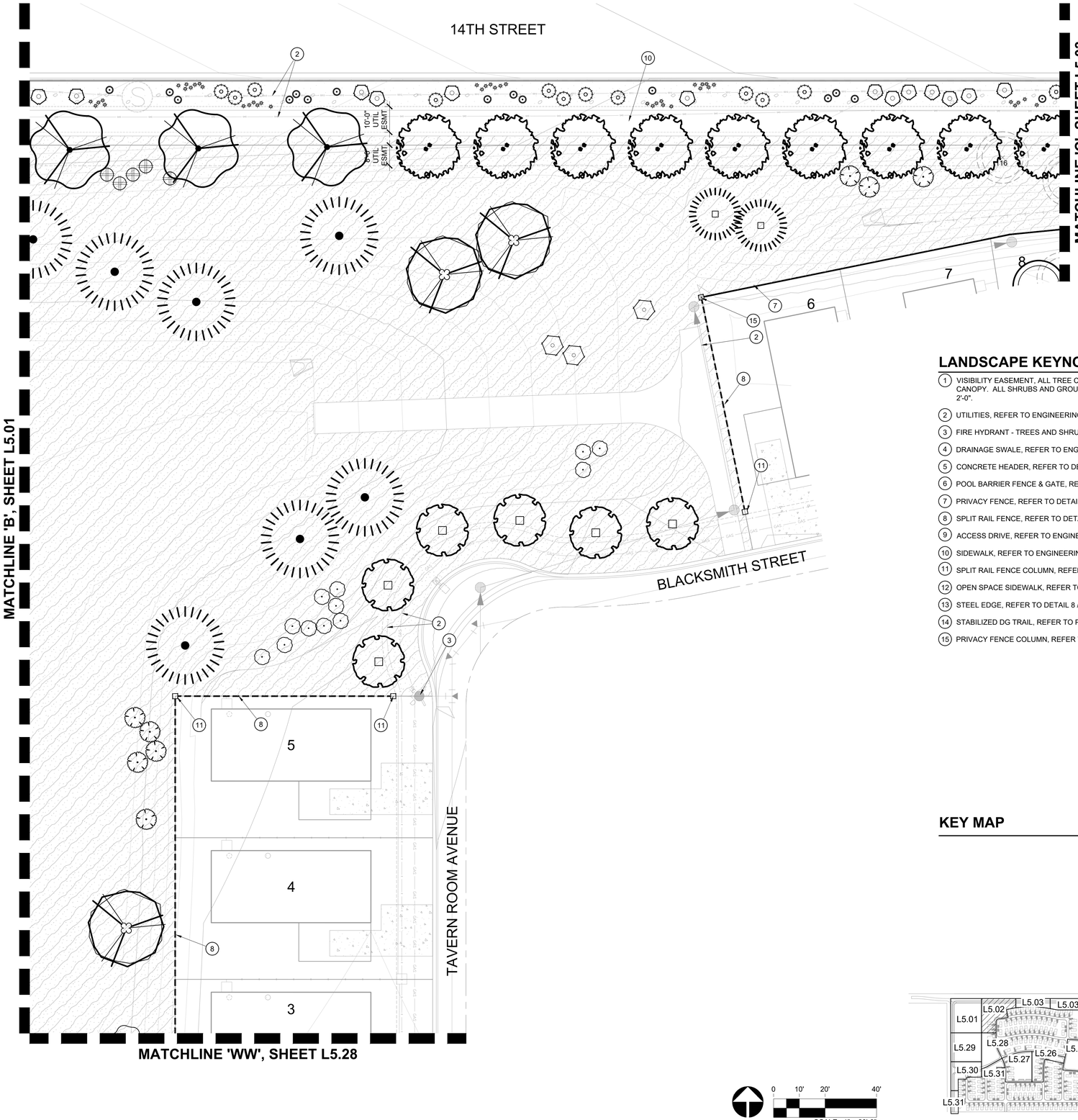
PLANTING PLAN

L5.01

SHEET 20 OF 88

1ST SUBMITTAL

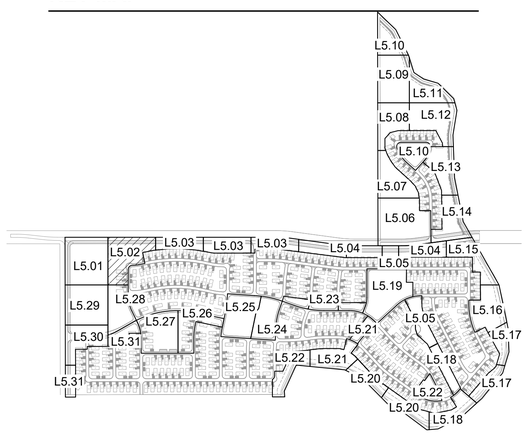
L:\19001925-fulton ranch (fort lupton)\06-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg



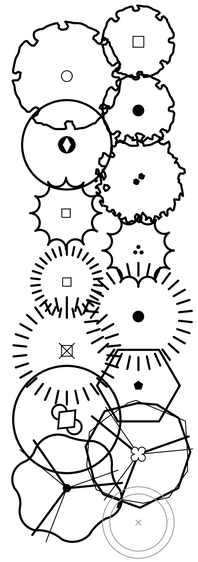
LANDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
2. UTILITIES, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
3. FIRE HYDRANT - TREES AND SHRUBS TO MAINTAIN A 3'-0" CLEARANCE
4. DRAINAGE SWALE, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
5. CONCRETE HEADER, REFER TO DETAIL 6 / L6.01
6. POOL BARRIER FENCE & GATE, REFER TO DETAIL 5 / L4.02
7. PRIVACY FENCE, REFER TO DETAIL 3 / L4.02
8. SPLIT RAIL FENCE, REFER TO DETAIL 1 / L4.02
9. ACCESS DRIVE, REFER TO ENGINEERING PLANS FOR MORE INFORMATION
10. SIDEWALK, REFER TO ENGINEERING PLANS FOR MORE INFORMATION.
11. SPLIT RAIL FENCE COLUMN, REFER TO DETAIL 1 / L4.02
12. OPEN SPACE SIDEWALK, REFER TO PAVING SCHEDULE
13. STEEL EDGE, REFER TO DETAIL 8 / L6.01
14. STABILIZED DG TRAIL, REFER TO PAVING SCHEDULE
15. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

KEY MAP



LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

Fraxinus americana `Autumn Purple`
AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

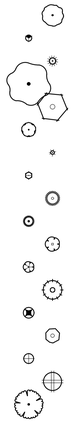
Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM



GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER



PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

0 10' 20' 40'
SCALE: 1" = 20'-0"

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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
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LICENSED LANDSCAPE ARCHITECT

COLORADO 811

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

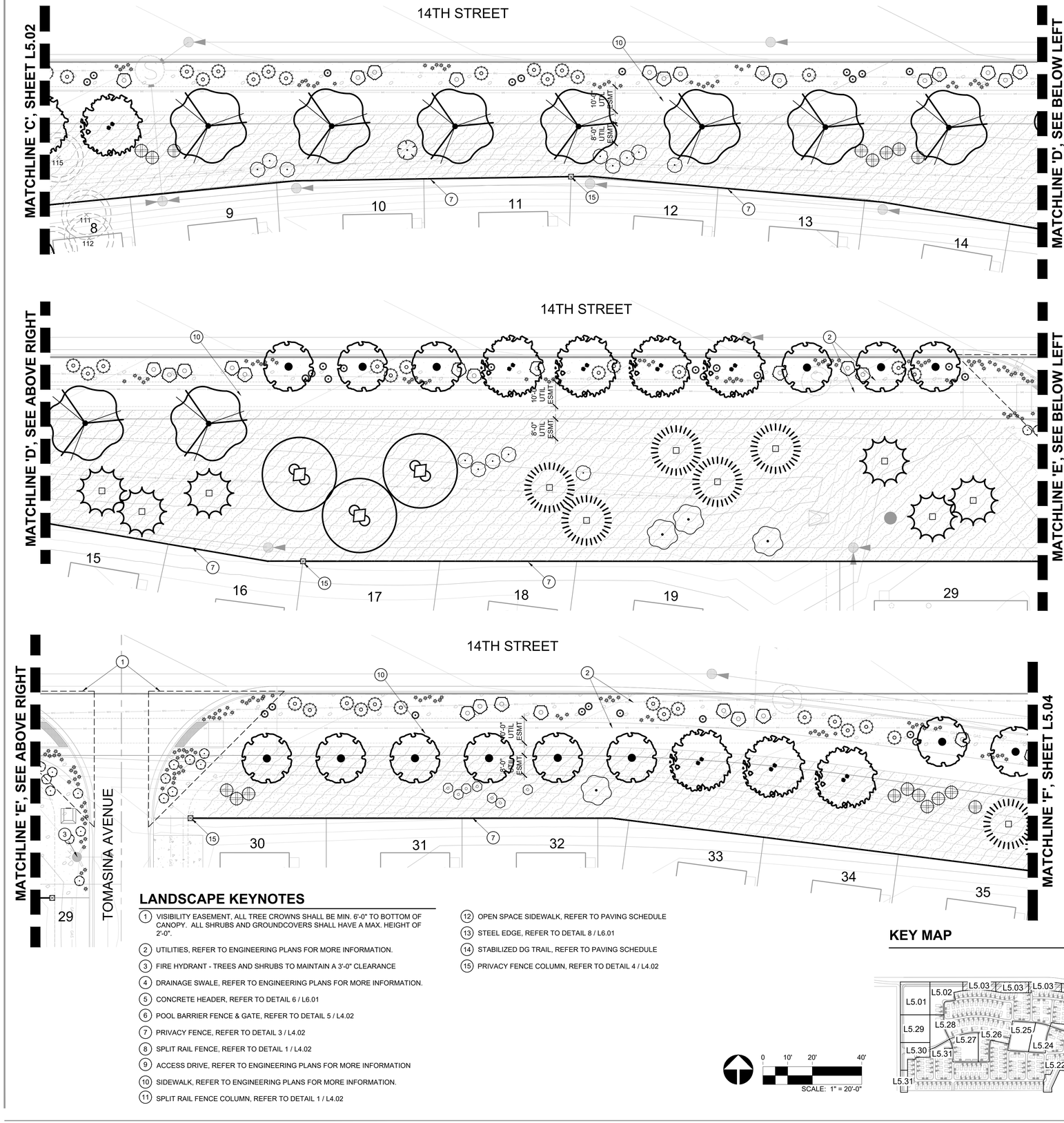
PLANTING PLAN

L5.02

SHEET 21 OF 88

1ST SUBMITTAL

L:\19001925-Adon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\19025-CD-L5.01-L5.10.dwg



LANDSCAPE KEYNOTES

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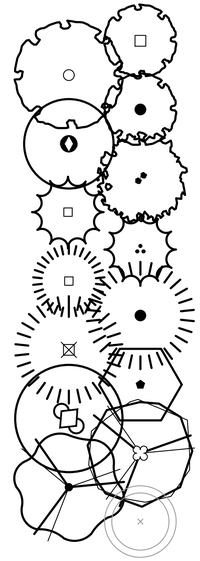
SCALE: 1" = 20'-0"

KEY MAP

LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

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AMUR MAPLE

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NORWAY MAPLE

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HOT WINGS TATARIAN MAPLE

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GOLDEN RAIN TREE

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Existing Tree
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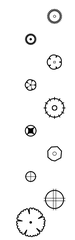

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BRILLIANT RED CHOKEBERRY
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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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COLORADO 811
UNCOVERING STRUCTURES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

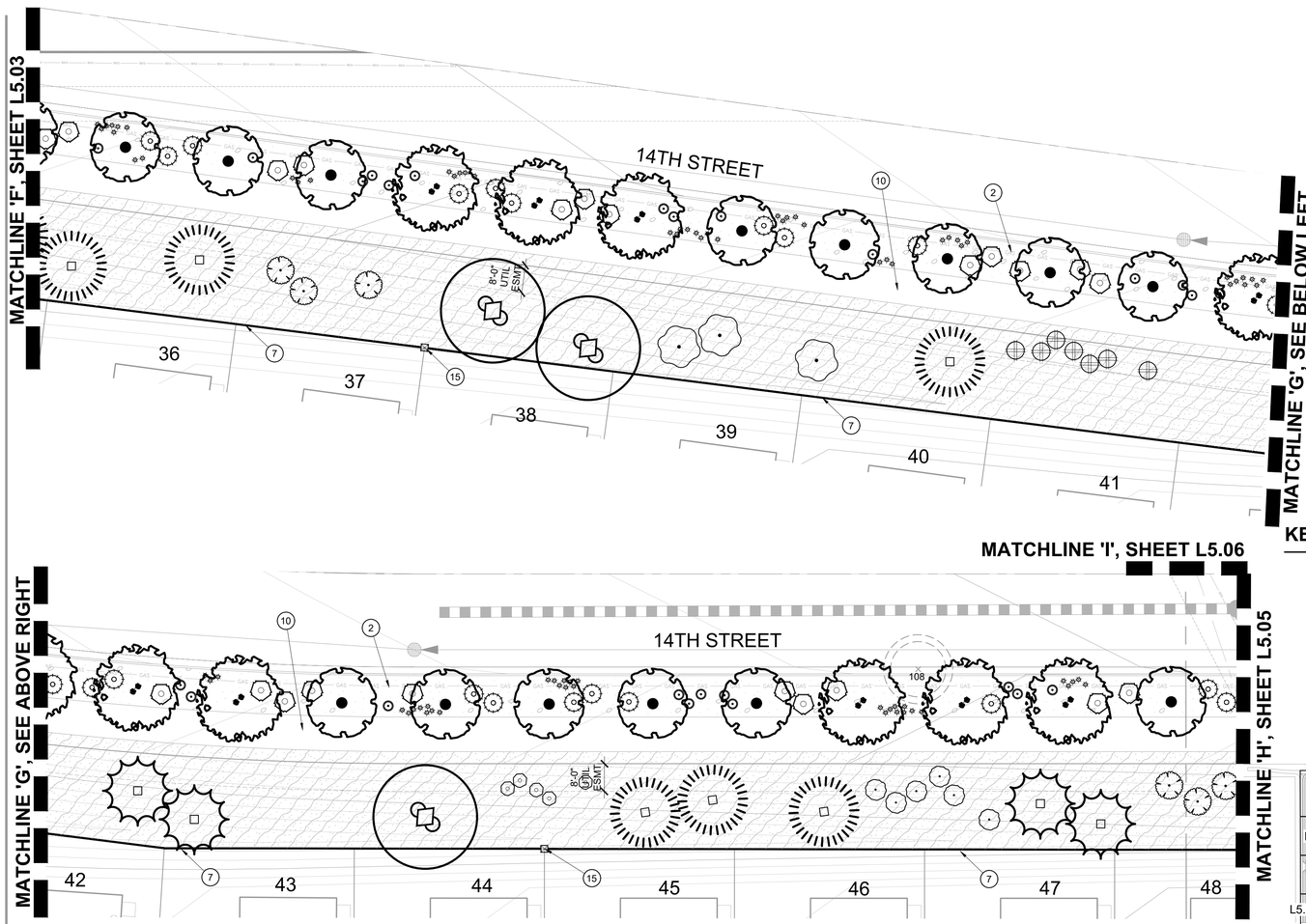
PLANTING PLAN

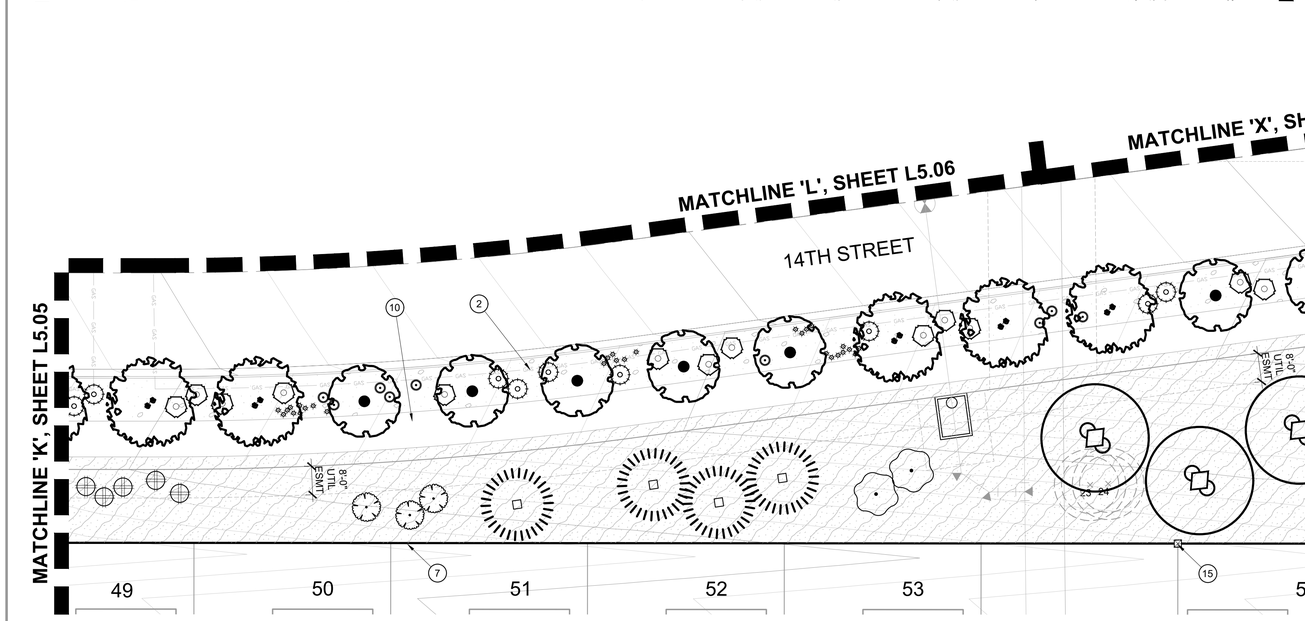
L5.03

SHEET 22 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg





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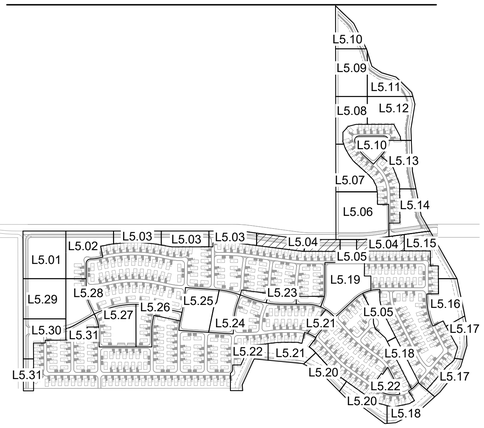
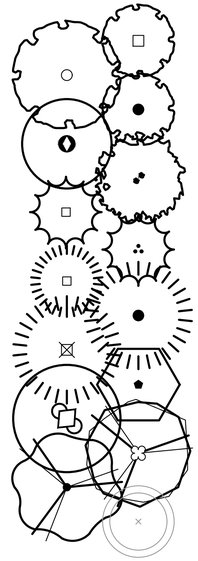


LANDSCAPE MATERIAL SCHEDULE



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FESCUE BLEND

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441
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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
UNDERGROUND FACILITIES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

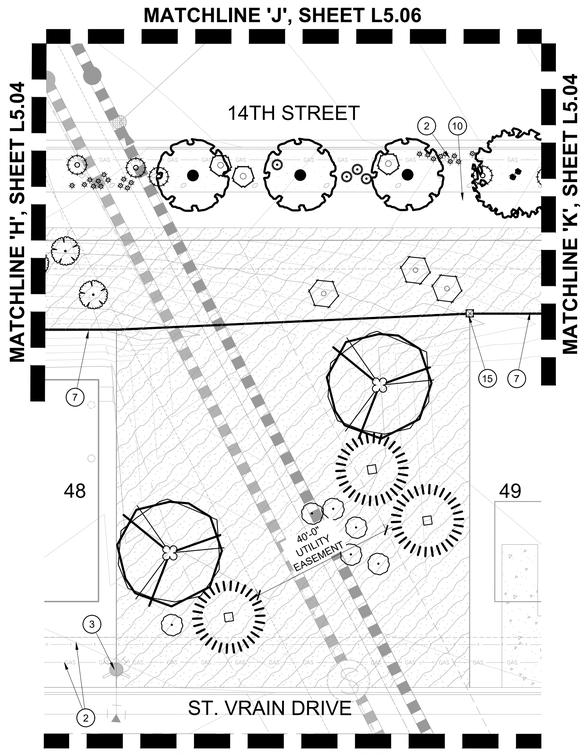
PLANTING PLAN

L5.04

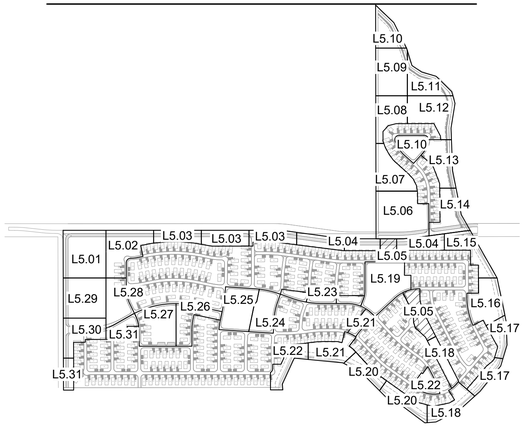
SHEET 23 OF 88

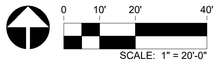
1ST SUBMITTAL

L:\19001925-Fulton ranch (fort lupton)\05-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg



KEY MAP





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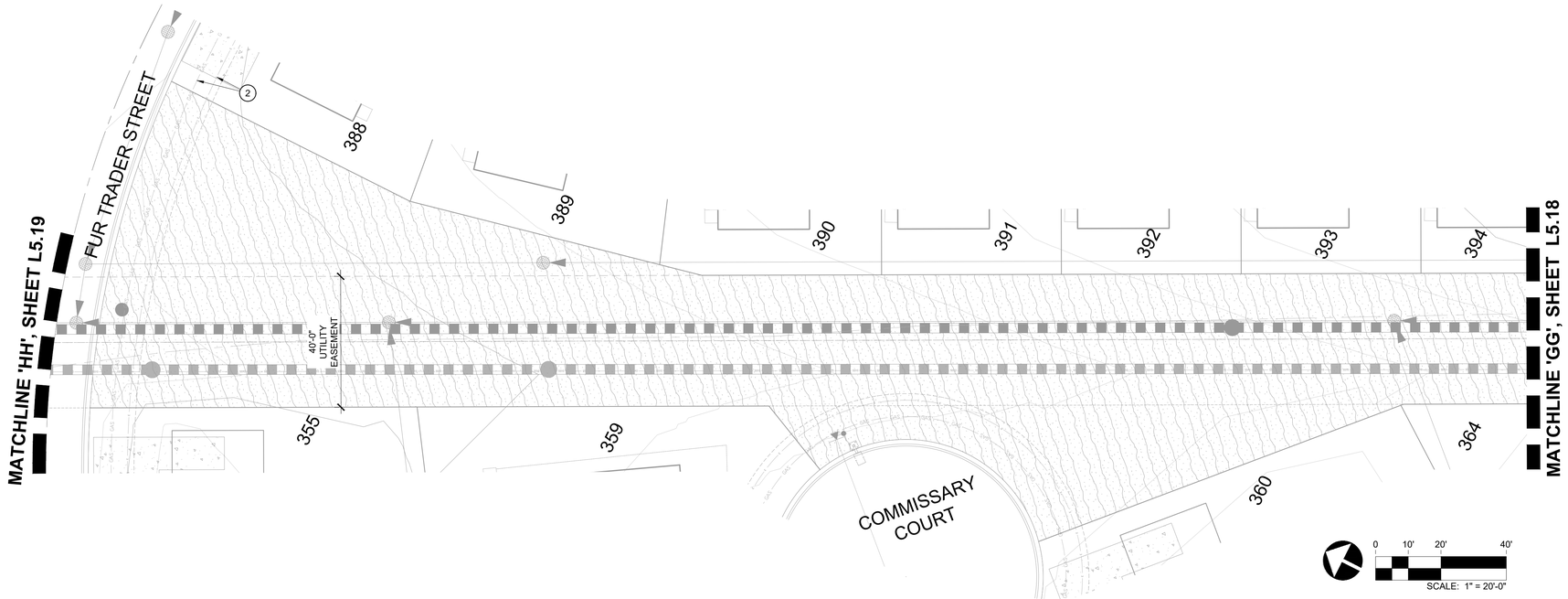
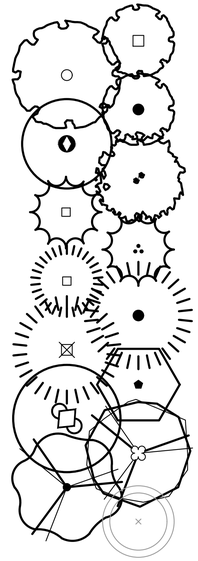


LANDSCAPE MATERIAL SCHEDULE



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COLORADO 811 THINK BEFORE YOU DIG

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

L5.05

SHEET 24 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg

MATCHLINE 'N', SHEET L5.07

422

421

421

BISON BEND ST.

8'-0" UTIL ESMT.

8'-0" UTIL ESMT.

19

20

21

22

MATCHLINE 'M', SHEET L5.14

14TH STREET

MATCHLINE 'L', SHEET L5.04

MATCHLINE 'I', SHEET L5.04

MATCHLINE 'J', SHEET L5.05

0 10' 20' 40'

SCALE: 1" = 20'-0"

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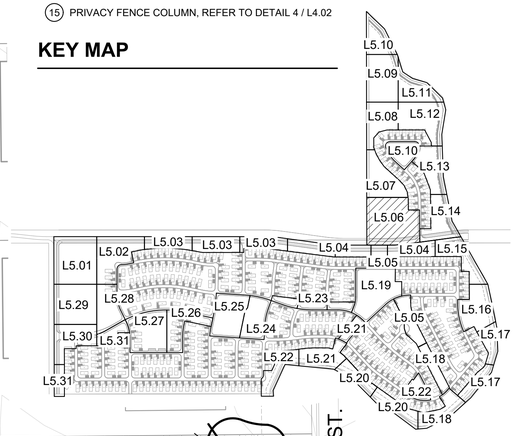

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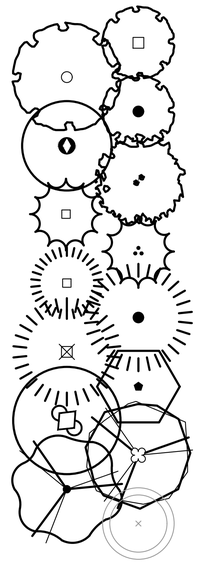

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BUFFALO JUNIPER

PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

RVi
120 S. Ash Avenue
Tempe, Arizona 85281
Tel: 480.994.0994
www.rviplanning.com

DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THINK BEFORE YOU DIG

WILLOW BEND

FINAL PLAT

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

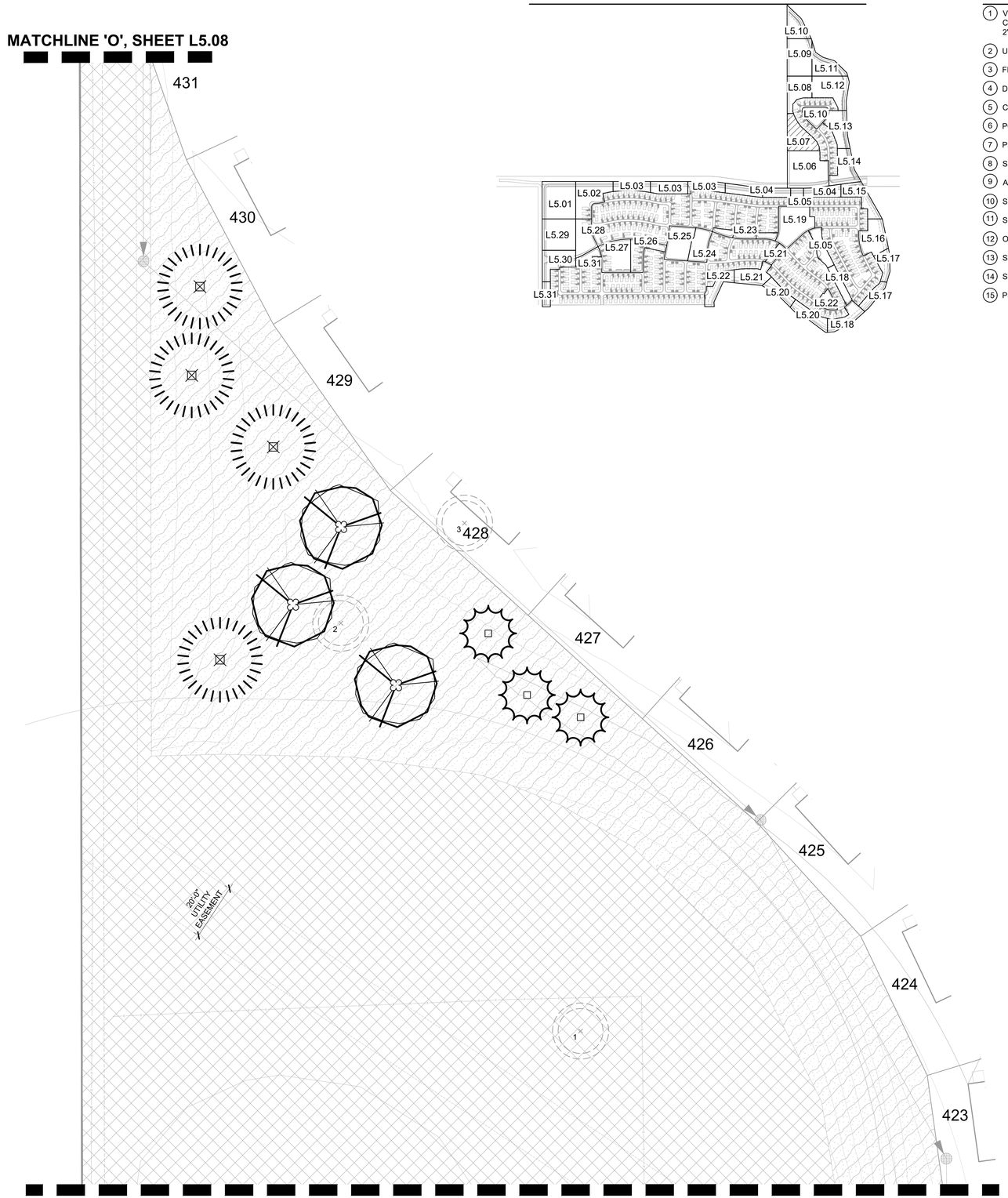
PLANTING PLAN

L5.06

SHEET 25 OF 88

1ST SUBMITTAL

L:\19001925-Ulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\19025-CD-L5.01-L5.10.dwg



KEY MAP

LANDSCAPE KEYNOTES

1. VISIBILITY EASEMENT, ALL TREE CROWNS SHALL BE MIN. 6'-0" TO BOTTOM OF CANOPY. ALL SHRUBS AND GROUNDCOVERS SHALL HAVE A MAX. HEIGHT OF 2'-0".
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14. STABILIZED DG TRAIL, REFER TO PAVING SCHEDULE
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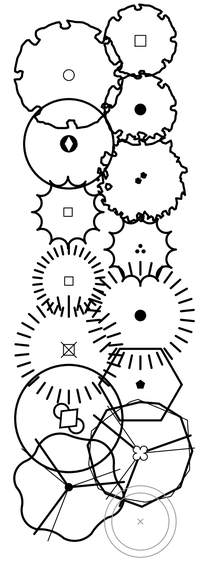
LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

Fraxinus americana `Autumn Purple`
AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED

SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
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DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
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GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
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ANTHONY WATERER SPIREA
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MOHICAN WAYFARING VIBURNUM

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MISCELLANEOUS
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UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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SCALE: 1" = 20'-0"

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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

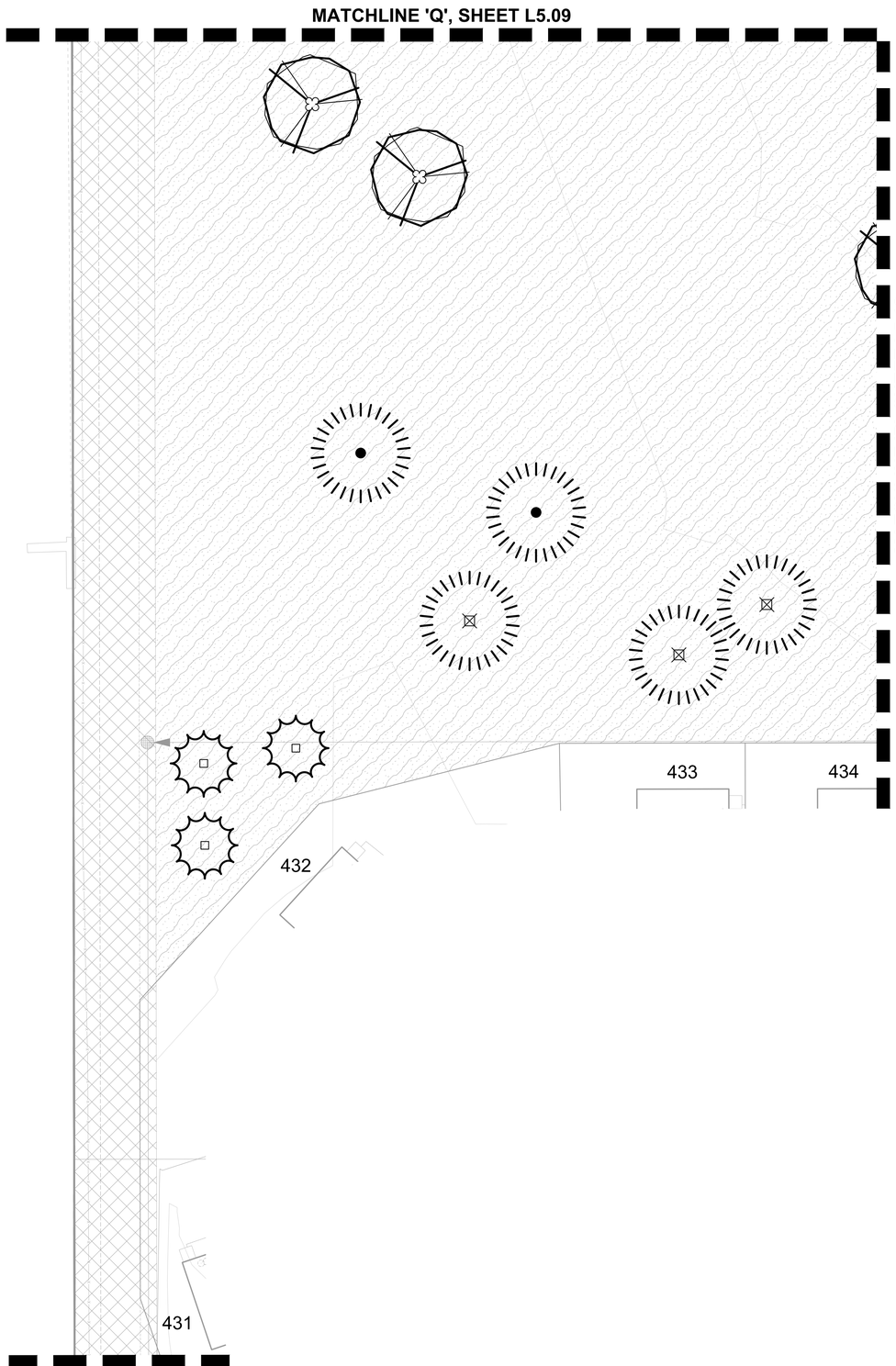
PLANTING PLAN

L5.07

SHEET 26 OF 88

1ST SUBMITTAL

L:\19001925-Adlon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L-01\L5.01\L5.10.dwg



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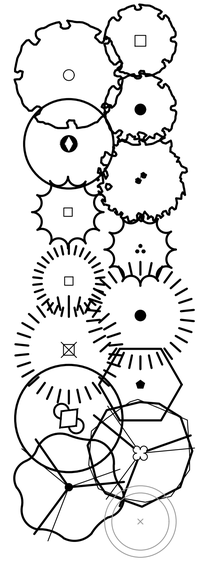
LANDSCAPE MATERIAL SCHEDULE



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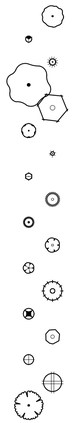

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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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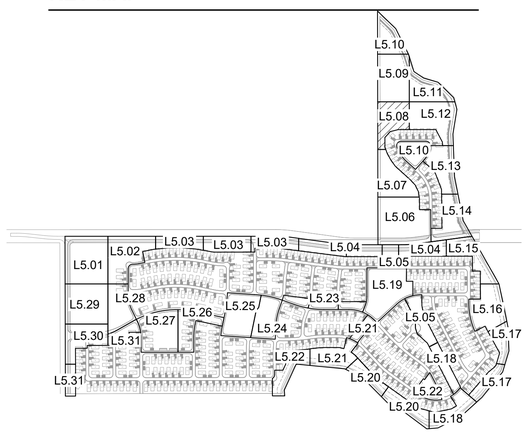
KEY MAP



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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG. WE LOCATE. IT'S THE LAW.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

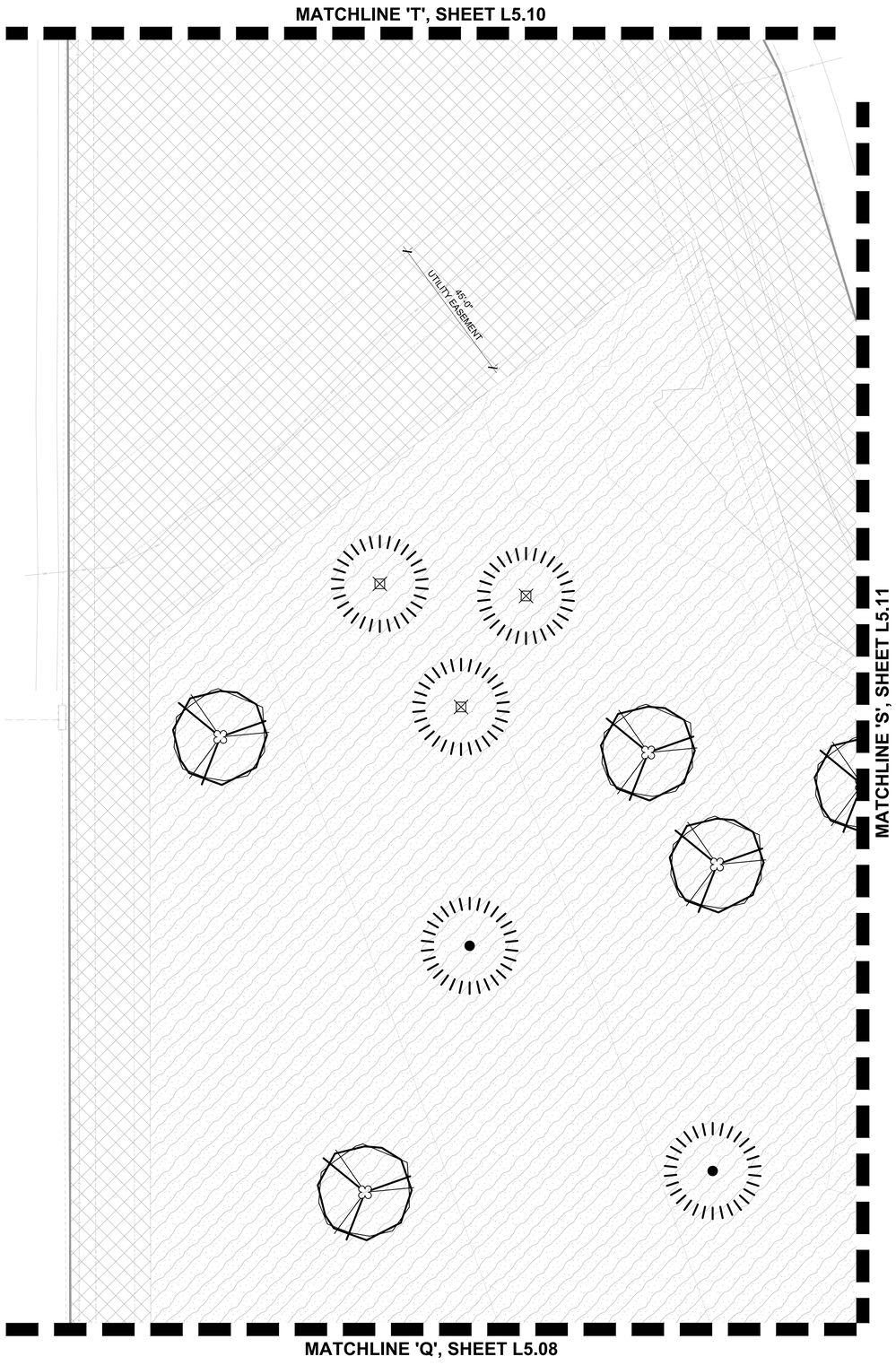
PLANTING PLAN

L5.08

SHEET 27 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\E-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg



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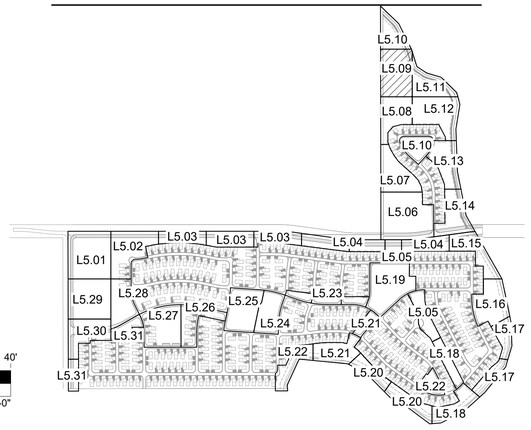
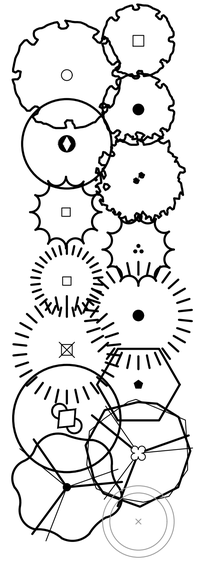


LANDSCAPE MATERIAL SCHEDULE



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Existing Tree
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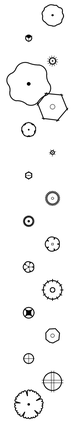

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441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
UTILITY NOTIFICATION CENTER, INC.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

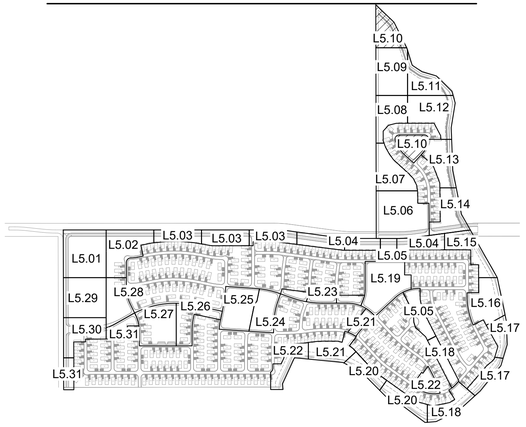
L5.09

SHEET 28 OF 88

1ST SUBMITTAL

L:\19001925-Fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.01-L5.10.dwg

KEY MAP



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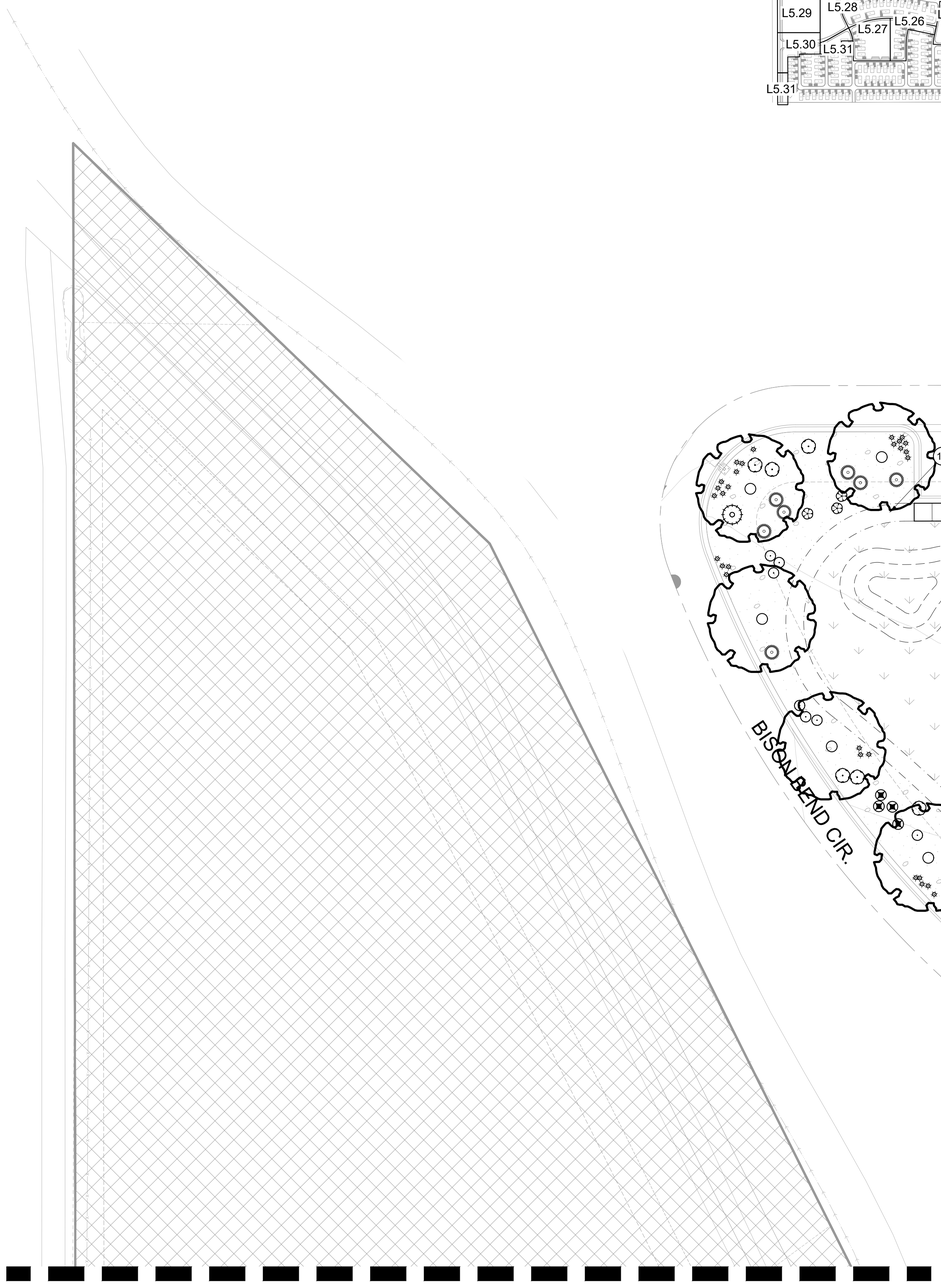

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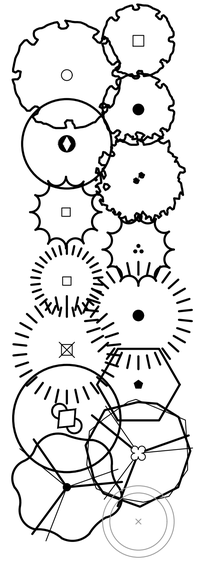

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MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM

GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER

PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

RVi
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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG WE FLAG IT. IT'S FREE.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

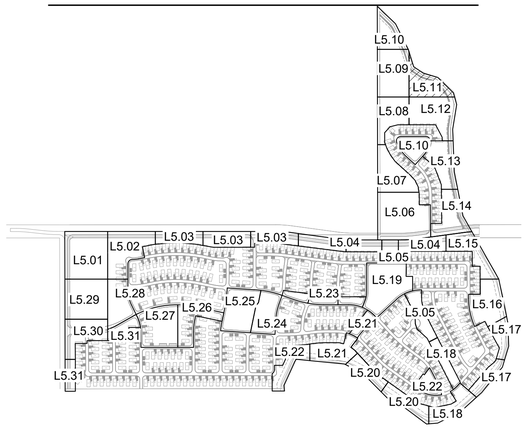
L5.10

SHEET 29 OF 88

1ST SUBMITTAL

L:\19001925-Ault\on ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\19025-CD-L5.01-L5.10.dwg

KEY MAP



LANDSCAPE KEYNOTES

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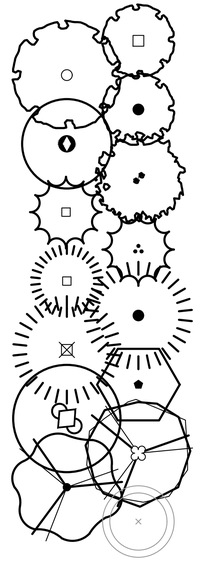
LANDSCAPE MATERIAL SCHEDULE



TREES
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Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

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AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
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Pinus edulis
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Pinus nigra
AUSTRIAN BLACK PINE

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Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



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Bouteloua gracilis
BLUE GRAMA GRASS
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MISCELLANEOUS
BOTANICAL / COMMON NAME

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ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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0 10' 20' 40'
SCALE: 1" = 20'-0"

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COLORADO 811
YOU DIG! WE'LL LOCATE!

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

L5.11

SHEET 30 OF 88

1ST SUBMITTAL

L:\19001925-Allen ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg

MATCHLINE 'R', SHEET L5.11

MATCHLINE 'P', SHEET L5.08

434 435 436 437 438 439

4 5 6 7 8

MATCHLINE 'U', SHEET L5.13

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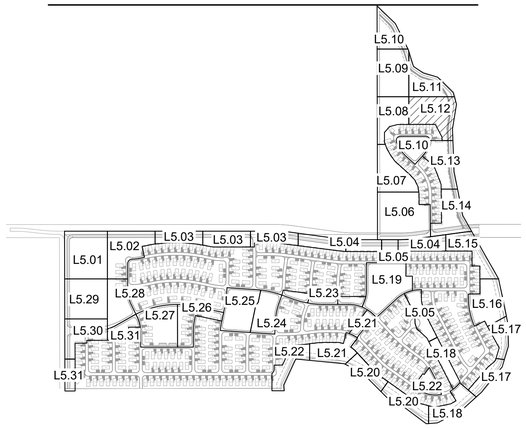
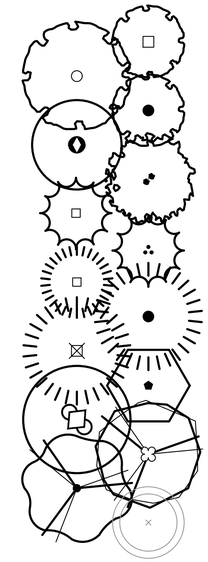
KEY MAP



LANDSCAPE MATERIAL SCHEDULE



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Quercus gambelii
GAMBLE OAK

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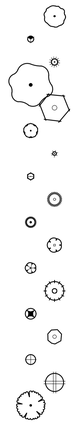
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



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BOTANICAL / COMMON NAME

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BRILLIANT RED CHOKEBERRY
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GROUNDCOVER
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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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0 10' 20' 40'
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03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

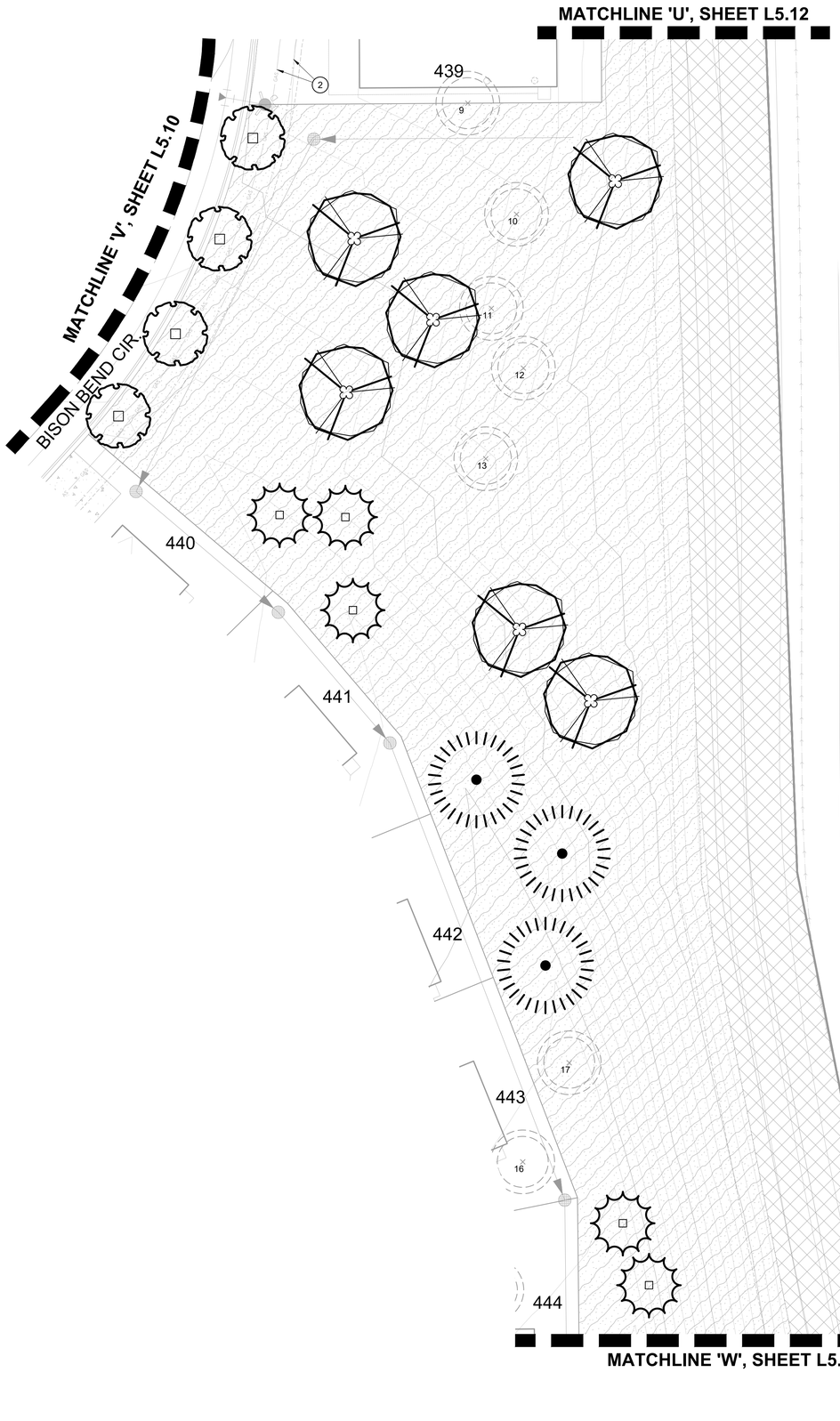
PLANTING PLAN

L5.12

SHEET 31 OF 88

1ST SUBMITTAL

L:\1900\1925-Fulton ranch (fort lupton)\E-1900\1925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



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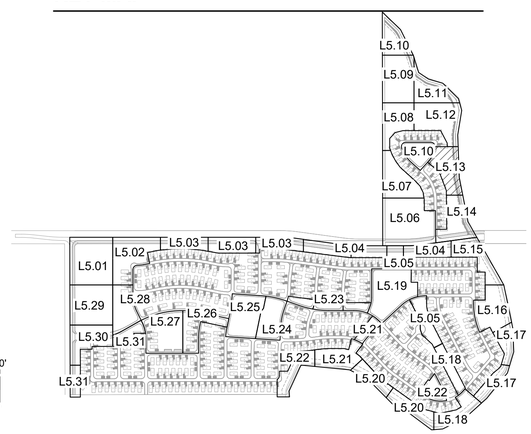
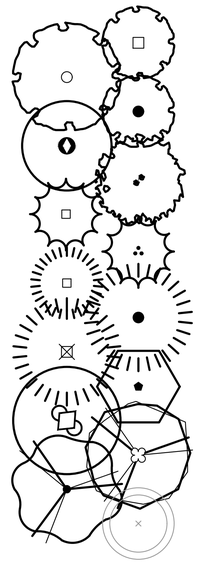
KEY MAP



LANDSCAPE MATERIAL SCHEDULE



TREES
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NORWAY MAPLE

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HOT WINGS TATARIAN MAPLE

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Existing Tree
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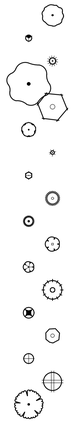

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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

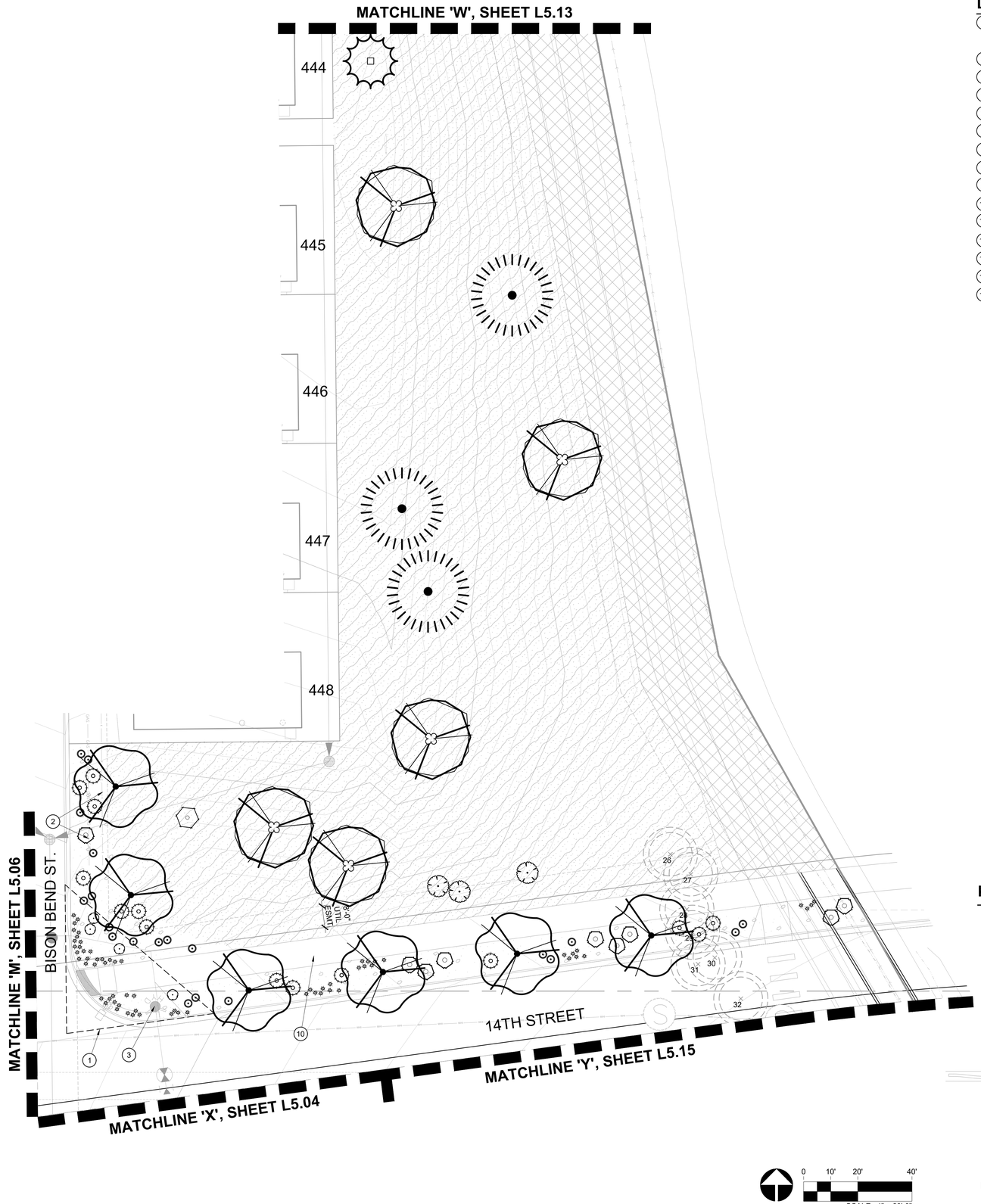
PLANTING PLAN

L5.13

SHEET 32 OF 88

1ST SUBMITTAL

L:\19001925-Ault\on ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



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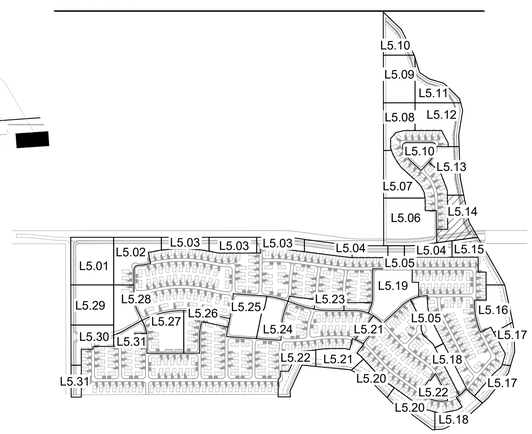
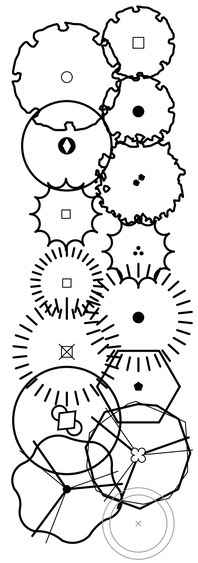


LANDSCAPE MATERIAL SCHEDULE



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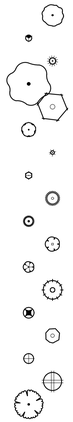
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM

GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER

PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

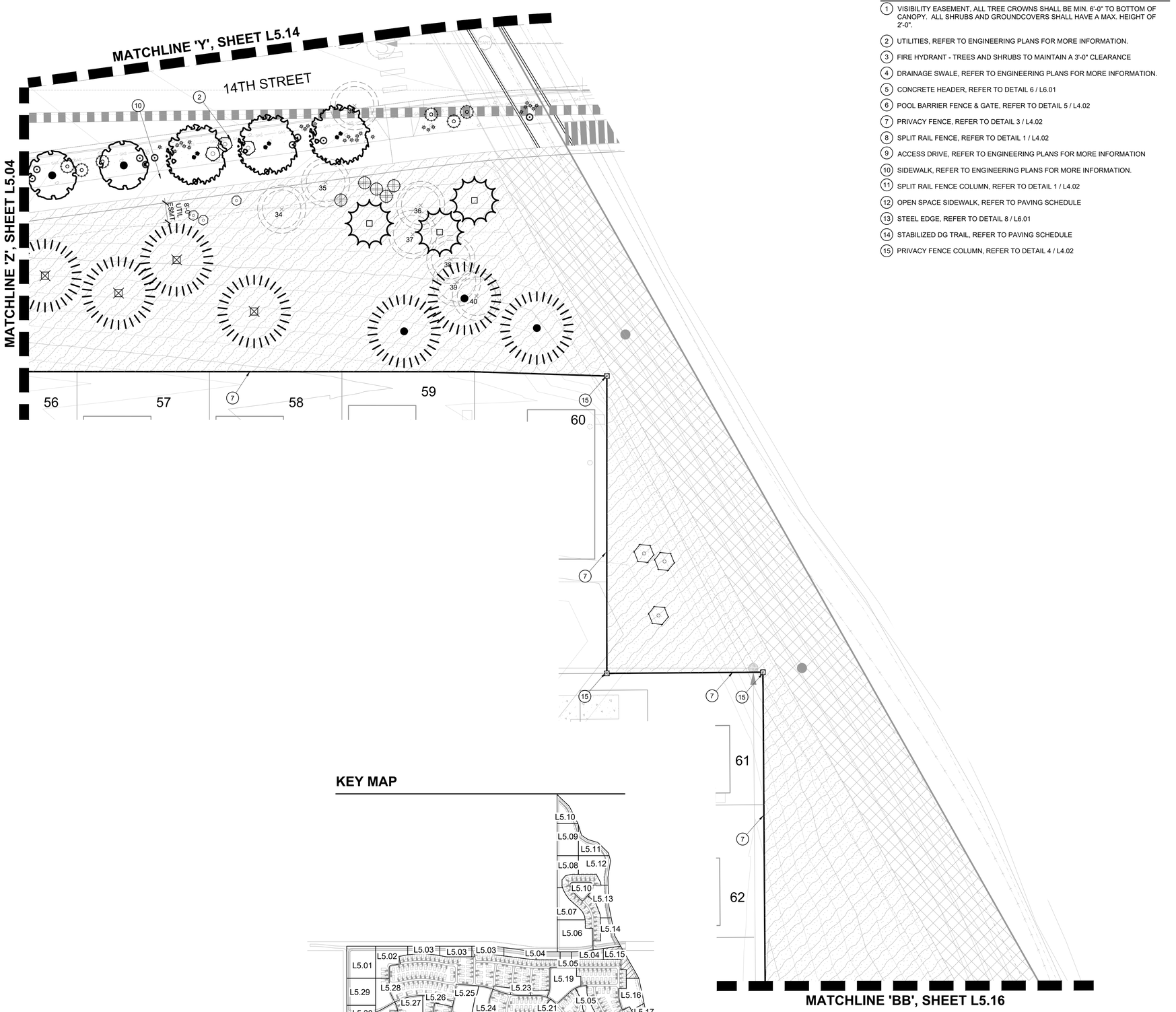
PLANTING PLAN

L5.14

SHEET 33 OF 88

1ST SUBMITTAL

L:\19001925-Ulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\19025-CD-L5.11-L5.20.dwg



KEY MAP

LANDSCAPE KEYNOTES

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14. STABILIZED DG TRAIL, REFER TO PAVING SCHEDULE
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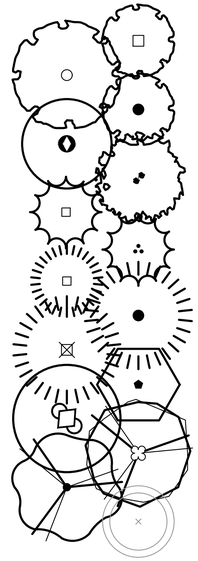
LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

Fraxinus americana `Autumn Purple`
AUTUMN PURPLE ASH

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GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

Prunus cerasifera
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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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0 10' 20' 40'
SCALE: 1" = 20'-0"

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COLORADO 811
THINK BEFORE YOU DIG

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
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DRAWN:	KWN/MB
REVIEWED:	BG/DC

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2
3
4
5

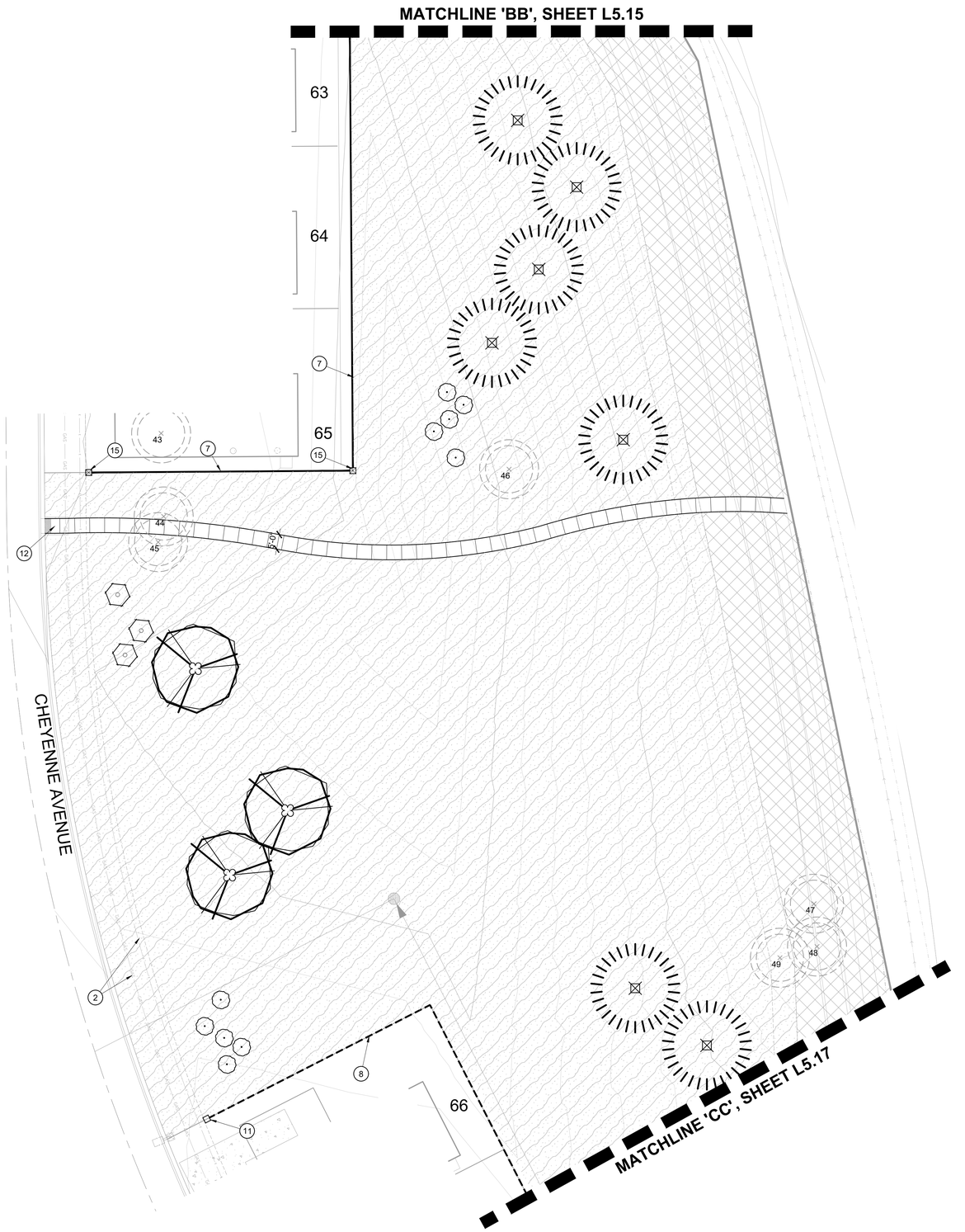
PLANTING PLAN

L5.15

SHEET 34 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



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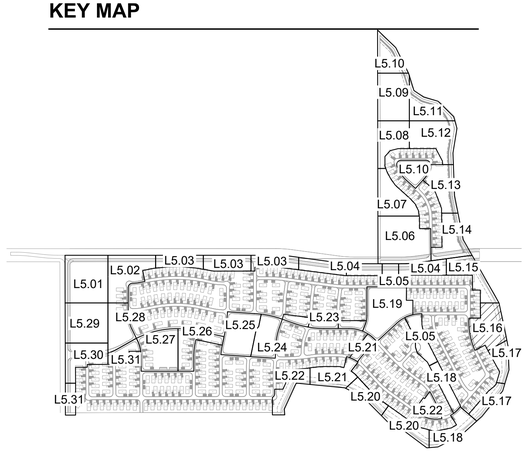
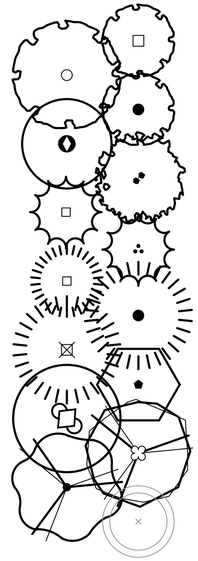
KEY MAP



LANDSCAPE MATERIAL SCHEDULE



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Existing Tree
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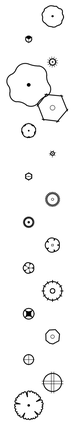

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BUFFALO JUNIPER

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Iris sibirica `Caesar's Brother`
CAESAR'S BROTHER SIBERIAN IRIS
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BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG! WE'LL LOCATE!

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

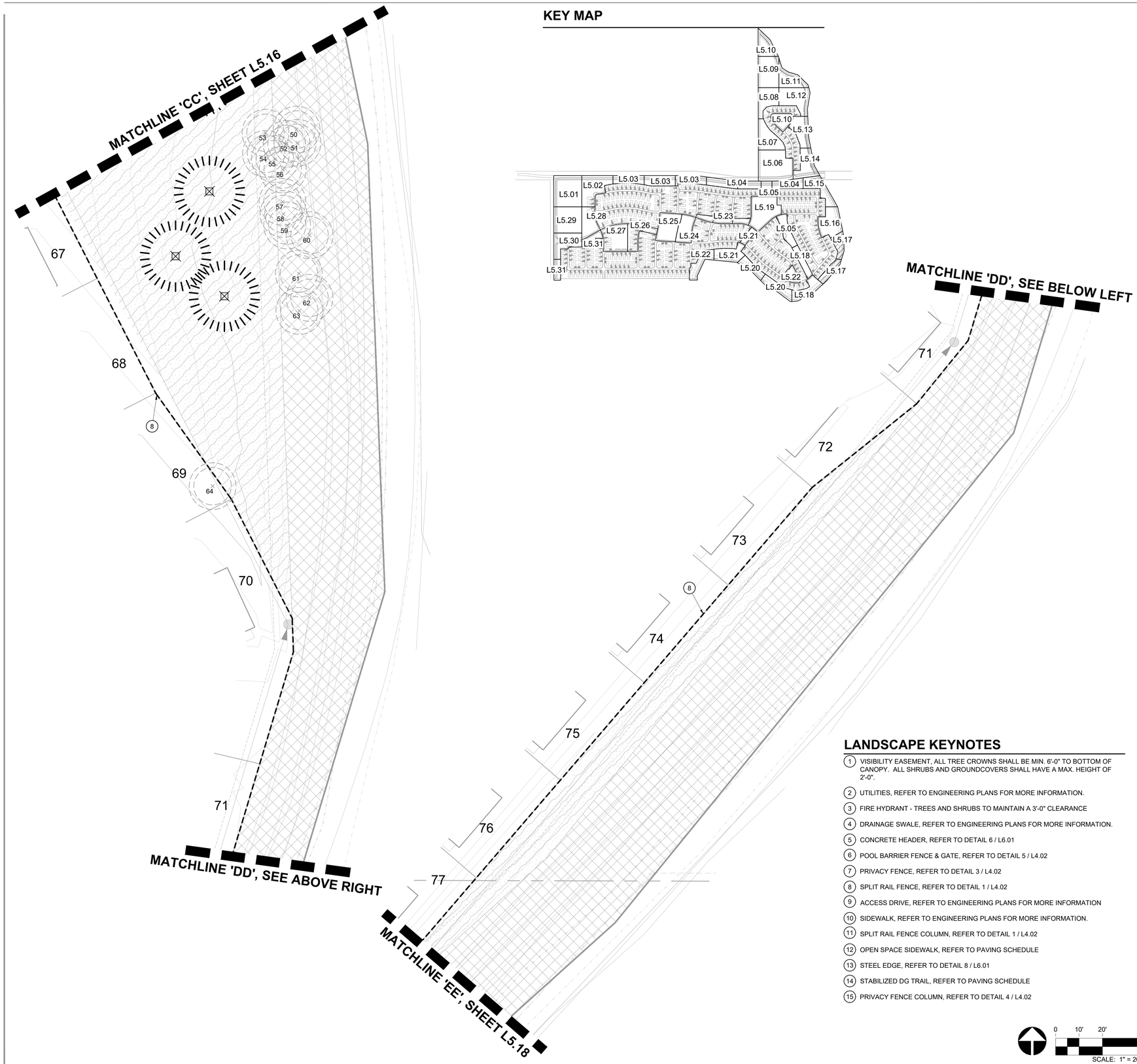
PLANTING PLAN

L5.16

SHEET 35 OF 88

1ST SUBMITTAL

L:\1900\1925-fulton ranch (fort lupton)\E-1900\1925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



KEY MAP

LANDSCAPE KEYNOTES

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0 10' 20' 40'
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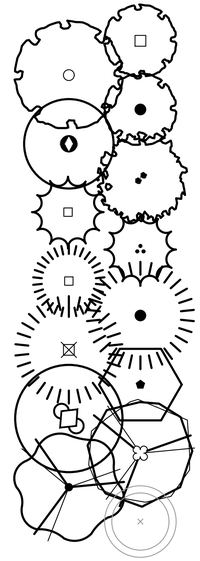
LANDSCAPE MATERIAL SCHEDULE



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1
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3
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5

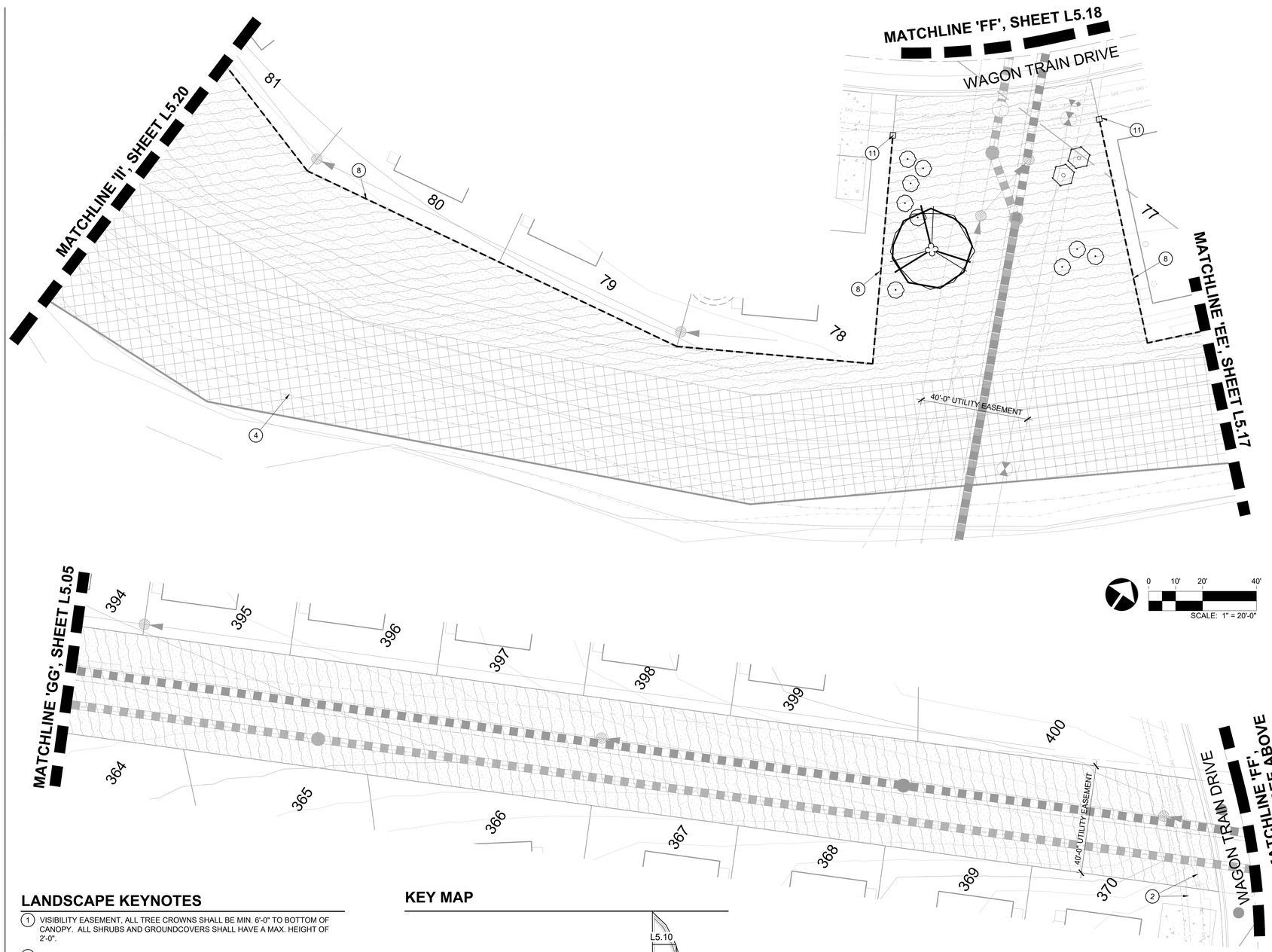
PLANTING PLAN

L5.17

SHEET 36 OF 88

1ST SUBMITTAL

L:\19001925-Ault\on ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



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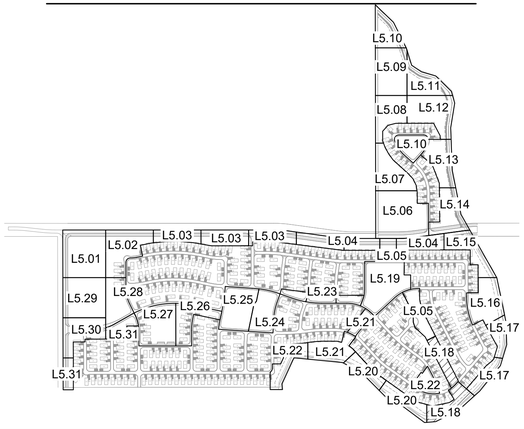

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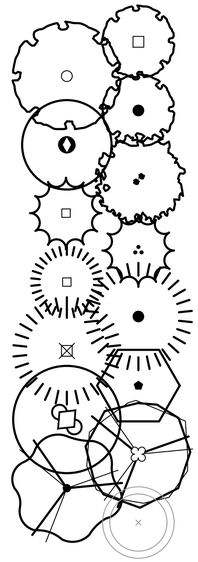

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HOT WINGS TATARIAN MAPLE

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AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

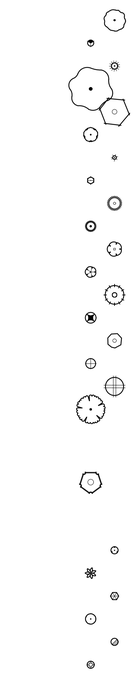
Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
BLUE OAT GRASS
Mahonia repens
CREEPING MAHONIA
Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM

GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER

PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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120 S. Ash Avenue
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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THINK BEFORE YOU DIG

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

PLANTING PLAN

L5.18

SHEET 37 OF 88

1ST SUBMITTAL

L:\19001925-Adon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg

LANDSCAPE KEYNOTES

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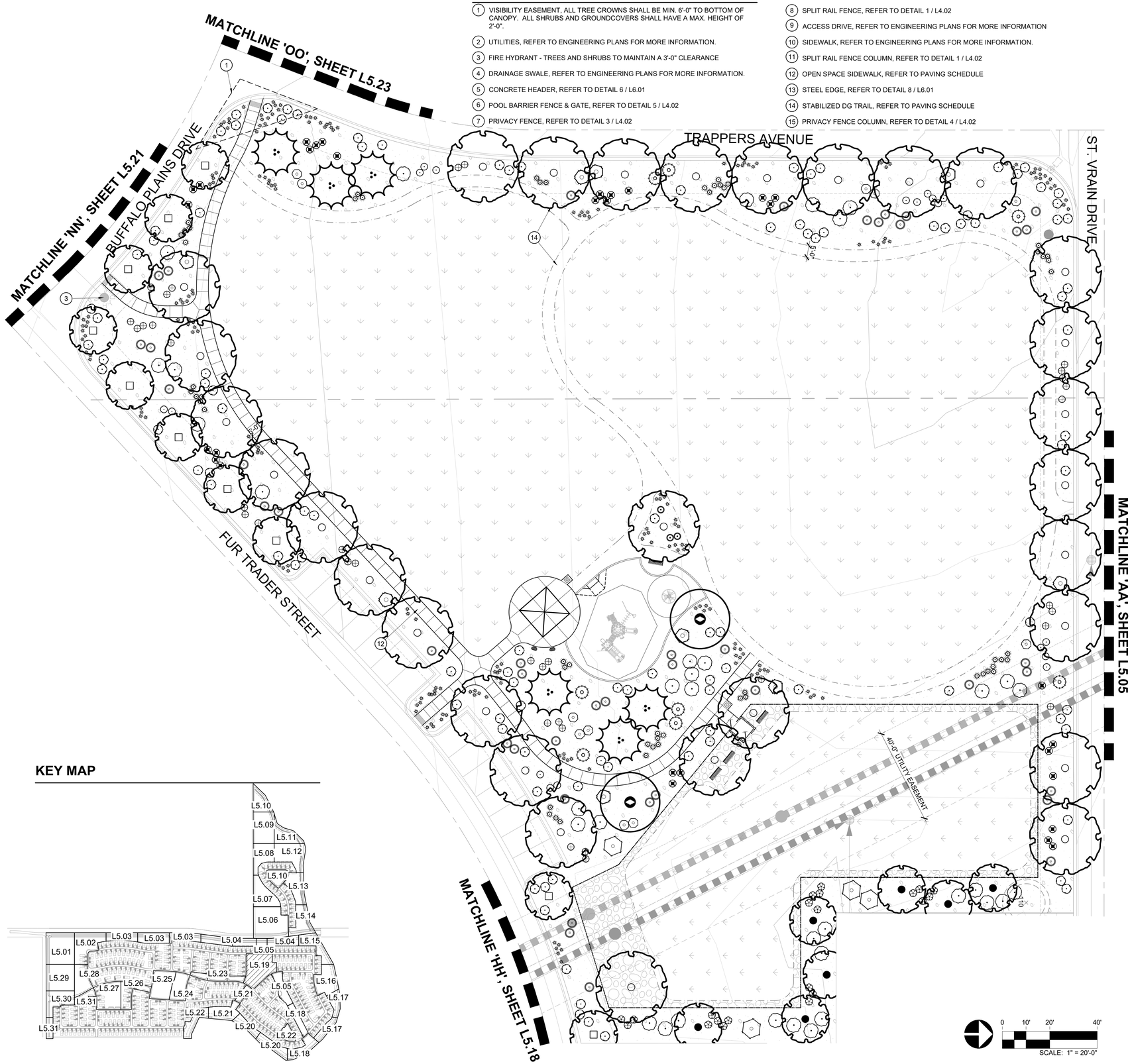
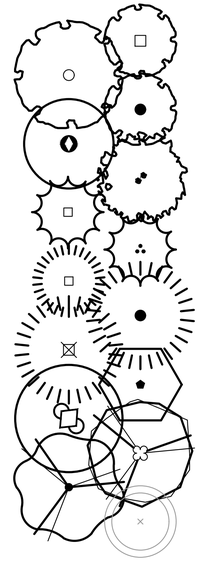


KEY MAP

LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

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HOT WINGS TATARIAN MAPLE

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PURPLE-LEAF PLUM

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Existing Tree
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MISCELLANEOUS
BOTANICAL / COMMON NAME

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COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL REFERENCE FOR 811

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

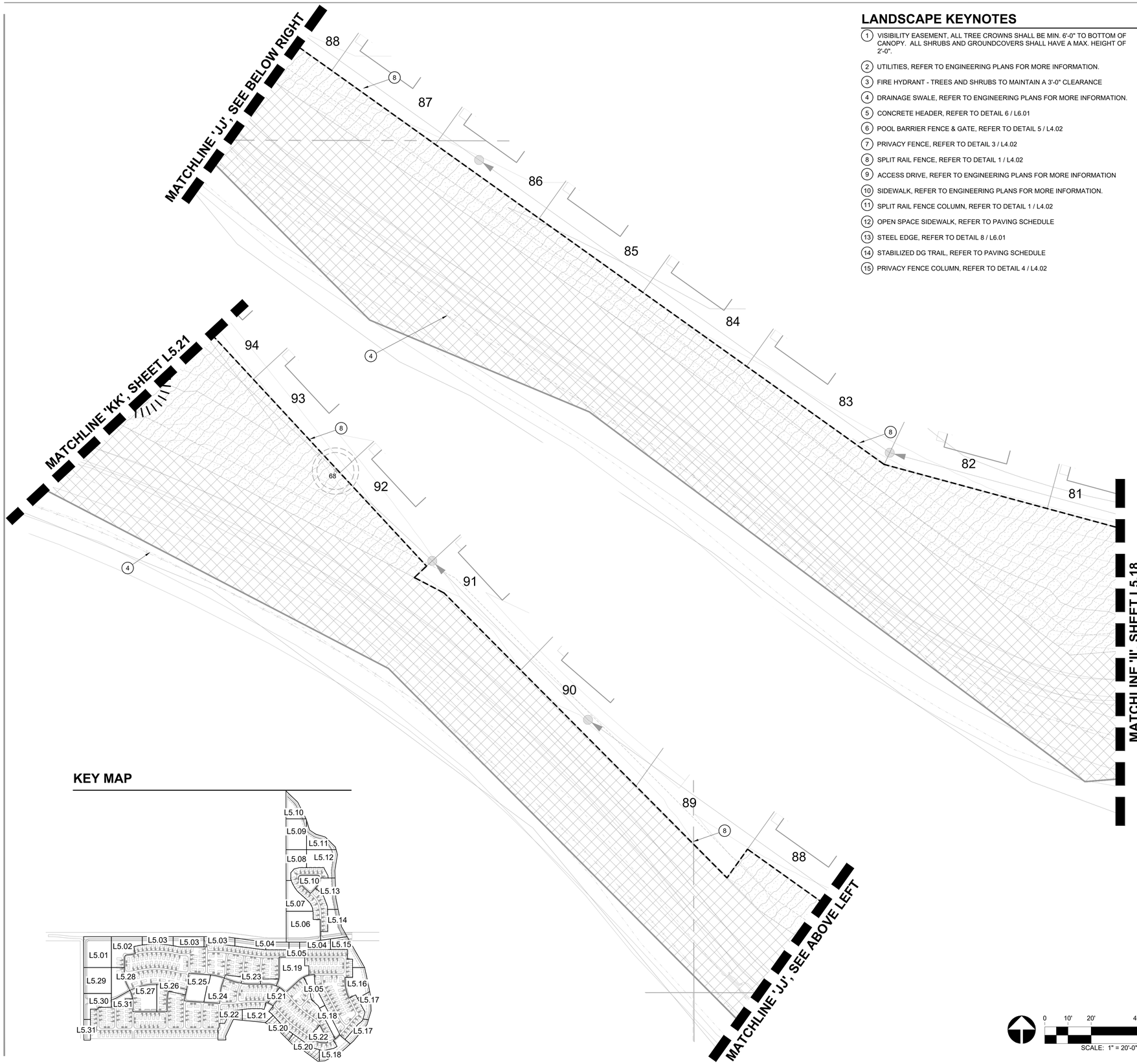
PLANTING PLAN

L5.19

SHEET 38 OF 88

1ST SUBMITTAL

L:\19001925-Ault\ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.11-L5.20.dwg



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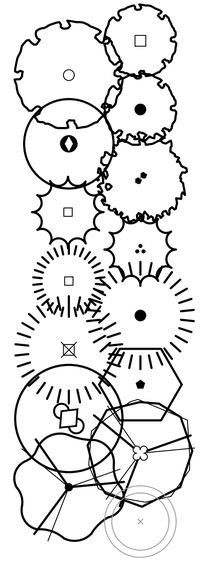
KEY MAP

LANDSCAPE MATERIAL SCHEDULE



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Tilia americana
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Existing Tree
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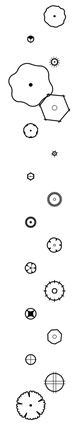

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BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

0 10' 20' 40'
SCALE: 1" = 20'-0"

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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
UNDERGROUND FACILITIES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

PLANTING PLAN

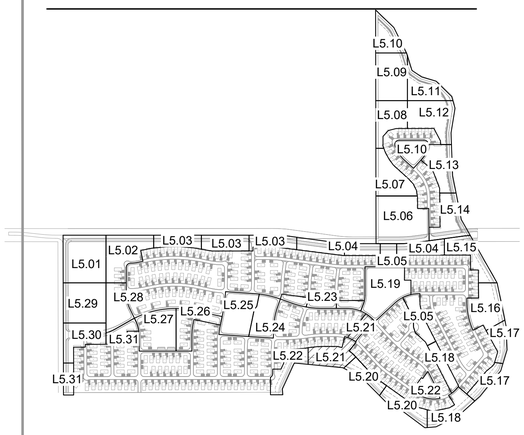
L5.20

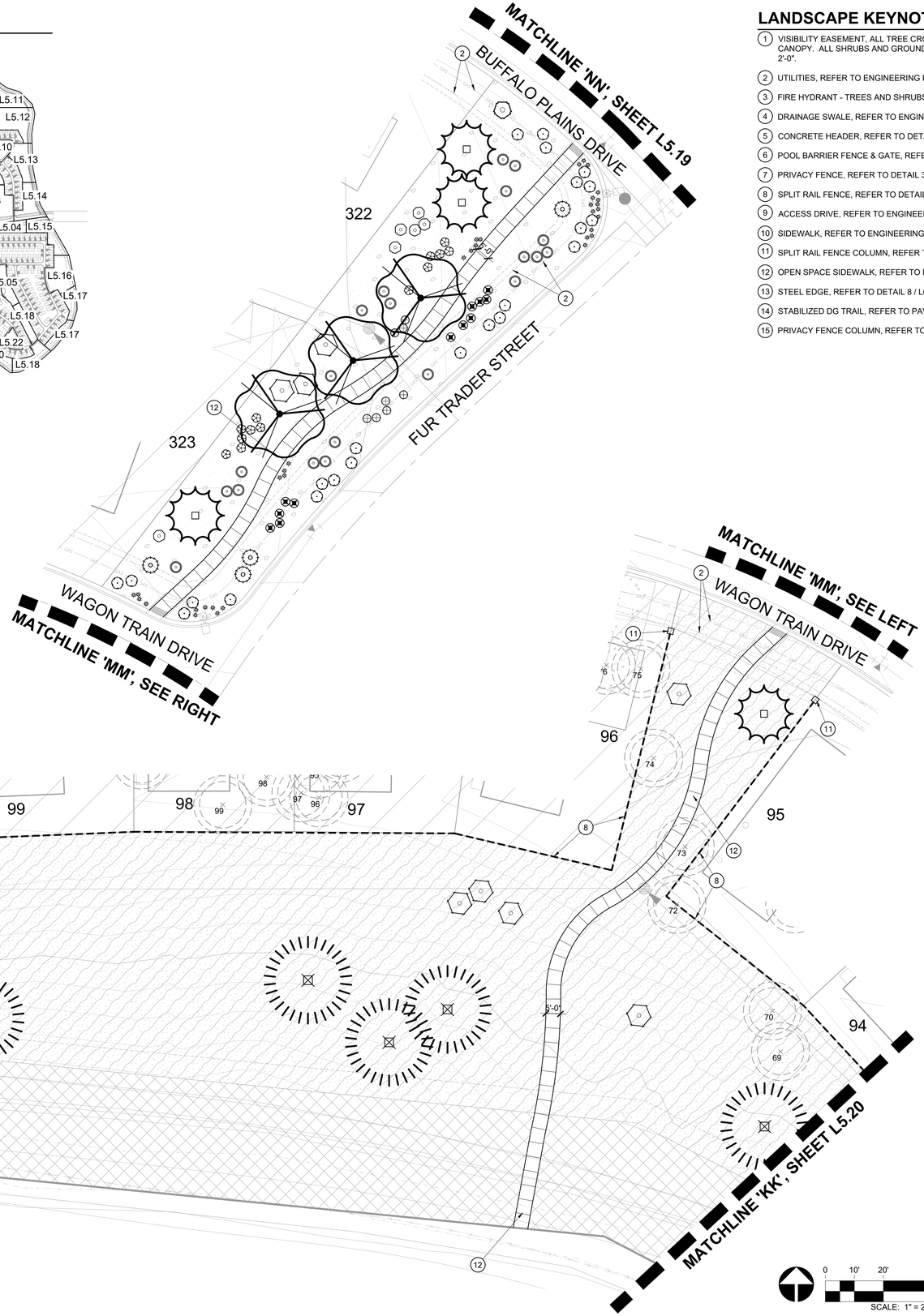
SHEET 39 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6- 19001925-landscape\3-CD\3-SHEETS\1925-CD3-L5.11-L5.20.dwg

KEY MAP





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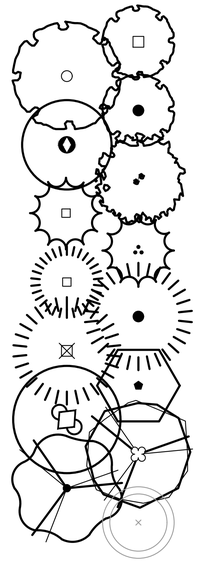
LANDSCAPE MATERIAL SCHEDULE



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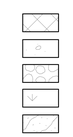

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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COLORADO 811
YOU DIG! WE LOCATE!

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

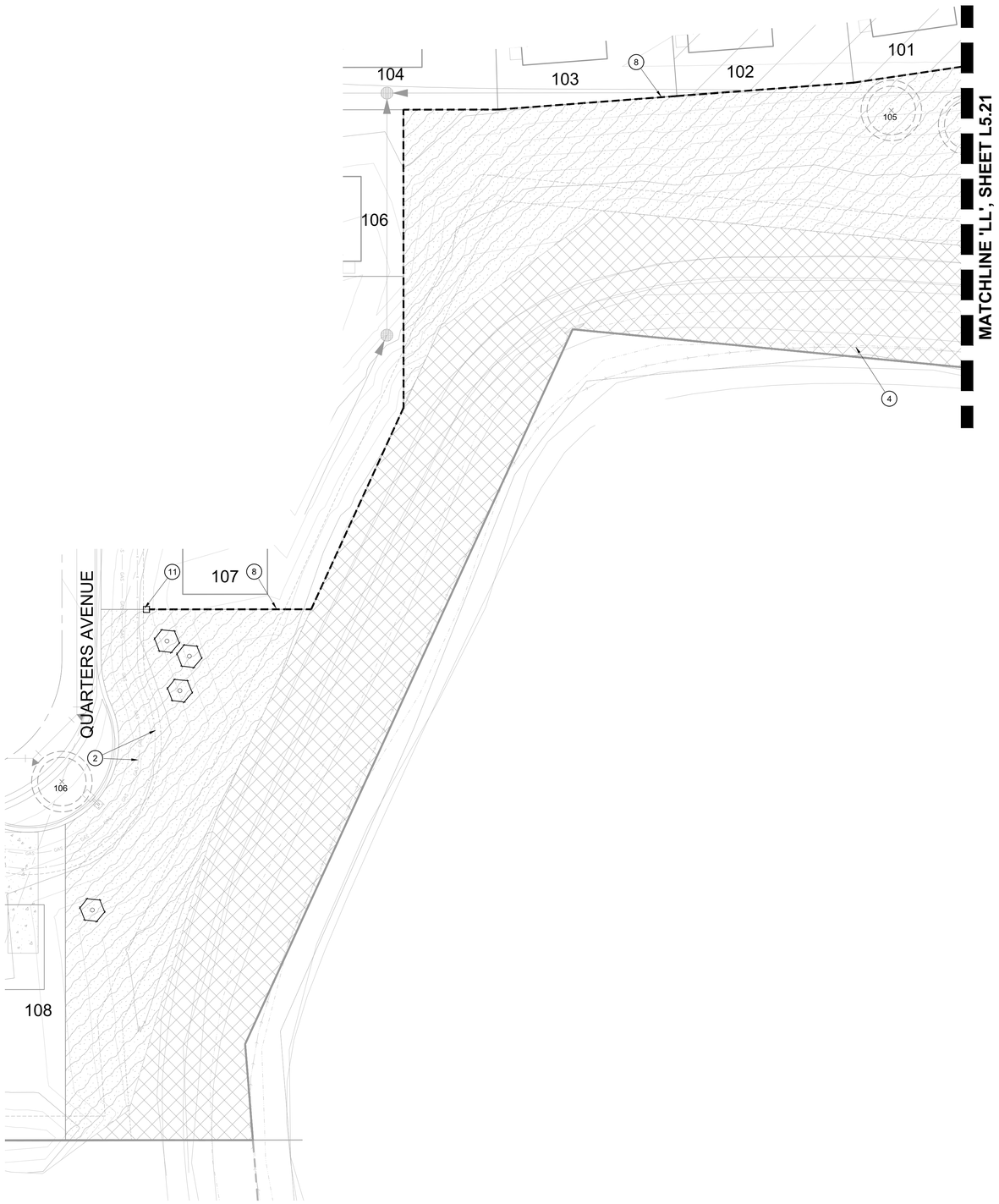
PLANTING PLAN

L5.21

SHEET 40 OF 88

1ST SUBMITTAL

L:\19001925-Adon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.21-L5.31.dwg



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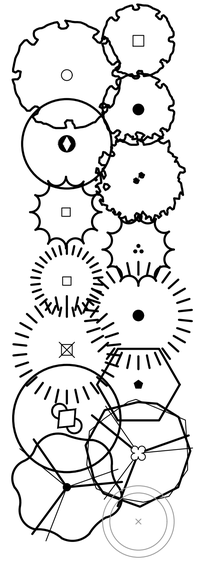
LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
NORWAY MAPLE

Acer tataricum `GarAnn` TM
HOT WINGS TATARIAN MAPLE

Fraxinus americana `Autumn Purple`
AUTUMN PURPLE ASH

Koelreuteria paniculata
GOLDEN RAIN TREE

Picea pungens
COLORADO SPRUCE

Picea pungens `Glauca`
COLORADO BLUE SPRUCE

Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

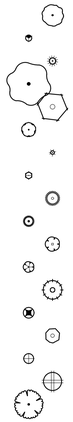
Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
Euonymus fortunei `Coloratus`
WINTER CREEPER
Helictotrichon sempervirens
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Mahonia repens
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Pinus mugo `Mops`
DWARF MOUNTAIN PINE
Pinus mugo `Slowmound`
SLOWMOUND MOUNTAIN PINE
Potentilla fruticosa
BUSH CINQUEFOIL
Potentilla fruticosa `McKay`s White`
MCKAY`S WHITE BUSH CINQUEFOIL
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Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM



GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER



PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
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BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

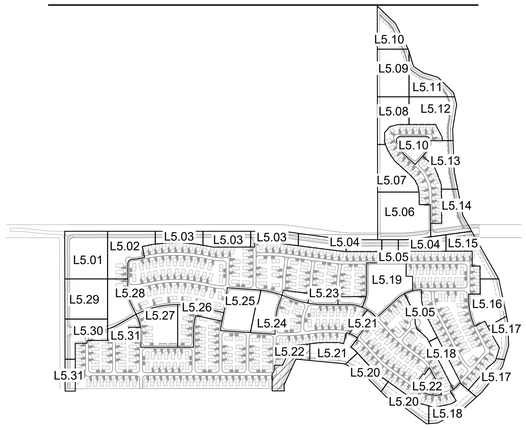
ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

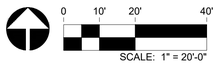
FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

KEY MAP





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DOUGLAS CRAIG
441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
UNDERGROUND FACILITIES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO : 19001925
DATE : 04/23/2021
DRAWN: KWN/MB
REVIEWED: BG/DC

REVISIONS
1
2
3
4
5

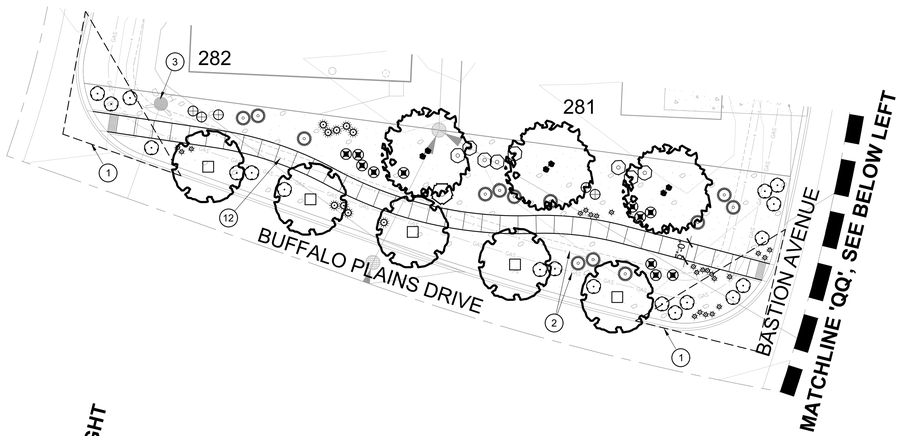
PLANTING PLAN

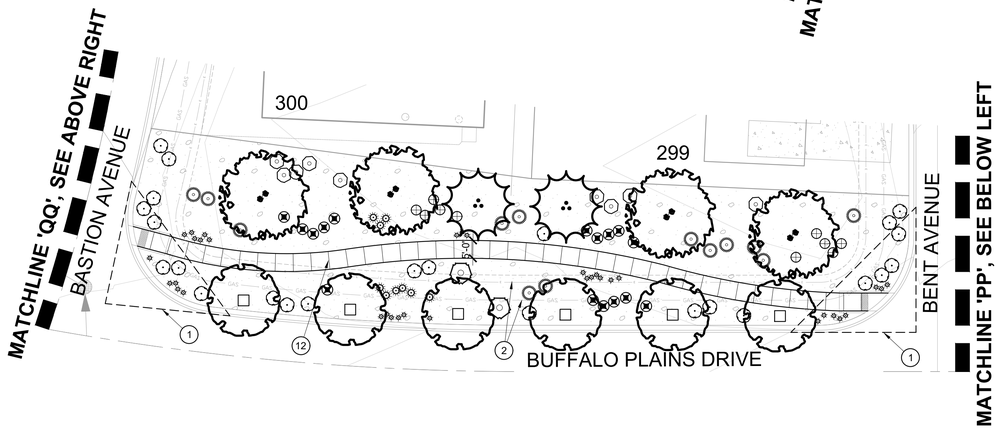
L5.22

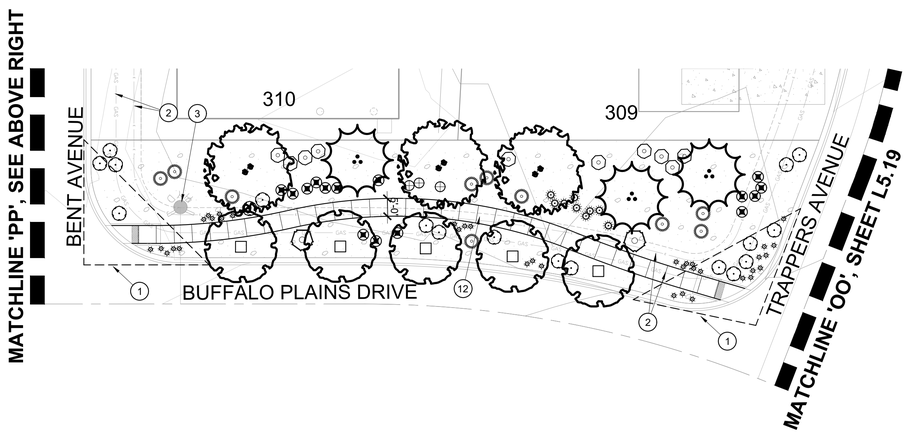
SHEET 41 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.2-L5.31.dwg







0 10' 20' 40'

SCALE: 1" = 20'-0"

LANDSCAPE KEYNOTES

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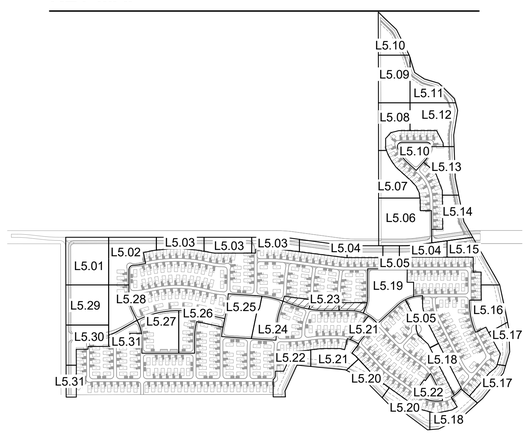
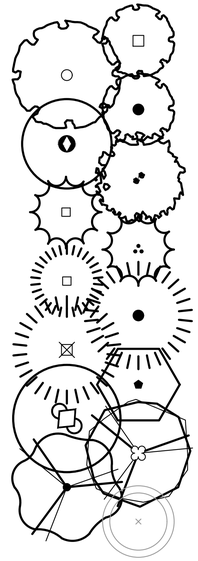


LANDSCAPE MATERIAL SCHEDULE



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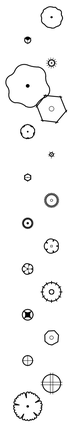

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MISCELLANEOUS
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UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG! IT'S THE LAW!

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

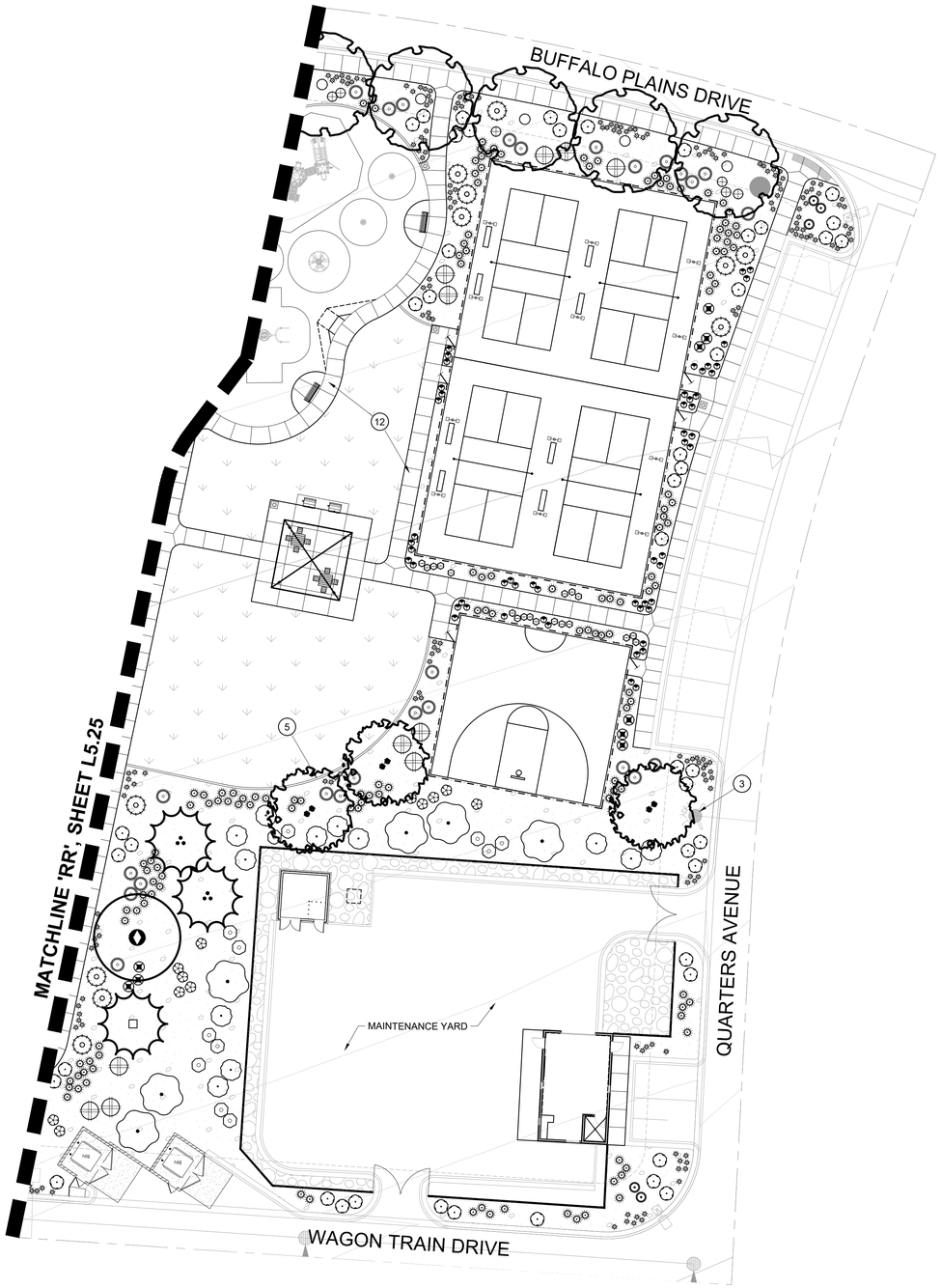
PLANTING PLAN

L5.23

SHEET 42 OF 88

1ST SUBMITTAL

L:\19001925-Adbon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.21-L5.31.dwg



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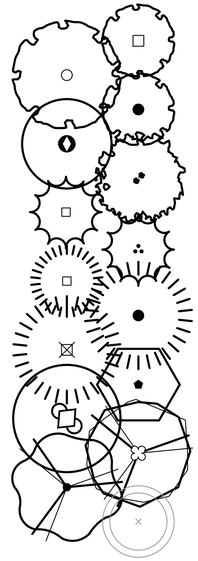
15. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

LANDSCAPE MATERIAL SCHEDULE



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Pinus nigra
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PONDEROSA PINE
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PURPLE-LEAF PLUM
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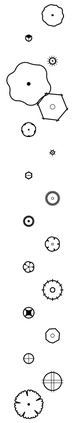
AMERICAN LINDEN
Existing Tree
TO BE REMOVED



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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA
COBBLE
ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'
FESCUE BLEND
HYDROSEED MIX '1'

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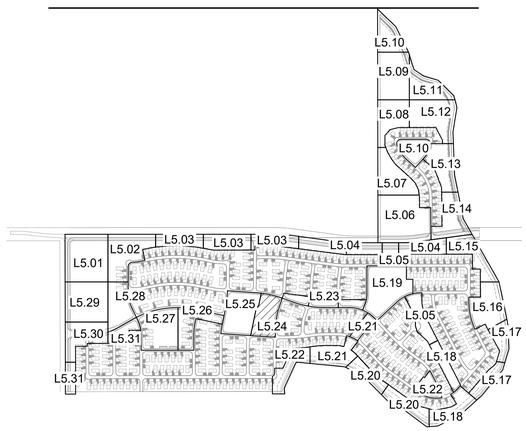
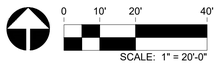
KEY MAP





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DOUGLAS CRAIG
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LICENSED LANDSCAPE ARCHITECT

COLORADO 811
UTILITY NOTIFICATION CENTER, INC.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

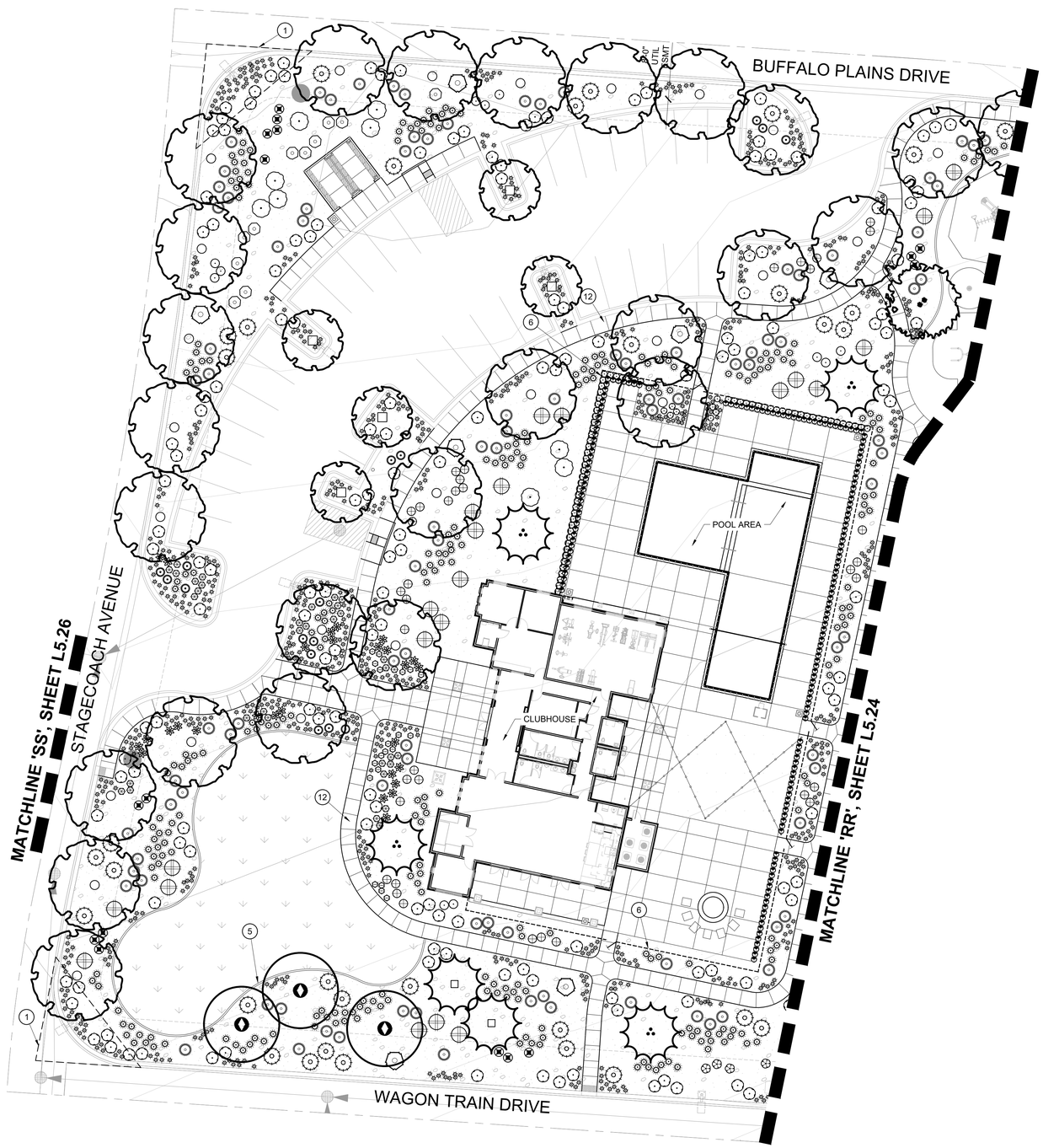
PLANTING PLAN

L5.24

SHEET 43 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.21-L5.31.dwg



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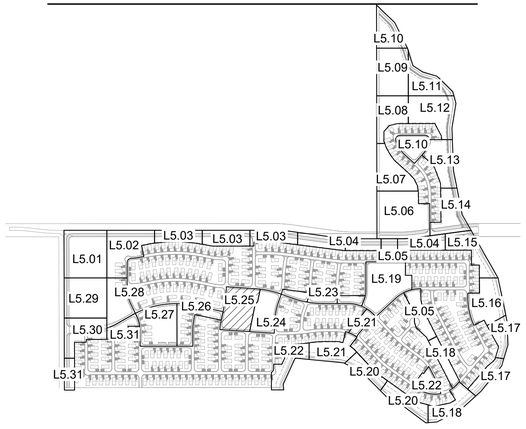

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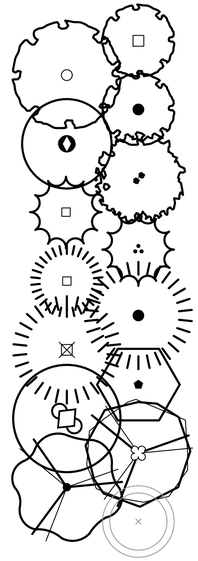

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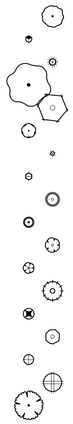

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GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
Spiraea japonica `Anthony Waterer`
ANTHONY WATERER SPIREA
Syringa pubescens patula `Miss Kim`
MISS KIM LILAC
Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM

GROUNDCOVER
BOTANICAL / COMMON NAME

Juniperus sabina `Buffalo`
BUFFALO JUNIPER



PERENNIALS
BOTANICAL / COMMON NAME

Echinacea purpurea
PURPLE CONEFLOWER
Iris sibirica `Caesar`s Brother`
CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
BLACK-EYED SUSAN
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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120 S. Ash Avenue
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Tel: 480.994.0994
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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

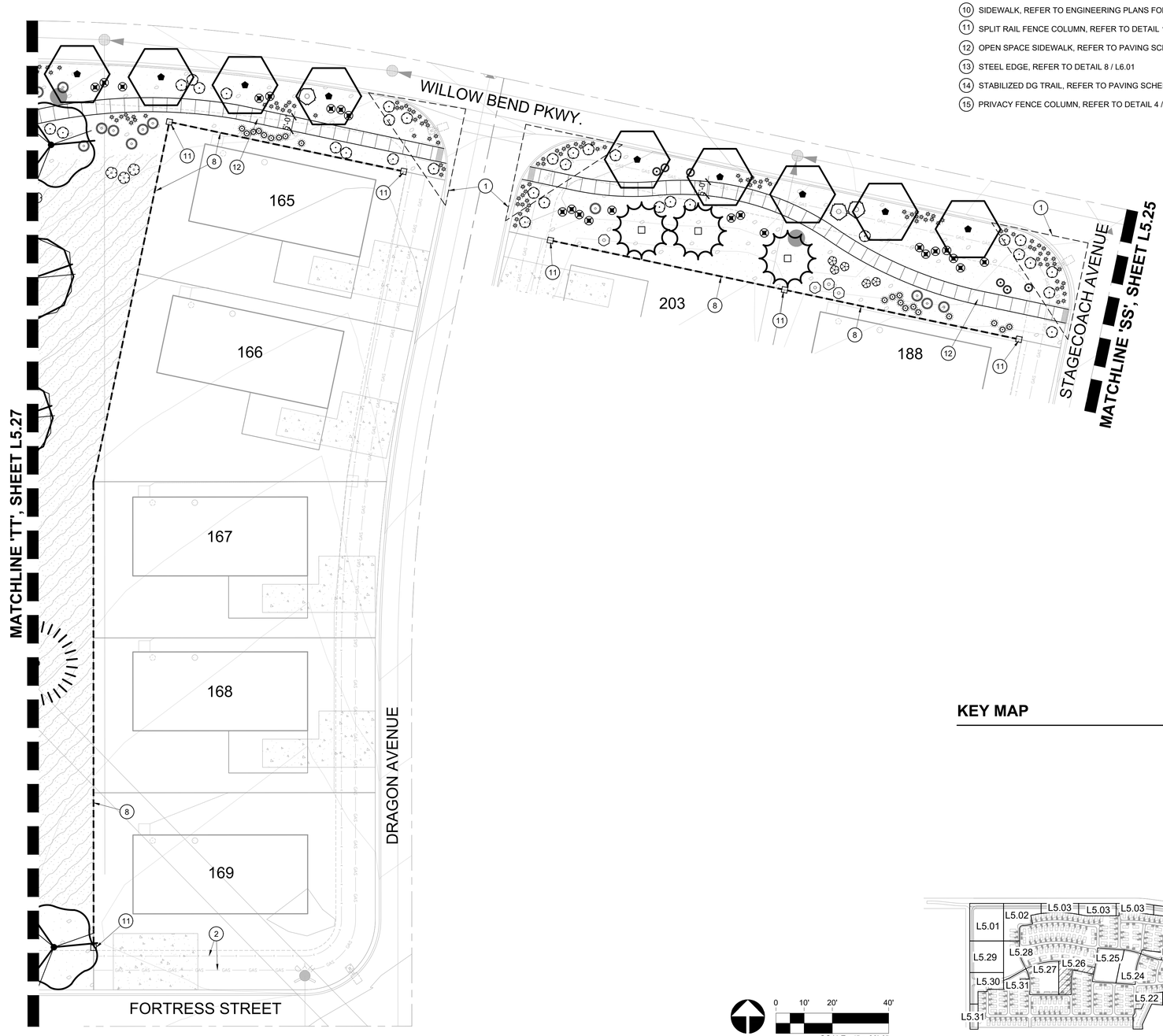
PLANTING PLAN

L5.25

SHEET 44 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.2-L5.31.dwg



LANDSCAPE KEYNOTES

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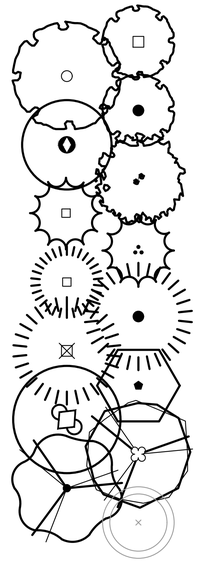
14. STABILIZED DG TRAIL, REFER TO PAVING SCHEDULE
15. PRIVACY FENCE COLUMN, REFER TO DETAIL 4 / L4.02

LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acer ginnala
AMUR MAPLE

Acer platanoides
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HOT WINGS TATARIAN MAPLE

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Koelreuteria paniculata
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COLORADO SPRUCE

Picea pungens `Glauca`
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Pinus edulis
PINON PINE

Pinus nigra
AUSTRIAN BLACK PINE

Pinus ponderosa
PONDEROSA PINE

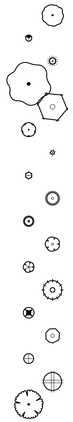
Prunus cerasifera
PURPLE-LEAF PLUM

Quercus gambelii
GAMBLE OAK

Quercus macrocarpa
BURR OAK

Tilia americana
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



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BOTANICAL / COMMON NAME

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BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
Caragana arborescens
SIBERIAN PEASHRUB
Cercocarpus montanus
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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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KEY MAP

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03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
YOU DIG! WE LOCATE. IT'S FREE!

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

L5.26

SHEET 45 OF 88

1ST SUBMITTAL

L:\19001925-Allon ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L3.21-L5.31.dwg



LANDSCAPE KEYNOTES

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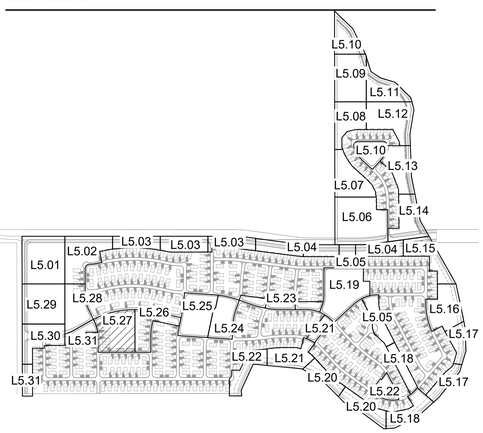
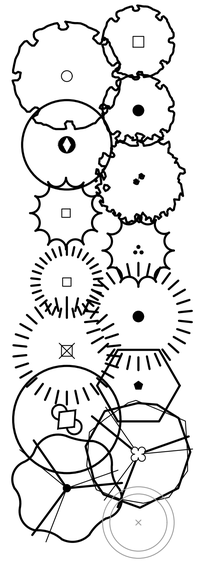


LANDSCAPE MATERIAL SCHEDULE



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Existing Tree
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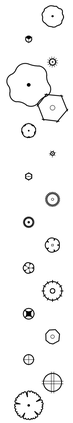

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MISCELLANEOUS
BOTANICAL / COMMON NAME

UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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03/07/2008
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STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
THE UNDERGROUND INFORMATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

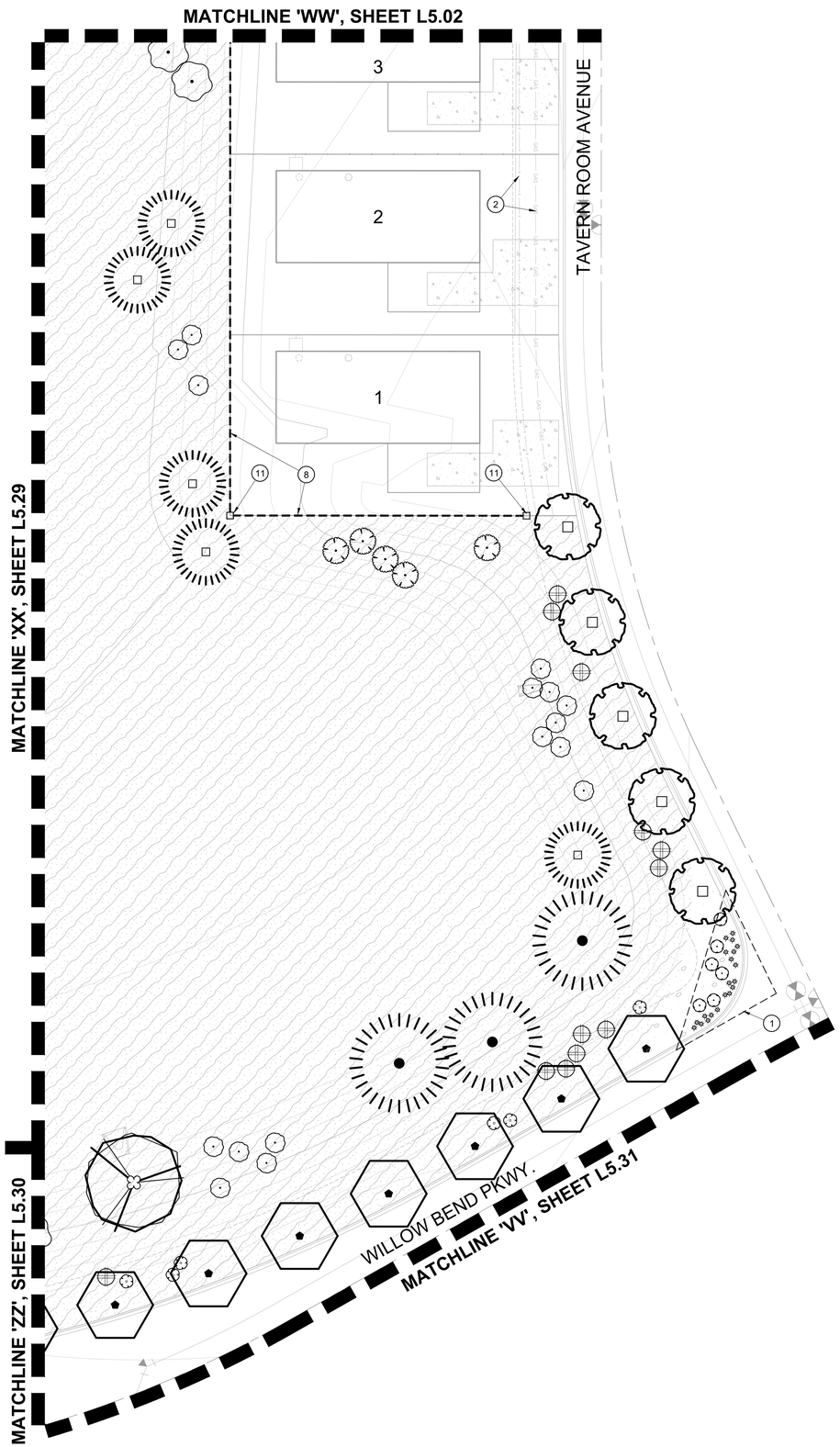
PLANTING PLAN

L5.27

SHEET 46 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.27-L5.31.dwg



0 10' 20' 40'

SCALE: 1" = 20'-0"

LANDSCAPE KEYNOTES

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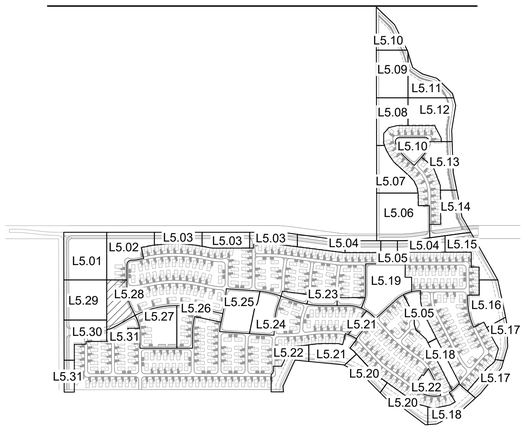
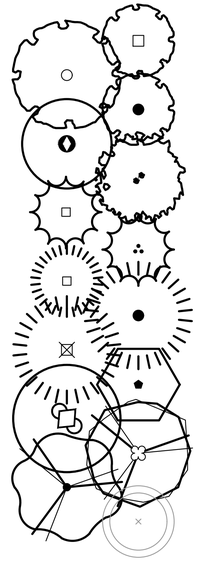
KEY MAP



LANDSCAPE MATERIAL SCHEDULE



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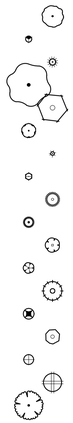

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COBBLE

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COLORADO 811 UNCOVER YOUR UTILITIES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

PLANTING PLAN

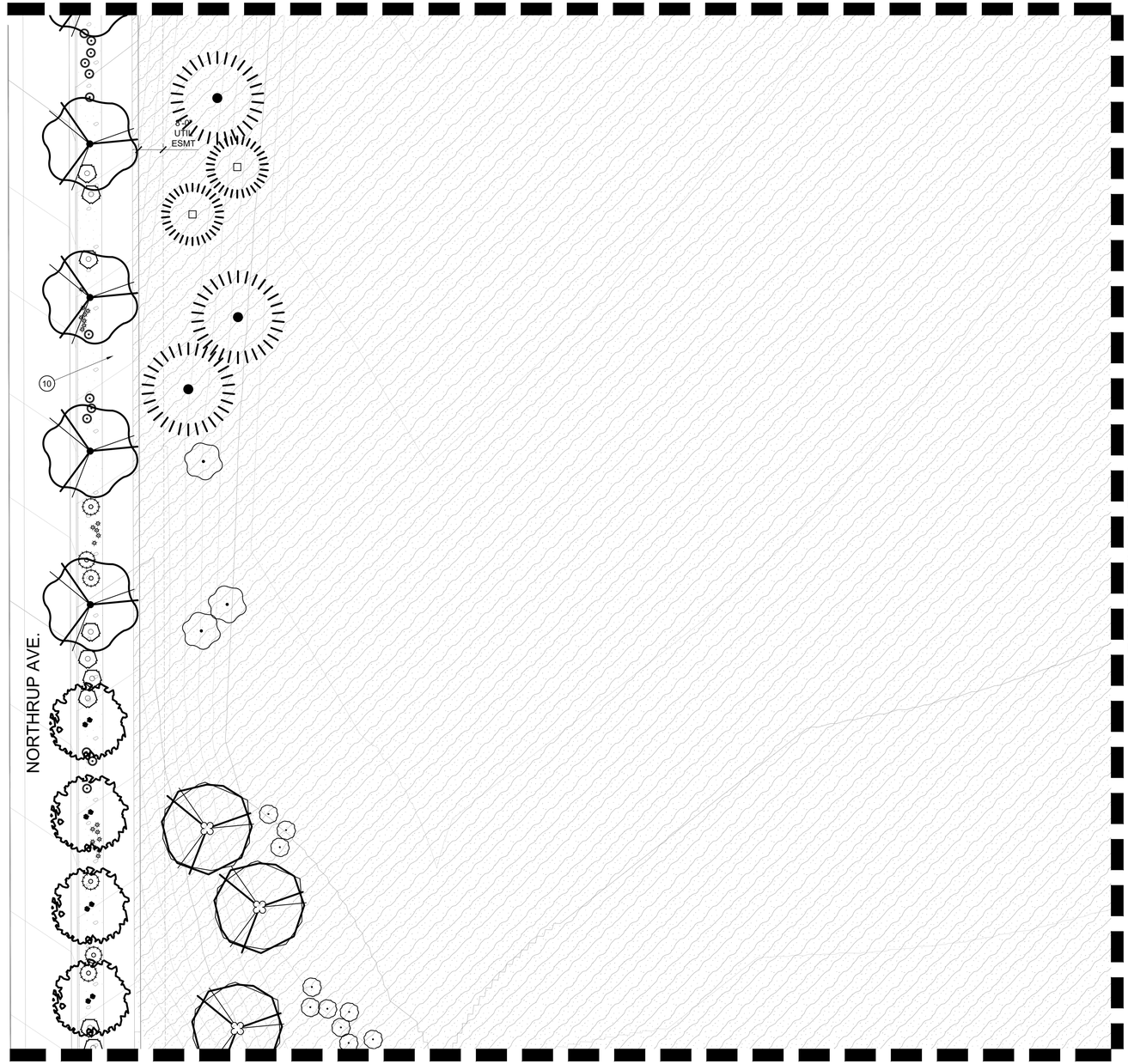
L5.28

SHEET 47 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\E-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.21-L5.31.dwg

MATCHLINE 'A', SHEET L5.01



MATCHLINE 'YY', SHEET L5.30

MATCHLINE 'XX', SHEET L5.28

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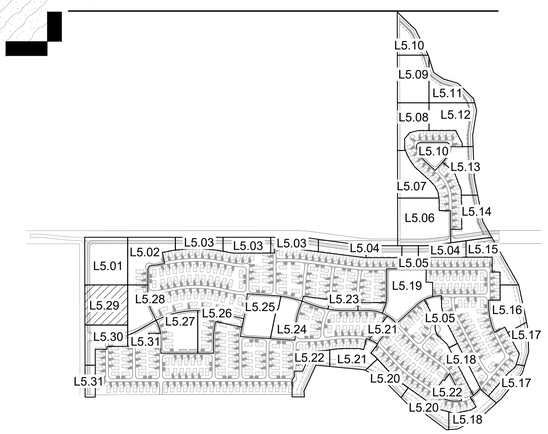
KEY MAP



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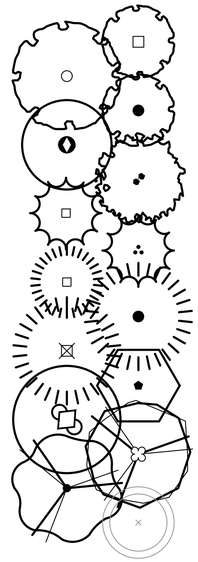
SCALE: 1" = 20'-0"

LANDSCAPE MATERIAL SCHEDULE



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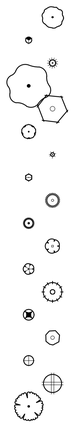
AMERICAN LINDEN

Existing Tree
TO BE REMOVED



SHRUBS & ACCENTS
BOTANICAL / COMMON NAME

Aronia arbutifolia `Brilliantissima`
BRILLIANT RED CHOKEBERRY
Bouteloua gracilis
BLUE GRAMA GRASS
Calamagrostis x acutiflora `Karl Foerster`
KARL FOERSTER FEATHER REED GRASS
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SIBERIAN PEASHRUB
Cercocarpus montanus
MOUNTAIN MAHOGANY
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WINTER CREEPER
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BUSH CINQUEFOIL
Potentilla fruticosa `McKay's White`
MCKAY`S WHITE BUSH CINQUEFOIL
Rhus aromatica `Gro-Low`
GRO-LOW FRAGRANT SUMAC
Ribes alpinum `Green Mound`
GREEN MOUND ALPINE CURRANT
Rosa foetida bicolor
AUSTRIAN COPPER ROSE
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ANTHONY WATERER SPIREA
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Viburnum lantana `Mohican`
MOHICAN WAYFARING VIBURNUM

GROUNDCOVER
BOTANICAL / COMMON NAME



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BUFFALO JUNIPER

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BOTANICAL / COMMON NAME



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PURPLE CONEFLOWER
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CAESAR`S BROTHER SIBERIAN IRIS
Penstemon strictus
ROCKY MOUNTAIN PENSTEMON
Perovskia atriplicifolia
RUSSIAN SAGE
Rudbeckia fulgida sullivantii `Goldsturm`
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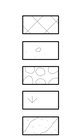
Salvia x sylvestris `May Night`
MAY NIGHT SALVIA

MISCELLANEOUS
BOTANICAL / COMMON NAME



UNDISTURBED LANDSCAPE AREA

COBBLE

ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

NOTE: · Tags for registered or trademarked (®, ™) material are to remain on plants.

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DOUGLAS CRAIG 441
03/07/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

COLORADO 811
Know what's below. Call before you dig.

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1.
2.
3.
4.
5.

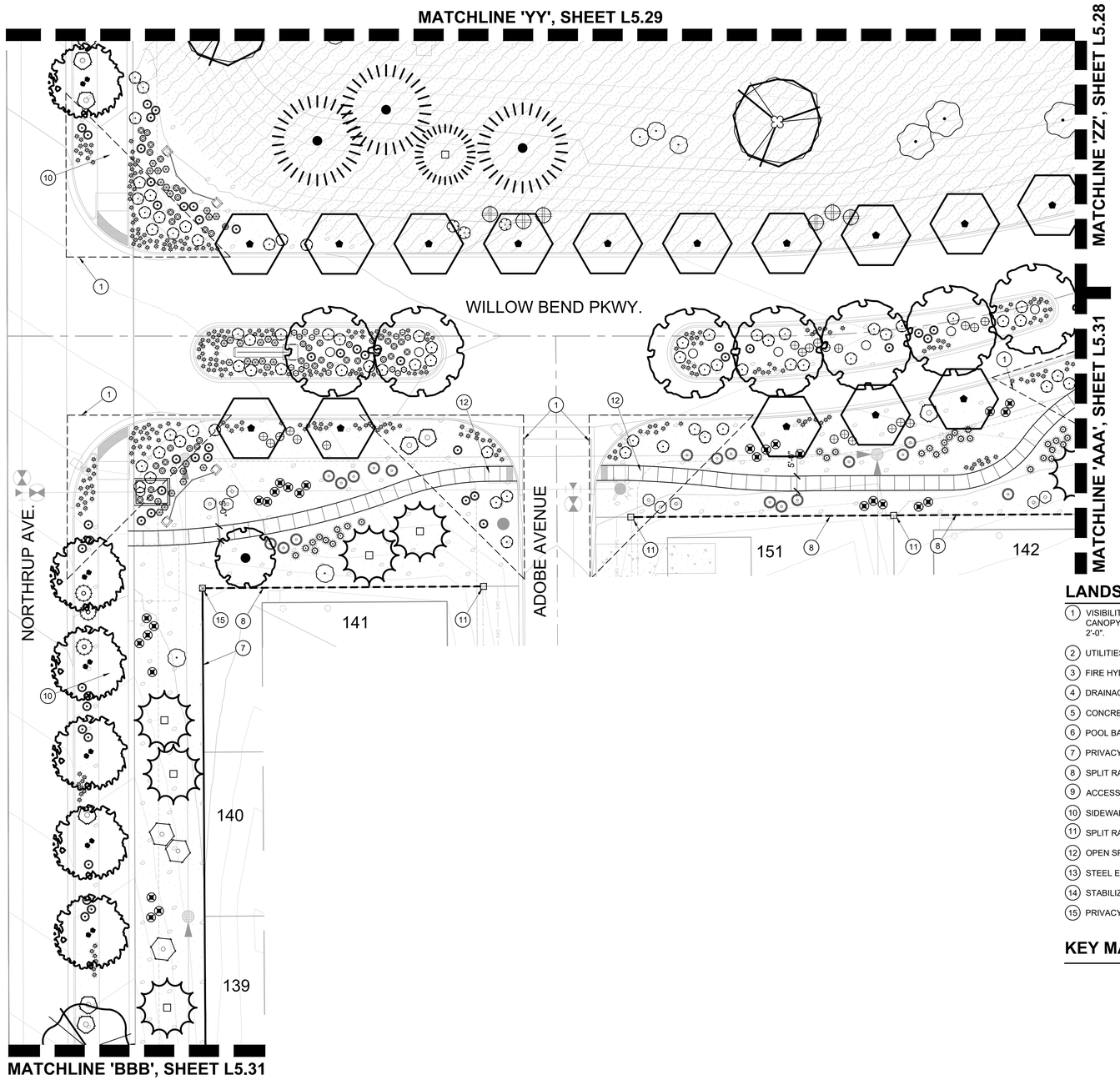
PLANTING PLAN

L5.29

SHEET 48 OF 88

1ST SUBMITTAL

L:\19001925-Ault on ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\1925-CD-L5.21-L5.31.dwg



LANDSCAPE KEYNOTES

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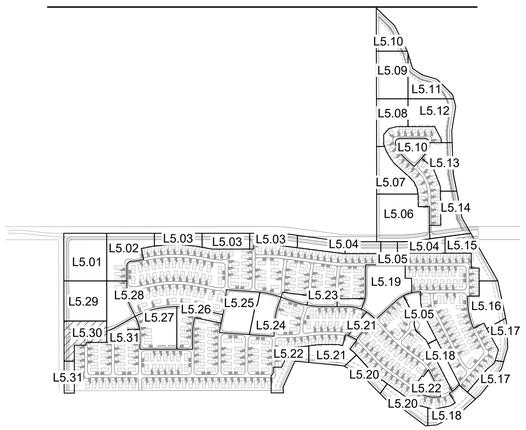
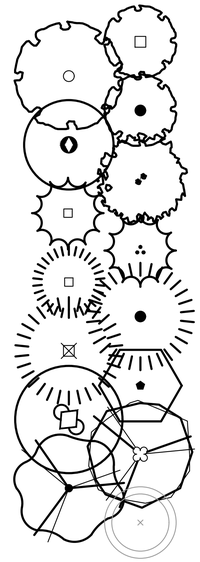
KEY MAP



0 10' 20' 40'
SCALE: 1" = 20'-0"

LANDSCAPE MATERIAL SCHEDULE



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HOT WINGS TATARIAN MAPLE

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Koelreuteria paniculata
GOLDEN RAIN TREE

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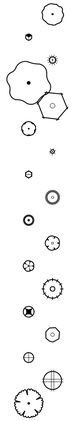

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COLORADO 811
THE NATIONAL NOTIFICATION CENTER

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

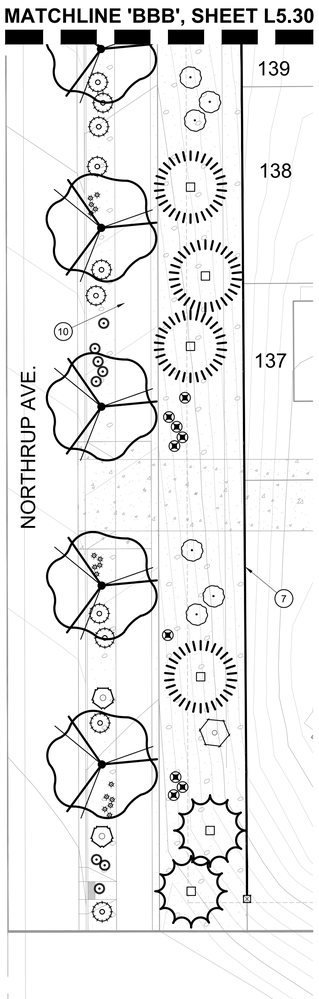
PLANTING PLAN

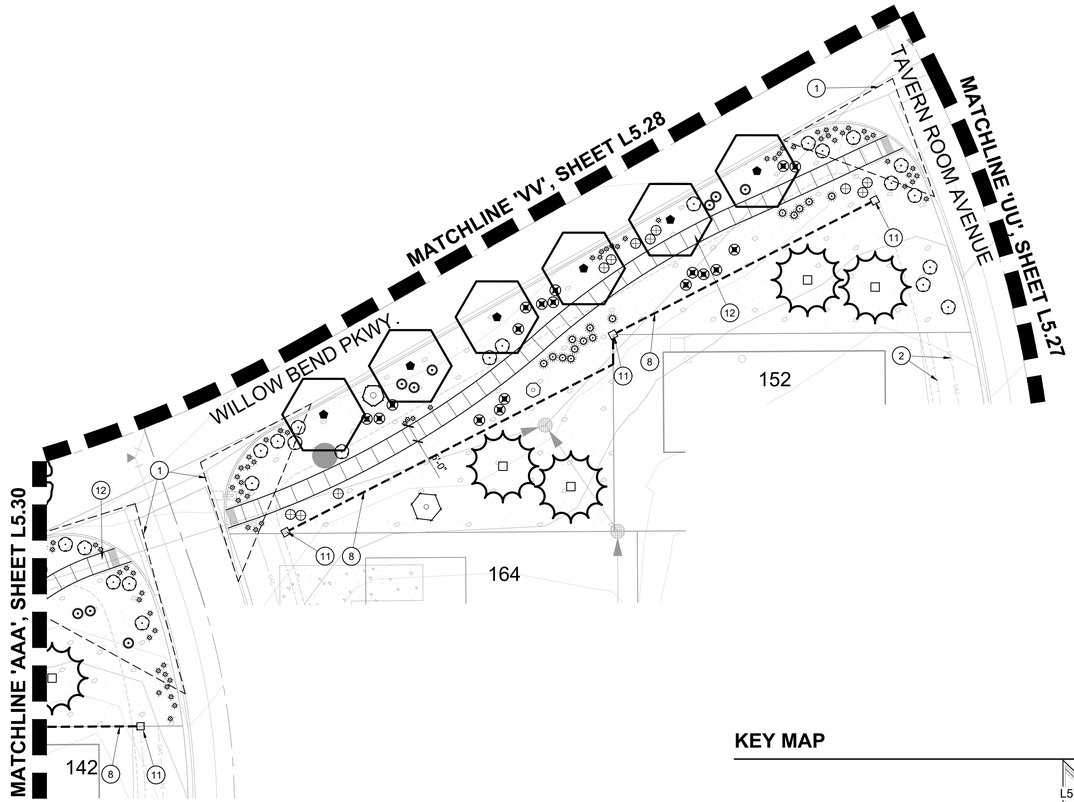
L5.30

SHEET 49 OF 88

1ST SUBMITTAL

L:\19001925-Lifton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEETS\19025-CD-L5.21-L5.31.dwg





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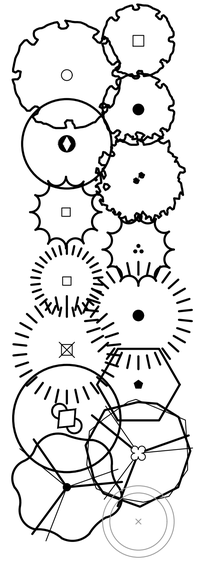

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ROCK MULCH
COLOR: 'MOUNTAIN GRANITE'

FESCUE BLEND

HYDROSEED MIX '1'

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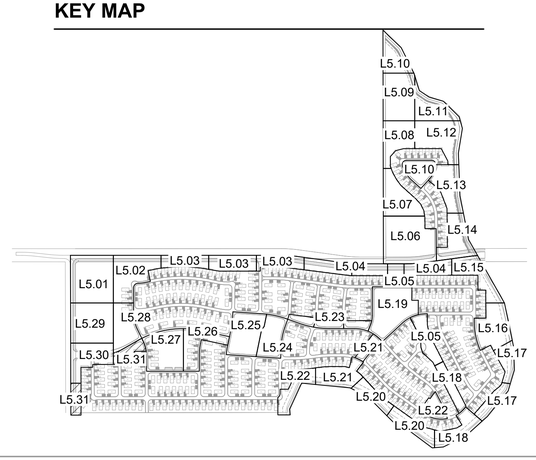
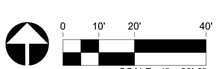
KEY MAP





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COLORADO 811
UNCOVER YOUR UTILITIES

WILLOW BEND
FINAL PLAT
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/2021
DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS
1
2
3
4
5

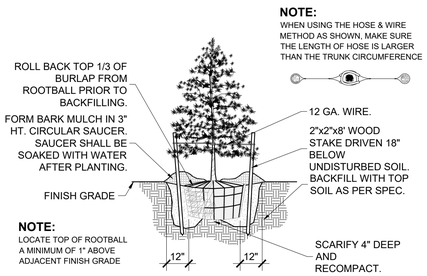
PLANTING PLAN

L5.31

SHEET 50 OF 88

1ST SUBMITTAL

L:\19001925-Fulton ranch (fort lupton)\6-19001925-landscape\3-CD\3-SHEET-S\1925-CD-L5.21-L5.31.dwg

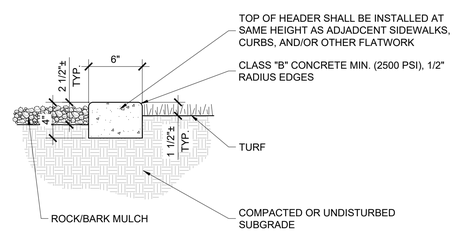


9 EVERGREEN TREE PLANTING

SCALE: NTS

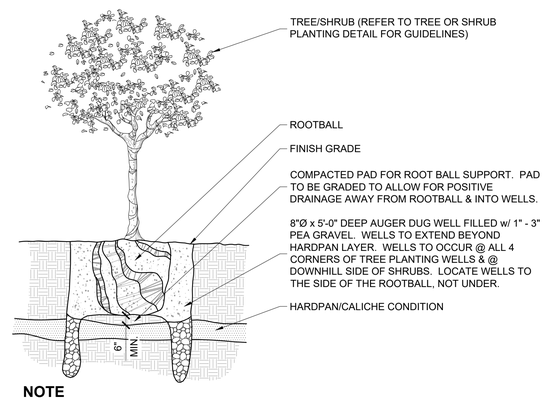
NOTE:

- Primary control joints occur at 10'-0" o.c. Expansion joints to occur at a max. spacing of 30'-0" & between all adjacent concrete surfaces.
- Landscape contractor to show layout of header w/ marking paint or 1/2" pvc tubing for owner approval prior to initial pour.
- All curved headers shall be smooth, continuous transitions w/ a uniform width as noted on plans.
- All curbing & headers shall not impeed onsite drainage flows. Should this occur, provide swale depressions as required.



6 6" x 4" EXTRUDED CONCRETE HEADER

SCALE: NTS

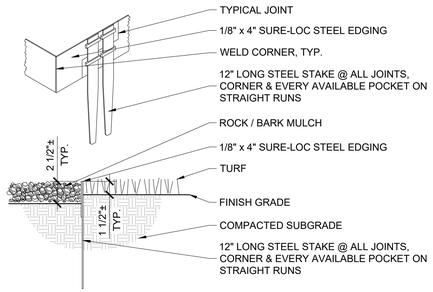


NOTE

- Test all planting wells prior to planting. Fill all wells with water and modify all wells that do not completely drain within 24 hours.
- It shall be the responsibility of the contractor to review the site prior to bidding for soil conditions. No change orders will be processed for hard dig conditions after acceptance of bid.

3 PLANTING IN HARDPAN

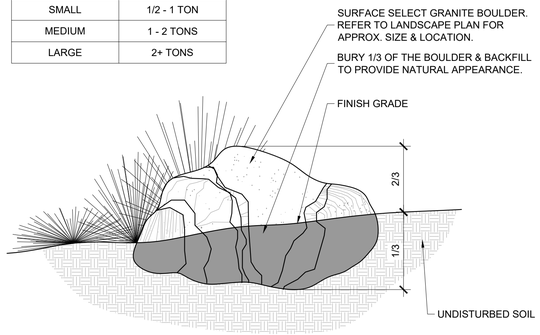
SCALE: NTS



8 STEEL HEADER

SCALE: NTS

SIZE	WEIGHT
SMALL	1/2 - 1 TON
MEDIUM	1 - 2 TONS
LARGE	2+ TONS

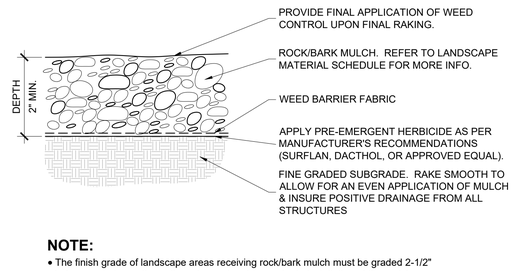


NOTE:

- Boulders to be placed per plan or per the direction of the Landscape Architect.
- Any exposed surface scarring that may have occured during transportation or construction shall be eonited w/ a stain equal in color to the boulder's natural surface at no additional cost to the owner. All exposed areas of the boulders shall be smooth w/ no jagged edges visible.

7 BOULDER PLACEMENT

SCALE: NTS

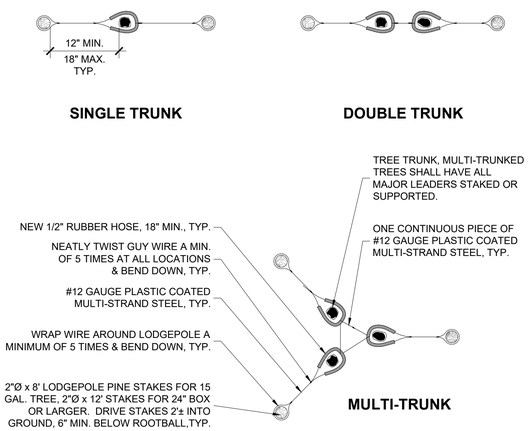


NOTE:

- The finish grade of landscape areas receiving rock/bark mulch must be graded 2-1/2" below concrete or other adjacent paved surfaces prior to installation of the mulch.
- Contractor to provide rock/bark mulch sample to owner prior to installation for approval.
- Contractor to be responsible for any variation from approved mulch.
- Contractor to provide two separate applications of pre-emergent. DO NOT APPLY PRE-EMERGENT IN AREAS TO BE HYDROSEEDED.

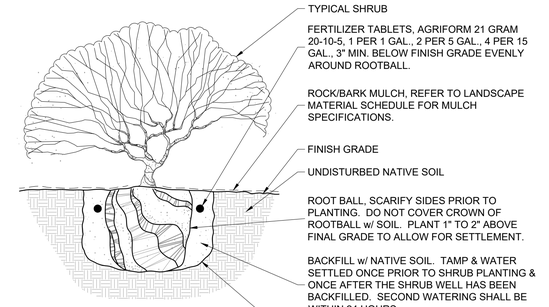
5 ROCK / BARK MULCH

SCALE: NTS



4 TREE STAKING

SCALE: NTS

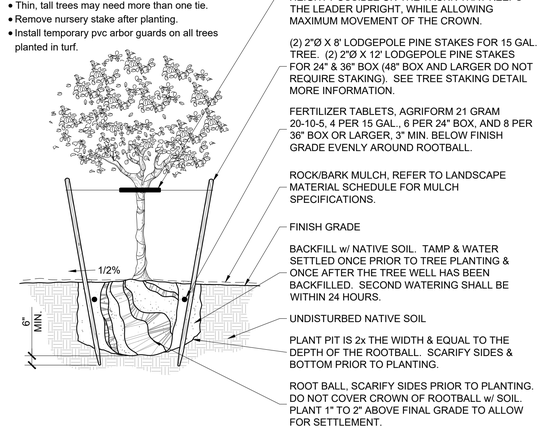


2 SHRUB PLANTING

SCALE: NTS

NOTE:

- Plants delivered w/ cracked or broken containers will be rejected.
- Thin, tall trees may need more than one tie.
- Remove nursery stake after planting.
- Install temporary pvc arbor guards on all trees planted in turf.



1 TREE PLANTING

SCALE: NTS

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DOUGLAS CRAIG 441
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COLORADO 811 UNCOVER YOUR PROPERTIES

WILLOW BEND

FINAL PLAT

FORT LUPTON, COLORADO

PROJECT NO :	19001925
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DRAWN:	KWN/MB
REVIEWED:	BG/DC

REVISIONS

1.
2.
3.
4.
5.

PLANTING DETAILS

L6.01

SHEET 51 OF 88

1ST SUBMITTAL

L:\19001925-fulton ranch (fort lupton)\E-19001925-landscape\3-CD\3-SHEETS\1925-CD-L6.01-L6.02.dwg

IRRIGATION CONSTRUCTION NOTES

1. DRAWINGS AND BASE INFORMATION – ALL BASE AND PLANTING INFORMATION HAVE BEEN PROVIDED BY RVI PLANNING. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY HYDROSYSTEMS*KDI OF ANY DISCREPANCIES BETWEEN THE UTILITY OR PLANTING PLANS AND THE IRRIGATION PLAN. IF CONTRACTOR FAILS TO NOTIFY HYDROSYSTEMS*KDI AND MAKES CHANGES TO THE IRRIGATION SYSTEM DESIGN, HE ASSUMES ALL COSTS AND LIABILITIES ASSOCIATED WITH THOSE FIELD CHANGES. REFER TO SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS. CONTACT IRRIGATION CONSULTANT FOR CURRENT SPECIFICATIONS IF NOT PROVIDED.

2. SYSTEM PRESSURE - HYDROSYSTEMS*KDI HAS SPECIFIED & DESIGNED A BOOSTER PUMP SYSTEM TO SERVE THIS SITE WHICH SHALL PROVIDE WATER PRESSURE IN THIS AREA AT A MINIMUM OF **98** PSI. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY PRESSURE PRIOR TO COMMENCING ANY CONSTRUCTION AND NOTIFY HYDROSYSTEMS*KDI OF ANY VARIANCE FROM THE STATED PRESSURE IMMEDIATELY. WRITTEN DOCUMENTATION OF PRESSURE TEST AND RESULTS SHALL BE PROVIDED TO HYDROSYSTEMS*KDI AT CONSTRUCTION ONSET. IF CONTRACTOR FAILS TO FIELD VERIFY PRESSURE AND/OR NOTIFY HYDROSYSTEMS*KDI OR ANY VARIATIONS FROM THIS PRESSURE, THEN HE ASSUMES ALL CONSTRUCTION AND ENGINEERING COSTS ASSOCIATED WITH SYSTEM MODIFICATIONS REQUIRED TO ACCOMMODATE ACTUAL SITE PRESSURE. THIS SYSTEM HAS BEEN DESIGNED FOR A REQUIRED STATIC PRESSURE OF **98** PSI MINIMUM.

3. IRRIGATION SYSTEM OPERATION INTENT - THIS IRRIGATION SYSTEM HAS BEEN DESIGNED TO IRRIGATE THE ESTABLISHED LANDSCAPE WITHIN A SIX NIGHT PER WEEK, EIGHT HOUR PER NIGHT WATERING WINDOW. ESTABLISHMENT WATERING WILL REQUIRE UP TO TWICE AS MUCH IRRIGATION FOR A FOUR TO SIX WEEK PERIOD. THE DESIGN IS BASED ON THE FOLLOWING PROJECTED WEEKLY APPLICATION RATES AFTER ESTABLISHMENT. THESE FIGURES ARE BASED ON A 30-YEAR AVERAGE WEATHER DATA AND WILL NEED TO BE ADJUSTED DUE TO SEASONAL CHANGES AND WEATHER CONDITIONS ABOVE AND BELOW THE AVERAGE VALUES UTILIZED.

BLUEGRASS TURF	1.84" PER WEEK PEAK SEASON
ORNAMENTAL PLANTINGS	0.89" PER WEEK PEAK SEASON
NATIVE SEED MIXES	0.65" PER WEEK PEAK SEASON (TWO SEASONS)

NOTE: IT IS THE INTENT OF THIS DESIGN THAT NATIVE AREAS WOULD ONLY BE IRRIGATED FOR ESTABLISHMENT. SYSTEM WILL REMAIN FOR USE DURING YEARS WITH LESS THAN NORMAL RAINFALL.

4. EQUIPMENT INSTALLATION - IT IS THE INTENT OF THIS DESIGN THAT ALL IRRIGATION EQUIPMENT BE INSTALLED WITHIN PROPERTY LIMITS AND WITHIN LANDSCAPED AREAS. ANY EQUIPMENT OTHER THAN VALVE BOXES OR SLEEVING THAT CONTAINS PIPE OR WIRES SHOWN OUTSIDE OF THESE LIMITS IS SHOWN IN THAT LOCATION FOR GRAPHICAL CLARITY ONLY. ALL VALVE BOXES SHALL BE INSTALLED A MINIMUM OF 2'-0" FROM EDGE OF ANY PAVED SURFACES UNLESS SPECIFICALLY INDICATED ON PLANS. BOXES INSTALLED IN OPEN TURF AREAS SHALL BE KEPT TO EDGES AND STAKED FOR REVIEW IF ALONG HIGH TRAFFIC AREAS. ALL VALVE BOXES SHALL BE PLACED A MINIMUM OF 3'-0" FROM THE CENTERLINE OF ANY DRAINAGE SWALE. ALL VALVE BOXES WITHIN PAVEMENT SHALL BE TIER 15 RATED BOXES FOR HEAVY DUTY NON-DELIBERATE TRAFFIC. BOX LID COLOR SHALL MATCH ADJACENT MATERIALS, I.E. GREEN IN TURF, TAN IN WOOD MULCH, GRAY IN STONE MULCH, PURPLE FOR RECLAIMED WATER SYSTEMS (IF REQUIRED). REFER TO LANDSCAPE PLANS FOR MATERIAL COLORS AND TYPES. ALL BOXES SHALL BE INSTALLED TO BE FLUSH WITH GRADE AND IN AN ORDERLY MANNER.

5. MANUAL DRAIN VALVES - CONTRACTOR TO INSTALL ONE MANUAL DRAIN VALVE ON PRESSURE SUPPLY LINE DIRECTLY DOWNSTREAM OF BACKFLOW PREVENTER AND AT ALL LOW POINTS AND DEAD ENDS OF PRESSURE SUPPLY PIPING TO ENSURE COMPLETE DRAINAGE OF SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THESE LOCATIONS IN-FIELD AND INSTALLATION LOCATIONS SHALL BE NOTED ON AS-BUILTS.

6. POP-UP SPRAY NOZZLES - CONTRACTOR TO INSTALL PLASTIC NOZZLES ON ALL POP-UP SPRAY HEADS. INSTALL 15 SERIES NOZZLES ON ALL HEADS SPACED AT 12' TO 14'. INSTALL 12 SERIES NOZZLES ON ALL HEADS SPACED 10' TO 11'. INSTALL 10 SERIES NOZZLES ON ALL HEADS SPACED AT 8' TO 9'. INSTALL 8 SERIES NOZZLES ON ALL HEADS SPACED AT 6' TO 7'. INSTALL 5' NOZZLES ON ALL HEADS SPACED AT 5'. INSTALL SIDE STRIP NOZZLES ON ALL HEADS WITH AN "S" DESIGNATION AND RIGHT AND LEFT CORNER STRIP NOZZLES ON ALL HEADS WITH AN "L" OR "R" DESIGNATION. VARIABLE ARC NOZZLES SHOULD BE UTILIZED ADJACENT TO CURVILINEAR SHRUB BEDS OR FOR ANY ANGLES THAT ARE NOT A STANDARD NOZZLE ANGLE. WHERE INDICATED, INSTALL LOW FLOW SQ SERIES SQUARE NOZZLES AT SPACING SHOWN.

7. DRIP IRRIGATION - REFER TO IRRIGATION DETAIL SHEET FOR DRIP EMITTER QUANTITIES AND PLACEMENT.

8. UNLABELED PIPING - ALL UNLABELED LATERAL PIPING SHALL BE 1" MINIMUM UNLESS OTHERWISE NOTED.

9. SLEEVING - ALL SLEEVING UNDER PAVED SURFACES SHOWN ON PLANS IS BY CONTRACTOR UNLESS OTHERWISE NOTED. SLEEVING SHALL BE INSTALLED IN THE SIZES AND QUANTITIES SHOWN ON PLANS OR BASED ON THE SCHEDULE BELOW. WHERE SLEEVES ARE SHOWN, BUT NOT LABELED, FOLLOW THE SCHEDULE BELOW. ALL MAINLINE, CONTROL WIRES AND DRIP LINES UNDER PAVED SURFACES ARE TO BE INSTALLED IN SLEEVING. ALL MAINLINE SLEEVE LOCATIONS TO INCLUDE A SEPARATE WIRE SLEEVE.

SLEEVED PIPE SIZE/WIRE QUANTITY	REQUIRED SLEEVE SIZE & (QUANTITY)
1" – 1½" PIPING	2" PVC (1)
1½" – 2" PIPING	4" PVC (1)
2½" – 3" PIPING	6" PVC (1)
4" PIPING	8" PVC (1)
6" PIPING	10" PVC (1)
8" PIPING	12" PVC (1)
10" PIPING	16" PVC (1)
COMMUNICATION CABLE	2" PVC (1)

10. 2-WIRE SYSTEM NOTES - CONTRACTOR SHALL INSTALL ALL TWO-WIRE COMPONENTS PER MANUFACTURES RECOMMENDATIONS AND STANDARDS.
10.1. CONTRACTOR SHALL USE ONLY MANUFACTURED 2-WIRE DECODER CABLE (SEE SCHEDULE FOR SPECIFIC 2-WIRE CABLE).
10.2. USE DIFFERENT COLOR 2-WIRE DECODER CABLE FOR EACH CONTROLLER (I.E. BLUE FOR A, BLACK FOR B, ETC.).
10.3. ONLY USE SINGLE STATION DECODERS (SEE SCHEDULE FOR SPECIFIC MODEL).
10.4. ONLY USE SENSOR DECODER FOR FLOW SENSOR (SEE SCHEDULE FOR SPECIFIC MODEL) IF INDICATED ON PLANS.
10.5. LOOP 5' OF 2-WIRE DECODER CABLE INTO ALL VALVE BOXES (WITH DECODERS AND SPLICES) FOR MAINTENANCE.
10.6. USE ONLY 3M DBR-6 WATERPROOF CONNECTORS ON ALL WIRE SPLICES AND ALL WIRE SPLICES ARE TO BE MADE WITHIN A VALVE BOX WITH CONTROL VALVES OR A SEPARATE 10" ROUND VALVE BOX FOR WIRE SPLICES.
10.7. INSTALL SURGE PROTECTOR RODS OR PLATES 8 LF. FROM VALVES, DECODERS, AND COMMUNICATION WIRE.
10.8. GROUND ALL DECODERS AND DECODER WIRE A MINIMUM OF EVERY 600' OF WIRE AND AT ALL ENDS OF 2-WIRE DECODER CABLE RUN.
10.9. LOOP EXTRA 10' OF 2-WIRE DECODER CABLE INTO A VALVE BOX AT PHASING LINES FOR FUTURE CONNECTION (IF INDICATED ON PLANS).

11. ADJUSTMENT - CONTRACTOR SHALL FINE TUNE/ADJUST THE IRRIGATION SYSTEM TO REDUCE/AVOID OVERSPRAY ONTO HARD SURFACES BY ADJUSTING NOZZLE DIRECTION AND NOZZLE RADIUS.

12. PLANS AND SPECIFICATIONS - CONTRACTOR RESPONSIBLE TO ENSURE WORK CONFORMS TO PLANS AND SPECIFICATIONS. AT ONSET OF CONSTRUCTION, VERIFY PLANS ARE CURRENT. WHERE REQUIRED BY CITY, CONTRACTOR SHALL CONSTRUCT ONLY OFF CITY STAMPED PLANS. REVISIONS TO CITY STAMPED PLANS SHALL CONFORM TO CITY FIELD CHANGE PROCEDURES AND DOCUMENTATION.

13. SIMULTANEOUS ZONE OPERATION - THIS IRRIGATION SYSTEM HAS BEEN DESIGNED TO OPERATE MULTIPLE ZONES SIMULTANEOUSLY BASED ON INDIVIDUAL ZONE FLOW. THE DESIGN IS INTENDED TO OPERATE MULTIPLE VALVES, UP TO THE MAXIMUM FLOW IN THE POINT OF CONNECTION NOTE. REFER TO CONTROLLER SPECIFICATION FOR MAXIMUM SIMULTANEOUS VALVE COUNT.

14. BASELINE TRAINING – CONTRACTOR IS RESPONSIBLE TO RECEIVE BASELINE 2-WIRE TRAINING PRIOR TO ANY INSTALLATION.

15. MOISTURE SENSORS – CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION OF SOIL MOISTURE SENSORS FOR EACH CONTROLLER. A MINIMUM OF 18 SOIL MOISTURE SENSORS SHALL BE INSTALLED FOR EACH CONTROLLER, OR AS INDICATED ON THE PLANS. INSTALL SENSOR AND CONNECT TO THE CONTROL VALVE WITHIN THAT HYDROZONE. ALL OTHER CONTROL VALVES WITHIN THAT HYDROZONE WILL BE PROGRAMMED TO THAT VALVE/SENSOR USING THE CONTROLLER PROGRAM. ALL SENSOR LOCATIONS WILL BE TRENCHED AND WIRED BACK TO THE VALVE BOX USING A 14-2 MAXICABLE.
15.1. CONTRACTOR TO ENSURE THAT ONE SOIL MOISTURE SENSOR GETS INSTALLED IN AT LEAST ONE SOD AREA, ONE NATIVE AREA, ONE SHRUB BED AREA, ONE DRIP ZONE TO TREES IN NATIVE AND ONE ZONE OF TREES IN GRAVEL/CRUSHER FINES PER CONTROLLER.
15.2. AFTER GRON IN PERIOD, CONTRACTOR IS RESPONSIBLE TO ADD SOIL MOISTURE SENSORS AS NEEDED – COORDINATE WITH LANDSCAPE ARCHITECT & IRRIGATION CONSULTANT PRIOR TO ANY INSTALLATION.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	DETAIL NO.
	RAIN BIRD	RD-06-S-P30-NP WITH "MPR" FIXED SPRAY NOZZLE	POPUP SPRAY HEAD	1
L R S	RAIN BIRD	RD-06-S-P30-NP WITH "MPR" SST, CORNER NOZZLE	POPUP SPRAY HEAD	1
	RAIN BIRD	RD-12-S-P30-NP WITH "MPR" FIXED SPRAY NOZZLE	HI-POP SPRAY HEAD	2
L R S	RAIN BIRD	RD-12-S-P30-NP WITH "MPR" FIXED SPRAY NOZZLE	HI-POP SPRAY HEAD	2
#10 #10 #10 #10	HUNTER	I-20-06-SS WITH # NOZZLE	GEAR DRIVEN ROTOR	3
#10 #10 #10 #10	HUNTER	I-20-06-SS WITH # NOZZLE	GEAR DRIVEN ROTOR	3
#10 #10 #10 #10	HUNTER	I-20-12 WITH # LA NOZZLE	GEAR DRIVEN ROTOR	4
#10 #10 #10 #10	HUNTER	I-20-12 WITH # NOZZLE	GEAR DRIVEN ROTOR	4
	RAIN BIRD / BASELINE	PESB-PRS-D W/ BL-5201	ELECTRIC CONTROL VALVE W/ DECODER	5 & 14
	RAIN BIRD	44-NP	QUICK COUPLING VALVE	6
A	BASELINE	BL-3200P W/ BL-ER-P; BL-OMNI-ANT; BL-CM4G-P-VX; BI-PSR-LOAD; DBC SITE VERIFICATION & DBC/BASELINE EXTENDED WARRANTY CERTIFICATION	ELECTRIC CONTROLLER	7 & 8
W	RAIN BIRD	WR2-RC	RAIN SHUT-OFF DEVICE	9
ms	BASELINE	BISENSOR	SOIL MOISTURE SENSOR (9 MIN. PER EACH CONTROLLER)	24 - 26
N/S	OLDCASTLE / CARSON	REFER TO SPECIFICATIONS AND DETAILS	VALVE BOXES	VARIOUS
N/S	MATCO	201X	MANUAL DRAIN VALVE	10
		LINE SIZE	GATE VALVE	11 & 12
	NETAFIM / BASELINE	LHM4FG1-MEL-NC W/ BL-5309	4" HYDROMETER W/ DECODER	13 & 14
	WOODFORD	Y34 -4'	YARD HYDRANT	27
		CLASS 200 DR	PVC MAINLINE	15
		CLASS 200 RT	PVC MAINLINE	16
		CLASS 200 DR	PVC LATERAL	15
N/S	LEEMCO		MECHANICAL JOINT RESTRAINTS	17
		CLASS 160	PVC SLEEVING	18
		CLASS 200 DR - 1"	PVC DRIP LATERAL	19 - 21
	RAIN BIRD	XF BLANK TUBING	POLY DRIP TUBING -¾" MIN. WIDTH	19 - 21
	RAIN BIRD	XCZ-100-PRB-COM	DRIP VALVE ASSEMBLY	19 & 14
			DRIP LINE BLOW-OUT STUB	20
N/S	RAIN BIRD	XERI-BUG	DRIP EMITTERS	21
	APCO	#50	AIR RELIEF VALVE	22
N/S	BASELINE	BL-5201	VALVE DECODER	14
N/S	PAIGE	P7072D - 12 AWG	2-WIRE DECODER CABLE	5, 13, 14, 19 & 23
	BASELINE	BL-LA01	LIGHTNING ARRESTOR	23
P	PRECISION PUMPING SYSTEM	CB##V1C015X00180-058XXXB483ONS-3, 15 HP, 240V/480V, 3 PHASE	VERTICAL TURBINE PUMP	28
			CONTROLLER & STATION NO. / CONTROL VALVE SIZE	

1 POINT OF CONNECTION -NON-POTABLE

PEAK FLOW REQUIREMENT: 180 GPM. REQUIRED STATIC PRESSURE: 98 PSI

CONTRACTOR SHALL TIE ONTO 6" STUB DOWNSTREAM OF WATER METER (RE: CIVIL PLANS). REDUCE TO 4" PVC, INSTALL ONE GATE VALVE ONE MANUAL DRAIN VALVE, ONE PRESION PUMPING SYSTEMS BOOSTER PUMP, ONE 4" HYDROMETER, ONE GATE VALVE, ONE QUICK COUPLING VALVE AND EXTEND PVC MAINLINE AS SHOWN. CONNECT HYDROMETER TO ASSOCIATED CONTROLLER VIA TWO-WIRE COMMUNICATION CABLE PER MANUFACTURER'S REQUIREMENTS. EXTEND ONE PE80 SHIELDED CABLE FROM MAG METER ON PUMP STATION TO DATA RETRIEVAL UNIT LOCATED IN ASSOCIATED CONTROLLER.

240/480 VOLT THREE PHASE POWER IS AVAILABLE WITHIN (TBD) LF. OF BOOSTER PUMP LOCATION FROM RESIDENTIAL TRANSFORMER, BY OTHERS RE: ELECTRICAL -TBD & COORDINATED WITH UNITED POWER.

SEE SHEET IR7.19 FOR CONTROLLER "A" LOCATION

A CONTROLLER LOCATION "A"

PEDESTAL MOUNT CONTROLLER (REFER TO SCHEDULE FOR MODEL & STATION COUNT), REMOTE READY, AT INDICATED LOCATION. 120 VOLT POWER IS AVAILABLE WITHIN (TBD) LF. OF CONTROLLER LOCATION FROM BOOSTER PUMP CONTROL PANEL, BY OTHERS RE: ELECTRICAL -TBD & COORDINATED WITH UNITED POWER. ELECTRICAL METER, WIRE/CONDUIT, STEP DOWN TRANSFORMER (IF REQUIRED) AND POWER CONNECTION TO CONTROLLER IS BY CONTRACTOR WITH WORK CONFORMING TO LOCAL CODES. CONNECT HYDROMETER TO ASSOCIATED CONTROLLER VIA TWO-WIRE COMMUNICATION CABLE PER MANUFACTURER'S REQUIREMENTS. FEES AND PERMITS ASSOCIATED WITH WORK ARE TO BE OBTAINED AND PAID BY CONTRACTOR. FINAL CONTROLLER LOCATION SHALL BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. MOUNT ONE RAIN SENSOR DEVICE ON POLE WHERE THERE IS 20 FT. OF CLEARANCE FROM ANY OVERHANG OR OBSTRUCTING FEATURE. INSTALL SENSOR RECEIVER IN CONTROLLER ENCLOSURE. CONNECT SENSOR RECEIVER WIRES TO IRRIGATION CONTROLLER SENSOR PORT THROUGH CONDUIT. FINAL SENSOR LOCATION SHALL BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

SEE SHEET IR7.19 FOR CONTROLLER "A" LOCATION

REFER TO SHEET

IR7.00	IRRIGATION NOTES
IR7.00	IRRIGATION SCHEDULE
IR7.01	OVERALL IRRIGATION PLAN
IR7.02 - IR7.32	IRRIGATION PLANS
IR8.00 - IR8.03	IRRIGATION DETAILS

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COLORADO 811

WILLOW BEND
FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/21
DRAWN:	KJD/AS
REVIEWED:	KJD/JSB

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1
2
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4
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IRRIGATION NOTES AND SCHEDULE

IR7.00

SHEET NO. 52 OF 88

1ST SUBMITTAL

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REFER TO SHEET	
IR7.00	IRRIGATION NOTES
IR7.00	IRRIGATION SCHEDULE
IR7.01	OVERALL IRRIGATION PLAN
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OVERALL SITE PLAN -KEY MAP

0 100' 200' 400'
SCALE: 1" = 200'-0"

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2
3
4
5

IRRIGATION OVERALL PLAN

IR7.01

SHEET NO. 53 OF 88

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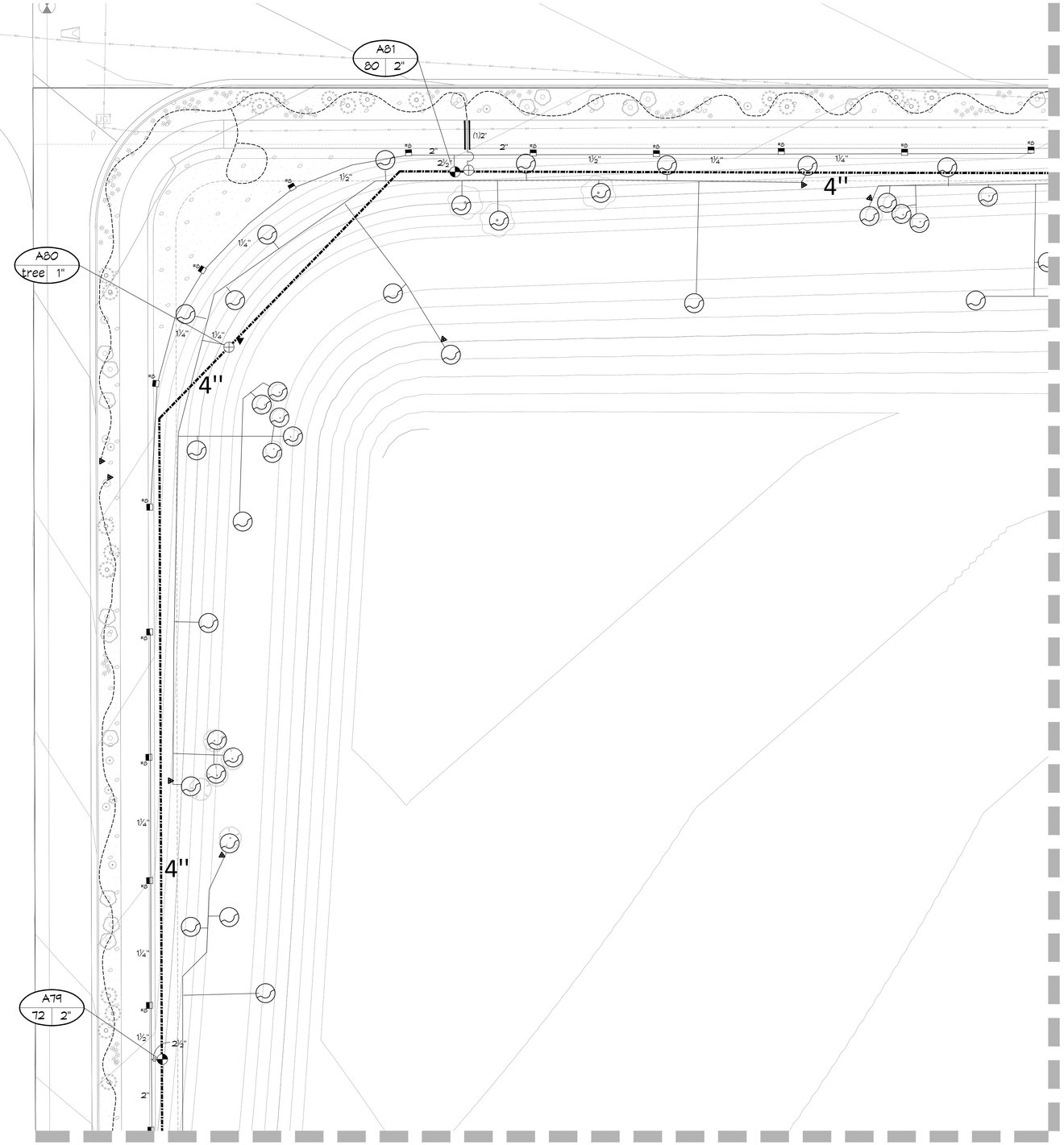

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IR7.00	IRRIGATION SCHEDULE
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0 10' 20' 40'
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1
2
3
4
5

IRRIGATION PLAN

IR7.02

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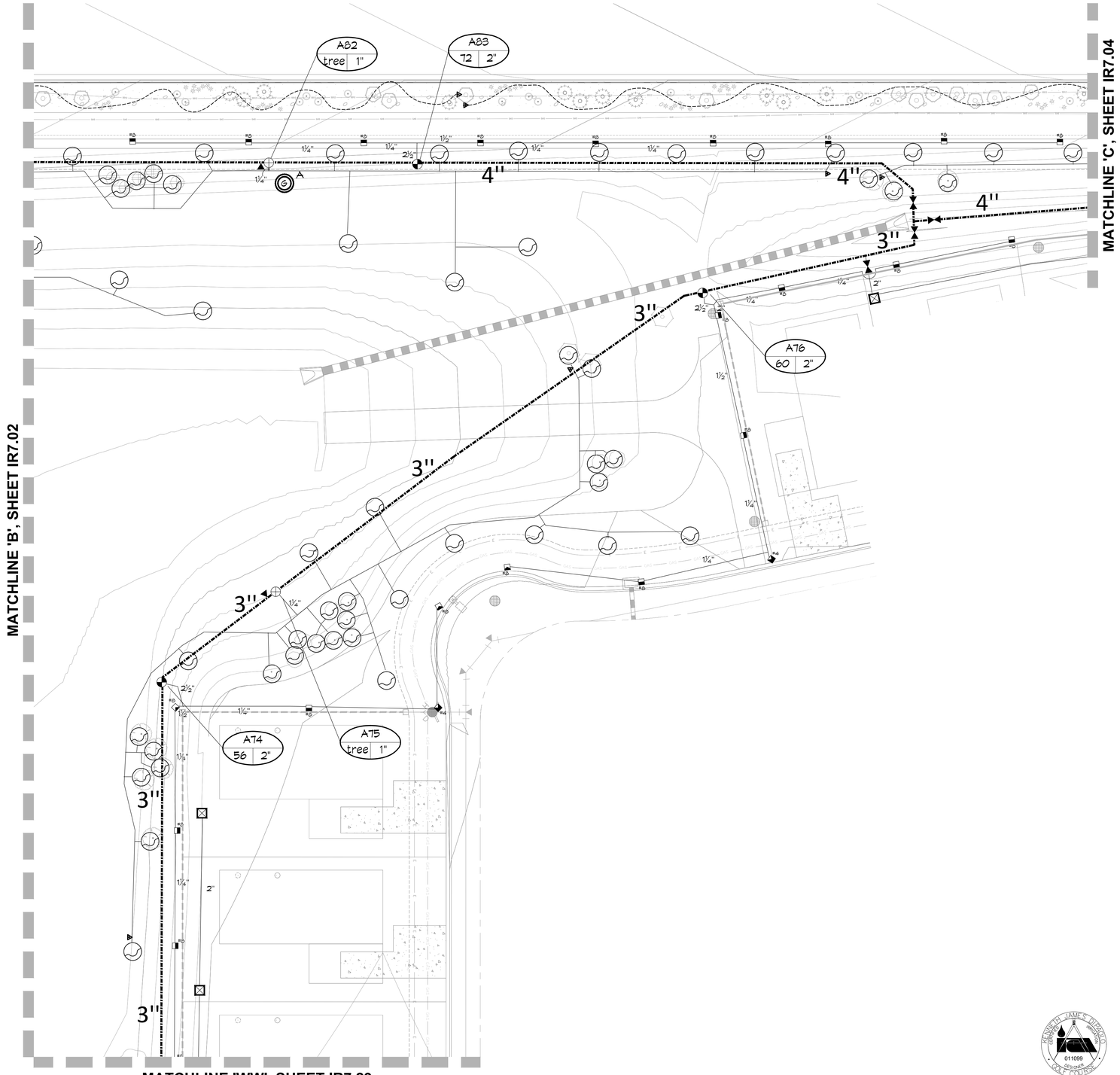

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1
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3
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IRRIGATION PLAN

IR7.03

SHEET NO. 55 OF 88

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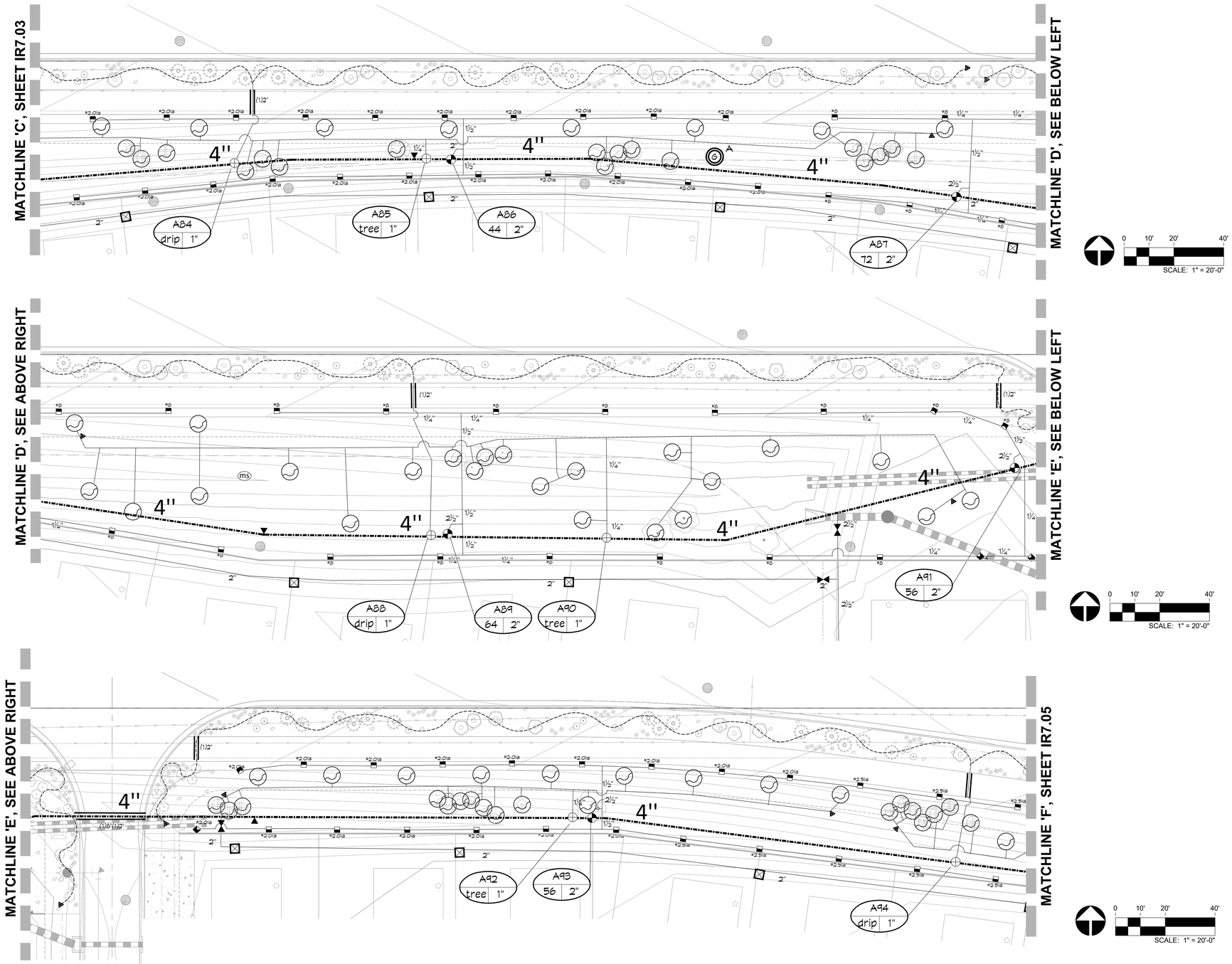

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2
3
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5

IRRIGATION PLAN

IR7.04

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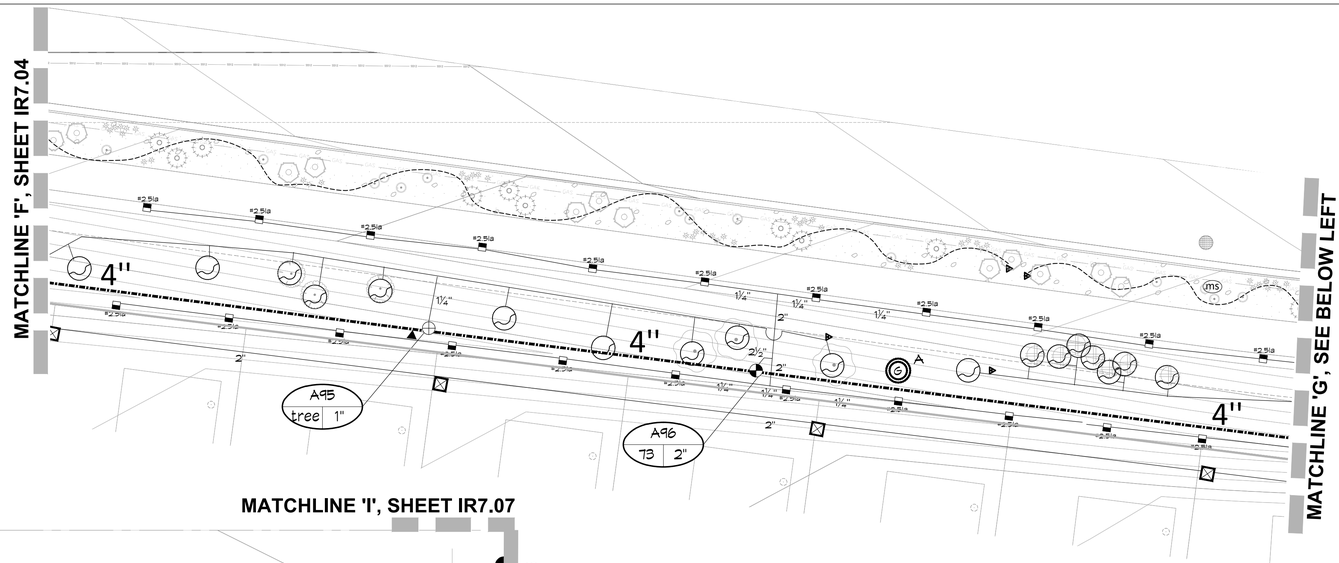

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2
3
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5

IRRIGATION PLAN

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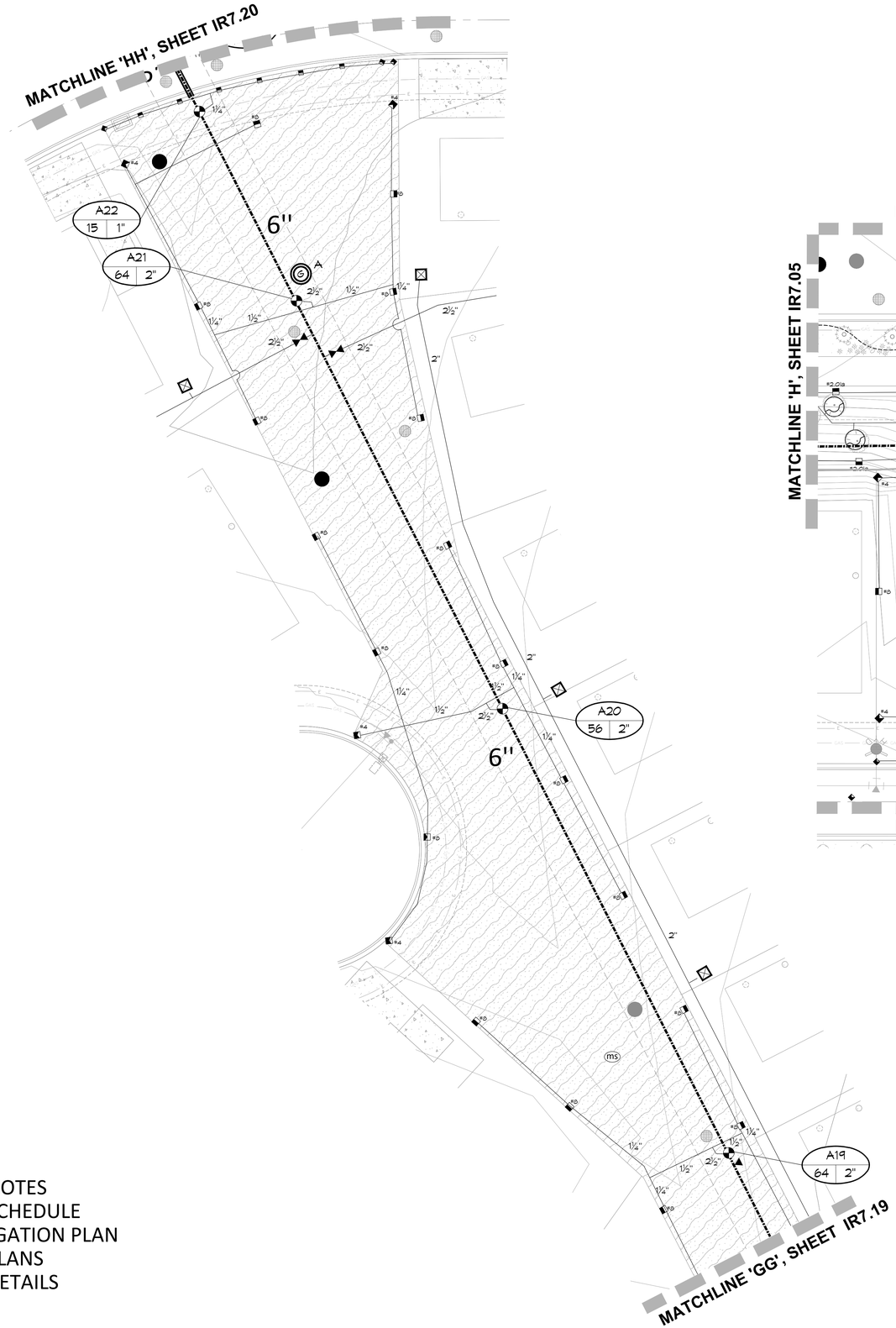

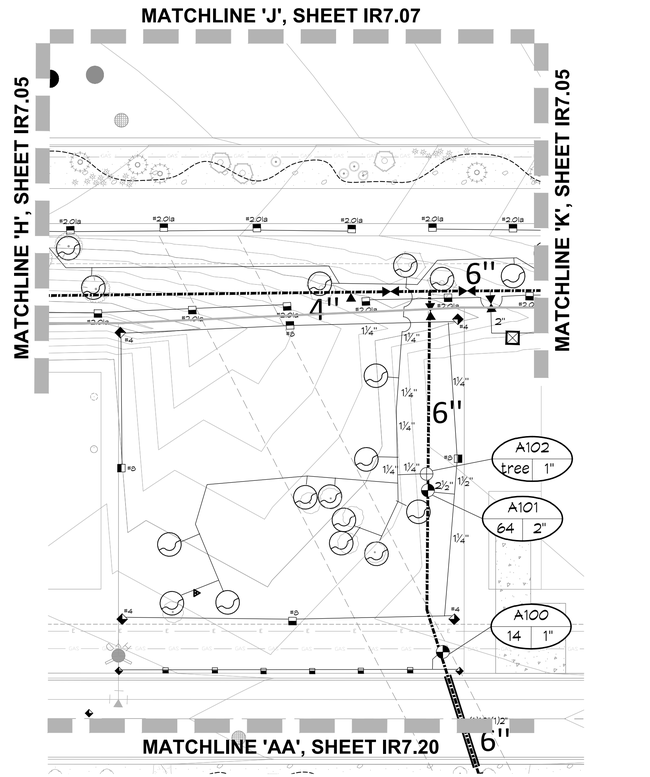



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IRRIGATION PLAN

IR7.06

SHEET NO. 58 OF 88

1ST SUBMITTAL

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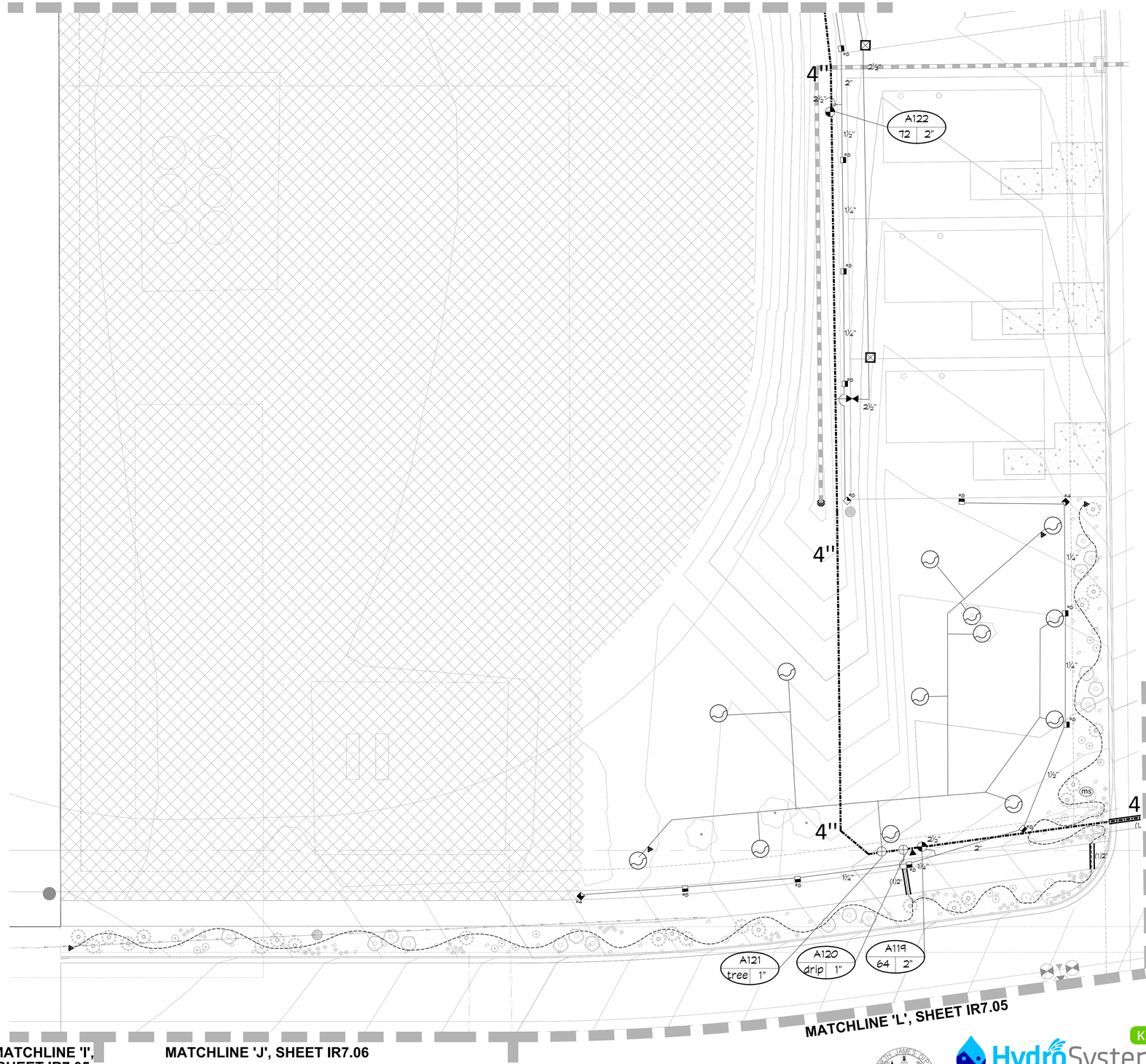
MATCHLINE 'N', SHEET IR7.08



REFER TO SHEET	
IR7.00	IRRIGATION NOTES
IR7.00	IRRIGATION SCHEDULE
IR7.01	OVERALL IRRIGATION PLAN
IR7.02 - IR7.32	IRRIGATION PLANS
IR8.00 - IR8.03	IRRIGATION DETAILS

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COLORADO 811

WILLOW BEND

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/21
DRAWN:	KJD/AS
REVIEWED:	KJD/JSB

REVISIONS
1
2
3
4
5

IRRIGATION PLAN

IR7.07

SHEET NO. 59 OF 88

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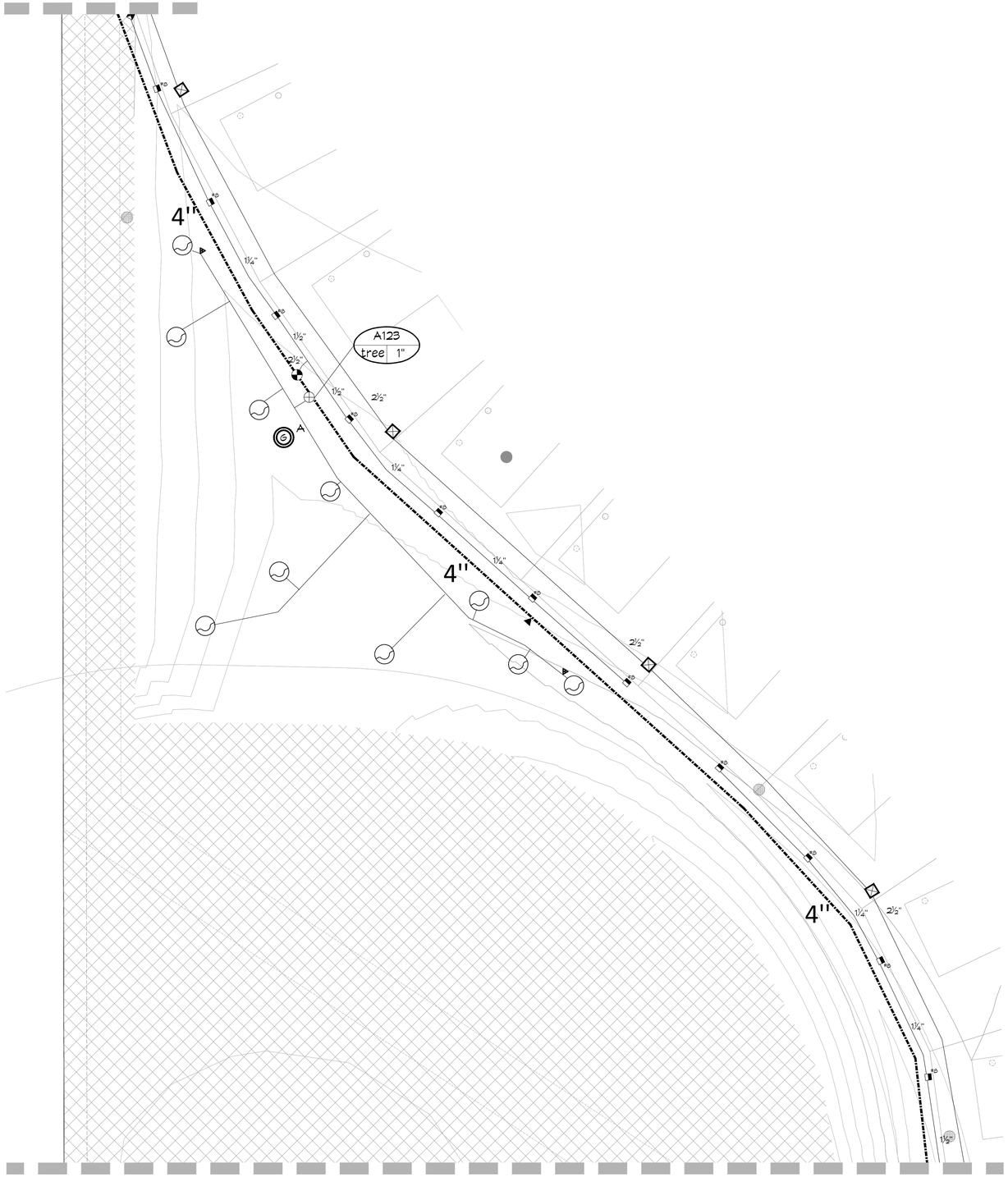
MATCHLINE 'O', SHEET IR7.09



MATCHLINE 'N', SHEET IR7.07

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SCALE: 1" = 20'-0"

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REVISIONS
1
2
3
4
5

IRRIGATION PLAN

IR7.08

SHEET NO. 60 OF 88

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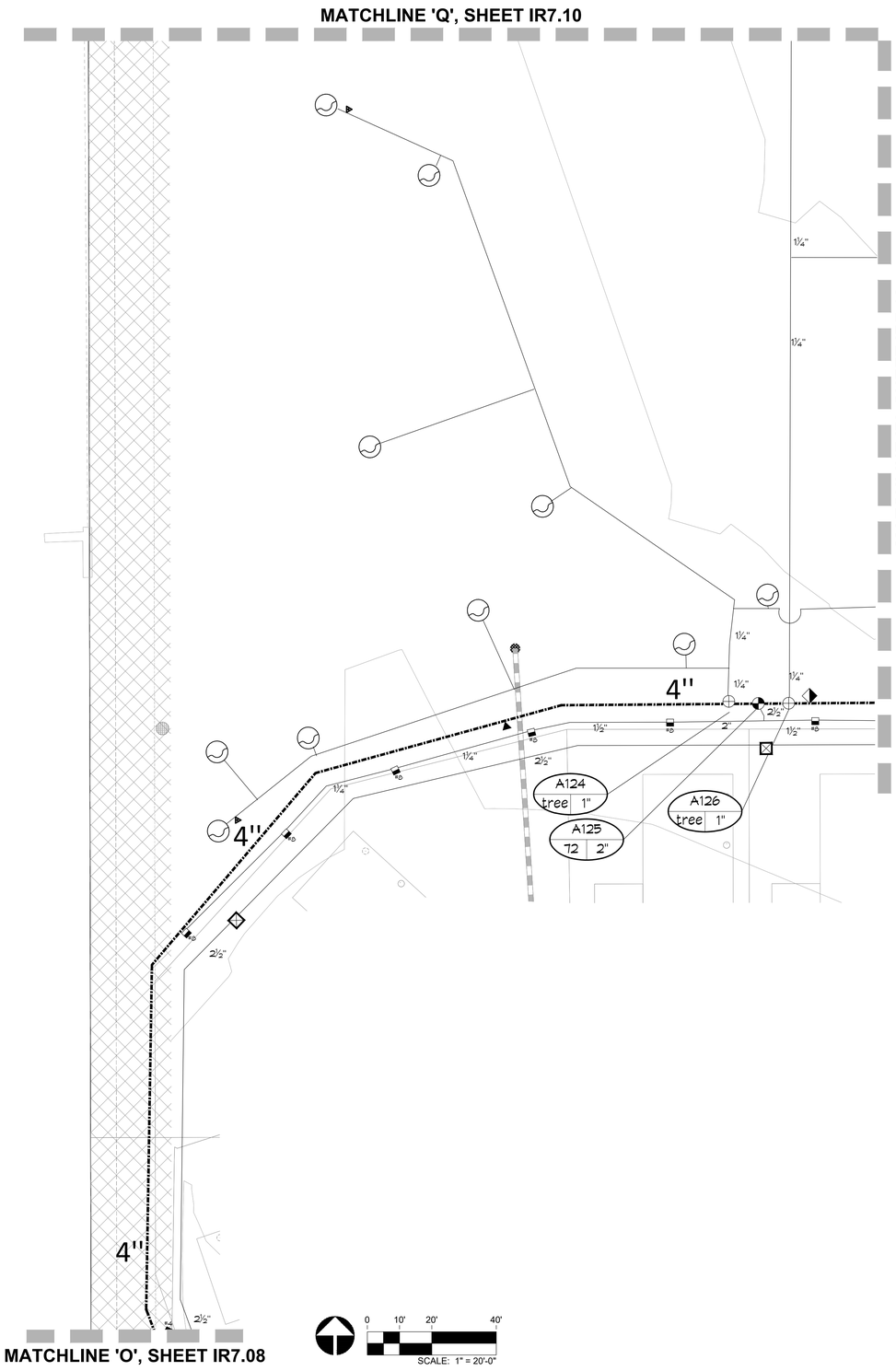

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REVISIONS

1
2
3
4
5

IRRIGATION PLAN

IR7.09

SHEET NO. 61 OF 88

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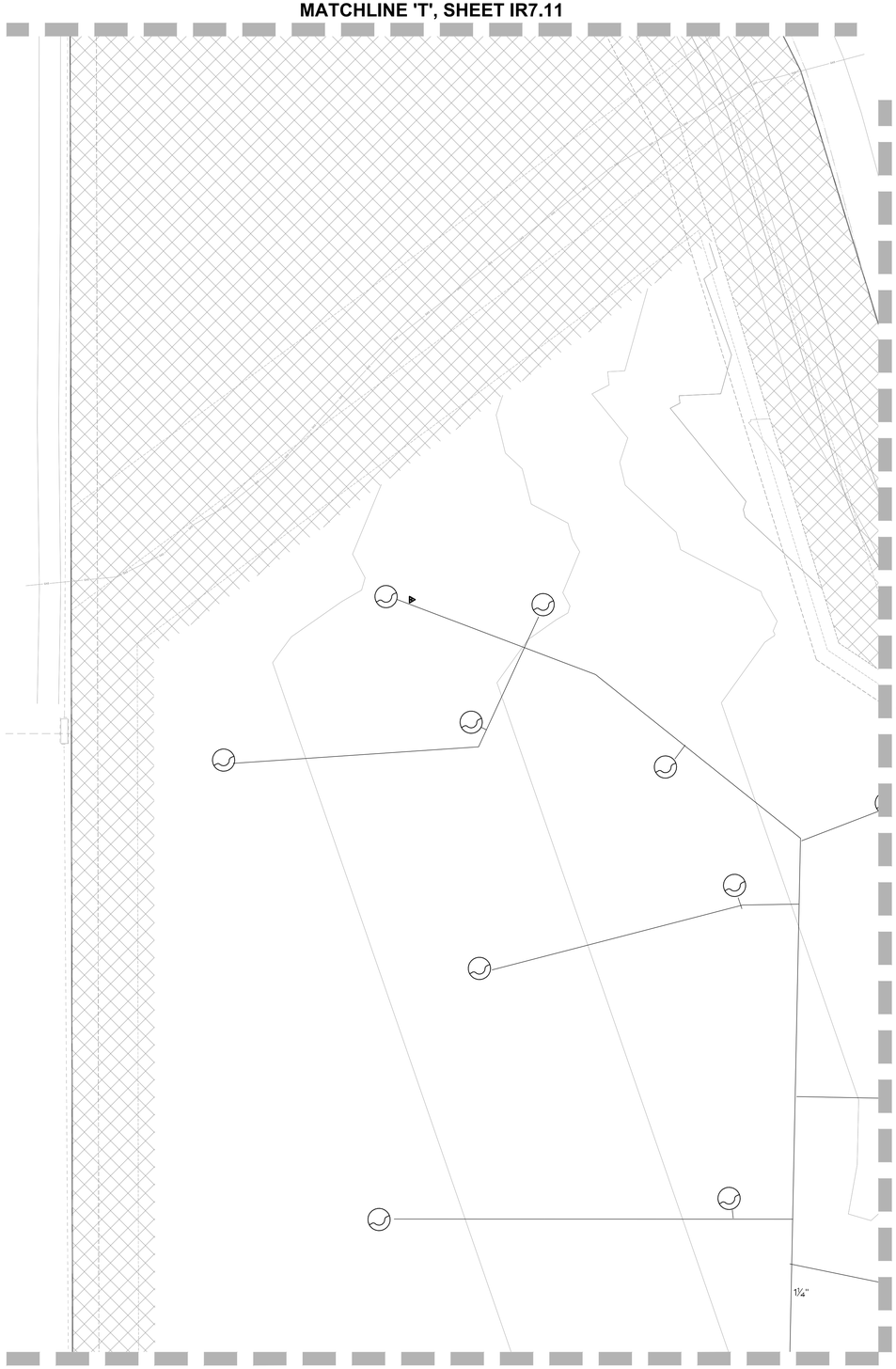

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1
2
3
4
5

KENNETH JAMES DIPAOLO
011099
DESIGNER
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IRRIGATION PLAN

IR7.10

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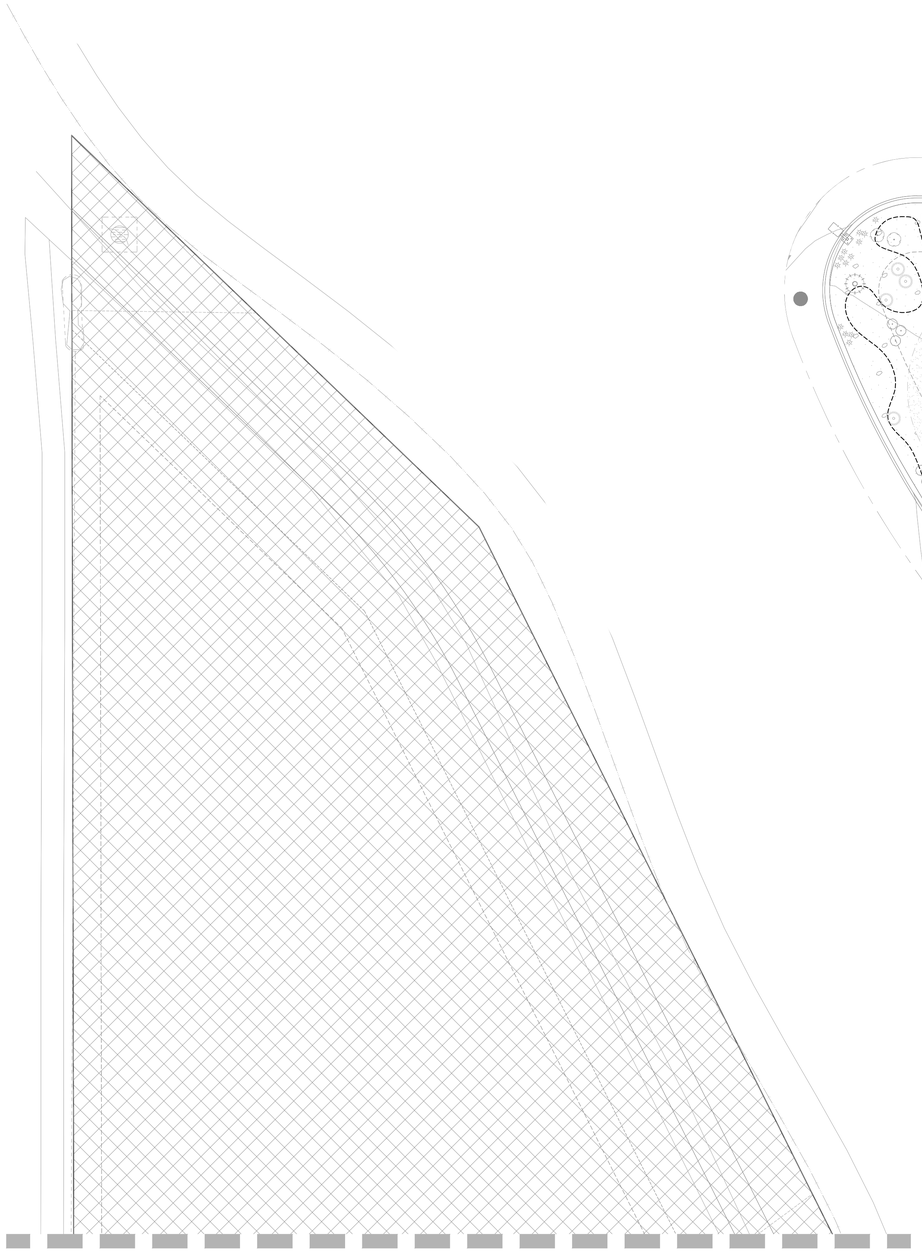

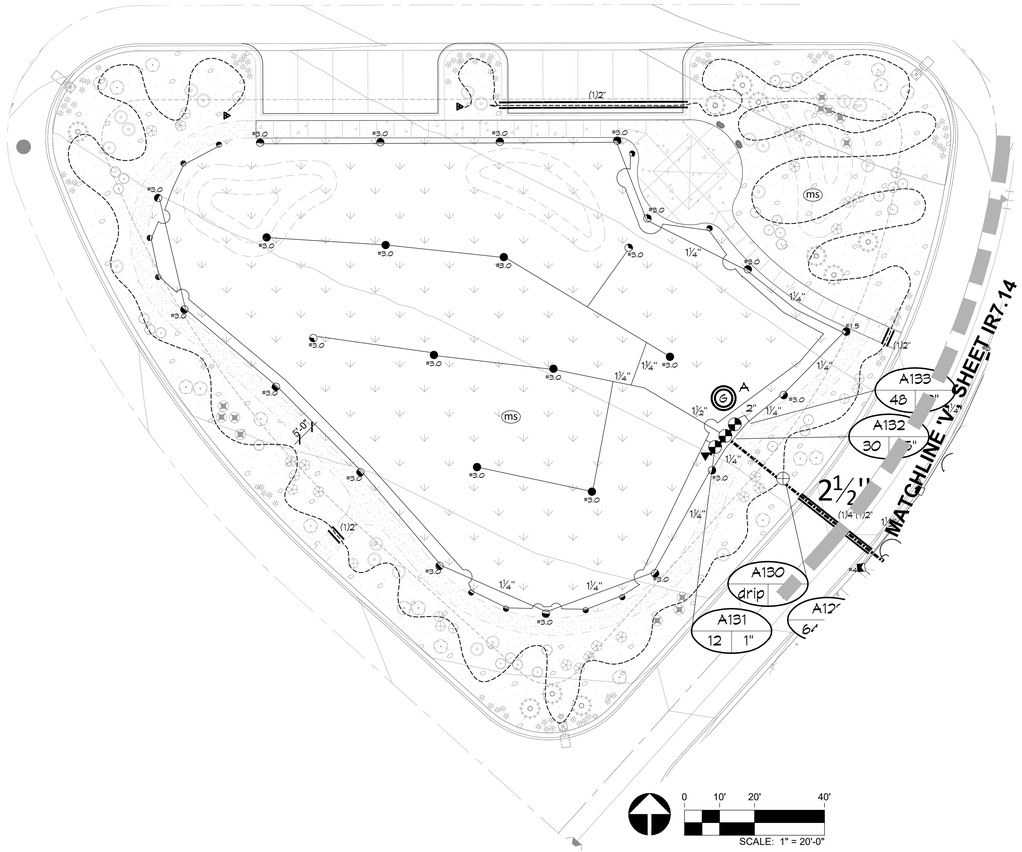

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REVISIONS
1
2
3
4
5

IRRIGATION PLAN

IR7.11

SHEET NO. 63 OF 88

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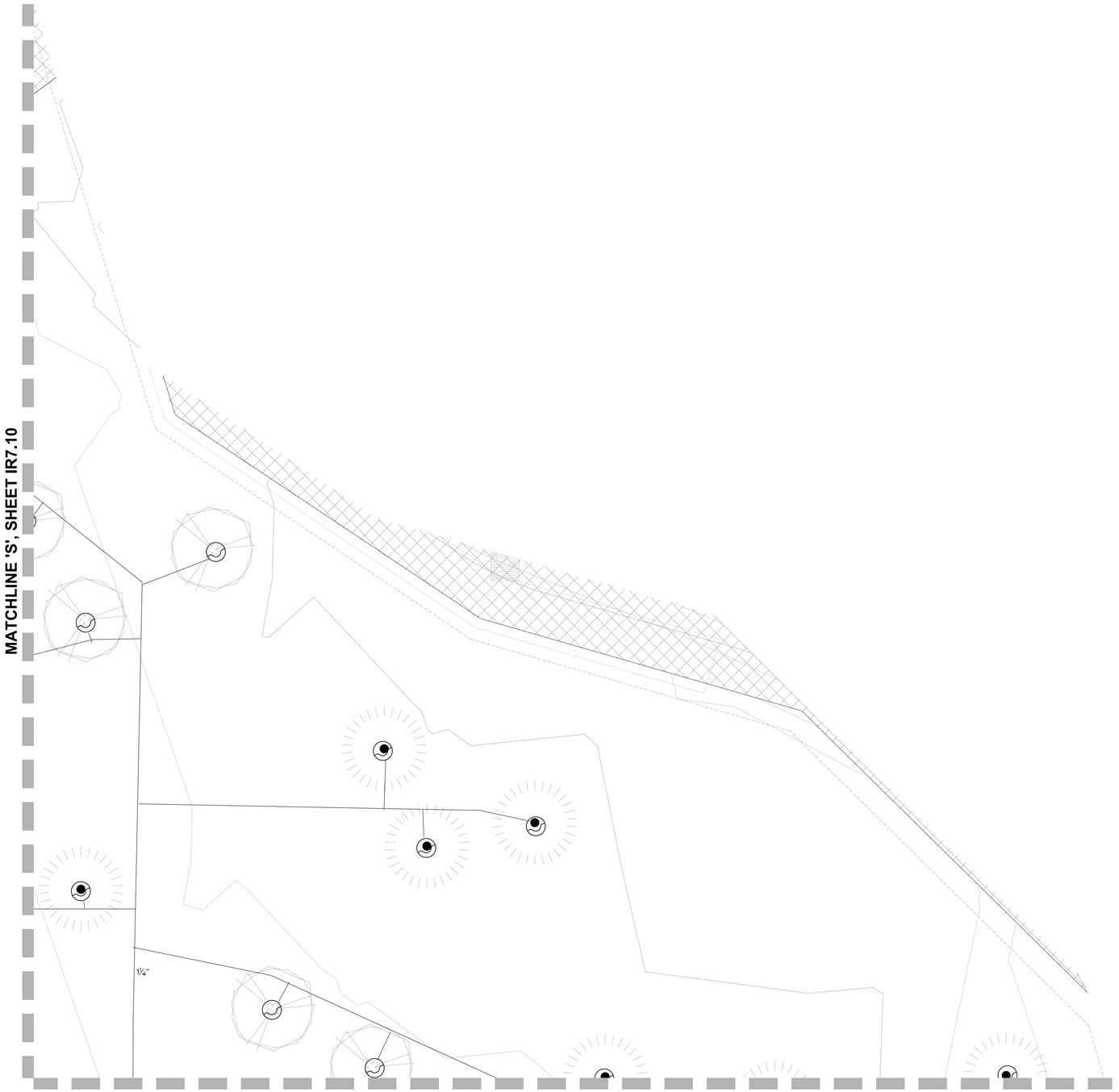

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REVISIONS
1
2
3
4
5

IRRIGATION PLAN

IR7.12

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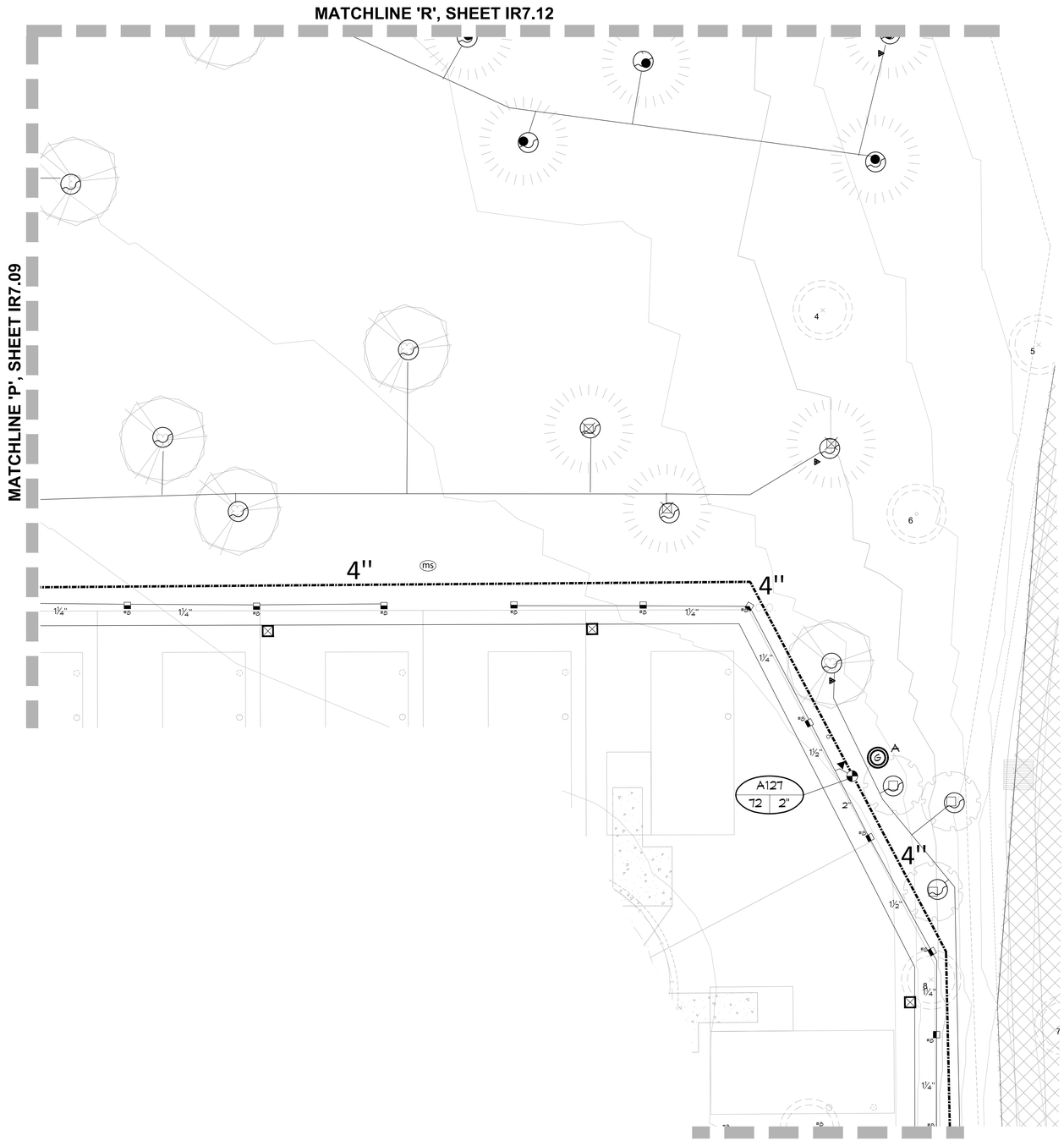

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REVISIONS
1
2
3
4
5

IRRIGATION PLAN

IR7.13

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1
2
3
4
5

IRRIGATION PLAN

IR7.14

SHEET NO. 66 OF 88

1ST SUBMITTAL

KENNETH JAMES DEPAOLO
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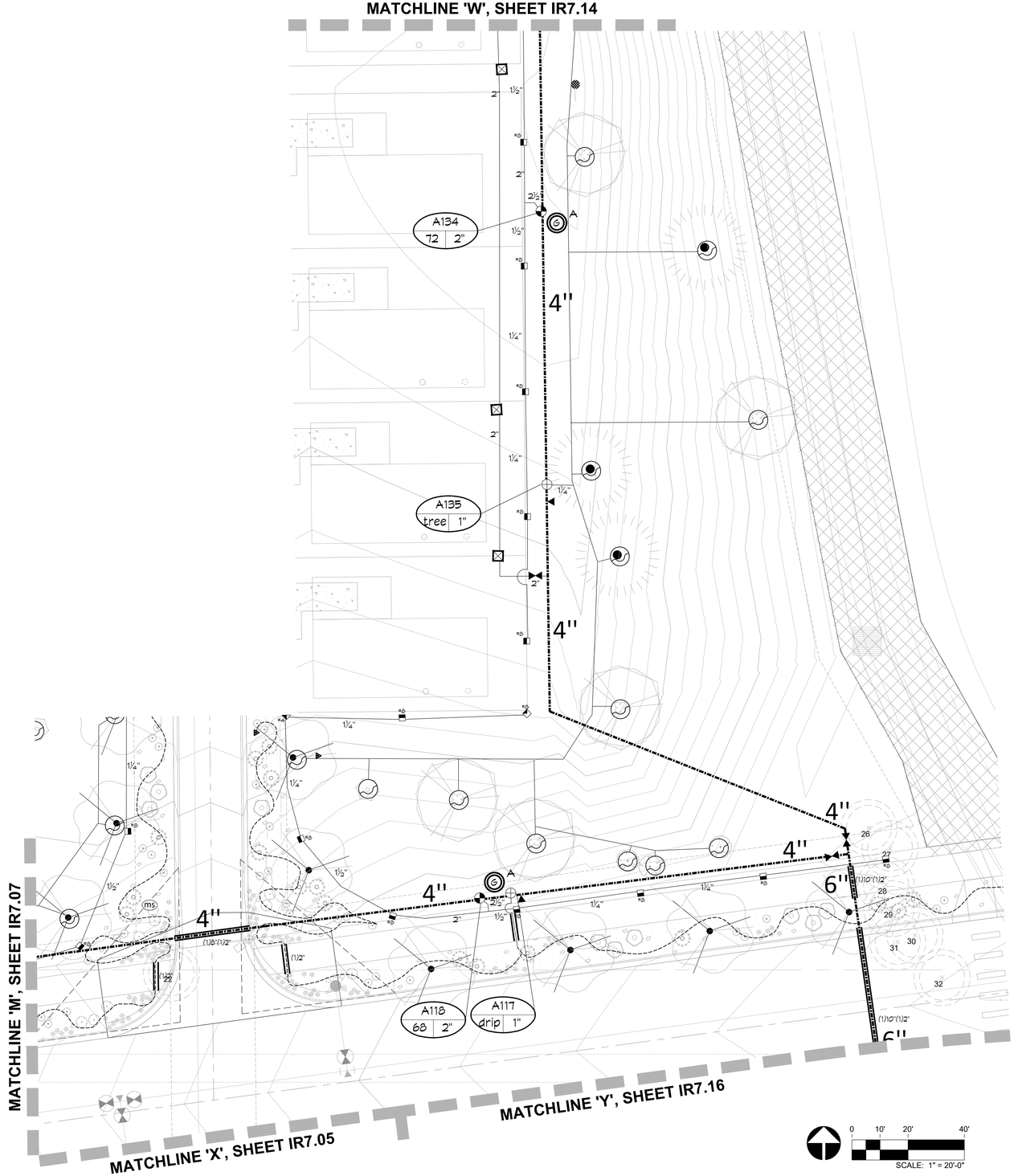

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1
2
3
4
5

IRRIGATION PLAN

IR7.15

SHEET NO. 67 OF 88

1ST SUBMITTAL

KENNETH JAMES DIPAOLO
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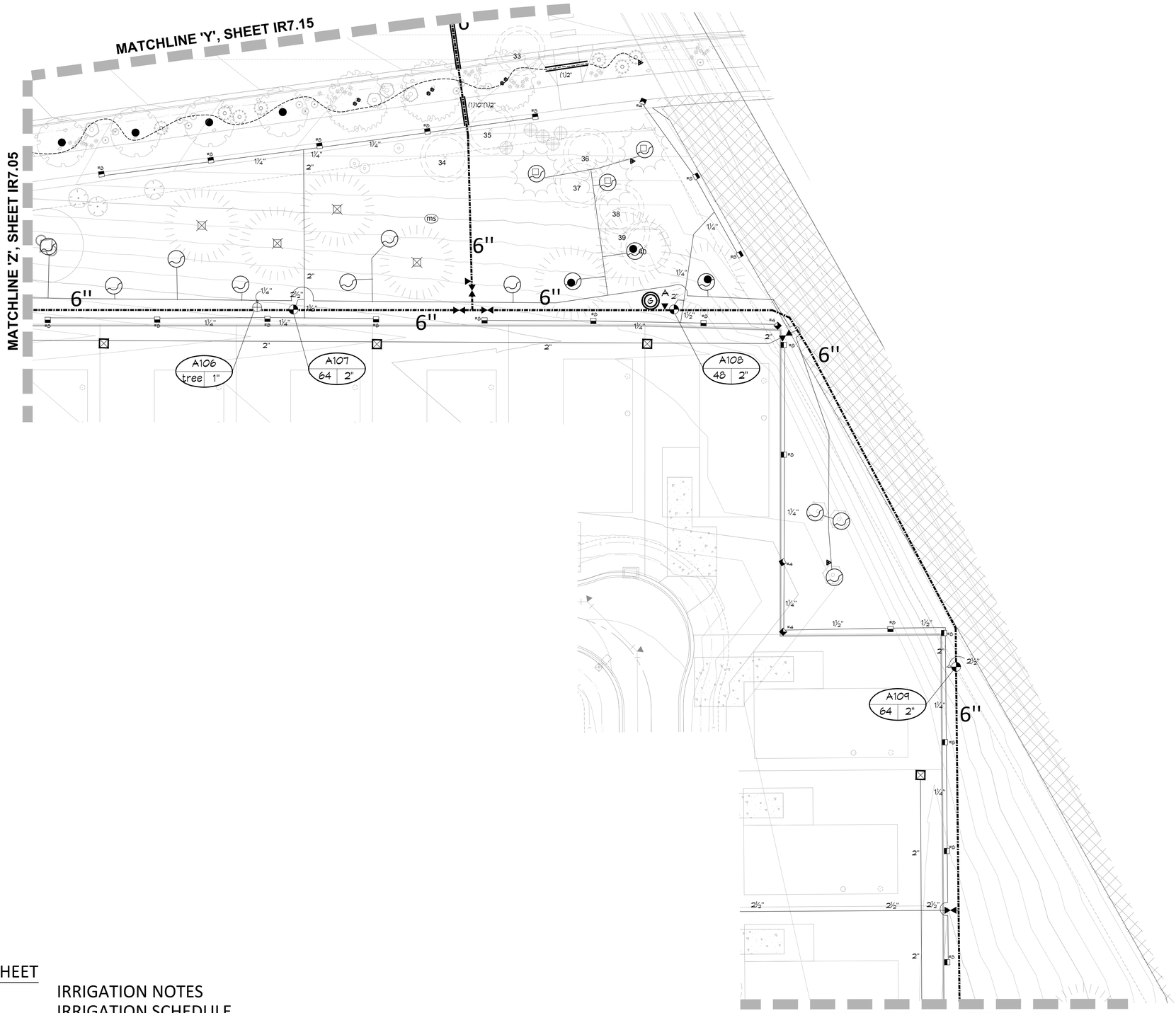

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0 10' 20' 40'

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1
2
3
4
5

IRRIGATION PLAN

IR7.16

SHEET NO. 68 OF 88

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REVISIONS

1
2
3
4
5

IRRIGATION PLAN

IR7.17

SHEET NO. 69 OF 88

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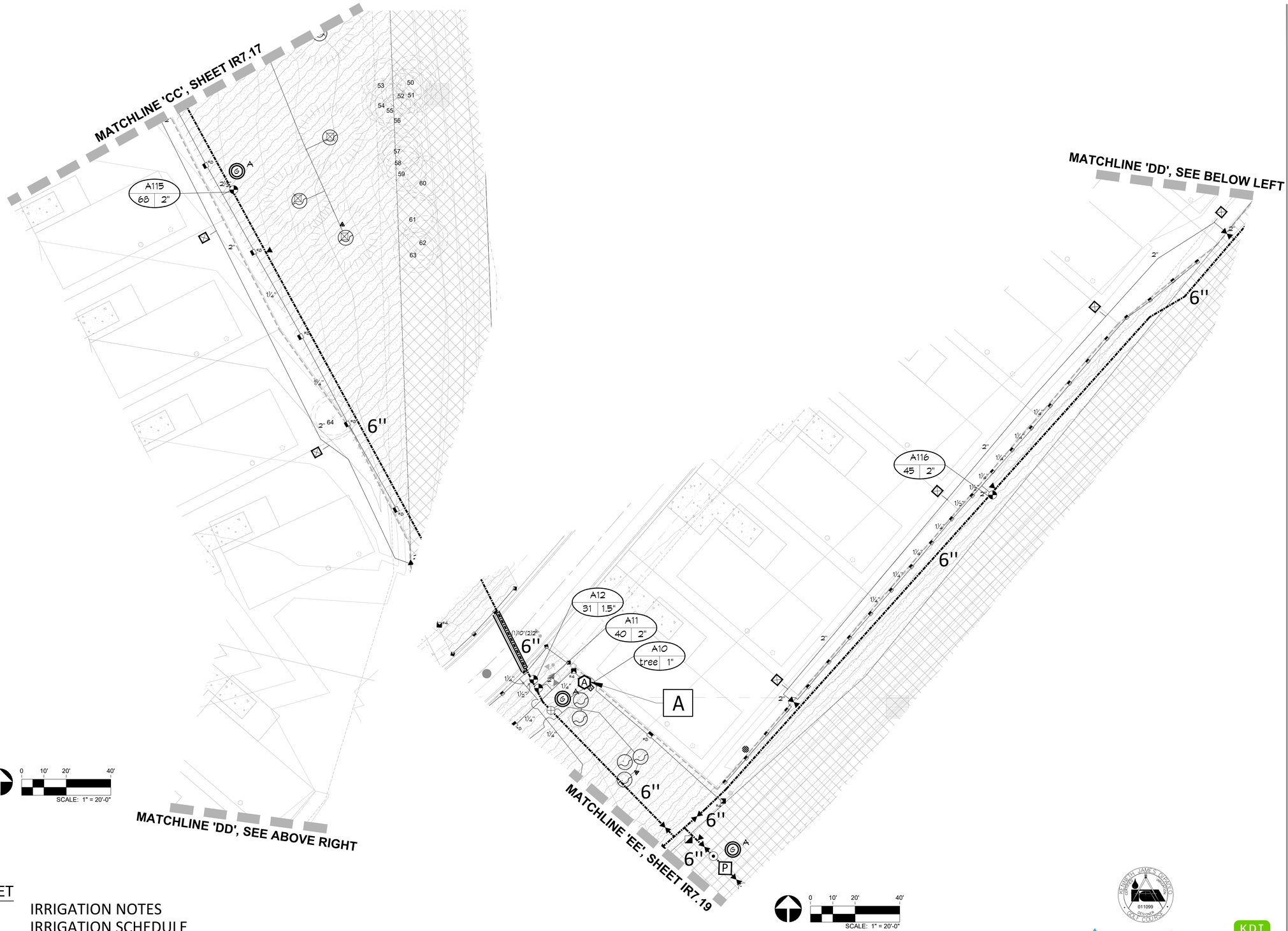

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SHEET NO. 70 OF 88

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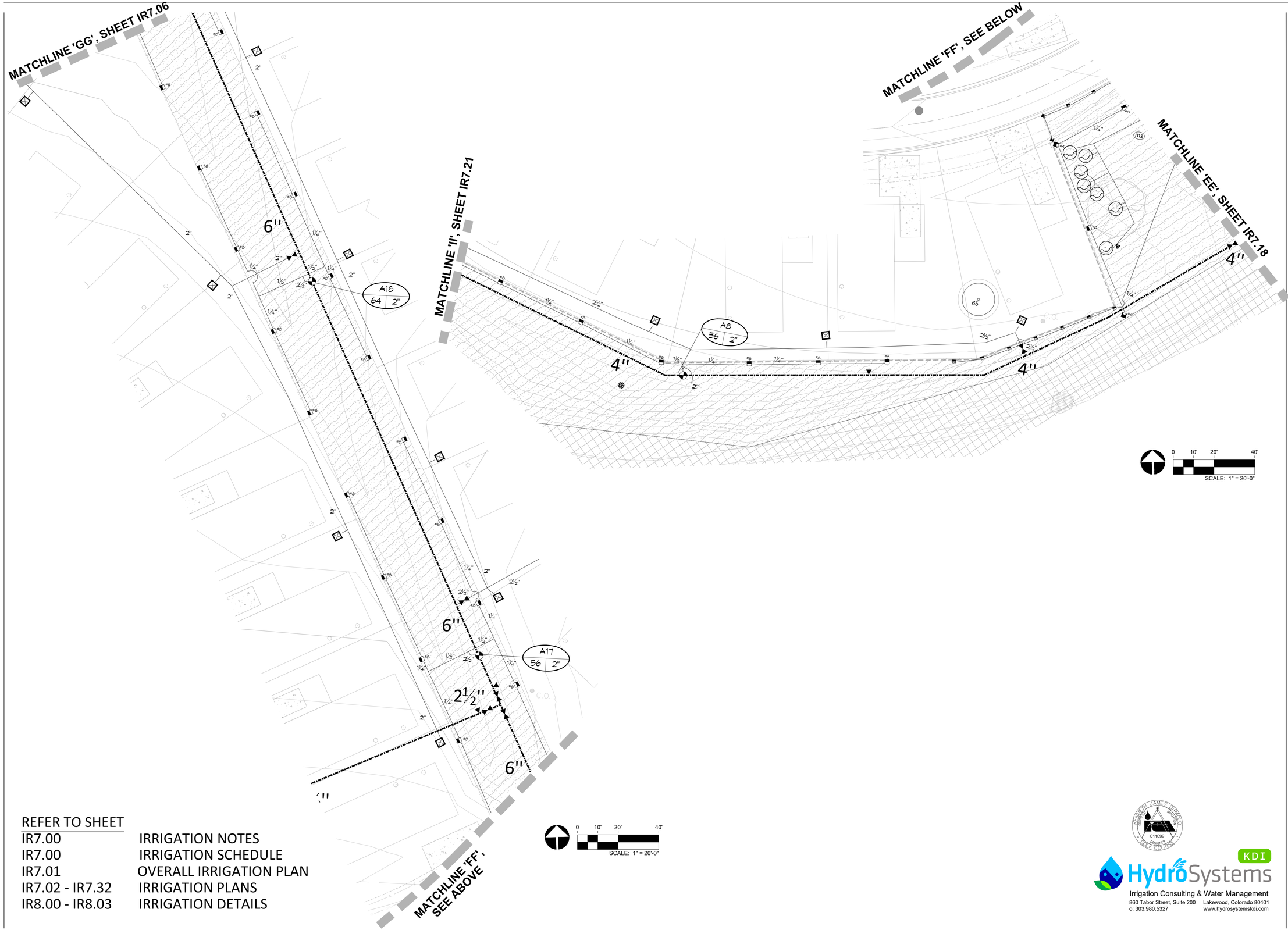

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REVISIONS

1
2
3
4
5

IRRIGATION PLAN

IR7.19

SHEET NO. 71 OF 88

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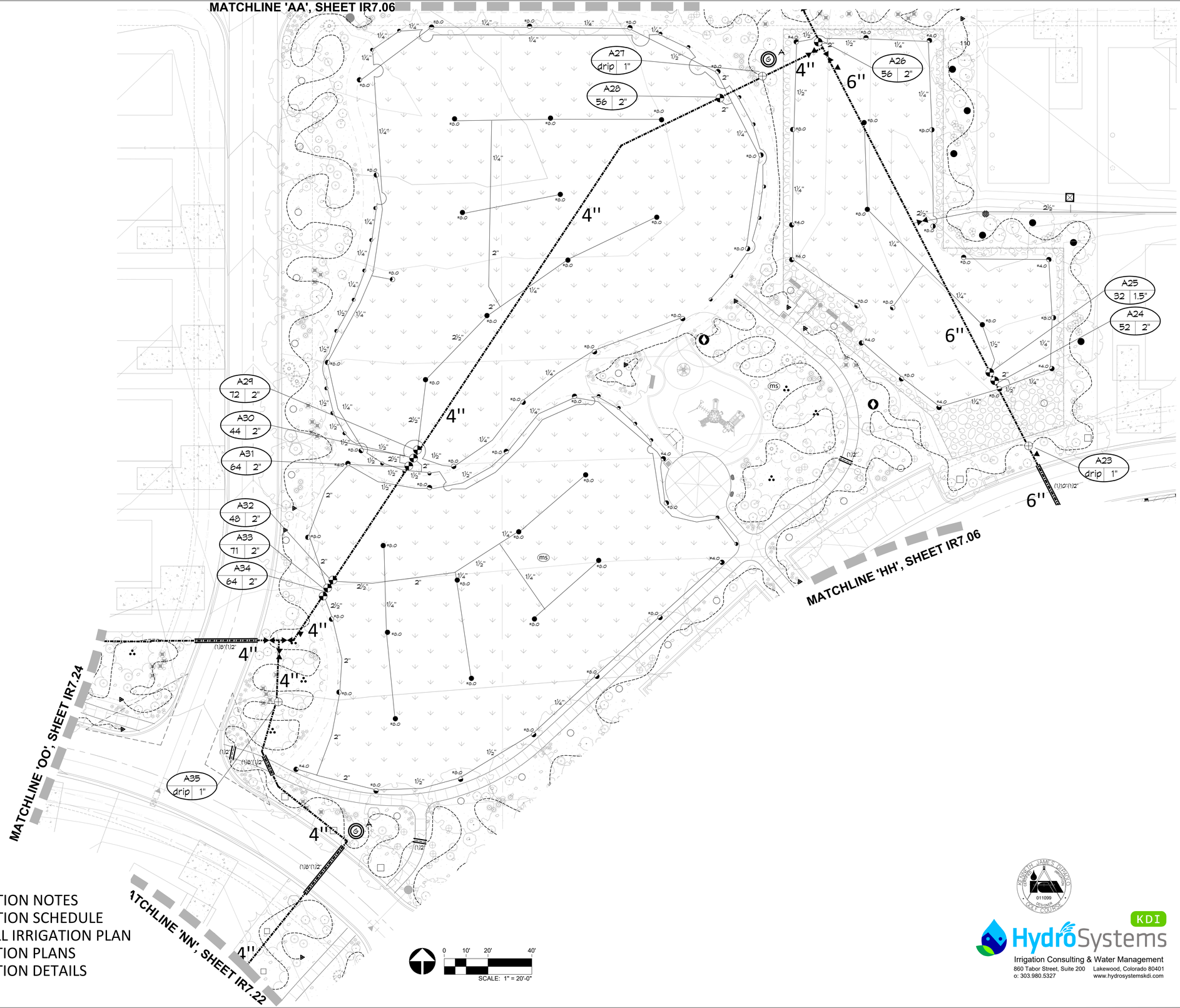

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REVISIONS

1
2
3
4
5

IRRIGATION PLAN

IR7.20

SHEET NO. 72 OF 88

1ST SUBMITTAL

KENNETH JAMES DIPAOLO
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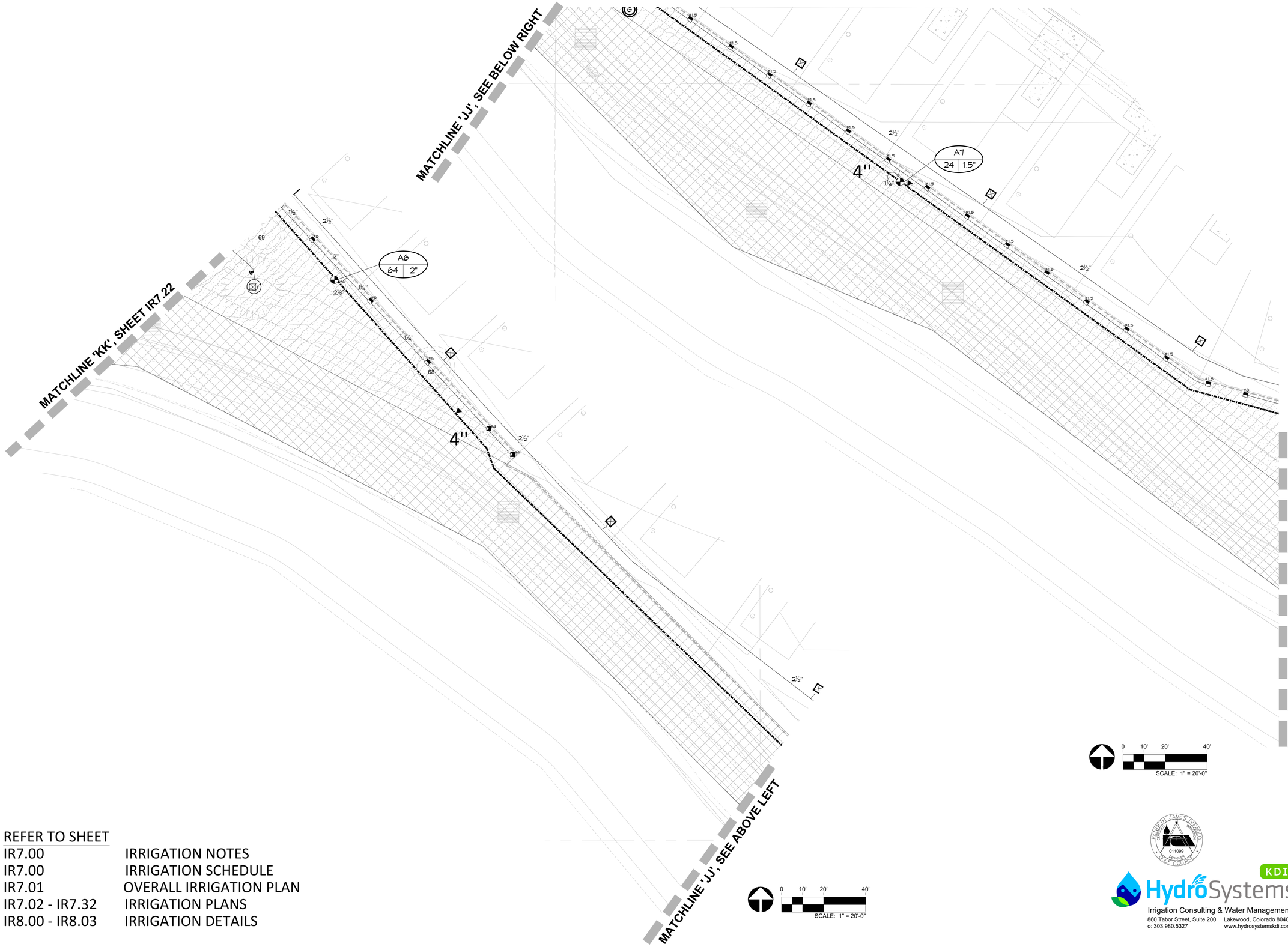

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1
2
3
4
5

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IRRIGATION PLAN

IR7.21

SHEET NO. 73 OF 88

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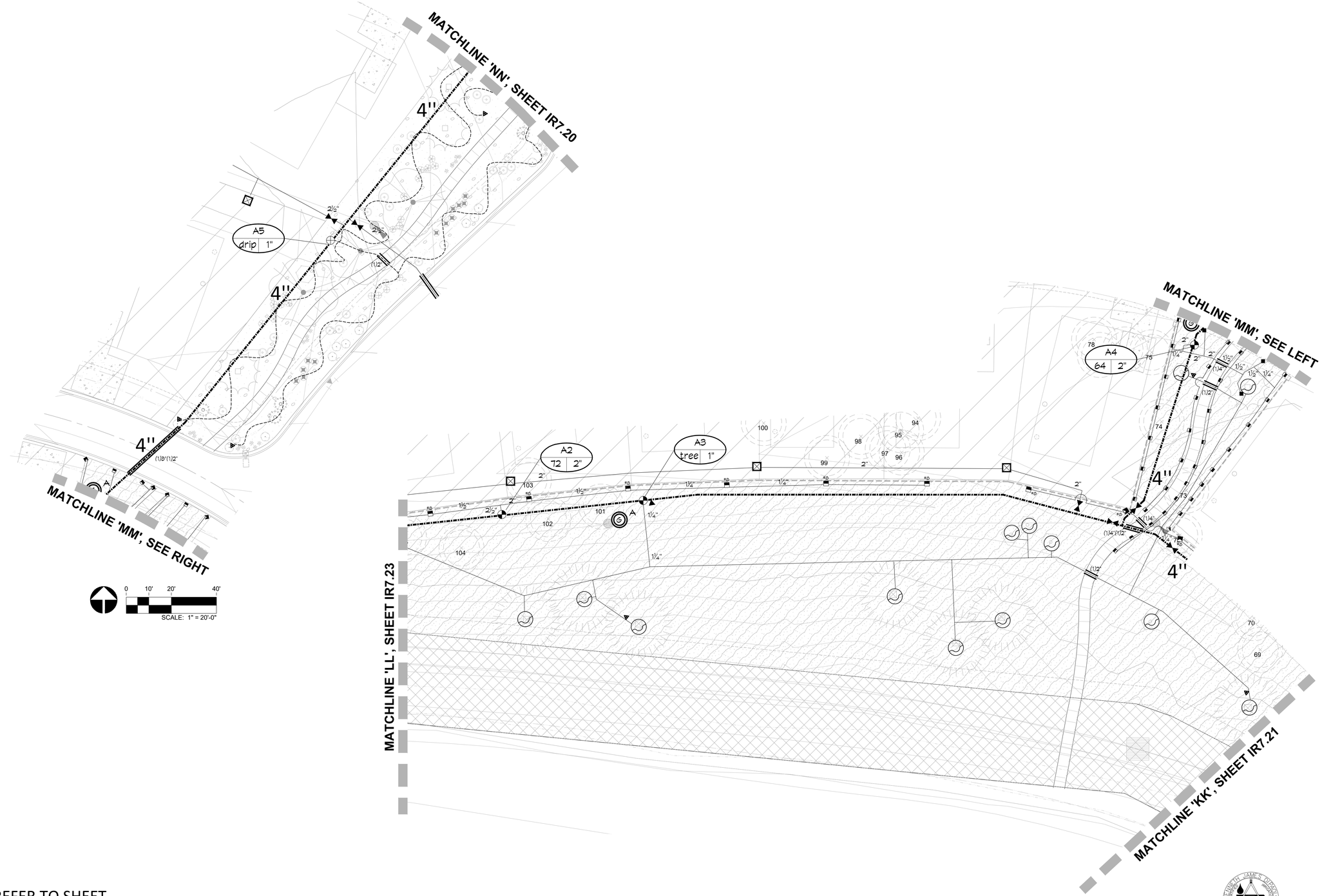

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1
2
3
4
5

IRRIGATION PLAN

IR7.22

SHEET NO. 74 OF 88

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0 10' 20' 40'

SCALE: 1" = 20'-0"

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COLORADO 811

WILLOW BEND

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/22/21
DRAWN:	KJD/AS
REVIEWED:	KJD/JSB

REVISIONS

1 2 3 4 5

IRRIGATION PLAN

IR7.23

SHEET NO. 75 OF 88

1ST SUBMITTAL

KENNETH JAMES DEPAOLO
011099
DESIGNER
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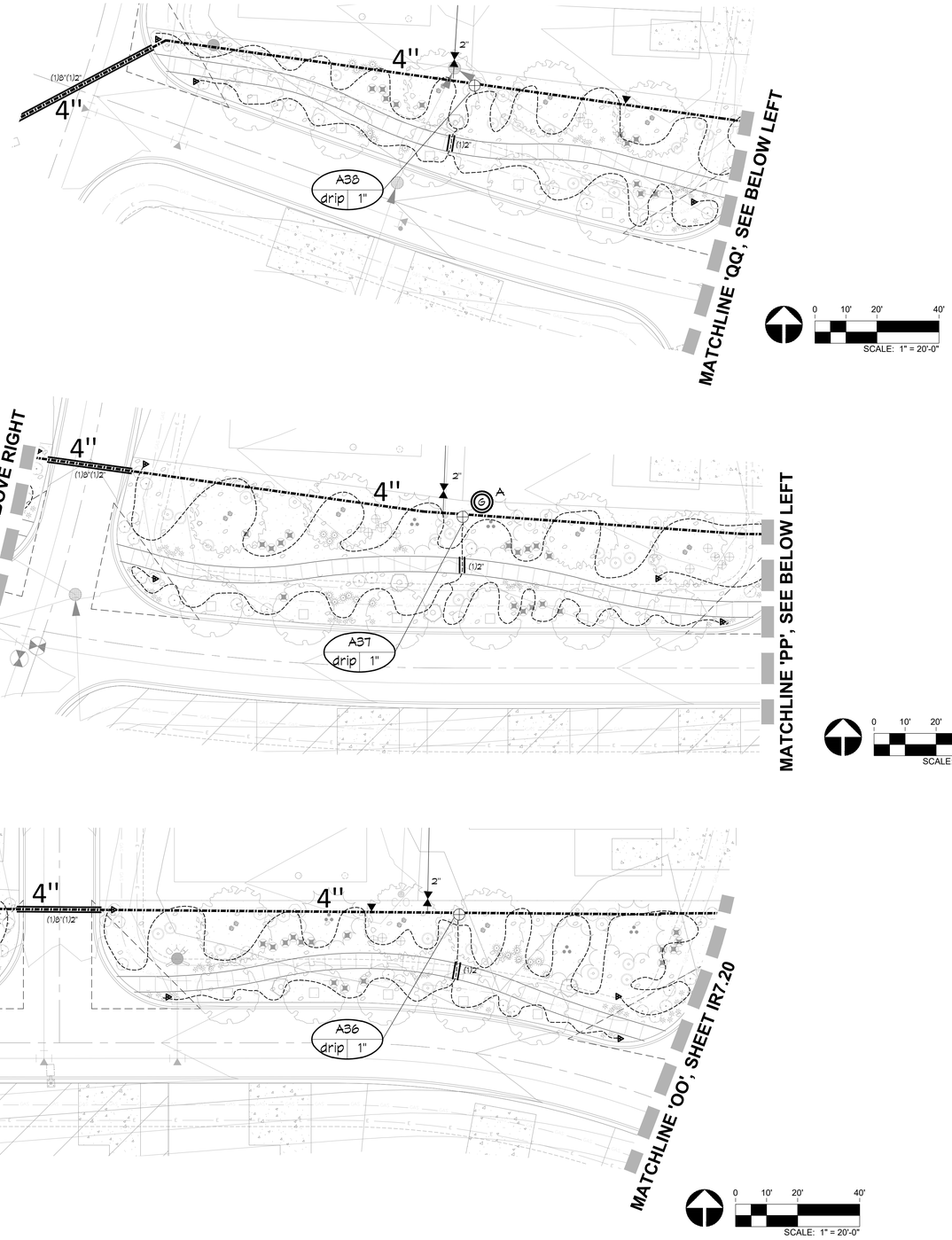

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1
2
3
4
5

IRRIGATION PLAN

IR7.24

SHEET NO. 76 OF 88

1ST SUBMITTAL

KENNETH JAMES DEVANEY 011099 DESIGNER GOLF COURSES

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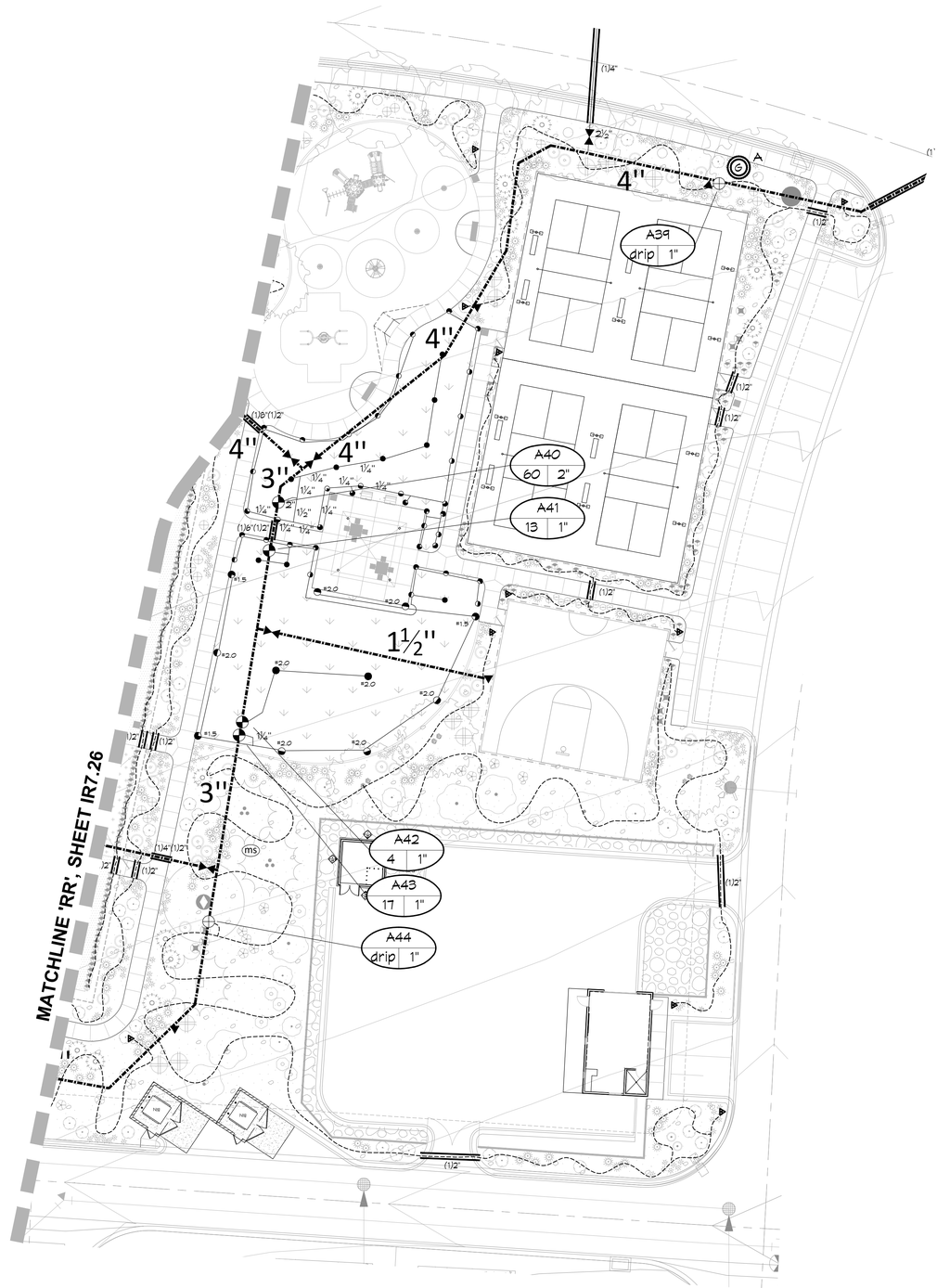

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1
2
3
4
5

IRRIGATION PLAN

IR7.25

SHEET NO. 77 OF 88

1ST SUBMITTAL

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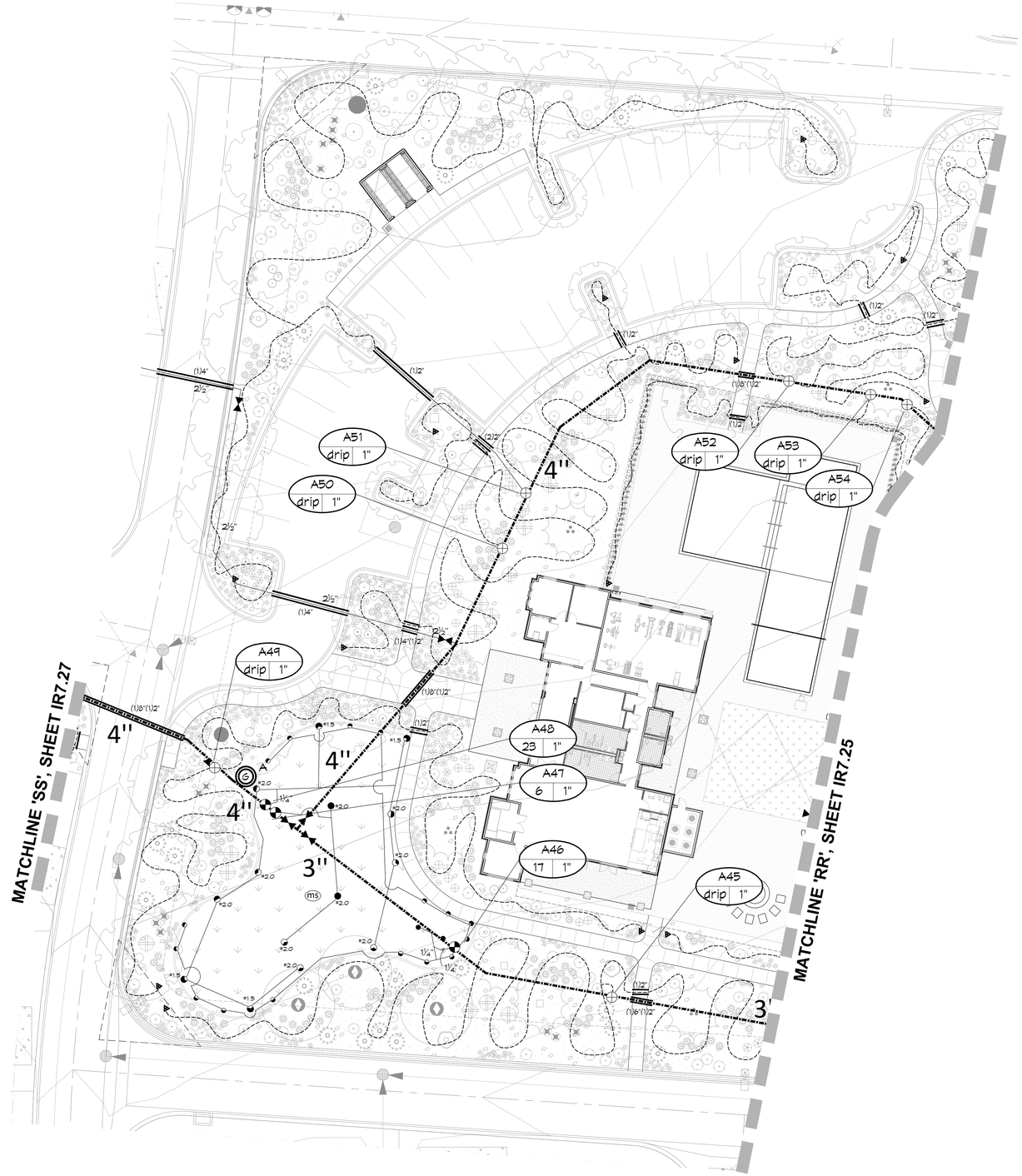

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1
2
3
4
5

IRRIGATION PLAN

IR7.26

SHEET NO. 78 OF 88

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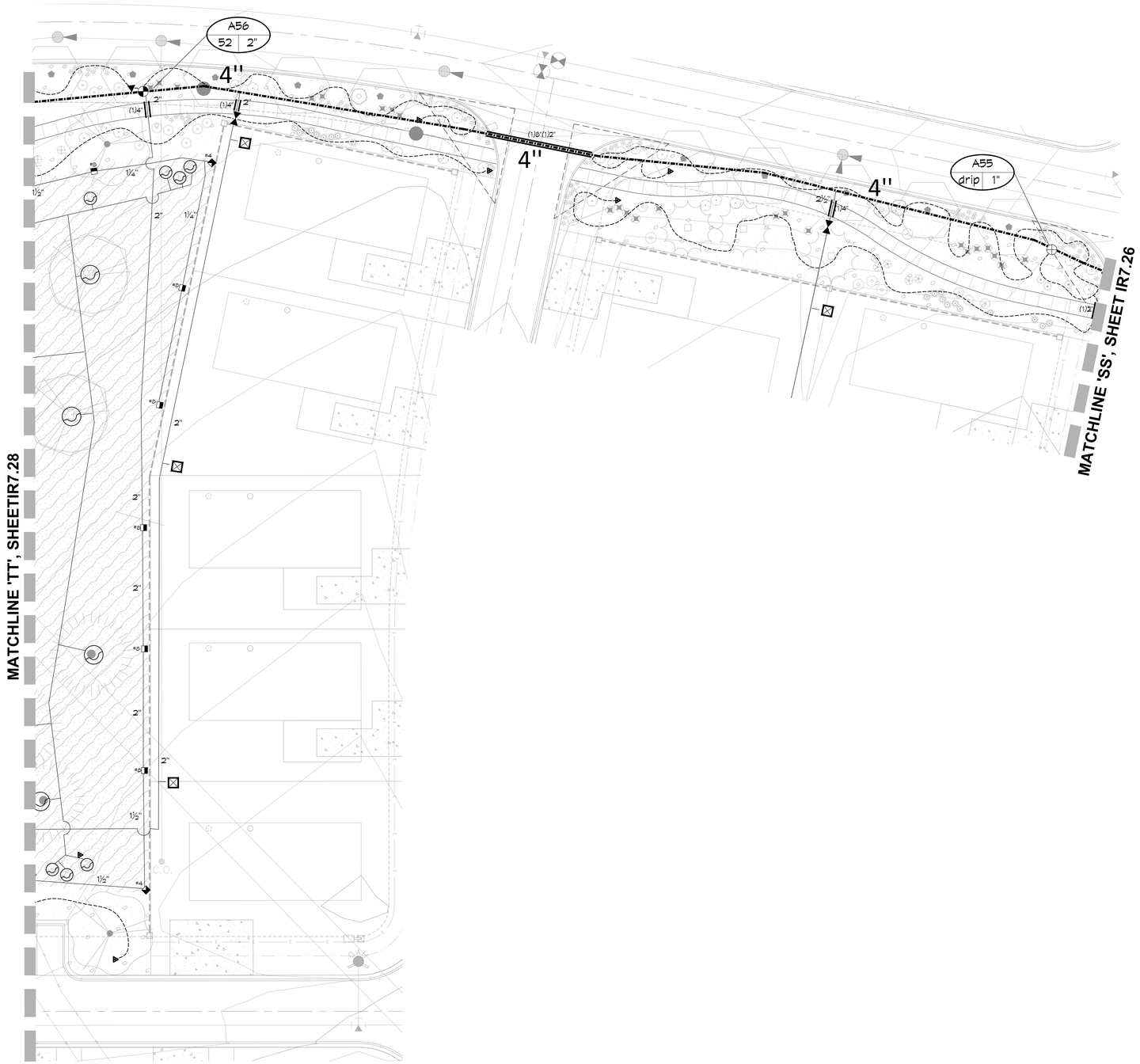

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1
2
3
4
5

IRRIGATION PLAN

IR7.27

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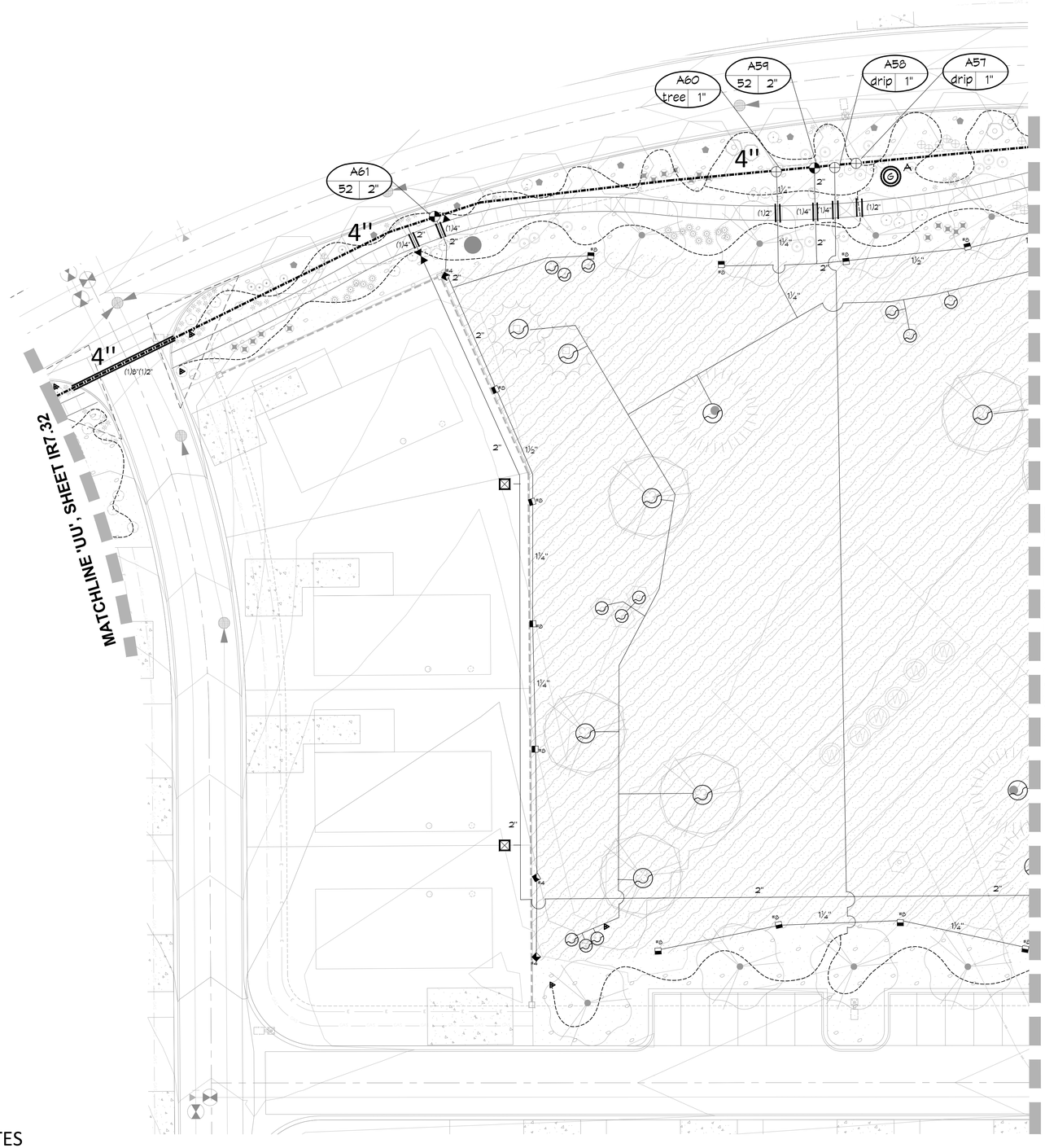

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IRRIGATION PLAN

IR7.28

SHEET NO. 80 OF 88

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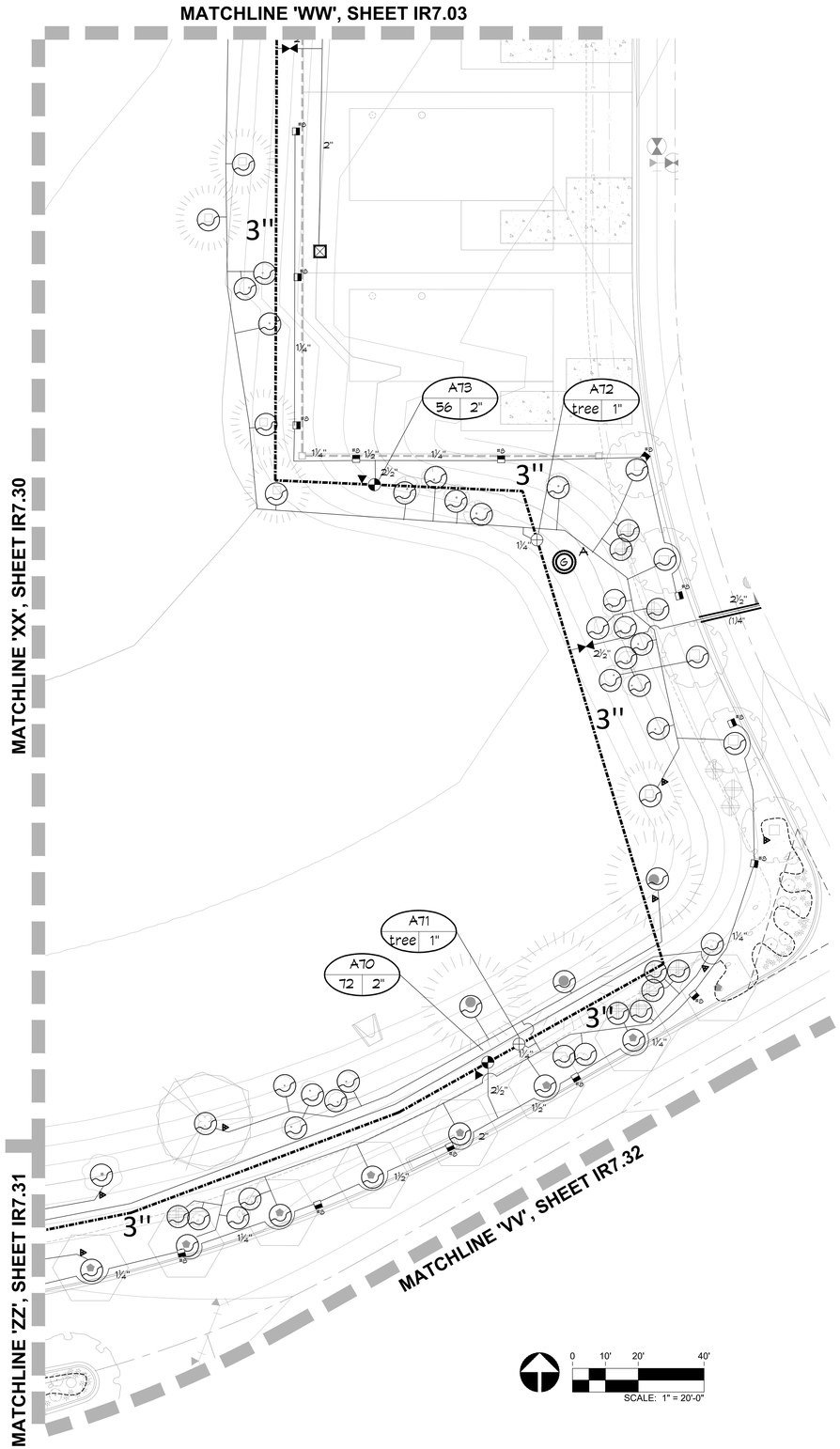

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1
2
3
4
5

IRRIGATION PLAN

IR7.29

SHEET NO. 81 OF 88

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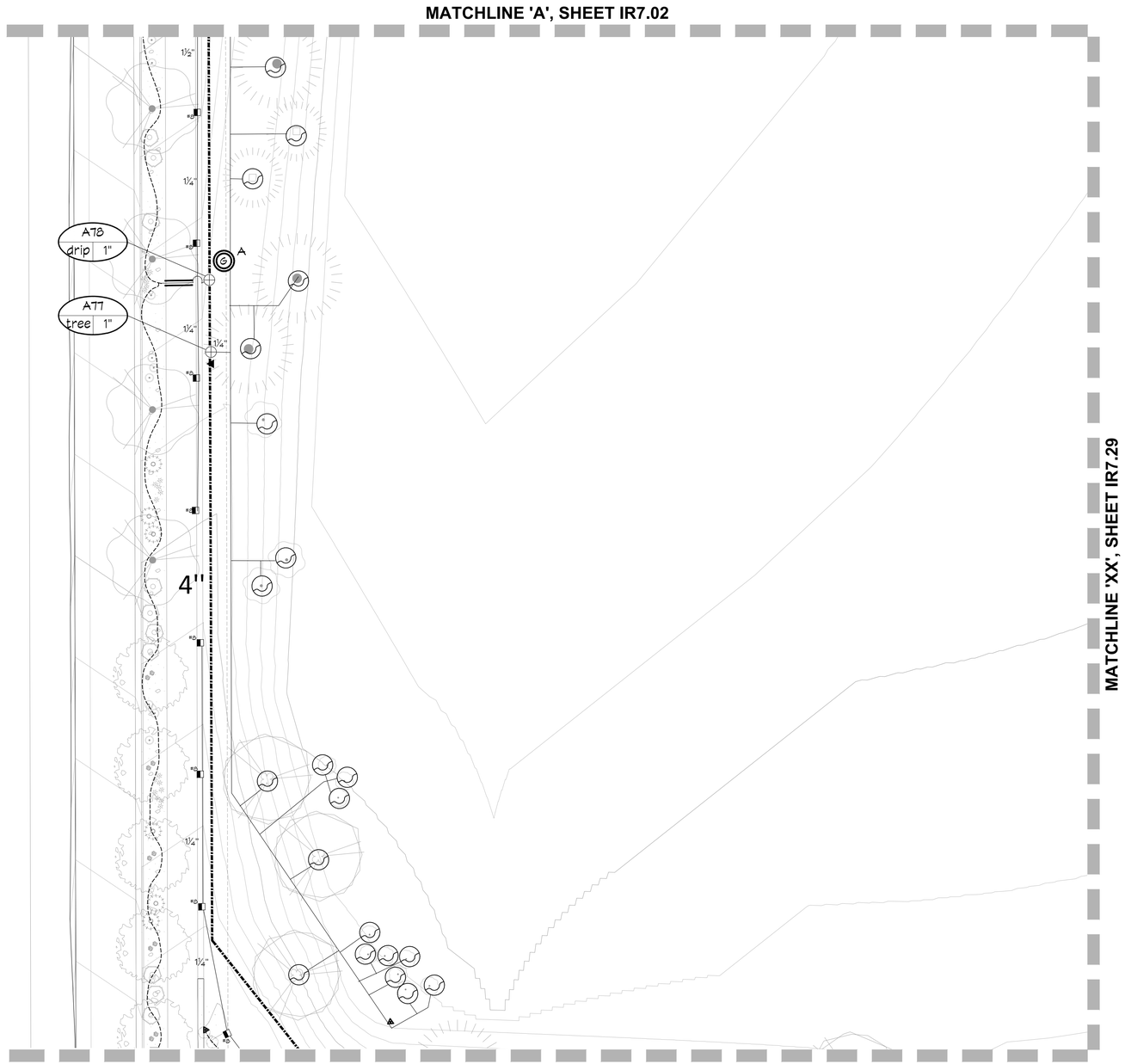

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1
2
3
4
5

IRRIGATION PLAN

IR7.30

SHEET NO. 82 OF 88

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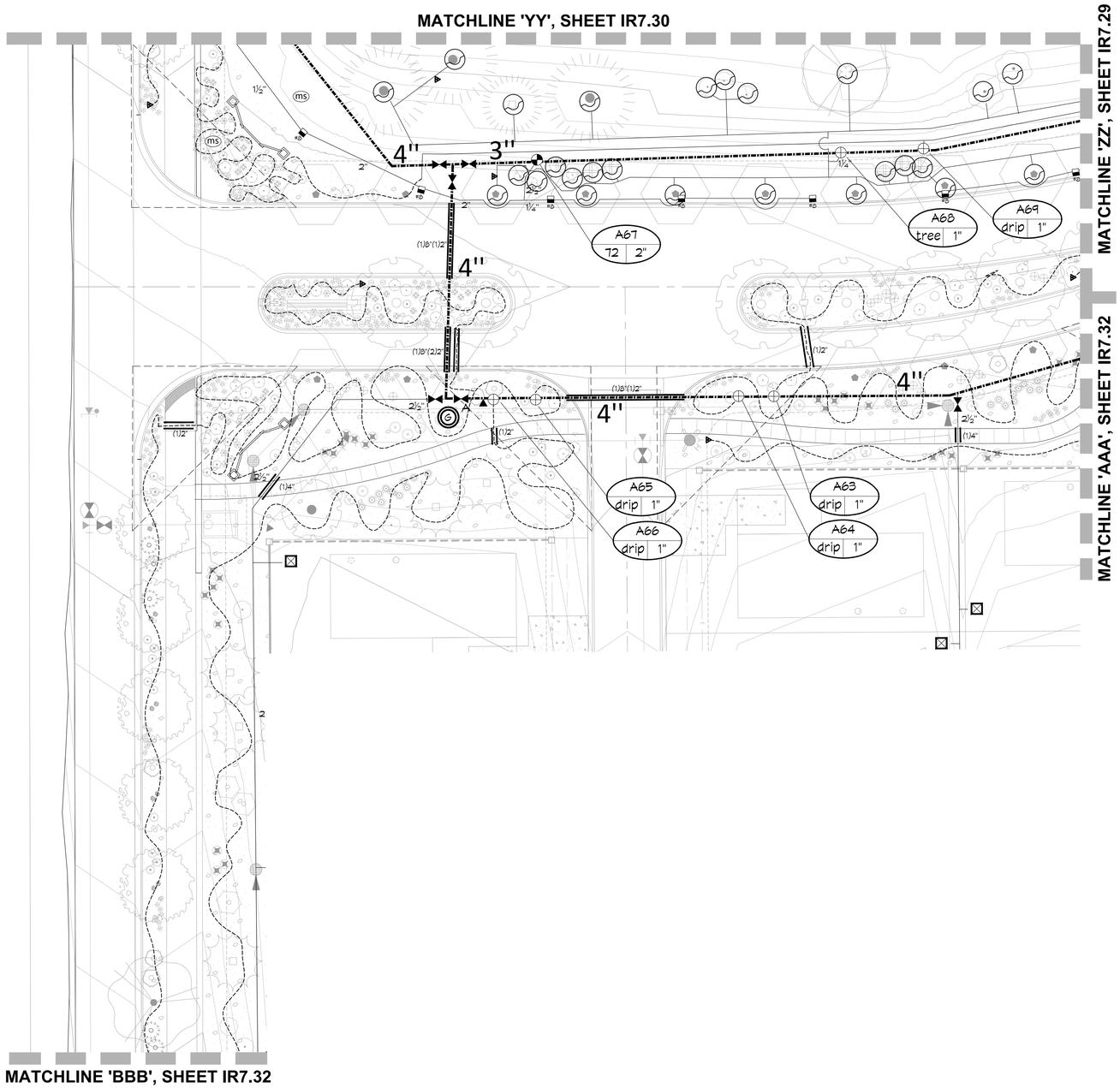

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1
2
3
4
5

IRRIGATION PLAN

IR7.31

SHEET NO. 83 OF 88

1ST SUBMITTAL

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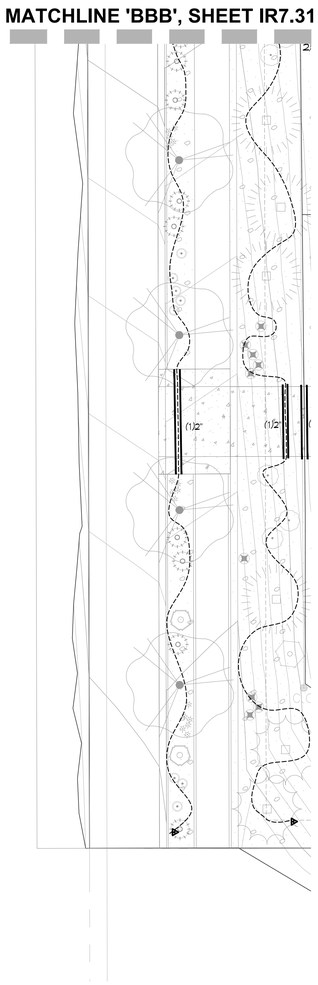

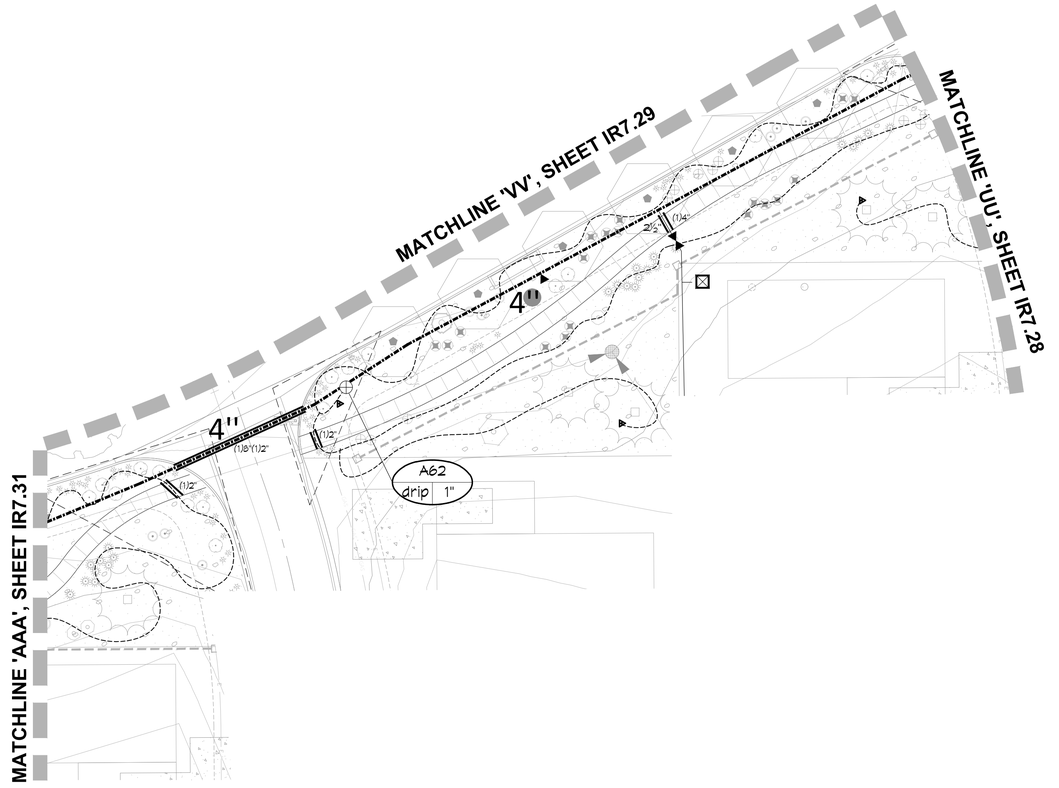

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2
3
4
5

IRRIGATION PLAN

IR7.32

SHEET NO. 84 OF 88

1ST SUBMITTAL

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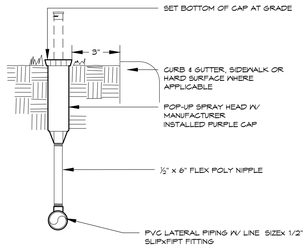
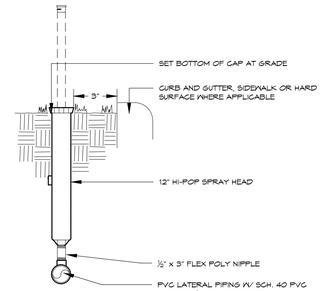


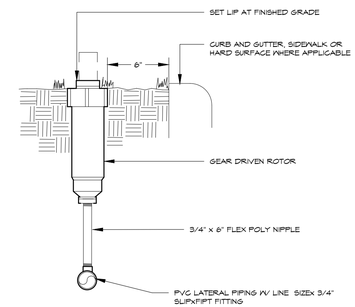
NOTE:
- SET HEAD PERPENDICULAR TO FINISH GRADE.
- APPLY TEFLON TAPE TO MALE PVC THREADED FITTINGS.
- DOUBLE CLAMP ½" ≤ 2" DIAMETER FITTINGS.

POP-UP SPRAY HEAD 1



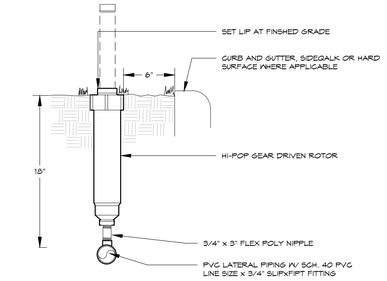
NOTE:
- SET HEAD PERPENDICULAR TO FINISH GRADE SWING.
- FLEX PIPE SHALL BE ATTACHED TO BOTTOM SPRAY HEAD INLET ONLY
- APPLY TEFLON TAPE TO ALL MALE PVC THREADED FITTINGS AND NIPPLES.

HI-POP SPRAY HEAD 2



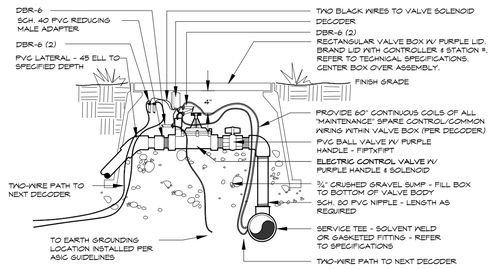
SET HEAD PERPENDICULAR TO FINISH GRADE

GEAR DRIVEN ROTOR 3



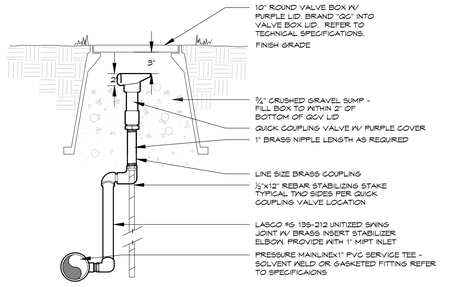
NOTE:
- DIAMETERS OF FITTINGS AND NIPPLES SHALL EQUAL ROTOR INLET DIAMETER.
- SET ROTOR PERPENDICULAR TO FINISH GRADE.
- APPLY TEFLON TAPE ALL PVC MALE THREADED FITTINGS.

HI-POP GEAR DRIVEN ROTOR 4



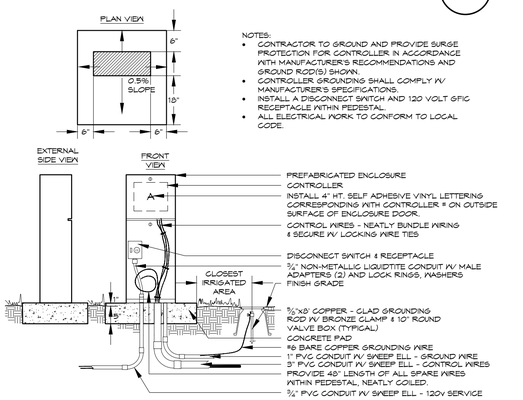
NOTE: DIAMETERS OF BALL VALVES, PVC FITTINGS AND NIPPLES SHALL EQUAL ELECTRIC CONTROL VALVE DIAMETER. VALVE BOXES SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO ADJACENT SIDEWALKS AND HARD SURFACES WHERE APPLICABLE. APPLY TEFLON TAPE TO ALL MALE THREADED FITTINGS AND THREADED NIPPLES.

ELECTRIC CONTROL VALVE 5
TWO WIRE SYSTEM



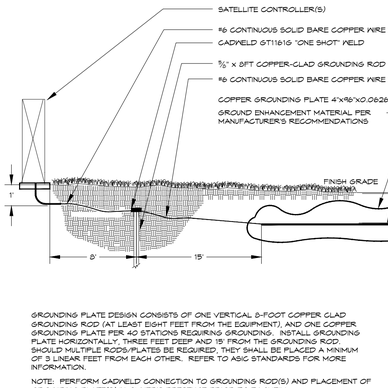
APPLY TEFLON TAPE TO ALL THREADED NIPPLES

QUICK COUPLING VALVE 6



NOTES:
- CONTRACTOR TO GROUND AND PROVIDE SURGE PROTECTION FOR CONTROLLER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GROUND ROD(S) SHOWN.
- CONTROLLER GROUNDING SHALL COMPLY W/ MANUFACTURER'S SPECIFICATIONS.
- INSTALL A DISCONNECT SWITCH AND 120 VOLT GFIC RECEPTACLE WITHIN PEDESTAL.
- ALL ELECTRICAL WORK TO CONFORM TO LOCAL CODE.

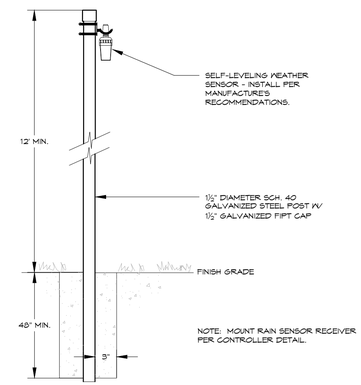
ELECTRIC CONTROLLER 7
PEDESTAL



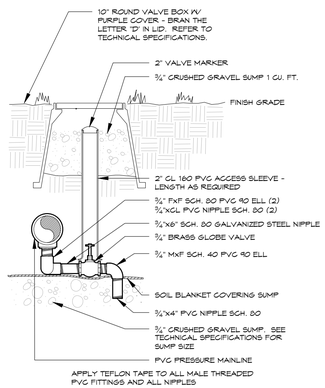
GROUNDING PLATE DESIGN CONSISTS OF ONE VERTICAL 8-FOOT COPPER CLAD GROUNDING ROD (AT LEAST EIGHT FEET FROM THE EQUIPMENT), AND ONE COPPER GROUNDING PLATE PER 40 STATIONS REQUIRING GROUNDING. INSTALL GROUNDING PLATE HORIZONTALLY, THREE FEET DEEP AND 15' FROM THE GROUNDING ROD. SHOULD MULTIPLE RODS/PLATES BE REQUIRED, THEY SHALL BE PLACED A MINIMUM OF 3 LINEAR FEET FROM EACH OTHER. REFER TO ASIC STANDARDS FOR MORE INFORMATION.

NOTE: PERFORM CADWELD CONNECTION TO GROUNDING ROD(S) AND PLACEMENT OF GROUNDING PLATE(S) IN OWNER'S PRESENCE PRIOR TO BACKFILL.

CONTROLLER GROUNDING 8

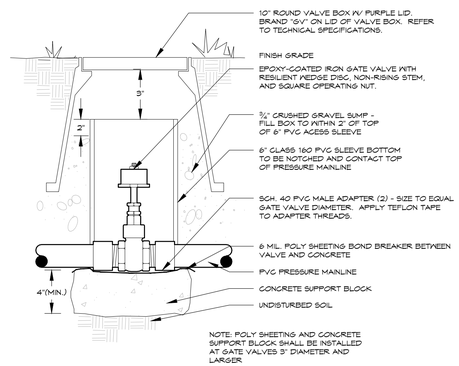


WEATHER SENSOR 9
POLE MOUNTED - Self-Leveling



APPLY TEFLON TAPE TO ALL MALE THREADED PVC FITTINGS AND ALL NIPPLES

MANUAL DRAIN VALVE 10



NOTE: POLY SHEETING AND CONCRETE SUPPORT BLOCK SHALL BE INSTALLED AT GATE VALVES 3" DIAMETER AND LARGER

GATE VALVE 11
2 1/2" and SMALLER

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Call before you dig.
CALL 3 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

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COLORADO 811

WILLOW BEND

FORT LUPTON, COLORADO

PROJECT NO :	19001925
DATE :	04/23/21
DRAWN:	KJD/AS
REVIEWED:	KJD/JSB

REVISIONS
1
2
3
4
5

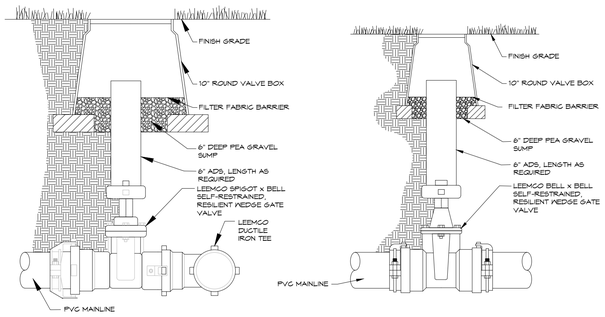
IRRIGATION DETAILS

IR8.00

SHEET NO. 85 OF 88

1ST SUBMITTAL

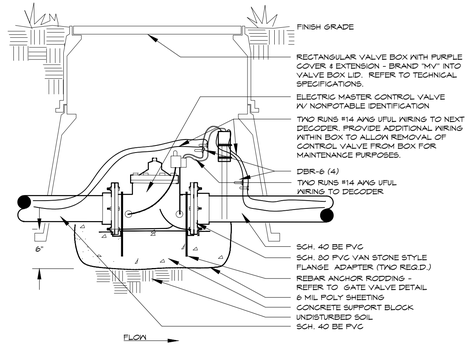
T:\0-NEW WORK\7xxx-Willow Bend\04-12-21 Irrigation CAD files\Files (46) -CAD files irrigation page set ups\1925-CD-R7.00 IRRIGATION Notes, Schedule, Details.dwg



GATE VALVE

2 1/2" & LARGER

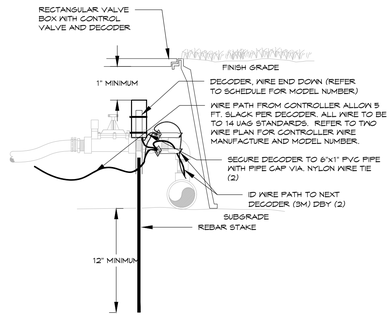
12



HYDROMETER

VIA DECODER

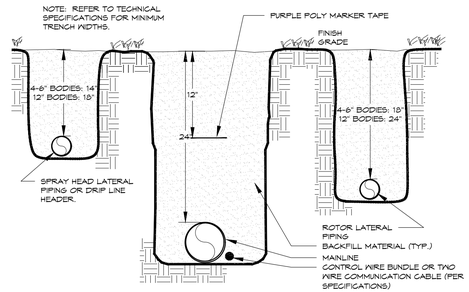
13



DECODER INSTALLATION

TWO-WIRE SYSTEM

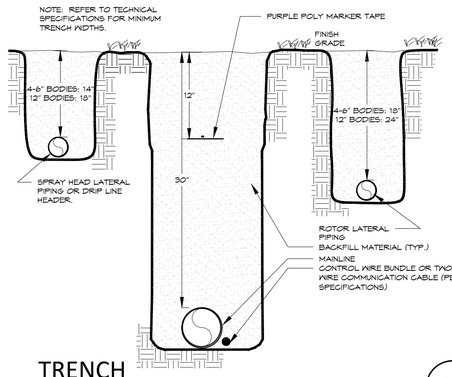
14



TRENCH

2 1/2" and SMALLER

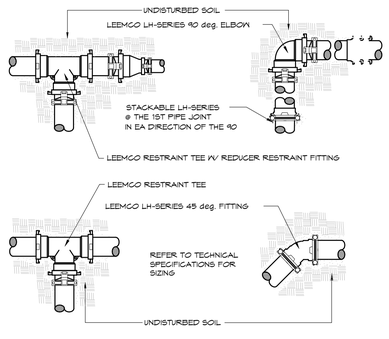
15



TRENCH

3" and LARGER

16



LEEMCO RESTRAINT FITTINGS

3" and LARGER

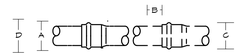
17

JOINT RESTRAINT INSTALLATION GUIDE

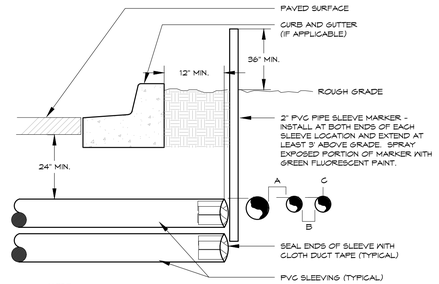
WHEN THE DISTANCE BETWEEN A FITTING AND THE NEXT JOINT IS LESS THAN 20 FEET, THE FOLLOWING TABLE MUST BE USED. THE TABLE BELOW SHOWS THE DISTANCE (IN FEET) BETWEEN JOINTS WITHIN WHICH IF THERE IS A JOINT, IT MUST BE MECHANICALLY RESTRAINED. THE TABLE IS BASED ON 125 PSI, TYPE 2 TRENCH, AND 2-4 FEET DEPTH OF BURY (SMALL TO LARGE) DEPENDING ON PIPE SIZE. FOR OTHER PRESSURE MULTIPLY THE NUMBERS IN THE TABLE (FEET) BY THE ACTUAL PRESSURE AND DIVIDE BY 125.

PIPE SIZE	BENDS				STEP REDUCTION			DEAD END	GATE VALVE
	11	22	45	90	1	2	3		
2"	1	1	2	6				19	10
2.5"	1	2	4	9	4			23	12
3"	2	3	6	11	8	10		30	15
4"	2	4	9	20	14	20	31	45	23
6"	3	6	13	29	30	40	53	63	31
8"	4	8	15	36	33	55	63	75	38
10"	5	9	19	45	31	56	75	96	48
12"	5	10	21	53	54	56	79	112	56
14"	6	11	24	56	30	70	74	115	58
16"	6	13	27	65	30	54	90	130	65

HARDWARE SIZE AND TORQUE REQUIREMENTS



PIPE SIZE	PIPE O.D.	NO. OF BOLTS	BOLT SIZE	TORQUE FT-LB	DIMENSIONS (INCH)			
					A	B	C	D
2"	2.375	2	3/8-16 x 2.5	20	4.1	3.1	4.8	5.0
2.5"	2.875	2	3/8-16 x 2.5	20	5.1	3.1	5.0	5.5
3"	3.5	2	3/8-16 x 2.5	20	5.6	3.4	5.9	6.5
4"	4.5	2	1/2-13 x 3	50	6.7	3.8	7.3	7.6
6"	6.625	2	1/2-13 x 3.5	50	9.0	4.6	9.8	9.9
8"	8.625	4	1/2-13 x 4	50	11.2	5.9	12.0	12.2
10"	10.75	4	5/8-11 x 5.5	100	13.4	7.3	14.8	14.8
12"	12.75	4	5/8-11 x 5.5	100	15.4	8.8	17.5	16.7
14"	15.3	4	5/8-11 x 5.5	100	23.0	9.5	21.0	24.0
16"	17.4	4	5/8-11 x 5.5	100	25.0	10.5	23.5	31.0



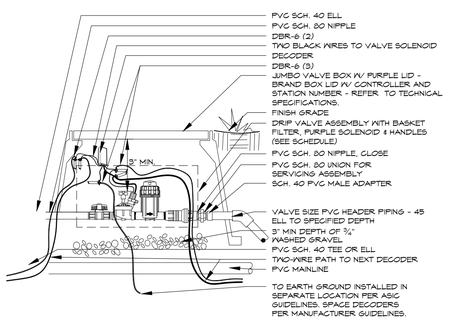
NOTE:

- ALL SLEEVE MATERIAL PER IRRIGATION SCHEDULE, SIZE AS NOTED ON PLAN.
- INSTALL SLEEVES IN SIDE-BY-SIDE CONFIGURATION WHERE MULTIPLE SLEEVES ARE TO BE INSTALLED. SPACE SLEEVES 4" TO 6" APART. DO NOT STACK SLEEVES VERTICALLY.
- CONTRACTOR TO COORDINATE WITH FLATWORK INSTALLER TO BRAND A "V" IN SIDEWALK OR CURB AT BOTH ENDS OF SLEEVE CROSSING.

IRRIGATION SLEEVING

18

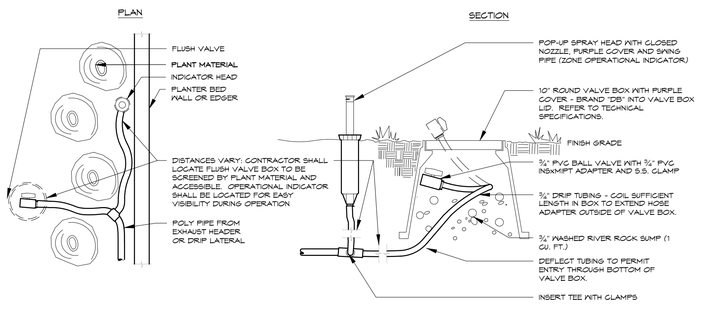
INSTALL ASSEMBLY TO REST ON GRAVEL SUMP. CONTAIN ENTIRE ASSEMBLY WITHIN BOX. NO VALVE BOX EXTENSIONS WILL BE ACCEPTED. PROVIDE 3"-4" CLEARANCE BETWEEN TOP OF CONTROL VALVE SOLENOID AND BOTTOM OF VALVE BOX LID. TOP OF VALVE BOX TO BE FLUSH WITH FINISH GRADE. VALVE BOX SHALL NOT REST ON DRIP TUBING.



DRIP VALVE

TWO-WIRE SYSTEM

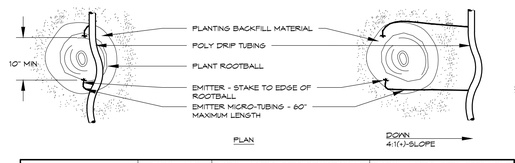
19



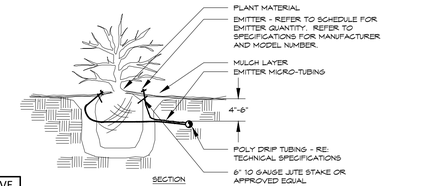
DRIP FLUSH VALVE

WITH OPERATIONAL INDICATOR

20



PLANT SIZE	EMITTER FLOW RATE	EMITTER QTY. AT MULCHED BED LOCATIONS	EMITTER QTY. AT NATIVE SEED LOCATIONS
1 - 2 GALLON MATERIAL	0.5 GPH	ONE EACH	ONE EACH
5 GALLON MATERIAL	0.5 GPH	TWO EACH	TWO EACH
1½" CALIPER TREE	1.0 GPH	THREE EACH	FOUR EACH
2" CALIPER TREE	1.0 GPH	FOUR EACH	SIX EACH
2½" CALIPER TREE	1.0 GPH	SIX EACH	EIGHT EACH
3" CALIPER TREE	1.0 GPH	EIGHT EACH	TEN EACH
3½" CALIPER TREE	1.0 GPH	NINE EACH	ELEVEN EACH
4" CALIPER TREE	1.0 GPH	TEN EACH	TWELVE EACH
6 FT. CONIFEROUS TREE	1.0 GPH	FOUR EACH	SIX EACH
8 FT. CONIFEROUS TREE	1.0 GPH	SIX EACH	NINE EACH
10 FT. CONIFEROUS TREE	1.0 GPH	EIGHT EACH	TWELVE EACH
12 FT. CONIFEROUS TREE	1.0 GPH	TEN EACH	FOURTEEN EACH



NOTES:

- INSTALL EMITTERS ON OPPOSING SIDES OF ROOTBALL. THREE OR MORE EMITTERS SHALL BE EQUALLY SPACED AROUND ROOT BALL.
- EMITTERS ARE TO BE INSTALLED TO CLEAR SURFACE BY A MINIMUM OF 1" AND A MAXIMUM OF 2".
- FLUSH ALL LINES THOROUGHLY, INCLUDING EMITTER MICRO-TUBING PRIOR TO EMITTER INSTALLATION.
- IF PLANTING ON A 4:1 SLOPE OR STEEPER, INSTALL BOTH EMITTERS ON UPHILL SIDE OF ROOT BALL.
- EMITTERS SHALL BE SELF-FLUSHING, PRESSURE COMPENSATING-TYPE UNLESS NOTED OTHERWISE WITHIN TECHNICAL SPECIFICATIONS.
- DRIP VALVE ZONES ARE DESIGNED TO ACCOUNT FOR DIFFERENCES IN PLANT REQUIREMENTS (HYDROZONES) AND SUN EXPOSURE.
- CONTRACTOR SHALL ENSURE HYDROZONES ARE VALVED SEPARATELY AS SHOWN ON PLAN.
- SITE CONDITIONS MAY DICTATE THAT MULTIPLE SUN EXPOSURES ARE VALVED TOGETHER DURING THE DESIGN PROCESS. CONTRACTOR SHALL ADJUST EMITTER SCHEDULE AS FOLLOWS:
  - ** EMITTER QUANTITIES SHALL REMAIN THE SAME BUT EMITTER GALLONAGES SHALL BE DOUBLED FOR PLANTS WITH SOUTH AND WEST EXPOSURES.
  - ** EMITTER QUANTITIES AND GALLONAGE SHALL BE AS SHOWN IN SCHEDULE FOR PLANTS WITH NORTH AND EAST EXPOSURES.
  - ** PLANTINGS WITH NORTH AND EAST EXPOSURE SHALL DICTATE VALVE RUN-TIMES AND CONTRACTOR SHALL ADJUST SCHEDULING ACCORDINGLY.

DRIP EMITTER

BELOW GRADE

21

REFER TO SHEET

IR7.00	IRRIGATION NOTES
IR7.00	IRRIGATION SCHEDULE
IR7.01	OVERALL IRRIGATION PLAN
IR7.02 - IR7.32	IRRIGATION PLANS
IR8.00 - IR8.03	IRRIGATION DETAILS

KENNETH JAMES PATRICK
011099
REGISTERED LANDSCAPE ARCHITECT

811
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COLORADO 811

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FORT LUPTON, COLORADO

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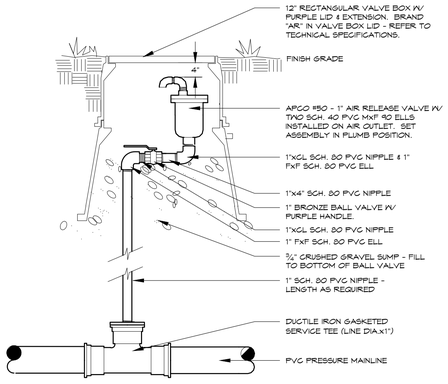
IRRIGATION DETAILS

IR8.01

SHEET NO. 86 OF 88

IR-8.01

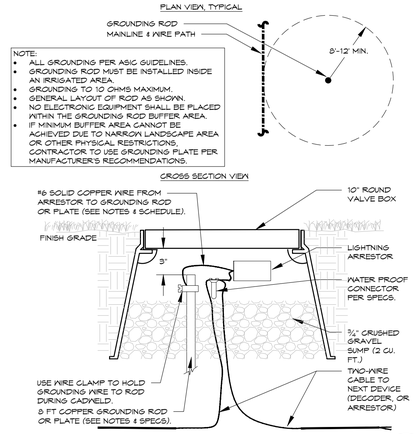
T:\0-NEW WORK\7xxx-Willow Bend\04-12-21 Irrigation CAD files\Files (46) -CAD files irrigation page set ups\1925-CD-IR7.00 IRRIGATION Notes, Schedule, Details.dwg



NOTE: AIR RELEASE ASSEMBLY SHALL REST ON GRAVEL SUMP FIELD-LOCATE AIR RELEASE AT HIGH POINT IN MAINLINE PIPING APPLY TEFLON TAPE TO ALL MALE THREADED FITTINGS AND NIPPLES

AIR RELIEF VALVE

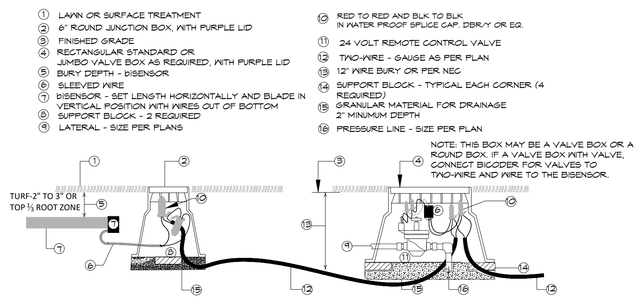
22



ARRESTOR GROUNDING

TWO-WIRE SYSTEM - TYPICAL

23



1. LAWN OR SURFACE TREATMENT
2. 6" ROUND JUNCTION BOX, WITH PURPLE LID
3. FINISHED GRADE
4. RECTANGULAR STANDARD OR JUMBO VALVE BOX AS REQUIRED, WITH PURPLE LID
5. BURY DEPTH - DISENSOR
6. SLEEVED WIRE
7. DISENSOR - SET LENGTH HORIZONTALLY AND BLADE IN VERTICAL POSITION WITH WIRES OUT OF BOTTOM
8. SUPPORT BLOCK - 2 REQUIRED
9. LATERAL - SIZE PER PLANS
10. RED TO RED AND BLK TO BLK IN WATER PROOF SPLICE CAP, DBR/Y OR EQ.
11. 24 VOLT REMOTE CONTROL VALVE
12. TWO-WIRE - GAUGE AS PER PLAN
13. 12" WIRE BURY OR PER NEC
14. SUPPORT BLOCK - TYPICAL EACH CORNER (4 REQUIRED)
15. GRANULAR MATERIAL FOR DRAINAGE 2" MINUMUM DEPTH
16. PRESSURE LINE - SIZE PER PLAN

NOTE: THIS BOX MAY BE A VALVE BOX OR A ROUND BOX. IF A VALVE BOX WITH VALVE, CONNECT BIGGER FOR VALVES TO TWO-WIRE AND WIRE TO THE BISENSOR.

SOIL MOISTURE SENSOR

24

SENSOR LOCATION WITHIN A PART CIRCLE ZONE

25

1. FIELD CONTROLLER
2. CONTROL VALVE WIRE
3. ZONE CONTROL VALVES: GROUPS IN SAME HYDROZONES
4. MOISTURE SENSOR: ONE PER TYPICAL HYDROZONE
5. MOISTURE SENSOR WIRING

NOTE:

ONE MOISTURE SENSOR PER GROUPING OF CONTROL VALVES THAT HAVE SIMILIAR HYDROZONE CHARACTERISTICS.

CONNECT MOISTURE SENSOR TO ONE CONTROL VALVE WITHIN LIKE HYDROZONES. THAT CONTROL VALVE WILL BE THE HYDROZONE CONTROL AT THE CONTROLLER FOR THAT GROUPING WITHIN THE SAME HYDROZONE.

TYPICAL FIELD CONTROLLER DIAGRAM

26

NOTE:

ONE WOODFORD HYDRANT FOR EVERY TWO LOTS. INSTALL IN BACK CORNER OD ADJACENT LOTS, AS SHOWN.

INSTALL ALL BRASS GARDEN 2-WAY SPLITTER, WITH MANUAL VALVES ON EACH HOSE CONNECTION.

HOSE HYDRANT

27

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IRRIGATION DETAILS

IR8.02

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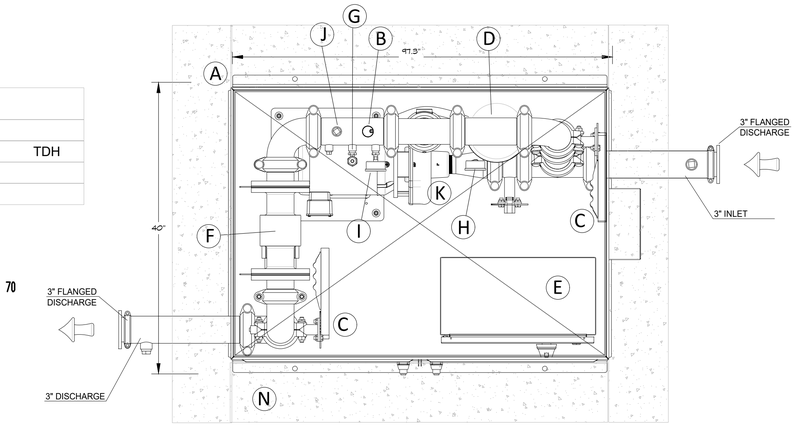
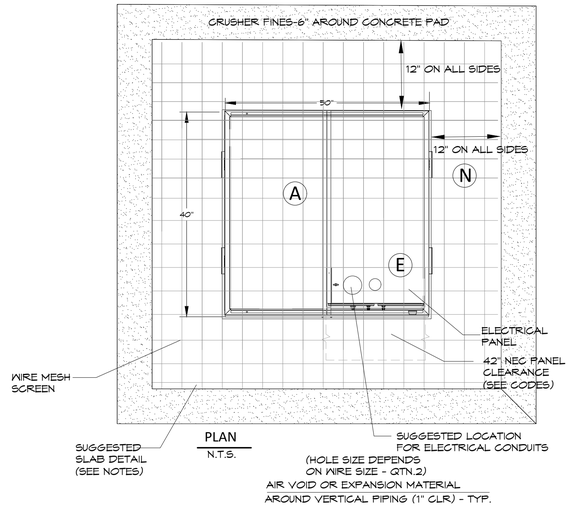
DESIGN SPECIFICATIONS						
Design Flow Rate:	180	GPM @	58	PSI Boost		
Duty Pump Details:	15	HP/Pump	180	GPM @		TDH
Minimum Power:	240	Volt /	3	Phase		
Model #	CB##V1C015X00180-058XXXB483ONS-3					

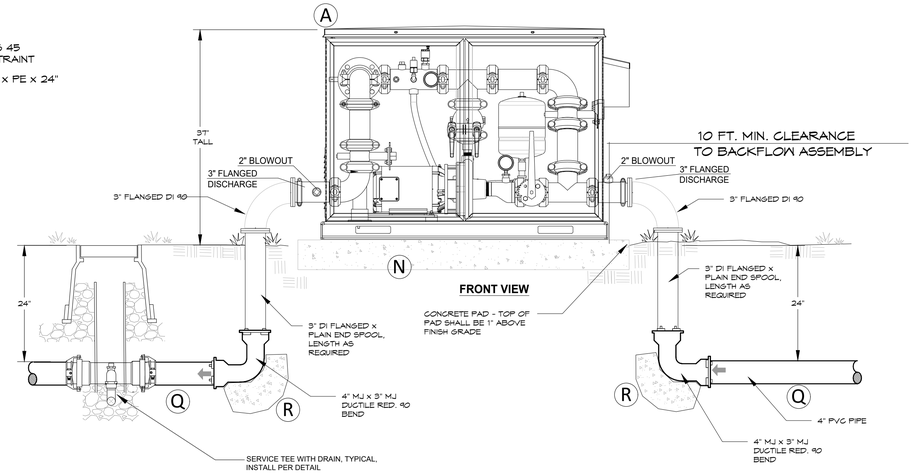
- (B) AIR RELIEF
- (C) BUTTERFLY VALVES (3)
- (D) CHECK VALVE -SILENT
- (E) ELECTRICAL PANEL - VFD'S
- (F) FLOW METER
- (G) HIGH PRESSURE SWITCH
- (H) PRESSURE GUAGE
- (I) PRESSURE GUAGE
- (J) PRESSURE TRANSDUCER
- (K) PUMP -CENTRIFUGAL
- (L) SKID
- (M) ALUMINUM ENCLOSURE
- (N) 6" CONCRETE PAD
- (O) 4" LEEMCO RF SERIES 45 DEGREE FITTING RESTRAINT
- (P) 4" DI SPOOL FLANGE x PE x 24"
- (Q) 4" PVC PIPE PIPE
- (R) THRUST BLOCKS





SLAB REINFORCEMENT

CONCRETE REQUIREMENTS-
ALL CONCRETE SHALL BE A 4,000 PSI MIX. SUMIT MIX TO OWNER PRIOR TO PLACING ANY CONCRETE. ALL FORMS AND WIRE MESH SHALL BE PLACED FOR OWNER REVIEW 48 HRS PRIOR TO PLACEMENT OF CONCRETE. ALL REINFORCING SHALL BE SIZED AS NOTED CONFORMING TO ASTM 706. CONTRACTOR WILL BE REQUIRED TO PROVIDE ALL MATERIAL REQUIRED TO PROTECT THE SLAB DURING THE CURING PERIOD. CONCRETE SLAB SHALL BE MOISTURE CURED WITH A MOISTURE-RETAINING-COVER. SLAB SHALL BE BROOM FINISHED.



NOTES:
SECURE ALL MJ FITTINGS WITH MEGA-LUG RESTRAINTS AND CONCRETE THRUST BLOCKING.
ALL DUCTILE IRON PIPING SHALL BE CLASS 50 UNLESS NOTED OTHERWISE.
PROVIDE POLY WRAP SLEEVES AROUND ALL D.I. PIPING

POINT OF CONNECTION & PUMP

28

(A) PRECISION PUMPING SYSTEMS (PPS) PUMP STATION MODEL #CB#V1C015X00180-058XXXB483ONS-3
PREFABRICATED BOOSTER PUMP STATION
CAPABLE OF 180 GPM WITH 90 PSI MIN. DISCHARGE PRESSURE
PUMP STATION SHALL BE EQUIPPED WITH FOLLOWING COMPONENTS:
-ONE 15 HP MOTORS AND PUMPS (240 VOLT, 3 PHASE, 60 V/HZ/PH).

-VARIABLE FREQUENCY DRIVE (15 HP W/ LINE REACTOR).
-PRESSURE RELIEF VALVE.
-INDIVIDUAL PUMP ISOLATION VALVES ON INTAKE AND DISCHARGE LINES.
-NEMA 12 ENCLOSURE
-PRESSURE TRANSDUCER.
-CHECK VALVES -SILENT TYPN
-PRESSURE GAUGE ON SUCTION & DISCHARGE LINES.
-FLOW METER
-7.5 KVA POWER PACK W/ TWO (MIN.) 20 AMP BREAKERS.
-HOA SELECTOR SWITCH FOR EACH PUMP MOTOR.
-SUCTION PRESSURE SWITCH.
-LIGHTNING AND SURGE PROTECTION ON CONTROLS.
-PUMP OPERATION INDICATOR LIGHTS.
-THERMOSTATICALLY-CONTROLLED VENTILATION/EXHAUST FAN (470 CFM).
-AUTOMATIC LOUVERS.
-FABRICATED STEEL SHEET METAL STATION ENCLOSURE (97.3"Lx52.3"Wx46"H) WITH POWDER-COATED FINISH, INTERIOR LIGHTING, CONVENIENCE RECEPTACLES, AIR INTAKE LOUVERS BOLT-TOGETHER SIDE PANELS, SINGLE HINGED DOOR ENTRY ACCESS.
-PAINTED STEEL 3" INLET FLANGED PIPE -(COLOR TO MATCH STATION ENCLOSURE) WITH PLUGGED 2" WINTERIZATION CONNECTION.
-PAINTED STEEL 3" DISCHARGE FLANGED PIPE -(COLOR TO MATCH STATION ENCLOSURE) WITH PLUGGED 2" WINTERIZATION CONNECTION.
-MAIN STATION ISOLATION, DRAIN AND CHECK VALVES.
-100 AMP PUMP STATION DISCONNECT (NEMA 3R ENCLOSURE, EXTERIOR MOUNT) DISCONNECT SWITCH PERMITTING ISOLATION OF PUMP MOTORS WITHOUT INTERRUPTING ELECTRICAL POWER TO PUMP STATION POWER PACK.
-PROGRAMMABLE MICROPROCESSOR CONTROLS.
-VFD BY-PASS SWITCH.
-INDIVIDUAL MOTOR PHASE MONITORING AND LOW VOLTAGE SAFETY SHUT-DOWN
BOOSTER PUMP SHALL BE ACTIVATED VIA PRESSURE, DEACTIVATED VIA ZERO FLOW. PRESSURE & FLOW SWITCHES ARE INCLUDED WITH PUMP STATION
SECURE BOOSTER PUMP STATION TO CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
-SUBMIT THREE COPIES OF PUMP STATION SHOP DRAWINGS (AS PREPARED BY MANUFACTURER) TO OWNER FOR REVIEW AND APPROVAL PRIOR TO ORDERING PUMP STATTION.
-CONTRACTOR SHALL COORDINATE THE POWER WITH DENVER PARKS AND EXCEL ENERGY.

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4
5

IRRIGATION DETAILS

IR8.03

SHEET NO. 88 OF 88

1ST SUBMITTAL

T:\0-NEW WORK\7xxx-Willow Bend\604-12-21 Irrigation CAD files\Files (46) -CAD files irrigation page set ups\1925-CD-IR7.00 IRRIGATION Notes, Schedule, Details.dwg


14TH STREET
BISON BEND AVENUE
BISON BEND AVENUE
14TH STREET
BLACKSMITH STREET
TOMASINA AVENUE
DIAMONDBACK DRIVE
DIAMONDBACK DRIVE
DIAMONDBACK DRIVE
DIAMONDBACK DRIVE
QUARTERS AVENUE
BASTION AVENUE
BENT AVENUE
SETTLER AVENUE
CHEYENNE AVENUE
TAVERN ROOM AVENUE
WHITETAIL AVENUE
BUFFALO PLAINS DRIVE
BUFFALO PLAINS DRIVE
FUR TRADER STREET
FUR TRADER STREET
NORTHRIP AVE.
WILLOW BEND PARKWAY
WILLOW BEND PARKWAY
PRAIRIE WAGON DRIVE
PRAIRIE WAGON DRIVE
PRAIRIE WAGON DRIVE
PRAIRIE WAGON DRIVE
PRAIRIE WAGON DRIVE
BUFFALO PLAINS DRIVE
COMMISSARY COURT
ARAPAHO AVENUE
CHEYENNE AVENUE
FORTRESS STREET
ADOBE AVENUE
BUCKSHOT AVENUE
TAVERN ROOM AVENUE
DRAGON AVENUE
WHITETAIL AVENUE
PALOMINO AVENUE
QUARTERS AVENUE
TRADING POST STREET
TRADING POST STREET
TRADING POST STREET

DRAINAGE REPORT

for

WILLOW BEND

Prepared for

SUN COMMUNITIES

TOM O'BRANOVIC

27777 FRANKLIN ROAD, SUITE 200

SOUTHFIELD, MI 48034

248.208.2610

Submitted by: Atwell, LLC

143 UNION BLVD, SUITE 700

LAKEWOOD, CO 80228

303.462.1100

PROJECT NO. 19001956

SUBMITTAL DATE: 04/21/2021

This report and plan for the drainage design of Willow Bend Development was prepared by me (or under my supervision) in accordance with the provisions of City of Fort Lupton Drainage Design and Technical Criteria for the owners thereof. I understand that City of Fort Lupton do not, and will not, assume liability for drainage facilities designed by others.

_____

By: Richard J. Weed, PE
Licensed Professional Engineer for and on behalf of Atwell, LLC
State of Colorado
No. 22076

Sun Communities, Inc hereby certifies that the drainage facilities for the Willow Bend site shall be constructed according to the design presented in this report. I understand that the City of Fort Lupton do not, and will not, assume liability for the drainage facilities designed and/or certified by my engineer and that the City of Larkspur reviews plans pursuant to Colorado Revised Statutes, Title 30, Article 28; but cannot, on behalf of Sun Communities, Inc guarantee that the final drainage review will absolve Sun Communities, LLC and/or their successors and/or assigns of future liability for improper design. I further understand the approval of the final plat does not imply approval of my engineer's drainage design.

_____

Sun Communities, Inc
Authorized Signature

Table of Contents

PROJECT LOCATION AND DESCRIPTION 3
Historic Drainage Basin 4
DRAINAGE BASINS AND SUB-BASINS 5
MAJOR DRAINAGE BASINS for Willow Bend and Cottonwood Greens 5
MAJOR DRAINAGE BASINS for Willow Bend 5
MINOR DRAINAGE BASINS for Willow Bend 6
DRAINAGE DESIGN CRITERIA 10
WATER QUALITY ENHANCEMENT BEST MANAGEMENT PRACTICES 10
FLOODPLAIN MODIFICATIONS 10
CONCLUSIONS 10
REFERENCES 11

APPENDICES

A. HISTORIC DRAINAGE MAP
B. PROPSED DRAINAGE MAP
C. HYDROLOGIC COMPUTATIONS
D. HYDRAULIC COMPUTATIONS
E. SOIL SURVEY
F. FEMA FIRMETTE

PROJECT LOCATION AND DESCRIPTION

The Willow Bend project (site) is a tract of land located in the South Half of Section 33, Township 2 North, Range 66 West of the 6th Principal Meridian, Fort Lupton, County of Weld, State of Colorado. The site is bounded by the Fulton Ditch to the East and South, 14th Street to the North, and the Future Northrup Ave to the West.

To the South, between Fulton Ditch and 9th Street is another portion of the Cottonwood Greens P.U.D., which has a development application in with the City currently. To the North, across 14th Street, is undeveloped land. The Trees Subdivision is located to the Southwest of the property.

The proposed site is approximately 127.5 acres and will consist of 449 manufactured housing units with amenities, open space and water quality treatment ponds. The site is part of the Cottonwood Greens P.U.D., recorded April 13th, 2006, and is currently undeveloped land used for farming, and several gas facilities that are incorporated in the concept plan.

Web Soil Survey from the National Resource Conservation Service (NRCS) website. The soil report indicates that site is made up of various sandy loam soils. The majority of the Site consists of Hydrologic Soil Group A, approximately 70.2 percent, while the rest consists of Hydrologic Soil Group B.

The Fulton Ditch, an irrigation ditch adjacent to Fulton Ranch, outlines the southern and eastern boundary of the proposed development location and flows southwest-to-northeast, ending at the nearby South Platte River. Golden's Pond, an existing regional detention pond for the 14th Street Basin, is located 1 mile to the west on the south side of 14th Street.

Historic Drainage Basin

Per the "Storm Drainage Utility Plan" adopted by the City of Fort Lupton in March 2015, the site is part of the 14th Street Basin, bounded by County Road 29 to the West, County Road 31 to the East, County Road 16 to the North, and Colorado highway 52 to the South. Historic flow direction for the 14th Street Basin is West-Northwest, with the South Platte River as the ultimate outfall. Approximately half of the 14th Street Basin is undeveloped but is designated for residential development.

The project area is not within a FEMA regulated floodplain as shown on FEMA Map No. 08123C2110E. As illustrated, the project site designated as Zone X - determined to be outside of the FEMA 100 and 500-year floodplains.

Historic flow paths and patterns will be generally maintained, and no irrigation facilities including the Fulton Ditch, will not be impacted by the development of this site.

For the development area, the existing topography slopes generally southeast to northwest and is bounded by the Fulton Ditch to the South and East, 14th Street to the North, and future Northrup Avenue to the West. Runoff flows along 14th Street is currently collected in a roadside ditch and travels west to Golden's Pond (as described in "Storm Drainage Utility Plan") and then on to the South Platte River.

Per the "Storm Drainage Utility Plan" the current outfall of the 14th Street roadside ditch and the Golden's pond are currently not adequately sized to handle additional developed flows. Therefore, the historic drainage patterns for the area that drains to the roadside ditch along 14th Street has been analyzed using CUHP as shown in Appendix D. The area was divided into two major basins, the North 14th Street Basin and the South 14th Street Basin. The North 14th Basin has a minor 10-year storm flow rate of 4 cfs and a major 100-year flow rate of 106 cfs. The South Basin has a minor 10-year storm flow rate of 2 cfs and a major 100-year storm flow rate of 68 cfs. It is proposed that the historic flow rates from the South 14th Basin will be maintained and utilized between the proposed development site, Willow Bend and the adjacent proposed development to the west Cottonwood Greens.

DRAINAGE BASINS AND SUB-BASINS

MAJOR DRAINAGE BASINS for Willow Bend and Cottonwood Greens

Appendix M shows the major Basins of Willow Bend and Cottonwood Greens.

The Cottonwood Greens development also currently lies within the 14th Street Basin per the "Storm Drainage Utility Plan" adopted by the City of Fort Lupton in March 2015. The drainage area is bound on the north by the Fulton Ditch, on the west by County Road 31, on the south by Highway 52 and 9th Street, on the east by College Ave and Northrup Avenue.

Per conversations with Fort Lupton, it was agreed upon that both developments will over-detain and release collectively at the historic flow rates of the South 14th Street Basin per the Historic Drainage Map in Appendix D. The outfall will also follow the historic drainage pattern and utilize the roadside ditch along 14th Street until the future storm sewer system improvements, recommended in the "Storm Drainage Utility Plan" adopted by the City of Fort Lupton in March 2015, have been constructed.

Following the historic drainage patterns and flows rates will ensure that the downstream roadside ditch along 14th street will continue to function as it does in its current condition and that Golden's Pond will not be inundated with developed flows.

MAJOR DRAINAGE BASINS for Willow Bend

The drainage for the Site is divided between two major basins:

- Onsite Developed Drainage - Basin A
- Offsite Drainage –Basin OS

Basin A

Basin A is 112.39 acres and consists of the entire site. It includes the developed residential lots, roads, amenity areas, and the undeveloped off-site area to the south. Runoff generally travels southeast to northwest to the proposed detention pond located in the northwest portion of the site. The detention pond was sized using the FAA method per the City of Fort Lupton "historic" site release rates for Soil Type A. The Basin has an overall imperviousness of 43%. The 5-year historic release rate is 1.0 cfs. The pond size is estimated to be 28.2 ac-ft. Basin A has been subdivided into 32 sub-basins A1.1 through A3.21.

Basin OS

Basin OS is the offsite basin located south of the property boundary. Basin OS is 15.63 acres and runoff from this basin will flow east along the south property line in a proposed swale and will ultimately travel through the detention pond and offsite.

MINOR DRAINAGE BASINS for Willow Bend

Basin A

Basin A is 7.64 acres and consists of the detention pond. Flows are routed to the outlet structure and off site.

Basin A1.1

Basin A1.1 is 0.45 acres and consists of roadway and landscaping. Flows from this basin drain to a 20-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the high point behind the inlet and flow into the detention pond.

Basin A1.2

Basin A1.2 is 14.87 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 20-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.1.

Basin A1.3

Basin A1.3 is 3.28 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.2.

Basin A1.4

Basin A1.4 is 2.60 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.3.

Basin A1.5

Basin A1.5 is 5.02 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.4.

Basin A1.6

Basin A1.6 is 3.03 acres and consists of roadway and the amenity area. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A2.2.

Basin A1.7

Basin A1.7 is 4.41 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.6.

Basin A2.1

Basin A2.1 is 2.42 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a curb cut and is routed into the detention pond.

Basin A2.2

Basin A2.2 is 9.54 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A2.1.

Basin A3.1

Basin A3.1 is 2.22 acres and consists of residential area and landscaping. Flows from this basin drain to a 36-inch culvert and into the detention pond. Emergency overflow for this basin will overtop the swale high point and flow into the detention pond.

Basin A3.2

Basin A3.2 is 0.37 acres and consists of roadway and residential area. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point behind the inlet and flow into Basin A3.1.

Basin A3.3

Basin A3.3 is 7.08 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.2.

Basin A3.4

Basin A3.4 is 1.89 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.3.

Basin A3.5

Basin A3.5 is 1.89 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.4.

Basin A3.6

Basin A3.6 is 4.48 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.5.

Basin A3.7

Basin A3.7 is 3.87 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to two 18" culverts and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.2.

Basin A3.8

Basin A3.8 is 2.06 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to an 18" culvert and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow into Basin A3.6.

Basin A3.9

Basin A3.9 is 0.45 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point behind the inlet and flow into Basin A3.8.

Basin A3.10

Basin A3.10 is 10.74 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 20-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.9.

Basin A3.11

Basin A3.11 is 3.74 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 10-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A1.7.

Basin A3.12

Basin A3.12 is 0.40 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point behind the inlet and flow into Basin A3.11.

Basin A3.13

Basin A3.13 is 0.64 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.12.

Basin A3.14

Basin A3.14 is 2.25 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to an 18" culvert and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow into Basin A3.13.

Basin A3.15

Basin A3.15 is 0.48 acres and consists of landscaping. Flows from this basin drain to an 18-inch Area Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow into Basin A3.21.

Basin A3.16

Basin A3.16 is 1.86 acres and consists of landscaping. Flows from this basin drain to a 36-inch culvert and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow off site.

Basin A3.17

Basin A3.17 is 4.13 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point behind the inlet and flow into Basin A3.16.

Basin A3.18

Basin A3.18 is 3.86 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the road high point and flow into Basin A3.17.

Basin A3.19

Basin A3.19 is 1.65 acres and consists of landscaping. Flows from this basin drain to an 18-inch culvert and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow into Basin A3.8.

Basin A3.20

Basin A3.20 is 2.88 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to an 18-inch culvert and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point and flow into Basin A3.21.

Basin A3.21

Basin A3.21 is 2.19 acres and consists of roadway, residential area, and landscaping. Flows from this basin drain to a 5-foot Type R Inlet and is routed via storm sewer and swales into the detention pond. Emergency overflow for this basin will overtop the high point behind the inlet and flow into Basin A3.7.

STORM MODELING

Rational Method calculations following the Mile High Flood District and City of Fort Lupton Drainage Criteria Standards are presented in Appendices C and D.

The proposed storm sewers will be modeled using StormCAD for both the 5-year and 100-year peak hour events to determine the hydraulic grade lines for the final submittal and will be presented in the Appendix.

DRAINAGE DESIGN CRITERIA

The proposed drainage is governed by the Mile High Flood District's (MHFD) Urban Storm Drainage Criteria Manual, Volumes 1-3 and the City of Fort Lupton Drainage and Technical Criteria Manual (DCSDTCM). The project uses the Intensity-Duration-Frequency (IDF) curves calibrated to the 1-hour point rainfall values for City of Fort Lupton listed in Table 502. Storm sewers are sized for at least the 5-year peak storm event and overland flow routes are sized for the 100-year peak storm. Detention areas are sized using the FAA method for the historic 5-year release rate specified by the UDFCD. Storm sewers, inlet capacity and outlet control design are calculated using UDFCD spreadsheets.

WATER QUALITY ENHANCEMENT BEST MANAGEMENT PRACTICES

Stormwater runoff from the developed site will be treated for water quality via the proposed Water Quality Capture Volume within Pond A. Treatment will occur due to allocated water quality storage volume sized per the MHFD Manual and the City of Fort Lupton Manual. Sediment forebays, trickle channels, and water quality plates will be utilized for water quality enhancement. Maintenance of these facilities will be done frequently to enhance and maintain functionality. All structures and features will be designed using the MHFD Manual and the City of Fort Lupton Manual.

FLOODPLAIN MODIFICATIONS

There are no floodplains located on the Site and thus will not require any floodplain modification.

CONCLUSIONS

The proposed Willow Bend Project will be designed to meet the Mile High Flood District Standards and the City of Fort Lupton Drainage Criteria Standards. Facilities will be sized to handle the expected developed condition runoff from both the site and off-site tributary areas. No variances from the drainage criteria are requested.

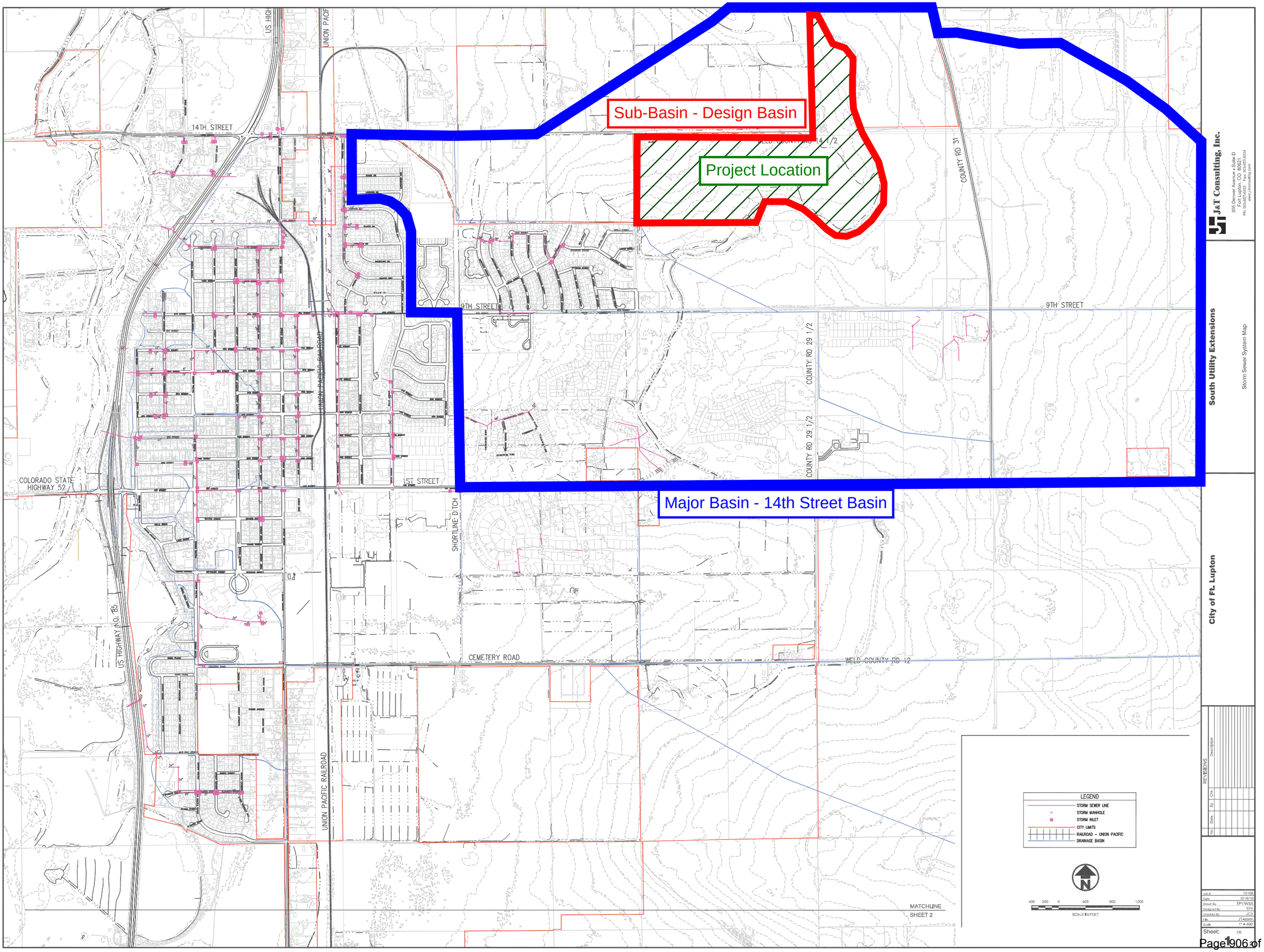
Drainage is an integral part of the site design. Proposed paved roadways and a storm sewer conveyance system will provide for safe passage of the 100-year runoff and the detention area will provide highly visible green space adjacent. All developed runoff will be treated in the detention ponds prior to release to the Golden's Pond regional detention facility.

REFERENCES

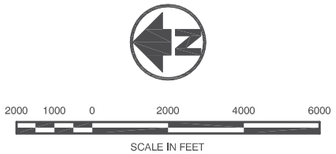
1. “City of Fort Lupton Storm Drainage Design & Technical Criteria Manual”, City of Fort Lupton, Colorado.

2. “Urban Storm Drainage Criteria Manuals Volumes 1-3”, Urban Drainage and Flood Control District, January 2016.

APPENDIX A – Historic Drainage Maps



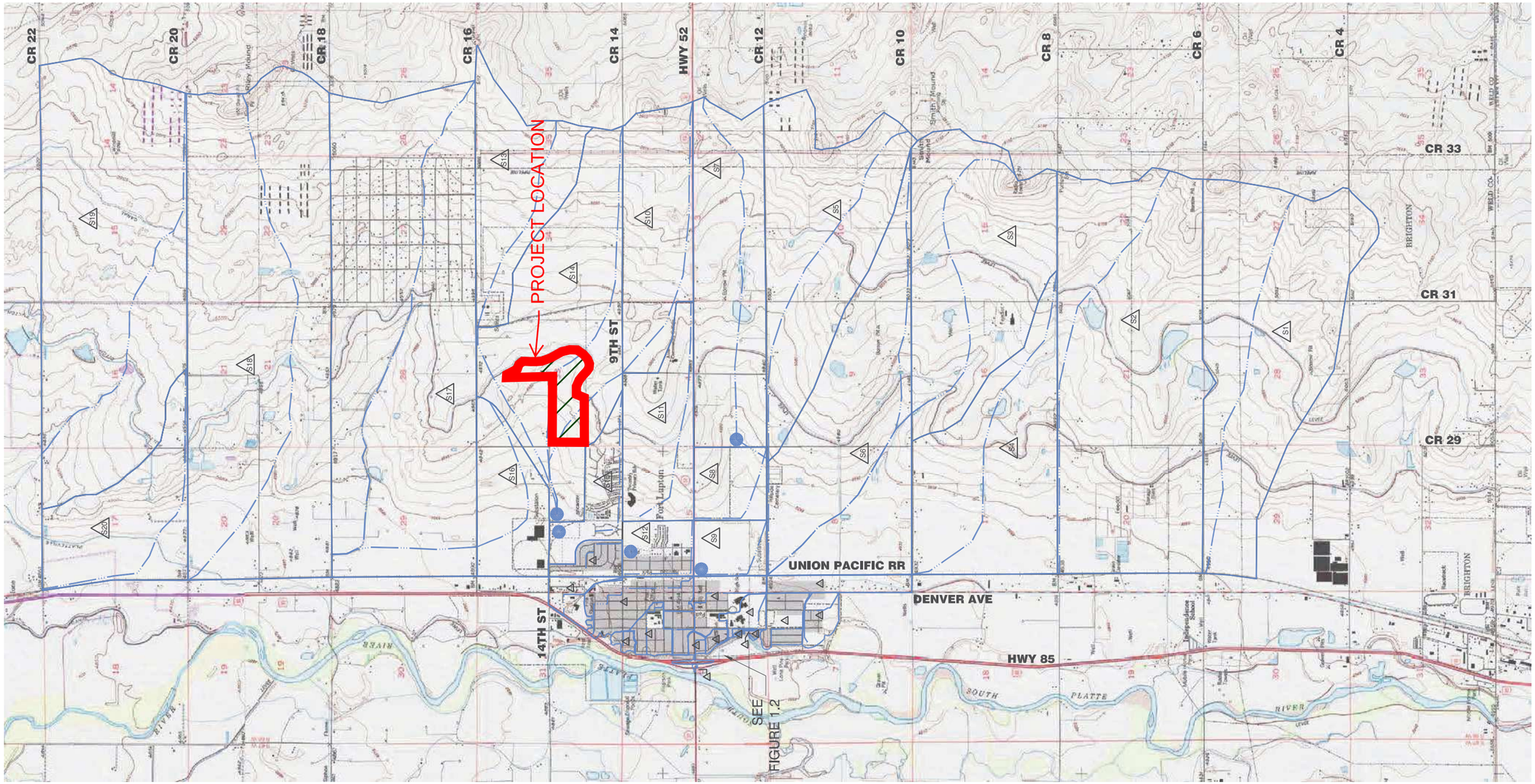
Sub-Basin - Design Basin
Project Location
Major Basin - 14th Street Basin
14TH STREET
9TH STREET
1ST STREET
COLORADO STATE HIGHWAY 52
US HIGHWAY NO. 85
UNION PACIFIC RAILROAD
SHORTLINE DITCH
CEMETERY ROAD
WELD COUNTY RD 12
COUNTY RD 29 1/2
COUNTY RD 31
MATCHLINE SHEET 2
LEGEND
STORM SEWER LINE
STORM MANHOLE
STORM INLET
CITY LIMITS
RAILROAD – UNION PACIFIC
DRAINAGE BASIN
SCALE IN FEET
J&T Consulting, Inc.
South Utility Extensions
Storm Sewer System Map
City of Ft. Lupton
REVISIONS
Job # 10108
Date 6/14/10
Drawn By TPY/WSS
Designed By TPY
Checked By JCY
Scale 1" = 400'
Sheet: 1



Basin ID	Basin Area (ac)	5 Year Historic Flow	2 Year Developed Flow	5 Year Developed Flow	10 Year Developed Flow	50 Year Developed Flow	100 Year Developed Flow
1	1303.36	547.76	1519.50	1545.54	1556.06	1572.14	1577.02
2	1741.55	734.06	2036.29	2071.20	2085.29	2106.85	2113.38
3	1004.46	595.03	982.81	1012.69	1025.54	1046.01	1052.37
4	858.21	406.14	1642.54	1653.73	1658.20	1665.02	1667.09
5	907.16	380.78	751.49	772.88	781.92	796.15	800.54
6	1081.80	442.02	1526.16	1542.64	1549.26	1559.35	1562.40
7	731.31	352.15	1424.20	1433.90	1437.78	1443.69	1445.48
8	159.81	114.98	318.95	324.41	326.62	330.00	331.02
9	122.28	83.00	411.39	412.39	412.80	413.44	413.63
10	507.49	248.67	925.47	925.47	929.35	939.21	941.77
11	367.74	252.36	416.82	429.49	434.94	443.62	446.32
12	119.33	63.01	237.20	239.15	239.93	241.12	241.48
13	488.97	281.08	1209.67	1216.36	1219.04	1223.14	1224.38
14	1016.07	456.36	1237.39	1237.39	1248.08	1275.52	1282.77
15	170.75	162.12	386.14	395.11	398.80	404.53	406.28
16	307.97	234.82	1163.86	1166.71	1167.87	1169.67	1170.21
17	2103.33	734.09	1748.46	1789.07	1805.79	1831.72	1839.67
18	2137.04	767.96	940.77	962.62	972.29	987.94	992.87
19	1730.16	823.06	1008.26	1031.68	1042.04	1058.82	1064.10
20	503.84	220.00	269.50	275.76	278.53	283.02	284.43

LEGEND:

DEVELOPED BASIN DELINEATION
DEVELOPED BASIN TRAVEL PATH
BASIN DESIGNATION
EXISTING/PROPOSED DETENTION BASIN



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305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.jtconsulting.com

Storm Drainage Study Area East Basins

Figure 1.1

City of Fort Lupton

REVISIONS

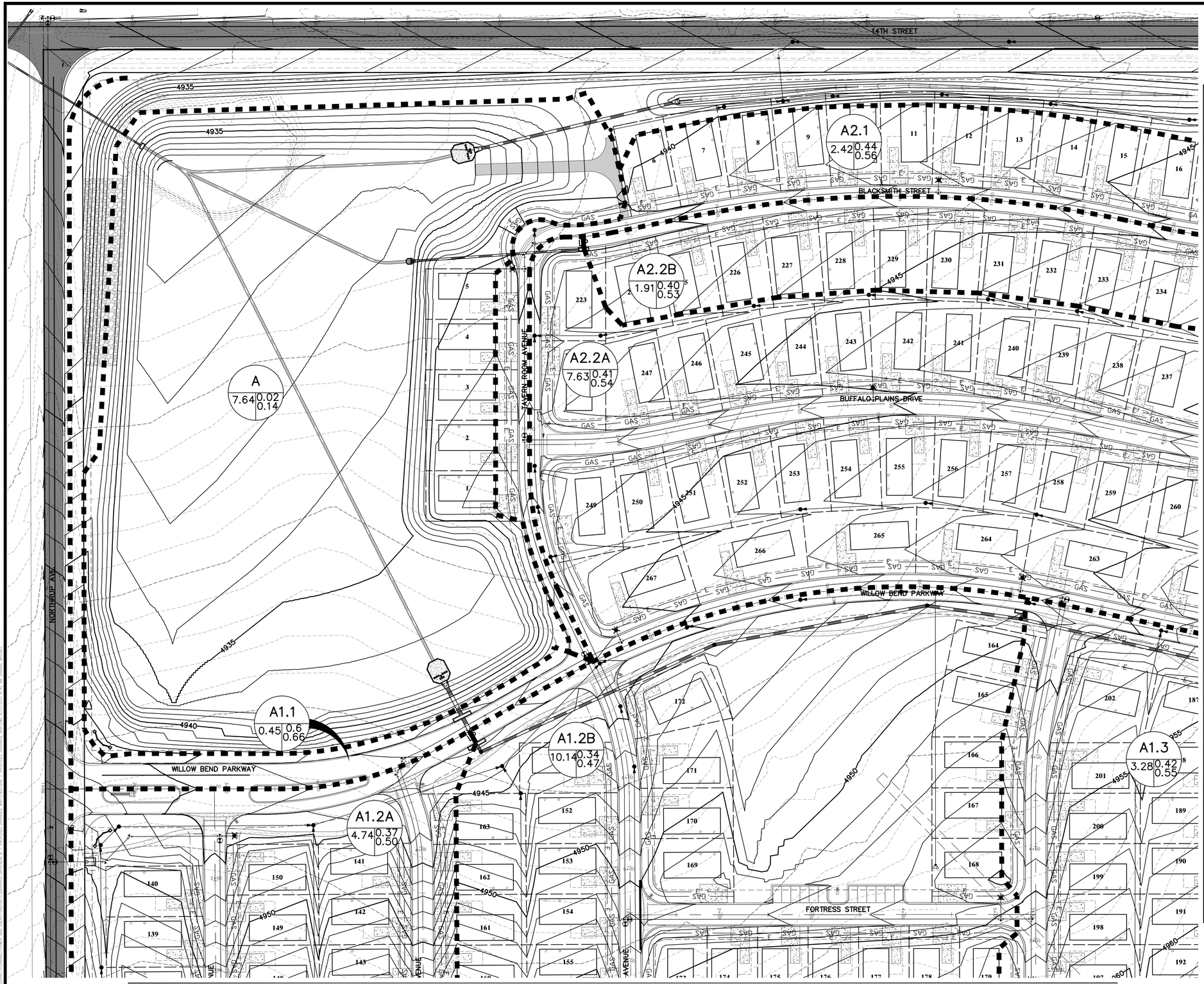
No	Date	By	Chk	Description

Job #	12106
Date	10/20/14
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Fort Lupton drain
Scale	1" = 2000'

Sheet: 1 of: 1

P:\12106 Fort Lupton Utility Plan Update\Drawings\Plan Sheets\Drainage\JT-Fort Lupton-Drainage-Proposed.dwg, Developed, 10/23/2014 9:44:52 AM

APPENDIX B – Proposed Drainage Map



LEGEND

- PROPERTY BOUNDARY
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED EASEMENT
- EXISTING EASEMENT
- A = MAJOR BASIN DESIGNATION
- B = AREA IN ACRES
- C = 5 YR RUNOFF COEFFICIENT
- D = 100 YR RUNOFF COEFFICIENT
- DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE BASIN BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER
- PROPOSED UTILITY EASEMENT
- PROPOSED GRADE CONTOUR
- EXISTING CONTOUR
- FLOW DIRECTION
- PROPOSED TRICKLE PAN
- PROPOSED 6' CROSSPAN

50 0 50 100
(IN FEET)
1 inch = 50 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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ANASTASIYA SHORT

CLIENT
SUN COMMUNITIES, INC.
FORT LUPTON SUN COMMUNITIES PROJECT
FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS
PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

COLORADO REGISTERED PROFESSIONAL ENGINEER
40824
03/19/21

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 1 OF 8

CAD FILE: 19001956 – PROPOSED DRAINAGE MAP.DWG

SEE SHEET 1 OF 8



SEE SHEET 4 OF 8

LEGEND

- PROPERTY BOUNDARY
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED EASEMENT
- EXISTING EASEMENT
- A = MAJOR BASIN DESIGNATION
  B = AREA IN ACRES
  C = 5 YR RUNOFF COEFFICIENT
  D = 100 YR RUNOFF COEFFICIENT
- 1 DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE BASIN BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER
- PROPOSED UTILITY EASEMENT
- 6500 PROPOSED GRADE CONTOUR
- 6500 EXISTING CONTOUR
- FLOW DIRECTION
- PROPOSED TRICKLE PAN
- PROPOSED 6' CROSSPAN

(IN FEET)
1 inch = 50 ft.

811 Know what's below. Call before you dig.

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CLIENT
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FORT LUPTON SUN COMMUNITIES PROJECT
FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS
PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

COLORADO REGISTERED
CHRISTINE BECKER
40824
03/19/21
PROFESSIONAL ENGINEER

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 2 OF 8

CAD FILE: 19001956 – PROPOSED DRAINAGE MAP.DWG



SEE SHEET 1 OF 8

SEE SHEET 7 OF 8

SEE SHEET 4 OF 8

LEGEND

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COLORADO REGISTERED PROFESSIONAL ENGINEER
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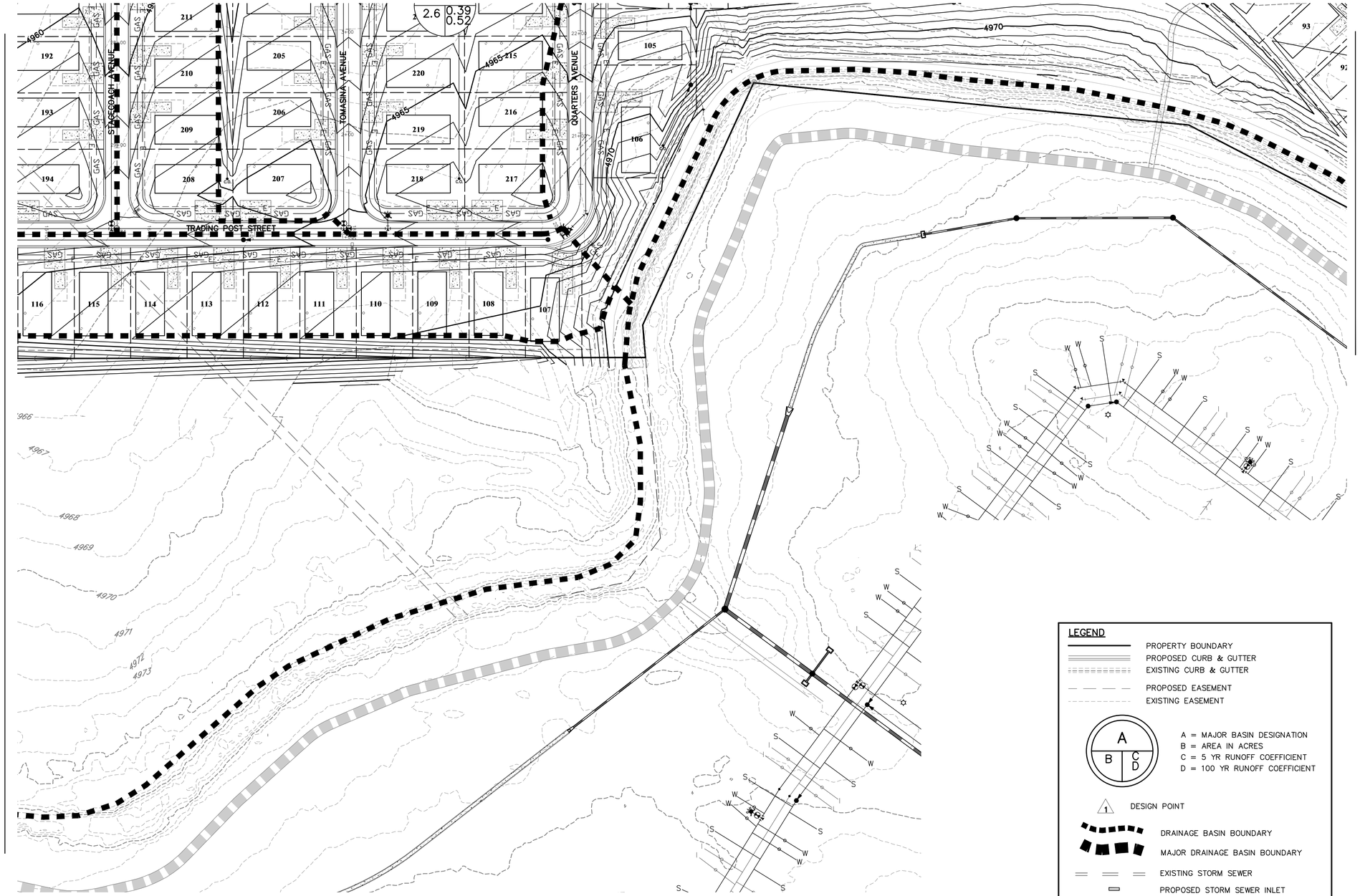
03/19/21

DR. CTR CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 3 OF 8

CAD FILE: 19001956 – PROPOSED DRAINAGE MAP.DWG



LEGEND

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- PROPOSED STORM SEWER
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50 0 50 100

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FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS

PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

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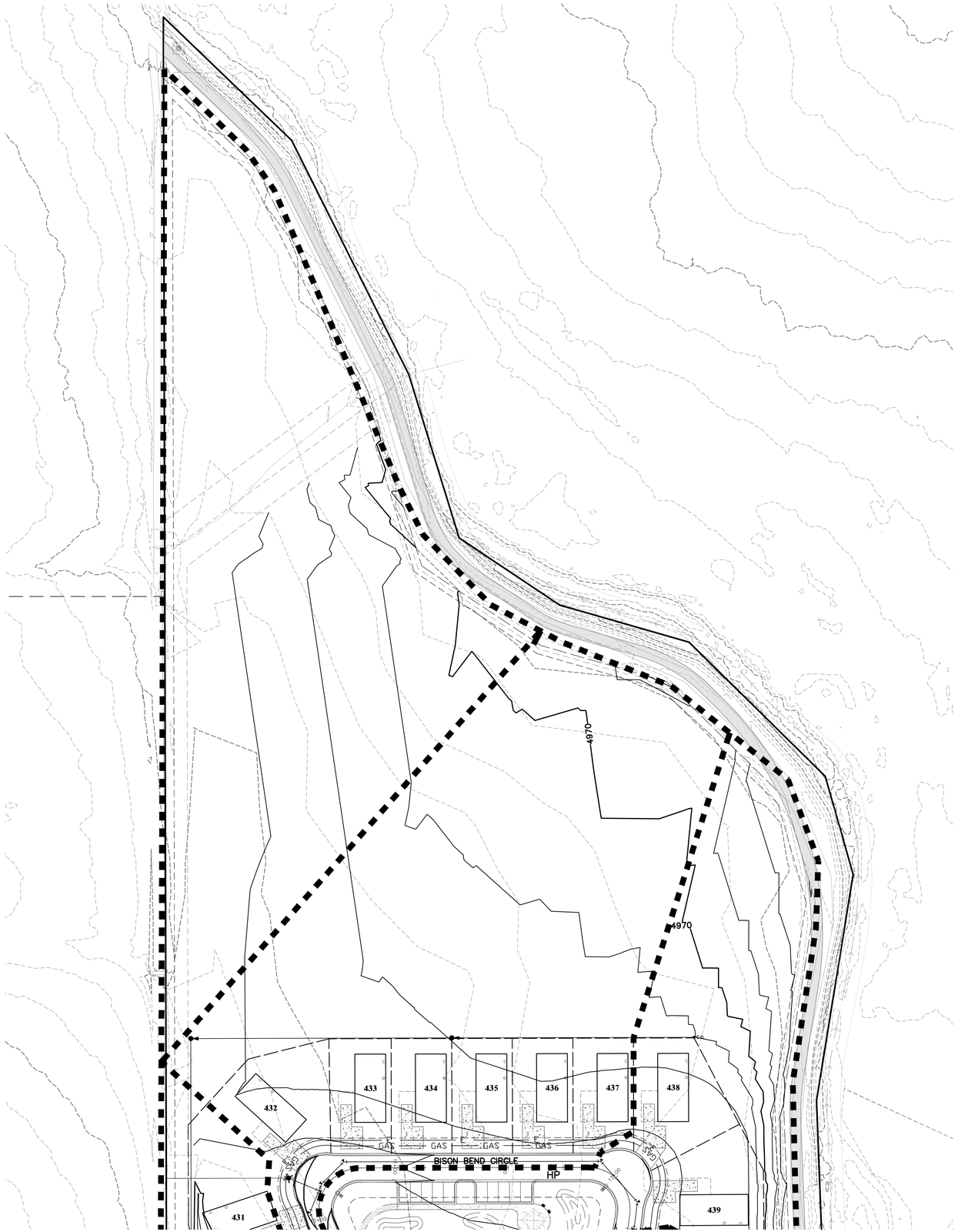
03/19/21

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 4 OF 8

CAD FILE: 19001956 – PROPOSED DRAINAGE MAP.DWG



LEGEND

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- EXISTING STORM SEWER
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- PROPOSED STORM SEWER
- PROPOSED UTILITY EASEMENT
- PROPOSED GRADE CONTOUR (6500)
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FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS
PROPOSED DRAINAGE MAP

DATE 11/11/2019

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JANE BEGLEY
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03/19/21
PROFESSIONAL ENGINEER

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 5 OF 8

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SEE SHEET 5 OF 8



SEE SHEET 7 OF 8

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PRELIMINARY DRAINAGE PLANS

PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

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CHRISTINA BROWN
40824
03/19/21
PROFESSIONAL ENGINEER

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P.M. CBS
JOB 19001956
SHEET NO. 6 OF 8

CAD FILE: 19001956 - PROPOSED DRAINAGE MAP.DWG

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FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS

PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

COLORADO REGISTERED PROFESSIONAL ENGINEER
40824
03/19/21

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 7 OF 8

CAD FILE: 19001956 – PROPOSED DRAINAGE MAP.DWG

SEE SHEET 7 OF 8

SEE SHEET 4 OF 8



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CLIENT: SUN COMMUNITIES, INC.
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FORT LUPTON, CO
PRELIMINARY DRAINAGE PLANS
PROPOSED DRAINAGE MAP

DATE 11/11/2019

REVISIONS

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CHRISTINE BEARD
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03/19/21
PROFESSIONAL ENGINEER

DR. CTR | CH. CBS
P.M. CBS
JOB 19001956
SHEET NO. 8 OF 8

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DOCUMENT DESCRIPTION: DRAINAGE PLAN INDEX DEVELOPMENT PLAN DRAWING NAME: DRAINAGE PLAN DATE: 11/11/2019 PLOTTED: 19 MAR 2021 BY: ANASTASIYA SHORT

APPENDIX C – Hydrologic Computations

COMPOSITE C CALCULATION

PROJECT MANE:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

NRCS Hydrologic Soil Group: A

Historic flow analysis		2% Impervious	
2 yr = 0.01	5 yr = 0.01	10 yr = 0.01	100 yr = 0.13
0.25 acres or less		45% Impervious	
2 yr = 0.30	5 yr = 0.31	10 yr = 0.33	100 yr = 0.46
Paved		100% Impervious	
2 yr = 0.84	5 yr = 0.86	10 yr = 0.87	100 yr = 0.89
Lawns, sandy soil		2% Impervious	
2 yr = 0.01	5 yr = 0.01	10 yr = 0.01	100 yr = 0.13
Neighborhood areas		75% Impervious	
2 yr = 0.58	5 yr = 0.60	10 yr = 0.61	100 yr = 0.70

EXISTING DRAINAGE AREA

BASIN ID	A_{total} (ft²)	Historic flow analysis (ft²)	0.25 acres or less (ft²)	Paved (ft²)	Lawns, sandy soil (ft²)	Neighborhood areas (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
OS-A	246875	246875					5.67	0.01	0.01	0.01	0.13	2%
OS-B	434107	434107					9.97	0.01	0.01	0.01	0.13	2%
Subtotals:	680,982	680,982	0	0	0	0						2%

Drainage Area= 15.63

COMPOSITE C CALCULATION

PROJECT MANE:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

NRCS Hydrologic Soil Group: A

Historic flow analysis		2% Impervious	
2 yr = 0.01	5 yr = 0.01	10 yr = 0.01	100 yr = 0.13
0.25 acres or less		45% Impervious	
2 yr = 0.30	5 yr = 0.31	10 yr = 0.33	100 yr = 0.46
Paved		100% Impervious	
2 yr = 0.84	5 yr = 0.86	10 yr = 0.87	100 yr = 0.89
Lawns, sandy soil		2% Impervious	
2 yr = 0.01	5 yr = 0.01	10 yr = 0.01	100 yr = 0.13
Neighborhood areas		75% Impervious	
2 yr = 0.58	5 yr = 0.60	10 yr = 0.61	100 yr = 0.70

PROPOSED DRAINAGE AREA

BASIN ID	A_{total} (ft²)	Historic flow analysis (ft²)	0.25 acres or less (ft²)	Paved (ft²)	Lawns, sandy soil (ft²)	Neighborhood areas (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
A	332968		6694		326274		7.64	0.02	0.02	0.02	0.14	3%
A1.1	19734			13746	5988		0.45	0.59	0.60	0.61	0.66	70%
A1.2A	206637		157968	32066	16603		4.74	0.36	0.37	0.39	0.50	50%
A1.2B	441180		301302	66545	73333		10.13	0.33	0.34	0.36	0.47	46%
A1.3	142800		114261	28539			3.28	0.41	0.42	0.44	0.55	56%
A1.4	113119		96827	16292			2.60	0.38	0.39	0.41	0.52	53%
A1.5	218763		125472	24146	69145		5.02	0.27	0.28	0.29	0.40	37%
A1.6	131876			4946		126930	3.03	0.59	0.61	0.62	0.71	76%
A1.7	192183		156317	35866			4.41	0.40	0.41	0.43	0.54	55%
A2.1	105405		81069	24336			2.42	0.42	0.44	0.45	0.56	58%
A2.2A	332270		271050	61220			7.63	0.40	0.41	0.43	0.54	55%
A2.2B	83266		70337	12929			1.91	0.38	0.40	0.41	0.53	54%
A3.1	96639		96639				2.22	0.30	0.31	0.33	0.46	45%
A3.2	16067		9950	6117			0.37	0.51	0.52	0.54	0.62	66%
A3.3A	205548		159086	46462			4.72	0.42	0.43	0.45	0.56	57%
A3.3B	102938			56374	46564		2.36	0.46	0.48	0.48	0.55	56%
A3.4	82397	66740	15657				1.89	0.07	0.07	0.07	0.19	10%
A3.5	82376		67628	14748			1.89	0.40	0.41	0.43	0.54	55%
A3.6	194985		70674	27849	96462		4.48	0.23	0.24	0.25	0.36	32%
A3.7	168791		83112		85679		3.87	0.15	0.16	0.17	0.29	23%
A3.8	89602		89602				2.06	0.30	0.31	0.33	0.46	45%
3.9	19633		5398	14235			0.45	0.69	0.71	0.72	0.77	85%
A3.10A	17367		9489	7878			0.40	0.54	0.56	0.57	0.66	70%
A3.10B	194867		156845	38022			4.47	0.41	0.42	0.44	0.54	56%
A3.10C	255810		236219	19591			5.87	0.34	0.35	0.37	0.49	49%

COMPOSITE C CALCULATION

PROJECT MANE:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

NRCS Hydrologic Soil Group: A

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Paved		100% Impervious	
2 yr = 0.84	5 yr = 0.86	10 yr = 0.87	100 yr = 0.89
Lawns, sandy soil		2% Impervious	
2 yr = 0.01	5 yr = 0.01	10 yr = 0.01	100 yr = 0.13
Neighborhood areas		75% Impervious	
2 yr = 0.58	5 yr = 0.60	10 yr = 0.61	100 yr = 0.70

PROPOSED DRAINAGE AREA (CONTINUED)

BASIN ID	A_{total} (ft²)	Historic flow analysis (ft²)	0.25 acres or less (ft²)	Paved (ft²)	Lawns, sandy soil (ft²)	Neighborhood areas (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
A3.11	162817		138815	24002			3.74	0.38	0.39	0.41	0.52	53%
A3.12	17228		9989	7239			0.40	0.53	0.54	0.56	0.64	68%
A3.13	27980		19413	8567			0.64	0.47	0.48	0.50	0.59	62%
A3.14	98106		55464		42642		2.25	0.17	0.18	0.19	0.32	26%
A3.15	20838		5941		14897		0.48	0.09	0.10	0.10	0.22	14%
A3.16	81034		40677		40357		1.86	0.16	0.16	0.17	0.30	24%
A3.17	179967		55954	15621	108392		4.13	0.17	0.18	0.18	0.30	24%
A3.18	168046		79836	36880	51330		3.86	0.33	0.34	0.35	0.45	44%
A3.19	71734				71734		1.65	0.01	0.01	0.01	0.13	2%
A3.20	125352		24086		101266		2.88	0.07	0.07	0.07	0.19	10%
A3.21	95328		79043	16285			2.19	0.39	0.40	0.42	0.53	54%
Subtotals:	#######	66,740	2,890,814	660,501	1,150,666	126,930						43%

Drainage Area= 112.39

TIME OF CONCENTRATION (Rational Method)

PROJECT NAME:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

SUB-BASIN DATA				INITIAL TIME (t_i)			TRAVEL TIME (t_t)				t_c CHECK (URBANIZED BASINS)		FINAL t_c	REMARKS
BASIN ID	DESIGN POINT	C_5	AREA	LENGTH (ft)	SLOPE (ft/ft)	t_i (min)	LENGTH (ft)	SLOPE (ft/ft)	C_v	t_t (min)	TRAVEL LENGTH (ft)	$T_{c\ Reg}$ (min)	(min)	
OS-A	OS-A	0.01	5.67	510	0.010	44.44							44.44	
OS-B	OS-B	0.01	9.97	740	0.010	53.54							53.54	

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TIME OF CONCENTRATION (Rational Method)

PROJECT NAME:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

SUB-BASIN DATA				INITIAL TIME (t_i)			TRAVEL TIME (t_t)				t_c CHECK (URBANIZED BASINS)		FINAL t_c	REMARKS
BASIN ID	DESIGN POINT	C_5	AREA	LENGTH (ft)	SLOPE (ft/ft)	t_i (min)	LENGTH (ft)	SLOPE (ft/ft)	C_v	t_t (min)	TRAVEL LENGTH (ft)	$T_{c\ Reg}$ (min)	(min)	
A	A	0.02	7.64	80	0.016	14.99	1350	0.007	20.00	13.45	1350.00	54.12	28.44	
A1.1	A1.1	0.60	0.45	20	0.020	3.20	390	0.009	20.00	3.43	390.00	17.69	6.62	
A1.2A	A1.2A	0.37	4.74	82	0.020	9.48	1368	0.009	20.00	12.02	1368.00	32.50	21.50	
A1.2B	A1.2B	0.34	10.13	80	0.020	9.72	1695	0.010	20.00	14.13	1695.00	36.43	23.85	
A1.3	A1.3	0.42	3.28	26	0.020	4.98	699	0.010	20.00	5.83	699.00	23.40	10.81	
A1.4	A1.4	0.39	2.60	45	0.020	6.85	652	0.010	20.00	5.43	652.00	23.63	12.28	
A1.5	A1.5	0.28	5.02	92	0.020	11.35	1063	0.010	20.00	8.86	1063.00	32.06	20.21	
A1.6	A1.6	0.61	3.03	300	0.020	12.20	215	0.010	20.00	1.79	215.00	14.92	13.99	
A1.7	A1.7	0.41	4.41	115	0.020	10.59	645	0.010	20.00	5.38	645.00	23.03	15.96	
A2.1	A2.1	0.44	2.42	20	0.020	4.26	1266	0.010	20.00	10.55	1266.00	28.55	14.81	
A2.2A	A2.2A	0.41	7.63	105	0.020	10.14	1168	0.010	20.00	9.73	1168.00	28.27	19.87	
A2.2B	A2.2B	0.40	1.91	92	0.020	9.71	707	0.010	20.00	5.89	707.00	24.04	15.60	
A3.1	A3.1	0.31	2.22	94	0.020	11.00	1044	0.005	15.00	16.40	1044.00	34.43	27.41	
A3.2	A3.2	0.52	0.37	25	0.020	4.17	293	0.010	20.00	2.44	293.00	17.47	6.61	
A3.3A	A3.3A	0.43	4.72	85	0.020	8.82	1785	0.010	20.00	14.88	1785.00	33.69	23.69	
A3.3B	A3.3B	0.48	2.36	23	0.020	4.30	1807	0.010	20.00	15.06	1807.00	34.47	19.36	
A3.4	A3.4	0.07	1.89	37	0.020	9.03	545	0.010	20.00	4.54	545.00	32.98	13.57	
A3.5	A3.5	0.41	1.89	30	0.020	5.44	581	0.010	20.00	4.84	581.00	22.48	10.28	
A3.6	A3.6	0.24	4.48	62	0.020	9.72	1124	0.010	20.00	9.37	1124.00	34.59	19.09	
A3.7	A3.7	0.16	3.87	81	0.250	5.29	1745	0.010	15.00	19.39	1745.00	45.81	24.68	
A3.8	A3.8	0.31	2.06	95	0.020	11.06	413	0.013	15.00	4.02	413.00	22.30	15.08	
3.9	3.9	0.71	0.45	23	0.020	2.69	466	0.010	20.00	3.88	466.00	15.29	6.58	
A3.10A	A3.10A	0.56	0.40	25	0.020	3.88	389	0.010	20.00	3.24	389.00	17.56	7.12	

TIME OF CONCENTRATION *(Rational Method)*

PROJECT NAME:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

SUB-BASIN DATA				INITIAL TIME (t_i)			TRAVEL TIME (t_t)				t_c CHECK (URBANIZED BASINS)		FINAL t_c	REMARKS
BASIN ID	DESIGN POINT	C_5	AREA	LENGTH (ft)	SLOPE (ft/ft)	t_i (min)	LENGTH (ft)	SLOPE (ft/ft)	C_v	t_t (min)	TRAVEL LENGTH (ft)	$T_{c\ Reg}$ (min)	(min)	
A3.10B	A3.10B	0.42	4.47	32	0.020	5.55	1165	0.010	20.00	9.71	1165.00	28.08	15.26	
A3.10C	A3.10C	0.35	5.87	137	0.020	12.57	739	0.010	15.00	8.21	739.00	25.39	20.78	
A3.11	A3.11	0.39	3.74	100	0.020	10.18	775	0.010	20.00	6.46	775.00	24.83	16.64	
A3.12	A3.12	0.54	0.40	20	0.020	3.59	267	0.010	20.00	2.23	267.00	16.82	5.82	
A3.13	A3.13	0.48	0.64	20	0.020	3.99	269	0.010	20.00	2.24	269.00	18.03	6.23	
A3.14	A3.14	0.18	2.25	83	0.020	12.04	435	0.010	15.00	4.83	435.00	27.24	16.88	
A3.15	A3.15	0.10	0.48	30	0.010	9.93	266	0.010	15.00	2.96	266.00	27.61	12.89	
A3.16	A3.16	0.16	1.86	99	0.010	16.88	476	0.010	15.00	5.29	476.00	28.44	22.16	
A3.17	A3.17	0.18	4.13	400	0.020	26.51	682	0.010	20.00	5.68	682.00	31.15	31.15	Urbanized Tc
A3.18	A3.18	0.34	3.86	321	0.020	19.58	594	0.010	20.00	4.95	594.00	25.07	24.53	
A3.19	A3.19	0.01	1.65	151	0.020	19.24	330	0.010	15.00	3.67	330.00	31.59	22.91	
A3.20	A3.20	0.07	2.88	77	0.020	13.01	381	0.010	15.00	4.23	381.00	30.34	17.24	
A3.21	A3.21	0.40	2.19	72	0.020	8.48	1170	0.010	20.00	9.75	1170.00	28.49	18.23	

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RUNOFF COMPUTATIONS

(RATIONAL METHOD)

PROJECT NAME:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

BASIN ID	DESIGN POINT	AREA Ac	COMPOSITE C				A*C				t_c (min)	INTENSITY (in/hr)				Q (cfs)			
			2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr		2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr
OS-A	OS-A	5.67	0.01	0.01	0.01	0.13	0.06	0.06	0.06	0.74	44.44	1.23	1.75	2.07	3.34	0.07	0.10	0.12	2.46
OS-B	OS-B	9.97	0.01	0.01	0.01	0.13	0.10	0.10	0.10	1.30	53.54	1.09	1.55	1.83	2.96	0.11	0.15	0.18	3.83

RUNOFF COMPUTATIONS

(RATIONAL METHOD)

PROJECT NAME:

PROJECT NO:

LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

BASIN ID	DESIGN POINT	AREA Ac	COMPOSITE C				A*C				t_c (min)	INTENSITY (in/hr)				Q (cfs)			
			2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr		2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr
A	A	7.64	0.02	0.02	0.02	0.14	0.12	0.12	0.13	1.04	28.44	1.62	2.30	2.72	4.39	0.20	0.28	0.34	4.58
A1.1	A1.1	0.45	0.59	0.60	0.61	0.66	0.27	0.27	0.28	0.30	6.62	3.13	4.44	5.26	8.48	0.83	1.21	1.45	2.53
A1.2A	A1.2A	4.74	0.36	0.37	0.39	0.50	1.71	1.76	1.84	2.37	21.50	1.89	2.69	3.18	5.13	3.24	4.73	5.86	12.17
A1.2B	A1.2B	10.13	0.33	0.34	0.36	0.47	3.38	3.47	3.63	4.76	23.85	1.79	2.54	3.01	4.85	6.04	8.83	10.91	23.08
A1.3	A1.3	3.28	0.41	0.42	0.44	0.55	1.34	1.38	1.44	1.79	10.81	2.62	3.72	4.41	7.11	3.51	5.13	6.33	12.72
A1.4	A1.4	2.60	0.38	0.39	0.41	0.52	0.98	1.01	1.06	1.36	12.28	2.49	3.53	4.18	6.73	2.44	3.57	4.42	9.13
A1.5	A1.5	5.02	0.27	0.28	0.29	0.40	1.35	1.39	1.45	2.02	20.21	1.96	2.78	3.29	5.30	2.63	3.85	4.76	10.73
A1.6	A1.6	3.03	0.59	0.61	0.62	0.71	1.79	1.85	1.88	2.14	13.99	2.35	3.33	3.94	6.36	4.19	6.15	7.39	13.61
A1.7	A1.7	4.41	0.40	0.41	0.43	0.54	1.77	1.82	1.90	2.38	15.96	2.20	3.13	3.70	5.97	3.90	5.70	7.04	14.24
A2.1	A2.1	2.42	0.42	0.44	0.45	0.56	1.03	1.06	1.10	1.35	14.81	2.28	3.24	3.84	6.19	2.35	3.43	4.22	8.38
A2.2A	A2.2A	7.63	0.40	0.41	0.43	0.54	3.05	3.14	3.28	4.11	19.87	1.97	2.80	3.32	5.35	6.01	8.79	10.86	22.00
A2.2B	A2.2B	1.91	0.38	0.40	0.41	0.53	0.73	0.76	0.79	1.01	15.60	2.23	3.16	3.74	6.04	1.64	2.39	2.96	6.08
A3.1	A3.1	2.22	0.30	0.31	0.33	0.46	0.67	0.69	0.73	1.02	27.41	1.65	2.35	2.78	4.48	1.10	1.62	2.03	4.57
A3.2	A3.2	0.37	0.51	0.52	0.54	0.62	0.19	0.19	0.20	0.23	6.61	3.13	4.45	5.26	8.48	0.58	0.85	1.04	1.95
A3.3A	A3.3A	4.72	0.42	0.43	0.45	0.56	1.99	2.05	2.13	2.63	23.69	1.80	2.55	3.02	4.87	3.58	5.23	6.44	12.79
A3.3B	A3.3B	2.36	0.46	0.48	0.48	0.55	1.10	1.12	1.14	1.29	19.36	2.00	2.84	3.36	5.42	2.20	3.19	3.82	7.00
A3.4	A3.4	1.89	0.07	0.07	0.07	0.19	0.12	0.13	0.13	0.36	13.57	2.38	3.38	4.00	6.44	0.29	0.43	0.54	2.35
A3.5	A3.5	1.89	0.40	0.41	0.43	0.54	0.75	0.77	0.81	1.02	10.28	2.68	3.80	4.50	7.25	2.01	2.94	3.63	7.36
A3.6	A3.6	4.48	0.23	0.24	0.25	0.36	1.05	1.07	1.11	1.60	19.09	2.02	2.86	3.39	5.46	2.11	3.08	3.77	8.76
A3.7	A3.7	3.87	0.15	0.16	0.17	0.29	0.59	0.61	0.65	1.13	24.68	1.76	2.49	2.95	4.76	1.04	1.52	1.91	5.39
A3.8	A3.8	2.06	0.30	0.31	0.33	0.46	0.62	0.64	0.68	0.95	15.08	2.26	3.22	3.80	6.14	1.40	2.05	2.58	5.81
3.9	3.9	0.45	0.69	0.71	0.72	0.77	0.31	0.32	0.33	0.35	6.58	3.14	4.45	5.27	8.50	0.98	1.42	1.71	2.96
A3.10A	A3.10A	0.40	0.54	0.56	0.57	0.66	0.22	0.22	0.23	0.26	7.12	3.06	4.34	5.14	8.28	0.66	0.97	1.18	2.16
A3.10B	A3.10B	4.47	0.41	0.42	0.44	0.54	1.81	1.87	1.95	2.43	15.26	2.25	3.20	3.78	6.10	4.08	5.97	7.37	14.85
A3.10C	A3.10C	5.87	0.34	0.35	0.37	0.49	2.00	2.07	2.18	2.89	20.78	1.93	2.74	3.24	5.22	3.86	5.66	7.06	15.12
A3.11	A3.11	3.74	0.38	0.39	0.41	0.52	1.42	1.46	1.53	1.96	16.64	2.16	3.07	3.63	5.85	3.06	4.48	5.55	11.45
A3.12	A3.12	0.40	0.53	0.54	0.56	0.64	0.21	0.21	0.22	0.25	5.82	3.25	4.62	5.47	8.82	0.68	0.99	1.20	2.23
A3.13	A3.13	0.64	0.47	0.48	0.50	0.59	0.30	0.31	0.32	0.38	6.23	3.19	4.53	5.35	8.64	0.95	1.39	1.70	3.28

RUNOFF COMPUTATIONS

(RATIONAL METHOD)

PROJECT NAME:
PROJECT NO:
LOCATION:

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (V.1) (2017)

BASIN ID	DESIGN POINT	AREA Ac	COMPOSITE C				A*C				t_c (min)	INTENSITY (in/hr)				Q (cfs)			
			2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr		2 yr	5 yr	10 yr	100 yr	2 yr	5 yr	10 yr	100 yr
A3.14	A3.14	2.25	0.17	0.18	0.19	0.32	0.39	0.40	0.43	0.71	16.88	2.14	3.05	3.60	5.81	0.84	1.23	1.55	4.14
A3.15	A3.15	0.48	0.09	0.10	0.10	0.22	0.04	0.05	0.05	0.11	12.89	2.43	3.46	4.09	6.59	0.11	0.16	0.20	0.71
A3.16	A3.16	1.86	0.16	0.16	0.17	0.30	0.29	0.30	0.32	0.55	22.16	1.86	2.64	3.13	5.05	0.54	0.79	0.99	2.78
A3.17	A3.17	4.13	0.17	0.18	0.18	0.30	0.71	0.73	0.76	1.23	31.15	1.53	2.18	2.58	4.16	1.09	1.59	1.96	5.13
A3.18	A3.18	3.86	0.33	0.34	0.35	0.45	1.27	1.31	1.35	1.75	24.53	1.76	2.50	2.96	4.77	2.24	3.27	4.00	8.35
A3.19	A3.19	1.65	0.01	0.01	0.01	0.13	0.02	0.02	0.02	0.21	22.91	1.83	2.60	3.07	4.96	0.03	0.04	0.05	1.06
A3.20	A3.20	2.88	0.07	0.07	0.07	0.19	0.19	0.19	0.21	0.56	17.24	2.12	3.01	3.56	5.75	0.40	0.59	0.73	3.20
A3.21	A3.21	2.19	0.39	0.40	0.42	0.53	0.86	0.88	0.92	1.17	18.23	2.06	2.93	3.47	5.59	1.77	2.59	3.20	6.53

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APPENDIX D – Hydraulic Computations

WILLOW BEND

HISTORIC DRAINAGE MAP

FOR FLOWS TO 14TH STREET ROADSIDE DITCH



NORTH 14TH BASIN
AREA=183.8 ACRES
Q10= 4 CFS
Q100= 106 CFS

SOUTH 14TH BASIN
AREA=118.3 ACRES
Q10= 2 CFS
Q100= 68 CFS

500 0 500 1,000

(IN FEET)
1 inch = 500 ft.

PROJECT NO.:19001954
DATE: 10/28/2020

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100
CONTACT: RICK WEED
RWEED@ATWELL-GROUP.COM

CAD FILE: 19001956-HISTORIC BASIN FOR 14TH STREET DITCH.DWG

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results								
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)
North 14th		0.151	0.240	43.9	9.59	22.8	6.78	16.0	196	667,082
South 14th		0.151	0.212	44.1	8.68	22.9	6.14	14.5	126	429,440

Excess Precip.		Storm Hydrograph			
Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
0.02	14,941	40.0	4	14,935	0.02
0.02	9,618	40.0	2	9,610	0.02

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results								
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)
North 14th		0.149	0.236	43.9	9.45	22.8	6.68	15.8	196	667,082
South 14th		0.149	0.209	44.1	8.56	22.9	6.05	14.3	126	429,440

Excess Precip.		Storm Hydrograph			
Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
0.60	397,549	50.0	106	397,381	0.58
0.60	255,926	45.0	68	255,694	0.57

DETENTION VOLUME BY THE MODIFIED FAA METHOD

(See USDCM Volume 2 Storage Chapter for description of method)

Project: _____

Basin ID: _____

(For catchments less than 160 acres only. For larger catchments, use hydrograph routing method)

(NOTE: for catchments larger than 90 acres, CUHP hydrograph and routing are recommended)

Determination of MINOR Detention Volume Using Modified FAA Method

Design Information (Input):

Catchment Drainage Imperviousness	I_a =	43.00	percent
Catchment Drainage Area	A =	128.000	acres
Predevelopment NRCS Soil Group	Type =	A	A, B, C, or D
Return Period for Detention Control	T =	5	years (2, 5, 10, 25, 50, or 100)
Time of Concentration of Watershed	Tc =	10	minutes
Allowable Unit Release Rate	q =	0.01	cfs/acre
One-hour Precipitation	P_1 =	1.42	inches
Design Rainfall IDF Formula $i = C_1 * P_1/(C_2+T_c)^{C_3}$			
Coefficient One	C_1 =	28.50	
Coefficient Two	C_2 =	10	
Coefficient Three	C_3 =	0.786	

Determination of Average Outflow from the Basin (Calculated):

Runoff Coefficient	C =	0.26	
Inflow Peak Runoff	Qp-in =	127.85	cfs
Allowable Peak Outflow Rate	Qp-out =	**0.97**	cfs
Mod. FAA Minor Storage Volume =		359,894	**cubic feet**
Mod. FAA Minor Storage Volume =		**8.262**	**acre-ft**

100 <- Enter Rainfall Duration Incremental Increase Value Here (e.g. 5 for 5-Minutes)

Rainfall Duration minutes (input)	Rainfall Intensity inches / hr (output)	Inflow Volume cubic feet (output)	Adjustment Factor "m" (output)	Average Outflow cfs (output)	Outflow Volume cubic feet (output)	Storage Volume cubic feet (output)
5	4.82	48,087	1.00	0.97	292	47,795
105	0.97	203,680	0.55	0.53	3,356	200,324
205	0.59	243,178	0.52	0.51	6,275	236,904
305	0.44	267,976	0.52	0.50	9,193	258,783
405	0.35	286,508	0.51	0.50	12,111	274,397
505	0.30	301,494	0.51	0.50	15,030	286,464
605	0.26	314,172	0.51	0.49	17,948	296,224
705	0.23	325,216	0.51	0.49	20,867	304,350
805	0.21	335,038	0.51	0.49	23,785	311,253
905	0.19	343,906	0.51	0.49	26,703	317,202
1005	0.18	352,007	0.50	0.49	29,622	322,385
1105	0.16	359,478	0.50	0.49	32,540	326,938
1205	0.15	366,419	0.50	0.49	35,459	330,960
1305	0.14	372,909	0.50	0.49	38,377	334,532
1405	0.14	379,009	0.50	0.49	41,295	337,714
1505	0.13	384,769	0.50	0.49	44,214	340,555
1605	0.12	390,229	0.50	0.49	47,132	343,097
1705	0.12	395,422	0.50	0.49	50,051	345,371
1805	0.11	400,376	0.50	0.49	52,969	347,407
1905	0.11	405,115	0.50	0.49	55,887	349,227
2005	0.10	409,658	0.50	0.49	58,806	350,853
2105	0.10	414,024	0.50	0.49	61,724	352,300
2205	0.09	418,228	0.50	0.49	64,643	353,585
2305	0.09	422,281	0.50	0.49	67,561	354,720
2405	0.09	426,197	0.50	0.49	70,479	355,717
2505	0.09	429,984	0.50	0.49	73,398	356,587
2605	0.08	433,653	0.50	0.49	76,316	357,337
2705	0.08	437,212	0.50	0.49	79,235	357,977
2805	0.08	440,667	0.50	0.49	82,153	358,514
2905	0.08	444,026	0.50	0.49	85,071	358,954
3005	0.07	447,293	0.50	0.49	87,990	359,304
3105	0.07	450,476	0.50	0.49	90,908	359,568
3205	0.07	453,578	0.50	0.49	93,827	359,751
3305	0.07	456,603	0.50	0.49	96,745	359,858
3405	0.07	459,557	0.50	0.49	99,663	359,894
3505	0.07	462,443	0.50	0.49	102,582	359,862
3605	0.06	465,264	0.50	0.49	105,500	359,764
3705	0.06	468,024	0.50	0.49	108,419	359,606
3805	0.06	470,725	0.50	0.49	111,337	359,389
3905	0.06	473,371	0.50	0.49	114,255	359,116
4005	0.06	475,963	0.50	0.49	117,174	358,790
4105	0.06	478,505	0.50	0.49	120,092	358,413
4205	0.06	480,998	0.50	0.49	123,011	357,987
4305	0.06	483,444	0.50	0.49	125,929	357,515
4405	0.06	485,845	0.50	0.49	128,847	356,998
4505	0.05	488,204	0.50	0.49	131,766	356,439
4605	0.05	490,522	0.50	0.49	134,684	355,838
4705	0.05	492,800	0.50	0.49	137,603	355,198
4805	0.05	495,040	0.50	0.49	140,521	354,519
4905	0.05	497,244	0.50	0.49	143,439	353,804
5005	0.05	499,412	0.50	0.49	146,358	353,054
5105	0.05	501,546	0.50	0.49	149,276	352,270
5205	0.05	503,647	0.50	0.49	152,195	351,453
5305	0.05	505,717	0.50	0.49	155,113	350,604
5405	0.05	507,756	0.50	0.49	158,031	349,725
5505	0.05	509,765	0.50	0.49	160,950	348,816
5605	0.05	511,746	0.50	0.49	163,868	347,878
5705	0.05	513,699	0.50	0.49	166,787	346,912
5805	0.04	515,625	0.50	0.49	169,705	345,920
5905	0.04	517,525	0.50	0.49	172,623	344,902
6005	0.04	519,400	0.50	0.49	175,542	343,858

Mod. FAA Minor Storage Volume (cubic ft.) = 359,894

Mod. FAA Minor Storage Volume (acre-ft.) = 8.2620

Determination of MAJOR Detention Volume Using Modified FAA Method

Design Information (Input):

Catchment Drainage Imperviousness	I_a =	43.00	percent
Catchment Drainage Area	A =	128.000	acres
Predevelopment NRCS Soil Group	Type =	A	A, B, C, or D
Return Period for Detention Control	T =	100	years (2, 5, 10, 25, 50, or 100)
Time of Concentration of Watershed	Tc =	10	minutes
Allowable Unit Release Rate	q =	0.08	cfs/acre
One-hour Precipitation	P_1 =	2.71	inches
Design Rainfall IDF Formula $i = C_1 * P_1/(C_2+T_c)^{C_3}$			
Coefficient One	C_1 =	28.50	
Coefficient Two	C_2 =	10	
Coefficient Three	C_3 =	0.786	

Determination of Average Outflow from the Basin (Calculated):

Runoff Coefficient	C =	0.42	
Inflow Peak Runoff	Qp-in =	394.15	cfs
Allowable Peak Outflow Rate	Qp-out =	**9.70**	cfs
Mod. FAA Major Storage Volume =		795,790	**cubic feet**
Mod. FAA Major Storage Volume =		**18.269**	**acre-ft**

Rainfall Duration minutes (input)	Rainfall Intensity inches / hr (output)	Inflow Volume cubic feet (output)	Adjustment Factor "m" (output)	Average Outflow cfs (output)	Outflow Volume cubic feet (output)	Storage Volume cubic feet (output)
5	9.19	148,247	1.00	9.70	2,909	145,338
105	1.85	627,922	0.55	5.31	33,455	594,467
205	1.13	749,690	0.52	5.09	62,546	687,144
305	0.84	826,138	0.52	5.01	91,637	734,501
405	0.68	883,271	0.51	4.97	120,728	762,543
505	0.57	929,470	0.51	4.94	149,819	779,651
605	0.50	968,555	0.51	4.93	178,910	789,645
705	0.44	1,002,604	0.51	4.92	208,001	794,602
805	0.40	1,032,882	0.51	4.91	237,092	795,790
905	0.36	1,060,221	0.51	4.90	266,183	794,037
1005	0.33	1,085,197	0.50	4.90	295,274	789,922
1105	0.31	1,108,227	0.50	4.89	324,365	783,862
1205	0.29	1,129,626	0.50	4.89	353,457	776,170
1305	0.27	1,149,634	0.50	4.89	382,548	767,086
1405	0.26	1,168,440	0.50	4.88	411,639	756,801
1505	0.24	1,186,197	0.50	4.88	440,730	745,467
1605	0.23	1,203,029	0.50	4.88	469,821	733,208
1705	0.22	1,219,039	0.50	4.88	498,912	720,127
1805	0.21	1,234,312	0.50	4.88	528,003	706,309
1905	0.20	1,248,921	0.50	4.87	557,094	691,827
2005	0.20	1,262,929	0.50	4.87	586,185	676,744
2105	0.19	1,276,388	0.50	4.87	615,276	661,112
2205	0.18	1,289,346	0.50	4.87	644,367	644,979
2305	0.18	1,301,843	0.50	4.87	673,458	628,384
2405	0.17	1,313,914	0.50	4.87	702,549	611,364
2505	0.16	1,325,591	0.50	4.87	731,640	593,950
2605	0.16	1,336,902	0.50	4.87	760,732	576,171
2705	0.15	1,347,873	0.50	4.87	789,823	558,050
2805	0.15	1,358,525	0.50	4.87	818,914	539,611
2905	0.15	1,368,878	0.50	4.87	848,005	520,874
3005	0.14	1,378,953	0.50	4.86	877,096	501,857
3105	0.14	1,388,763	0.50	4.86	906,187	482,576
3205	0.14	1,398,326	0.50	4.86	935,278	463,048
3305	0.13	1,407,654	0.50	4.86	964,369	443,285
3405	0.13	1,416,761	0.50	4.86	993,460	423,301
3505	0.13	1,425,658	0.50	4.86	1,022,551	403,107
3605	0.12	1,434,356	0.50	4.86	1,051,642	382,713
3705	0.12	1,442,863	0.50	4.86	1,080,733	362,130
3805	0.12	1,451,191	0.50	4.86	1,109,824	341,367
3905	0.12	1,459,347	0.50	4.86	1,138,915	320,431
4005	0.11	1,467,339	0.50	4.86	1,168,007	299,332
4105	0.11	1,475,174	0.50	4.86	1,197,098	278,076
4205	0.11	1,482,859	0.50	4.86	1,226,189	256,670
4305	0.11	1,490,400	0.50	4.86	1,255,280	235,120
4405	0.11	1,497,804	0.50	4.86	1,284,371	213,433
4505	0.10	1,505,076	0.50	4.86	1,313,462	191,614
4605	0.10	1,512,221	0.50	4.86	1,342,553	169,668
4705	0.10	1,519,245	0.50	4.86	1,371,644	147,600
4805	0.10	1,526,151	0.50	4.86	1,400,735	125,415
4905	0.10	1,532,944	0.50	4.86	1,429,826	103,117
5005	0.10	1,539,628	0.50	4.86	1,458,917	80,711
5105	0.09	1,546,207	0.50	4.86	1,488,008	58,199
5205	0.09	1,552,686	0.50	4.86	1,517,099	35,586
5305	0.09	1,559,066	0.50	4.86	1,546,190	12,875
5405	0.09	1,565,352	0.50	4.86	1,575,282	-9,930
5505	0.09	1,571,546	0.50	4.86	1,604,373	-32,826
5605	0.09	1,577,653	0.50	4.86	1,633,464	-55,811
5705	0.09	1,583,673	0.50	4.86	1,662,555	-78,882
5805	0.08	1,589,611	0.50	4.86	1,691,646	-102,035
5905	0.08	1,595,468	0.50	4.86	1,720,737	-125,269
6005	0.08	1,601,248	0.50	4.86	1,749,828	-148,580

Mod. FAA Major Storage Volume (cubic ft.) = 795,790

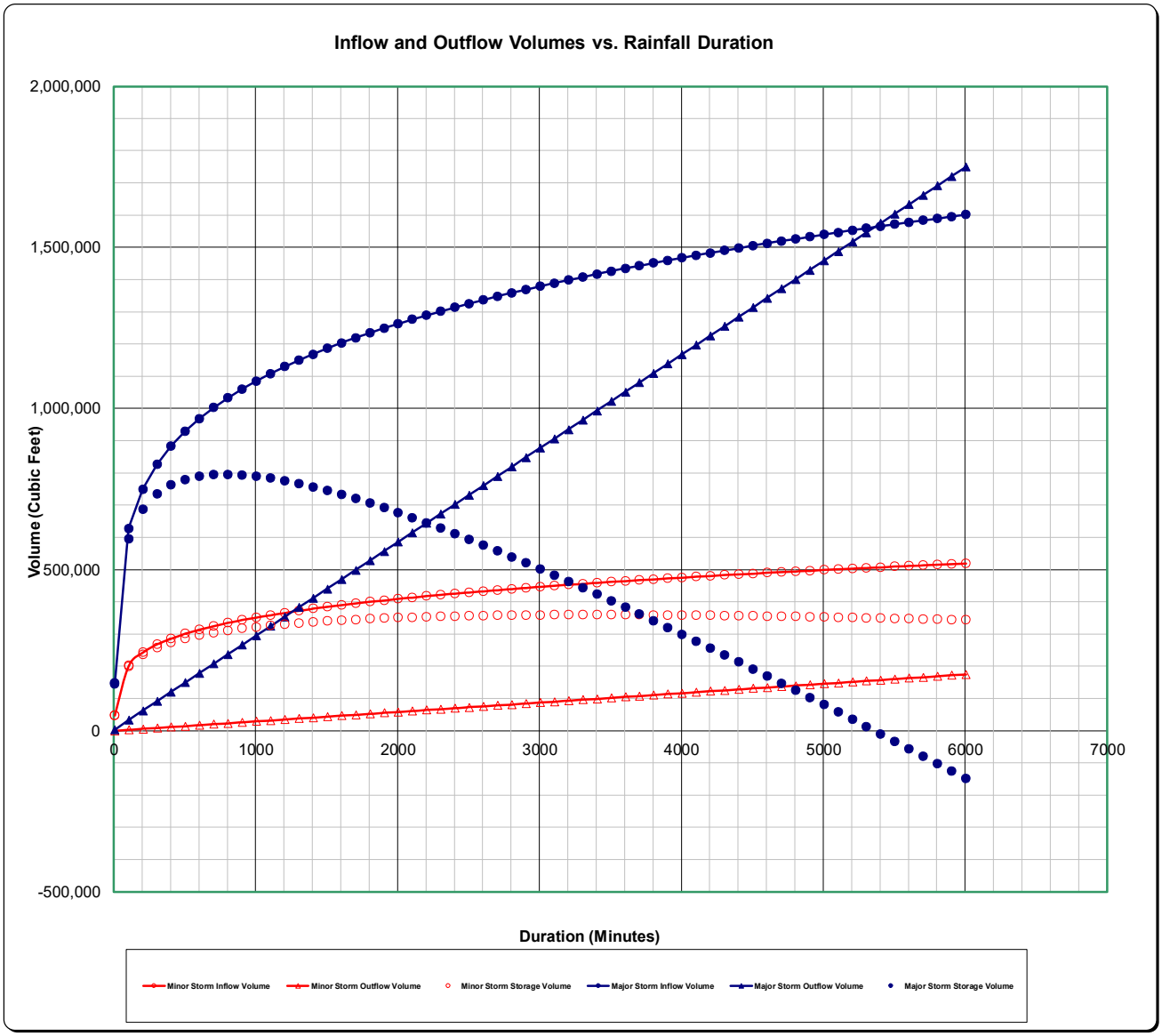
Mod. FAA Major Storage Volume (acre-ft.) = 18.2688

UDFCD DETENTION BASIN VOLUME ESTIMATING WORKBOOK Version 2.3, Released March 2012

DETENTION VOLUME BY THE MODIFIED FAA METHOD
(See USDCM Volume 2 Storage Chapter for description of method)

Project: _____

Basin ID: _____

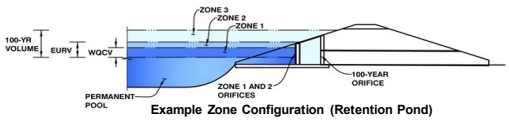


DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: _____

Basin ID: _____



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	128.00	acres
Watershed Length =	3,400	ft
Watershed Length to Centroid =	1,700	ft
Watershed Slope =	0.010	ft/ft
Watershed Imperviousness =	43.00%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	2.002	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	6.084	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	3.747	acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	5.775	acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	7.080	acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.69 in.) =	7.319	acre-feet		inches
50-yr Runoff Volume (P1 = 1.99 in.) =	9.576	acre-feet		inches
100-yr Runoff Volume (P1 = 2.71 in.) =	16.429	acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	20.710	acre-feet		inches
Approximate 2-yr Detention Volume =	3.266	acre-feet		
Approximate 5-yr Detention Volume =	4.862	acre-feet		
Approximate 10-yr Detention Volume =	6.060	acre-feet		
Approximate 25-yr Detention Volume =	6.588	acre-feet		
Approximate 50-yr Detention Volume =	7.764	acre-feet		
Approximate 100-yr Detention Volume =	10.847	acre-feet		

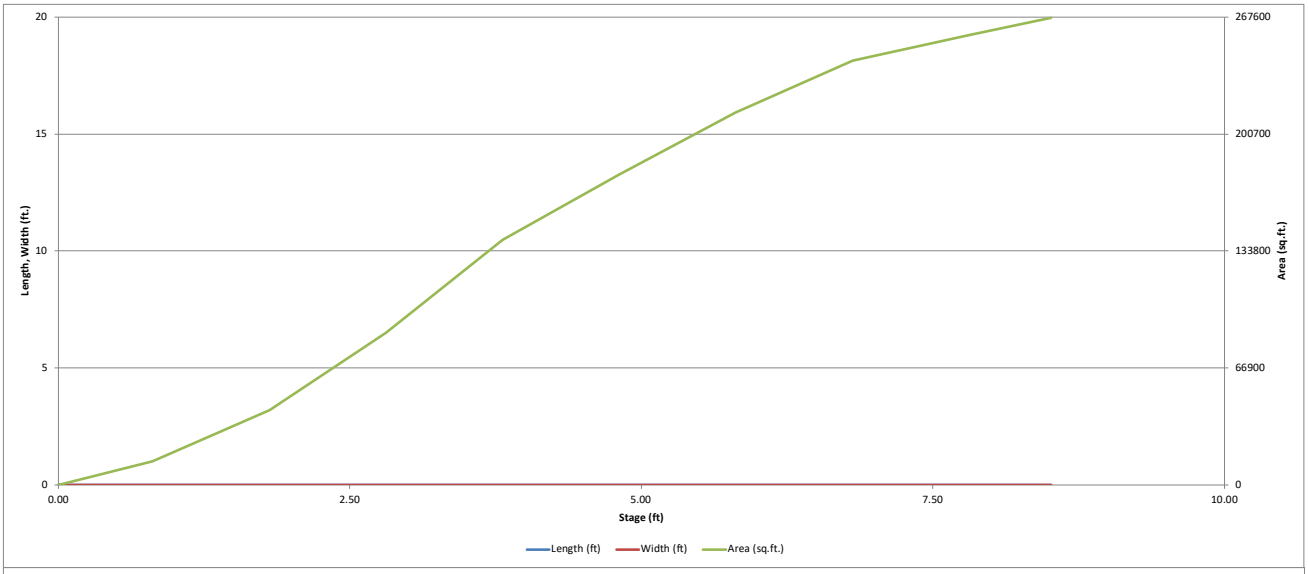
Define Zones and Basin Geometry

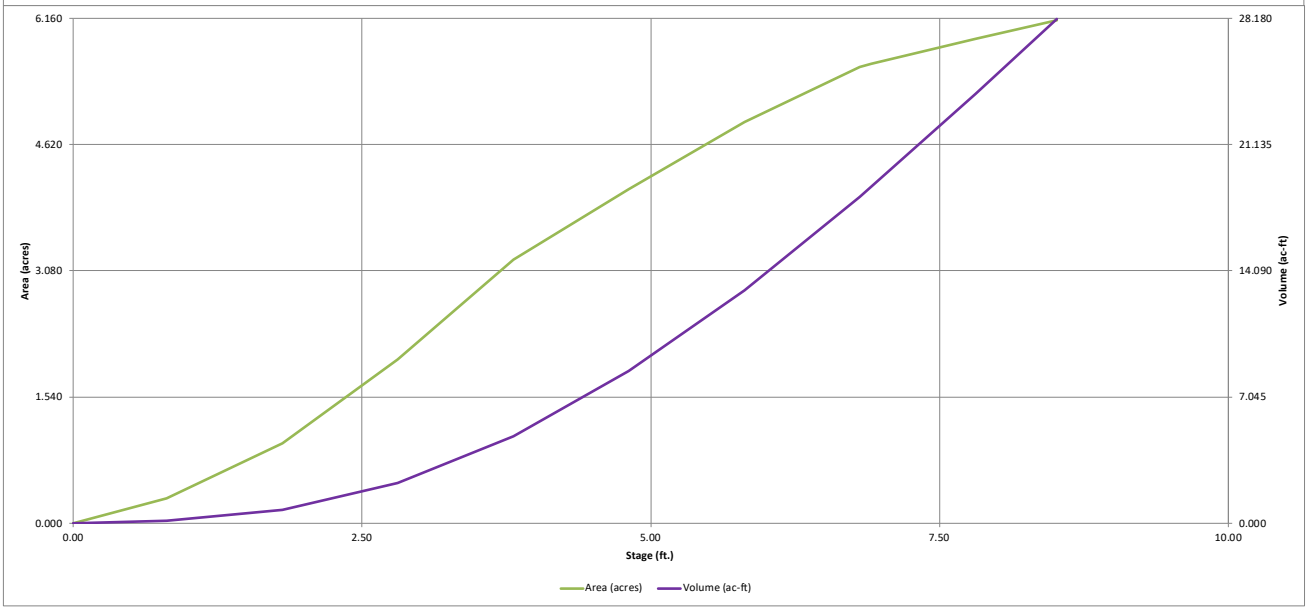
Zone 1 Volume (WQCV) =	2.002	acre-feet
Zone 2 Volume (5-year - Zone 1) =	2.860	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	5.985	acre-feet
Total Detention Basin Volume =	10.847	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	0	0.000		
4931	--	0.81	--	--	--	13,162	0.302	5,330	0.122
4932	--	1.81	--	--	--	42,539	0.977	33,180	0.762
4933	--	2.81	--	--	--	86,920	1.995	97,909	2.248
4934	--	3.81	--	--	--	140,038	3.215	211,388	4.853
4935 - 5 yr	--	4.81	--	--	--	177,316	4.071	370,064	8.496
4936	--	5.81	--	--	--	213,163	4.894	565,304	12.978
4937	--	6.81	--	--	--	242,569	5.569	793,169	18.209
4937.1 - 100 yr	--	6.91	--	--	--	244,010	5.602	817,498	18.767
4938	--	7.81	--	--	--	257,234	5.905	1,043,058	23.945
4938.7	--	8.51	--	--	--	267,492	6.141	1,226,712	28.161


20
15
10
5
0
Length, Width (ft.)
267600
200700
133800
66900
0
Area (sq.ft.)
0.00
2.50
5.00
7.50
10.00
Stage (ft)
Length (ft)
Width (ft)
Area (sq.ft.)


6.160
4.620
3.080
1.540
0.000
Area (acres)
28.180
21.135
14.090
7.045
0.000
Volume (ac-ft)
0.00
2.50
5.00
7.50
10.00
Stage (ft.)
Area (acres)
Volume (ac-ft)

Pond Outlet Design

Undetained 100-Year Flow	285.48	cfs
2x Undetained 100-Year Flow	570.96	cfs
Maximum 100-Year Release Rate	10.00	cfs
Maximum 5-Year Release Rate	1.00	cfs
Type of Outlet	Type 2	
100-Year Water Surface Elevation	4937.10	feet
5-Year Water Surface Elevation	4935.00	feet
Water Quality Pond Elevation	4932.88	feet
100-Year Outlet Pipe Invert Elevation	4925.30	feet
5-Year Outlet Orifice Invert Elevation	4935.00	feet
Water Quality Outlet Orifice Invert Elevation	4930.19	feet
Diameter of Outlet Pipe	18.00	inches

5-year Orifice Opening Size:

A = Q/(Cd (2gh)1/2) — 0.16 ft^2

5-year Orifice Dimensions:

3"x7.5" — 0.16 ft^2

Depth to Centerline of Orifice

Depth = (water surface elevation) - (orifice invert elevation) - (half of the rise dimension of the orifice opening) — 1.49 feet

100-year Orifice Plate Size:

A = Q/(Cd(2gh)1/2) — 0.96 ft^2

100-year Orifice Diameter:

Diameter = (4A/3.1416)1/2 — 1.10 feet

Depth to Centerline of Orifice

Depth = (water surface elevation) - (orifice invert elevation) - (half of the rise dimension of the orifice opening) — 11.25 feet

Outlet Structure Box Dimensions

L = 2 x Qweir/(CH3/2) — 1.93 feet

C = 3.4 from Table 1103

H = 100-year water surface – the 5-year water surface

Box Size: Type D Inlet Structure — 2.92x5.67 feet

Minimum Grate Opening Area

Minimum area= 2 x 100-year orifice opening area — 2.21 ft^2

Dimensions of Emergency Spillway

L = Qweir/(CH3/2) — 180.66 feet

C = 3.4 from Table 1103

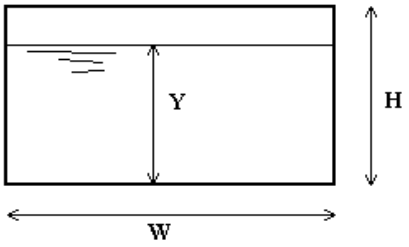
H=0.6'

BOX CONDUIT FLOW (Normal & Critical Depth Computation)

MHFD-Culvert, Version 4.00 (May 2020)

Project: _____

Box ID: _____



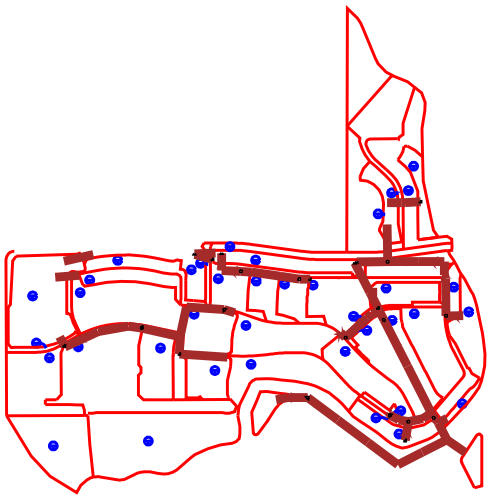
Design Information (Input)			
Box conduit invert slope	So =	0.0020	ft/ft
Box Manning's n-value	n =	0.0150	
Box Width	W =	12.00	ft
Box Height	H =	4.00	ft
Design discharge	Q =	230.00	cfs

Full-flow capacity (Calculated)			
Full-flow area	Af =	48.00	sq ft
Full-flow wetted perimeter	Pf =	32.00	ft
Full-flow capacity	Qf =	279.41	cfs

Calculations of Normal Flow Condition			
Normal flow depth (<H)	Yn =	2.80	ft
Flow area	An =	33.63	sq ft
Wetted perimeter	Pn =	17.61	ft
Flow velocity	Vn =	6.84	fps
Discharge	Qn =	230.00	cfs
Percent of Full Flow	Flow =	82.3%	of full flow
Normal Depth Froude Number	Fr_n =	0.72	subcritical

Calculation of Critical Flow Condition			
Critical flow depth	Yc =	2.25	ft
Critical flow area	Ac =	27.01	sq ft
Critical flow velocity	Vc =	8.51	fps
Critical Depth Froude Number	Fr_c =	1.00	

Scenario: Minor 5-yr



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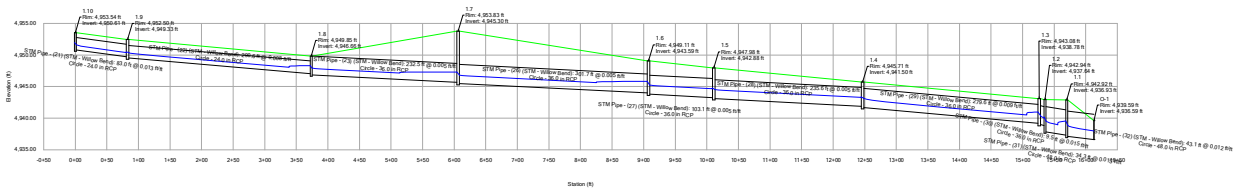

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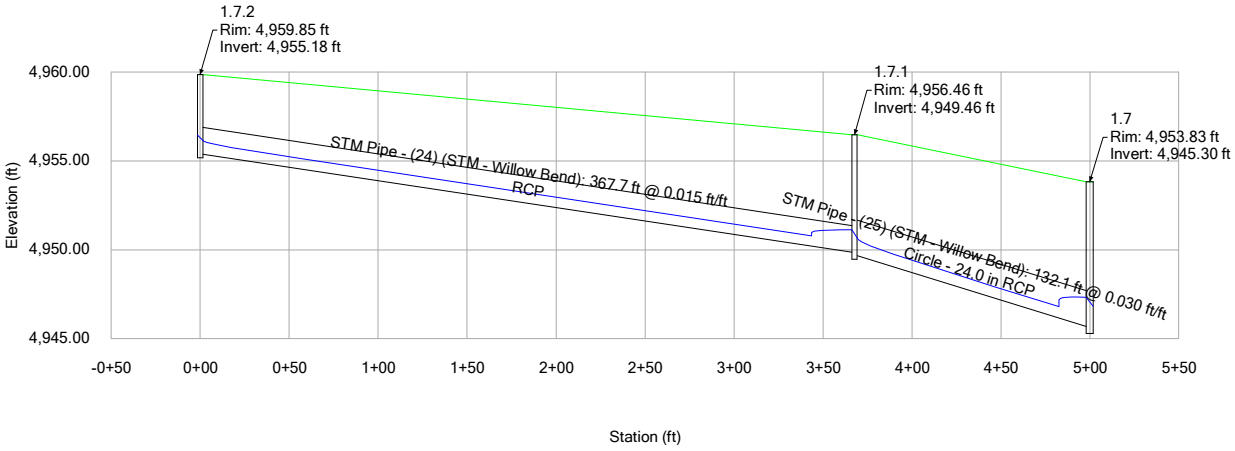

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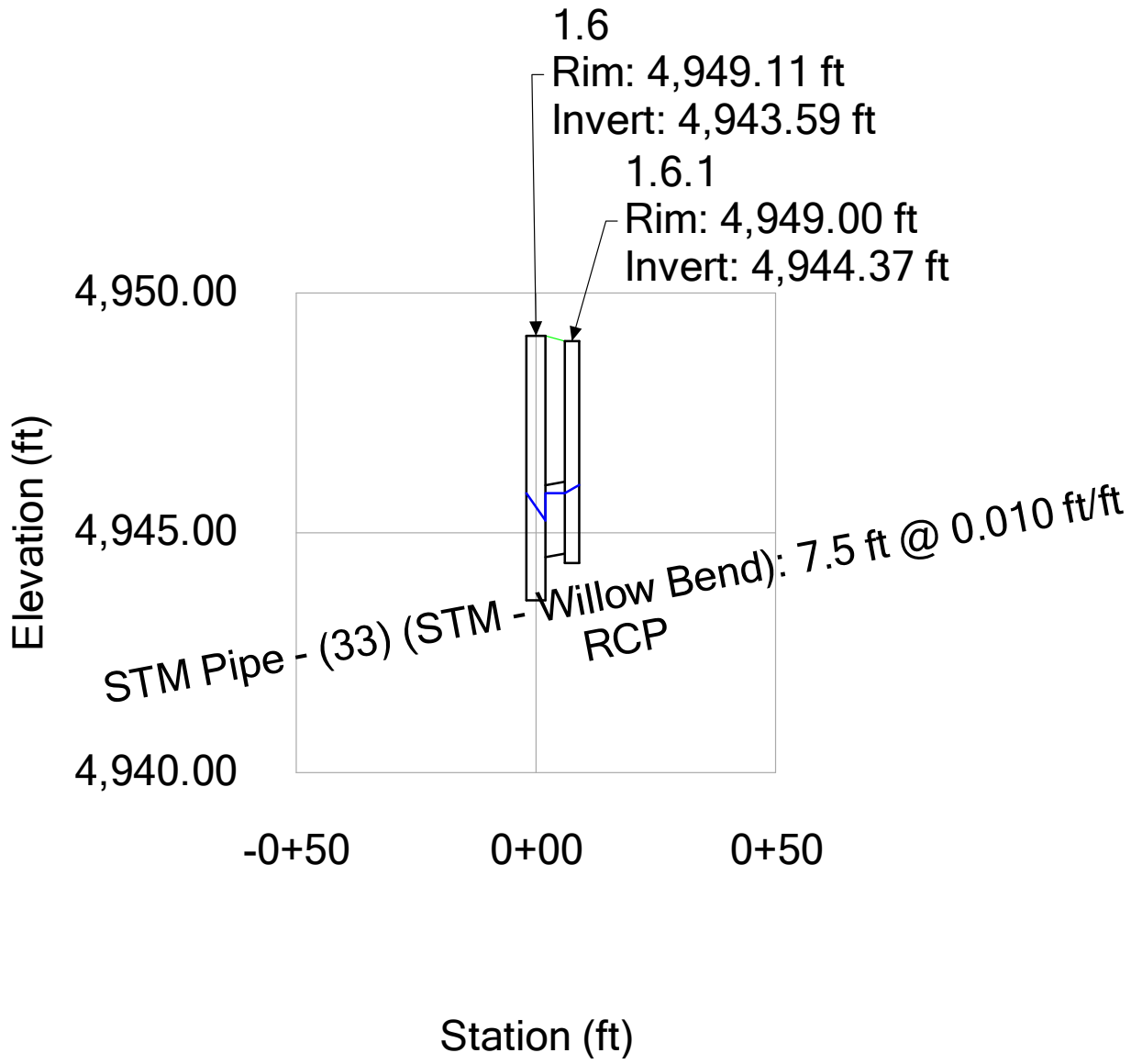

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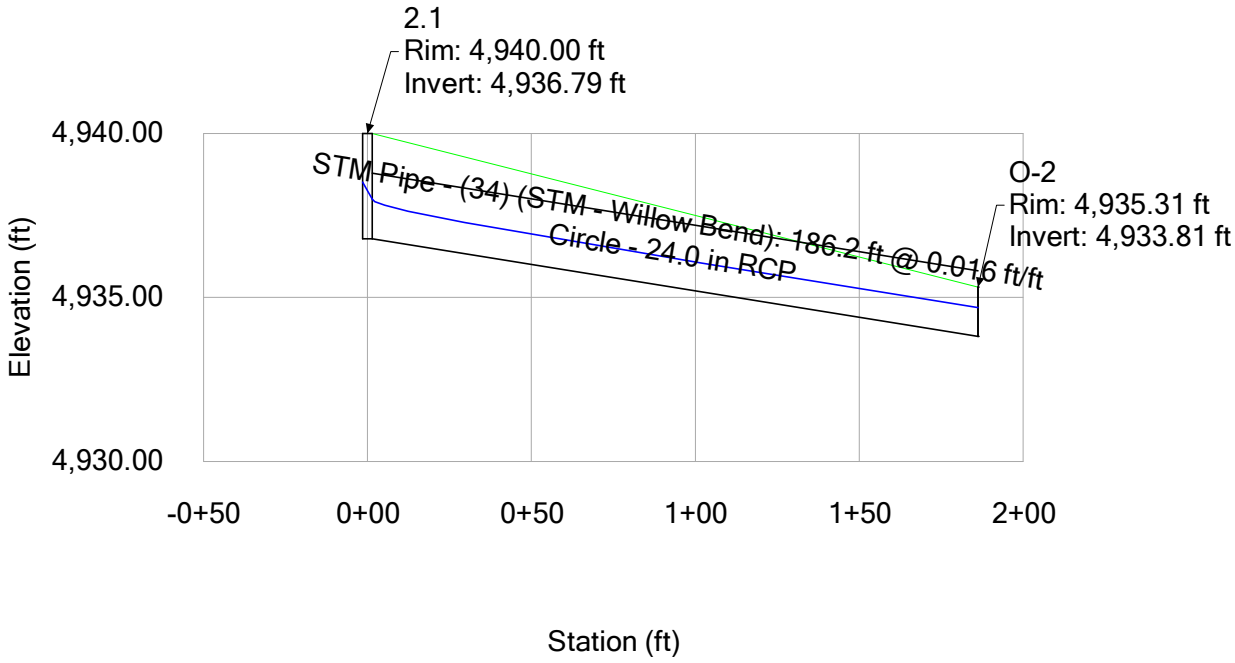

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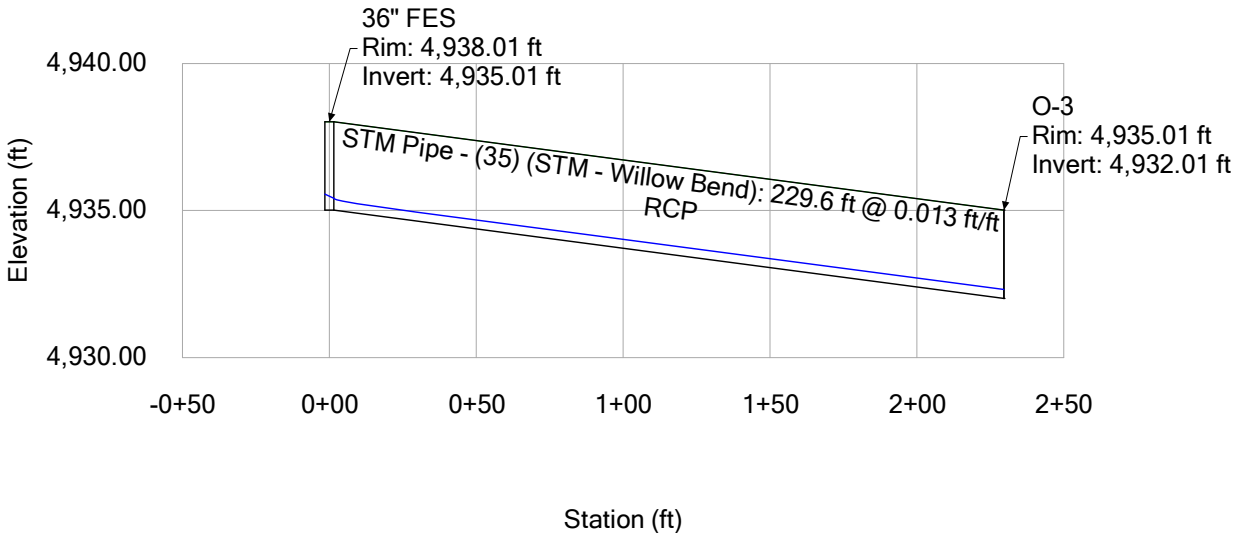

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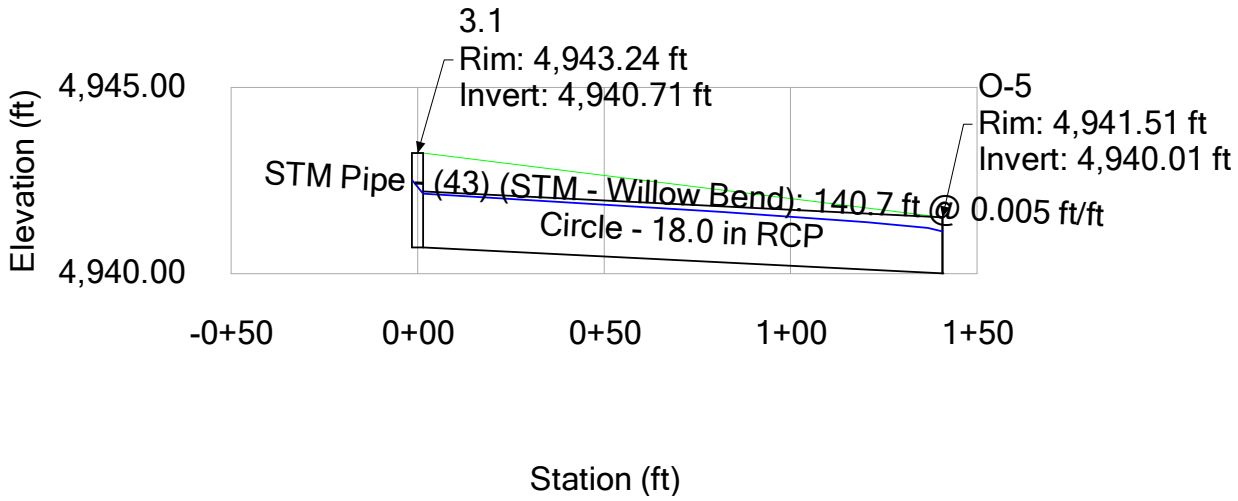

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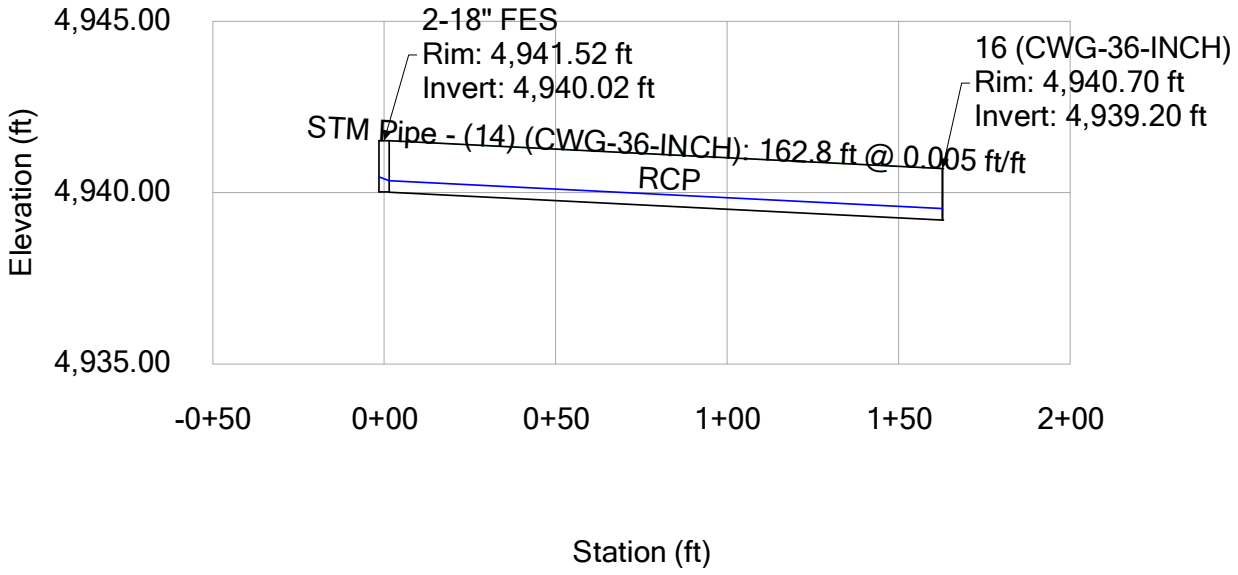

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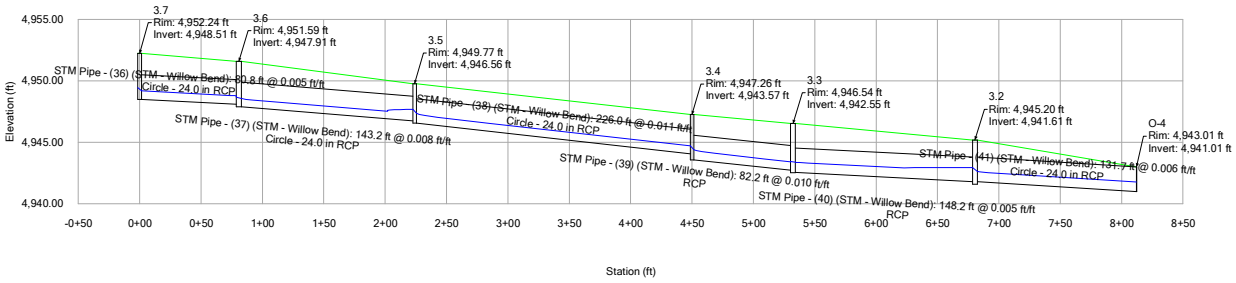

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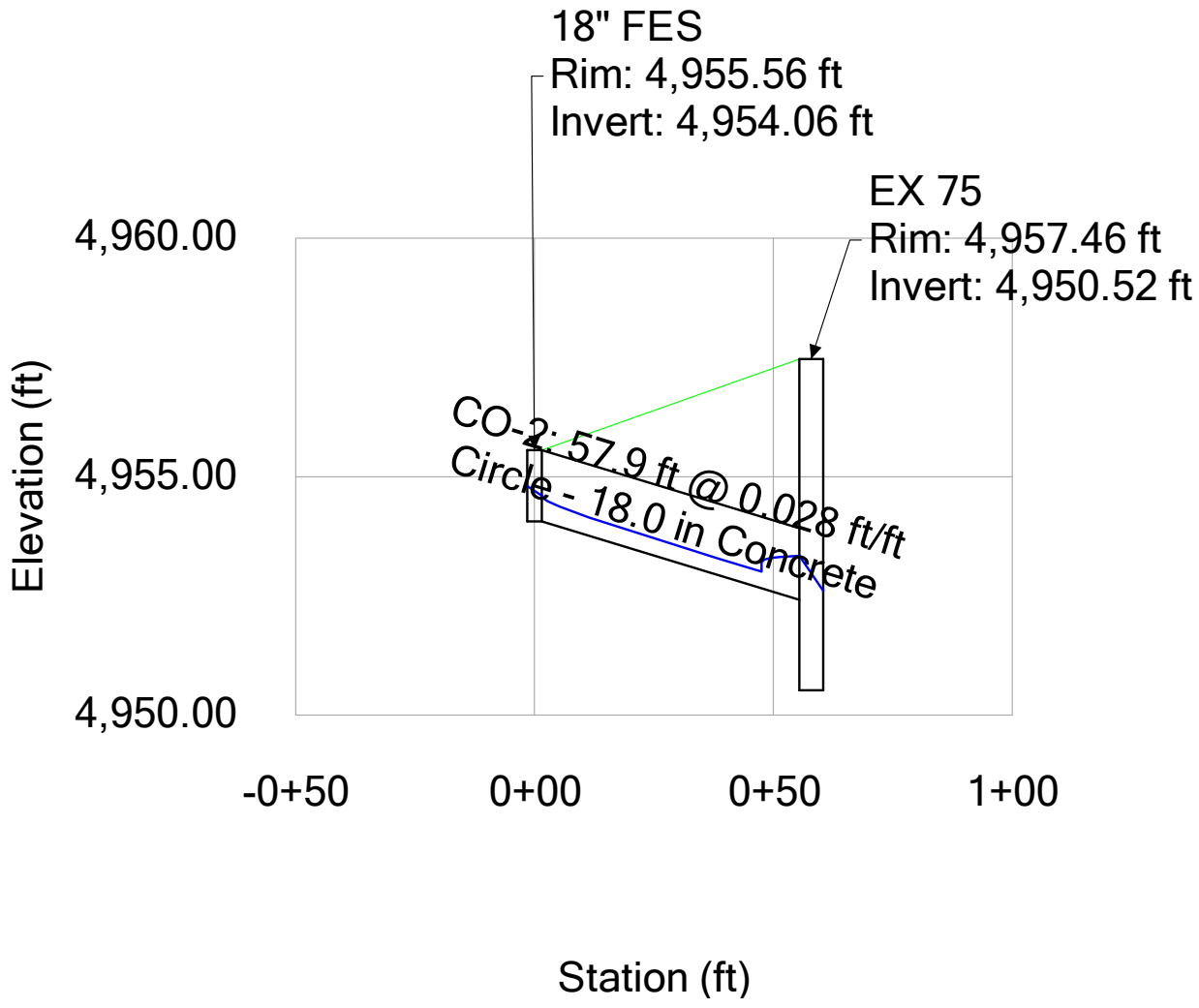

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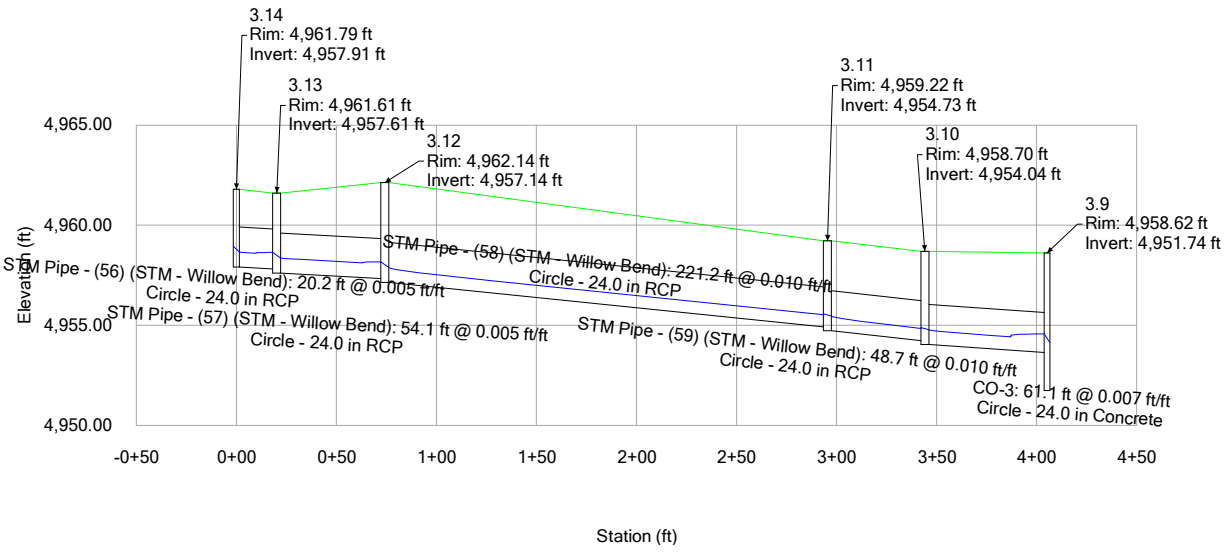

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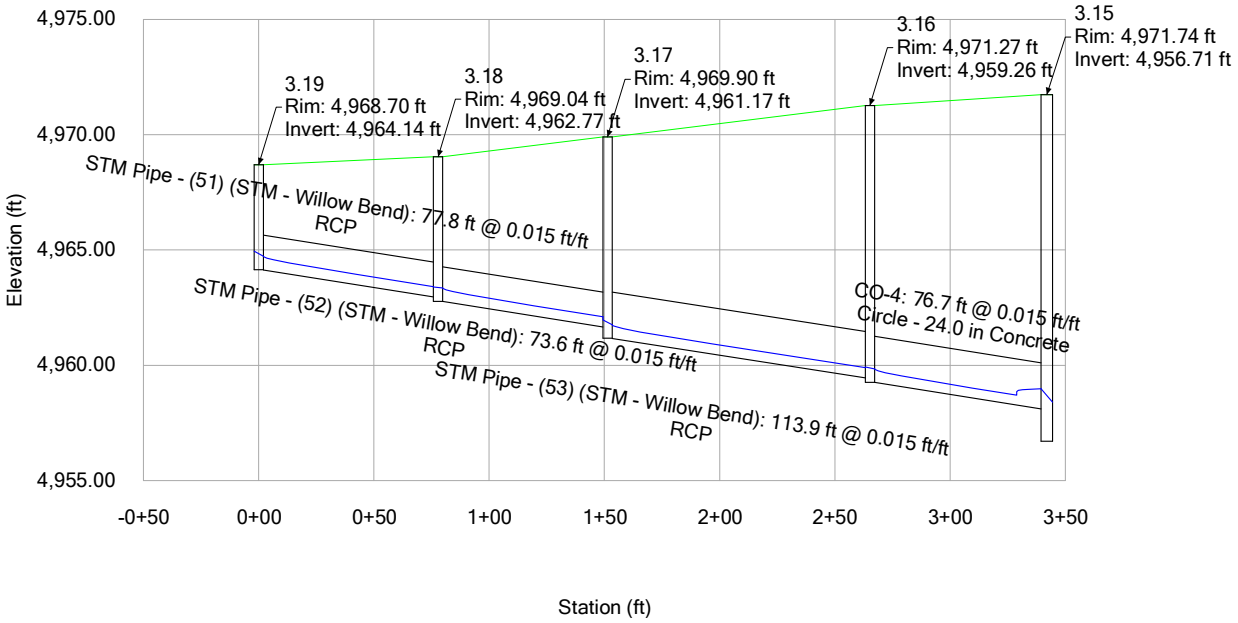

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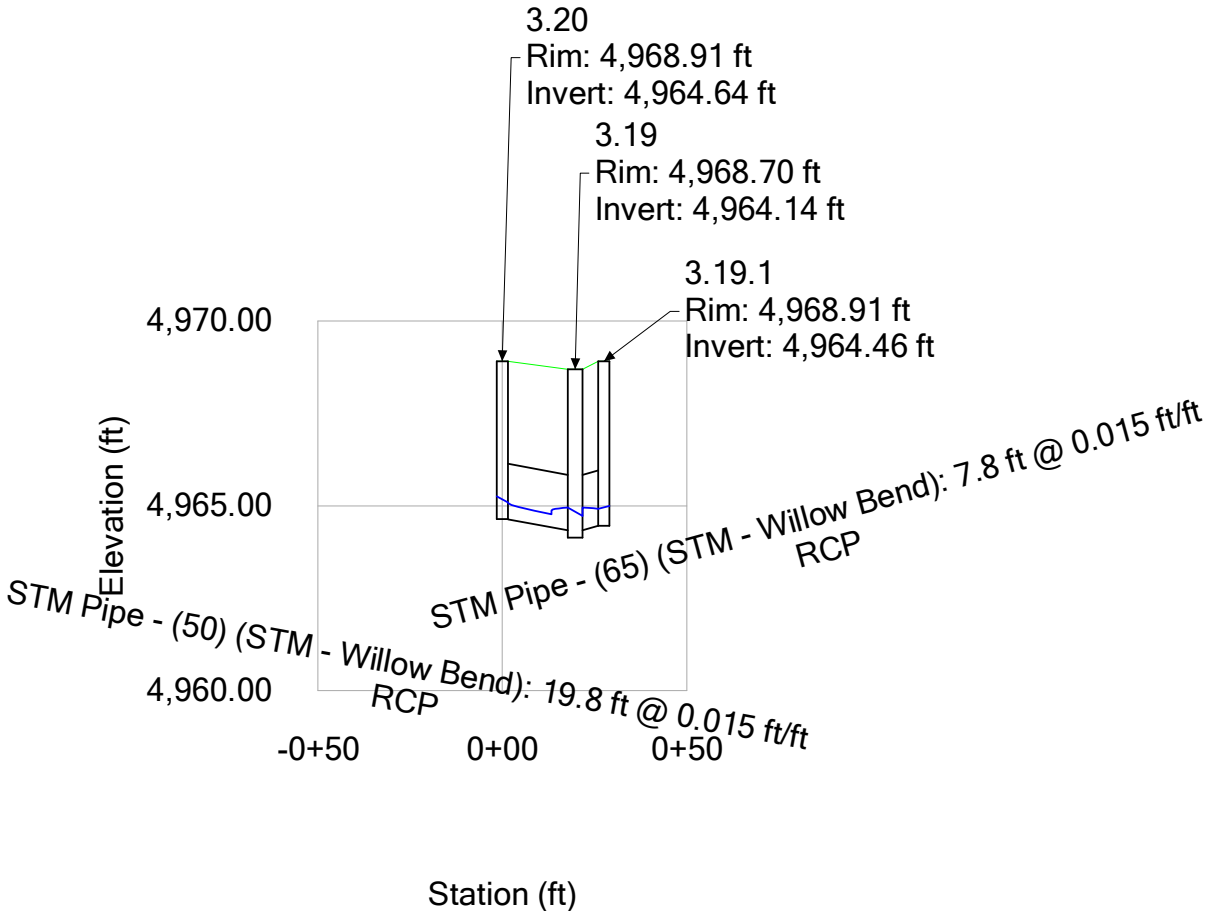

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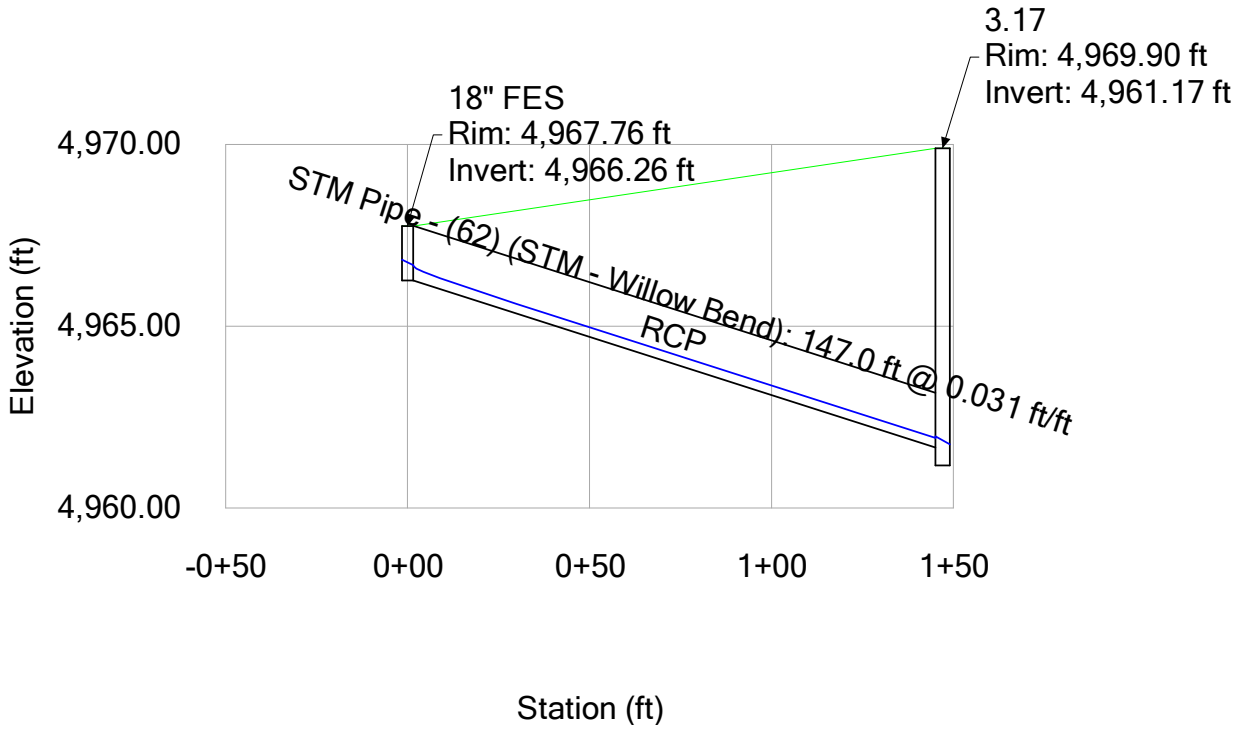

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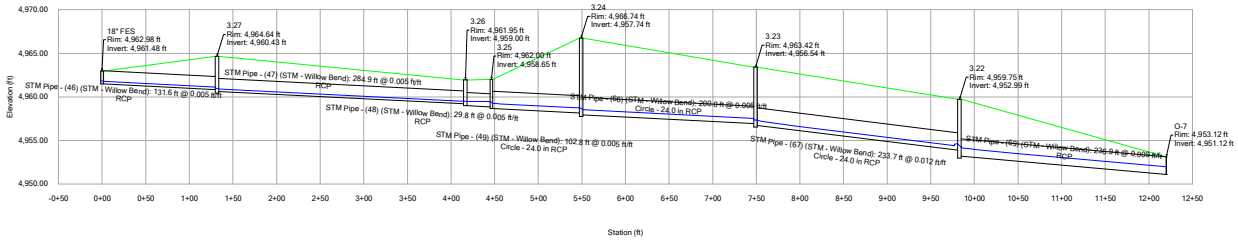

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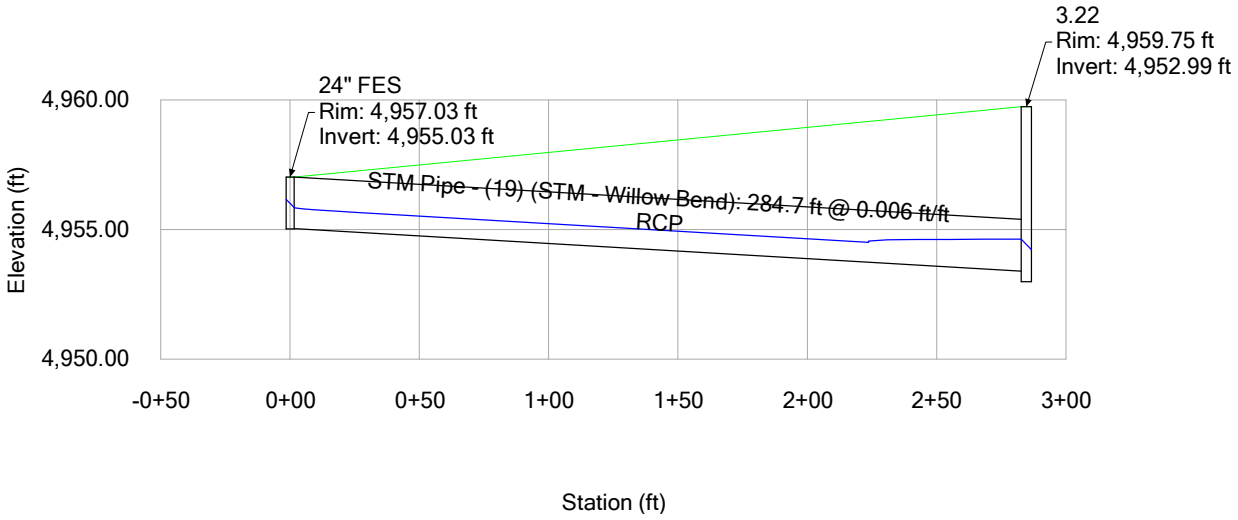

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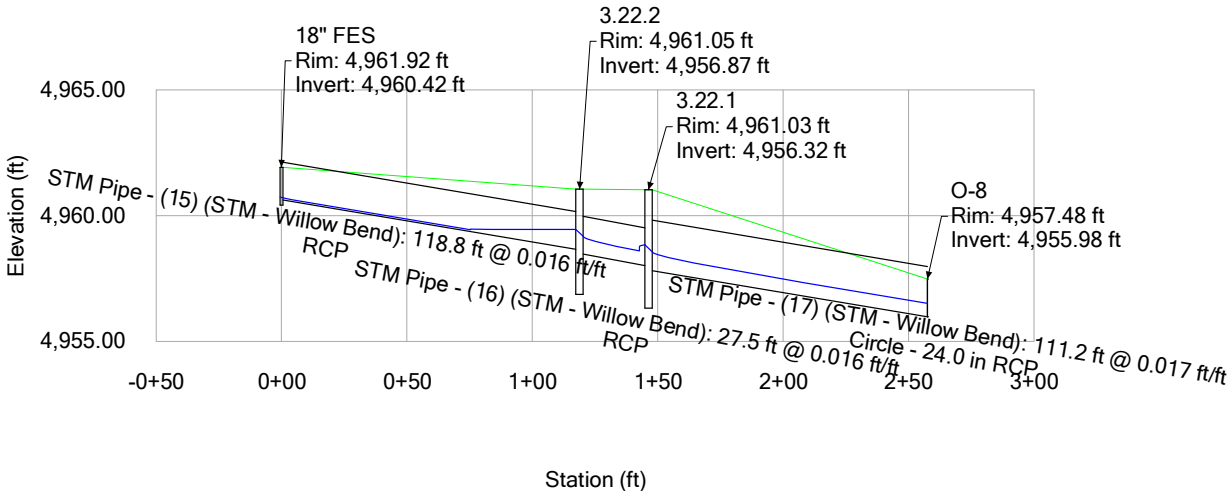

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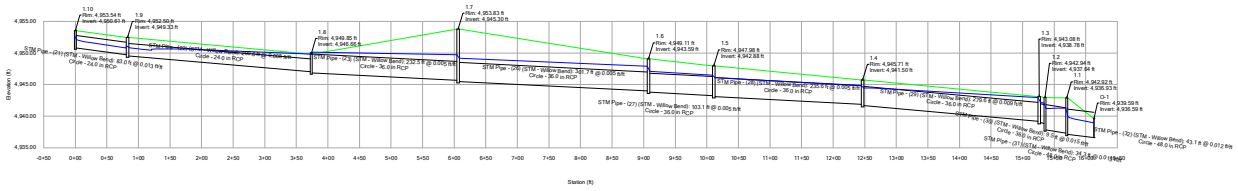

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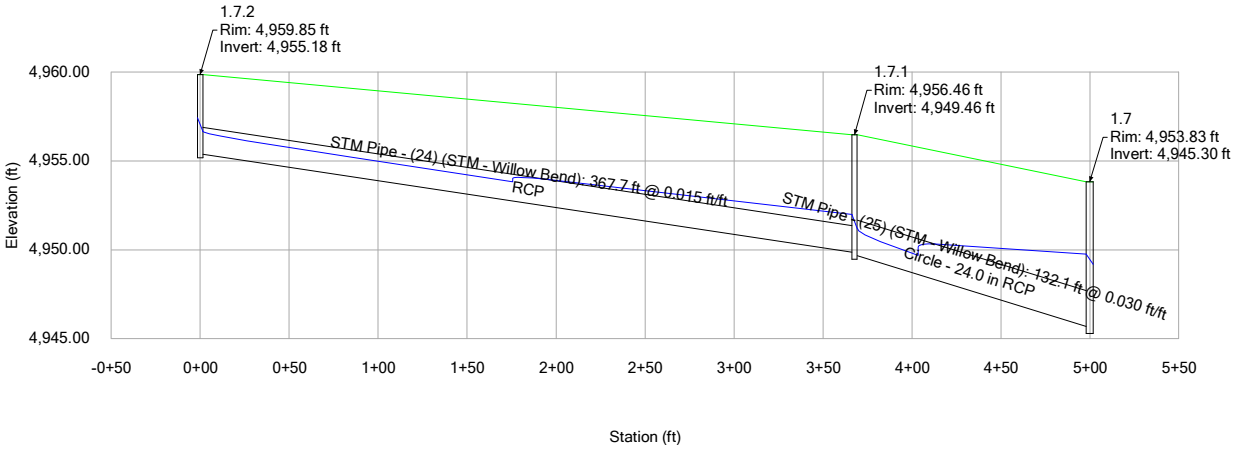

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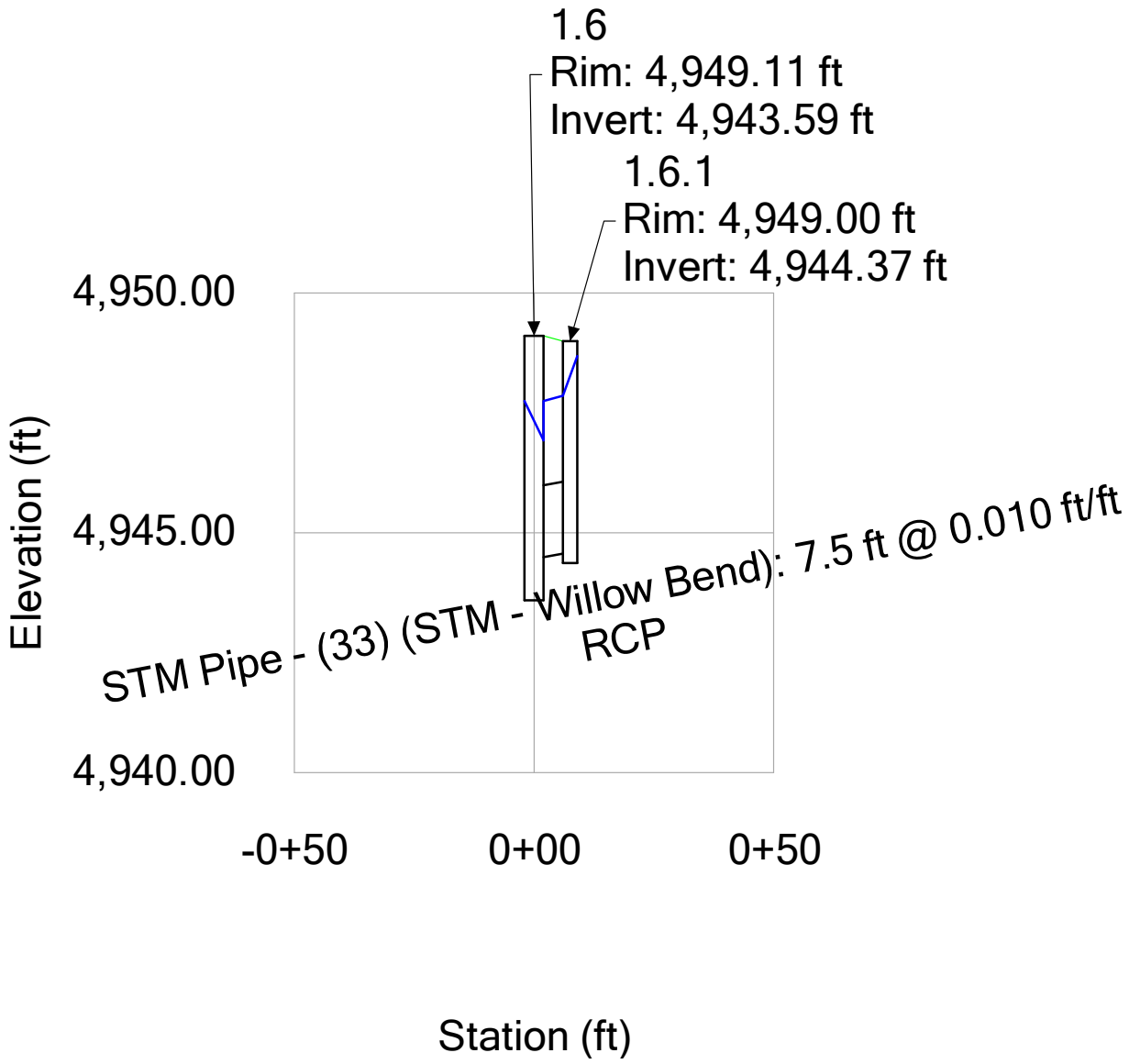

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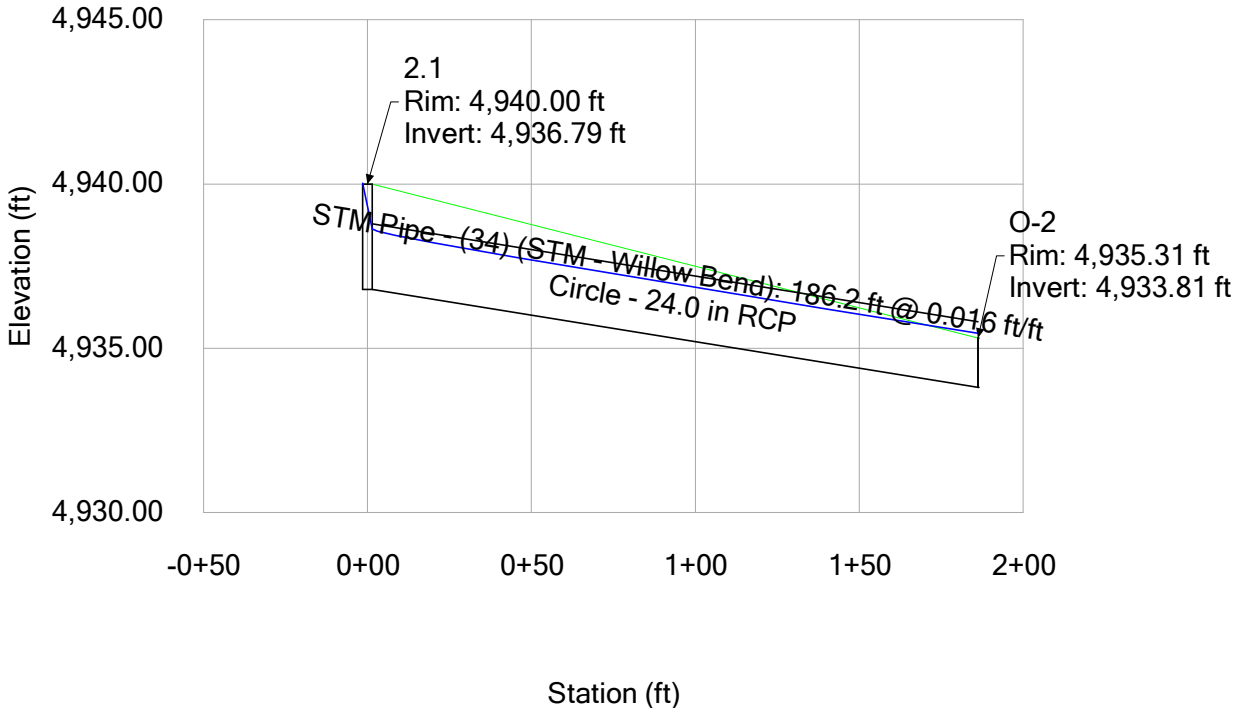

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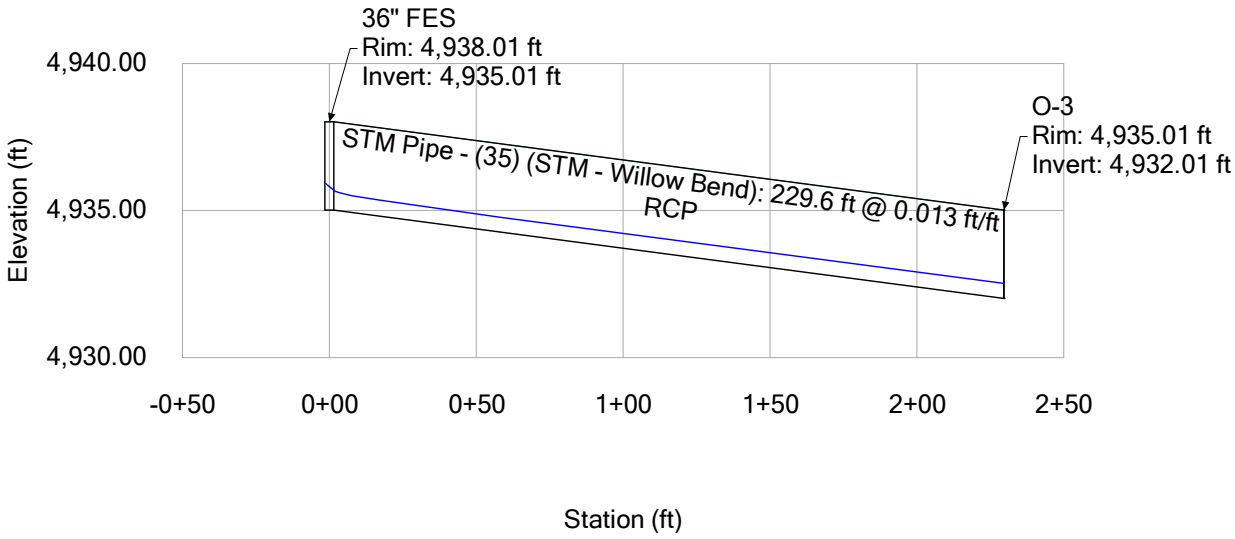

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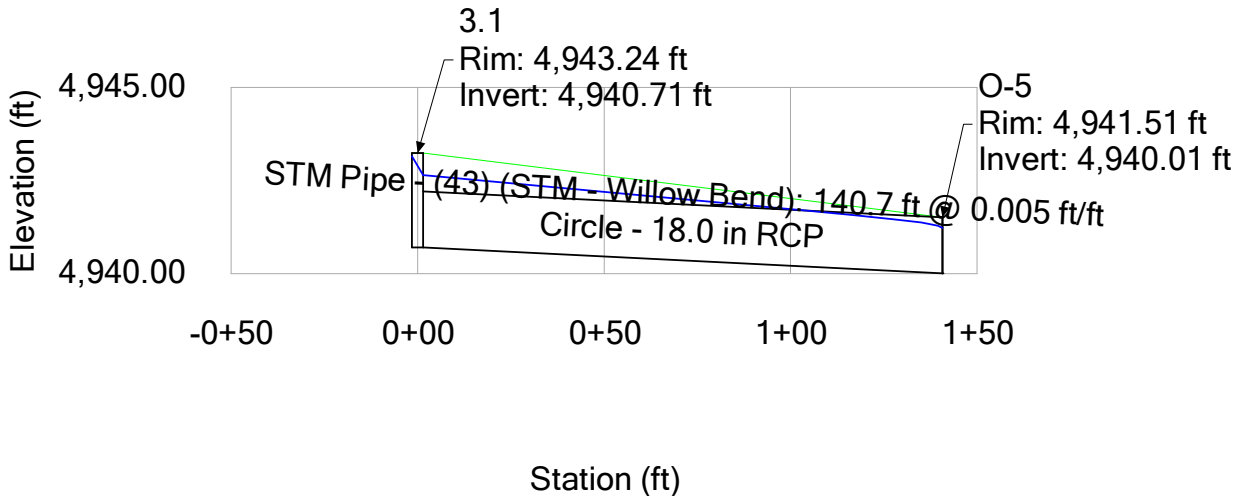

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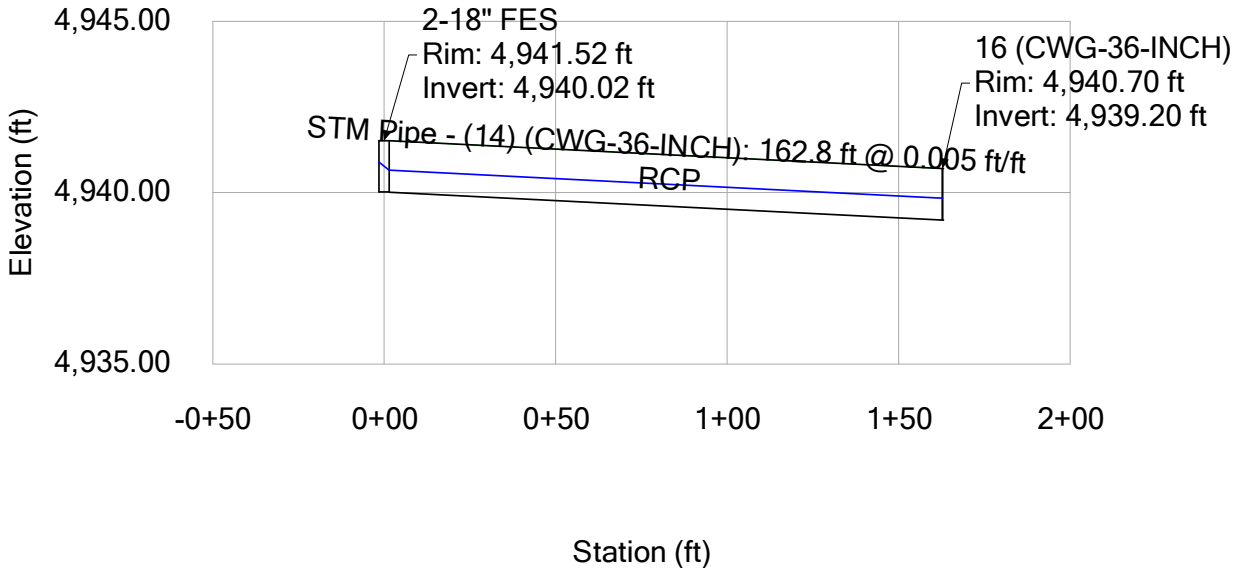

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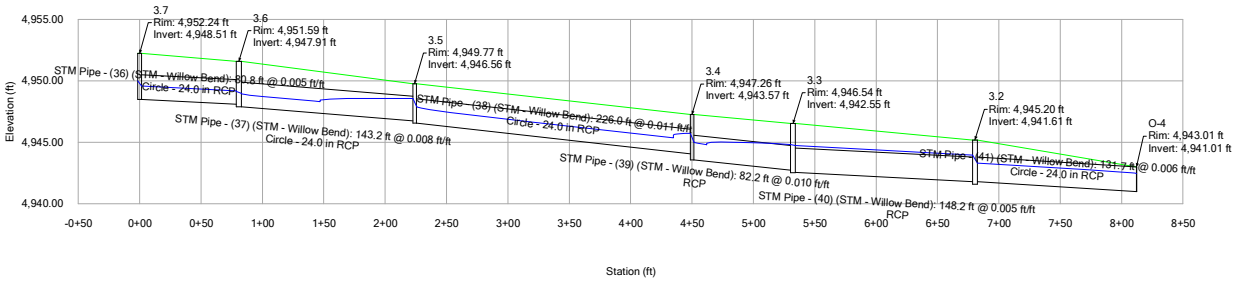

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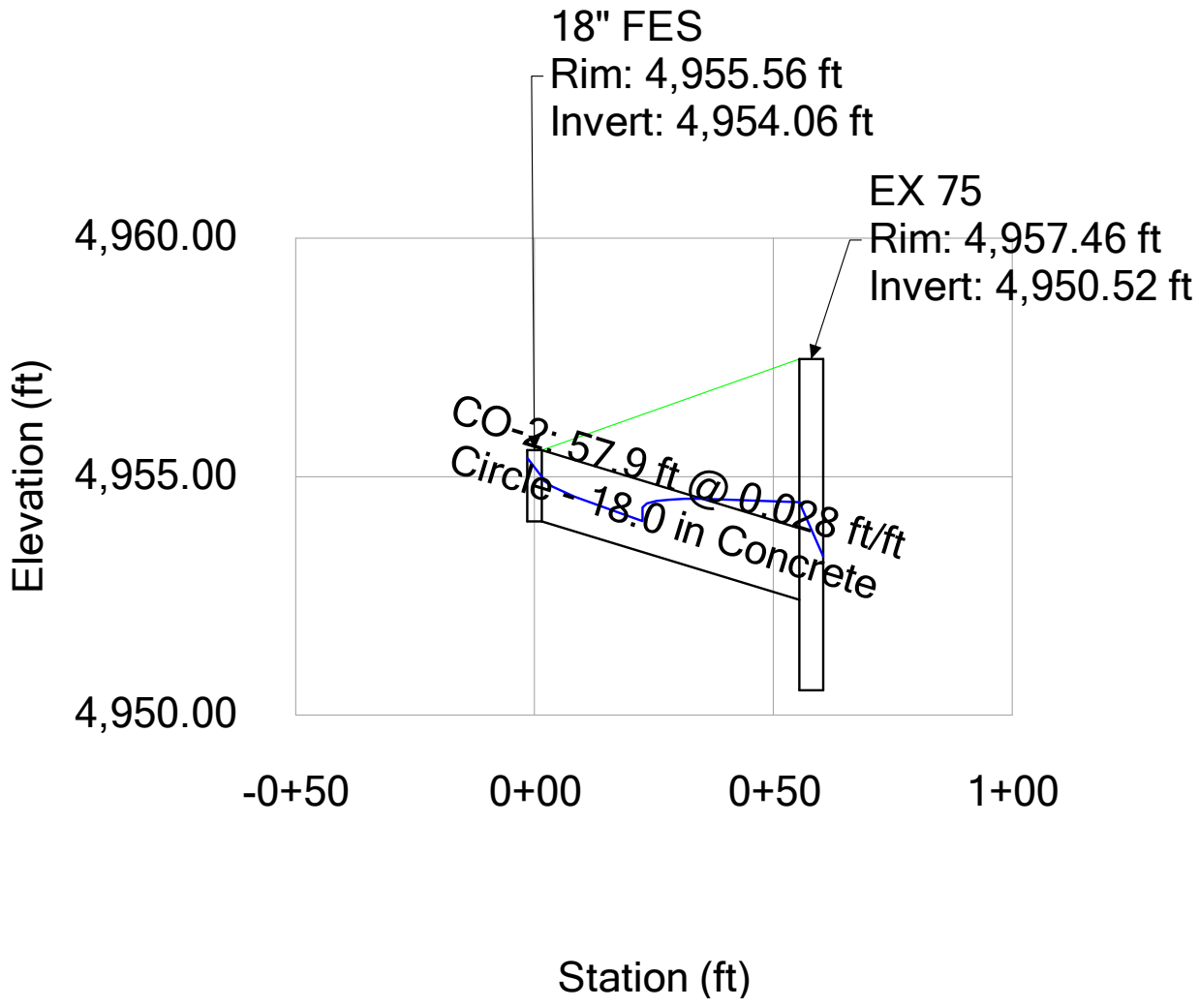

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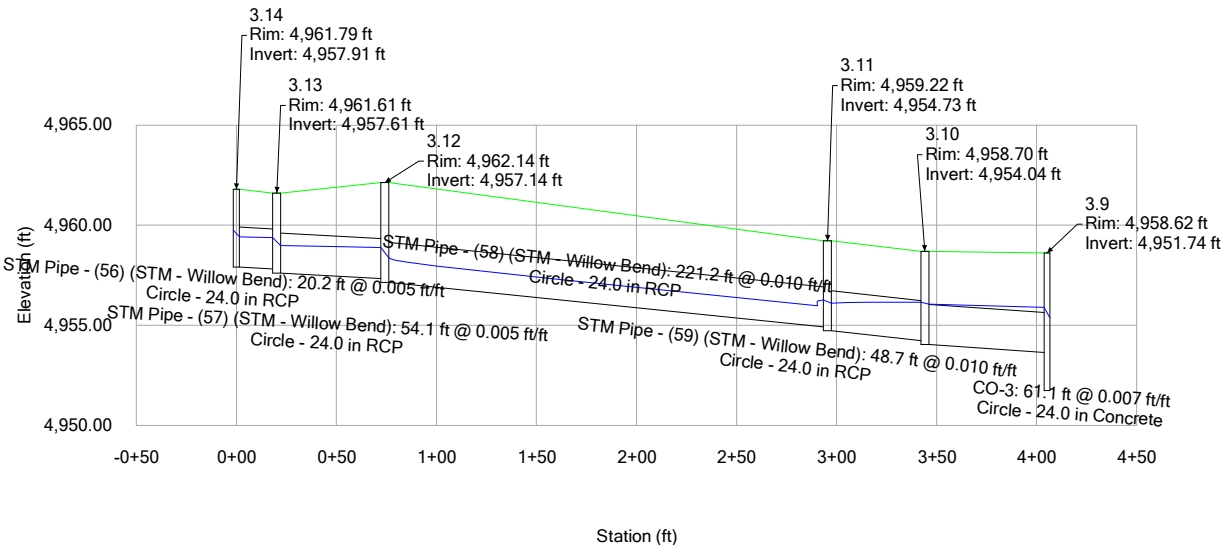

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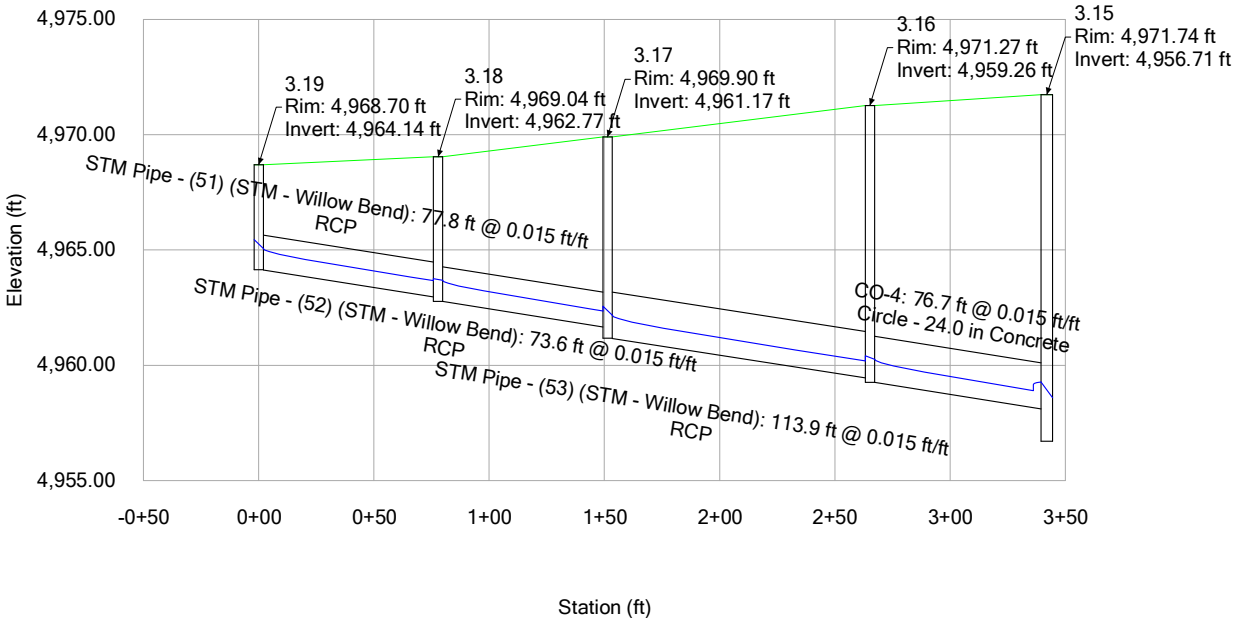

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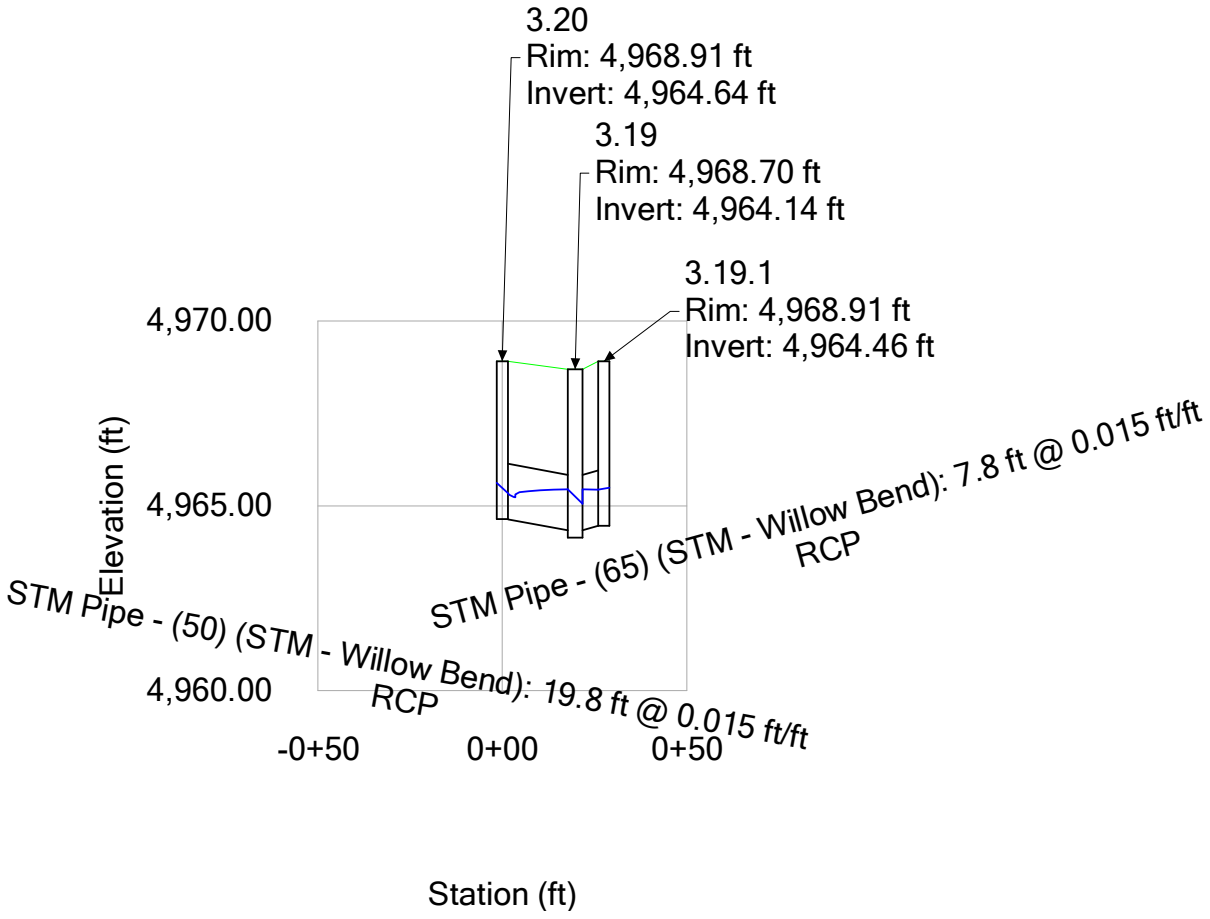

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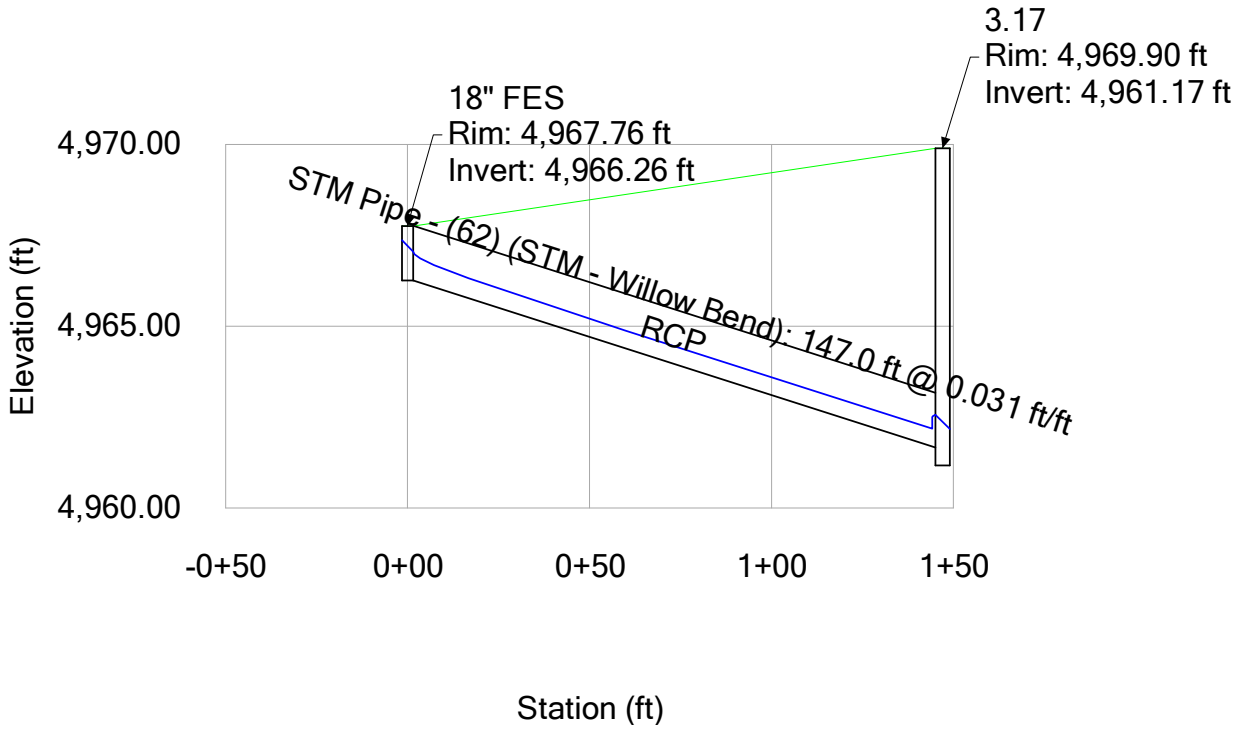

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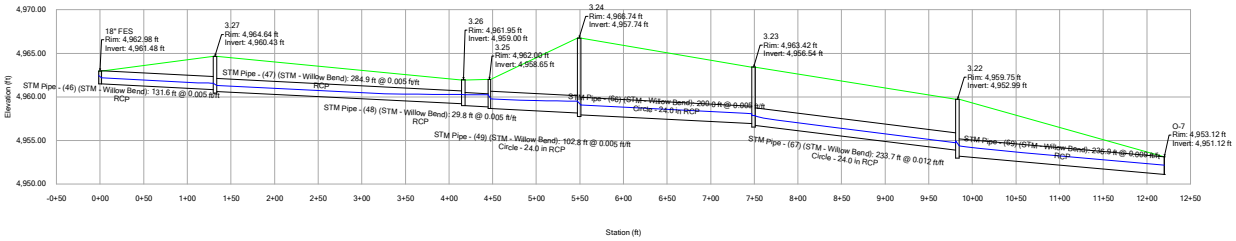

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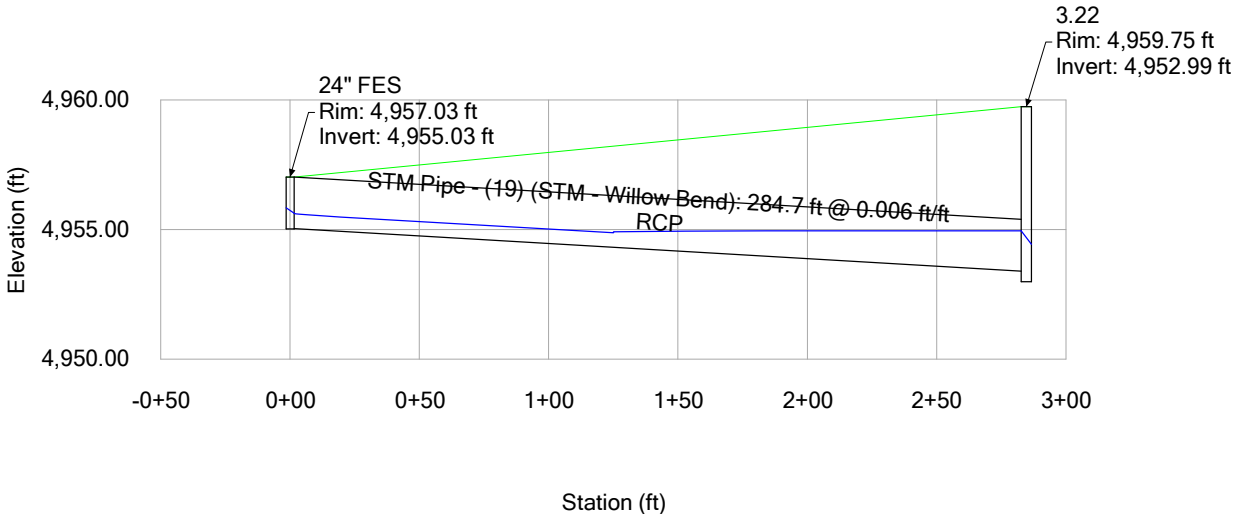

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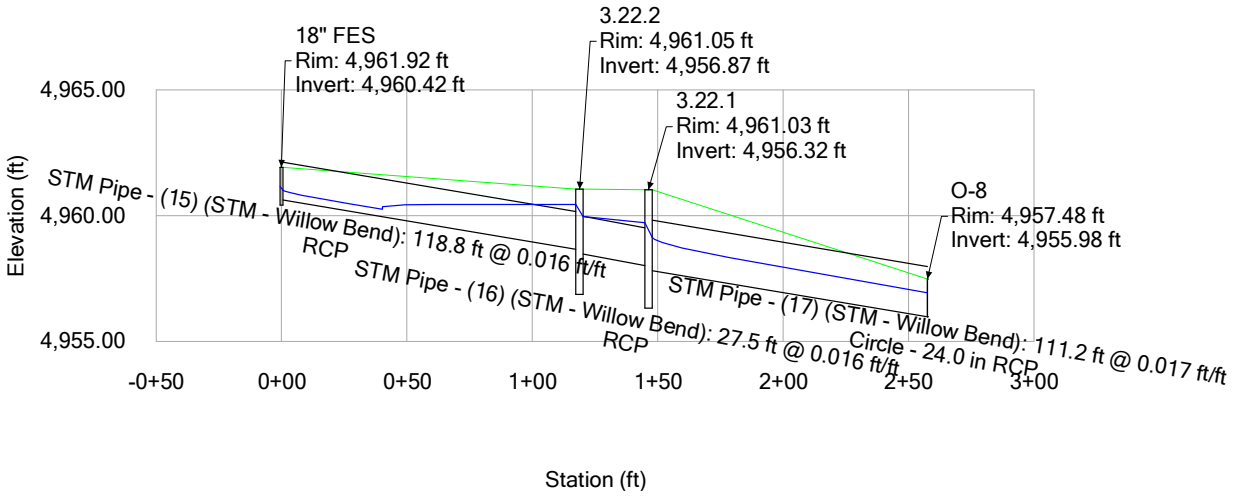
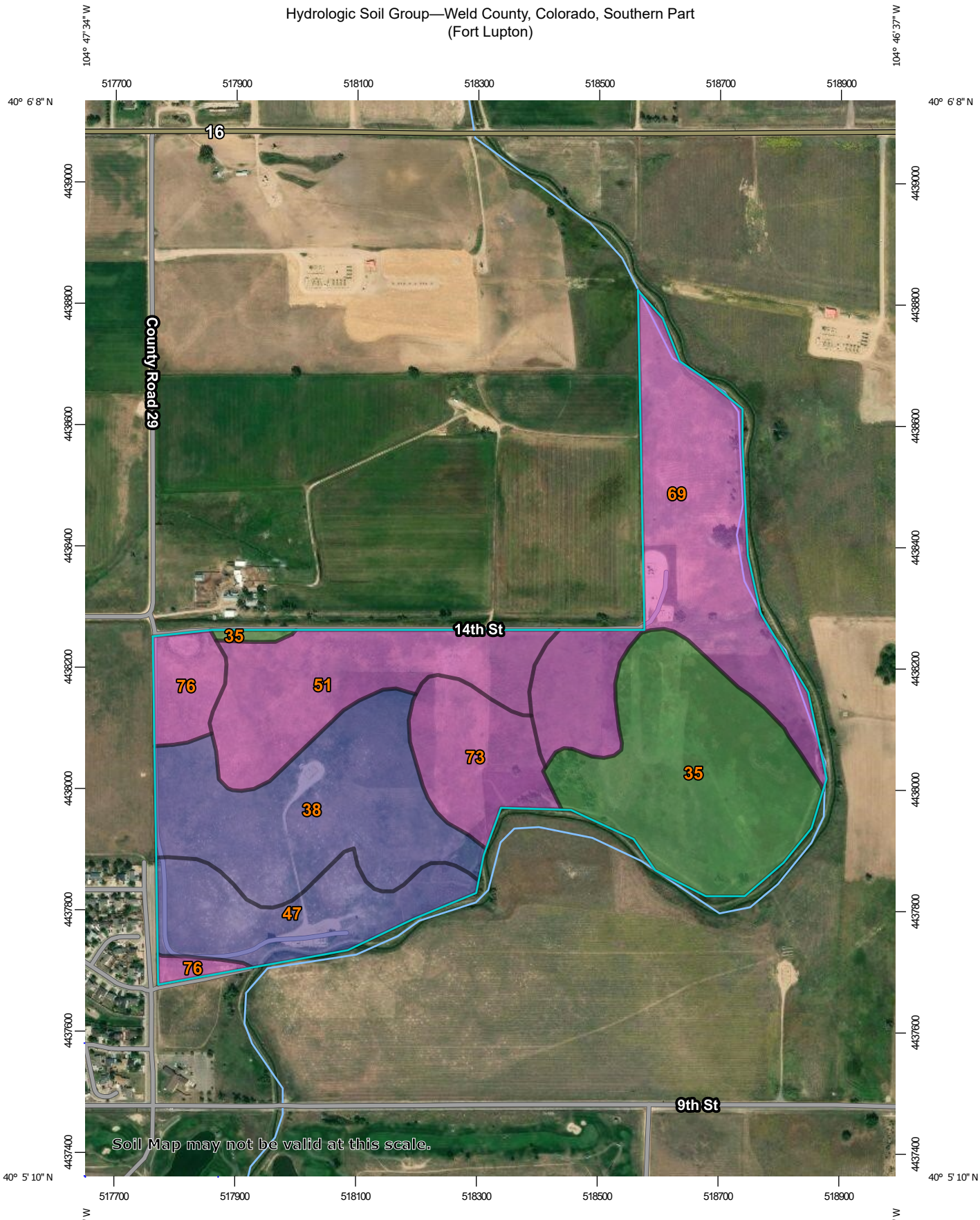


APPENDIX E – Soil Survey

Hydrologic Soil Group—Weld County, Colorado, Southern Part
(Fort Lupton)



Map Scale: 1:8,640 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 18, Sep 13, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 20, 2015—Oct 21, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
35	Loup-Boel loamy sands, 0 to 3 percent slopes	A/D	29.4	21.3%
38	Nelson fine sandy loam, 3 to 9 percent slopes	B	26.7	19.3%
47	Olney fine sandy loam, 1 to 3 percent slopes	B	14.4	10.4%
51	Otero sandy loam, 1 to 3 percent slopes	A	19.1	13.8%
69	Valent sand, 0 to 3 percent slopes	A	31.8	23.0%
73	Vona loamy sand, 3 to 5 percent slopes	A	10.8	7.8%
76	Vona sandy loam, 1 to 3 percent slopes	A	5.9	4.3%
Totals for Area of Interest			**138.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

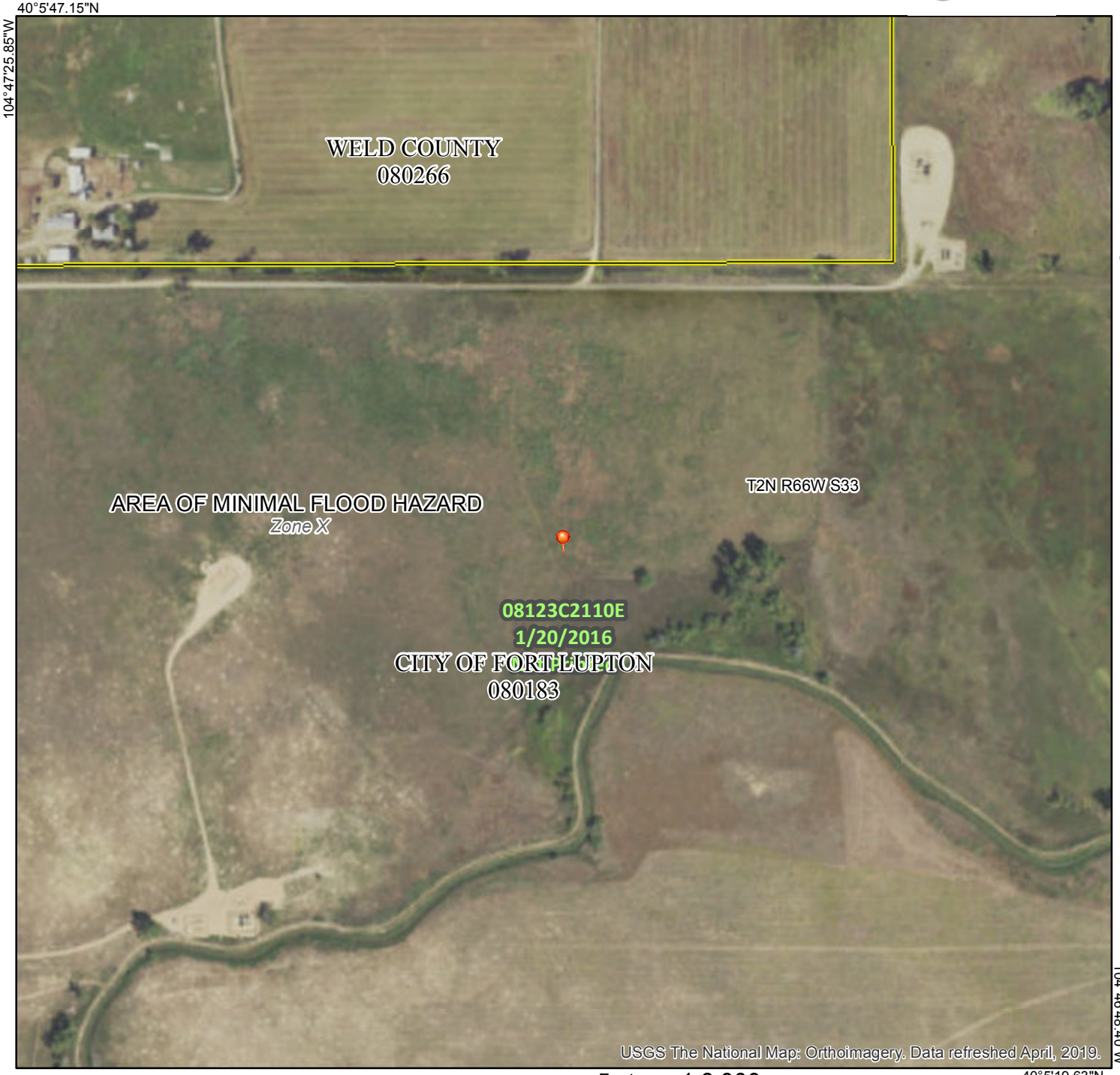
Tie-break Rule: Higher

APPENDIX F

FEMA FIRMETTE

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
  - Coastal Transect
  - 513 Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/11/2019 at 1:14:58 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Geotechnical Site Development Study
Coyote Creek North
Fort Lupton, Colorado

Sun ACQ, LLC
27777 Franklin Road, Suite 200
Southfield, Michigan 48034

A.G. WASSENAAR, INC.

2180 South Ivanhoe Street, Suite 5
Denver, Colorado 80222
www.agwco.com (303) 759-8100

Project Number 195960
January 15, 2020

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 PURPOSE 2
3.0 PROPOSED CONSTRUCTION 2
4.0 SITE CONDITIONS 2
5.0 FIELD EXPLORATION 2
6.0 LABORATORY TESTING 3
7.0 SUBSURFACE CONDITIONS 3
7.1 Natural Soil 3
7.2 Bedrock 3
7.3 Ground Water 4
8.0 GEOTECHNICAL CONCERNS 4
8.1 Shallow Ground Water and Associated Loose Soils 4
8.2 Expansive Bedrock 5
9.0 SITE DEVELOPMENT 5
9.1 Traditional Overlot Grading 5
9.2 Overexcavation and Placement of Moisture Treated Fill 6
9.3 Slopes and Retaining Walls 8
9.4 Construction Excavation 8
9.5 Utility Construction 9
9.6 Subsurface Drainage 9
9.7 Surface Drainage 10
10.0 SITE CONCRETE AND CORROSIVITY 10
11.0 PRELIMINARY FOUNDATION DESIGN CONCEPTS 11
11.1 Straight Shaft Piers 11
11.2 Spread or Pad-Type Footings 11
11.3 Post-Tensioned Slab Foundation 12
11.4 Raft Foundations 12
11.5 Lateral Earth Pressures 12
11.6 Interior Floors 12
11.7 First Floor Construction (Crawl Space Products) 13
11.8 Drain Systems 13
11.9 Backfill and Surface Drainage 13
12.0 PRELIMINARY STREET PAVEMENT DESIGN 13
13.0 FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION 15
14.0 GEOTECHNICAL RISK 15
15.0 LIMITATIONS 15

ATTACHMENTS

SITE PLAN AND VICINITY MAP ..... FIGURE 1
TEST BORING LOGS ..... FIGURES 2 THROUGH 5
ESTIMATED DEPTH TO BEDROCK ..... FIGURE 6
ESTIMATED ELEVATION OF BEDROCK ..... FIGURE 7
ESTIMATED DEPTH TO GROUND WATER ..... FIGURE 8
ESTIMATED ELEVATION OF GROUND WATER ..... FIGURE 9
GENERALIZED BENCHING DETAIL ..... FIGURE 10
PAVEMENT DRAIN DETAIL ..... FIGURE 11
LABORATORY TEST RESULTS ..... APPENDIX A
FIELD AND LABORATORY DATA FROM PREVIOUS REPORT ..... APPENDIX B
SPECIFICATIONS FOR PLACEMENT OF FILL ..... APPENDIX C

1.0 EXECUTIVE SUMMARY

A. G. Wassenaar, Inc. (AGW) completed the geotechnical site development study for the proposed residential development at the subject site. The data collected during our field exploration and laboratory work and our analysis, opinions, and conclusions are presented. The purpose of our study is to provide design recommendations for planning and site development and preliminary design concepts for foundation systems, interior floor support, and streets.

The subsurface materials encountered in our test borings consist of topsoil, sand, and clay overlying sedimentary bedrock. Claystone or sandstone bedrock was encountered at depths ranging from 4 to 7 feet below the ground surface. Ground water was measured at depths ranging from 1 to 16 feet during this study.

Site development considerations should include provisions for the presence of shallow ground water and the associated loose soils and shallow claystone bedrock. A barrier system and/or other dewatering techniques will be necessary to control ground water on the site. Raising the elevation of the site may also be considered. Difficulty developing the site must be anticipated due to the depth of ground water.

Based upon the results of this preliminary study, we anticipate 55% to 65% of the structures will be founded on straight shaft piers drilled into competent bedrock. Casing of the drilled piers will be necessary. Alternatively, soil modification may be considered. This will be difficult due to the shallow ground water. Where sufficient sand is found (35% to 45% of the site), post-tensioned slabs, rafts, or spread or pad-type footings may be possible. Stabilization of the loose soils will likely be necessary. These recommendations must be reviewed once grading plans have been completed and the depth of foundations have been decided. Preliminary foundation design concepts are presented in the report.

Floors and flatwork being considered for construction on-grade will require a specific risk analysis by the Client because of the potential for movement of the soils and bedrock encountered. Where the structures are founded upon straight shaft piers, engineered structural floors or modification of the floor supporting soils or bedrock can be anticipated. Where footings are constructed, slabs-on-grade may be possible depending on the expansion potential of the supporting materials and the Client's analysis of risk. Slabs supported by soil will be subject to movement. Options for floor support are discussed.

Foundation subsurface drainage systems will be necessary for all below grade areas. Extensive drain systems will be required when foundations are within 4 feet of ground water. Water soluble sulfate test results indicate that site and foundation concrete should be designed for severe sulfate exposure. Preliminary pavement and other geotechnical-related recommendations are presented in the following report. We encourage the Client to read this report in its entirety and not to solely rely on the cursory information contained in this summary.

2.0 PURPOSE

This report presents the results of a geotechnical site development study for the proposed residential development to be located southeast of Weld County Road 14½ (14th Street) and Weld County Road 29 (Northrup Avenue), in Fort Lupton, Colorado. The study was conducted by AGW to assist in determining geotechnical design criteria for planning, site evaluation, and development considerations. Preliminary geotechnical design concepts are also presented for foundations, interior floor support, foundation drainage, and street construction. Factual data gathered during the field and laboratory work are summarized on Figures 1 through 5 and in Appendix A. Our opinions and recommendations presented in this report are based on the data generated during our field exploration, laboratory testing, our understanding of the proposed project, and our experience with similar projects and geotechnical conditions. The field and laboratory data contained in the "Geotechnical Site Development Study, Proposed Residential Development, Coyote Creek North, Southeast of Weld County Road 14½ and Weld County Road 29, Fort Lupton, Colorado" by AGW, Project Number 174095, dated January 22, 2018, was considered during the preparation of this report. The data contained in the referenced report is presented in Appendix B.

This study was performed in general conformance with our Proposal Number 195960, dated November 8, 2019. This report is not intended to provide design criteria for individual foundations or street construction. Additional geotechnical studies will be required to provide final design criteria and construction recommendations.

3.0 PROPOSED CONSTRUCTION

We understand the proposed development will include 498 lots for modular single family residences with the associated utility and roadway infrastructure. Preliminary overlot grading plans were not available at the time of this study. The contents of this report must be reviewed by AGW once the grading plans are available.

4.0 SITE CONDITIONS

The parcel is bounded by undeveloped agricultural land to the north and northeast, Fulton Ditch to the east and south, and County Road 29 to the west. Vegetation consists of natural grasses, weeds, cattails (in the southeast portion) and mature trees along the ditch. Water was observed in Fulton Ditch at the time of our field work. Two existing oil and gas wells are located in the center of the western half and in the northeast portion of the site. An additional three oil and gas wells are located adjacent to the site to the south, southeast, and east. The site slopes gently to the north and west. No bedrock outcrops were observed.

5.0 FIELD EXPLORATION

Subsurface conditions were explored by drilling 13 test borings at the approximate locations indicated on Figure 1. Test Borings 31 through 36 were drilled for ground water measurements only. The test borings drilled for the referenced study are also shown on Figure 1. The test borings were advanced using a 4-inch diameter, continuous flight auger powered by a truck-mounted drill rig. At frequent intervals, samples of the subsurface materials were obtained using a Modified California sampler

which was driven into the soil by dropping a 140-pound hammer through a free fall of 30 inches. The Modified California sampler is a 2.5-inch outside diameter by 2-inch inside diameter device. The number of blows required for the sampler to penetrate 12 inches and/or the number of inches that the sampler is driven by 50 blows gives an indication of the consistency or relative density of the soils and bedrock materials encountered. Results of the penetration tests and locations of sampling are presented on the "Test Boring Logs", Figures 2 through 5. Slotted PVC pipe was installed in all of the test borings to prevent caving prior to ground water measurements. The PVC pipe was removed after the subsequent ground water measurements were obtained. Ground water measurements were made at the time of drilling and subsequent to drilling. The field data for the test borings drilled from the referenced study are included in Appendix B.

6.0 LABORATORY TESTING

The samples obtained during drilling were returned to the laboratory where they were visually classified by a geotechnical engineer. Laboratory testing was then assigned to specific samples to evaluate their engineering properties. The laboratory tests included swell-consolidation tests to evaluate the effect of wetting and loading on the selected samples. Gradation analysis and Atterberg limits tests were conducted to evaluate grain size distribution and plasticity. Standard Proctor and remolded swell-consolidation tests were performed on blended bulk samples of the soils anticipated to be used as fill. In addition, representative samples were tested for water soluble sulfates, pH, resistivity, and chlorides. The test results are summarized on Figures 2 through 5 and presented in Appendix A. The laboratory results from the referenced study are included in Appendix B.

7.0 SUBSURFACE CONDITIONS

The subsurface materials encountered in our test borings consist of topsoil, sand, and clay, overlying sedimentary bedrock. Claystone or sandstone bedrock was encountered at depths ranging from 4 to 16 feet. Ground water was measured at depths ranging from 1 to 7 feet in during this study. A more complete description of the subsurface conditions is shown on Figures 2 through 5.

7.1 Natural Soil

Topsoil was encountered in all the test borings. The topsoil consisted of sandy clay and was up to 1½ feet thick. It was organic, moist, and dark brown.

Sand was encountered in all the test borings. The sand was loose to dense, slightly silty to very silty, clean to very clayey, with clay lenses, moist to wet, and brown to light brown. The sand is considered to possess low expansion potential and low to moderate settlement potential.

Clay was encountered in one of the 13 test borings. The clay was stiff, silty, sandy, with sand lenses, moist to wet, and brown. This clay is considered to possess low expansion and compression potential.

7.2 Bedrock

Claystone bedrock was encountered in 12 of the 13 test borings at depths ranging from 4 to 16 feet. The claystone was weathered to very hard, silty, trace sand to very sandy, with sandstone lenses, iron stained, slightly moist to moist, and brown to olive to rust to gray. A 2½-foot zone of ironstone

was encountered in Test Boring 29 within the claystone. The claystone is assessed to possess high to very high expansion potential.

Sandstone was encountered in one of the 13 test borings at a depth of 17 feet. The sandstone encountered was hard, poorly cemented, silty, clean to very clayey, with claystone lenses, moist, and brown to light brown to light gray to olive to rust. The sandstone is assessed to possess low expansion potential. Plans showing estimated depth and elevation of bedrock are presented on Figures 6 and 7.

7.3 Ground Water

Ground water was measured at depths ranging from 2 to 10 feet in seven of the 13 test borings at the time of drilling. Ground water was measured at depths ranging from 1 to 13 feet in 10 of the 13 test borings when checked 3 to 6 days after drilling. In the previous report, ground water was measured at depths of ranging from ½ to 32 feet in 18 of the 23 test borings at the time of drilling. When we returned 19 to 43 days after drilling, ground water was measured at depths ranging from ½ to 24½ feet in 21 of the 23 test borings for the previous study. Test Boring 14 was caved at a depth of 1 foot when checked 20 days after drilling. Estimated depth and elevation of the ground water are shown on Figures 6 and 7.

8.0 GEOTECHNICAL CONCERNS

8.1 Shallow Ground Water and Associated Loose Soils

Ground water was encountered at depths ranging from ½ to 24½ feet in 25 of the 36 test borings 3 to 43 days after drilling (see Figures 8 and 9). The shallowest ground water was encountered in the eastern two-thirds and along the northern boundary of the site. The ground water was found at depths that will influence construction across the majority of the site. This water appears to be influenced by the irrigation ditch located along the south, southeast, and east perimeter of the site. Ground water less than 15 feet below the site grading elevation will likely affect utility construction and some site grading operations. Ground water less than 10 feet below the site grading elevation will likely affect foundation excavations. In addition, ground water less than 5 feet below the existing or final ground surface will pose stabilization problems during site grading, foundation construction, and may cause problems during pavement construction. We recommend that foundations be constructed at least 4 feet or more above ground water level. Site development should be planned to avoid (e. g., raise the site grade, only at-grade construction) or remove the ground water. These issues are discussed more fully in the following sections. A geohydrologist specializing in ground water issues should be consulted regarding dewatering the site.

Loose sand was encountered across the site. The loose sand will present soil stability concerns for site grading, foundation excavations, and during pavement construction. As stated previously, the sand exhibited low to moderate settlement potential. It is likely that large, rubber tired equipment will cause severe rutting and may not be able to traverse the loose areas. It will likely be necessary to stabilize the loose, wet areas prior to fill placement. It may also be necessary to stabilize the soils prior to foundation construction. These issues are discussed more fully in the following sections.

8.2 Expansive Bedrock

Weathered to very hard claystone bedrock with high to very high expansion potential was encountered across the site. Therefore, we believe that completing development of the site using traditional overlot grading techniques will result in a portion of the residences within the subdivision being supported upon straight shaft piers bottomed in bedrock. Using current risk analysis techniques, all of the interior floors for these structures will be supported structurally. An alternative to drilled piers and structural floors is ground modification with an overexcavation and replacement process to reduce swell potential to possibly allow for shallow foundations and slab-on-grade construction. This will be difficult due to the ground water encountered across the site.

9.0 SITE DEVELOPMENT

9.1 Traditional Overlot Grading

We understand the fill materials to be used at the site will be from on-site cut areas. In general, suitable inorganic on-site or off-site soils may be used for structural fill. Topsoil, soil containing significant vegetation, organic debris or other deleterious material should be excavated and removed from the structural areas. Off-site material considered for new fill should be evaluated by AGW prior to importing to the site.

Construction of the fill embankments throughout the site should consist of proper foundation preparation, constructing embankment benching where necessary, disposition of strippings, proper fill placement and compaction, and designing slopes in accordance with the recommendations provided in this report and the applicable governing regulations. The following are general site grading recommendations:

1. The final site grading or overexcavation plans should be provided to AGW prior to commencement of work at the site in order to evaluate which areas and to what depth overexcavation should be performed.
2. It is recommended that we be retained on an essentially full-time basis to observe and test the fill placement. We should also be retained to provide observations and/or testing of the other items discussed below. The purpose of this observation and testing is to provide the Client with a greater degree of confidence that the work is being performed within the recommendations of this geotechnical study and the project specifications.
3. All topsoil and vegetation should be stripped and removed prior to fill placement. The vegetation, organic soils, or topsoil should be wasted from the site, placed in non-structural areas (e.g., parks, landscaping, tracts, etc.) and/or stockpiled for future use in revegetating the surface of exposed slopes. In no case should these materials be used in the structural areas or where the stability of slopes will be affected. If placed in lots, topsoil must be placed outside of the structure setbacks and should not be placed where the fill depths exceed 5 feet. If placed in depth across the back of lots, movements of fences and dry utilities should be expected.
4. Where soft, rutting soils are found beneath planned fill areas, removal, in-place drying, or stabilization may be necessary. Stabilization prior to fill placement may be accomplished by placing crushed rock or equivalent material, which should be

evaluated by AGW prior to use. The material should be spread across the area and worked into the underlying soft or loose soils with fully-loaded rubber-tired equipment. This procedure should continue until scraper-type equipment can be supported on the rock fill with no significant deflection or rutting. In some instances, a geogrid or geotextile stabilization fabric may be economical for use in conjunction with rock stabilization.

5. Due to the presence of loose sands, it may be necessary to pre-load the site with fill or to delay structure construction. Additional studies will be necessary to determine the amount of preloading and/or anticipated delay.
6. Where the existing slopes are steeper than a 5:1 (horizontal:vertical), benching will be required for structural integrity of any fills (see Figure 10).
7. The stripped foundation areas should be observed by AGW prior to fill placement. Any soft soils found in these areas must be removed or stabilized as necessary prior to fill placement.
8. After the fill areas have been cleared, the exposed soils should be scarified to a minimum depth of 6 inches, brought to the proper moisture content, and then compacted according to Appendix C.
9. The compaction and moisture content of the soils will be dependent upon material types and the depth and location of placement. The specifications outlined in Appendix C are based upon providing a fill with sufficient shear strength to support structures and sufficient moisture to reduce the potential of swell of the expansive soil used in the fill.
10. The results of Standard Proctor tests performed on a bulk sample of the upper level soils likely to be used for fill are shown on Figures A-9 and A-10 in Appendix A. These results can be used as guideline for contractors to estimate how much additional moisture may be required to bring the on-site soils to the required moisture content.
11. Particular attention should be paid to compaction of the exterior faces of slopes.
12. Placement and compaction of fill should continue to final overlot grade. We recommend that the lots not be left low or "dished-out" and that placement of fill not stop at foundation elevation.
13. Other specifications outlined in Appendix C should be followed.

9.2 Overexcavation and Placement of Moisture Treated Fill

Based on the expansion potential of the claystone, we recommend that a portion of the site be overexcavated if the use of shallow foundations is desired. Our experience indicates that overexcavation and placement of a moisture treated fill would be most effectively performed using mass grading techniques. The ideal time to do this would be during site development operations. As some overexcavation beneath the roadways will likely be required, it would be advantageous to perform this overexcavation during site grading. The following recommendations should be followed in order to enable the placement of a moisture treated fill that could be used for slab and foundation support. These recommendations may be modified during construction if soil conditions differing from those anticipated are encountered.

1. The final site grading or overexcavation plans should be provided to AGW prior to commencement of work at the site in order to evaluate which areas and to what depth overexcavation should be performed.
2. The expansive claystone should be excavated to a depth of at least 10 feet below the lowest foundation elevation for basement foundations, 12 feet below foundation elevation for at-grade crawl space foundations, or 10 feet below foundation elevation for post-tensioned foundations. The base of the excavation should extend, at a minimum, to a width of at least 5 feet beyond the foundation footprint (including any counterforts, covered porches, patios, decks, etc.). Excavations that do not extend to these minimums risk future foundation performance issues. It may be prudent to extend the base of the excavation to 5 feet outside of the front and rear setbacks in order to accommodate potential changes in structure dimension. Placement of moisture treated fill beneath the pavement areas is discussed under "Preliminary Street Pavement Design". The excavation should be sloped following current OSHA regulations. We will not be responsible for testing near excavations that do not meet OSHA regulations. A licensed surveyor must verify the extents of the excavation prior to any fill placement.
3. Water flow into the overexcavation may occur in areas of shallow ground water. We believe that the water can be handled during construction by channeling the water in the excavation(s) and pumping from sumps. It may be prudent to provide permanent drains at the base of the overexcavation in these areas. However, if an outfall for the drains cannot be found, they should not be constructed. The drain(s) should be sloped to a positive gravity outfall. Depending on the location of the inflow, chimney drains may be necessary to convey water from sidewall seepage areas to the drain. The configuration of these drains should be determined at the time of construction.
4. Where soft, rutting soils are found beneath planned fill areas, removal, in-place drying, or stabilization may be necessary. Stabilization prior to fill placement may be accomplished by placing crushed rock or equivalent material, which should be evaluated by AGW prior to use. The material should be spread across the area and worked into the underlying soft or loose soils with fully-loaded rubber-tired equipment. This procedure should continue until scraper-type equipment can be supported on the rock fill with no significant deflection or rutting. In some instances, a geogrid or geotextile stabilization fabric may be economical for use in conjunction with rock stabilization.
5. Once the excavation depth and width have been verified, fill placement may begin. The bottom of the excavation should be scarified and moistened prior to fill placement. The fill, consisting of the excavated materials, should be placed in maximum 8-inch loose lifts. Moisture should be added and the lift processed. The use of a construction disc to mix and process each lift is suggested. Mixing should be performed until the moisture content is relatively uniform throughout the lift and the majority of the particles are less than 3 inches in dimension. Additional processing of the excavated claystone bedrock may be required due to the hardness of the material and low moisture content. The earthwork contractor should be made aware of the

extra processing required. The fill should then be compacted as described in Appendix C.

6. The results of Standard Proctor tests performed on bulk samples of the upper level soils likely to be used for fill are shown on Figures A-9 and A-10 in Appendix A. These results can be used as guideline for contractors to estimate how much additional moisture may be required to bring the on-site soils to the required moisture content.
7. Essentially full-time observation and testing of fill placement must be performed by AGW. Testing should include in-place moisture content and dry density. Swell-consolidation or other testing may also be performed at the discretion of AGW.
8. Placement and compaction of fill should continue to final overlot grade. We recommend that the lots not be left low or "dished-out" and that placement of fill not stop at foundation elevation. If the residences will not be constructed within two years of completion of the fill, additional effort may be necessary to help maintain the moisture within the fill. This may include the addition of more soil to blanket the compacted fill, the placement of mechanical or chemical barriers, or applying water periodically to the fill surface. We are available to discuss this with you.

It must be understood that while this method is used to reduce the likelihood of future heave, it is not free of risk of foundation movement. While future heave is less likely, the possibility of settlement induced by excess moisture is increased. Therefore, the control and removal of surface water at the site will continue to be very important.

Our experience indicates that clay materials of the type encountered at this site will likely exhibit an average swell of less than 2% under a surcharge load of 1,000 pounds per square foot (psf) when thoroughly mixed with water and processed with typical earthmoving equipment. It is anticipated that if this level of swell reduction is achieved, the foundations may be constructed by placing footings upon the fill. This level of swell should also provide for a low to moderate risk of basement slab movement. However, it must be understood that even with the procedures outlined above, there is a possibility that moderate to high measured swells may be found in the fill. This may require rework of portions of the fill or the use of pier foundations and structural support of interior floors. Additional drilling after the soil modification has been completed will be required to provide final foundation recommendations and basement slab risk assessments for each residence.

9.3 Slopes and Retaining Walls

Slope stability and retaining wall analyses were not conducted as part of this study. In areas where existing slopes exceed 5:1 (horizontal:vertical), benching prior to fill placement will be required (see Figure 10). Construction of conventional fill slopes should be limited to 3 to 1 or flatter. Cut slopes steeper than 2 to 1 should be evaluated for stability. Specific analysis will also be necessary if retaining walls are to be constructed.

9.4 Construction Excavation

In our opinion, the majority of the site grading, utility, and foundation excavations may be constructed using conventional earth-moving equipment for the Front Range area. In some areas, unstable soils beneath earth-moving equipment may be encountered. Care should be taken so that the foundation soils are not disturbed or are properly stabilized.

Excavations deeper than 3 feet should be properly sloped or braced to prevent collapse of potentially caving soils. For planning purposes, the sands and any soil influenced by ground water can be considered as a "Type C", the clay can be considered as "Type B", and the underlying bedrock can be considered as a "Type A" according to OSHA regulations. A final determination of the soil type must be made by the Contractor's "Competent Person" (as defined by OSHA Regulation). Local, city, county, state, and federal (OSHA) regulations should be followed.

The presence of ground water will be a significant constraint on construction excavation. It will be necessary to dewater all excavations constructed below the ground water level. Dewatering may include pumping from the work area or construction of well points. The excavation and utility contractor(s) must be made aware of the ground water conditions so that contract bidding will include the appropriate provisions.

9.5 Utility Construction

In our experience, utility excavations may be constructed using conventional earth-moving equipment for the Front Range area. All excavations should be sloped or shored in the interest of safety, following local and federal (OSHA) regulations. For planning purposes, OSHA soil type designations are discussed under "Construction Excavations". Final determination of the soil types must be made by the contractor's "Competent Person" (as defined by OSHA) at the time of construction.

The presence of ground water will be a constraint upon utility construction. It will be necessary to dewater all trenches constructed below the ground water level. A possible method for dewatering would be to begin construction of the deeper (sewer) utilities at their outfall and to work upstream. Other methods include pumping from the trench in the work area or construction of well points along the trenches. The utility contractor must be made aware of the ground water conditions.

Trench backfill within all structural areas should, as a minimum, be compacted using the same methods and to the same specifications as required for overlot grading. This is especially important where utility lines and laterals are constructed beneath foundation, alley, and driveway areas. Trenches in streets should be compacted to the City of Fort Lupton specifications. Observation and testing of fill placement must be performed during trench backfilling.

The choice of compaction equipment can have a significant effect on the performance of trench fills. It is our experience that utility trench backfills compacted with a compaction wheel attached to an excavator experience more settlement (both in area and magnitude) than those compacted with self-propelled equipment. While the contractor has control of the means and methods of construction, the Client should be aware of this issue.

9.6 Subsurface Drainage

The ground water encountered is anticipated to cause significant problems across the site during development, especially if the overexcavation option is selected. As discussed under "Geotechnical Concerns", ground water should be avoided wherever possible.

Additionally, clay soils and bedrock were encountered in the test borings drilled for this and the previous studies. These types of material have a relatively low permeability and can develop a perched water condition. Perched water conditions generally occur after development and construction have taken place, when landscape irrigation and surface drainage conditions are changed.

For these reasons, an overall area drain (underdrain) should be considered for the site. In addition, the overall area drain could also provide for a discharge and collection point for individual foundation drains. If an area drain discharge is not available, the individual foundation drains will discharge collected water to the ground surface near each residence. Surface discharge can result in water recycling to the foundation drain and ponding of water where surface grading is not sufficient for water flow. Foundation drain discharge can also result in algae growth where water continually crosses sidewalks which become ice hazards on walkways and gutters in the winter months.

Typically, overall area drains can be designed and constructed with installation of the sanitary sewer system. However, the City of Fort Lupton should be consulted to determine where an overall system is allowed. The civil engineering company contracted to design the infrastructure should be able to provide this design. If the area drain is to be used as part of a site-wide dewatering system, it should be designed by a Geohydrologist familiar with residential subdivisions. For the system to work, the area drain must be graded to a positive discharge point. **If a permanent outfall for an area drain cannot be determined, the area drain should not be constructed.**

If it is decided not to install an overall area drain, an alternative would be to establish points of positive gravity discharge for the gravel bedding beneath the sewer. We also recommend any basement or below grade area be provided with a perimeter subsurface drainage system sloped to drain to a positive gravity discharge such as a sump or connected directly to the overall area drain system.

9.7 Surface Drainage

We recommend that provisions be made to divert surface runoff away from development areas. This may reduce potential problems associated with excess water in structure bearing soils. The site should be designed such that a 10% slope can be established near the structures after foundation construction. Slopes of at least 2% should be planned in landscaped areas once the water is away from the foundations.

10.0 SITE CONCRETE AND CORROSIVITY

Laboratory tests conducted on selected soil samples yielded water soluble sulfates ranging from less than 100 parts per million (ppm) to 2,920 ppm. Based upon these results and our experience in the area, the site soils and bedrock are assigned to possess severe (S2 or RS2) sulfate exposure per ACI 318 or ACI 332. We recommend the "ACI Manual of Concrete Practice", of the most recent edition be used for proper concrete mix design properties as they relate to these conditions.

The pH test results were 7.9. Resistivity test results at in-situ moisture were 317 and 4,049 ohm•cm. Chloride test results were 0.0023% and 0.0368%. These results are summarized on Figures 2 through 5 and in Appendix A. The results from the previous report are included in Appendix B. The results of this testing should be used as an aid in choosing the construction materials in contact with these soils which will be resistant to the various corrosive forces. Manufacturer's representatives should be contacted regarding the specific corrosivity resistance for their particular product. In addition, local specifications should be consulted when selecting pipe materials.

11.0 PRELIMINARY FOUNDATION DESIGN CONCEPTS

The foundation recommendations for each structure are dependent upon the subsurface profile and engineering properties of the materials encountered at and near the depth of the proposed foundation. These are dependent upon the final configuration of and construction methods used during overlot grading at the site. The information in the following sections presents preliminary foundation concepts which must be finalized for each building site upon completion of the overlot grading operations. AGW should be retained to perform design level soil and foundation studies after completion of site grading.

11.1 Straight Shaft Piers

A possible foundation system for structures founded where claystone is at or near the bottom of the foundation excavations would be straight shaft piers drilled into bedrock. If soil modification is not employed, we believe that 55 to 65% of the structures will require a pier foundation system. The piers will likely be designed for an end bearing pressure in the range of 15,000 to 30,000 pounds per square foot (psf), a minimum dead load pressure in the range of 10,000 to 25,000 psf, and a side shear in the range of 1,500 to 2,000 psf. Pier lengths on the order of 25 to 35 feet with bedrock penetration from 16 to 22 feet can be anticipated. Casing of the piers should be anticipated. As an alternative to piers, helical piles drilled into bedrock could be constructed to support these foundations.

11.2 Spread or Pad-Type Footings

Foundations supported by spread footings or footing pads may be possible for structures where sufficient non- to low expansive clays, sands, or properly placed and compacted fills are encountered beneath the foundation elevation. The footings must be founded below frost depth. The footings will likely be designed for maximum soil bearing pressures ranging from 1,000 to 3,000 psf. Minimum dead load pressure on the order of 700 to 1,000 psf may be required for footings supported on native clayey soils or clay fills.

We anticipate 35 to 45% of the site will be able to utilize this foundation type if traditional grading techniques are used. Should the expansive claystone be overexcavated and the excavated materials are placed as moisture treated fill, it is likely most if not all of the structures could be founded on spread or pad-type footings bearing on the moisture treated fill.

11.3 Post-Tensioned Slab Foundation

A post-tensioned slab foundation system could be constructed to support the structures. The foundation should be supported by the native clayey soils or properly placed and compacted clayey fill. The expansive claystone should be excavated to a depth of 10 feet beneath the lowest foundation element. The excavated material may then be placed in the excavation as moisture treated fill as described in Appendix C. This type of construction should provide a foundation and floor system which moves together as one unit. The foundations will likely be designed for a soil bearing pressure ranging from 1,500 to 3,000 psf.

The range of parameters provided below will likely be used for design of the foundation system. These parameters were developed using practices established by AGW, as well as our evaluation of published information and experience in working with these types of foundations.

Center Lift		
Edge Moisture Variation Distance (e_m)	=	7 to 9 feet
Differential Movement (y_m)	=	0.5 to 1.5 inches
Edge Lift		
Edge Moisture Variation Distance (e_m)	=	4 to 6 feet
Differential Movement (y_m)	=	0.5 to 1.0 inches

We suggest that the structural engineer consider the information contained in "Design and Construction of Post-Tensioned Slabs-on-Grade" by the Post-Tensioning Institute (Third Edition) for design of the slab.

11.4 Raft Foundations

In areas where silty sands are encountered to a depth of 10 feet or greater below the foundation, reinforced concrete slab-on-grade raft foundations bearing on natural sands or properly placed and compacted sand fill may be acceptable. The turn down edges must be below frost depth or frost protected as provided by ASCE or NAHB. The raft foundations will likely be designed for an allowable bearing pressure of 800 to 1,500 psf. A modulus of subgrade reaction (k_s) of 75 to 150 kcf will likely be acceptable. If soft soils or excessive rutting occurs during excavation for foundations, stabilization of the foundation subgrade may be required prior to placing foundation forms.

11.5 Lateral Earth Pressures

Foundation walls with fill on only one side will need to be designed for lateral earth pressures. For this site, lateral earth pressures calculated based upon equivalent fluid densities on the order of 50 to 80 pcf should be anticipated. The preliminary estimates are for properly placed and compacted fill at foundation walls. They should not be used for site retaining walls.

11.6 Interior Floors

If the site is developed using traditional overlot grading techniques, it is likely that the sites where piers are required for foundation support will be assessed with moderate to high to very high slab risk performance. Where footing type foundations are constructed, it is likely that the sites will be assessed with a low to moderate slab risk performance. If the site is developed using traditional

overlot grading techniques, it is likely that approximately 55 to 65% of the sites will be assessed with a high to very high slab risk performance evaluation. If the site can be developed using overexcavation and placement of moisture treated fill, it is likely that most of the sites will be assessed with low to moderate slab risk performance evaluation. Slab-on-grade construction may be appropriate for full, unfinished basement construction on sites with low or moderate evaluations. Structural floors are generally recommended on sites with higher evaluations and for finished basements or any site where floor movement or cracking cannot be tolerated. If slab movement cannot be tolerated, structural floors should be constructed. For post-tensioned or raft type foundations, the interior slab will be part of the foundation system, and therefore are considered structural.

11.7 First Floor Construction (Crawl Space Products)

Some of the structures may be constructed over crawl spaces. Structural floors will be constructed in the living areas of the residences. For the garage areas, it is likely that there will be a low to moderate risk of garage slab movement on the natural soils after the expansive claystone is overexcavated and placed as a moisture treated fill.

11.8 Drain Systems

Drain systems will be required around the lowest excavation level of below grade spaces for each structure. Either interior or exterior drains may be used for a portion of the sites. Where ground water is within 4 feet of the foundation, a more extensive drain system will be required. This may include gravel across the entire foundation, drain laterals, or combination interior and exterior drains. The drains must be led to a positive gravity outfall or sump. If an overall subdivision area drain is constructed, individual drains should be connected into this system if allowed by the jurisdiction.

11.9 Backfill and Surface Drainage

Foundation backfill should be moistened and compacted to reduce future settlement. The site grading should consider a slope of 10% away from the foundation at the completion of construction. All other drainage swales in landscaped areas should slope at a minimum of 2%.

12.0 PRELIMINARY STREET PAVEMENT DESIGN

Pavement design is based on the engineering properties of the subgrade and pavement materials, the assumed design traffic conditions, and the Town of Fort Lupton pavement regulations. Effective pavement structures are composed of various pavement materials bearing upon properly prepared subgrade soils. The following preliminary pavement recommendations are based upon the subsurface conditions encountered and our experience in the area.

It appears the proposed subgrade materials will likely be sands, clays, claystone, or fill constructed from these materials with AASHTO Soil Classifications of A-1-b, A-2-4, A-3, A-4, A-6, and A-7-6.

Based upon our laboratory testing and our experience in the area, it is anticipated that the claystone subgrade materials encountered on this site can be expected to exhibit enough swell to negatively impact the performance of the pavement and will likely be in excess of those allowed by City of Fort

Lupton regulation. Therefore, we recommend that the expansive subgrade materials be modified during site grading operations to reduce the potential future heave of the pavement. The expansive claystone should be overexcavated to a depth of at least 5 feet below the subgrade elevation. The overexcavation should be performed during site grading prior to construction of utilities within the right-of-way. Overexcavation should cover the area from 1 foot beyond back of sidewalk (for attached sidewalk areas) or back of curb (for detached sidewalks). The excavated material may be placed as moisture treated fill (see Appendix C) within the right-of-way. All fill placed within 5 feet of the subgrade elevation should be placed as moisture treated fill. Lime, other chemical treatment, or other methods of subgrade preparation may also be required dependent upon the results of the final pavement design report.

The shallow ground water encountered on the site may cause stabilization issues for pavement construction. This may require chemical or mechanical stabilization based upon the unstable encountered on this site. Chemical stabilization includes the use of lime, fly ash, cement, or other chemical additives to the soil. Mechanical stabilization includes the use of rock fill with or without a geogrid beneath the base course. Where soft yielding pavement subgrade is found, stabilization using rock or chemicals (fly ash or cement) may be necessary. The use of pavement drains will be necessary when ground water is within 3 feet of the subgrade to prevent frost heave (see Figure 11).

Based upon the subgrade soil classifications, we have estimated the relative strengths of the subgrade soils presented above in order to determine the preliminary pavement thicknesses. Based upon the nature of the development, we believe the roadways will be classified as local streets (ESAL = 36,000), or as residential collector (ESAL = 219,000). Based on this information and utilizing the design methodology determined from the pavement design regulations for the City of Fort Lupton the alternatives presented below were determined.

Pavement Thickness Alternatives for Interior Streets

Traffic Category	HBP (in.)	HBP / ABC (in.)
Local Streets	6.5 to 7.0	5.0 to 6.0 / 8.0 to 12.0
Residential Collector	8.0 to 10.0	5.0 to 6.0 / 10.0 to 14.0

HBP = Hot Bituminous Pavement ABC = Aggregate Base Course

The above preliminary thickness recommendations are based on a design life of 20 years. It should be emphasized that the design alternatives provided above are preliminary for the materials anticipated. The final design thicknesses could be more or less than indicated depending upon the materials sampled during the final pavement design.

Proper surface and subsurface drainage is essential for adequate performance of pavements. It has been our experience that water from landscaped areas can infiltrate pavement subgrade soils and result in softening of the subgrade followed by pavement damage. Therefore, provisions should be made to maintain adequate drainage and/or contain runoff from such areas. In addition, water and irrigation lines should be thoroughly pressure tested for leaks prior to placement of pavement materials.

It must be reiterated that the information contained in this section is preliminary in nature. More detailed information will be required by the City of Fort Lupton prior to issuance of a paving permit. Therefore, when overlot grading is complete at the site, a final pavement evaluation must be performed.

13.0 FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION

This report has been prepared for the exclusive use of Sun ACQ, LLC for the purpose of providing geotechnical criteria for the proposed project. The data gathered and the conclusions and recommendations presented herein are based upon the consideration of many factors including, but not limited to, the type of structures proposed, the configuration of the structures, the proposed usage of the site, the configuration of surrounding structures, the geologic setting, the materials encountered, and our understanding of the level of risk acceptable to the Client. Therefore, the conclusions and recommendations contained in this report should not be considered valid for use by others unless accompanied by written authorization from AGW.

AGW should be contacted if the Client desires an explanation of the contents of this report. AGW should be retained to provide future geotechnical services for the site including, but not limited to, design level geotechnical studies, consultation during design, observation and testing during construction, and other geotechnically related services. Failure to contract with AGW for these services or selection of a firm other than AGW to provide these services will eliminate liability for AGW. We are available to discuss this with you.

14.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structures will perform as desired or intended. What the engineering recommendations presented in the preceding sections do constitute is our judgement of those measures that increase the chances for the structures and improvements performing satisfactorily. The Developer, Builder, and Owner must understand this concept of risk, as it is they who must ultimately decide what is an acceptable level of risk for the proposed development of the site.

15.0 LIMITATIONS

We believe the professional judgments expressed in this report are consistent with that degree of skill and care ordinarily exercised by practicing design professionals performing similar design services in the same locality, at the same time, at the same site and under the same or similar circumstances and conditions. No other warranty, express or implied, is made. In the event that any changes in the nature, design or location of the facility are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of

this report are modified or verified in writing. Because of the constantly changing state of the practice in geotechnical engineering, and the potential for site changes after our field exploration, this report must not be relied upon after a period of three years without AGW being given the opportunity to review and, if necessary, revise our findings.

The test borings drilled for this study were spaced to obtain an understanding of subsurface conditions for design purposes. Variations frequently occur from these conditions which are not indicated by the test borings. These variations are sometimes sufficient to necessitate modifications in the designs. If unexpected subsurface conditions are observed by any party during site development, we must be notified to review our recommendations.

Our scope of services for this project did not include, either specifically or by implication, any research, identification, testing, or assessment relative to past or present contamination of the site by any source, including biological (i.e., mold, fungi, bacteria, etc.). If such contamination were present, it is likely that the exploration and testing conducted for this report would not reveal its existence. If the Client is concerned about the potential for such contamination or pollution, additional studies should be undertaken. We are available to discuss the scope of such studies with you.

Our scope of services for this project did not include a local or global geological risk assessment. Therefore, issues such as mine subsidence, slope stability, faults, etc. were not researched or addressed as part of this study. If the Client is concerned about these issues, we are available to discuss the scope of such studies upon your request.

Sincerely,

A. G. Wassenaar, Inc.

Keith D. Seaton, P. E.
Senior Engineer

Reviewed by:

Ashley A. McDaniels, P. E.
Project Engineer
Digitally signed by: Ashley A. McDaniels, PE
Date: 2020.01.24 16:10:26 -07'00'

COLORADO LICENSED
ASHLEY ANN MCDANIELS
51150
PROFESSIONAL ENGINEER

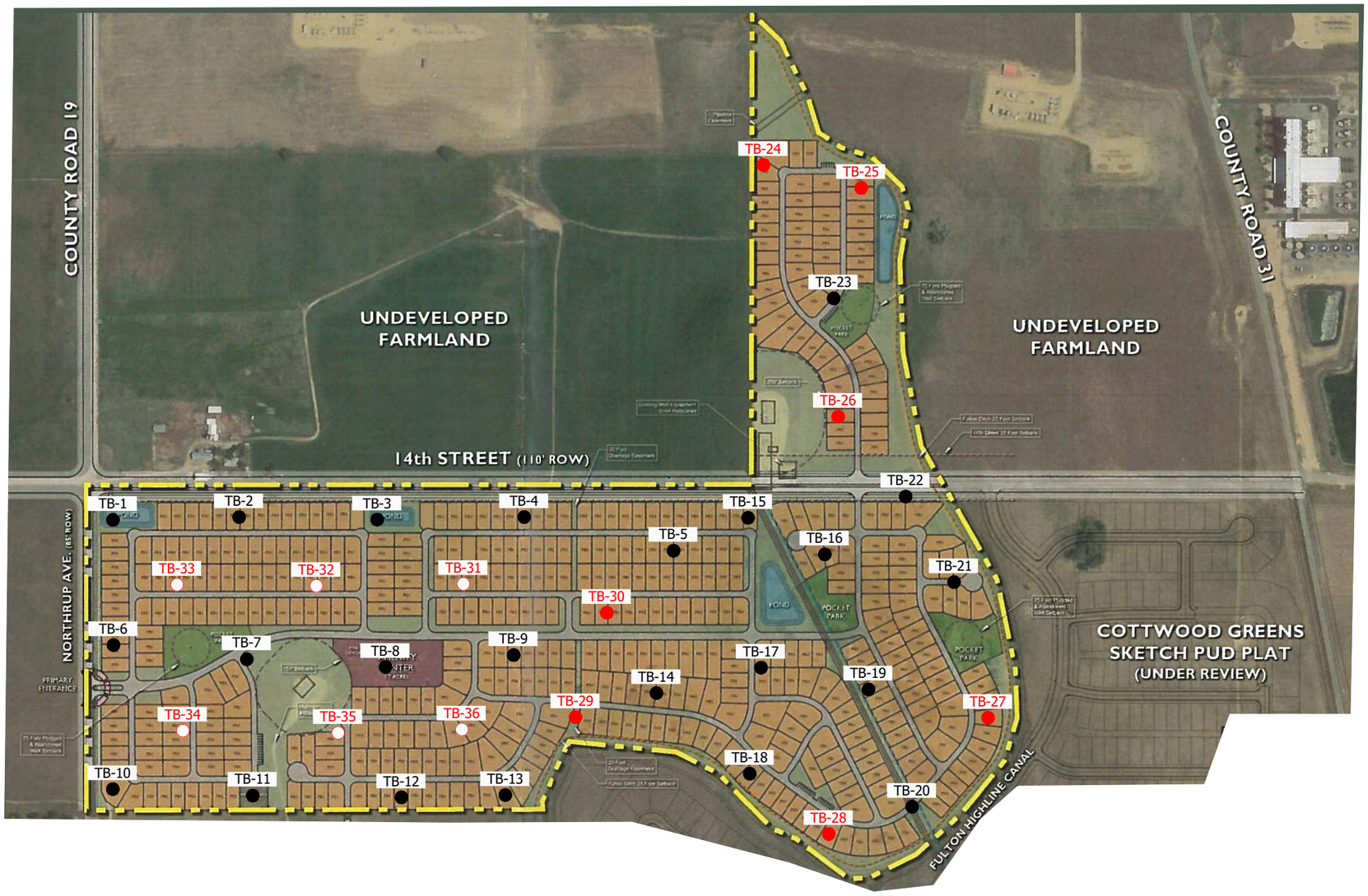
KDS/AAM/bab

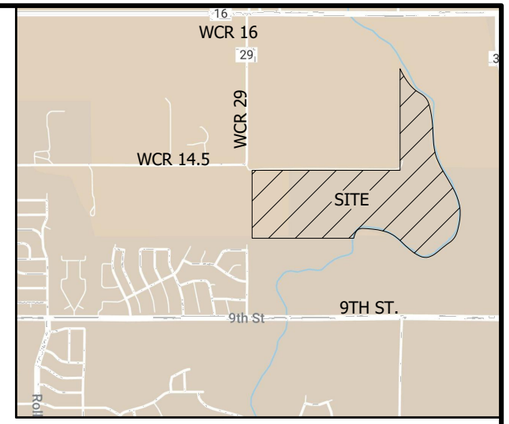
COYOTE CREEK NORTH
FORT LUPTON, COLORADO

N

0 500 1000

Scale in Feet





VICINITY MAP
NOT TO SCALE

- TEST BORING DRILLED FOR THIS REPORT
- GROUND WATER BORING DRILLED FOR THIS REPORT
- TEST BORING FROM AGW PROJECT NUMBER 174095

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "FORT LUPTON - CONCEPTUAL LAYOUT -(G)- 498 UNITS" PLAN, PREPARED BY RVI PLANNING, DATED SEPTEMBER 25, 2019.
2. ALL LOCATIONS ARE APPROXIMATE.

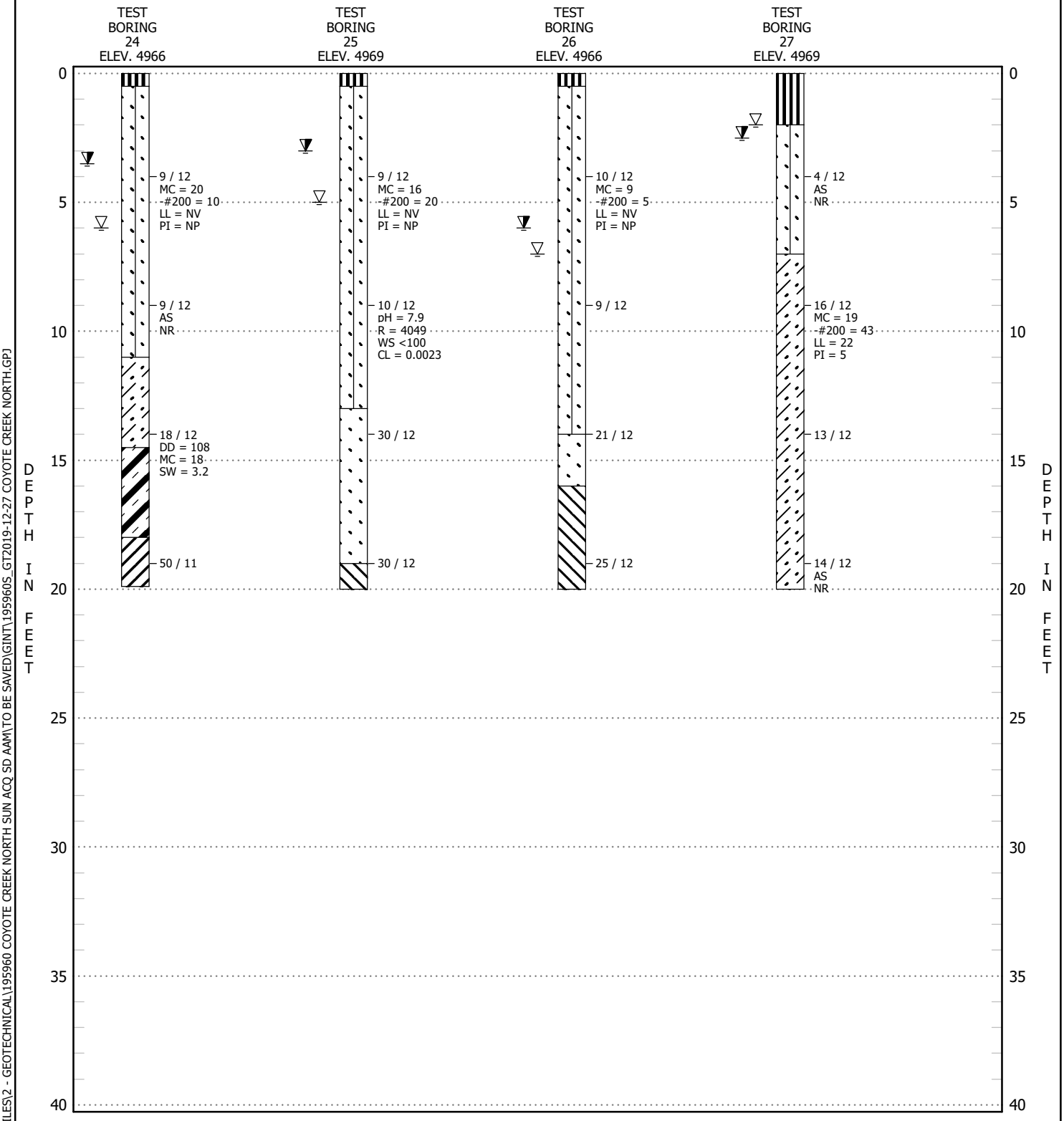
AGW
A.G. WASSENAAR, INC.

SITE PLAN AND VICINITY MAP	PROJECT NO. 195960 FIGURE 1

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 195960 **PROJECT LOCATION** Fort Lupton, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

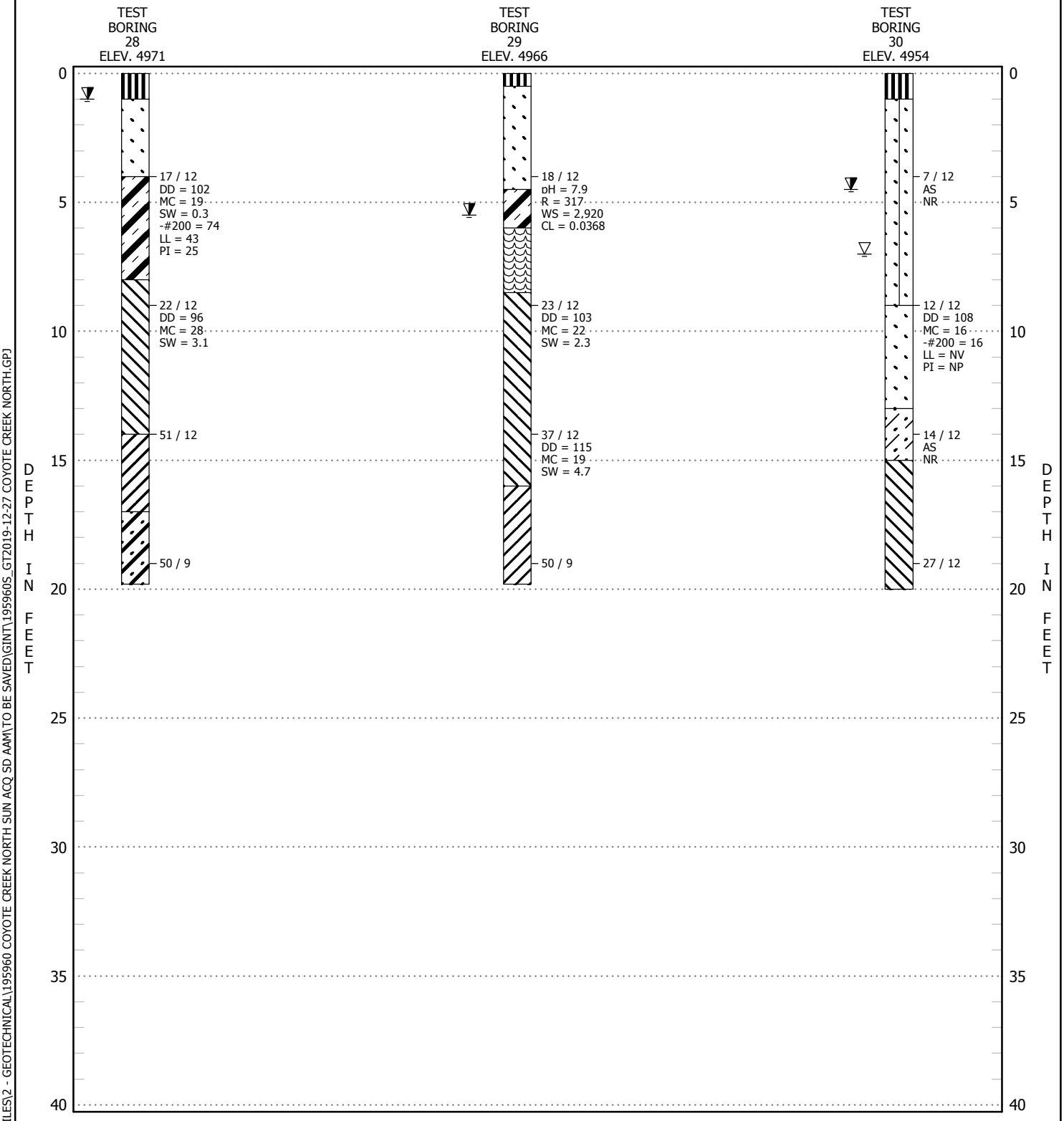
FIGURE 2

U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 195960 **PROJECT LOCATION** Fort Lupton, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

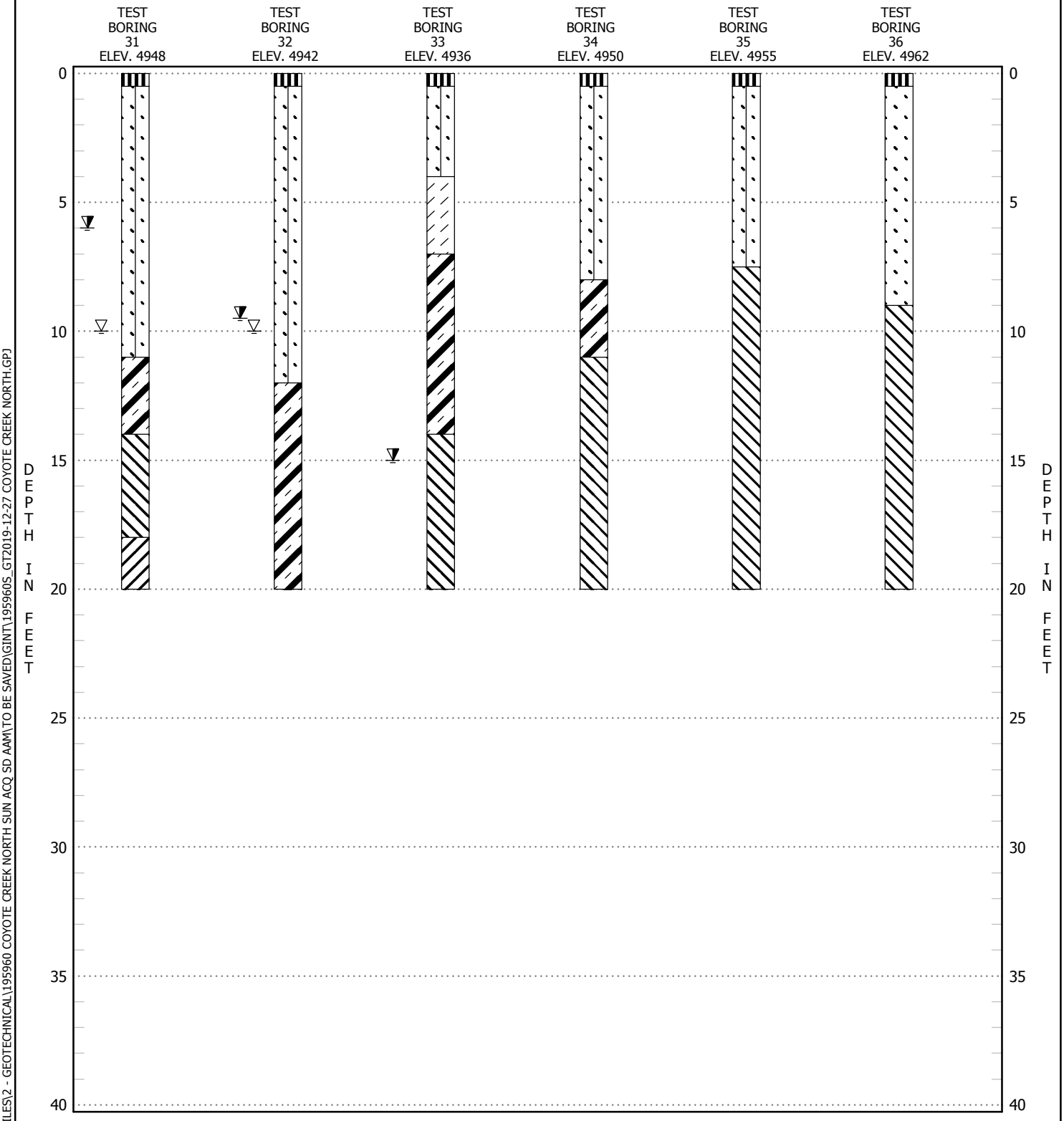
FIGURE 3

U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 195960 **PROJECT LOCATION** Fort Lupton, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

FIGURE 4

U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 195960 **PROJECT LOCATION** Fort Lupton, Colorado

SOIL DESCRIPTIONS


Topsoil, clay, sandy, organic


Clay, stiff to very stiff


Sand, loose


Sand, medium dense, silty


Sand, medium dense, silty, clayey


Clay (weathered claystone), medium stiff to stiff


Claystone (Bedrock), firm to medium hard


Claystone (Bedrock), hard to very hard


Sandstone (Bedrock), hard to very hard


Ironstone, hard

ABBREVIATIONS

DD	Dry density of sample in pounds per cubic foot (pcf)
MC	Moisture content as a percentage of dry weight of soil (%)
SW	Percent swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Percent compression under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
UC	Unconfined compressive strength in pounds per square foot (psf)
-#200	Percent passing the Number 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
NV	No Value
pH	Acidity or alkalinity of sample in pH units
R	Resistivity in ohms.cm
WS	Water soluble sufates in parts per million (ppm)
CL	Chlorides in percent (%)
x/y	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler Y inches
x/y SS	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler Y inches
C-x	Depth of cut to grade (rounded to the nearest foot)
F-x	Depth of fill to grade (rounded to the nearest foot)
FG	Finished grade (rounded to the nearest foot)
NR	No sample recovered
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample
	Moderately to well cemented layer
—	Approximate depth of cut
	Depth at which practical drilling refusal was encountered
	Water level at time of drilling
	Caved depth at time of drilling
	Water level 3 to 16 day(s) after drilling
	Caved depth 3 to 16 day(s) after drilling

Notes:

1. Test borings were drilled December 4, 2019 and December 20, 2019.
2. Location of the test borings were staked by others at locations chosen by this firm.
3. The horizontal lines shown on the logs are to differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations were obtained from staking provided by others and have been rounded to the nearest foot.
5. Boring logs shown in this report are subject to the limitations, explanations, and conclusions of this report.

LEGEND AND NOTES
FIGURE 5

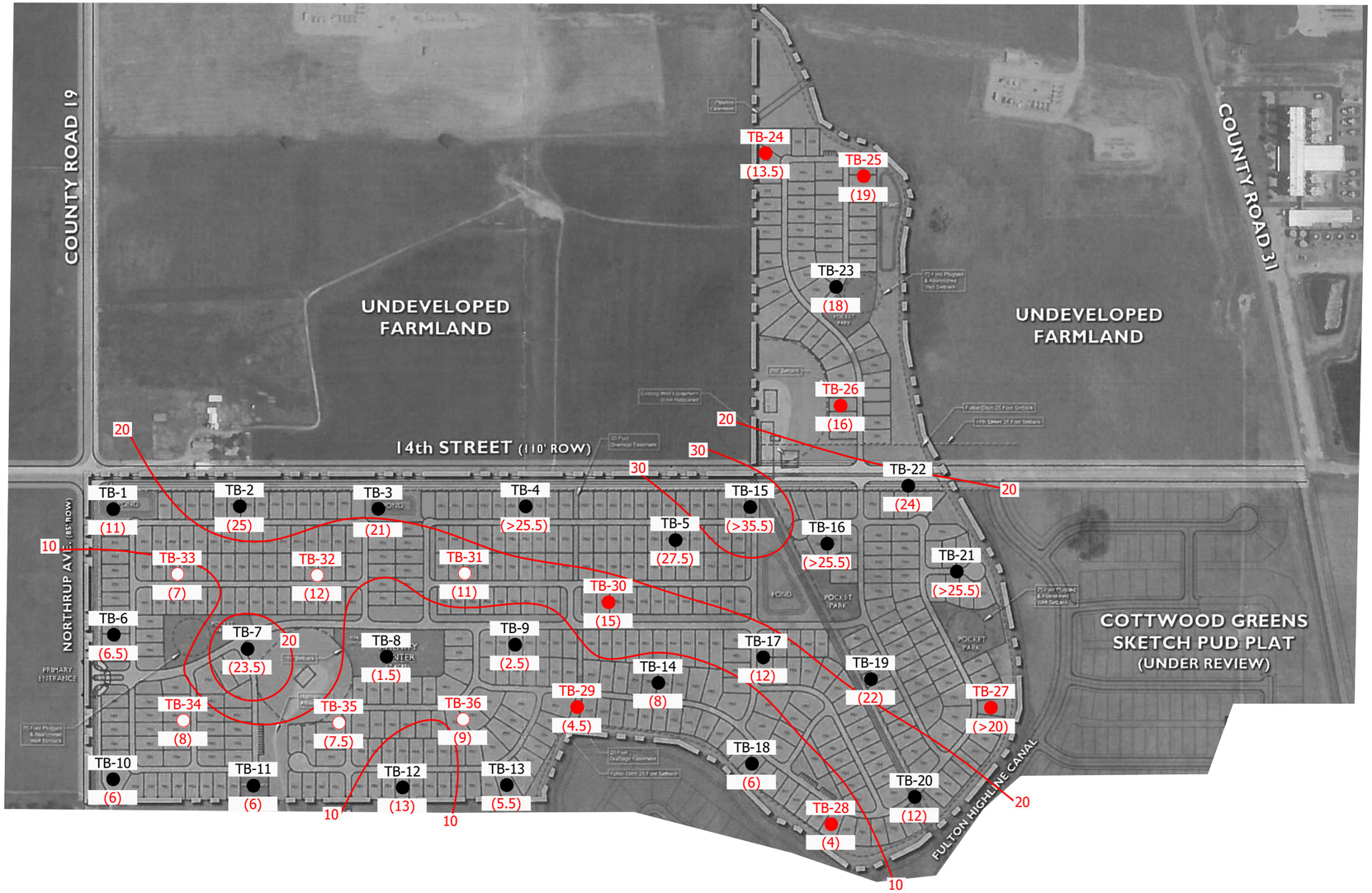
U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

COYOTE CREEK NORTH
FORT LUPTON, COLORADO

N

0 500 1000

Scale in Feet



(XX) BEDROCK WAS ENCOUNTERED AT A DEPTH OF XX FEET

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "FORT LUPTON - CONCEPTUAL LAYOUT -(G)- 498 UNITS" PLAN, PREPARED BY RVI PLANNING, DATED SEPTEMBER 25, 2019.
2. BEDROCK DEPTH CONTOURS ARE BASED UPON THE EXTRAPOLATION OF DATA FROM WIDELY SPACED TEST BORINGS. LOCAL AND SIGNIFICANT VARIATIONS MAY OCCUR BETWEEN THE BORINGS. THIS MAP REPRESENTS AN OPINION WHICH IS ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.
3. ALL LOCATIONS ARE APPROXIMATE.

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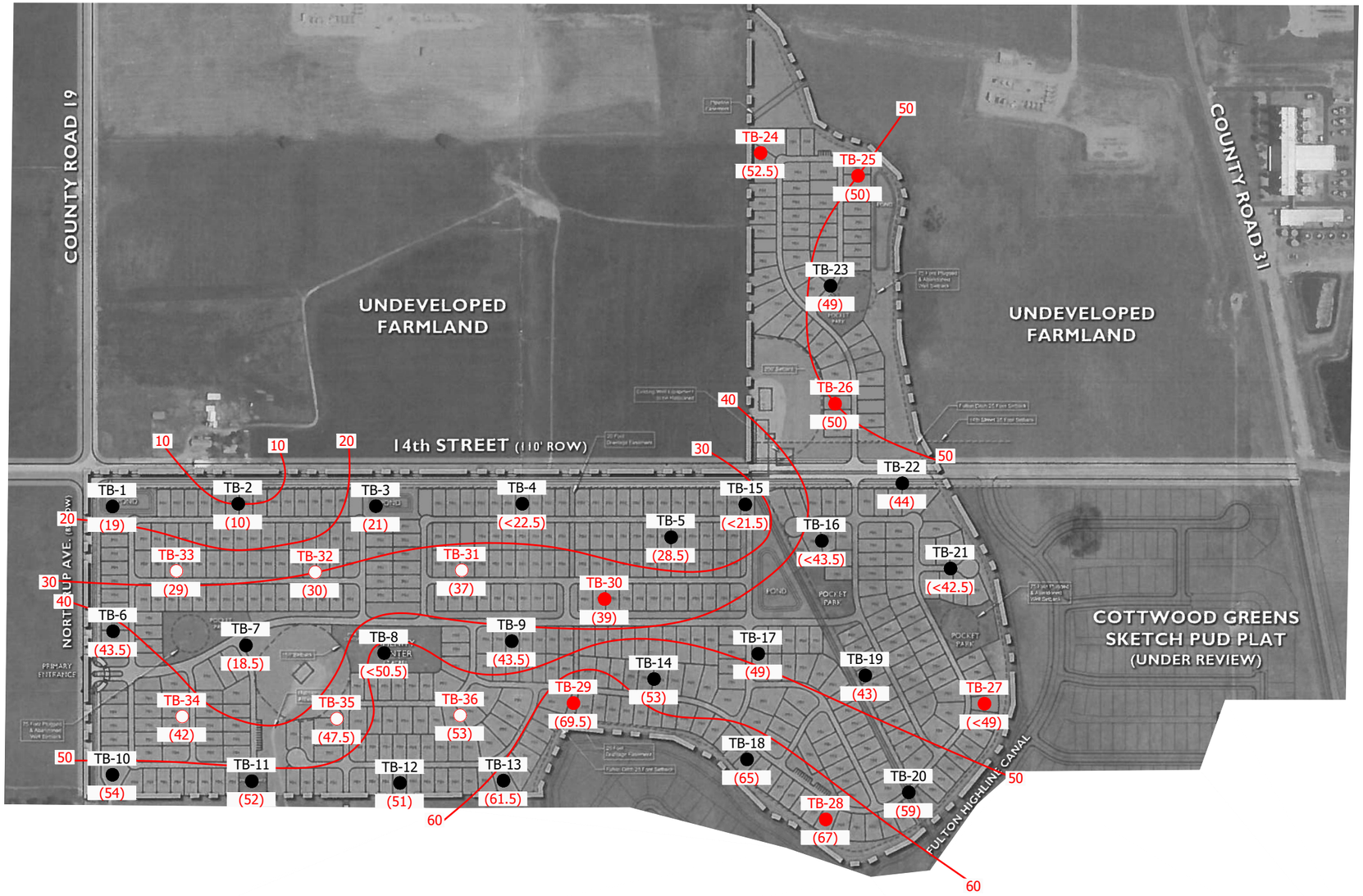
ESTIMATED DEPTH TO BEDROCK	PROJECT NO. 195960 FIGURE 6

COYOTE CREEK NORTH
FORT LUPTON, COLORADO

N

0 500 1000

Scale in Feet



(XX) BEDROCK WAS ENCOUNTERED AT AN ELEVATION OF 4,9XX FEET

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "FORT LUPTON - CONCEPTUAL LAYOUT -(G)- 498 UNITS", PREPARED BY RVI PLANNING, DATED SEPTEMBER 25, 2019.
2. ELEVATION CONTOURS ARE BASED UPON THE EXTRAPOLATION OF DATA FROM WIDELY SPACED TEST BORINGS. LOCAL AND SIGNIFICANT VARIATIONS MAY OCCUR BETWEEN THE BORINGS. THIS MAP REPRESENTS AN OPINION WHICH IS ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.
3. ELEVATIONS ARE BASED UPON THE TEST BORING ELEVATIONS PROVIDED ON THE TEST BORING STAKES AND THE RECORDED DEPTHS TO BEDROCK.
4. ALL LOCATIONS ARE APPROXIMATE.

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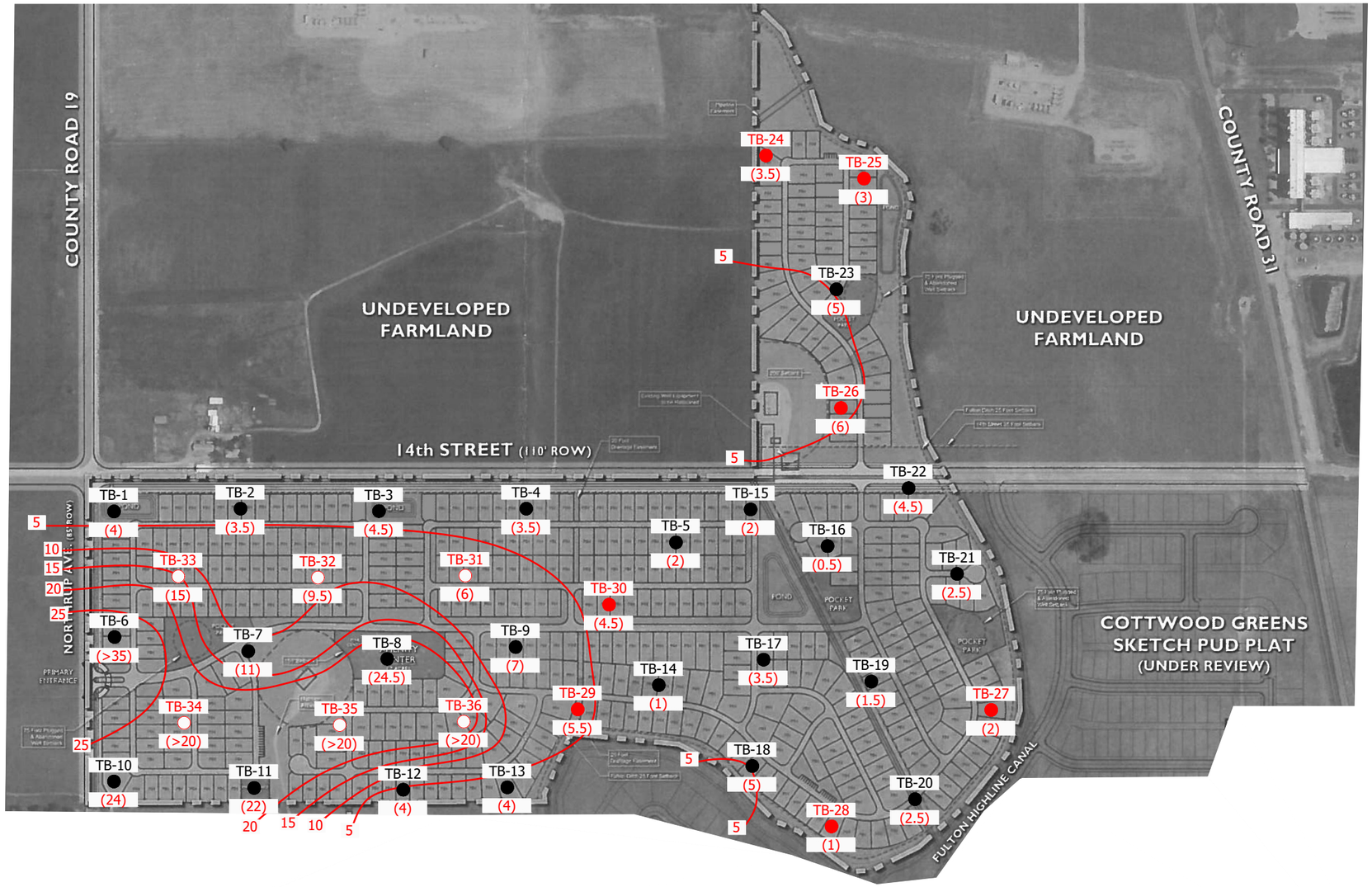
ESTIMATED ELEVATION OF BEDROCK	PROJECT NO. 195960 FIGURE 7

COYOTE CREEK NORTH
FORT LUPTON, COLORADO

N

0 500 1000

Scale in Feet



(XX) GROUND WATER OR WET CAVE IN WAS ENCOUNTERED AT A DEPTH OF XX FEET

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "FORT LUPTON - CONCEPTUAL LAYOUT -(G)- 498 UNITS" PLAN, PREPARED BY RVI PLANNING, DATED SEPTEMBER 25, 2019.
2. GROUND WATER DEPTH CONTOURS ARE BASED UPON THE EXTRAPOLATION OF DATA FROM WIDELY SPACED TEST BORINGS. LOCAL AND SIGNIFICANT VARIATIONS MAY OCCUR BETWEEN THE BORINGS. THIS MAP REPRESENTS AN OPINION WHICH IS ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.
3. ALL LOCATIONS ARE APPROXIMATE.

AGW
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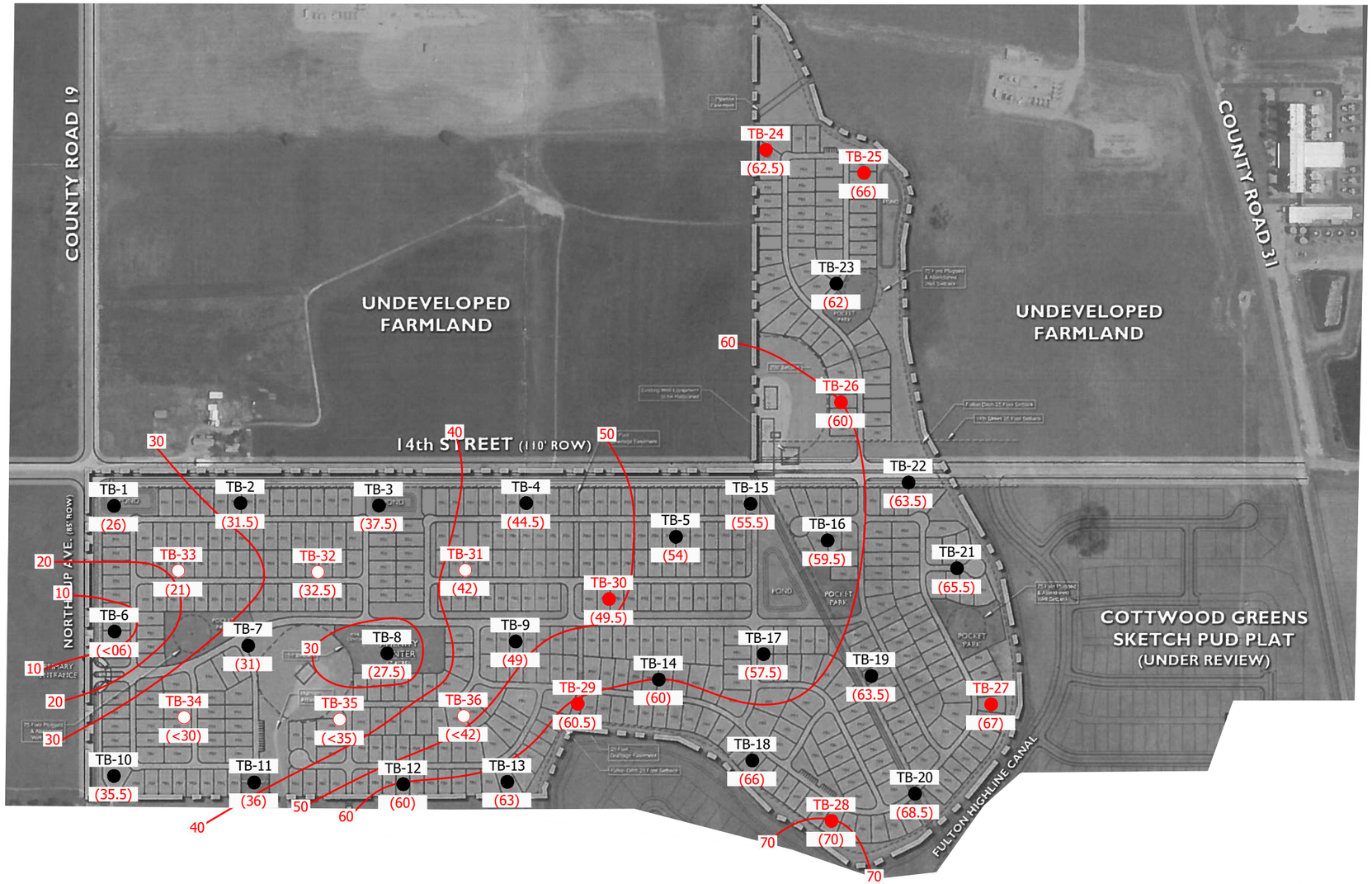
ESTIMATED DEPTH TO GROUND WATER	PROJECT NO. 195960 FIGURE 8

COYOTE CREEK NORTH
FORT LUPTON, COLORADO

N

0 500 1000
Scale in Feet



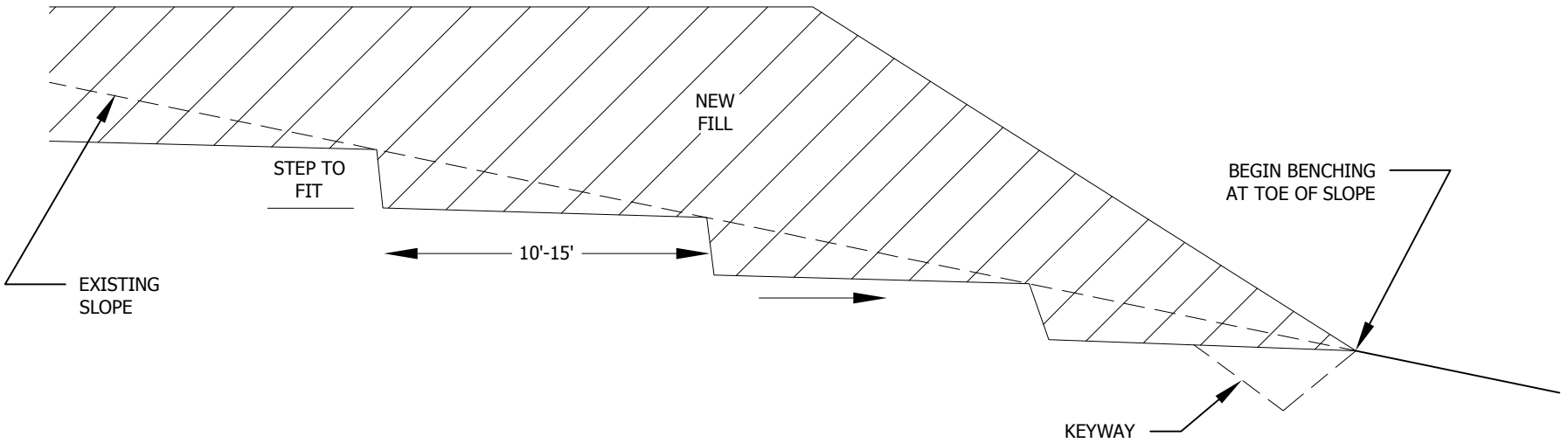
(XX) GROUND WATER OR WET CAVE WAS ENCOUNTERED AT AN ELEVATION OF 4,9XX FEET.

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "FORT LUPTON - CONCEPTUAL LAYOUT -(G)- 498 UNITS" PLAN, PREPARED BY RVI PLANNING, DATED SEPTEMBER 25, 2019.
2. ELEVATION CONTOURS ARE BASED UPON THE EXTRAPOLATION OF DATA FROM WIDELY SPACED TEST BORINGS. LOCAL AND SIGNIFICANT VARIATIONS MAY OCCUR BETWEEN THE BORINGS. THIS MAP REPRESENTS AN OPINION WHICH IS ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.
3. ELEVATIONS ARE BASED UPON THE TEST BORING ELEVATIONS PROVIDED ON THE TEST BORING STAKES AND THE RECORDED DEPTHS TO BEDROCK.
4. ALL LOCATIONS ARE APPROXIMATE.

AGW
A.G. WASSENAAR, INC.

ESTIMATED ELEVATION OF GROUND WATER	PROJECT NO. 195960 FIGURE 9



NOTES:

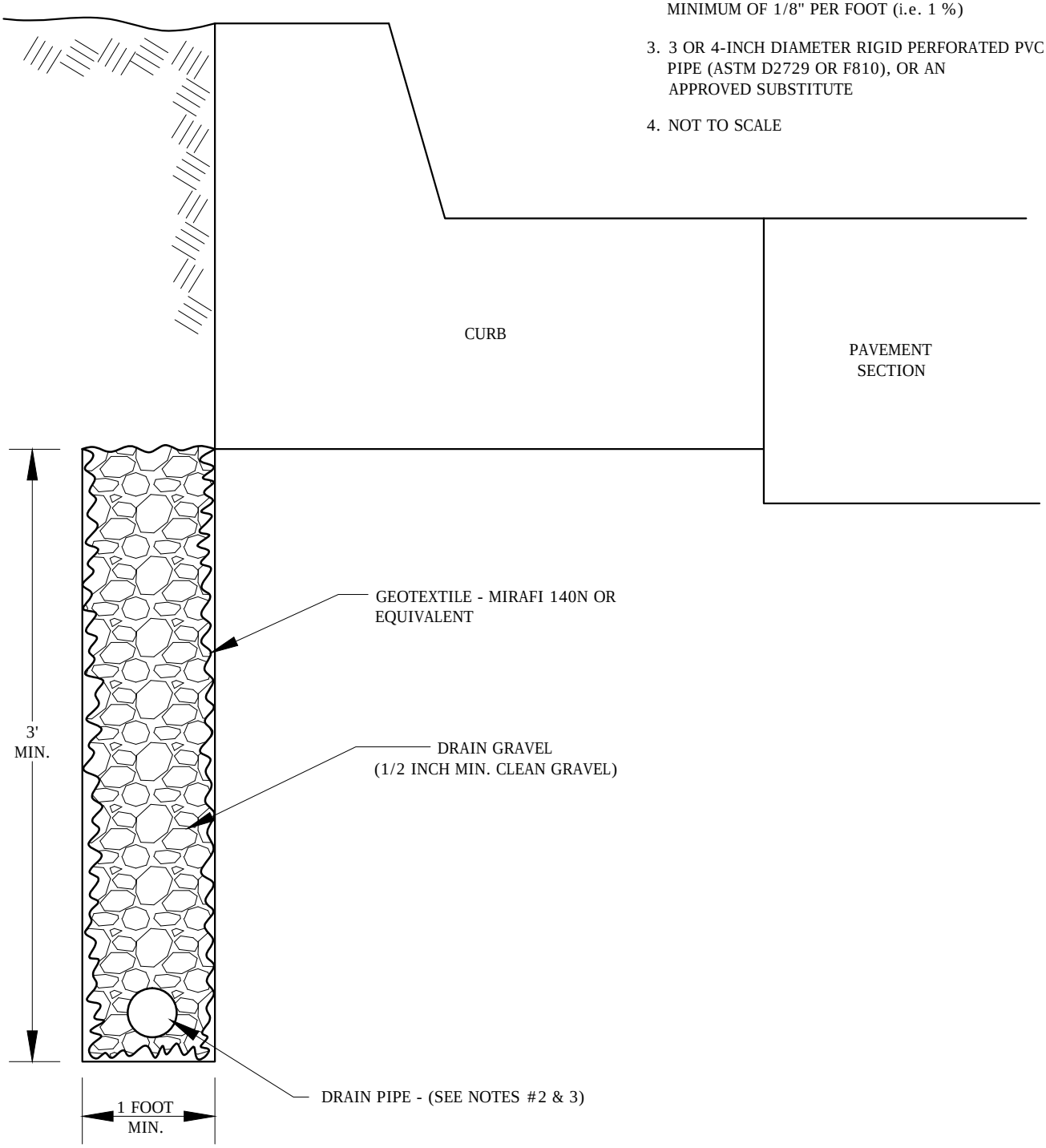
1. BENCHING REQUIRED WHEN EXISTING SLOPE IS 5 : 1 (HORIZONTAL : VERTICAL) OR STEEPER
2. CONTINUE BENCHING UNTIL NATURAL SLOPE FLATTENS OR DAYLIGHTS
3. DRAINS MAY BE REQUIRED IF GROUND WATER IS ENCOUNTERED
4. ADDITIONAL EXCAVATION MAY BE REQUIRED BY AGW IF SLOPE INSTABILITY IS NOTED
5. A KEYWAY MAY BE REQUIRED BY AGW DEPENDING UPON SLOPE CONFIGURATION
6. NOT TO SCALE

AGW
A.G. WASSENAAR, INC.

GENERALIZED BENCHING DETAIL	PROJECT NO. 195960 FIGURE 10

NOTES:

1. DRAIN MUST SLOPE TO A POSITIVE GRAVITY OUTLET
2. SLOPE BOTTOM OF TRENCH AND PIPE AT A MINIMUM OF 1/8" PER FOOT (i.e. 1 %)
3. 3 OR 4-INCH DIAMETER RIGID PERFORATED PVC PIPE (ASTM D2729 OR F810), OR AN APPROVED SUBSTITUTE
4. NOT TO SCALE



A.G. WASSENAAR, INC.

PAVEMENT DRAIN DETAIL	PROJECT NO. 195960 FIGURE 11

APPENDIX A
LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS.....TABLE A-1

SWELL-CONSOLIDATION TEST RESULTS .....FIGURES A-1 THROUGH A-4

GRADATION/ATTERBERG TEST RESULTS.....FIGURES A-5 THROUGH A-8

STANDARD PROCTOR TEST RESULTS ..... FIGURES A-9 AND A-10

AGW
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TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
January 15, 2020

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg Liquid Limit LL	Atterberg Plasticity Index PI	pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
24	4	Sand, slightly silty		20			10	NV	NP				
24	14	Clay (weathered claystone), sandy	108	18	3.2	4,300							
25	4	Sand, silty		16			20	NV	NP				
25	9	Sand, silty								7.9	4,049	<100	0.0023
26	4	Sand, slightly silty		9			5	NV	NP				
27	9	Sand, very silty to very clayey		19			43	22	5				
28	4	Clay (weathered claystone), sandy, trace gravel	102	19	0.3	1,800	74	43	25				
28	9	Claystone, sandy	96	28	3.1	5,300							
29	4	Clay (weathered claystone), sandy								7.9	317	2,920	0.0368
29	9	Claystone, sandy	103	22	2.3	4,700							
29	14	Claystone, sandy	115	19	4.7	11,000							
30	9	Sand, silty	108	16			16	NV	NP				
Bulk 1[2]	NA	Blended Bulk Sample (Sand, very silty)	128.2 [4]	10.1 [4]			37	20	3				
Bulk 1[2]	NA	Blended Bulk Sample (Sand, very silty)	122	11	0.1 [5]	—							
Bulk 2[3]	NA	Blended Bulk Sample (Clay, very sandy)	125.7 [4]	9.9 [4]			55	26	8				
Bulk 2[3]	NA	Blended Bulk Sample (Clay, very sandy)	120	9	0.4 [5]	—							

Notes:
NA - Not Applicable, NV - No Value, NP - Nonplastic

[1] Indicates percent swell or consolidation when wetted under a 1,000 psf load
[2] Bulk 1 is a blended bulk sample obtained from the auger cuttings of Test Borings 24 through 28
[3] Bulk 2 is a blended bulk sample obtained from the auger cuttings of Test Borings 29 through 36
[4] Maximum dry density (MDD) and optimum moisture content (OMC)
[5] Sample was remolded to approximately 95% MDD

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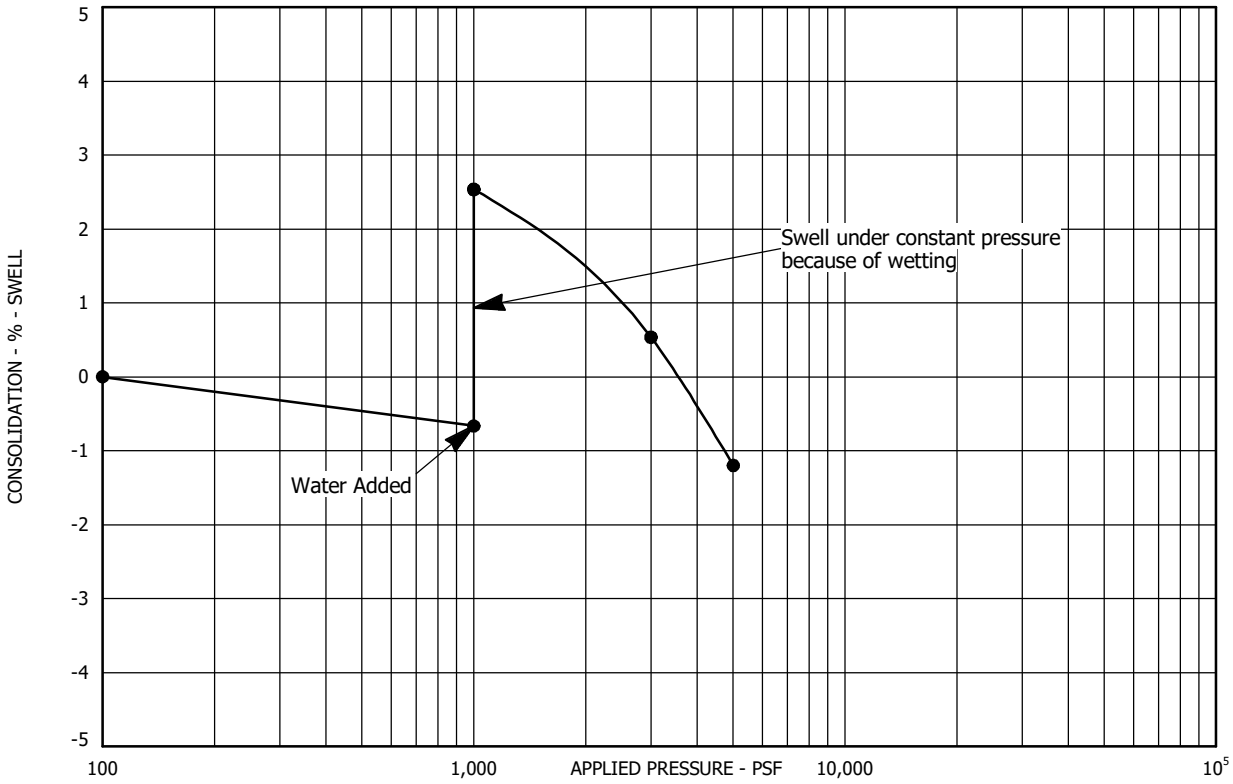
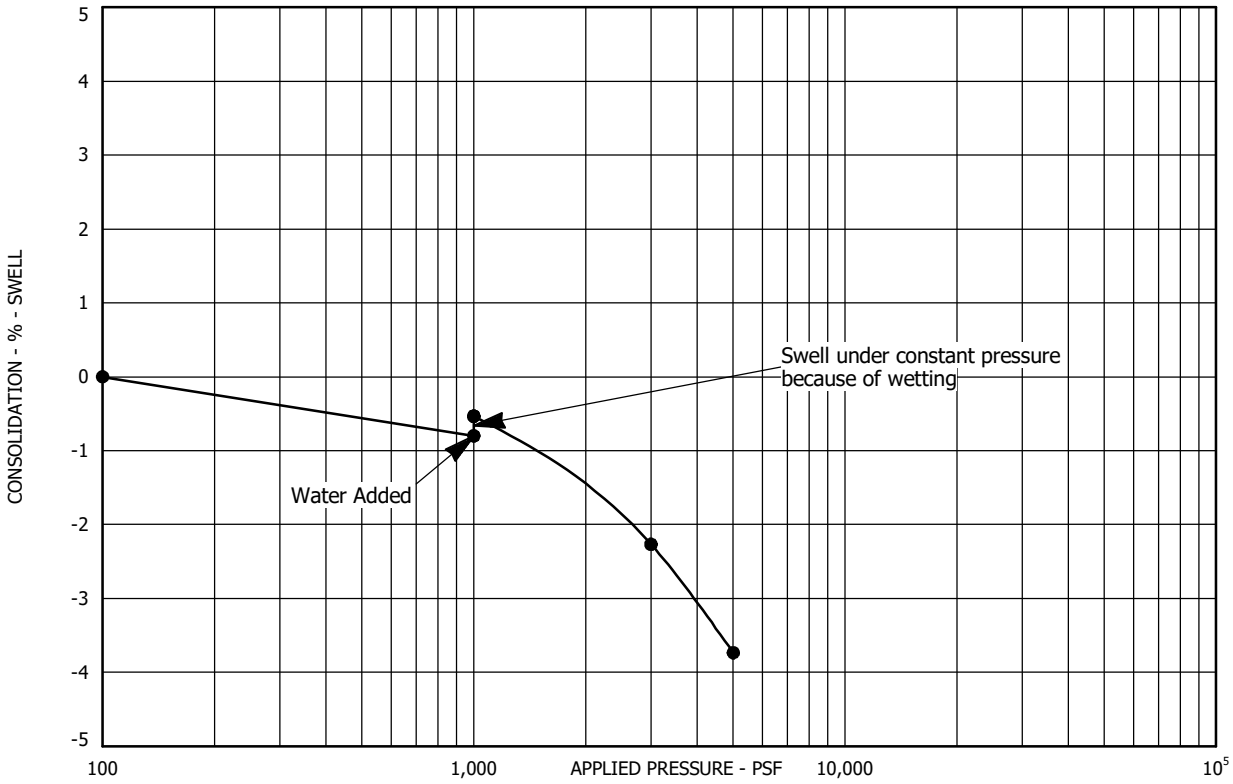
A.G. WASSENAAR, INC.



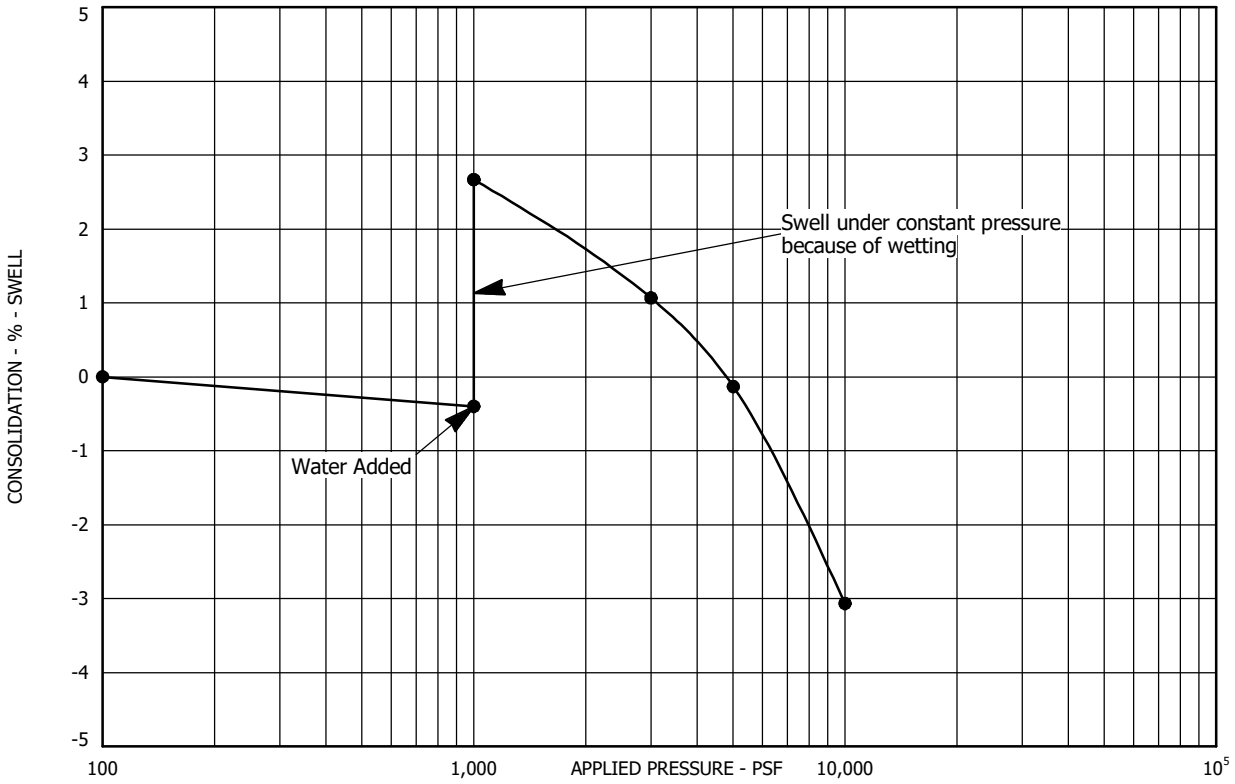
Sample Location: Test Boring No. 24 at a depth of 14 feet
Sample Description: Clay (Weathered claystone), sandy
Dry Unit Weight (pcf): 108
Moisture Content (%): 18



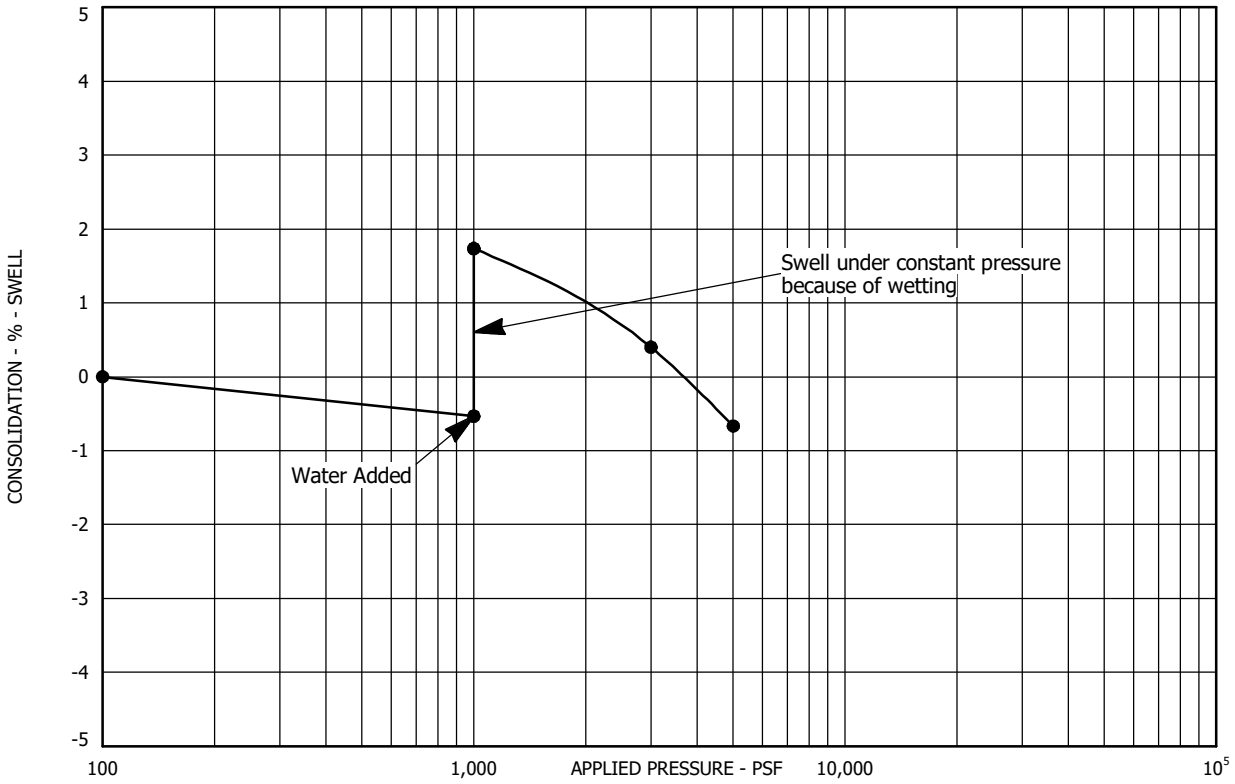
Sample Location: Test Boring No. 28 at a depth of 4 feet
Sample Description: Clay (Weathered claystone), sandy, trace gravel
Dry Unit Weight (pcf): 102
Moisture Content (%): 19

SWELL - CONSOLIDATION TEST RESULTS
FIGURE A-1
PROJECT NO. 195960

AGW
A.G. WASSENAAR, INC.

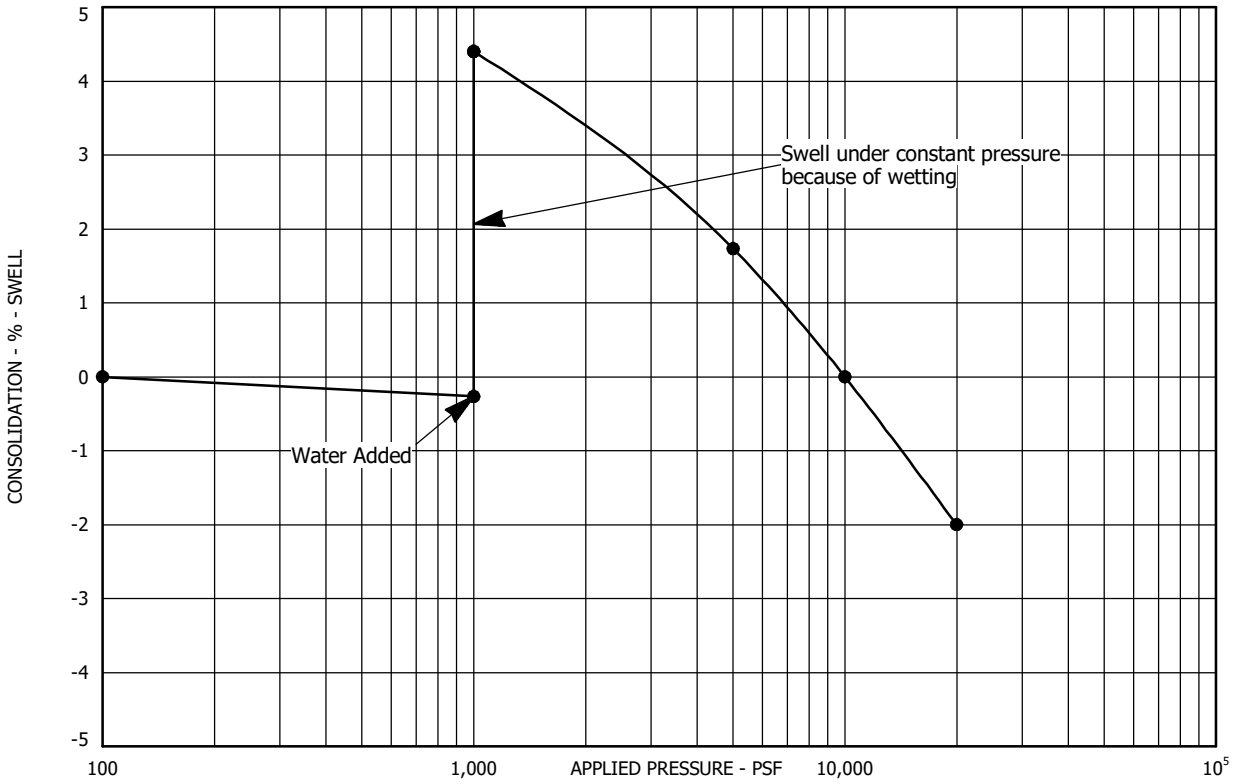


Sample Location: Test Boring No. 28 at a depth of 9 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 96
Moisture Content (%): 28

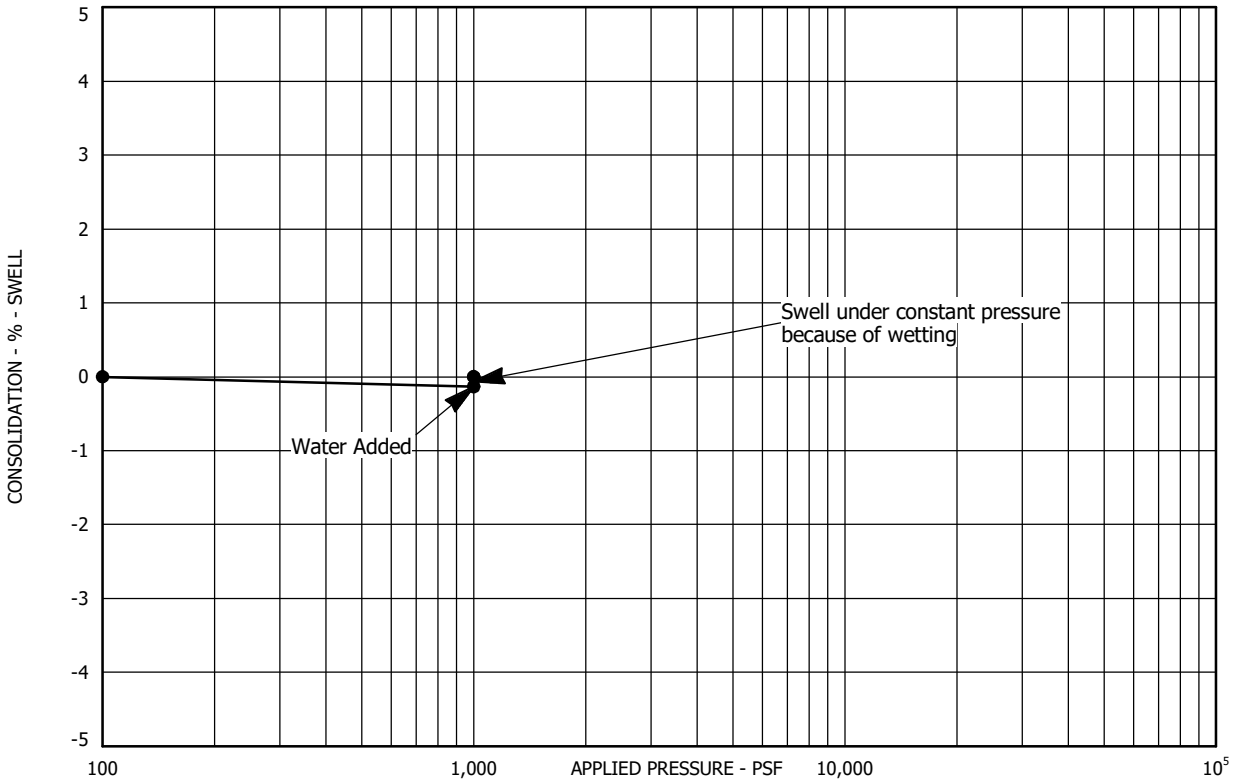


Sample Location: Test Boring No. 29 at a depth of 9 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 103
Moisture Content (%): 22

SWELL - CONSOLIDATION TEST RESULTS
FIGURE A-2
PROJECT NO. 195960



Sample Location: Test Boring No. 29 at a depth of 14 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 115
Moisture Content (%): 19

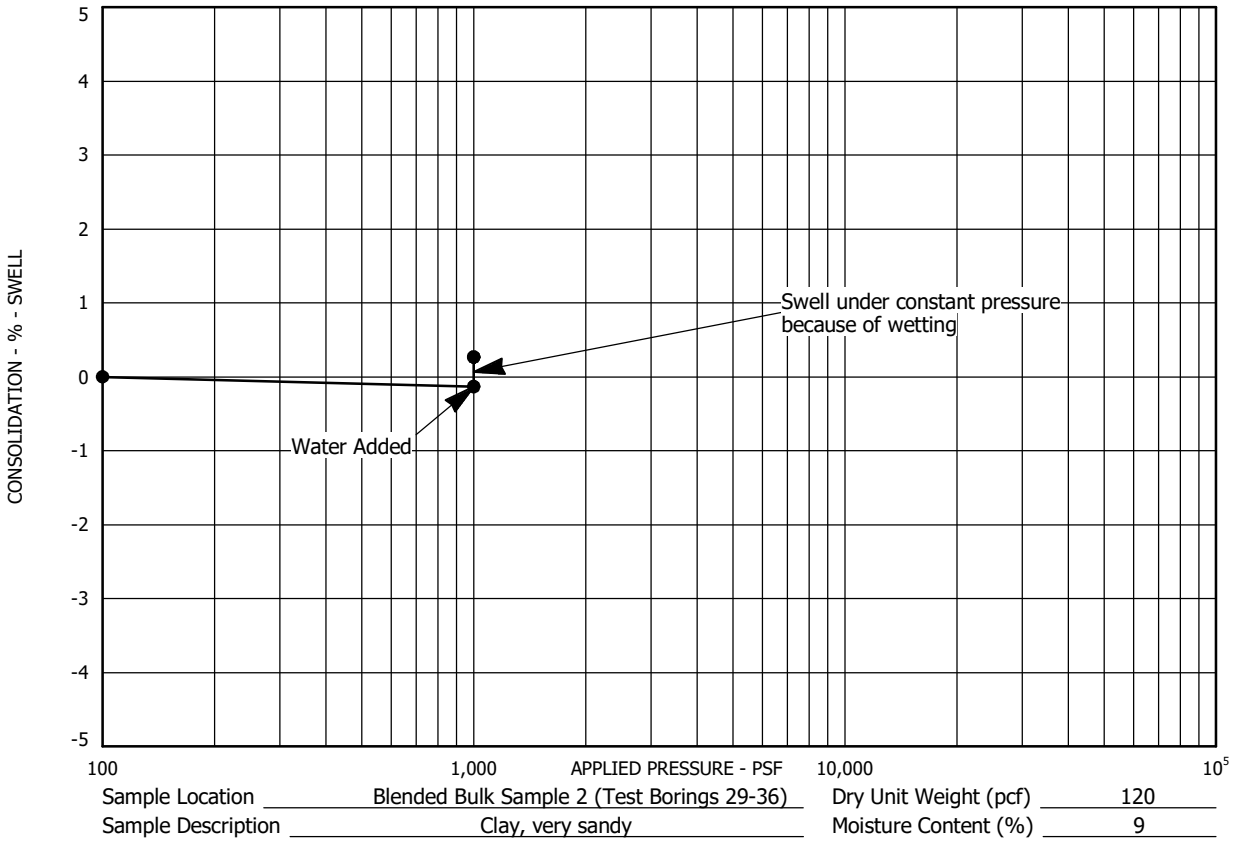


Sample Location: Blended Bulk Sample 1 (Test Borings 24-28)
Sample Description: Sand, very silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 11

SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-3

PROJECT NO. 195960



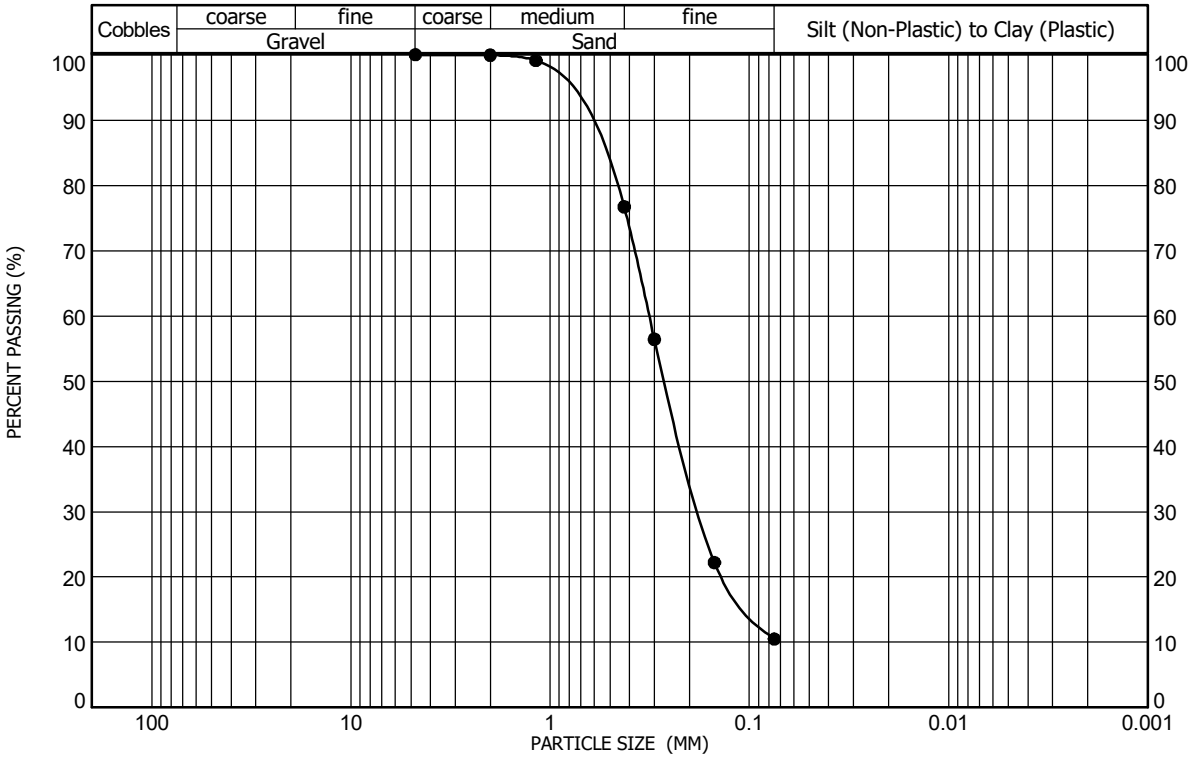
Sample Location	Blended Bulk Sample 2 (Test Borings 29-36)	Dry Unit Weight (pcf)	120
Sample Description	Clay, very sandy	Moisture Content (%)	9

SWELL - CONSOLIDATION TEST RESULTS

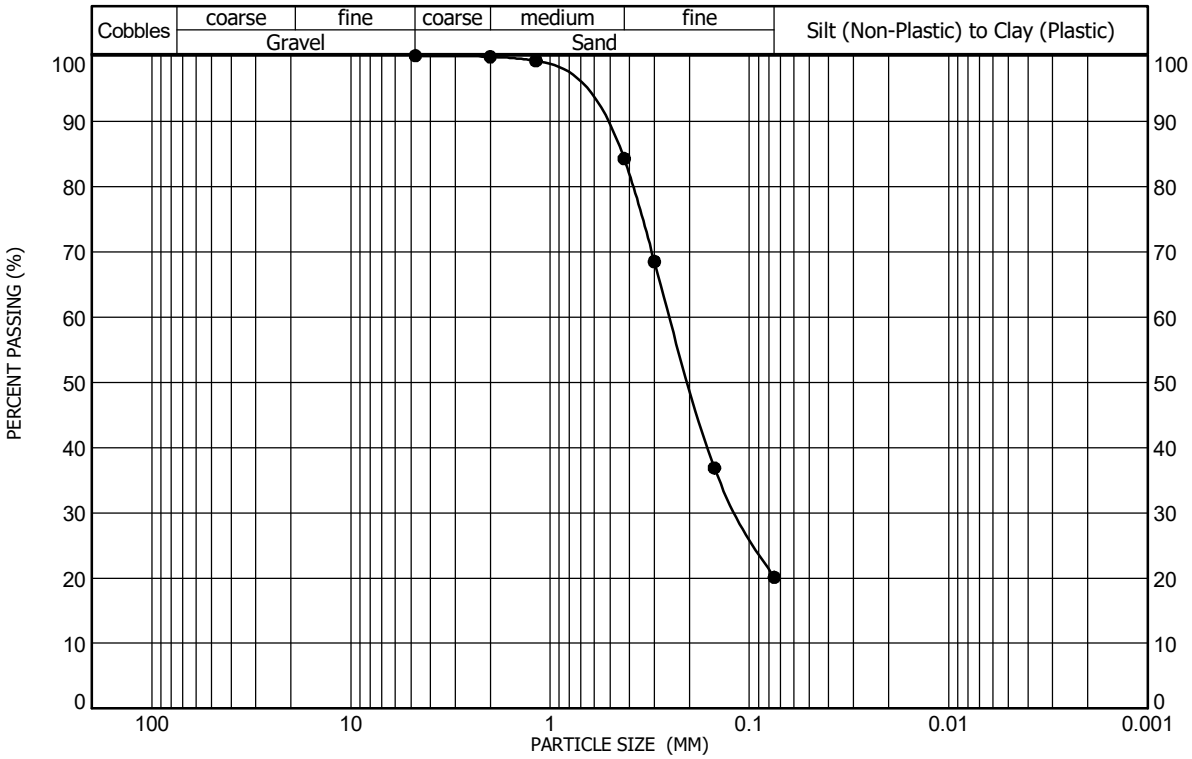
FIGURE A-4

PROJECT NO. 195960

AGW
A.G. WASSENAAR, INC.



Sample Location Test Boring No. 24 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, slightly silty — Sand (%) 90 — Plasticity Index NP
Classification A-3(0), POORLY GRADED SAND with SILT(SP-SM) — Clay/Silt (%) 10

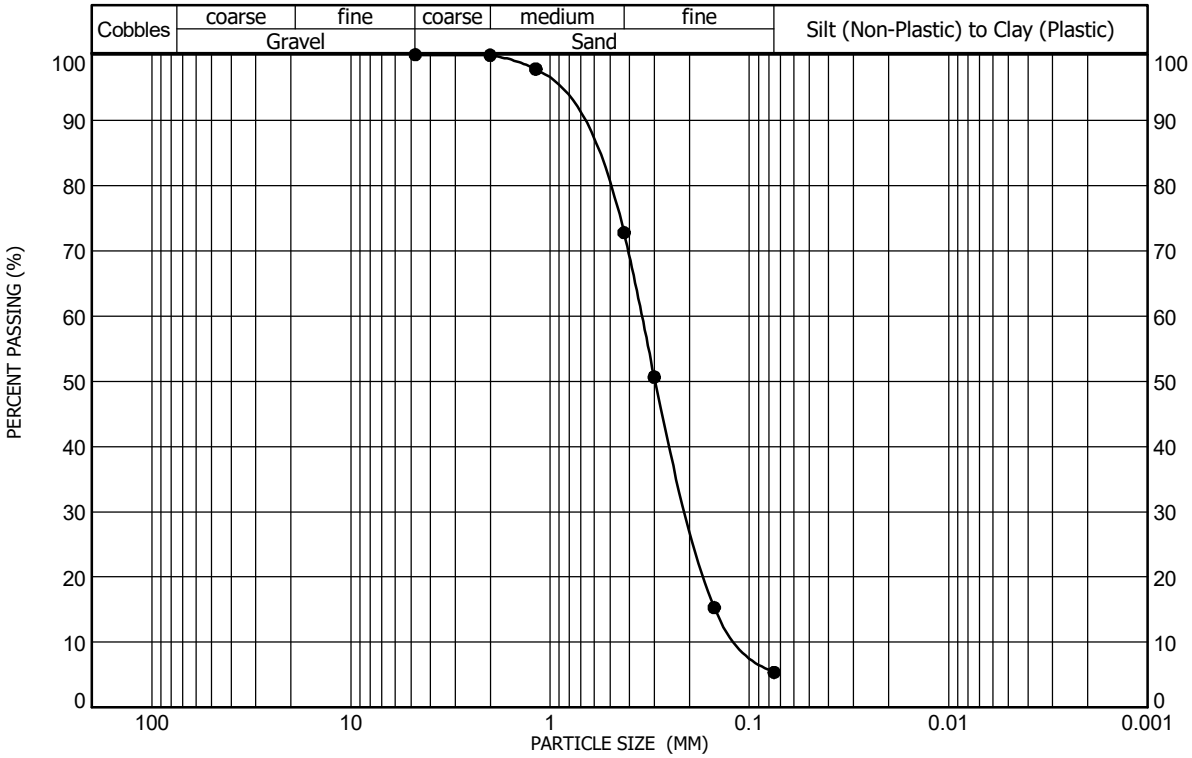


Sample Location Test Boring No. 25 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, silty — Sand (%) 80 — Plasticity Index NP
Classification A-2-4(0), SILTY SAND(SM) — Clay/Silt (%) 20

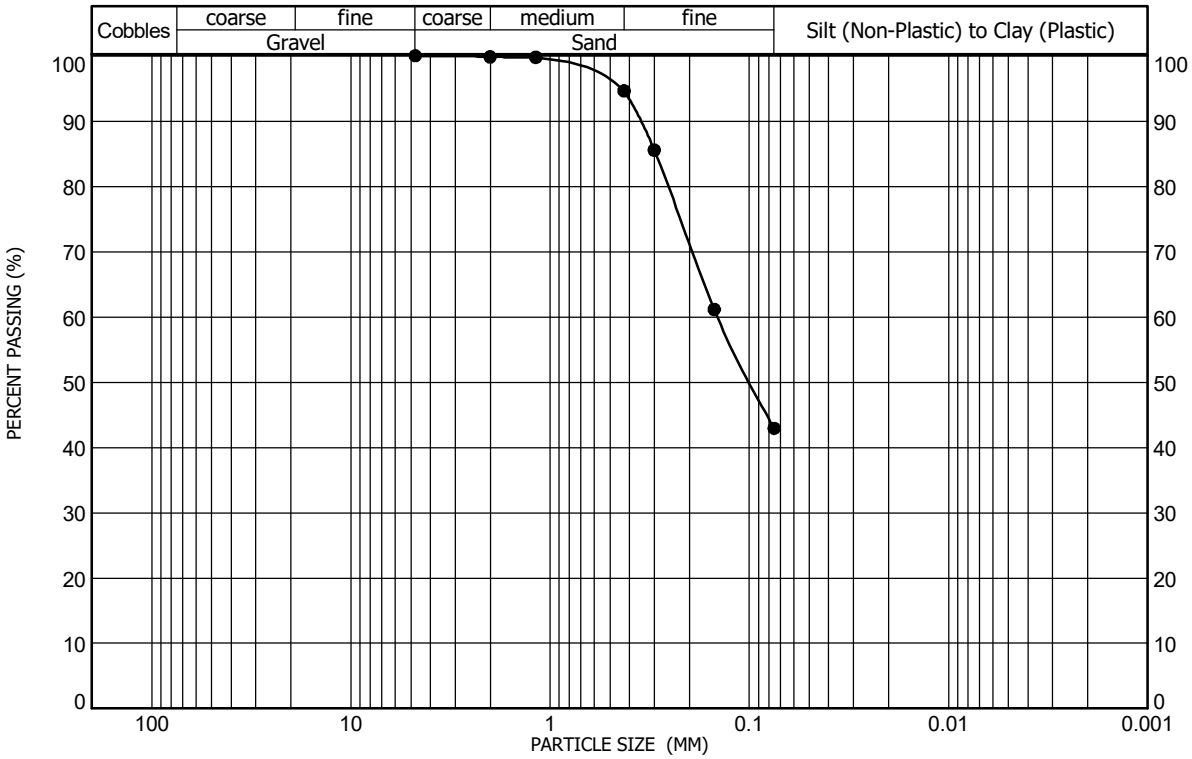
GRADATION AND ATTERBERG TEST RESULTS
FIGURE A-5

PROJECT NO. 195960

AGW
A.G. WASSENAAR, INC.



Sample Location Test Boring No. 26 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, slightly silty — Sand (%) 95 — Plasticity Index NP
Classification A-3(0), POORLY GRADED SAND with SILT(SP-SM) — Clay/Silt (%) 5

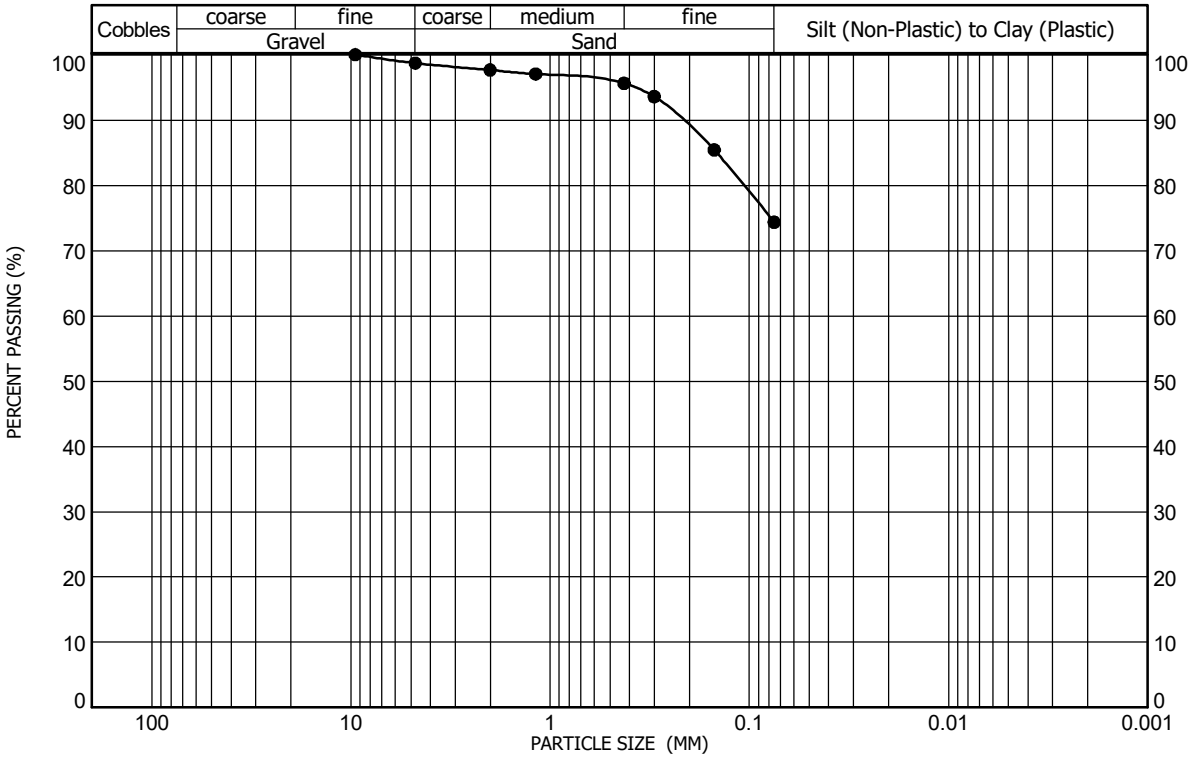


Sample Location Test Boring No. 27 at a depth of 9 feet — Gravel (%) 0 — Liquid Limit 22
Sample Description Sand, very silty to very clayey — Sand (%) 57 — Plasticity Index 5
Classification A-4(0), SILTY, CLAYEY SAND(SC-SM) — Clay/Silt (%) 43

GRADATION AND ATTERBERG TEST RESULTS
FIGURE A-6

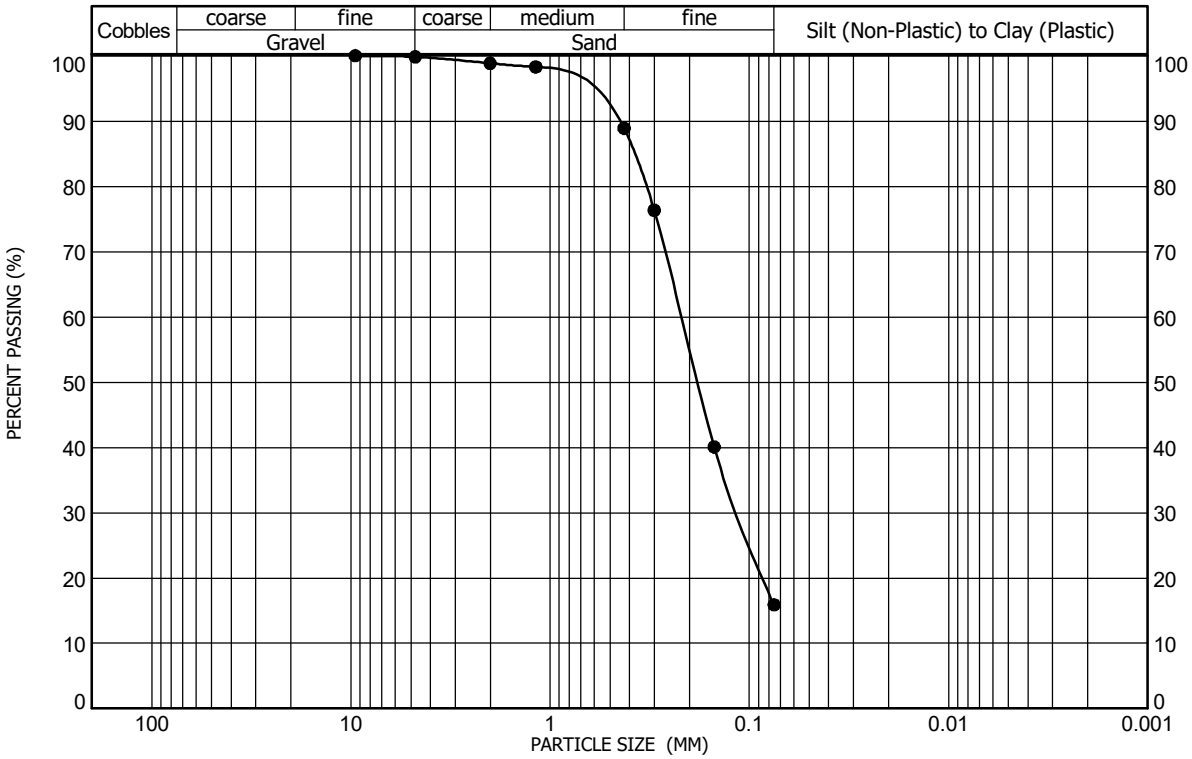
PROJECT NO. 195960

AGW
A.G. WASSENAAR, INC.



Sample Location Test Boring No. 28 at a depth of 4 feet
Sample Description Clay (Weathered claystone), sandy, trace gravel
Classification A-7-6(17), LEAN CLAY with SAND(CL)

Gravel (%) 1 Liquid Limit 43
Sand (%) 24 Plasticity Index 25
Clay/Silt (%) 74



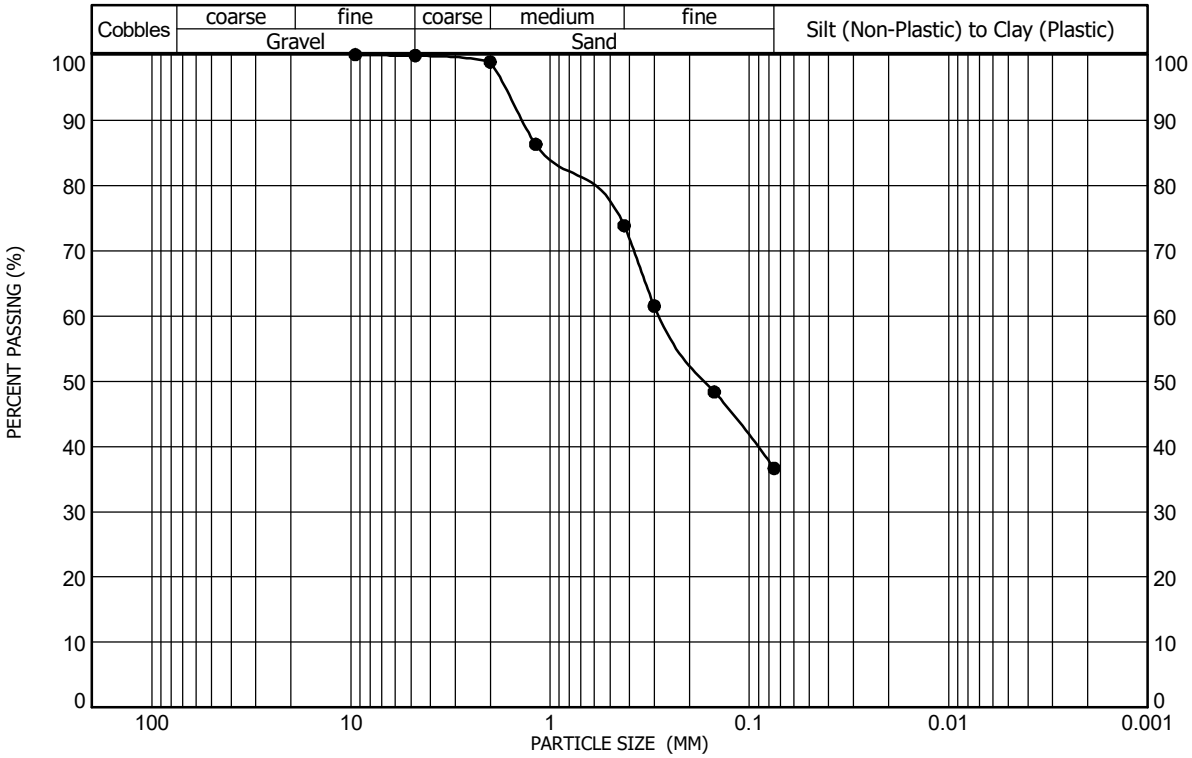
Sample Location Test Boring No. 30 at a depth of 9 feet
Sample Description Sand, silty
Classification A-2-4(0), SILTY SAND(SM)

Gravel (%) 0 Liquid Limit NV
Sand (%) 84 Plasticity Index NP
Clay/Silt (%) 16

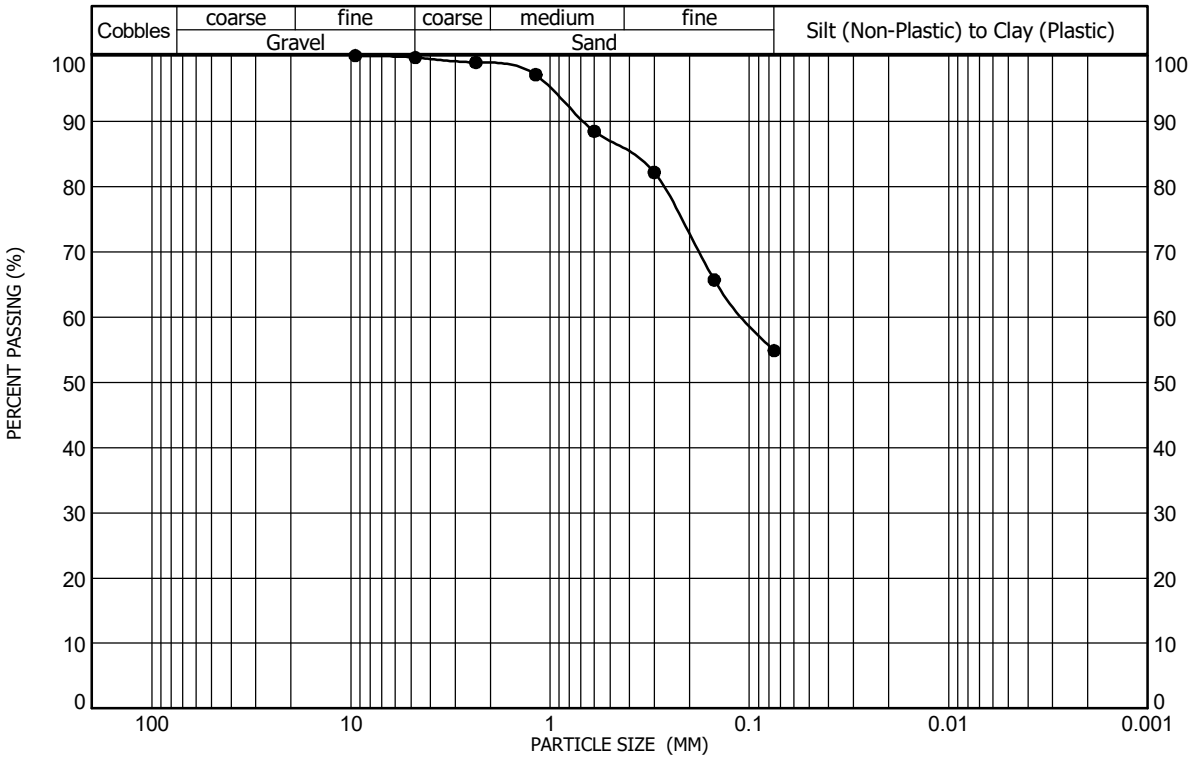
GRADATION AND ATTERBERG TEST RESULTS
FIGURE A-7

PROJECT NO. 195960

AGW
A.G. WASSENAAR, INC.



Sample Location: Blended Bulk Sample 1 (Test Borings 24-28) | Gravel (%): 0 | Liquid Limit: 20
Sample Description: Sand, very silty | Sand (%): 63 | Plasticity Index: 3
Classification: A-4(0), SILTY SAND(SM) | Clay/Silt (%): 37



Sample Location: Blended Bulk Sample 2 (Test Borings 29-36) | Gravel (%): 0 | Liquid Limit: 26
ample Description: Clay, very sandy | Sand (%): 45 | Plasticity Index: 8
Classification: A-4(2), SANDY LEAN CLAY(CL) | Clay/Silt (%): 55

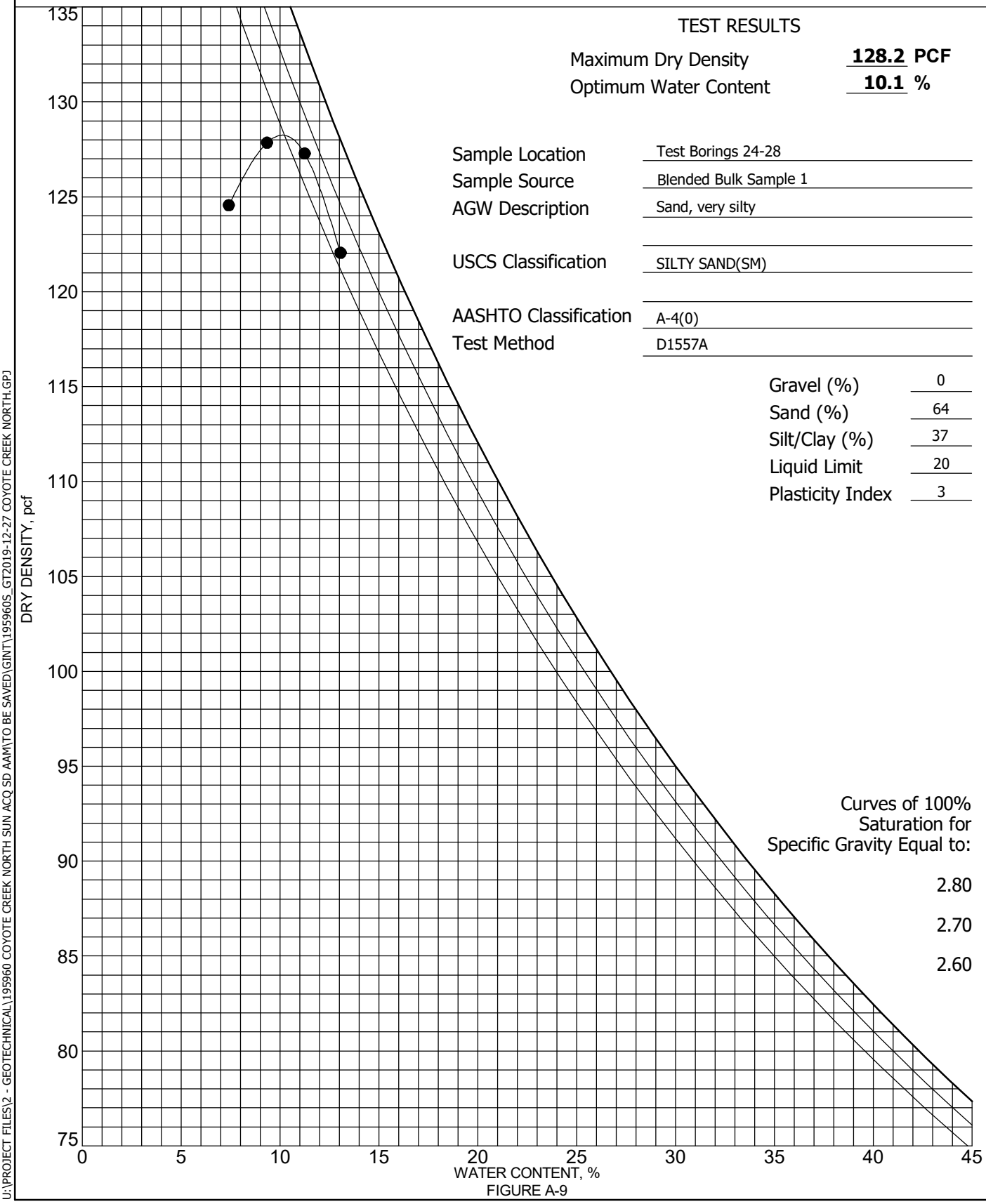
GRADATION AND ATTERBERG TEST RESULTS
FIGURE A-8

PROJECT NO. 195960

MOISTURE-DENSITY RELATIONSHIP

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC
PROJECT NAME Coyote Creek North
PROJECT NUMBER 195960
PROJECT LOCATION Fort Lupton, Colorado



TEST RESULTS

Maximum Dry Density	**128.2** PCF
Optimum Water Content	**10.1** %

Sample Location	Test Borings 24-28
Sample Source	Blended Bulk Sample 1
AGW Description	Sand, very silty
USCS Classification	SILTY SAND(SM)
AASHTO Classification	A-4(0)
Test Method	D1557A

Gravel (%)	0
Sand (%)	64
Silt/Clay (%)	37
Liquid Limit	20
Plasticity Index	3

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

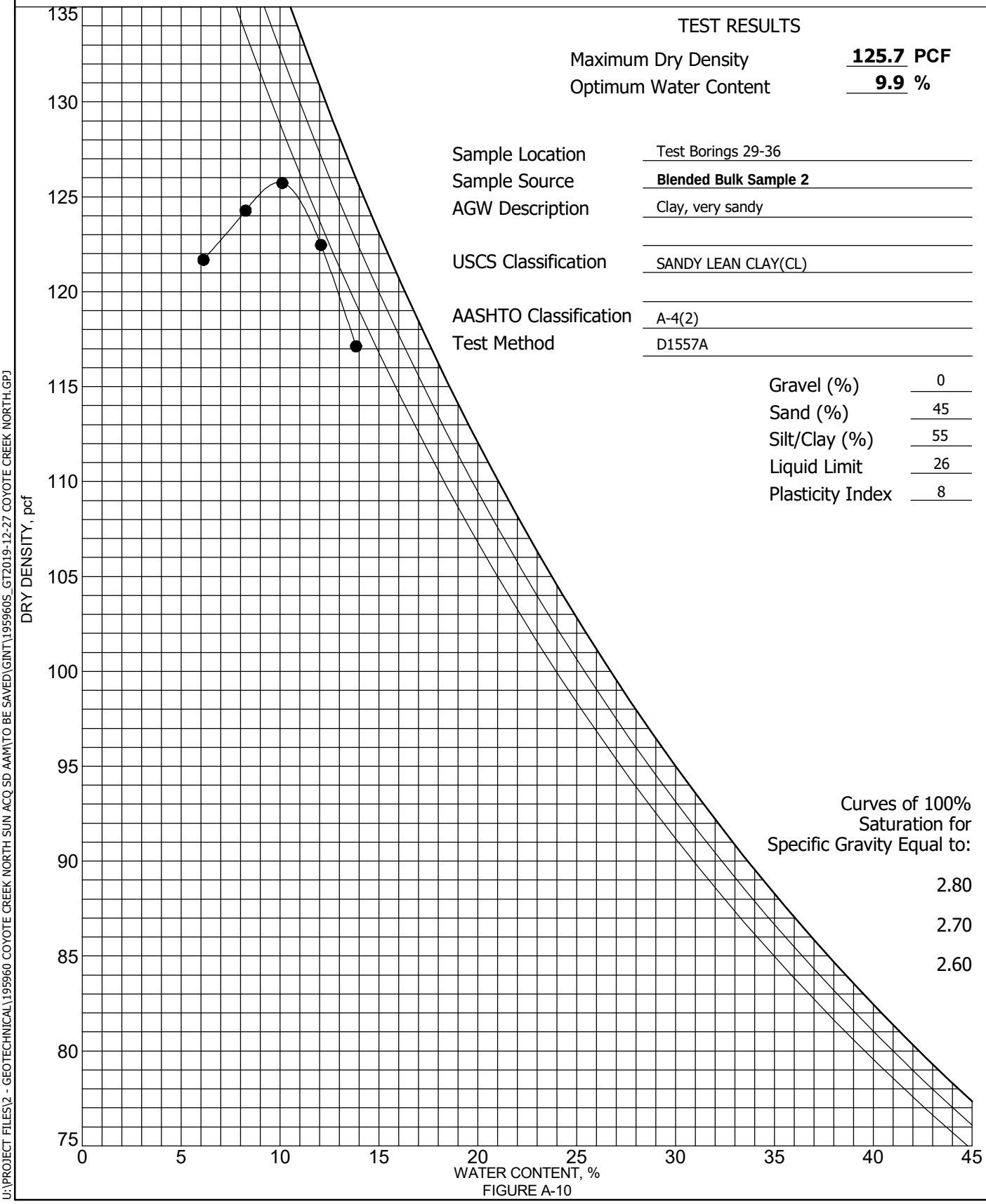
FIGURE A-9

U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

MOISTURE-DENSITY RELATIONSHIP

AGW
A.G. WASSENAAR, INC.

CLIENT Sun ACQ, LLC
PROJECT NAME Coyote Creek North
PROJECT NUMBER 195960
PROJECT LOCATION Fort Lupton, Colorado



TEST RESULTS

Maximum Dry Density	**125.7** PCF
Optimum Water Content	**9.9** %

Sample Location	Test Borings 29-36
Sample Source	**Blended Bulk Sample 2**
AGW Description	Clay, very sandy
USCS Classification	SANDY LEAN CLAY(CL)
AASHTO Classification	A-4(2)
Test Method	D1557A

Gravel (%)	0
Sand (%)	45
Silt/Clay (%)	55
Liquid Limit	26
Plasticity Index	8

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

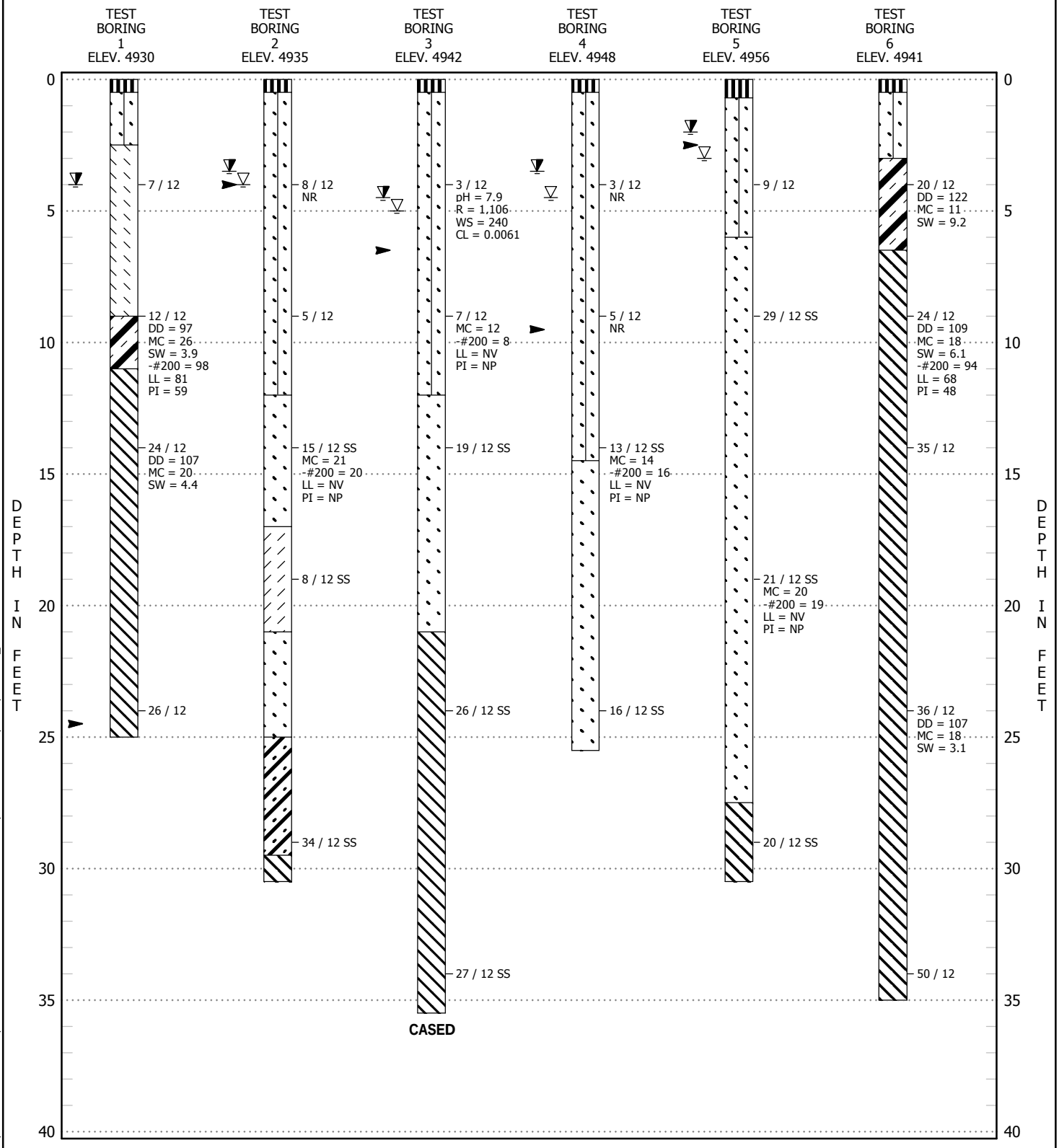
FIGURE A-10

U:\PROJECT FILES\2 - GEOTECHNICAL\195960 COYOTE CREEK NORTH SUN ACQ SD AAM\TO BE SAVED\GINT\195960S_GT2019-12-27 COYOTE CREEK NORTH.GPJ

APPENDIX B
FIELD AND LABORATORY DATA FROM PREVIOUS REPORT

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

CLIENT Coyote Creek North, LLC
PROJECT NAME Coyote Creek North
PROJECT NUMBER 174095
PROJECT LOCATION Fort Lupton, Colorado



SEE FIGURE 6 FOR LEGEND AND NOTES TO TEST BORINGS

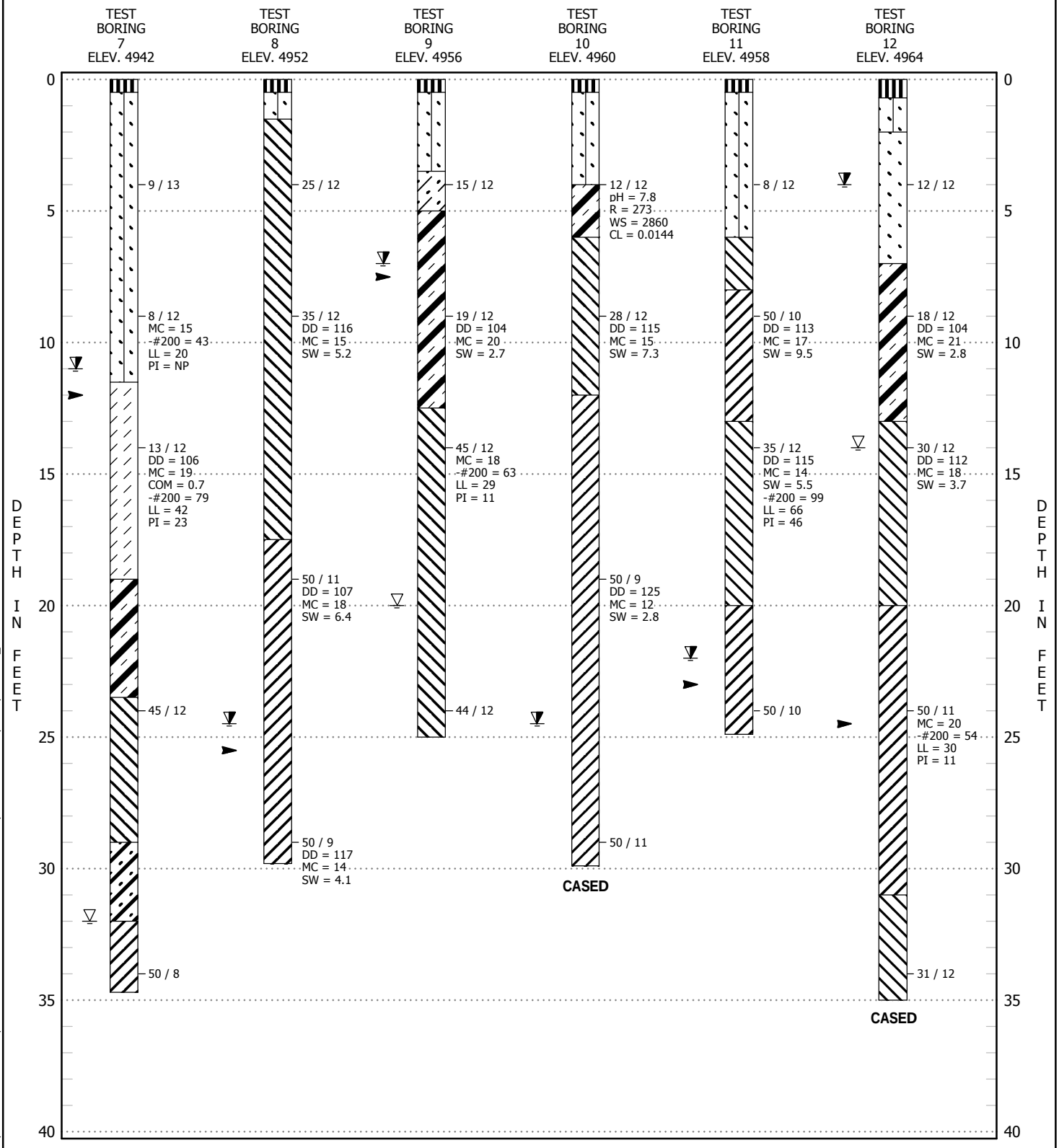
TEST BORING LOGS
FIGURE 2

U:\PROJECT FILES\2 - GEOTECHNICAL\174095 COYOTE CREEK NORTH SD AAM\GEOTECHNICAL\GINT\174095S_GT2018-01-12 COYOTE CREEK NORTH SD.GPJ

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

CLIENT Coyote Creek North, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 174095 **PROJECT LOCATION** Fort Lupton, Colorado



SEE FIGURE 6 FOR LEGEND AND NOTES TO TEST BORINGS

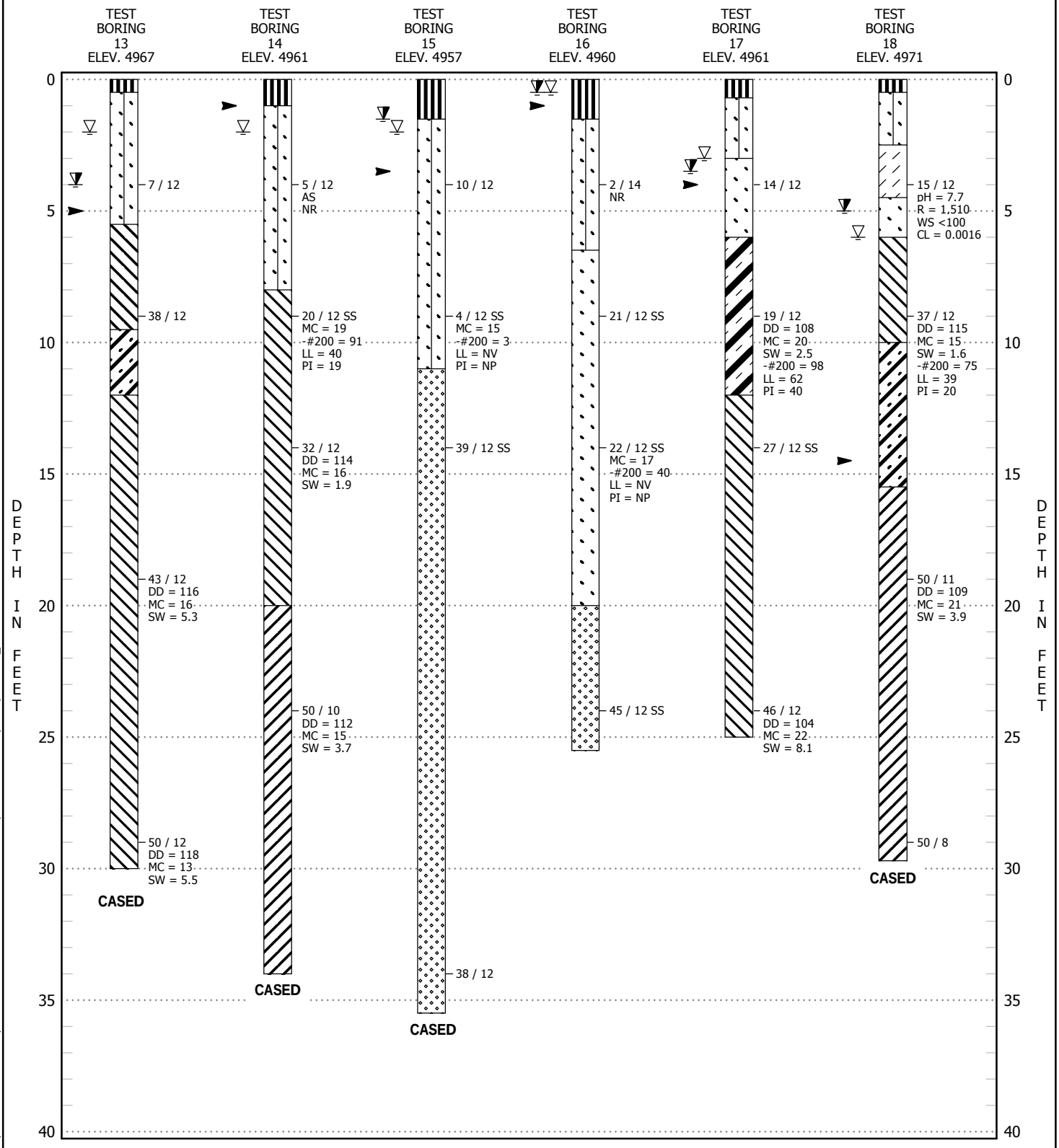
TEST BORING LOGS

FIGURE 3

U:\PROJECT FILES\2 - GEOTECHNICAL\174095 COYOTE CREEK NORTH SD AAM\GEOTECHNICAL\GINT\174095S_GT2018-01-12 COYOTE CREEK NORTH SD.GPJ

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

CLIENT Coyote Creek North, LLC
PROJECT NAME Coyote Creek North
PROJECT NUMBER 174095
PROJECT LOCATION Fort Lupton, Colorado



SEE FIGURE 6 FOR LEGEND AND NOTES TO TEST BORINGS

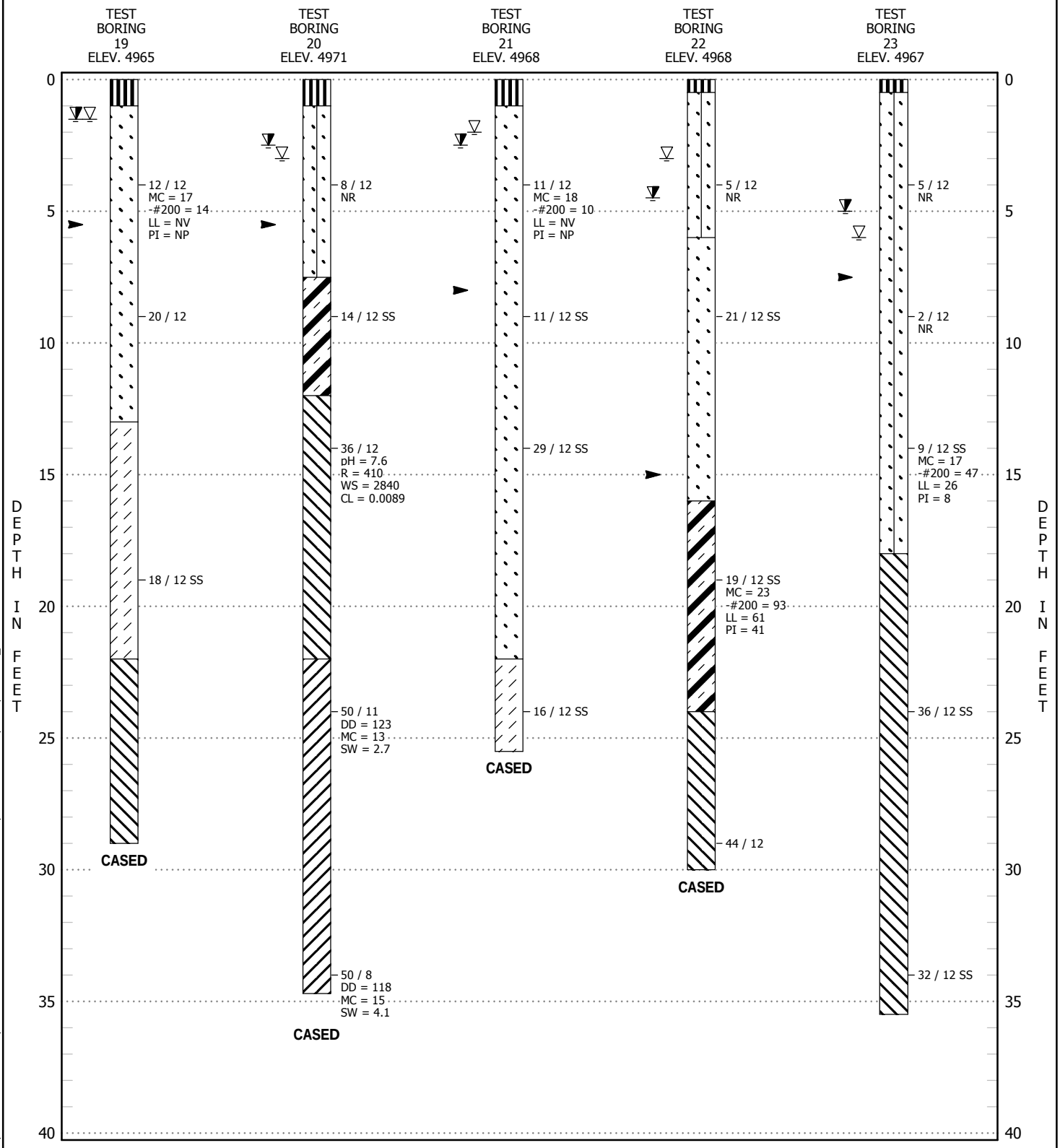
TEST BORING LOGS
FIGURE 4

U:\PROJECT FILES\2 - GEOTECHNICAL\174095 COYOTE CREEK NORTH SD AAM\GEOTECHNICAL\GINT\174095S_GT2018-01-12 COYOTE CREEK NORTH SD.GPJ

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

CLIENT Coyote Creek North, LLC **PROJECT NAME** Coyote Creek North

PROJECT NUMBER 174095 **PROJECT LOCATION** Fort Lupton, Colorado



SEE FIGURE 6 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

FIGURE 5

U:\PROJECT FILES\2 - GEOTECHNICAL\174095 COYOTE CREEK NORTH SD AAM\GEOTECHNICAL\GINT\174095S_GT2018-01-12 COYOTE CREEK NORTH SD.GPJ

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

CLIENT Coyote Creek North, LLC
PROJECT NAME Coyote Creek North
PROJECT NUMBER 174095
PROJECT LOCATION Fort Lupton, Colorado

SOIL DESCRIPTIONS


Topsoil, clay, sandy, organic


Clay, medium stiff


Clay, stiff to very stiff


Sand, loose


Sand, medium dense, silty


Sand, medium dense, silty, clayey


Sand, dense to very dense, silty


Clay (weathered claystone), medium stiff to stiff


Claystone (Bedrock), firm to medium hard


Claystone (Bedrock), hard to very hard


Sandstone (Bedrock), hard to very hard

ABBREVIATIONS

DD	Dry density of sample in pounds per cubic foot (pcf)
MC	Moisture content as a percentage of dry weight of soil (%)
SW	Percent swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Percent compression under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
UC	Unconfined compressive strength in pounds per square foot (psf)
-#200	Percent passing the Number 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
NV	No Value
pH	Acidity or alkalinity of sample in pH units
R	Resistivity in ohms.cm
WS	Water soluble sufates in parts per million (ppm)
CL	Chlorides in percent (%)
x/y	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler Y inches
x/y SS	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler Y inches
C-x	Depth of cut to grade (rounded to the nearest foot)
F-x	Depth of fill to grade (rounded to the nearest foot)
FG	Finished grade (rounded to the nearest foot)
NR	No sample recovered
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample


Moderately to well cemented layer

Approximate depth of cut


Depth at which practical drilling refusal was encountered


Water level at time of drilling

Caved depth at time of drilling


Water level 19 to 43 days after drilling

Caved depth 19 to 43 days after drilling

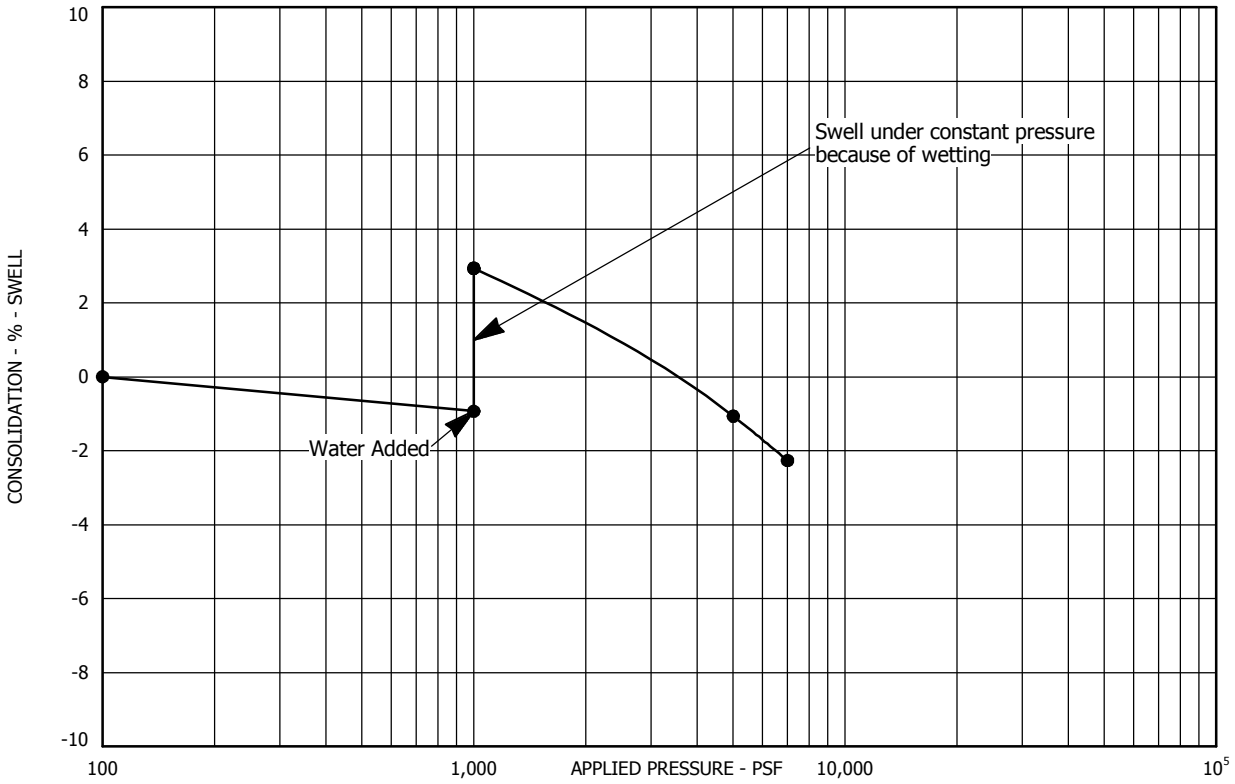
Notes:

1. Test borings were drilled November 21, 2017 to December 15, 2017.
2. Location of the test borings were staked by others at locations chosen by this firm.
3. The horizontal lines shown on the logs are to differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations were obtained from staking provided by others and have been rounded to the nearest foot.
5. Boring logs shown in this report are subject to the limitations, explanations, and conclusions of this report.

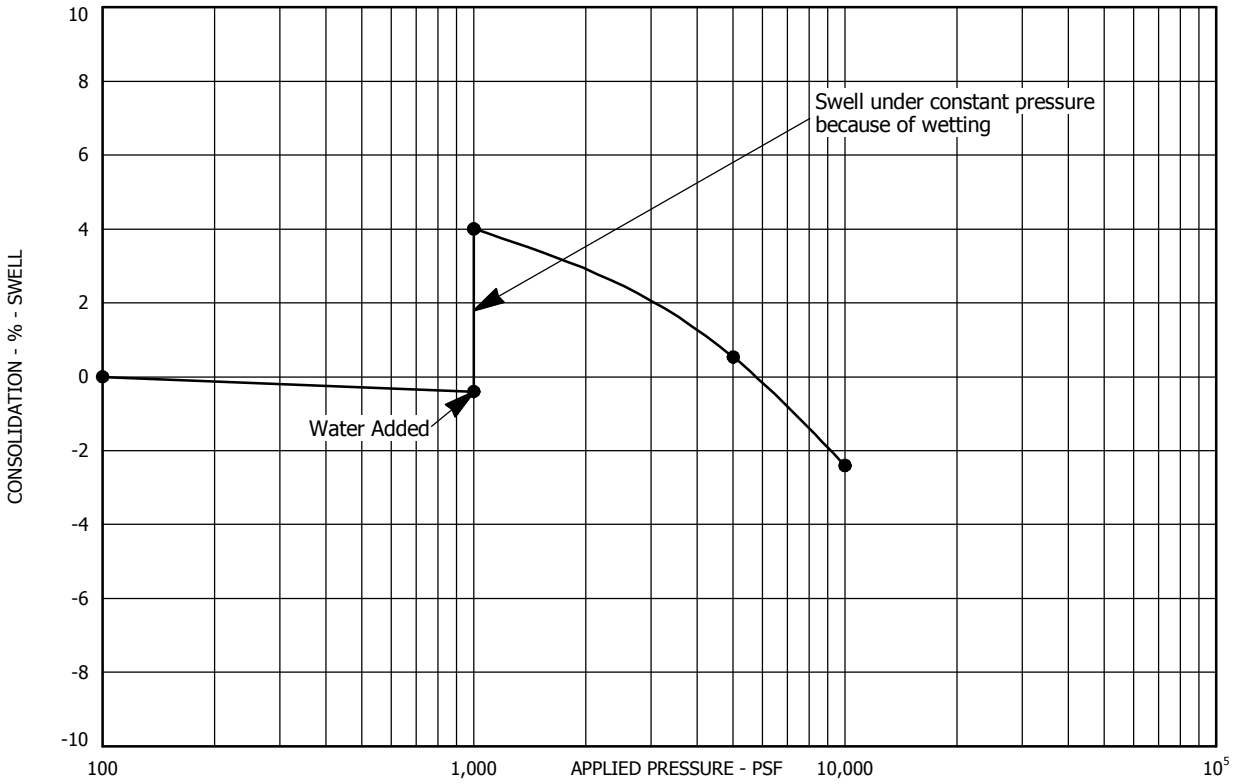
LEGEND AND NOTES
FIGURE 6

U:\PROJECT FILES\2 - GEOTECHNICAL\174095 COYOTE CREEK NORTH SD AAM\GEOTECHNICAL\GINT\174095S_GT2018-01-12 COYOTE CREEK NORTH SD.GPJ

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



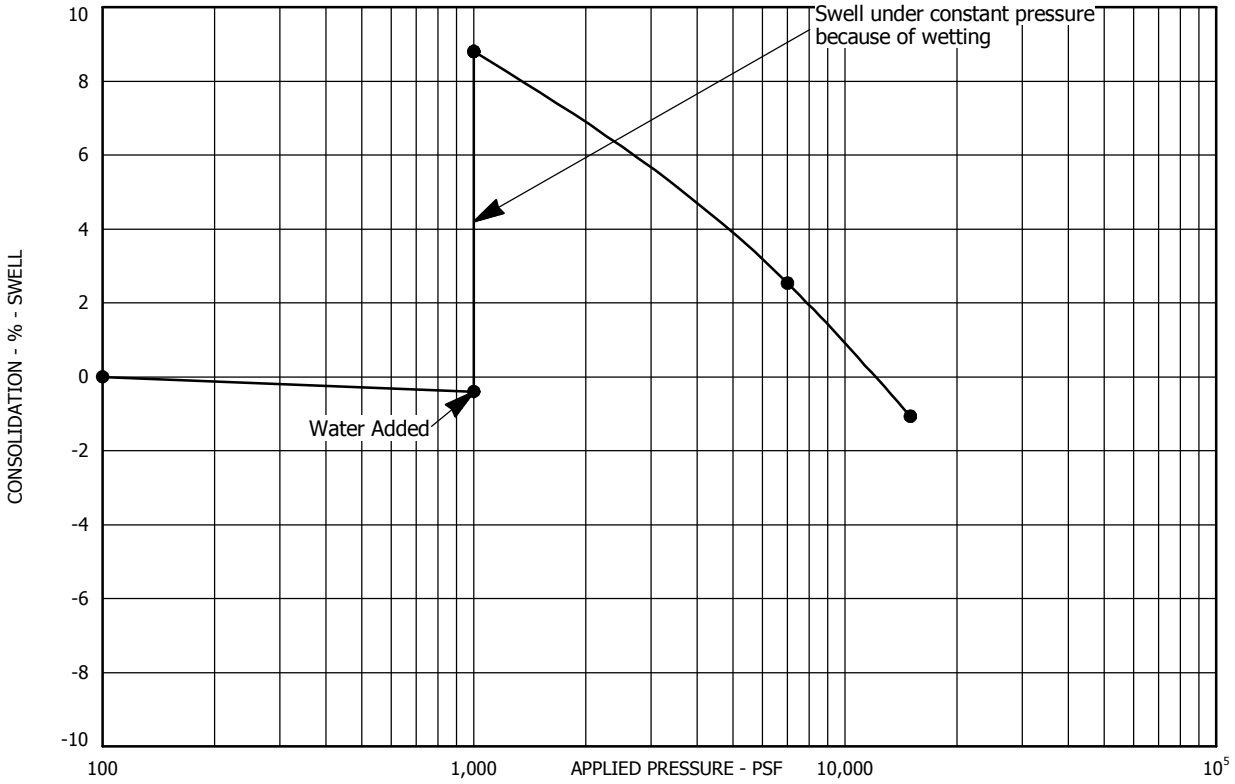
Sample Location: Test Boring No. 1 at a depth of 9 feet
Sample Description: Clay (weathered claystone), trace sand
Dry Unit Weight (pcf): 97
Moisture Content (%): 26



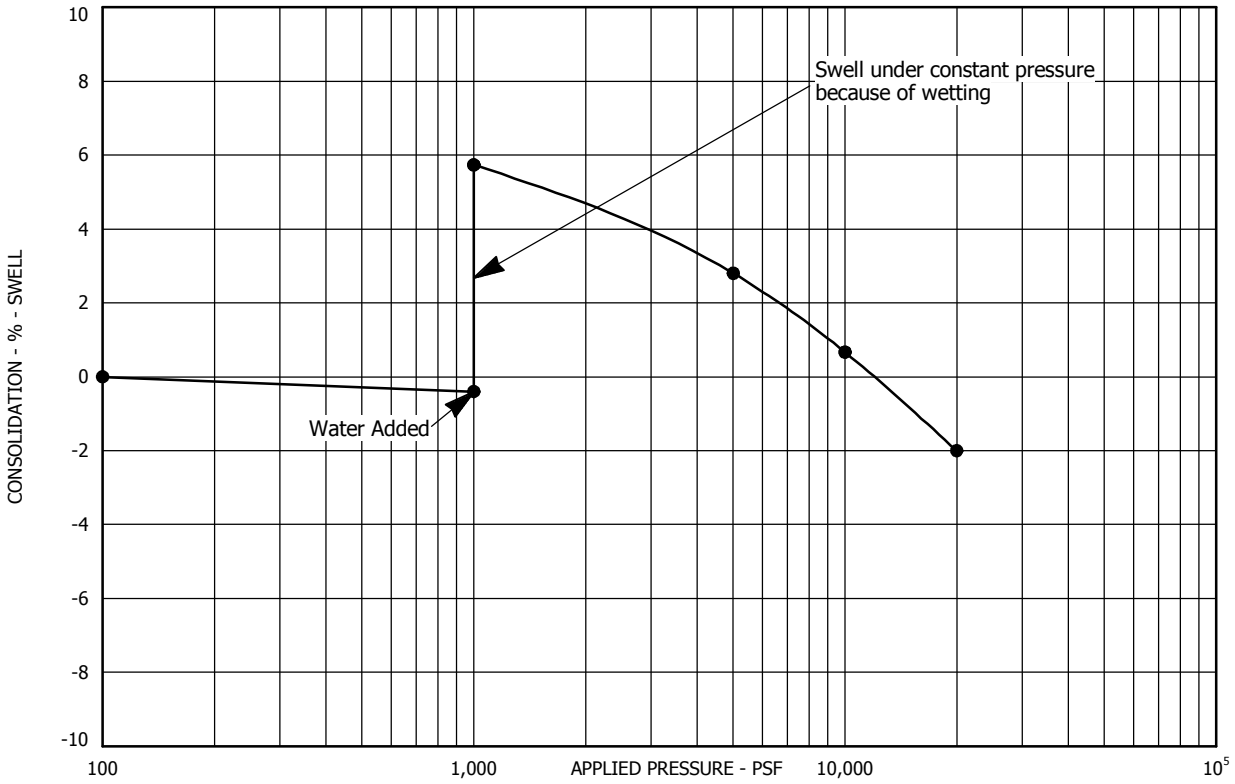
Sample Location: Test Boring No. 1 at a depth of 14 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 107
Moisture Content (%): 20

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 7
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

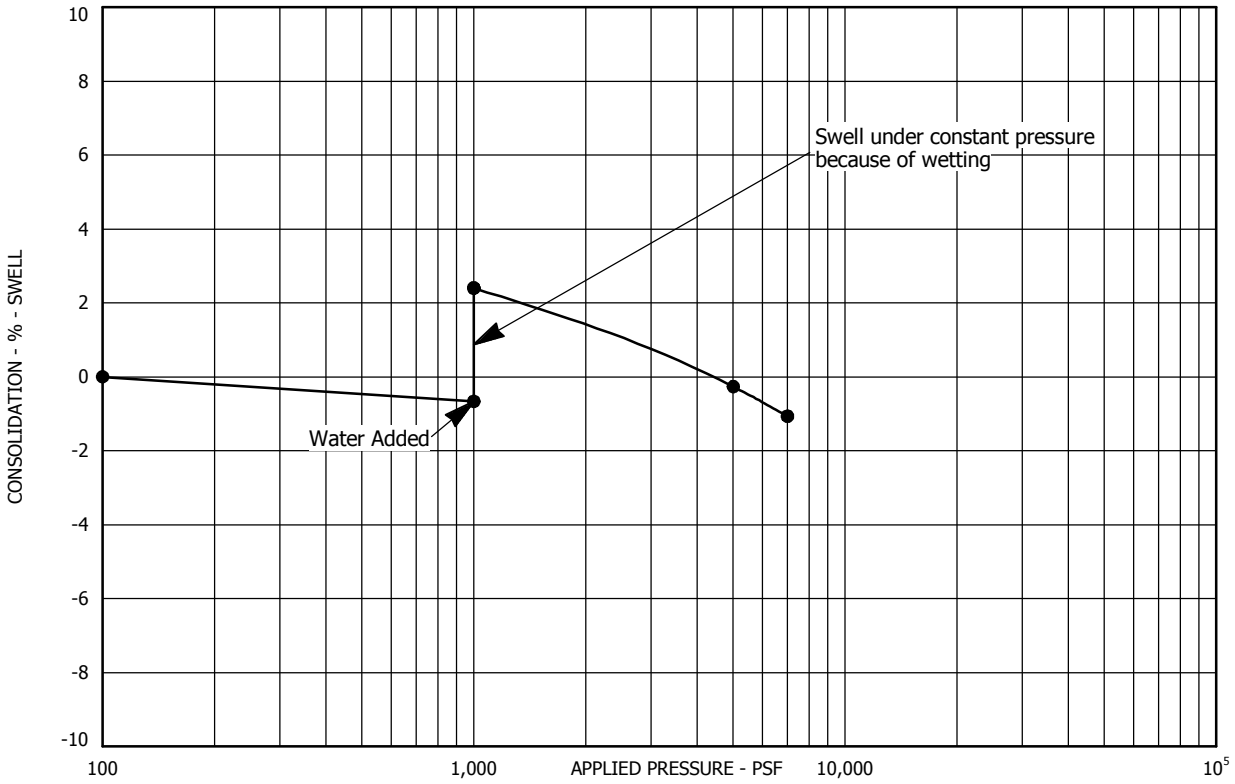


Sample Location: Test Boring No. 6 at a depth of 4 feet
Sample Description: Clay (weathered claystone), sandy
Dry Unit Weight (pcf): 122
Moisture Content (%): 11

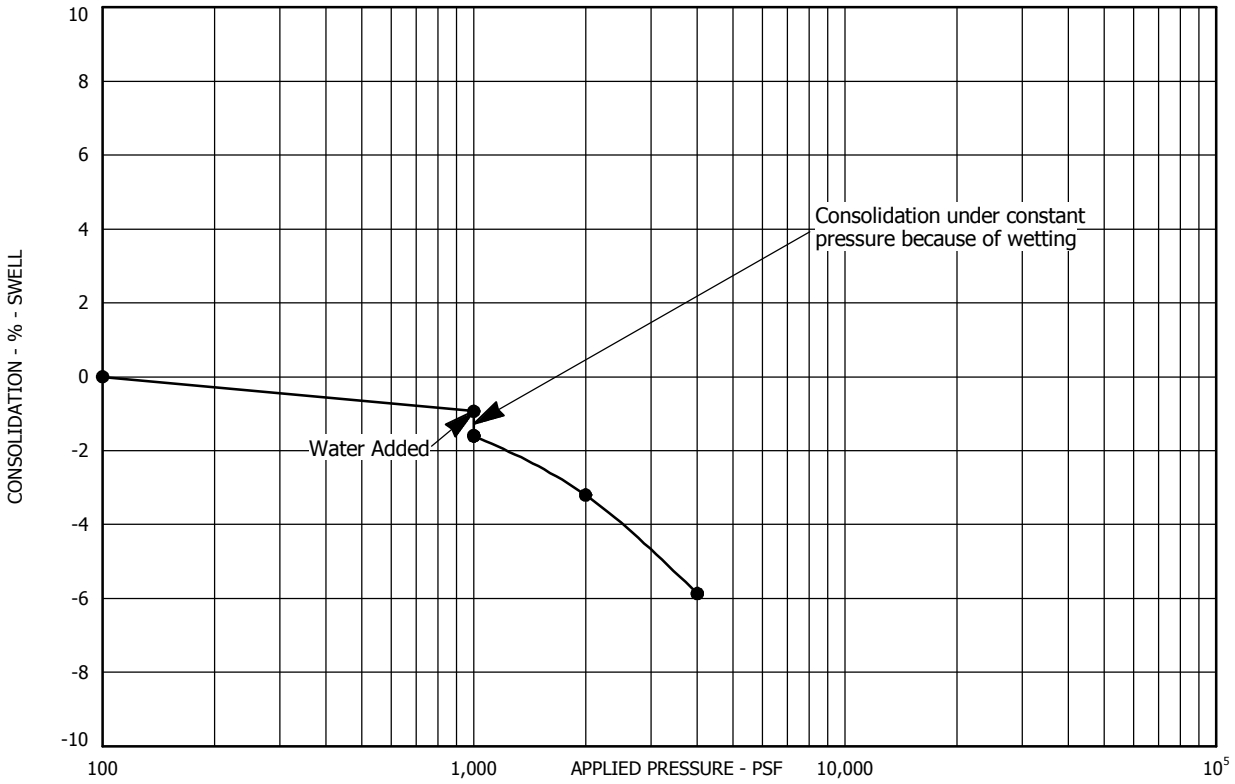


Sample Location: Test Boring No. 6 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 109
Moisture Content (%): 18

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 8
PROJECT NO. 174095



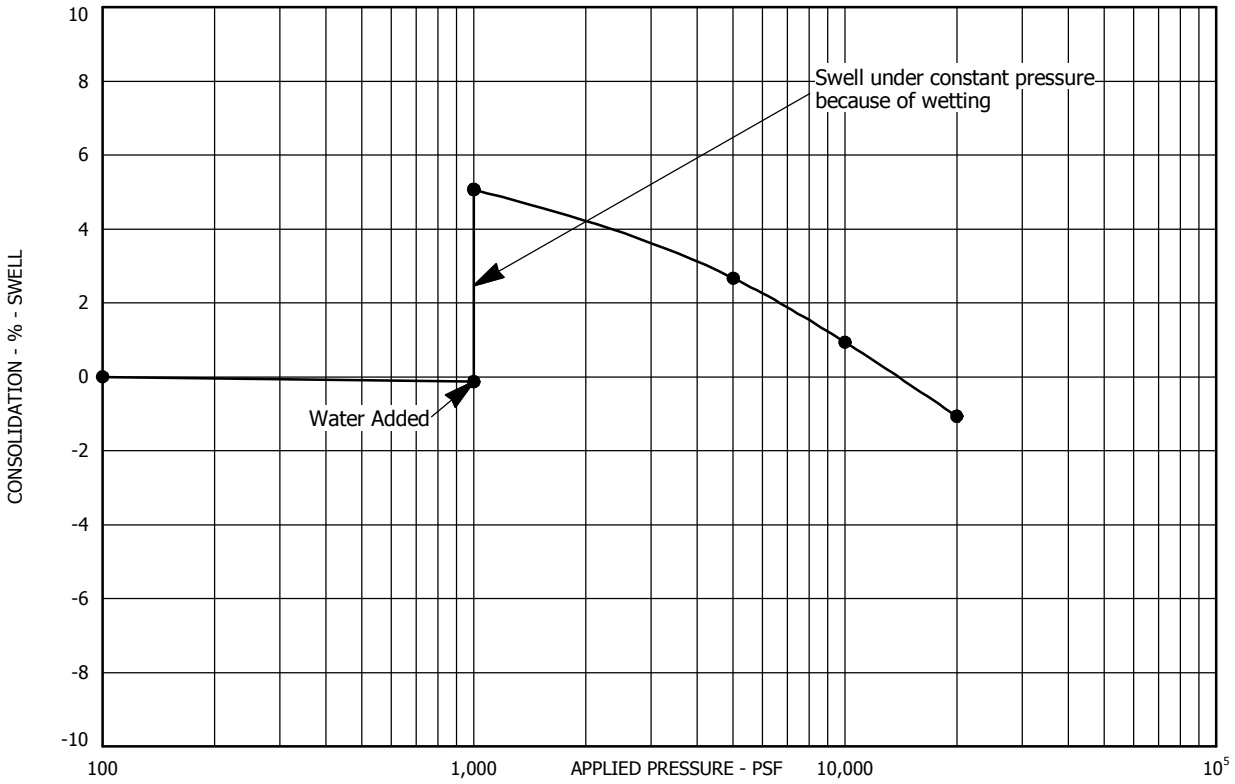
Sample Location: Test Boring No. 6 at a depth of 24 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 107
Moisture Content (%): 18



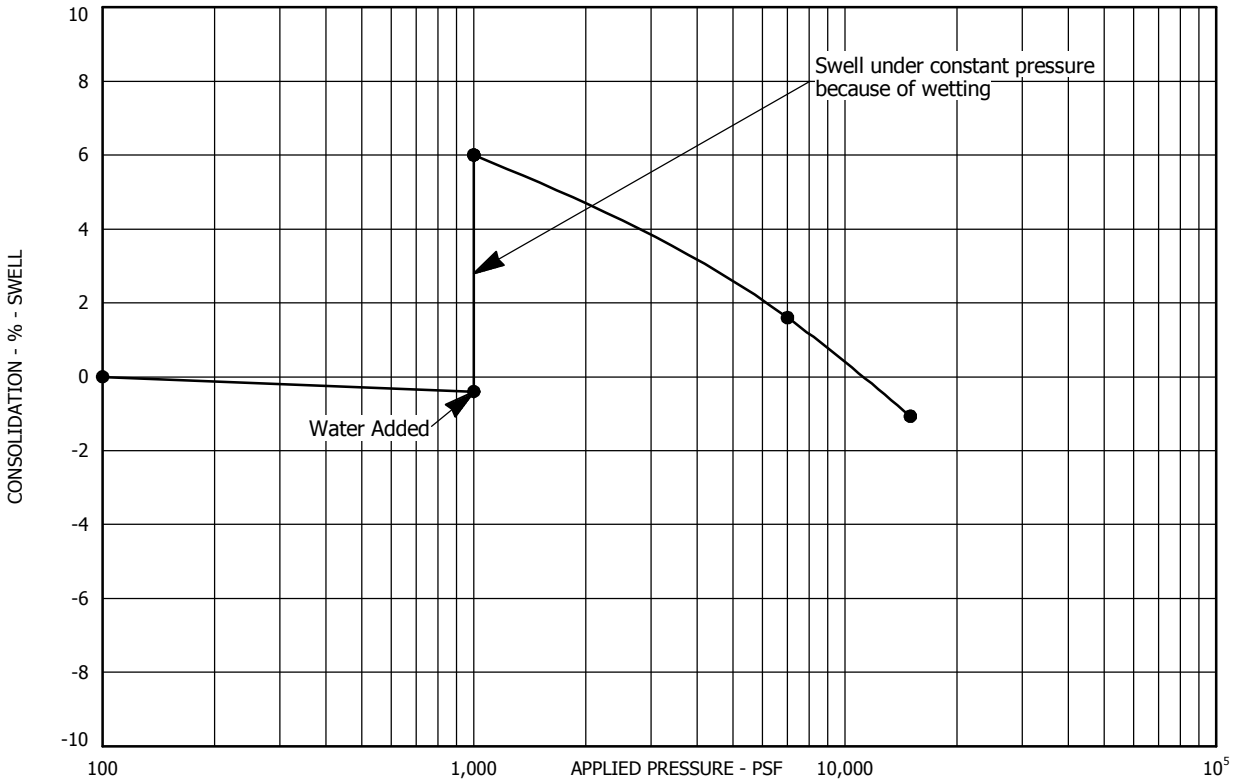
Sample Location: Test Boring No. 7 at a depth of 14 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 106
Moisture Content (%): 19

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 9
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

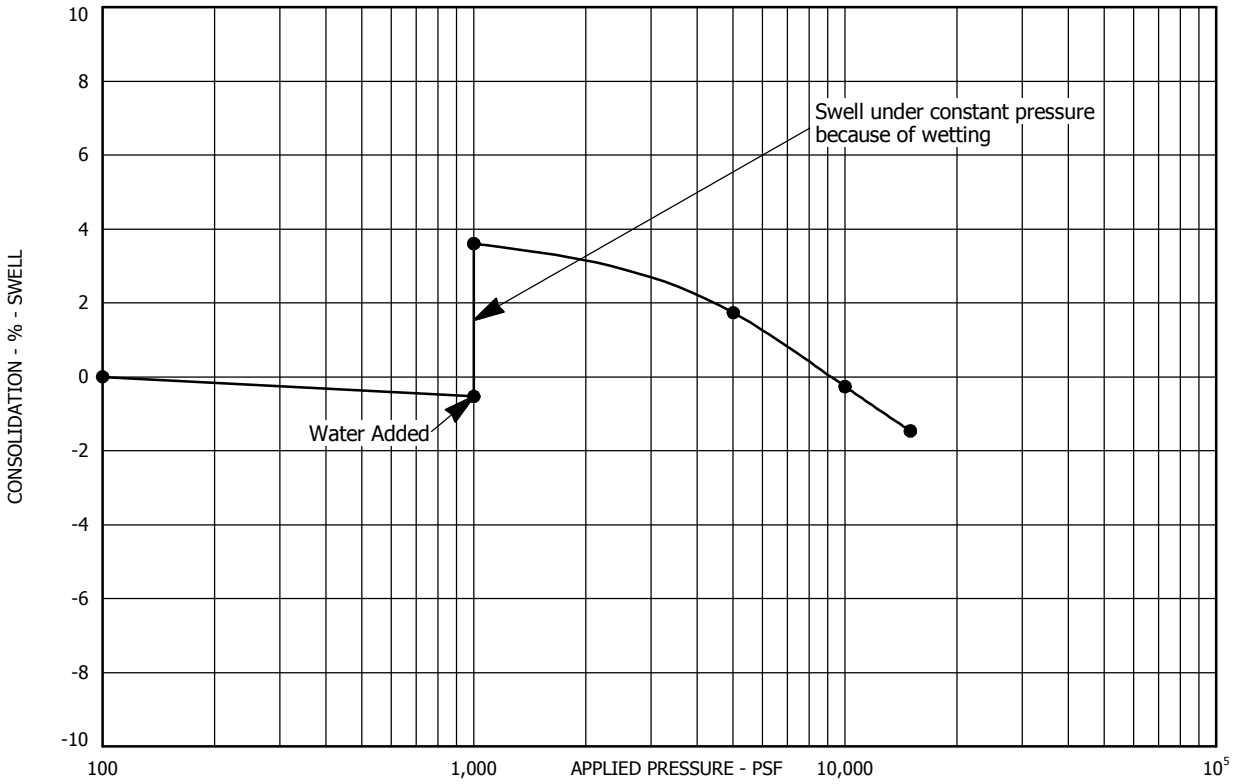


Sample Location: Test Boring No. 8 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 116
Moisture Content (%): 15

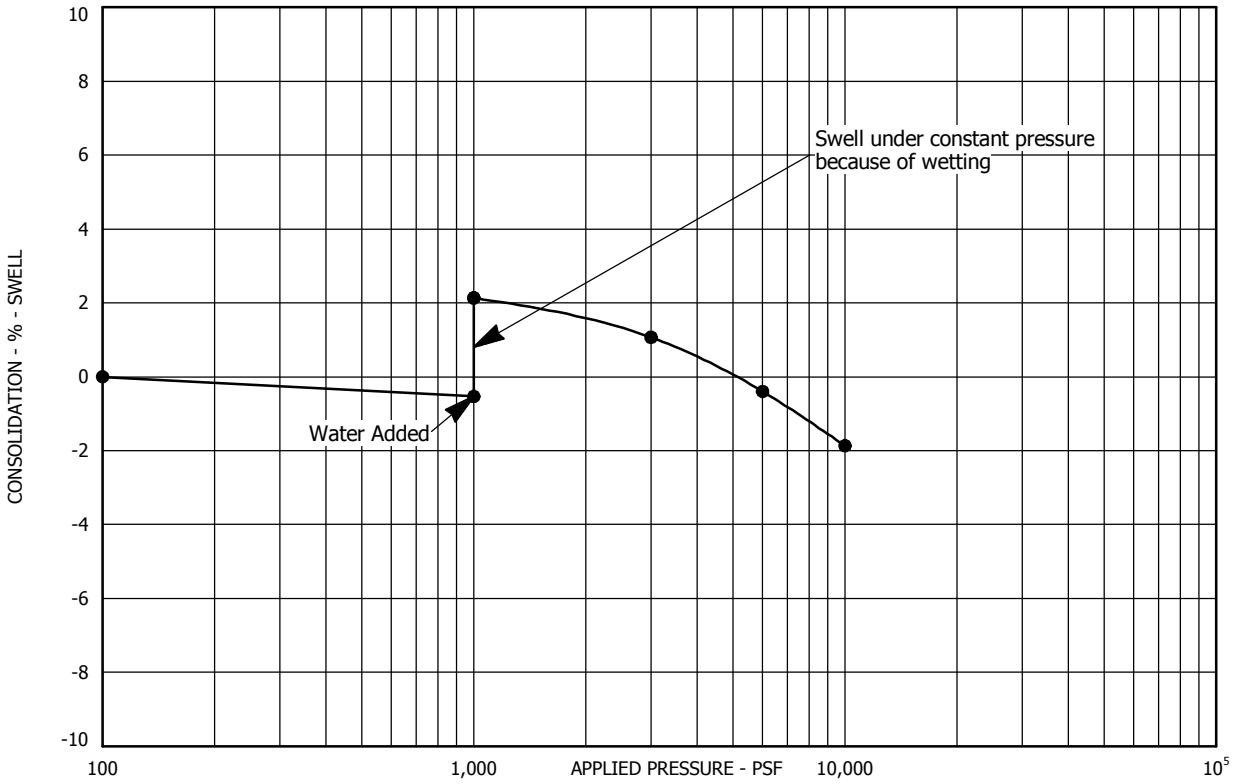


Sample Location: Test Boring No. 8 at a depth of 19 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 107
Moisture Content (%): 18

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 10
PROJECT NO. 174095

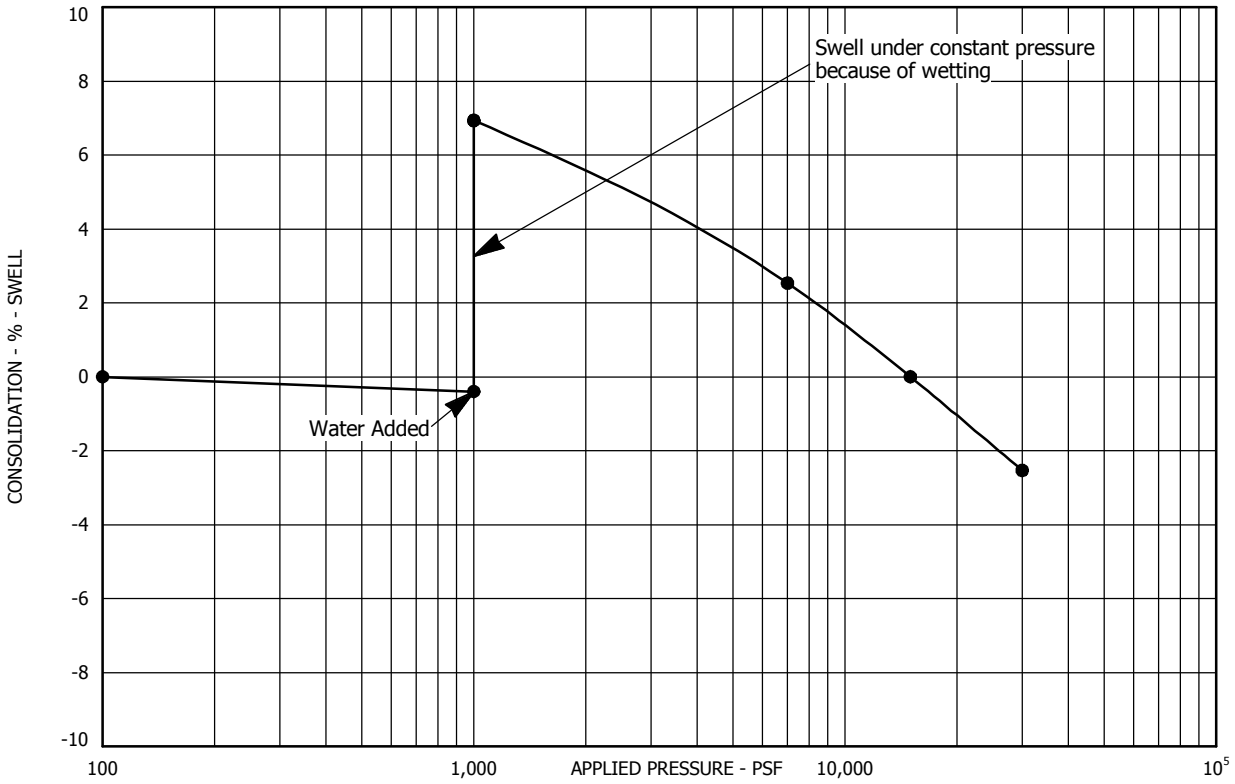


Sample Location: Test Boring No. 8 at a depth of 29 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 117
Moisture Content (%): 14

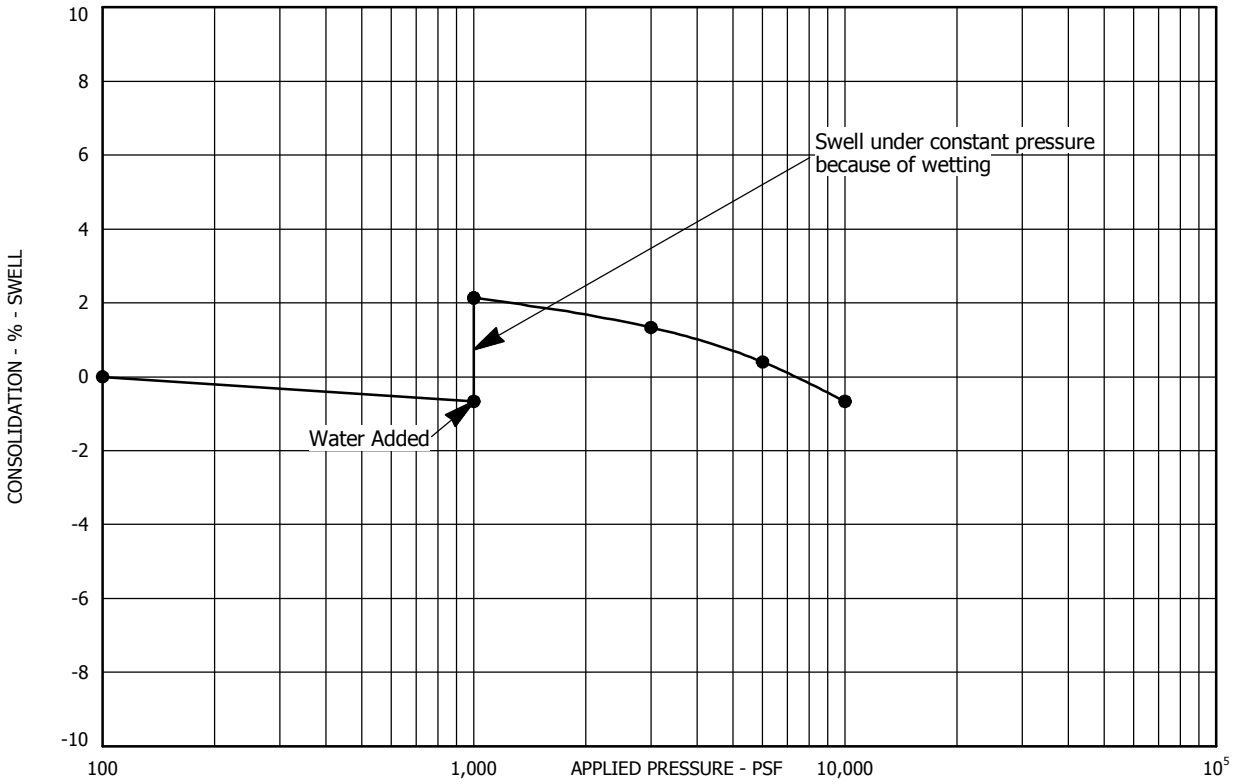


Sample Location: Test Boring No. 9 at a depth of 9 feet
Sample Description: Clay (weathered claystone), slightly sandy
Dry Unit Weight (pcf): 104
Moisture Content (%): 20

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 11
PROJECT NO. 174095



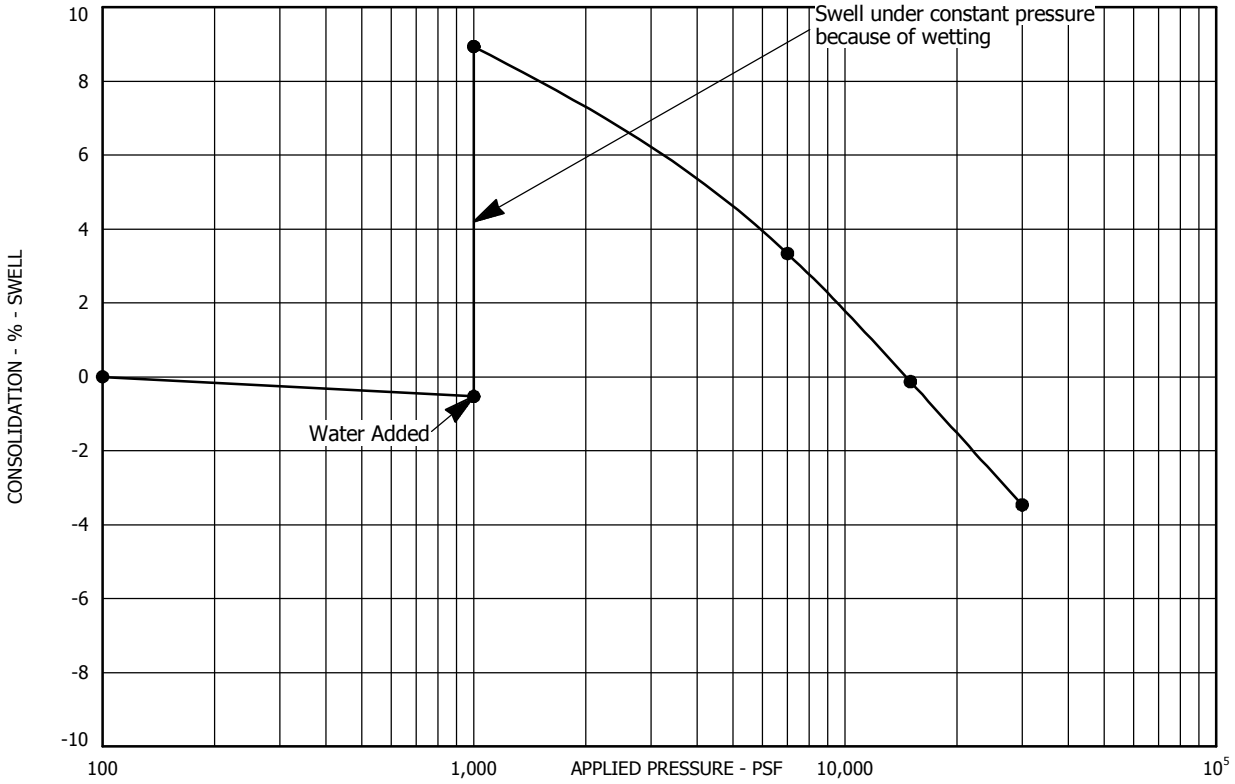
Sample Location: Test Boring No. 10 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 115
Moisture Content (%): 15



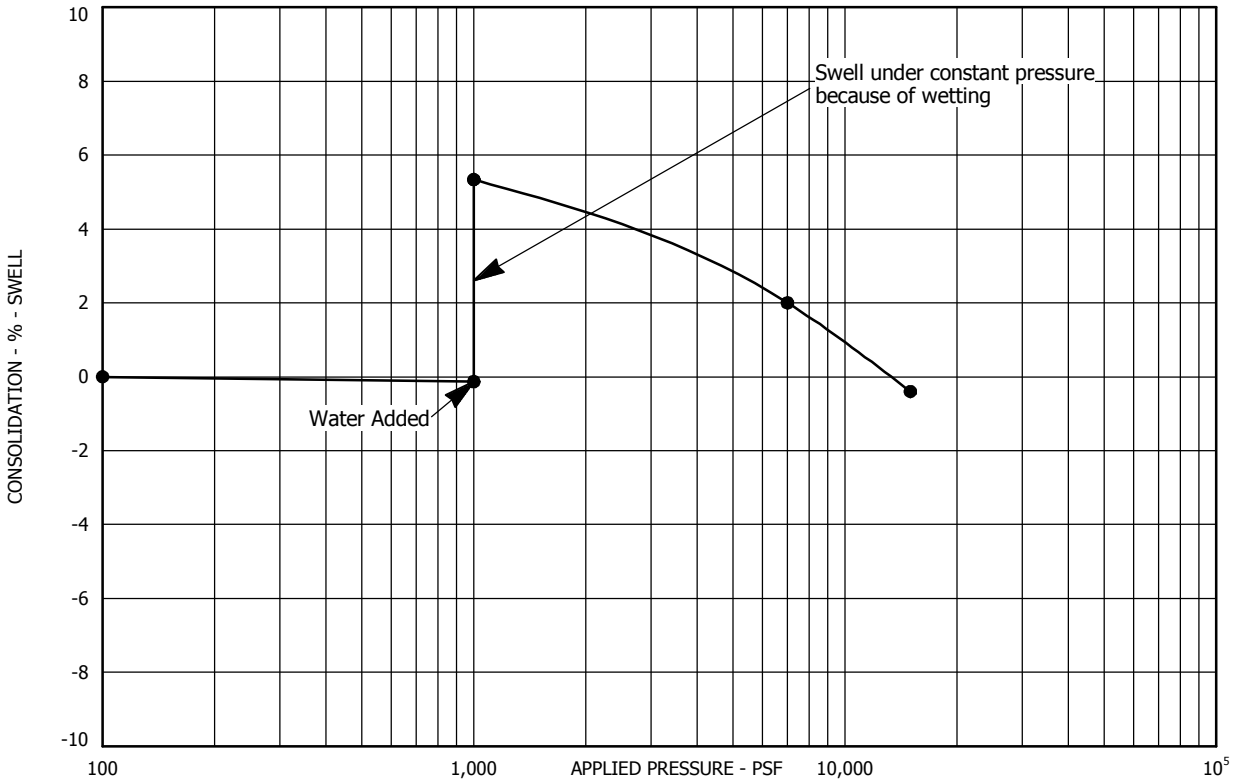
Sample Location: Test Boring No. 10 at a depth of 19 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 125
Moisture Content (%): 12

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 12
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



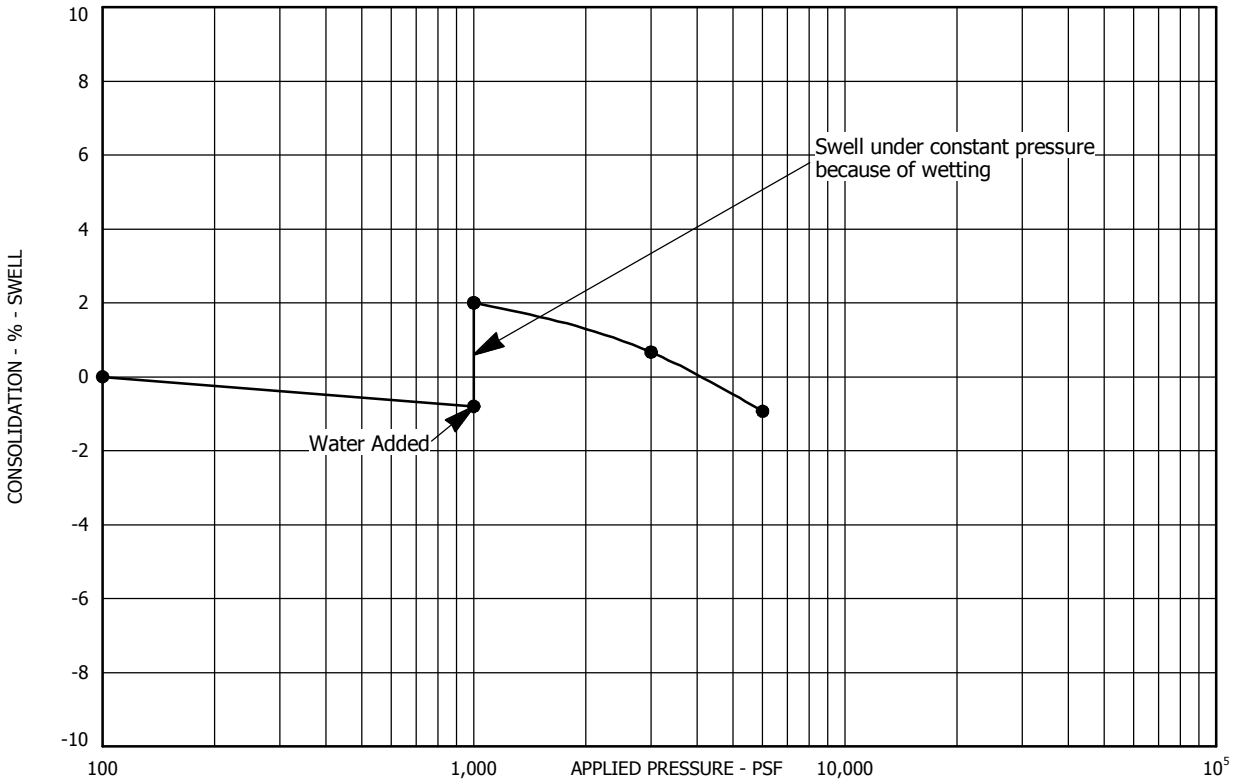
Sample Location: Test Boring No. 11 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 113
Moisture Content (%): 17



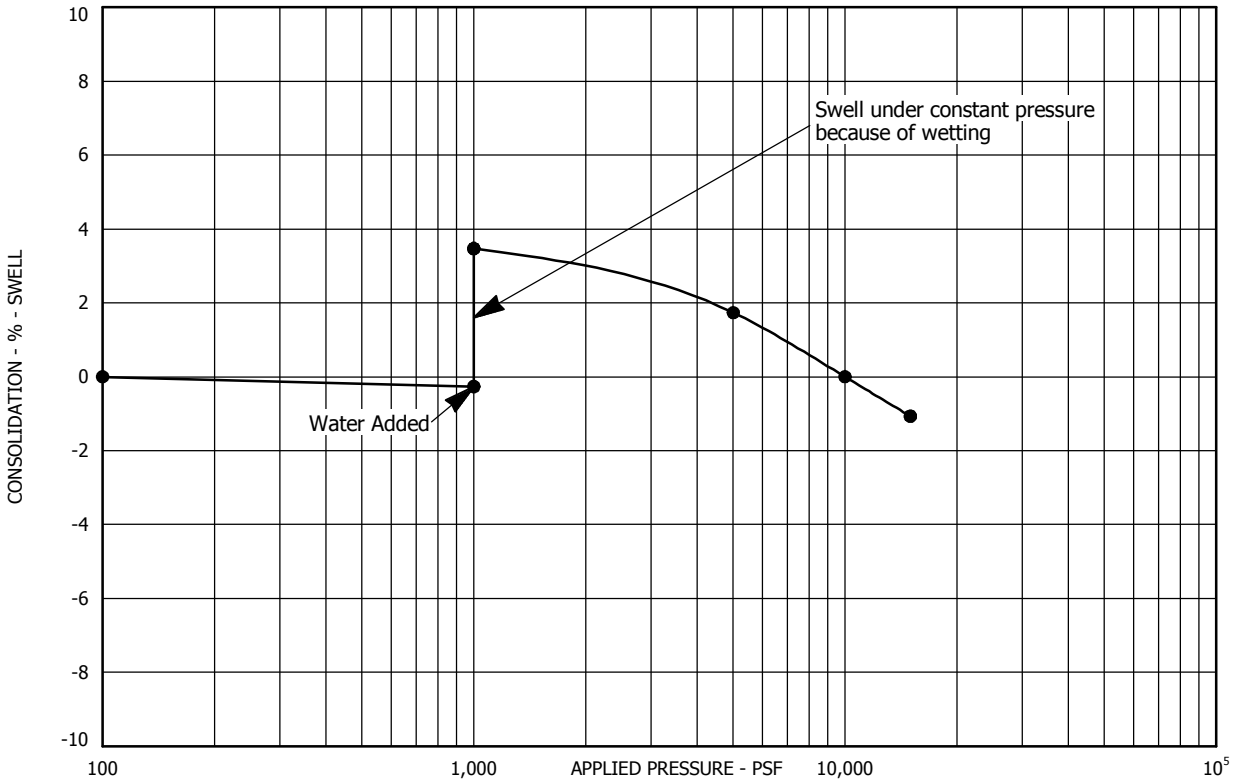
Sample Location: Test Boring No. 11 at a depth of 14 feet
Sample Description: Claystone, trace sand
Dry Unit Weight (pcf): 115
Moisture Content (%): 14

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 13
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

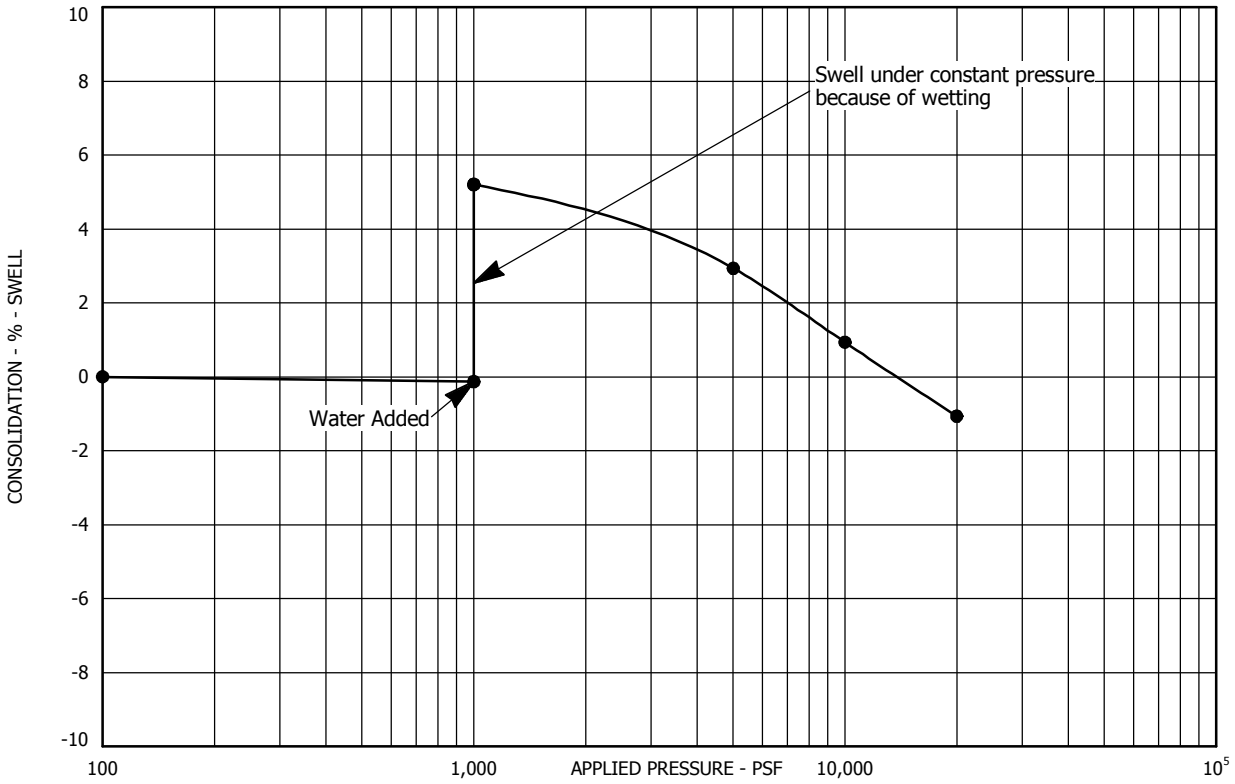


Sample Location: Test Boring No. 12 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 104
Moisture Content (%): 21

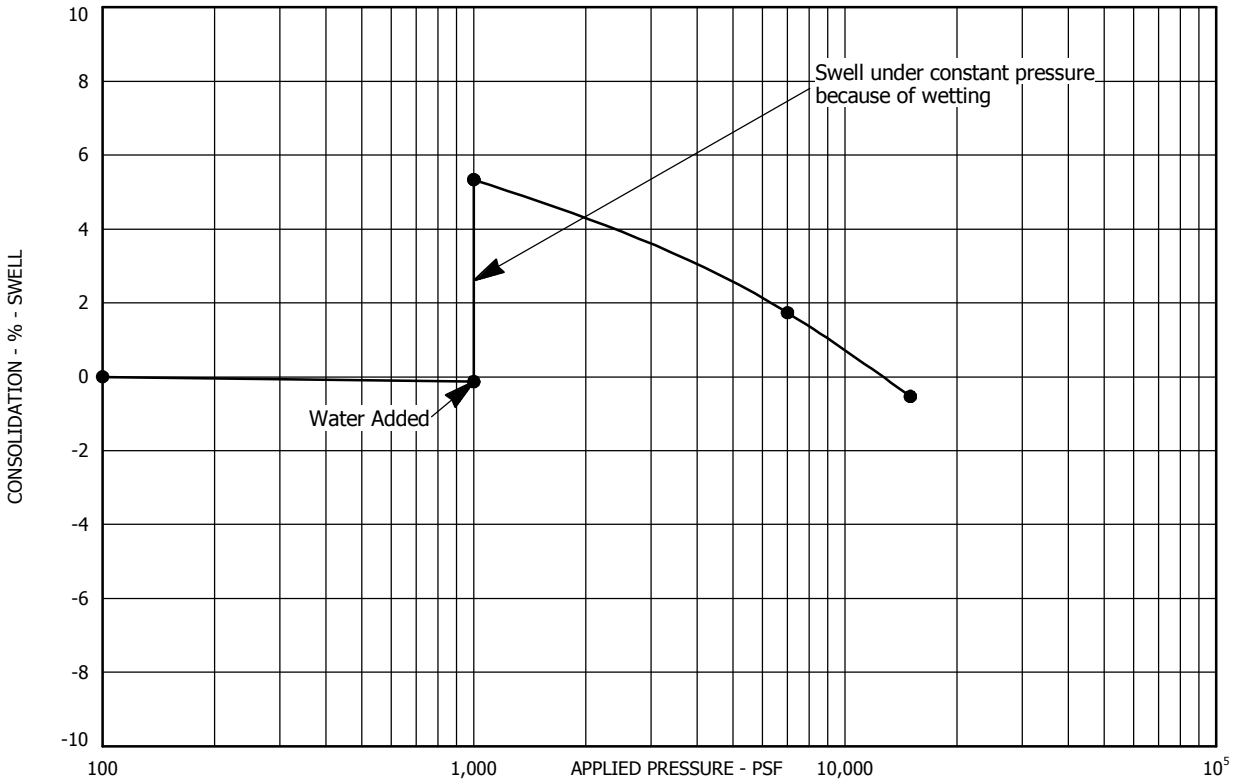


Sample Location: Test Boring No. 12 at a depth of 14 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 112
Moisture Content (%): 18

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 14
PROJECT NO. 174095



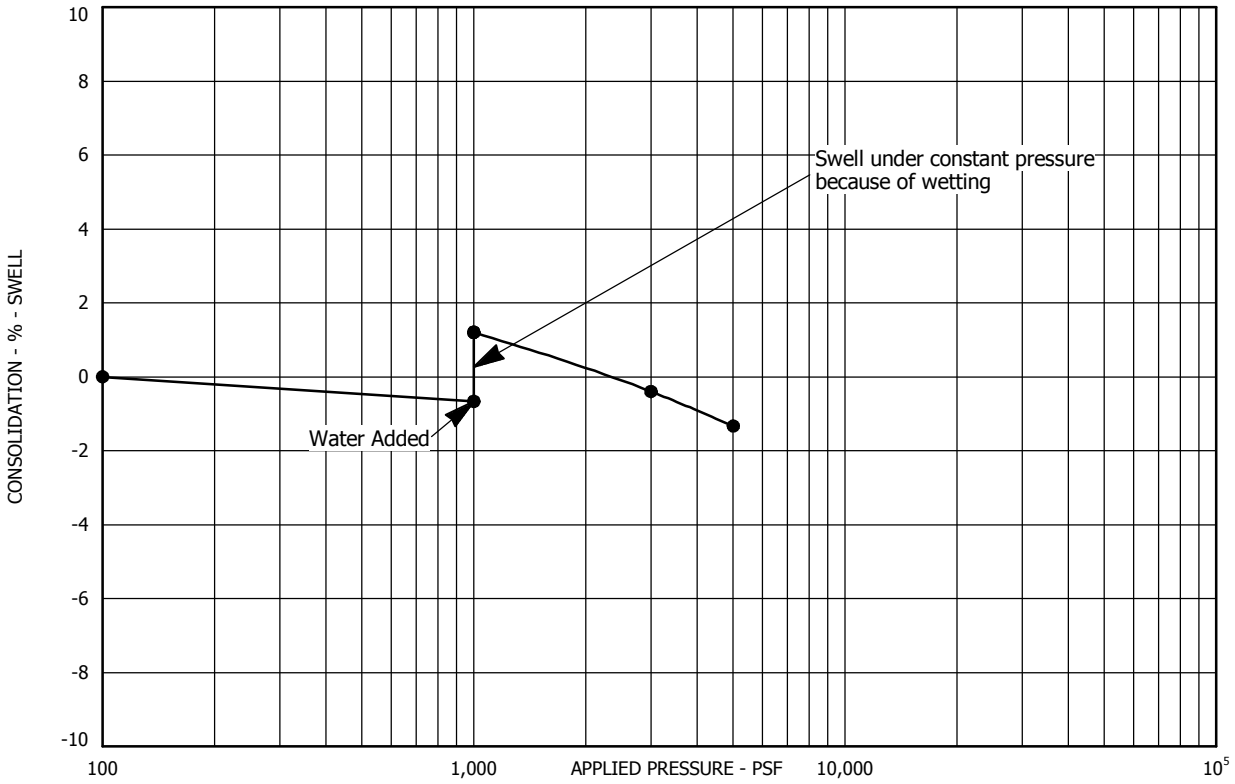
Sample Location: Test Boring No. 13 at a depth of 19 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 116
Moisture Content (%): 16



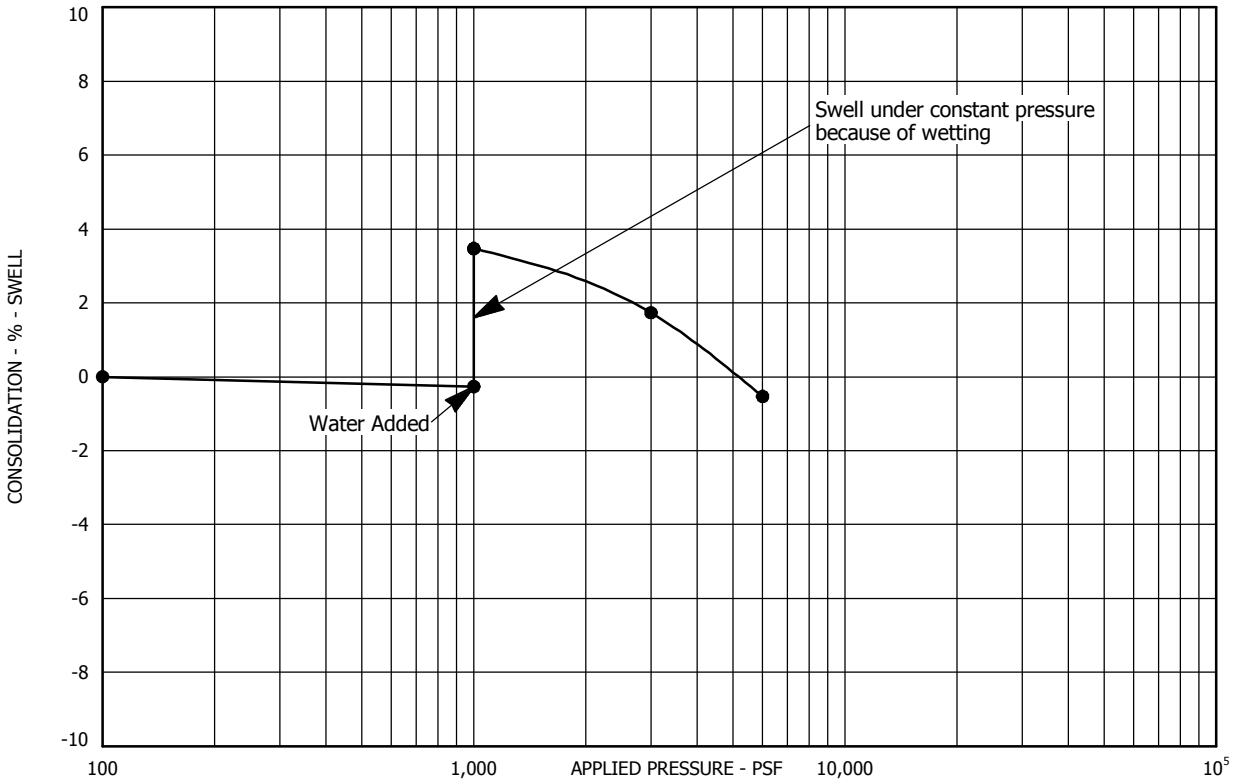
Sample Location: Test Boring No. 13 at a depth of 29 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 118
Moisture Content (%): 13

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 15
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

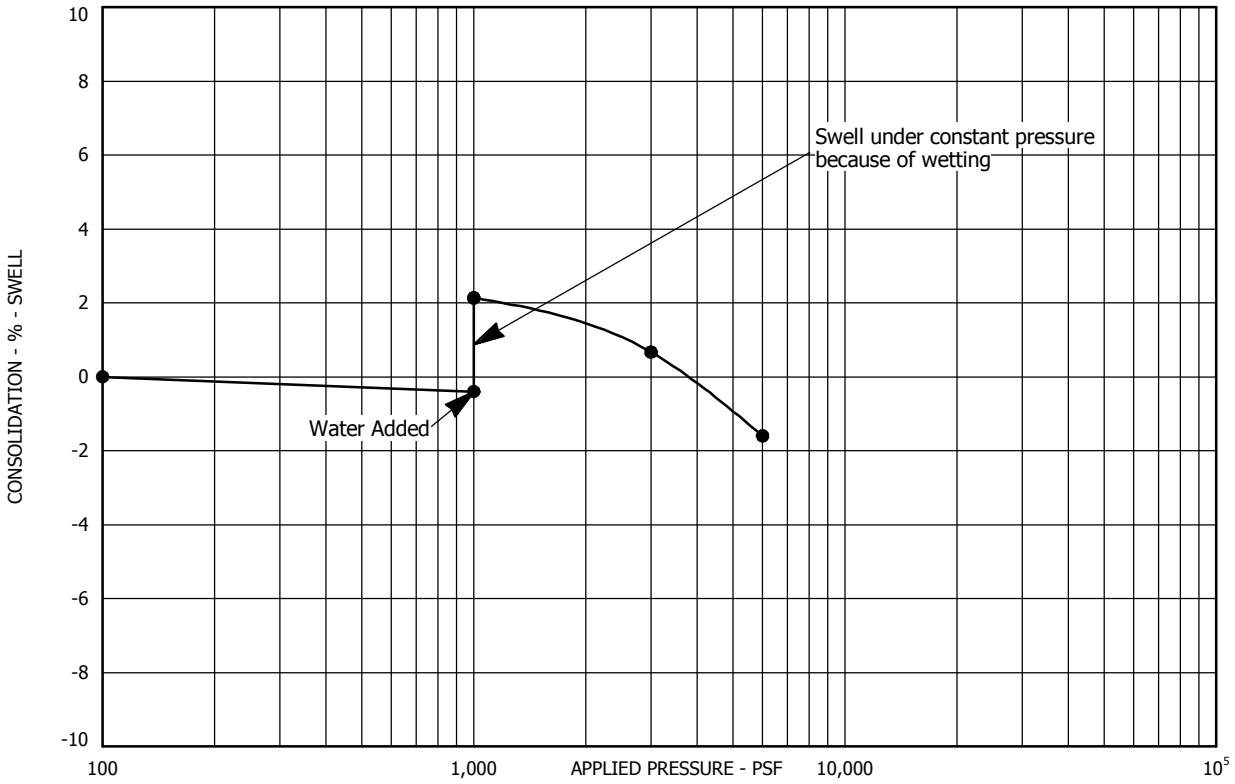


Sample Location: Test Boring No. 14 at a depth of 14 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 114
Moisture Content (%): 16

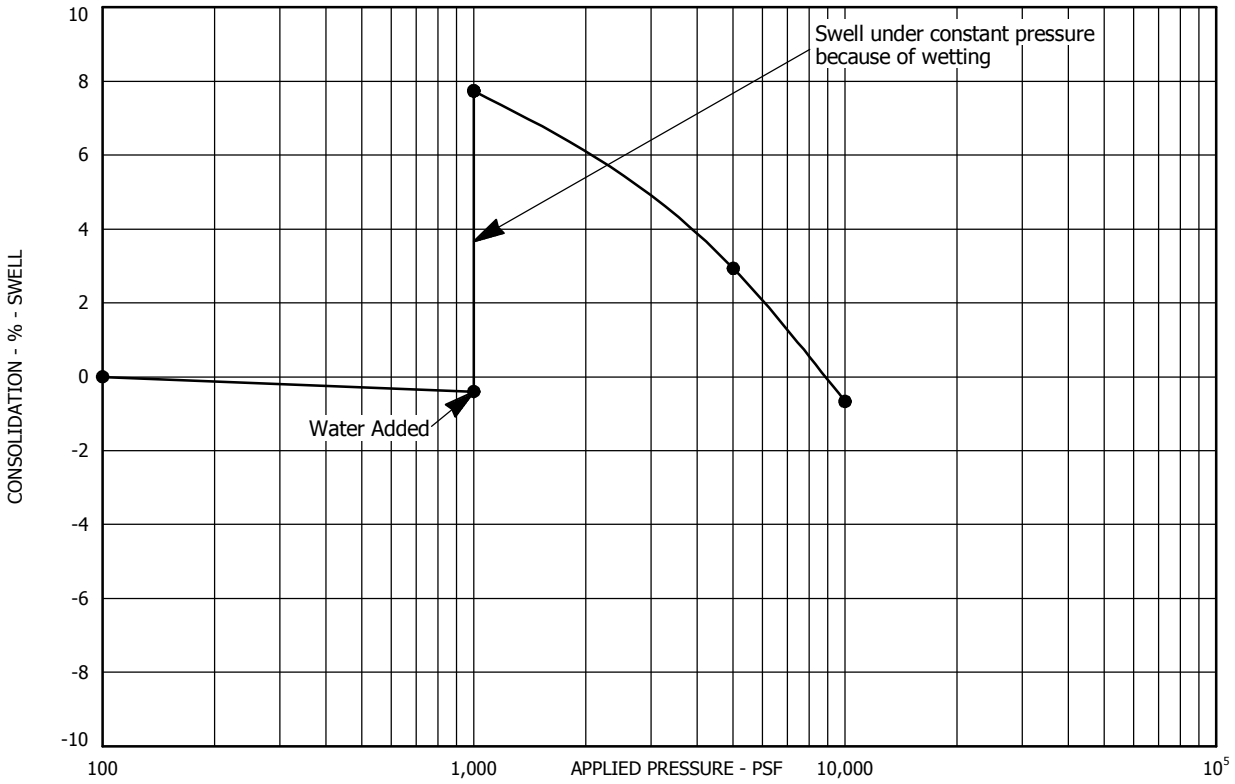


Sample Location: Test Boring No. 14 at a depth of 24 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 112
Moisture Content (%): 15

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 16
PROJECT NO. 174095



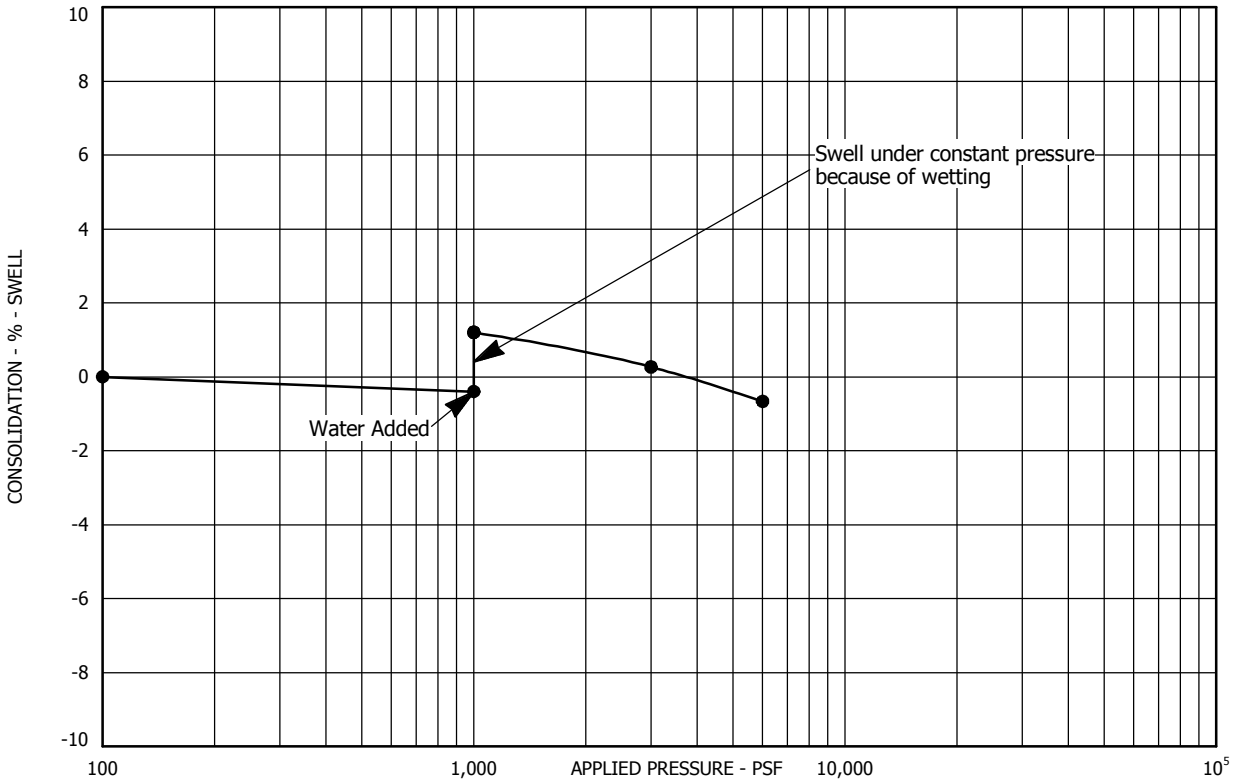
Sample Location: Test Boring No. 17 at a depth of 9 feet
Sample Description: Clay (weathered claystone), trace sand
Dry Unit Weight (pcf): 108
Moisture Content (%): 20



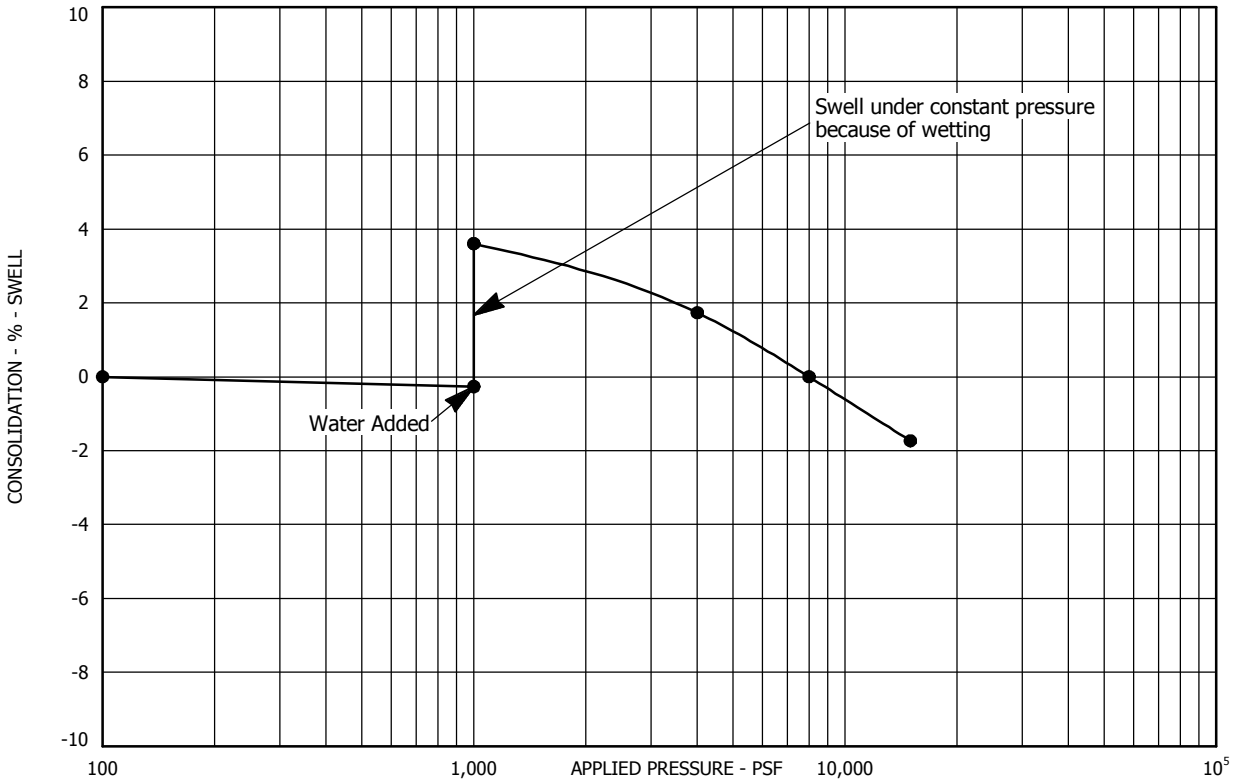
Sample Location: Test Boring No. 17 at a depth of 24 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 104
Moisture Content (%): 22

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 17
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



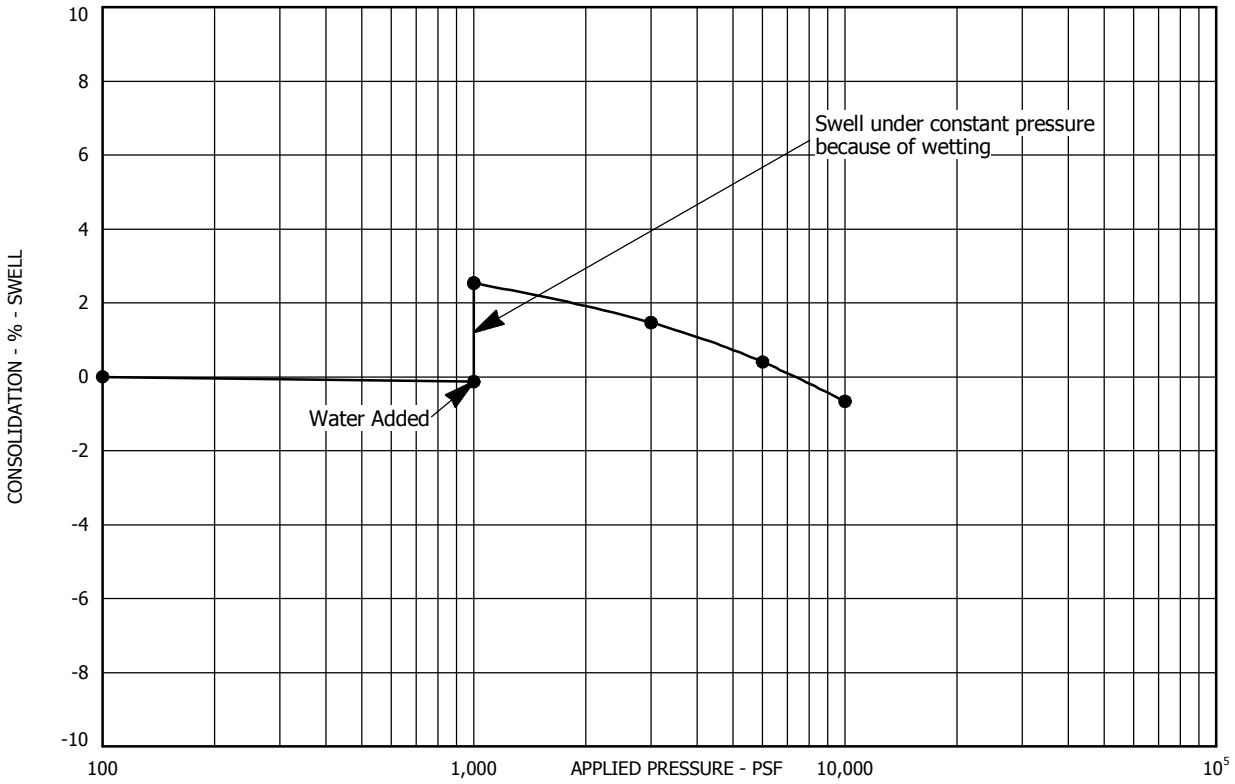
Sample Location: Test Boring No. 18 at a depth of 9 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 115
Moisture Content (%): 15



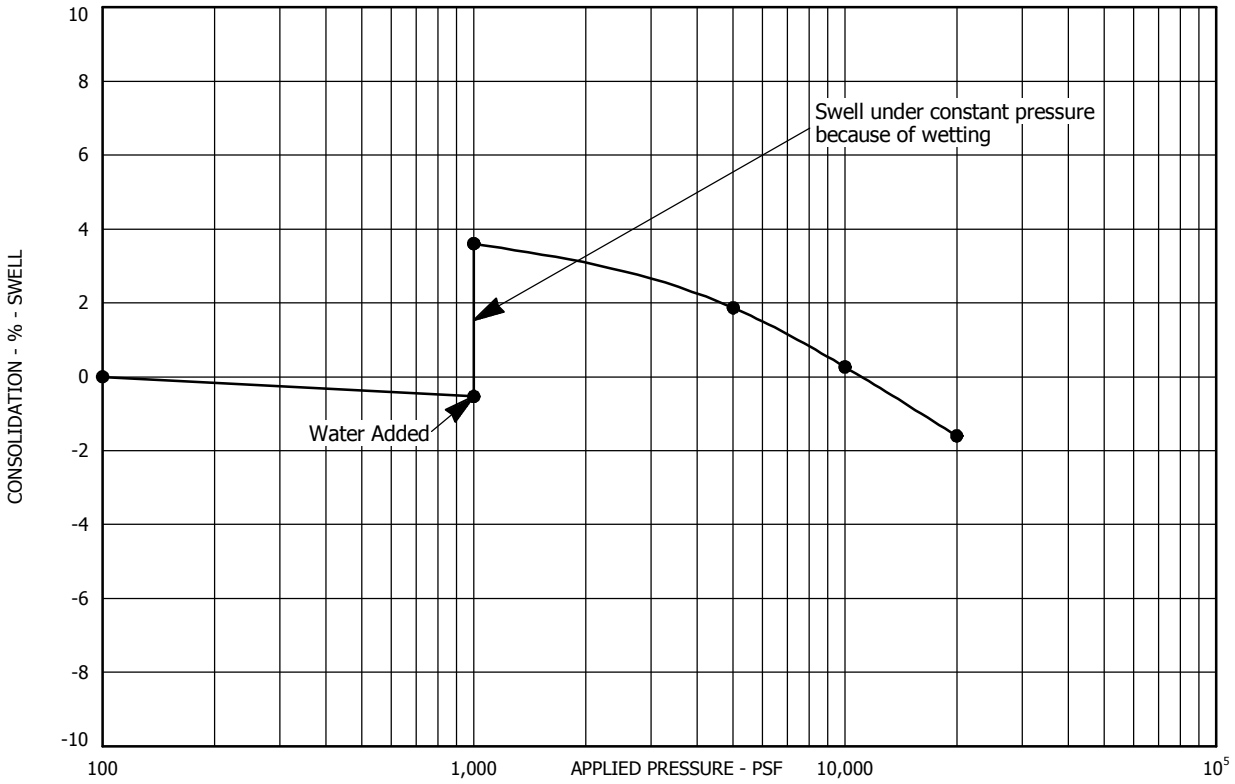
Sample Location: Test Boring No. 18 at a depth of 19 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 109
Moisture Content (%): 21

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 18
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



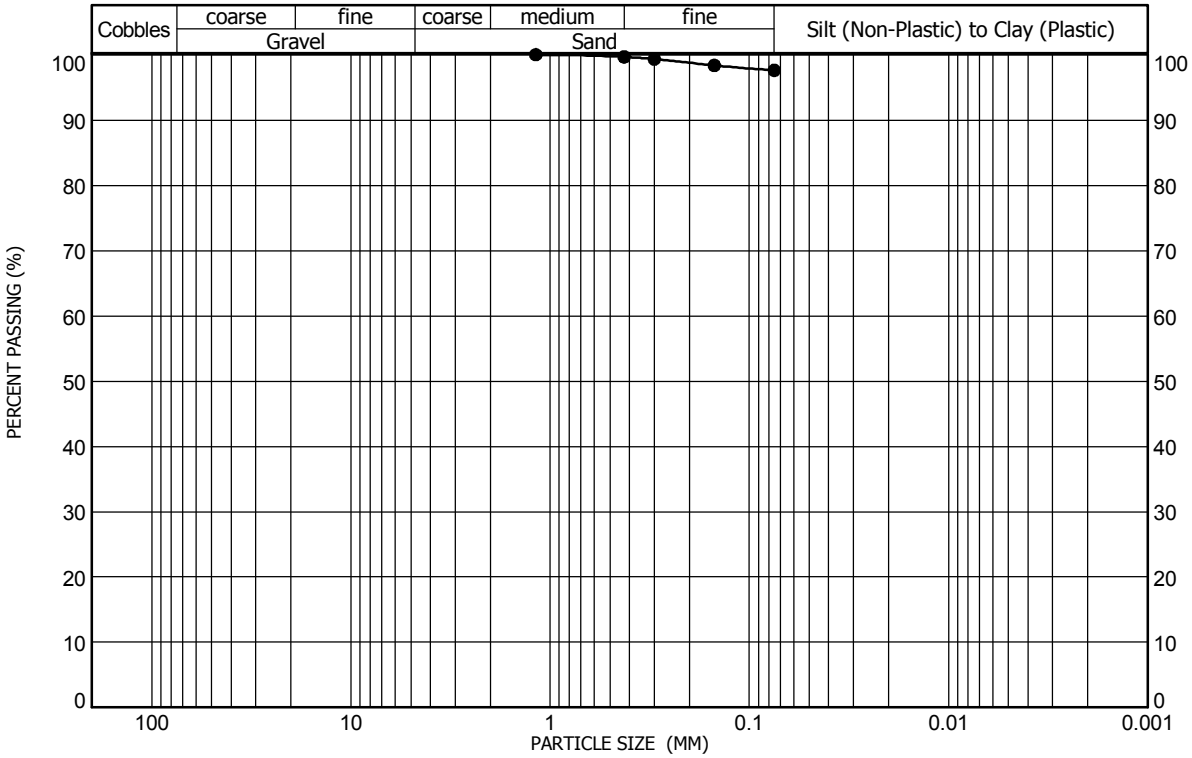
Sample Location: Test Boring No. 20 at a depth of 24 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 123
Moisture Content (%): 13



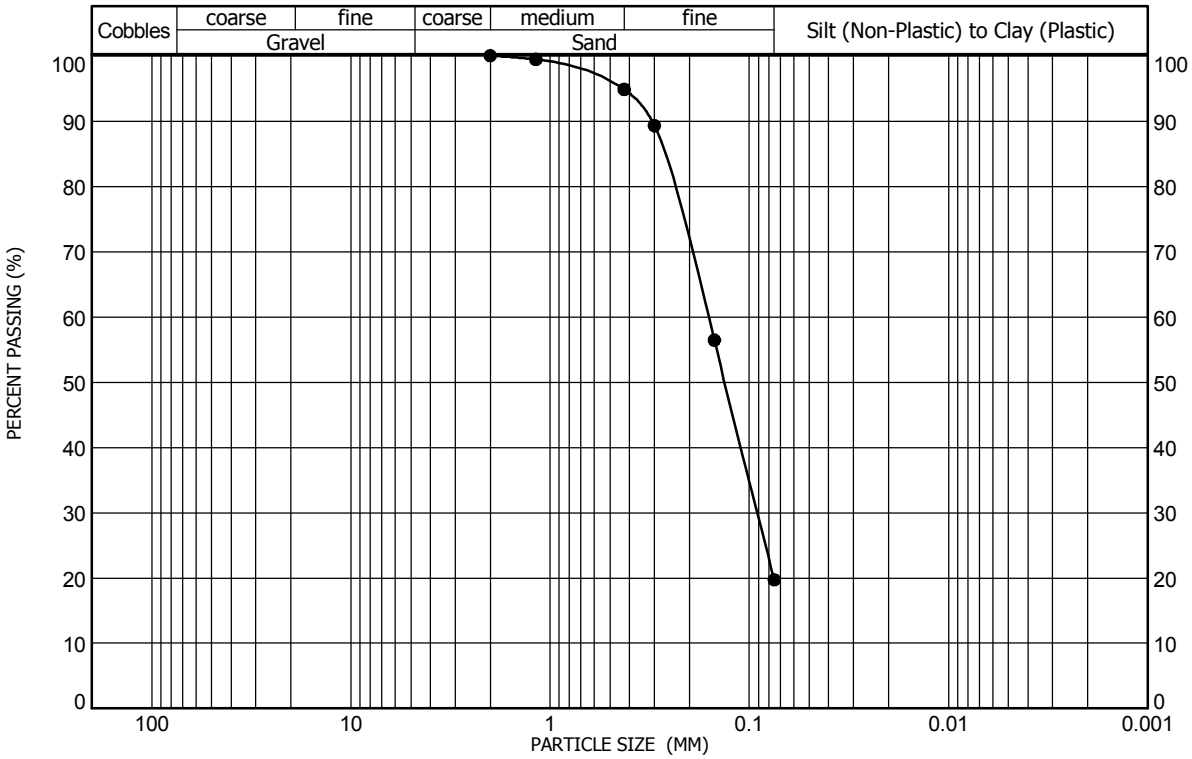
Sample Location: Test Boring No. 20 at a depth of 34 feet
Sample Description: Claystone, slightly sandy
Dry Unit Weight (pcf): 118
Moisture Content (%): 15

SWELL - CONSOLIDATION TEST RESULTS
FIGURE 19
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



Sample Location: Test Boring No. 1 at a depth of 9 feet — Gravel (%): 0 — Liquid Limit: 81
Sample Description: Clay (weathered claystone), trace sand — Sand (%): 2 — Plasticity Index: 59
Classification: A-7-6(66), FAT CLAY(CH) — Clay/Silt (%): 98

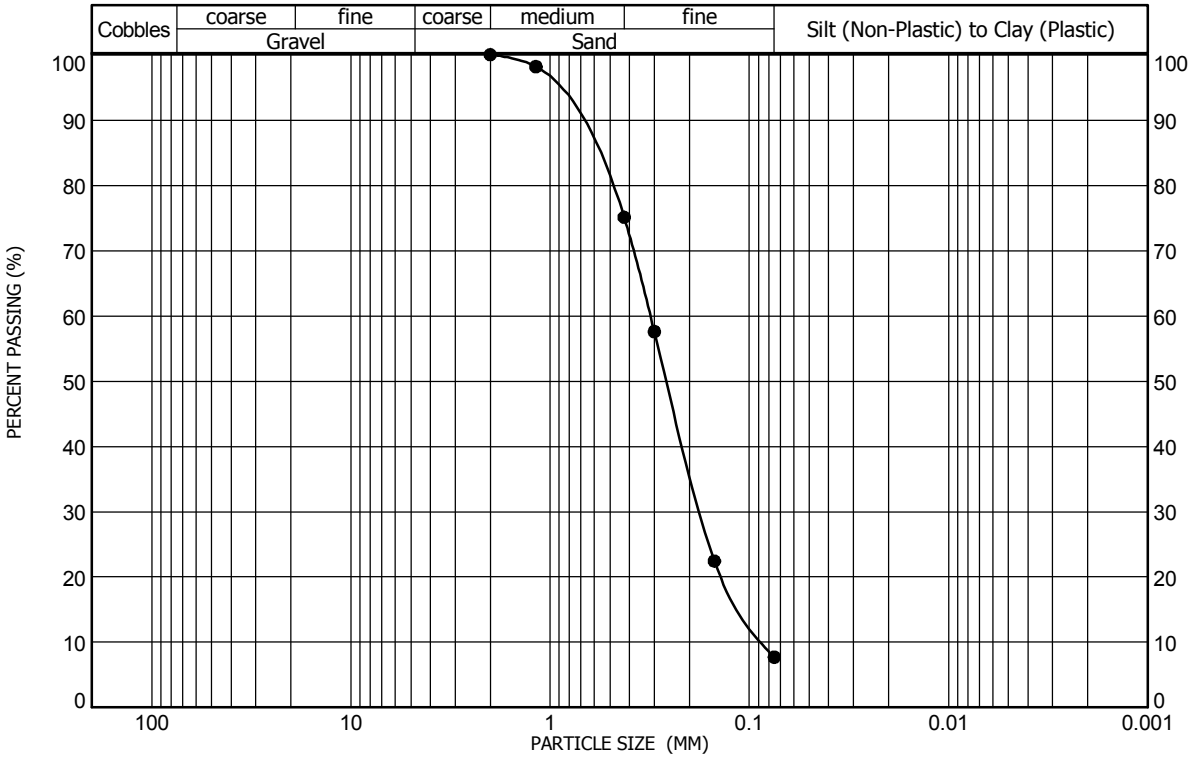


Sample Location: Test Boring No. 2 at a depth of 14 feet — Gravel (%): 0 — Liquid Limit: NV
Sample Description: Sand, silty — Sand (%): 80 — Plasticity Index: NP
Classification: A-2-4(0), SILTY SAND(SM) — Clay/Silt (%): 20

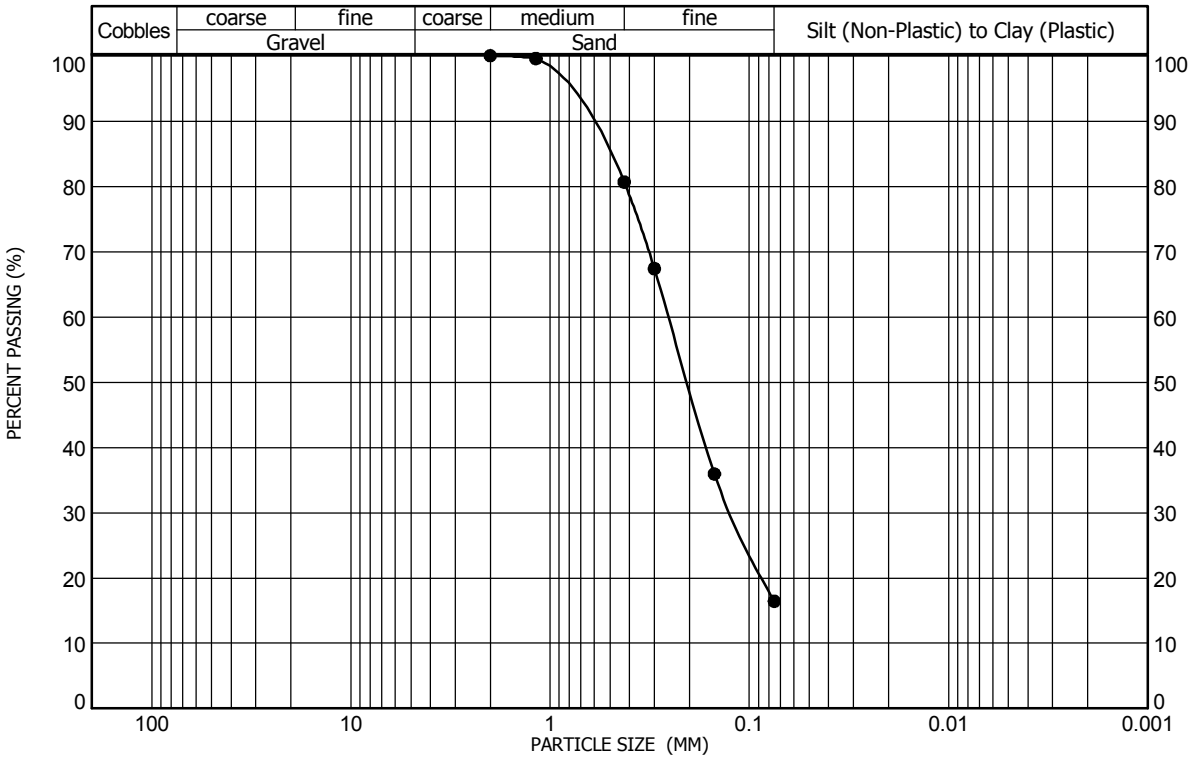
GRADATION AND ATTERBERG TEST RESULTS
FIGURE 20

PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



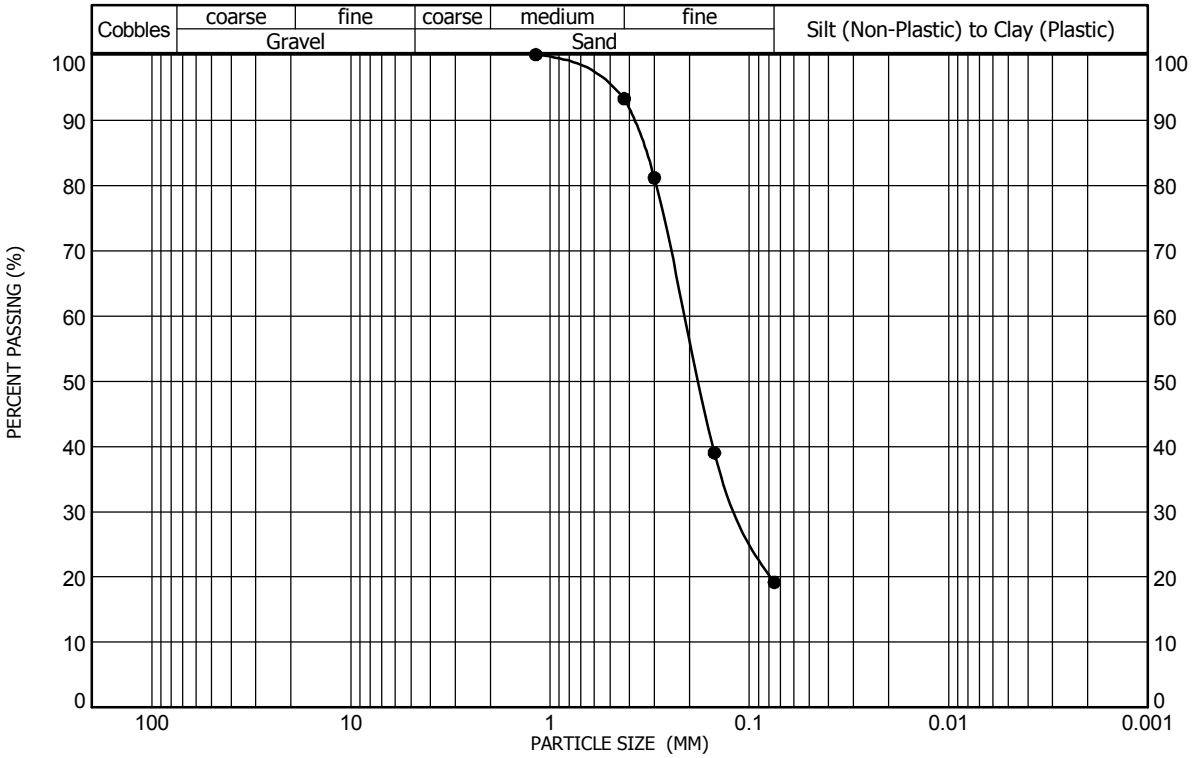
Sample Location Test Boring No. 3 at a depth of 9 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, slightly silty — Sand (%) 92 — Plasticity Index NP
Classification A-3(0), POORLY GRADED SAND with SILT(SP-SM) — Clay/Silt (%) 8



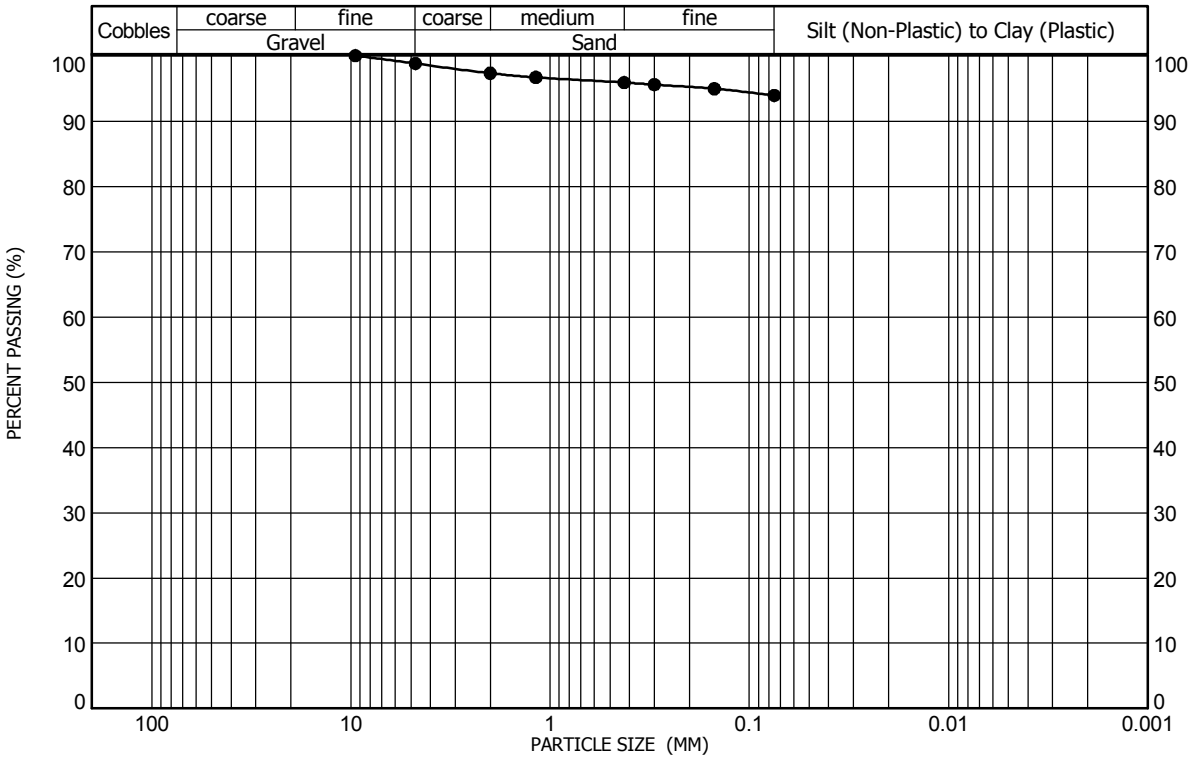
Sample Location Test Boring No. 4 at a depth of 14 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, silty — Sand (%) 84 — Plasticity Index NP
Classification A-2-4(0), SILTY SAND(SM) — Clay/Silt (%) 16

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 21
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



Sample Location Test Boring No. 5 at a depth of 19 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, silty — Sand (%) 81 — Plasticity Index NP
Classification A-2-4(0), SILTY SAND(SM) — Clay/Silt (%) 19

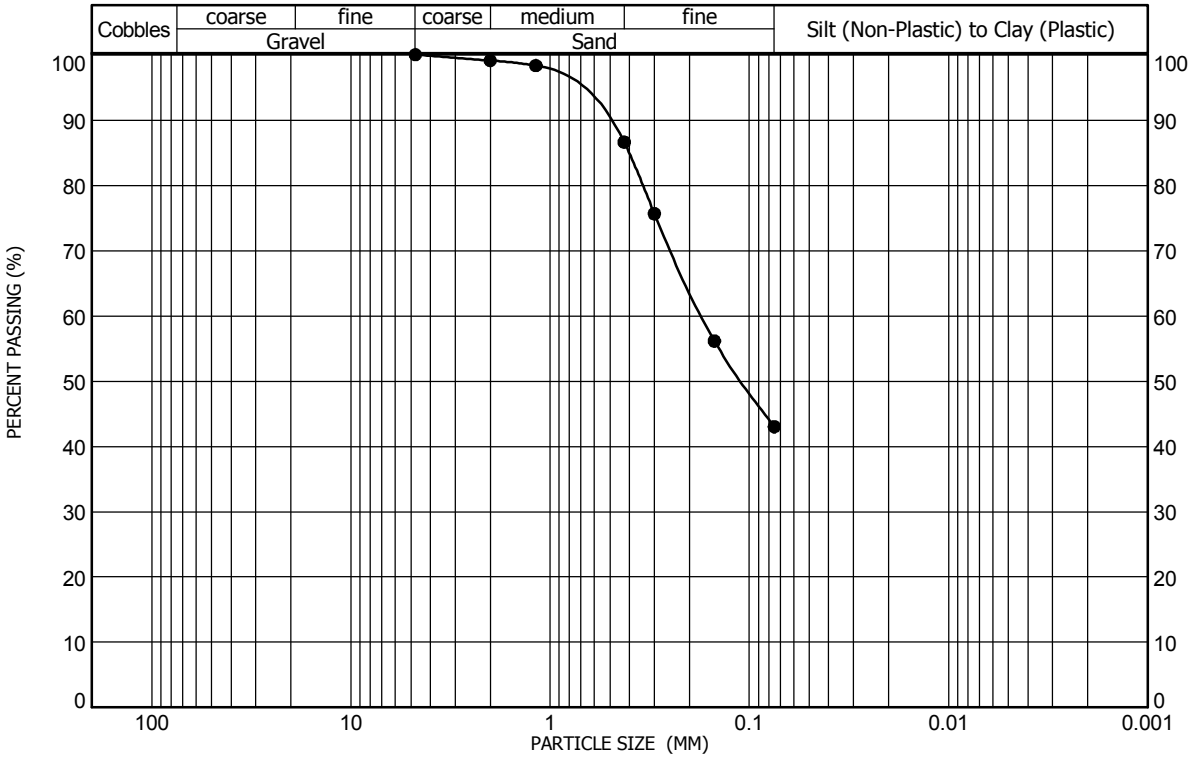


Sample Location Test Boring No. 6 at a depth of 9 feet — Gravel (%) 1 — Liquid Limit 68
Sample Description Claystone, slightly sandy — Sand (%) 5 — Plasticity Index 48
Classification A-7-6(50), FAT CLAY(CH) — Clay/Silt (%) 94

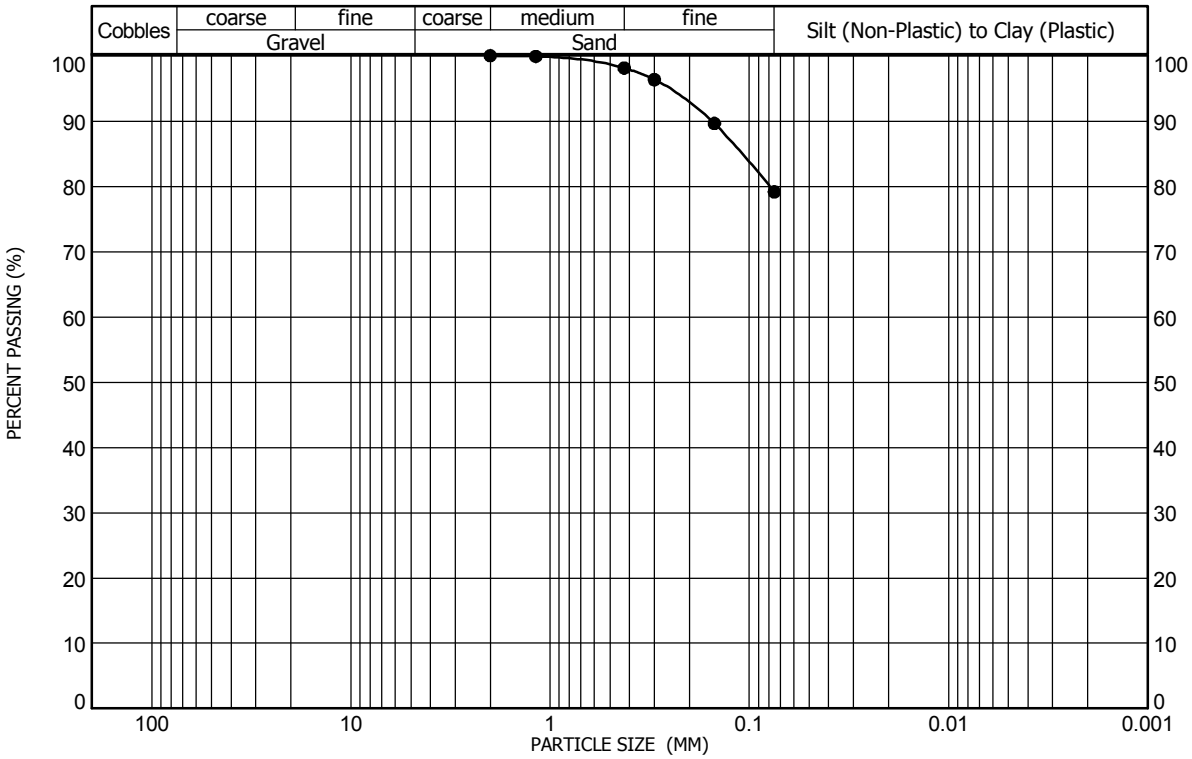
GRADATION AND ATTERBERG TEST RESULTS
FIGURE 22

PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



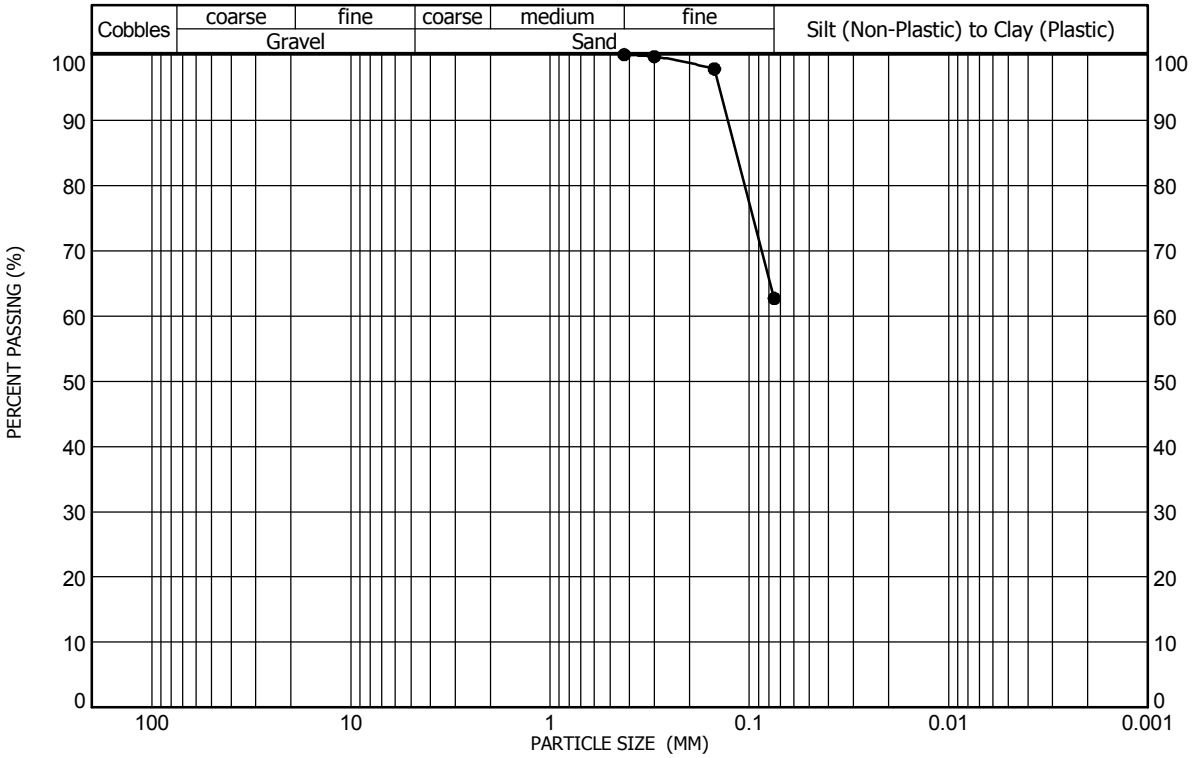
Sample Location: Test Boring No. 7 at a depth of 9 feet — Gravel (%): 0 — Liquid Limit: 20
Sample Description: Sand, very silty — Sand (%): 57 — Plasticity Index: NP
Classification: A-4(0), SILTY SAND(SM) — Clay/Silt (%): 43



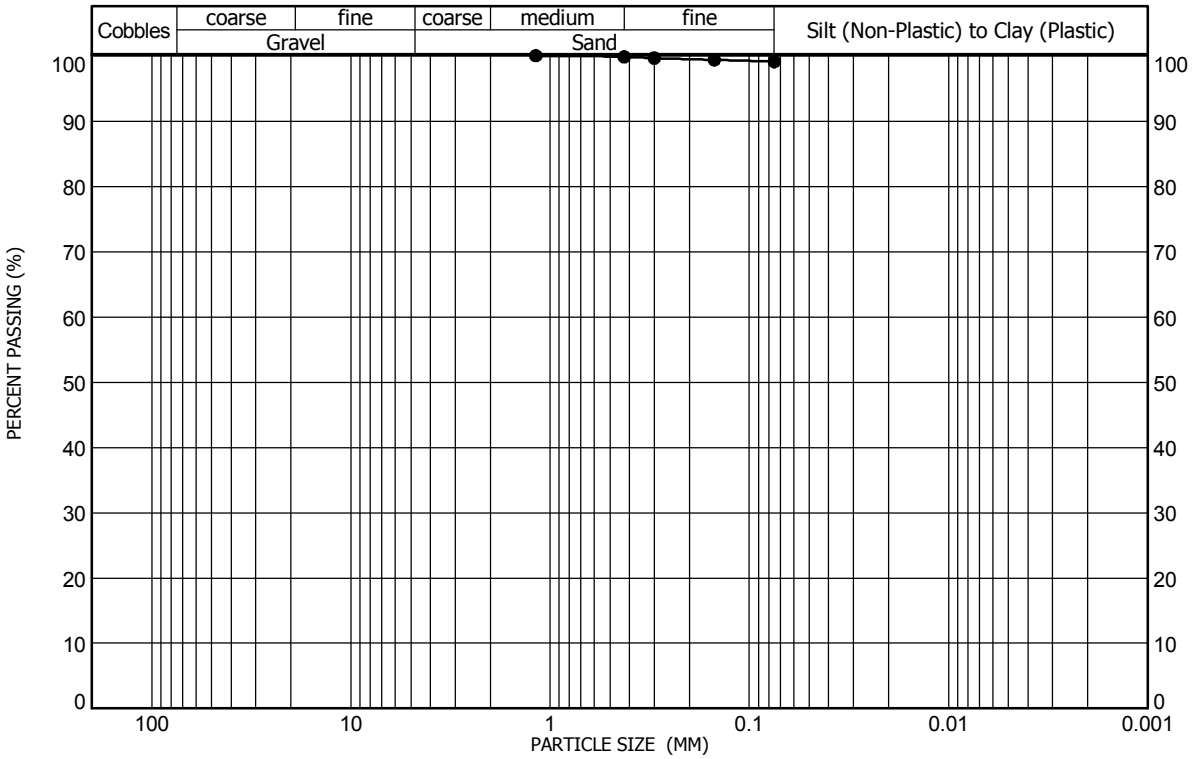
Sample Location: Test Boring No. 7 at a depth of 14 feet — Gravel (%): 0 — Liquid Limit: 42
Sample Description: Clay, sandy — Sand (%): 21 — Plasticity Index: 23
Classification: A-7-6(18), LEAN CLAY with SAND(CL) — Clay/Silt (%): 79

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 23
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



Sample Location Test Boring No. 9 at a depth of 14 feet — Gravel (%) 0 — Liquid Limit 29
Sample Description Claystone, very sandy — Sand (%) 37 — Plasticity Index 11
Classification A-6(5), SANDY LEAN CLAY(CL) — Clay/Silt (%) 63

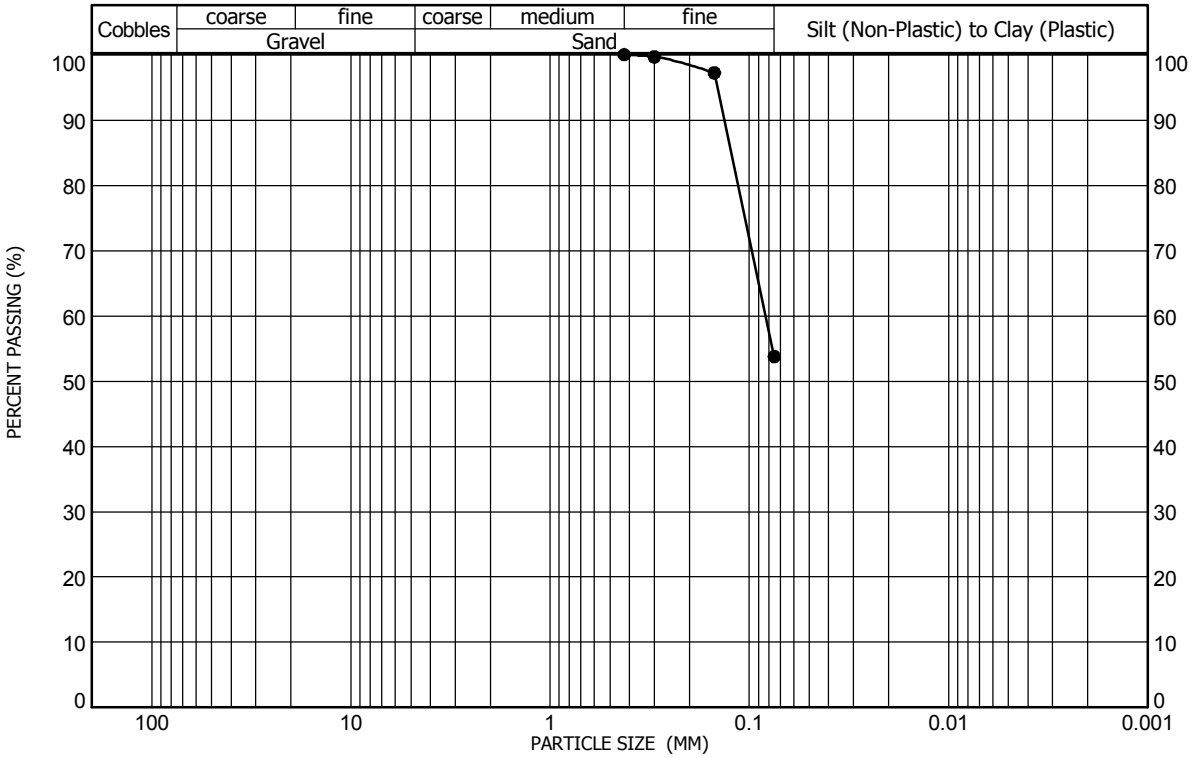


Sample Location Test Boring No. 11 at a depth of 14 feet — Gravel (%) 0 — Liquid Limit 66
Sample Description Claystone, trace sand — Sand (%) 1 — Plasticity Index 46
Classification A-7-6(51), FAT CLAY(CH) — Clay/Silt (%) 99

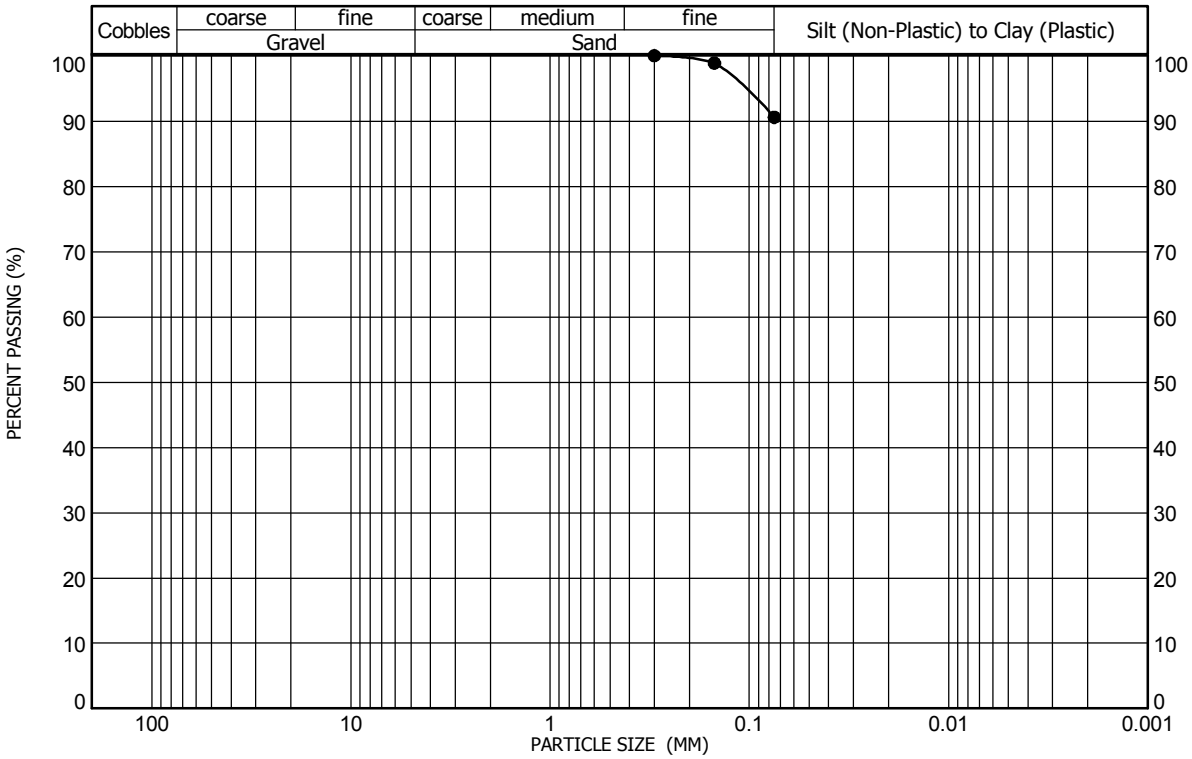
GRADATION AND ATTERBERG TEST RESULTS
FIGURE 24

PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



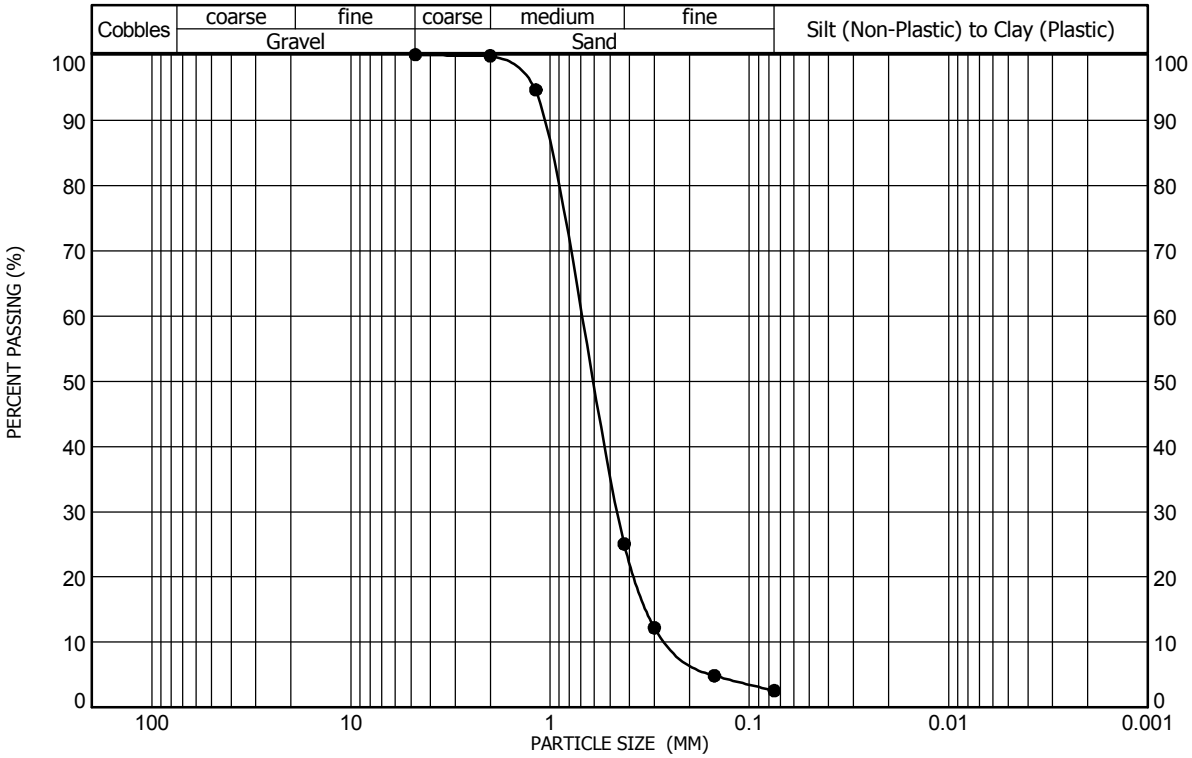
Sample Location: Test Boring No. 12 at a depth of 24 feet
Sample Description: Claystone, very sandy
Classification: A-6(3), SANDY LEAN CLAY(CL)
Gravel (%): 0
Sand (%): 46
Clay/Silt (%): 54
Liquid Limit: 30
Plasticity Index: 11



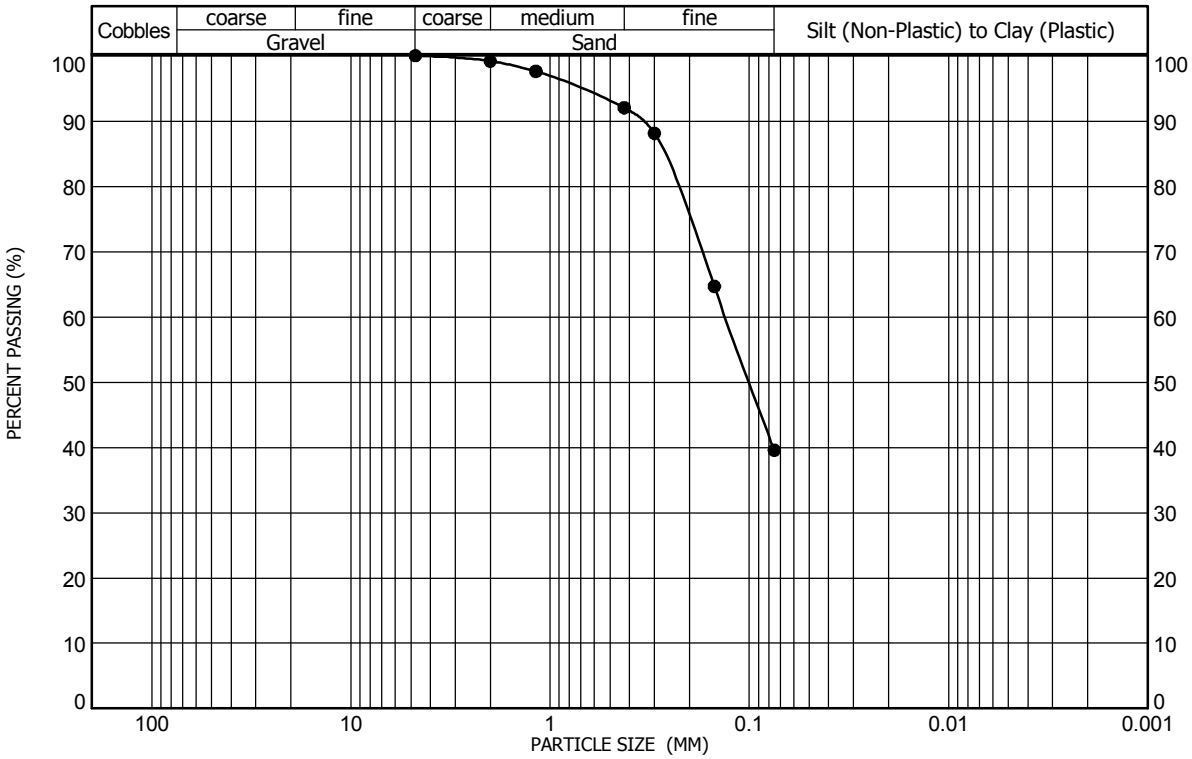
Sample Location: Test Boring No. 14 at a depth of 9 feet
Sample Description: Claystone, slightly sandy
Classification: A-6(18), LEAN CLAY(CL)
Gravel (%): 0
Sand (%): 9
Clay/Silt (%): 91
Liquid Limit: 40
Plasticity Index: 19

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 25
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



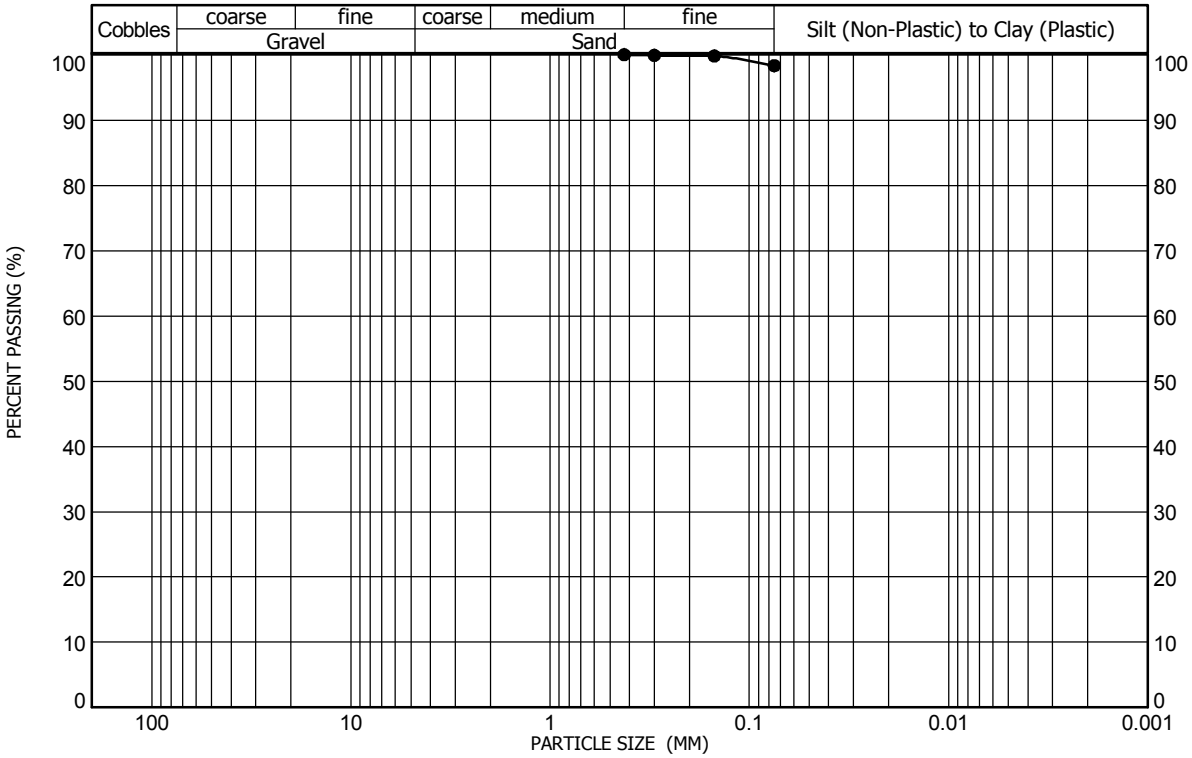
Sample Location Test Boring No. 15 at a depth of 9 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, trace silty — Sand (%) 97 — Plasticity Index NP
Classification A-1-b(0), POORLY GRADED SAND(SP) — Clay/Silt (%) 3



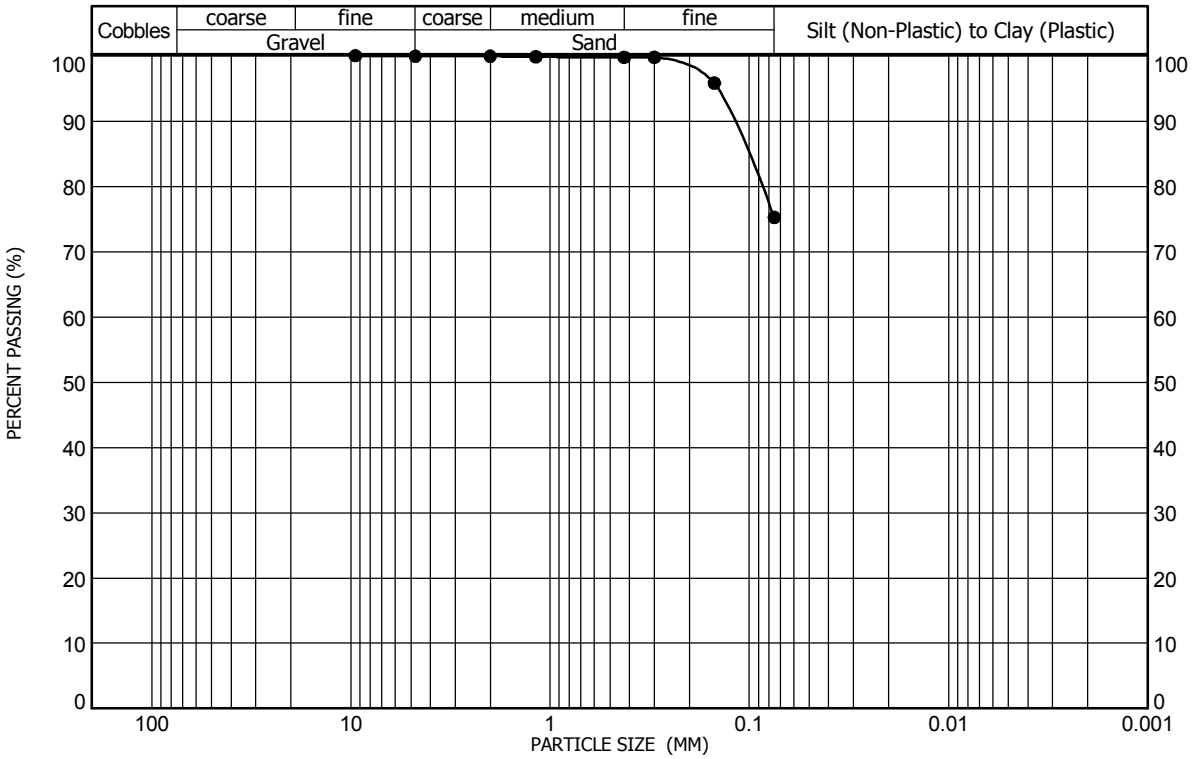
Sample Location Test Boring No. 16 at a depth of 14 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, very silty — Sand (%) 60 — Plasticity Index NP
Classification A-4(0), SILTY SAND(SM) — Clay/Silt (%) 40

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 26
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



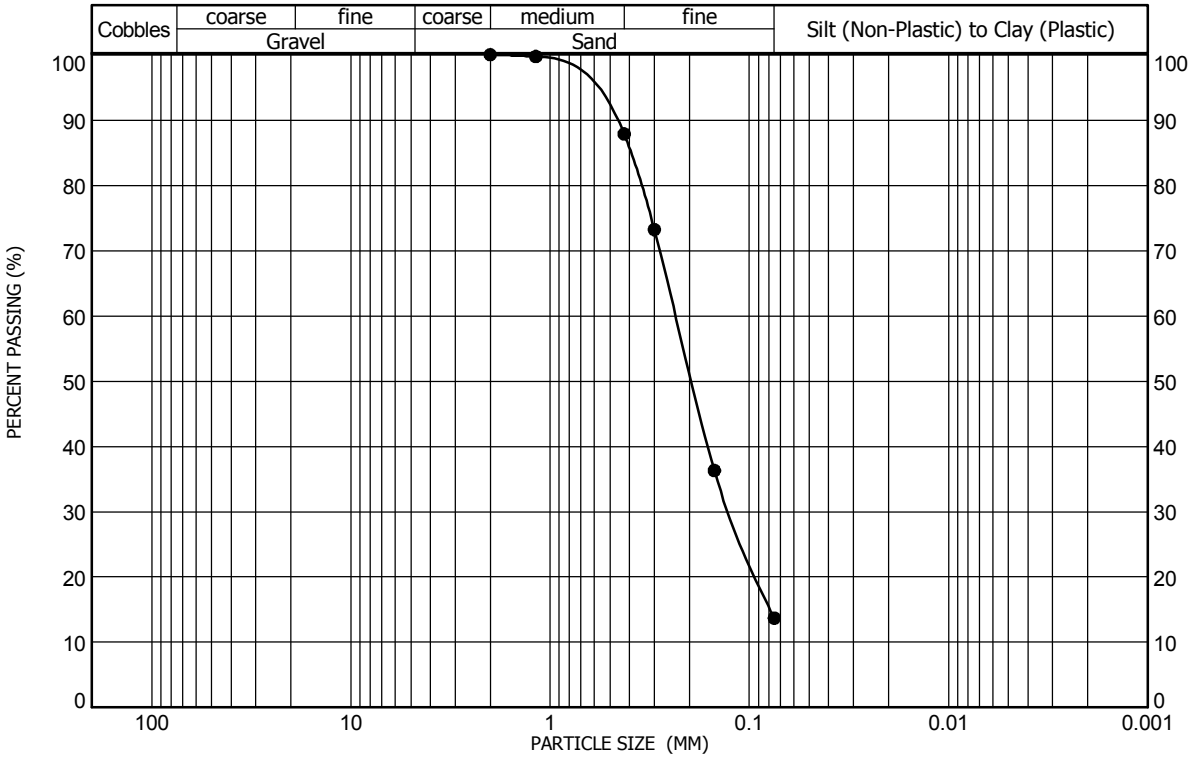
Sample Location: Test Boring No. 17 at a depth of 9 feet
Sample Description: Clay (weathered claystone), trace sand
Classification: A-7-6(44), FAT CLAY(CH)
Gravel (%): 0
Sand (%): 2
Clay/Silt (%): 98
Liquid Limit: 62
Plasticity Index: 40



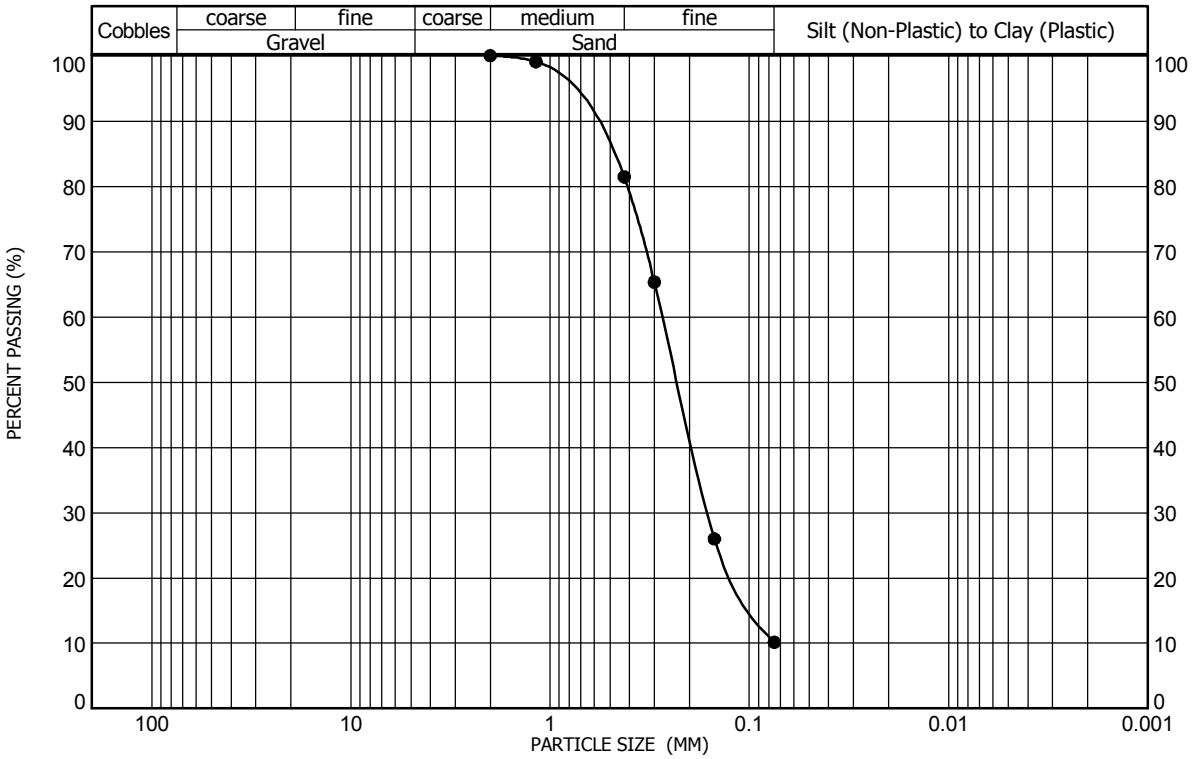
Sample Location: Test Boring No. 18 at a depth of 9 feet
Sample Description: Claystone, sandy
Classification: A-6(14), LEAN CLAY with SAND(CL)
Gravel (%): 0
Sand (%): 25
Clay/Silt (%): 75
Liquid Limit: 39
Plasticity Index: 20

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 27
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



Sample Location Test Boring No. 19 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, slightly silty — Sand (%) 86 — Plasticity Index NP
Classification A-2-4(0), SILTY SAND(SM) — Clay/Silt (%) 14

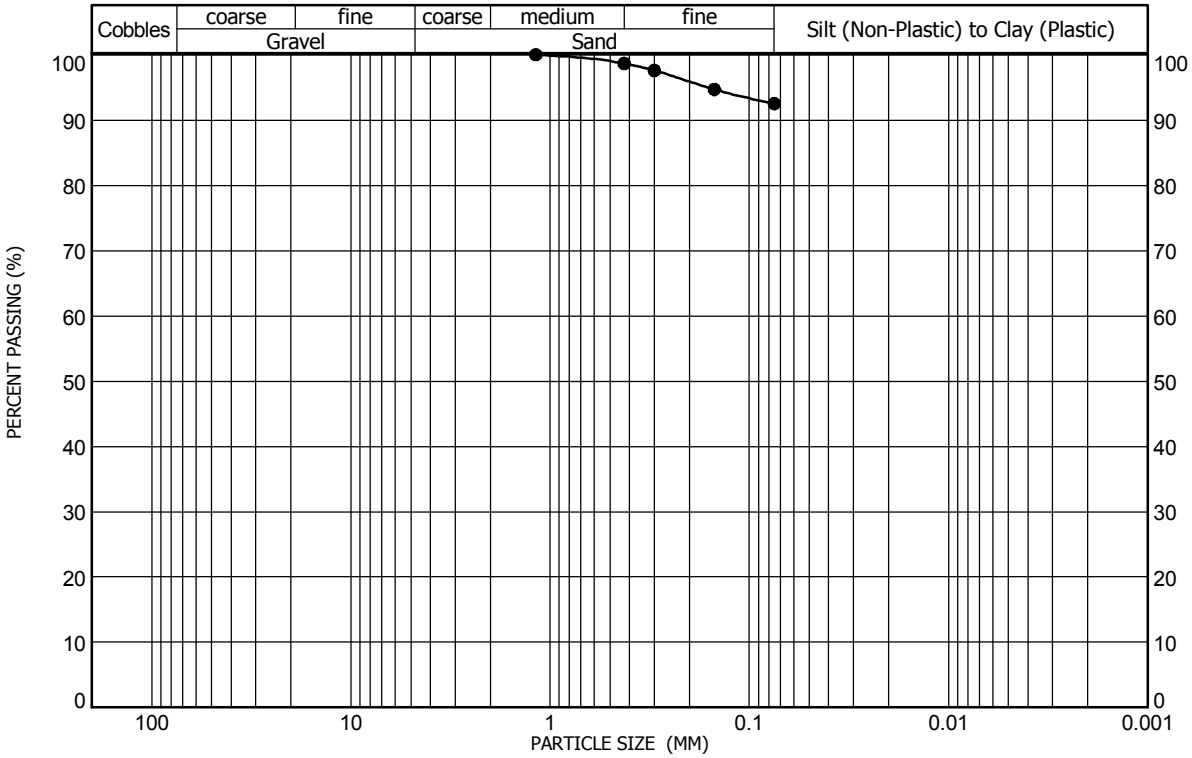


Sample Location Test Boring No. 21 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit NV
Sample Description Sand, slightly silty — Sand (%) 90 — Plasticity Index NP
Classification A-3(0), POORLY GRADED SAND with SILT(SP-SM) — Clay/Silt (%) 10

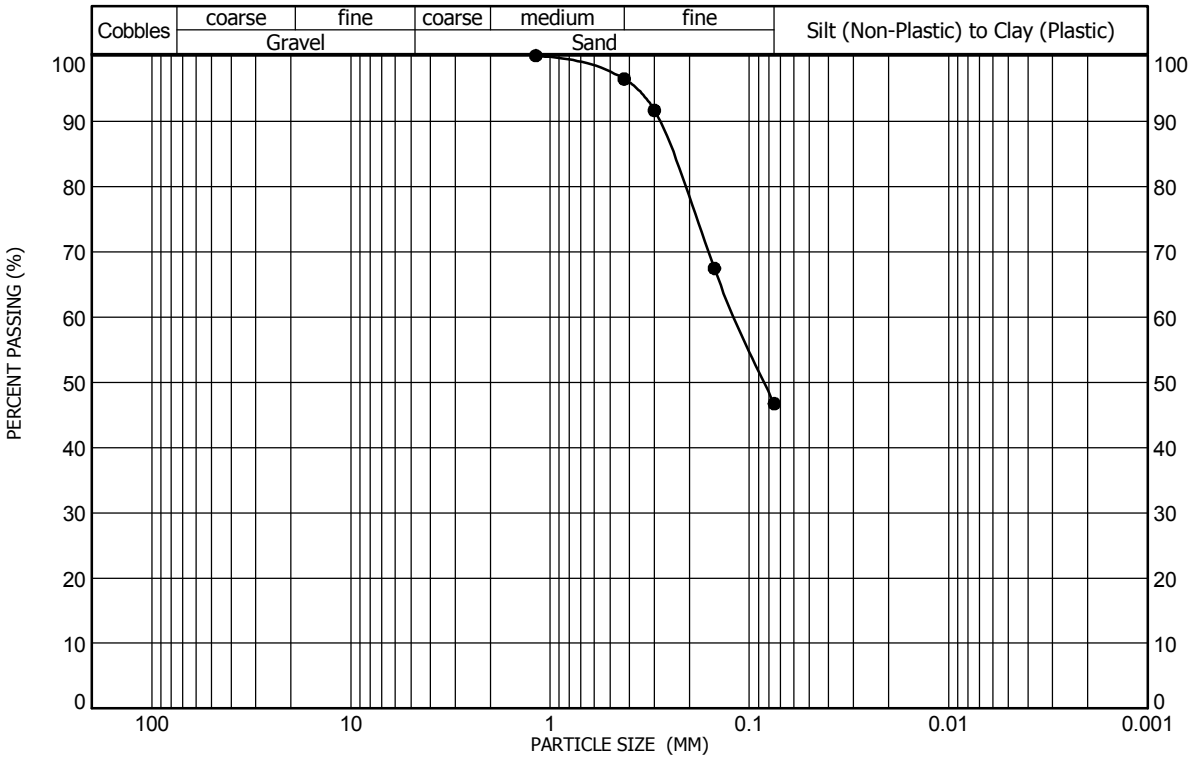
GRADATION AND ATTERBERG TEST RESULTS
FIGURE 28

PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants



Sample Location: Test Boring No. 22 at a depth of 19 feet
Sample Description: Clay (weathered claystone), slightly sandy
Classification: A-7-6(42), FAT CLAY(CH)
Gravel (%): 0 Sand (%): 7 Clay/Silt (%): 93
Liquid Limit: 61 Plasticity Index: 41



Sample Location: Test Boring No. 23 at a depth of 14 feet
Sample Description: Sand, very clayey
Classification: A-4(1), CLAYEY SAND(SC)
Gravel (%): 0 Sand (%): 53 Clay/Silt (%): 47
Liquid Limit: 26 Plasticity Index: 8

GRADATION AND ATTERBERG TEST RESULTS
FIGURE 29
PROJECT NO. 174095

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

TABLE I
SUMMARY OF LABORATORY TEST RESULTS
January 22, 2018

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm●cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
1	9	Clay (weathered claystone), trace sand	97	26	3.9	4,800	98	81	59				
1	14	Claystone, slightly sandy	107	20	4.4	6,200							
2	14	Sand, silty		21			20	NV	NP				
3	4	Sand, silty								7.9	1,106	240	0.0061
3	9	Sand, slightly silty		12			8	NV	NP				
4	14	Sand, silty		14			16	NV	NP				
5	19	Sand, silty		20			19	NV	NP				
6	4	Clay (weathered claystone), sandy	122	11	9.2	16,800							
6	9	Claystone, slightly sandy	109	18	6.1	13,200	94	68	48				
6	24	Claystone, slightly sandy	107	18	3.1	5,900							
7	9	Sand, very silty		15			43	20	NP				
7	14	Clay, sandy	106	19	-0.7		79	42	23				
8	9	Claystone, slightly sandy	116	15	5.2	14,500							
8	19	Claystone, slightly sandy	107	18	6.4	12,400							
8	29	Claystone, slightly sandy	117	14	4.1	10,900							
9	9	Clay (weathered claystone), slightly sandy	104	20	2.7	6,300							
9	14	Claystone, very sandy		18			63	29	11				
10	4	Clay (weathered claystone), slightly sandy								7.8	273	2,860	0.0144
10	9	Claystone, slightly sandy	115	15	7.3	16,700							
10	19	Claystone, slightly sandy	125	12	2.8	10,000							
11	9	Claystone, slightly sandy	113	17	9.5	16,300							
11	14	Claystone, trace sand	115	14	5.5	13,800	99	66	46				

Notes:
[1] Indicates Percent Swell or Consolidation (−) when wetted under a 1,000 psf load, unless otherwise noted.

NV - indicates No Value
NP - indicates Non-Plastic

A.G. Wassenaar Inc.
Geotechnical and Environmental Consultants

TABLE I
SUMMARY OF LABORATORY TEST RESULTS
January 22, 2018

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
12	9	Claystone, slightly sandy	104	21	2.8	5,700							
12	14	Claystone, slightly sandy	112	18	3.7	11,100							
12	24	Claystone, very sandy		20			54	30	11				
13	19	Claystone, slightly sandy	116	16	5.3	14,500							
13	29	Claystone, slightly sandy	118	13	5.5	13,100							
14	9	Claystone, slightly sandy		19			91	40	19				
14	14	Claystone, slightly sandy	114	16	1.9	3,500							
14	24	Claystone, slightly sandy	112	15	3.7	5,500							
15	9	Sand, trace silty		15			3	NV	NP				
16	14	Sand, very silty		17			40	NV	NP				
17	9	Clay (weathered claystone), trace sand	108	20	2.5	4,200	98	62	40				
17	24	Claystone, slightly sandy	104	22	8.1	9,500							
18	4	Sand, silty								7.7	1,510	<100	0.0016
18	9	Claystone, sandy	115	15	1.6	4,900	75	39	20				
18	19	Claystone, slightly sandy	109	21	3.9	8,800							
19	4	Sand, slightly silty		17			14	NV	NP				
20	14	Claystone, slightly sandy								7.6	410	2,840	0.0089
20	24	Claystone, slightly sandy	123	13	2.7	7,700							
20	34	Claystone, slightly sandy	118	15	4.1	13,500							
21	4	Sand, slightly silty		18			10	NV	NP				
22	19	Clay (weathered claystone), slightly sandy		23			93	61	41				
23	14	Sand, very clayey		17			47	26	8				

Notes:
[1] Indicates Percent Swell or Consolidation (−) when wetted under a 1,000 psf load, unless otherwise noted.

NV - indicates No Value
NP - indicates Non-Plastic

APPENDIX C
SPECIFICATIONS FOR PLACEMENT OF FILL

APPENDIX C
SPECIFICATIONS FOR PLACEMENT OF FILL

General

AGW, as the Client's representative, should observe fill placement and conduct tests to determine if the materials placed, methods of placement, and compaction are in reasonable conformance with these specifications. Specifications presented in this Appendix are general in nature. They should be used for construction except where specifically superseded by those presented in the attendant geotechnical study.

For the purpose of this specification, structural areas include those areas that will support constructed appurtenances (e.g., foundations, slabs, flatwork, pavements, etc.) and fill embankments or slopes that support significant fills or constructed appurtenances. Structural areas will be as defined by AGW.

Fill Material

Fill material should consist of on or off-site soils which are relatively free of vegetable matter and rubble. Off-site materials should be evaluated by AGW prior to importation. No organic, frozen, perishable, rock greater than 6 inches, or other unsuitable material should be placed in the fill. For the purpose of this specification, cohesive soil is defined as a mixture of clay, sand, and silt with more than 35% passing a U. S. Standard #200 sieve and a Plasticity Index of at least 11. These materials will classify as an A-6 or A-7 by the AASHTO Classification system. Granular soils are all materials which do not classify as cohesive.

Preparation of Fill Subgrade

Vegetation, organic topsoil, and any other deleterious materials should be removed from the fill area. The area to be filled should then be scarified, moistened or dried as necessary, and compacted to the moisture content and compaction level specified below prior to placement of subsequent layers of fill.

Placement of Fill Material

The materials should be delivered to the fill in a manner which will permit a well and uniformly compacted fill. Before compacting, the fill material should be properly broken down, mixed, and spread in approximately horizontal layers not greater than 8 inches in loose thickness.

Moisture Control

The material must contain uniformly distributed moisture for proper compaction. The Contractor will be required to add moisture to the materials if, in the opinion of AGW, sufficient and uniform moisture is not present in the fill. If the fill materials are too wet for proper compaction, aerating and/or mixing with drier materials will be required.

Moisture content should be controlled as a percentage deviation from optimum. Optimum moisture content is defined as the moisture content corresponding to the maximum density of a laboratory

compacted sample performed according to ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The moisture content specifications for the various areas are as follows:

		Cohesive Soils	Granular Soils
1.	Beneath Structural Areas:	0 to +4%	−2 to +2%
2.	Beneath Non-Structural Areas:	−3 to +3%	−3 to +3%
3.	Moisture Treated Fill:	0 to +4%	−2 to +2%

Compaction

When the moisture content and conditions of each layer spread are satisfactory, the fill should be compacted. Laboratory moisture-density tests should be performed on typical fill materials to determine the maximum density. Field density tests must then be made to determine fill compaction. The compaction standard to be utilized in determining the maximum density is ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The following compaction specifications should be followed for each area:

1.	Beneath Structural Areas:	95% of Maximum Dry Density
2.	Beneath Non-Structural Areas:	90% of Maximum Dry Density
3.	Moisture Treated Fill:	95% of Maximum Dry Density

If the fill contains less than 10% passing the No. 200 sieve, it may be necessary to control compaction based on relative density (ASTM D2049). If this is the case, then compaction around the structures and beneath walkway or other slabs should be to at least 70% relative density, and compaction beneath foundations and vehicle supporting should be to at least 80% relative density.

Deep Fills

In areas where fill depths exceed 20 feet beneath structural areas, additional compaction considerations will be required to reduce fill settlement. Fill placed within 20 feet of final overlot grade should be compacted as required above. Deeper fills should be compacted to 100% of maximum dry density at a moisture content of ±2% of optimum moisture content. Relative density of at least 85% will be required when necessary.

Responsibility

Any mention of essentially full-time testing and observation does not mean AGW will accept responsibility for future fill performance. AGW shall not be responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by Client's contractor. Performance of construction observation services does not constitute a warranty or guarantee of any type, since even with diligent observation, some construction defects, deficiencies or omissions in the Contractor's work may occur undetected. Client shall hold its contractor solely responsible for the quality and completion of the project, including construction in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the contractor or any subcontractor.

Willow Bend

Utility Report

Owner/Developer
Sun Communities ACQ, Inc.
27777 Franklin Road, Suite 200
Southfield, MI 48034

Engineer
Atwell, LLC
143 Union Blvd #700
Lakewood, Colorado 80228
(303) 825-7100

Project Number
19001956

Submittal Date
July 20th, 2020
Revised April 21st, 2021

Table of Contents

Certification Statement 1
Project Location and Description 2
Site Location 2
Description of Property and Land Use 2
Calculated Water Demands 3
Existing Water System 3
Existing Distribution System 3
Existing Storage Facilities 3
Proposed Water System 3
Potable Water 3
Non-Potable Water 4
Proposed Storage Facilities 4
Hydraulic Modeling 4
Results and Conclusions 6
Calculated Sanitary Sewer Flows 7
Existing Sanitary Sewer System 7
Existing Collection System 7
Proposed Sanitary Sewer System 8
Proposed Collection System 8
Proposed Wastewater Treatment Facilities 8
Proposed Sanitary Sewer System Analysis 8
Results and Conclusions 8
References 8

APPENDIX A – Water Demand Calculations
APPENDIX B – Water Hydraulic Analysis and Modeling
APPENDIX C – Wastewater Flows
APPENDIX D – Wastewater Hydraulic Analysis and Modeling
APPENDIX E – Exhibits and Utility Plans

Certification Statement

This Utility Report for the design of the Willow Bend development was prepared by me or under my direct supervision in accordance with the City of Fort Lupton's Standards and Specifications and acceptable professional practices of the industry. We acknowledge that the City of Fort Lupton's review of this Utility Study is only for general conformance with submittal requirements, current design criteria and standard engineering principles and practices. We are also aware of the provisions of the City Code of the City of Fort Lupton.

04/21/2021

Richard J. Weed, PE — Date
Registered Professional Engineer State of Colorado No. 22076

Project Location and Description

Site Location



The Willow Bend project site is located in Weld County in the City of Fort Lupton. The site is generally bounded by 14th Street to the north, Fulton Ditch to the east, private property to the south, and Northrup Avenue to the west. To the east and south, across the Fulton Ditch, is a planned development named Cottonwood Greens.

Description of Property and Land Use

The proposed development is approximately 127 acres and will contain 448 housing units with on-site open spaces and detention. The site is currently undeveloped land that serves several gas facilities and is zoned PUD. A Geotechnical Site Development Report, completed by A.G. Wassenaar and dated January 15th, 2020, identified the surface soils as loose sand of varying depth. Bedrock consisting of claystone and sandstone were encountered at depths ranging from 1.5-feet to 27.5-feet. Ground water was encountered at depths ranging from 0.5-feet to 24.5-feet.

Calculated Water Demands

The water demands for Willow Bend were based on a conservative estimate for manufactured homes of 160 gpd for the Average Day Demand for each unit without any demand considered for landscaping uses.

Demand per capita (gal/unit/day)	Proposed number of units	Average Day Demand (gpd)
160	448	71,680

The Average Day Demand (ADD) of 71,680 gallons per day is multiplied by the following factors to get Max Day Demand (MDD) and Peak Hour Demand (PHD).

Max Day Demand Factor = 2.5
Peak Hour Demand Factor = 4.0

The required fire flow, per Appendix B of the 2018 International Fire Code, requires one-family dwelling units without automatic sprinkler systems, and having a square footage of less than 3,600 square-feet, be provided with a fire flow of 1,000 gpm for one hour.

A separate, non-potable, water supply is anticipated to provide the irrigation demands and will not be included in the potable water model and results presented in this report.

A detailed report of the water demand calculations can be found in Appendix A.

Existing Water System

Existing Distribution System

Existing water system tie-in points include a 12-inch potable water line in 14th Street and an 8-inch potable water line in Northrup. A 6-inch non-potable water line, built with Cottonwood Greens, will be extended into Willow Bend to provide irrigation.

Existing Storage Facilities

The City of Fort Lupton will be providing the water storage for the development.

Proposed Water System

Potable Water

The proposed potable water system will include extending the existing 12-inch public water main in 14th Street and the 8-inch public water main in Northrup Avenue. The proposed private water mains will tee off of the public mains and will consist of 8-inch PVC pipes. An 8-inch meter will be located at the

Northrup connection and a 8-inch meter will be located at the 14th Street connection. Each dwelling unit will have a 3/4-inch service tap to the private mains.

Water System Phasing

The project will consist of multiple phases, with the first phase being supplied by the single connection from Northrup Avenue. This 8-inch connection will be able to supply demands for fire flow as well as residential use. A phasing map and analysis for the phase 1 connection has been included in the results of this report.

In the event that the development to the east, Cottonwood Greens, does not build the required 12-inch public water main in 14th street that will be needed for the remaining phase, the construction of Willow Bend will also include the water main connection out to County Road 31.

Non-Potable Water

The proposed 6-inch (PVC) non-potable water main will connect to the Cottonwood Greens non-potable system.

Proposed Storage Facilities

There is no storage facility proposed with this development.

Hydraulic Modeling

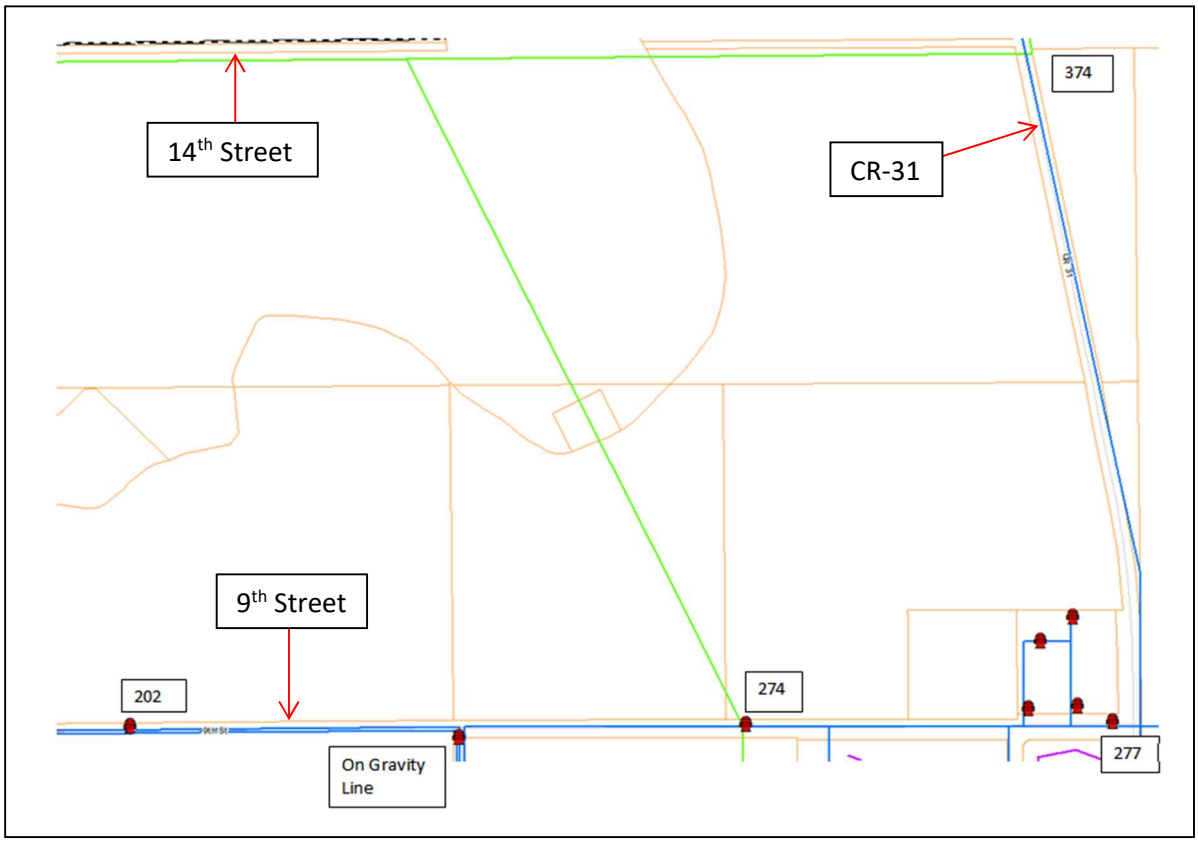
Bentley WaterCAD V8i was used to model the proposed water system. See Appendix B for a system map and tabulated results.

The following scenarios were used for modeling the Willow Bend potable water network. Public and private lines were checked for conformance to Chapter 3 of the City of Fort Lupton *Standards and Specifications for the Design and Construction of Public Improvements.* Since the proposed private system will be new, and will be able to sustain higher velocities, the private system used the criteria from the North Weld County Water District *Potable Water Distribution System Design Criteria and Standards* (NWCWD) for maximum pipe velocity. The criteria are presented in the table below.

	NWCWD	**Fort Lupton**		
Scenario	**Maximum Pipe Velocity (Private lines)** (ft/s)	**Maximum pipe velocity (Public lines)** (ft/s)	**Minimum Pressure** (psi)	**Maximum Pressure** (psi)
Average Day Demand	10	5	-	100
Maximum Day Demand + Fire Flow	10	7	20	-
Peak Hour Demand	10	5	50	-

Hydrant information was provided to us by the City of Fort Lupton and is shown below. Hydrants 374 and 274 were used for modeling.

Fire Department Number	House number	Street Name	PSI	Pitot	Res	GPM	Minutes Flushed	Gallons Flushed	MAKE	MODEL	YEAR	COLOR
274	9th Street	between 31 & College	78	45	70	1130	5	5650	Mueller	5.25	2010	Blue
277	2999	9th NW corner	70	55	62	1250	5	6250	Mueller	5.25	2003	Blue
374	2951	County Road 14.5	74		56	1130	5	5650	Mueller	5.25	2019	Red



Irrigation will be provided by the non-potable water lines and were not modeled as part of the water system.

Results and Conclusions

The proposed public and private potable water system design meets the criteria of the City of Fort Lupton *Standards and Specifications for the Design and Construction of Public Improvements,* with the exception of maximum pressure and velocity as presented below.

The maximum public water line pressure occurs at the lowest elevation of the site, the intersection of Northrup and 14th Street with 101 psi under Average Day Demands. Since we are matching the existing grade at this intersection, the pressure at the intersection cannot be reduced without a PRV on the both the 8" and 12" public water lines. Future, lower elevation, developments may need PRV's in order to meet the City Standards. No PRV is being proposed on the public lines with this development. Under Max Day Demands with Fire Flow, the maximum velocity in the public lines is 3.03 fps. Peak hour demands results show a minimum public system pressure of 75 psi and a velocity of 1.35 fps. The greatest pressure fluctuation between the Average Day Demand and the Peak Hour demand is 1 psi.

For the private system, the maximum pressure under Average Day Demands is 96 psi with the highest pipe velocity being 0.34 fps. Maximum day demands with Fire Flow have a minimum private system pressure of 61 psi with the highest pipe velocity of 6.44 fps. Peak hour demands results show a minimum private system pressure of 82 psi and a maximum velocity of 1.85 fps. The greatest pressure fluctuation between the Average Day Demand and the Peak Hour demand is 1 psi.

Calculated Sanitary Sewer Flows

The Sanitary Sewer flows for Willow Bend were calculated per Chapter 4 of the City of Fort Lupton *Standards and Specifications for the Design and Construction of Public Improvements* and are presented below.

Flow per capita (gpd/capita)	Persons per unit	Flow per dwelling (gpd/dwelling)	Proposed number of units	Average Day Flow (gpd)
70	2.90	203	448	90,944

The Average Day Flow (ADF) of 91,147 gallons per day is multiplied by the peaking factor to get Peak Day Flow (PDF).

Peaking Factor	Peak Flow per dwelling (gpd/dwelling)	Peak Flow per dwelling (gpm/dwelling)	Proposed number of units	Peak Day Flow (gpd)
3.0	609	0.423	448	272,832

The Average Daily Flow per dwelling of 203 gpd is greater than the estimated water demand per dwelling of 160 gpd. For sewer design, we have adhered to the City standards for a more conservative design.

Inflow and infiltration is added to the Peak Day Flows above to get the design flows. Inflow and infiltration is calculated at 100 gpd per acre of tributary area. A detailed report of the Sanitary Sewer flow calculations, including routing and preliminary pipe sizing, can be found in Appendix C.

Existing Sanitary Sewer System

Existing Collection System

An existing 12-inch sanitary sewer main is located on the north edge of the property in 14th Street and another 10-inch main runs southeast to northwest through the site, located in a 20' wide sewer easement. These lines were built as part of the AIMS Community College Outfall Sewer Line. Both of these mains will be used for sanitary sewer connections. See Appendix E for a Utility map.

Proposed Sanitary Sewer System

Proposed Collection System

The proposed private sewer system will consist of 6-inch and 8-inch lines, tied to the existing system with newly constructed manholes. The private sewer mains will be placed at a minimum depth of 8', with minimum slopes per the Fort Lupton Design Standards. A sample of design values are shown below. For a full report, see Appendix D.

Pipe Diameter (in.)	Pipe Slope (%)	Velocity @ 50% full (fps)	Discharge @ 50% full (gpm)	Peak Number of Units Served
6	0.6	2.21	97.5	230
6	0.8	2.56	112.6	266
6	1.0	2.86	125.9	297
6	2.0	4.04	178.1	421
8	0.5	2.45	191.8	453
8	0.6	2.68	210.1	496

Proposed Wastewater Treatment Facilities

The City of Fort Lupton will provide wastewater treatment for the proposed subdivision.

Proposed Sanitary Sewer System Analysis

Bentley Flowmaster software was used for capacity calculations of the proposed Sanitary Sewer system.

Results and Conclusions

The proposed sanitary sewer system for Willow Bend will consist of 6-inch and 8-inch PVC gravity lines. There will be several locations where proposed mains will tie into the existing 10-inch and 12-inch sanitary sewer lines in the vicinity of the site. New discharge points on the 10-inch line running through the site will require new manholes to be constructed on existing lines. The connection to the 12-inch line in 14th Street will be made at an existing manhole. Analysis and design have been completed in accordance with City of Fort Lupton standards.

References

1) *Standards and Specifications for the Design and Construction of Public Improvements;* City of Fort Lupton, 2014 Edition
2) *International Fire Code;* International Code Council, 2018
3) *Geotechnical Site Development Study, Coyote Creek North, Fort Lupton, Colorado;* A.G. Wassenaar, Inc. January 15th, 2020

4) *Potable Water Distribution System Design Criteria and Standards*; North Weld County Water District, April 12, 2018
5) Aim Community College Outfall Sewer Line, Alpha Engineering

APPENDIX A – Water Demands

Willow Bend
Potable Water Demand Calculations

Project: Willow Bend
Prepared By: Atwell, LLC

Prepared For: Sun Communities
Date: April 18, 2021

Single Family Detached[1]

No. of Lots	448	lots	
Average Day Demand	160	gpd per unit	
Average Day Demand (ADD)	71,680	gpd	
Maximum Day Demand (MDD)	179,200	gpd	Maximum day demand factor = 2.5
Peak Hour Demand (PHD)	286,720	gpd	Peak hour demand factor = 4

Fire Flow Demand[2]

Single Family Residential	1,000	gpm	1,000 gpm for 1 hour
	1,440,000	gpd	

Total Water Demand

Maximum Day Demand + Fire Flow	**1,619,200**	**gpd**
Peak Hour Demand	286,720	gpd

Notes:

1) The unit demands were provided by Sun Communities
2) The fire flow demand was taken from 2018 *International Fire Code* , Appendix B, Table B105.1 (1) for a one-family dwelling between 0 and 3,600 square feet with no automatic fire suppression (sprinkler) system.

APPENDIX B – Water Hydraulic Analysis and Modeling

-Water Basin Map
-Color Coded System Schematic
-Full System Schematic
-Average Day Demand
- Junction Report
- Pipe Report
- Hydrant Report
- Reservoir Report

-Max Day Demand With Fire Flow
- Junction Report
- Pipe Report
- Reservoir Report
- Fire Flow Report

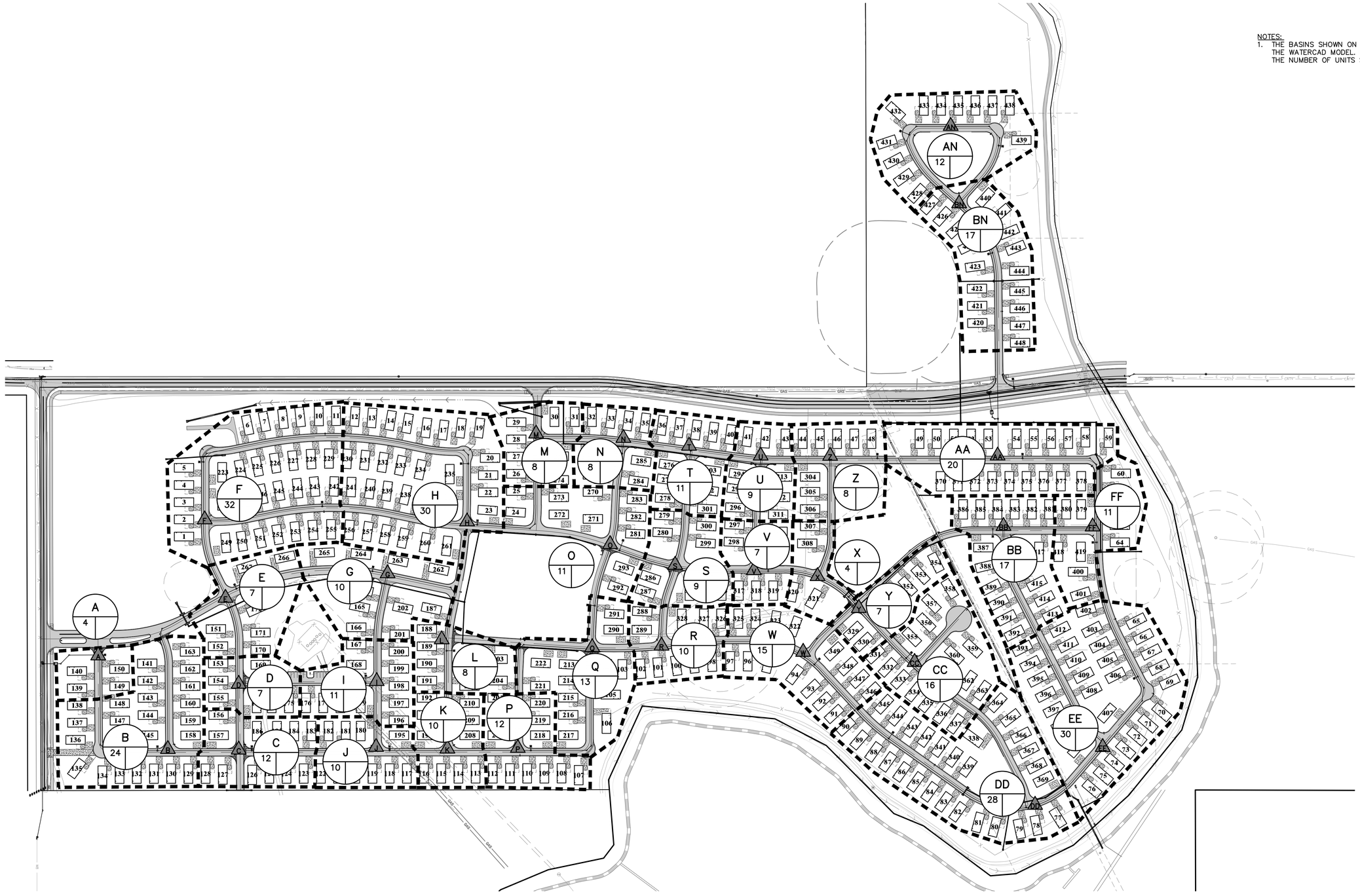
-Peak Hour Demand
- Junction Report
- Pipe Report
- Hydrant Report
- Reservoir Report

-Phase I System Schematic
- Average Day Demand Reports
- Max Day Demand Reports
- Peak Hour Demand Reports

WILLOW BEND

WATER BASIN MAP

NOTES:
1. THE BASINS SHOWN ON THIS EXHIBIT CORRESPOND TO JUNCTIONS IN THE WATERCAD MODEL. DEMANDS WERE ASSINGED TO EACH NODE PER THE NUMBER OF UNITS SERVED BY EACH NODE.



150 0 150 300

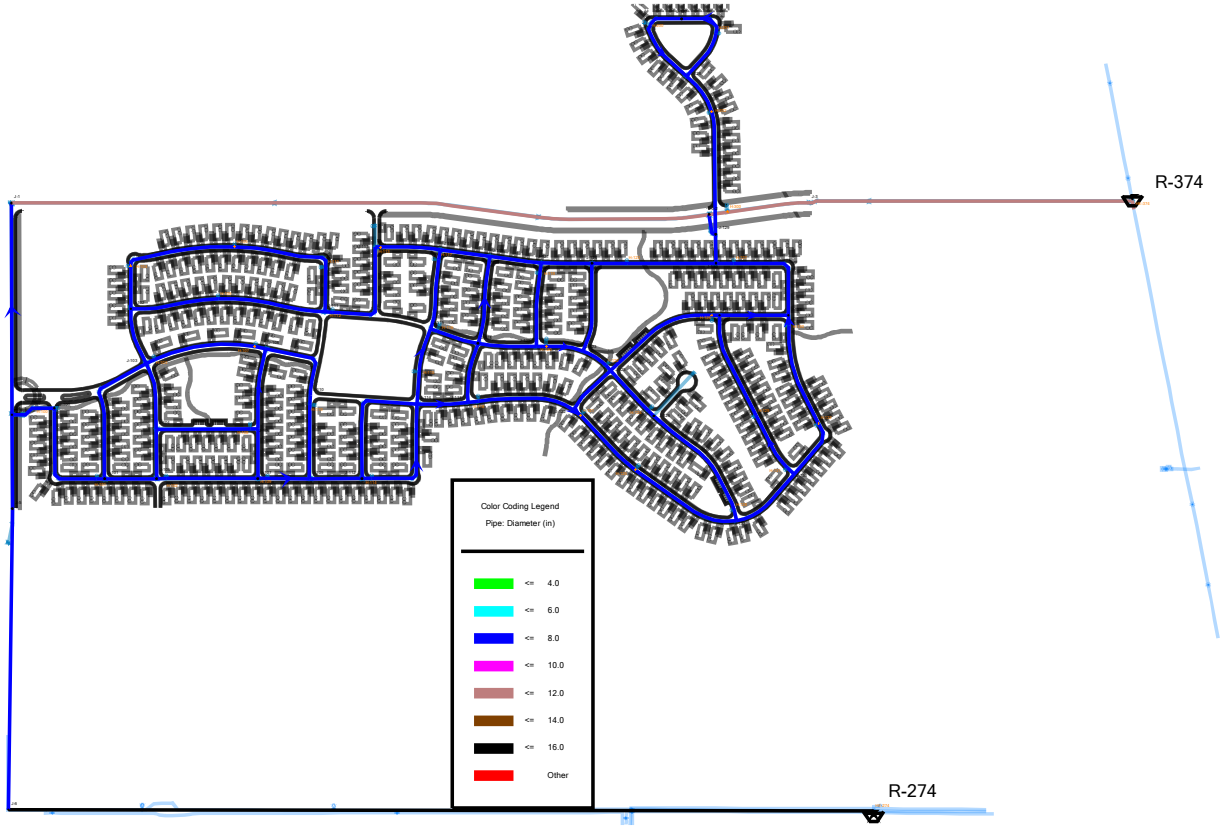
(IN FEET)
1 inch = 150 ft.

PROJECT NO.:19001956
DATE: 04/18/2021

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100
CONTACT: RICK WEED
RWEED@ATWELL-GROUP.COM

CAD FILE: 19001956 - WATERCAD MODELING.DWG

System Schematic



Willow Bend

Active Scenario: ADD

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-1	4,929.35	0	5,163.49	101	0	
J-2	4,967.17	0	5,163.30	85	0	
J-3	4,974.51	0	5,163.23	82	0	
J-4	4,948.88	0	5,163.90	93	0	
J-5	4,960.16	0	5,164.59	88	0	
J-6	4,963.00	0	5,166.78	88	0	
J-100	4,944.58	640	5,163.81	95	0	A
J-101	4,958.89	3,840	5,163.56	89	0	B
J-102	4,941.32	5,120	5,163.49	96	0	F
J-103	4,943.78	1,120	5,163.51	95	0	E
J-104	4,951.13	1,120	5,163.51	92	0	D
J-105	4,956.86	1,920	5,163.52	89	0	C
J-106	4,955.79	1,760	5,163.50	90	0	I
J-107	4,960.91	1,600	5,163.50	88	0	J
J-108	4,949.13	1,600	5,163.50	93	0	G
J-109	4,963.17	1,600	5,163.49	87	0	K
J-110	4,955.94	1,280	5,163.49	90	0	L
J-111	4,949.28	4,800	5,163.47	93	0	H
J-112	4,965.41	1,920	5,163.45	86	0	P
J-113	4,943.93	1,280	5,163.44	95	0	M
J-114	4,960.07	2,080	5,163.43	88	0	Q
J-115	4,954.18	1,760	5,163.42	91	0	O
J-116	4,946.66	1,280	5,163.42	94	0	N
J-117	4,962.30	1,600	5,163.41	87	0	R
J-118	4,956.00	1,440	5,163.41	90	0	S
J-119	4,949.04	1,760	5,163.41	93	0	T
J-120	4,958.51	1,120	5,163.40	89	0	V
J-121	4,951.57	1,440	5,163.40	92	0	U
J-122	4,967.03	2,400	5,163.40	85	0	W
J-123	4,960.57	640	5,163.39	88	0	X
J-124	4,953.99	1,280	5,163.39	91	0	Z
J-125	4,962.02	1,120	5,163.39	87	0	Y
J-126	4,964.69	2,560	5,163.39	86	0	CC
J-127	4,966.40	1,920	5,163.32	85	0	AN
J-128	4,963.04	2,720	5,163.32	87	0	BN
J-129	4,963.43	0	5,163.32	86	0	
J-130	4,959.28	3,200	5,163.35	88	0	AA
J-131	4,960.18	2,720	5,163.38	88	0	BB
J-132	4,970.48	4,480	5,163.39	83	0	DD
J-133	4,963.96	1,760	5,163.38	86	0	FF
J-134	4,970.88	4,800	5,163.38	83	0	EE

Willow Bend
Active Scenario: ADD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-1	J-2	J-1	3,038	12.0	PVC	130.0	194,983	0.38	101
P-2	H-300	J-2	82	12.0	PVC	130.0	325,388	0.64	85
P-3	J-3	H-300	356	12.0	PVC	130.0	325,388	0.64	84
P-4	J-4	J-1	920	8.0	PVC	130.0	194,983	0.86	101
P-5	J-5	J-4	407	8.0	PVC	130.0	397,068	1.76	93
P-100	J-2	J-129	100	8.0	PVC	130.0	130,405	0.58	86
P-101	J-129	J-130	126	8.0	PVC	130.0	135,045	0.60	88
P-102	J-4	J-100	196	8.0	PVC	130.0	202,085	0.90	95
P-103	J-100	H-100	12	8.0	PVC	130.0	201,445	0.89	95
P-104	J-103	J-102	251	8.0	PVC	130.0	76,284	0.34	96
P-105	J-103	J-101	622	8.0	PVC	130.0	79,821	0.35	89
P-106	J-103	H-103	41	8.0	PVC	130.0	26,942	0.12	95
P-107	J-102	H-104	186	8.0	PVC	130.0	31,618	0.14	97
P-108	J-102	H-106	384	8.0	PVC	130.0	39,546	0.18	95
P-109	H-104	H-105	477	8.0	PVC	130.0	31,618	0.14	96
P-110	H-105	H-111	434	8.0	PVC	130.0	31,618	0.14	94
P-111	J-111	H-112	32	8.0	PVC	130.0	66,364	0.29	93
P-112	J-116	H-113	260	8.0	PVC	130.0	65,084	0.29	95
P-113	J-116	J-119	215	8.0	PVC	130.0	52,231	0.23	93
P-114	J-124	H-123	152	8.0	PVC	130.0	77,565	0.34	90
P-115	J-124	J-121	221	8.0	PVC	130.0	57,627	0.26	92
P-116	J-128	H-202	193	8.0	PVC	130.0	4,640	0.02	87
P-117	J-128	H-201	231	8.0	PVC	130.0	1,684	0.01	85
P-118	J-101	H-101	33	8.0	PVC	130.0	201,445	0.89	88
P-119	J-101	J-105	226	8.0	PVC	130.0	117,784	0.52	89
P-120	J-105	H-102	42	8.0	PVC	130.0	56,255	0.25	89
P-121	J-107	H-109	44	8.0	PVC	130.0	73,034	0.32	87
P-122	J-107	J-106	215	8.0	PVC	130.0	18,379	0.08	90
P-123	J-109	J-112	228	8.0	PVC	130.0	109,321	0.48	86
P-124	J-112	H-114	43	8.0	PVC	130.0	54,102	0.24	85
P-125	J-112	J-114	567	8.0	PVC	130.0	53,299	0.24	88
P-126	J-114	H-115	140	8.0	PVC	130.0	38,237	0.17	89
P-127	J-114	J-117	221	8.0	PVC	130.0	67,084	0.30	87
P-128	H-115	J-115	193	8.0	PVC	130.0	38,237	0.17	91
P-129	J-115	H-116	31	8.0	PVC	130.0	48,049	0.21	91
P-130	J-115	H-117	305	8.0	PVC	130.0	11,573	0.05	94
P-131	J-118	H-116	186	8.0	PVC	130.0	48,049	0.21	91
P-132	J-118	J-120	256	8.0	PVC	130.0	53,824	0.24	89
P-133	J-120	H-119	319	8.0	PVC	130.0	2,213	0.01	92
P-134	J-120	H-120	43	8.0	PVC	130.0	50,491	0.22	88
P-135	J-121	J-119	226	8.0	PVC	130.0	56,854	0.25	93
P-136	J-121	H-119	45	8.0	PVC	130.0	2,213	0.01	92
P-137	J-119	J-118	383	8.0	PVC	130.0	6,383	0.03	90
P-138	H-103	H-107	445	8.0	PVC	130.0	26,942	0.12	93
P-139	H-110	J-109	320	8.0	PVC	130.0	37,887	0.17	87

Willow Bend
Active Scenario: ADD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-140	J-122	H-121	40	8.0	PVC	130.0	22,390	0.10	85
P-141	J-122	J-125	236	8.0	PVC	130.0	27,098	0.12	87
P-142	J-122	H-118	421	8.0	PVC	130.0	51,888	0.23	87
P-143	J-126	H-128	548	8.0	PVC	130.0	16,587	0.07	84
P-144	J-126	H-124	33	8.0	PVC	130.0	19,147	0.08	86
P-145	J-132	H-128	47	8.0	PVC	130.0	16,587	0.07	84
P-146	J-132	H-125	506	8.0	PVC	130.0	22,390	0.10	83
P-147	J-125	H-126	524	8.0	PVC	130.0	35,463	0.16	88
P-148	H-121	H-125	336	8.0	PVC	130.0	22,390	0.10	83
P-149	H-124	J-125	239	8.0	PVC	130.0	19,147	0.08	87
P-150	H-122	J-125	30	8.0	PVC	130.0	28,633	0.13	87
P-151	J-134	H-132	268	8.0	PVC	130.0	24,053	0.11	84
P-152	J-134	J-132	331	8.0	PVC	130.0	34,497	0.15	83
P-153	J-134	H-131	43	8.0	PVC	130.0	5,644	0.03	84
P-154	J-127	H-200	149	8.0	PVC	130.0	236	0.00	86
P-155	H-202	J-129	532	8.0	PVC	130.0	4,640	0.02	86
P-156	J-108	J-110	374	8.0	PVC	130.0	39,167	0.17	90
P-157	J-131	J-133	300	8.0	PVC	130.0	38,387	0.17	86
P-158	J-131	H-129	471	8.0	PVC	130.0	5,644	0.03	85
P-159	H-126	J-131	33	8.0	PVC	130.0	35,463	0.16	88
P-160	J-133	H-127	451	8.0	PVC	130.0	60,680	0.27	88
P-161	H-100	H-101	467	8.0	PVC	130.0	201,445	0.89	88
P-162	H-102	J-107	397	8.0	PVC	130.0	56,255	0.25	88
P-163	H-109	J-109	181	8.0	PVC	130.0	73,034	0.32	87
P-164	H-108	J-106	33	8.0	PVC	130.0	33,964	0.15	90
P-165	H-112	J-113	470	8.0	PVC	130.0	66,364	0.29	95
P-166	H-113	J-113	24	8.0	PVC	130.0	65,084	0.29	95
P-167	H-117	J-116	43	8.0	PVC	130.0	11,573	0.05	94
P-168	H-107	J-108	48	8.0	PVC	130.0	26,942	0.12	93
P-169	H-129	H-131	264	8.0	PVC	130.0	5,644	0.03	84
P-170	H-132	H-130	453	8.0	PVC	130.0	24,053	0.11	86
P-171	H-130	J-133	44	8.0	PVC	130.0	24,053	0.11	86
P-172	H-120	J-123	162	8.0	PVC	130.0	50,491	0.22	88
P-173	H-201	J-127	196	8.0	PVC	130.0	1,684	0.01	85
P-174	H-200	J-128	286	8.0	PVC	130.0	236	0.00	87
P-175	J-104	J-103	292	8.0	PVC	130.0	24,525	0.11	95
P-176	J-104	J-105	215	8.0	PVC	130.0	59,609	0.26	89
P-177	J-104	H-108	408	8.0	PVC	130.0	33,964	0.15	90
P-178	H-111	J-111	194	8.0	PVC	130.0	31,618	0.14	93
P-179	H-106	J-111	469	8.0	PVC	130.0	39,546	0.18	93
P-180	J-106	J-108	352	8.0	PVC	130.0	13,825	0.06	93
P-181	H-114	J-114	508	8.0	PVC	130.0	54,102	0.24	88
P-182	J-117	J-118	263	8.0	PVC	130.0	13,597	0.06	90
P-183	J-117	H-118	48	8.0	PVC	130.0	51,888	0.23	87
P-184	J-123	J-124	388	8.0	PVC	130.0	21,218	0.09	91

Willow Bend
Active Scenario: ADD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-185	J-123	H-122	117	8.0	PVC	130.0	28,633	0.13	87
P-186	J-130	H-127	77	8.0	PVC	130.0	60,680	0.27	88
P-187	J-130	H-123	387	8.0	PVC	130.0	77,565	0.34	90
P-188	J-110	H-110	43	8.0	PVC	130.0	37,887	0.17	89
PE-1	R-374	J-3	1,407	12.0	PVC	130.0	325,388	0.64	82
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	397,068	1.76	88
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	397,068	0.44	88
PE-274	R-274	HE-274	1	16.0	PVC	130.0	397,068	0.44	78
PE-374	R-374	HE-374	1	12.0	PVC	130.0	2	0.00	74

Willow Bend
Active Scenario: ADD
FlexTable: Hydrant Table

Label	Elevation (ft)	Pressure (psi)
H-100	4,944.58	95
H-101	4,959.23	88
H-102	4,956.95	89
H-103	4,944.22	95
H-104	4,939.80	97
H-105	4,942.59	96
H-106	4,944.69	95
H-107	4,948.66	93
H-108	4,955.21	90
H-109	4,961.36	87
H-110	4,956.72	89
H-111	4,946.79	94
H-112	4,949.56	93
H-113	4,943.12	95
H-114	4,965.85	85
H-115	4,957.32	89
H-116	4,953.87	91
H-117	4,946.99	94
H-118	4,962.76	87
H-119	4,951.89	92
H-120	4,958.93	88
H-121	4,967.42	85
H-122	4,961.73	87
H-123	4,955.66	90
H-124	4,964.38	86
H-125	4,970.60	83
H-126	4,959.87	88
H-127	4,959.95	88
H-128	4,970.09	84
H-129	4,966.30	85
H-130	4,964.37	86
H-131	4,970.15	84
H-132	4,968.46	84
H-200	4,965.31	86
H-201	4,966.14	85
H-202	4,961.41	87
H-300	4,969.81	84
HE-274	4,987.15	78
HE-374	4,991.00	74

Willow Bend
Active Scenario: ADD
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	-2	5,163.00
R-274	5,167.00	71,684	5,167.00

Willow Bend
Active Scenario: MDD + FF
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-1	4,929.35	0	5,163.33	101	0	
J-2	4,967.17	0	5,163.16	85	0	
J-3	4,974.51	0	5,163.12	82	0	
J-4	4,948.88	0	5,163.72	93	0	
J-5	4,960.16	0	5,164.45	88	0	
J-6	4,963.00	0	5,166.77	88	0	
J-100	4,944.58	1,600	5,163.61	95	0	A
J-101	4,958.89	9,600	5,163.33	88	0	B
J-102	4,941.32	12,800	5,163.24	96	0	F
J-103	4,943.78	2,800	5,163.27	95	0	E
J-104	4,951.13	2,800	5,163.27	92	0	D
J-105	4,956.86	4,800	5,163.28	89	0	C
J-106	4,955.79	4,400	5,163.26	90	0	I
J-107	4,960.91	4,000	5,163.26	88	0	J
J-108	4,949.13	4,000	5,163.26	93	0	G
J-109	4,963.17	4,000	5,163.25	87	0	K
J-110	4,955.94	3,200	5,163.25	90	0	L
J-111	4,949.28	12,000	5,163.23	93	0	H
J-112	4,965.41	4,800	5,163.22	86	0	P
J-113	4,943.93	3,200	5,163.20	95	0	M
J-114	4,960.07	5,200	5,163.20	88	0	Q
J-115	4,954.18	4,400	5,163.19	90	0	O
J-116	4,946.66	3,200	5,163.19	94	0	N
J-117	4,962.30	4,000	5,163.19	87	0	R
J-118	4,956.00	3,600	5,163.19	90	0	S
J-119	4,949.04	4,400	5,163.19	93	0	T
J-120	4,958.51	2,800	5,163.18	89	0	V
J-121	4,951.57	3,600	5,163.18	92	0	U
J-122	4,967.03	6,000	5,163.18	85	0	W
J-123	4,960.57	1,600	5,163.18	88	0	X
J-124	4,953.99	3,200	5,163.18	91	0	Z
J-125	4,962.02	2,800	5,163.18	87	0	Y
J-126	4,964.69	6,400	5,163.17	86	0	CC
J-127	4,966.40	4,800	5,163.16	85	0	AN
J-128	4,963.04	6,800	5,163.16	87	0	BN
J-129	4,963.43	0	5,163.16	86	0	
J-130	4,959.28	8,000	5,163.16	88	0	AA
J-131	4,960.18	6,800	5,163.17	88	0	BB
J-132	4,970.48	11,200	5,163.17	83	0	DD
J-133	4,963.96	4,400	5,163.17	86	0	FF
J-134	4,970.88	12,000	5,163.17	83	0	EE

Willow Bend
Active Scenario: MDD + FF
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-1	J-2	J-1	3,038	12.0	PVC	130.0	188,439	0.37	101
P-2	H-300	J-2	82	12.0	PVC	130.0	230,022	0.45	85
P-3	J-3	H-300	356	12.0	PVC	130.0	230,022	0.45	84
P-4	J-4	J-1	920	8.0	PVC	130.0	188,439	0.84	101
P-5	J-5	J-4	407	8.0	PVC	130.0	409,222	1.81	93
P-100	J-2	J-129	100	8.0	PVC	130.0	41,583	0.18	86
P-101	J-129	J-130	126	8.0	PVC	130.0	53,183	0.24	88
P-102	J-4	J-100	196	8.0	PVC	130.0	220,783	0.98	95
P-103	J-100	H-100	12	8.0	PVC	130.0	219,183	0.97	95
P-104	J-103	J-102	251	8.0	PVC	130.0	80,363	0.36	96
P-105	J-103	J-101	622	8.0	PVC	130.0	84,520	0.37	88
P-106	J-103	H-103	41	8.0	PVC	130.0	26,958	0.12	95
P-107	J-102	H-104	186	8.0	PVC	130.0	30,018	0.13	97
P-108	J-102	H-106	384	8.0	PVC	130.0	37,545	0.17	95
P-109	H-104	H-105	477	8.0	PVC	130.0	30,018	0.13	95
P-110	H-105	H-111	434	8.0	PVC	130.0	30,018	0.13	94
P-111	J-111	H-112	32	8.0	PVC	130.0	55,563	0.25	92
P-112	J-116	H-113	260	8.0	PVC	130.0	52,363	0.23	95
P-113	J-116	J-119	215	8.0	PVC	130.0	40,652	0.18	93
P-114	J-124	H-123	152	8.0	PVC	130.0	39,778	0.18	90
P-115	J-124	J-121	221	8.0	PVC	130.0	37,145	0.16	92
P-116	J-128	H-202	193	8.0	PVC	130.0	11,600	0.05	87
P-117	J-128	H-201	231	8.0	PVC	130.0	2,387	0.01	85
P-118	J-101	H-101	33	8.0	PVC	130.0	219,183	0.97	88
P-119	J-101	J-105	226	8.0	PVC	130.0	125,063	0.55	89
P-120	J-105	H-102	42	8.0	PVC	130.0	57,567	0.26	89
P-121	J-107	H-109	44	8.0	PVC	130.0	69,023	0.31	87
P-122	J-107	J-106	215	8.0	PVC	130.0	15,457	0.07	90
P-123	J-109	J-112	228	8.0	PVC	130.0	99,220	0.44	86
P-124	J-112	H-114	43	8.0	PVC	130.0	47,563	0.21	85
P-125	J-112	J-114	567	8.0	PVC	130.0	46,857	0.21	88
P-126	J-114	H-115	140	8.0	PVC	130.0	33,437	0.15	89
P-127	J-114	J-117	221	8.0	PVC	130.0	55,783	0.25	87
P-128	H-115	J-115	193	8.0	PVC	130.0	33,437	0.15	90
P-129	J-115	H-116	31	8.0	PVC	130.0	37,548	0.17	91
P-130	J-115	H-117	305	8.0	PVC	130.0	8,511	0.04	94
P-131	J-118	H-116	186	8.0	PVC	130.0	37,548	0.17	91
P-132	J-118	J-120	256	8.0	PVC	130.0	39,497	0.18	89
P-133	J-120	H-119	319	8.0	PVC	130.0	720	0.00	91
P-134	J-120	H-120	43	8.0	PVC	130.0	37,418	0.17	88
P-135	J-121	J-119	226	8.0	PVC	130.0	41,466	0.18	93
P-136	J-121	H-119	45	8.0	PVC	130.0	720	0.00	91
P-137	J-119	J-118	383	8.0	PVC	130.0	5,214	0.02	90
P-138	H-103	H-107	445	8.0	PVC	130.0	26,958	0.12	93
P-139	H-110	J-109	320	8.0	PVC	130.0	34,197	0.15	87

Willow Bend
Active Scenario: MDD + FF
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-140	J-122	H-121	40	8.0	PVC	130.0	17,845	0.08	85
P-141	J-122	J-125	236	8.0	PVC	130.0	17,175	0.08	87
P-142	J-122	H-118	421	8.0	PVC	130.0	41,020	0.18	87
P-143	J-126	H-128	548	8.0	PVC	130.0	13,161	0.06	84
P-144	J-126	H-124	33	8.0	PVC	130.0	19,561	0.09	86
P-145	J-132	H-128	47	8.0	PVC	130.0	13,161	0.06	84
P-146	J-132	H-125	506	8.0	PVC	130.0	17,845	0.08	83
P-147	J-125	H-126	524	8.0	PVC	130.0	24,799	0.11	88
P-148	H-121	H-125	336	8.0	PVC	130.0	17,845	0.08	83
P-149	H-124	J-125	239	8.0	PVC	130.0	19,561	0.09	87
P-150	H-122	J-125	30	8.0	PVC	130.0	29,985	0.13	87
P-151	J-134	H-132	268	8.0	PVC	130.0	9,563	0.04	84
P-152	J-134	J-132	331	8.0	PVC	130.0	19,806	0.09	83
P-153	J-134	H-131	43	8.0	PVC	130.0	1,757	0.01	84
P-154	J-127	H-200	149	8.0	PVC	130.0	2,413	0.01	86
P-155	H-202	J-129	532	8.0	PVC	130.0	11,600	0.05	86
P-156	J-108	J-110	374	8.0	PVC	130.0	37,397	0.17	90
P-157	J-131	J-133	300	8.0	PVC	130.0	16,242	0.07	86
P-158	J-131	H-129	471	8.0	PVC	130.0	1,757	0.01	85
P-159	H-126	J-131	33	8.0	PVC	130.0	24,799	0.11	88
P-160	J-133	H-127	451	8.0	PVC	130.0	21,405	0.09	88
P-161	H-100	H-101	467	8.0	PVC	130.0	219,183	0.97	88
P-162	H-102	J-107	397	8.0	PVC	130.0	57,567	0.26	88
P-163	H-109	J-109	181	8.0	PVC	130.0	69,023	0.31	87
P-164	H-108	J-106	33	8.0	PVC	130.0	34,296	0.15	90
P-165	H-112	J-113	470	8.0	PVC	130.0	55,563	0.25	95
P-166	H-113	J-113	24	8.0	PVC	130.0	52,363	0.23	95
P-167	H-117	J-116	43	8.0	PVC	130.0	8,511	0.04	94
P-168	H-107	J-108	48	8.0	PVC	130.0	26,958	0.12	93
P-169	H-129	H-131	264	8.0	PVC	130.0	1,757	0.01	84
P-170	H-132	H-130	453	8.0	PVC	130.0	9,563	0.04	86
P-171	H-130	J-133	44	8.0	PVC	130.0	9,563	0.04	86
P-172	H-120	J-123	162	8.0	PVC	130.0	37,418	0.17	88
P-173	H-201	J-127	196	8.0	PVC	130.0	2,387	0.01	85
P-174	H-200	J-128	286	8.0	PVC	130.0	2,413	0.01	87
P-175	J-104	J-103	292	8.0	PVC	130.0	25,601	0.11	95
P-176	J-104	J-105	215	8.0	PVC	130.0	62,697	0.28	89
P-177	J-104	H-108	408	8.0	PVC	130.0	34,296	0.15	90
P-178	H-111	J-111	194	8.0	PVC	130.0	30,018	0.13	93
P-179	H-106	J-111	469	8.0	PVC	130.0	37,545	0.17	93
P-180	J-106	J-108	352	8.0	PVC	130.0	14,439	0.06	93
P-181	H-114	J-114	508	8.0	PVC	130.0	47,563	0.21	88
P-182	J-117	J-118	263	8.0	PVC	130.0	10,763	0.05	90
P-183	J-117	H-118	48	8.0	PVC	130.0	41,020	0.18	87
P-184	J-123	J-124	388	8.0	PVC	130.0	5,833	0.03	91

Willow Bend

Active Scenario: MDD + FF

FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-185	J-123	H-122	117	8.0	PVC	130.0	29,985	0.13	87
P-186	J-130	H-127	77	8.0	PVC	130.0	21,405	0.09	88
P-187	J-130	H-123	387	8.0	PVC	130.0	39,778	0.18	90
P-188	J-110	H-110	43	8.0	PVC	130.0	34,197	0.15	89
PE-1	R-374	J-3	1,407	12.0	PVC	130.0	230,022	0.45	82
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	409,222	1.81	88
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	409,222	0.45	88
PE-274	R-274	HE-274	1	16.0	PVC	130.0	409,222	0.45	78
PE-374	R-374	HE-374	1	12.0	PVC	130.0	2	0.00	74

Willow Bend

Active Scenario: MDD + FF

Fire Flow Node FlexTable: Fire Flow Report

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpd)	Fire Flow (Available) (gpd)	Pressure (psi)	Pressure (Calculated Residual) (psi)	Pressure (Residual Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-100	True	1,440,000	1,441,440	95	92	20	HE-374
H-101	True	1,440,000	1,441,440	88	85	20	HE-374
H-102	True	1,440,000	1,441,440	89	86	20	HE-374
H-103	True	1,440,000	1,441,440	95	91	20	HE-374
H-104	True	1,440,000	1,441,440	97	92	20	HE-374
H-105	True	1,440,000	1,441,440	95	90	20	HE-374
H-106	True	1,440,000	1,441,440	95	90	20	HE-374
H-107	True	1,440,000	1,441,440	93	89	20	HE-374
H-108	True	1,440,000	1,441,440	90	86	20	HE-374
H-109	True	1,440,000	1,441,440	87	84	20	HE-374
H-110	True	1,440,000	1,441,440	89	85	20	HE-374
H-111	True	1,440,000	1,441,440	94	89	20	HE-374
H-112	True	1,440,000	1,441,440	92	88	20	HE-374
H-113	True	1,440,000	1,441,440	95	91	20	HE-374
H-114	True	1,440,000	1,441,440	85	82	20	HE-374
H-115	True	1,440,000	1,441,440	89	86	20	HE-374
H-116	True	1,440,000	1,441,440	91	87	20	HE-374
H-117	True	1,440,000	1,441,440	94	90	20	HE-374
H-118	True	1,440,000	1,441,440	87	83	20	HE-374
H-119	True	1,440,000	1,441,440	91	88	20	HE-374
H-120	True	1,440,000	1,441,440	88	85	20	HE-374
H-121	True	1,440,000	1,441,440	85	81	20	HE-374
H-122	True	1,440,000	1,441,440	87	84	20	HE-374
H-123	True	1,440,000	1,441,440	90	87	20	HE-374
H-124	True	1,440,000	1,441,440	86	82	20	HE-374
H-125	True	1,440,000	1,441,440	83	79	20	HE-374
H-126	True	1,440,000	1,441,440	88	84	20	HE-374
H-127	True	1,440,000	1,441,440	88	85	20	HE-374
H-128	True	1,440,000	1,441,440	84	80	20	HE-374
H-129	True	1,440,000	1,441,440	85	81	20	HE-374
H-130	True	1,440,000	1,441,440	86	82	20	HE-374
H-131	True	1,440,000	1,441,440	84	80	20	HE-374
H-132	True	1,440,000	1,441,440	84	80	20	HE-374
H-200	True	1,440,000	1,441,440	86	77	20	HE-374
H-201	True	1,440,000	1,441,440	85	77	20	HE-374
H-202	True	1,440,000	1,441,440	87	81	20	HE-374
H-300	True	1,440,000	1,441,440	84	82	20	HE-374
HE-274	True	1,440,000	1,441,440	78	78	20	HE-374
HE-374	True	1,440,000	1,441,440	74	74	20	HE-274

Willow Bend
Active Scenario: MDD + FF
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	5	5,163.00
R-274	5,167.00	179,204	5,167.00

Willow Bend

Active Scenario: MDD + FF

Fire Flow Node FlexTable: Fire Flow Report

Pressure (Calculated System Lower Limit) (psi)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
74	P-102	4.43
74	P-100	3.63
74	P-120	4.44
74	P-106	4.69
74	P-107	4.56
74	P-100	4.06
74	P-100	4.06
74	P-100	3.93
74	P-164	4.19
74	P-100	3.95
74	P-100	3.97
74	P-178	4.22
74	P-100	4.12
74	P-100	4.21
74	P-124	4.28
74	P-100	4.31
74	P-100	4.35
74	P-100	4.32
74	P-100	4.40
74	P-100	4.47
74	P-100	4.47
74	P-140	4.80
74	P-100	4.54
74	P-100	4.73
74	P-100	4.57
74	P-100	4.56
74	P-100	4.67
74	P-186	5.01
74	P-100	4.60
74	P-100	4.67
74	P-171	4.84
74	P-100	4.66
74	P-100	4.69
74	P-155	6.44
74	P-155	6.44
74	P-155	6.44
74	P-5	2.42
74	PE-274	2.05
78	PE-374	2.84

Willow Bend

Active Scenario: PHD

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-1	4,929.35	0	5,165.14	102	0	
J-2	4,967.17	0	5,165.07	86	0	
J-3	4,974.51	0	5,165.07	82	0	
J-4	4,948.88	0	5,165.30	94	0	
J-5	4,960.16	0	5,165.68	89	0	
J-6	4,963.00	0	5,166.88	88	0	
J-100	4,944.58	2,560	5,165.24	95	0	A
J-101	4,958.89	15,360	5,165.07	89	0	B
J-102	4,941.32	20,480	5,165.02	97	0	F
J-103	4,943.78	4,480	5,165.03	96	0	E
J-104	4,951.13	4,480	5,165.04	93	0	D
J-105	4,956.86	7,680	5,165.04	90	0	C
J-106	4,955.79	7,040	5,165.03	91	0	I
J-107	4,960.91	6,400	5,165.03	88	0	J
J-108	4,949.13	6,400	5,165.03	93	0	G
J-109	4,963.17	6,400	5,165.03	87	0	K
J-110	4,955.94	5,120	5,165.03	90	0	L
J-111	4,949.28	19,200	5,165.02	93	0	H
J-112	4,965.41	7,680	5,165.02	86	0	P
J-113	4,943.93	5,120	5,165.02	96	0	M
J-114	4,960.07	8,320	5,165.02	89	0	Q
J-115	4,954.18	7,040	5,165.02	91	0	O
J-116	4,946.66	5,120	5,165.02	94	0	N
J-117	4,962.30	6,400	5,165.01	88	0	R
J-118	4,956.00	5,760	5,165.01	90	0	S
J-119	4,949.04	7,040	5,165.01	93	0	T
J-120	4,958.51	4,480	5,165.01	89	0	V
J-121	4,951.57	5,760	5,165.02	92	0	U
J-122	4,967.03	9,600	5,165.01	86	0	W
J-123	4,960.57	2,560	5,165.01	88	0	X
J-124	4,953.99	5,120	5,165.02	91	0	Z
J-125	4,962.02	4,480	5,165.01	88	0	Y
J-126	4,964.69	10,240	5,165.01	87	0	CC
J-127	4,966.40	7,680	5,165.04	86	0	AN
J-128	4,963.04	10,880	5,165.04	87	0	BN
J-129	4,963.43	0	5,165.05	87	0	
J-130	4,959.28	12,800	5,165.03	89	0	AA
J-131	4,960.18	10,880	5,165.01	89	0	BB
J-132	4,970.48	17,920	5,165.01	84	0	DD
J-133	4,963.96	7,040	5,165.02	87	0	FF
J-134	4,970.88	19,200	5,165.01	84	0	EE

Willow Bend
Active Scenario: PHD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-1	J-2	J-1	3,038	12.0	PVC	130.0	118,259	0.23	102
P-2	H-300	J-2	82	12.0	PVC	130.0	4	0.00	86
P-3	J-3	H-300	356	12.0	PVC	130.0	0	0.00	84
P-4	J-4	J-1	920	8.0	PVC	130.0	118,259	0.52	102
P-5	J-5	J-4	407	8.0	PVC	130.0	286,724	1.27	94
P-100	J-2	J-129	100	8.0	PVC	130.0	118,255	0.52	87
P-101	J-129	J-130	126	8.0	PVC	130.0	99,695	0.44	89
P-102	J-4	J-100	196	8.0	PVC	130.0	168,465	0.75	95
P-103	J-100	H-100	12	8.0	PVC	130.0	165,905	0.74	95
P-104	J-103	J-102	251	8.0	PVC	130.0	55,418	0.25	97
P-105	J-103	J-101	622	8.0	PVC	130.0	60,372	0.27	89
P-106	J-103	H-103	41	8.0	PVC	130.0	17,554	0.08	96
P-107	J-102	H-104	186	8.0	PVC	130.0	15,523	0.07	97
P-108	J-102	H-106	384	8.0	PVC	130.0	19,415	0.09	95
P-109	H-104	H-105	477	8.0	PVC	130.0	15,523	0.07	96
P-110	H-105	H-111	434	8.0	PVC	130.0	15,523	0.07	94
P-111	J-111	H-112	32	8.0	PVC	130.0	15,738	0.07	93
P-112	J-116	H-113	260	8.0	PVC	130.0	10,618	0.05	96
P-113	J-116	J-119	215	8.0	PVC	130.0	4,443	0.02	93
P-114	J-124	H-123	152	8.0	PVC	130.0	42,533	0.19	91
P-115	J-124	J-121	221	8.0	PVC	130.0	19,874	0.09	92
P-116	J-128	H-202	193	8.0	PVC	130.0	18,560	0.08	88
P-117	J-128	H-201	231	8.0	PVC	130.0	3,858	0.02	86
P-118	J-101	H-101	33	8.0	PVC	130.0	165,905	0.74	89
P-119	J-101	J-105	226	8.0	PVC	130.0	90,173	0.40	90
P-120	J-105	H-102	42	8.0	PVC	130.0	38,575	0.17	90
P-121	J-107	H-109	44	8.0	PVC	130.0	37,609	0.17	88
P-122	J-107	J-106	215	8.0	PVC	130.0	5,434	0.02	91
P-123	J-109	J-112	228	8.0	PVC	130.0	47,127	0.21	86
P-124	J-112	H-114	43	8.0	PVC	130.0	19,871	0.09	86
P-125	J-112	J-114	567	8.0	PVC	130.0	19,576	0.09	89
P-126	J-114	H-115	140	8.0	PVC	130.0	13,006	0.06	90
P-127	J-114	J-117	221	8.0	PVC	130.0	18,121	0.08	88
P-128	H-115	J-115	193	8.0	PVC	130.0	13,006	0.06	91
P-129	J-115	H-116	31	8.0	PVC	130.0	7,021	0.03	91
P-130	J-115	H-117	305	8.0	PVC	130.0	1,055	0.00	94
P-131	J-118	H-116	186	8.0	PVC	130.0	7,021	0.03	91
P-132	J-118	J-120	256	8.0	PVC	130.0	3,656	0.02	89
P-133	J-120	H-119	319	8.0	PVC	130.0	7,515	0.03	92
P-134	J-120	H-120	43	8.0	PVC	130.0	6,691	0.03	89
P-135	J-121	J-119	226	8.0	PVC	130.0	6,599	0.03	93
P-136	J-121	H-119	45	8.0	PVC	130.0	7,515	0.03	92
P-137	J-119	J-118	383	8.0	PVC	130.0	4,001	0.02	90
P-138	H-103	H-107	445	8.0	PVC	130.0	17,554	0.08	94
P-139	H-110	J-109	320	8.0	PVC	130.0	15,918	0.07	87

Willow Bend
Active Scenario: PHD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-140	J-122	H-121	40	8.0	PVC	130.0	8,244	0.04	85
P-141	J-122	J-125	236	8.0	PVC	130.0	4,515	0.02	88
P-142	J-122	H-118	421	8.0	PVC	130.0	13,328	0.06	88
P-143	J-126	H-128	548	8.0	PVC	130.0	4,310	0.02	84
P-144	J-126	H-124	33	8.0	PVC	130.0	14,550	0.06	87
P-145	J-132	H-128	47	8.0	PVC	130.0	4,310	0.02	84
P-146	J-132	H-125	506	8.0	PVC	130.0	8,244	0.04	84
P-147	J-125	H-126	524	8.0	PVC	130.0	1,875	0.01	89
P-148	H-121	H-125	336	8.0	PVC	130.0	8,244	0.04	84
P-149	H-124	J-125	239	8.0	PVC	130.0	14,550	0.06	88
P-150	H-122	J-125	30	8.0	PVC	130.0	21,670	0.10	88
P-151	J-134	H-132	268	8.0	PVC	130.0	15,944	0.07	85
P-152	J-134	J-132	331	8.0	PVC	130.0	5,366	0.02	84
P-153	J-134	H-131	43	8.0	PVC	130.0	8,622	0.04	84
P-154	J-127	H-200	149	8.0	PVC	130.0	3,822	0.02	86
P-155	H-202	J-129	532	8.0	PVC	130.0	18,560	0.08	87
P-156	J-108	J-110	374	8.0	PVC	130.0	21,038	0.09	90
P-157	J-131	J-133	300	8.0	PVC	130.0	21,378	0.09	87
P-158	J-131	H-129	471	8.0	PVC	130.0	8,622	0.04	86
P-159	H-126	J-131	33	8.0	PVC	130.0	1,875	0.01	89
P-160	J-133	H-127	451	8.0	PVC	130.0	44,362	0.20	89
P-161	H-100	H-101	467	8.0	PVC	130.0	165,905	0.74	89
P-162	H-102	J-107	397	8.0	PVC	130.0	38,575	0.17	88
P-163	H-109	J-109	181	8.0	PVC	130.0	37,609	0.17	87
P-164	H-108	J-106	33	8.0	PVC	130.0	22,358	0.10	91
P-165	H-112	J-113	470	8.0	PVC	130.0	15,738	0.07	96
P-166	H-113	J-113	24	8.0	PVC	130.0	10,618	0.05	96
P-167	H-117	J-116	43	8.0	PVC	130.0	1,055	0.00	94
P-168	H-107	J-108	48	8.0	PVC	130.0	17,554	0.08	93
P-169	H-129	H-131	264	8.0	PVC	130.0	8,622	0.04	84
P-170	H-132	H-130	453	8.0	PVC	130.0	15,944	0.07	87
P-171	H-130	J-133	44	8.0	PVC	130.0	15,944	0.07	87
P-172	H-120	J-123	162	8.0	PVC	130.0	6,691	0.03	88
P-173	H-201	J-127	196	8.0	PVC	130.0	3,858	0.02	86
P-174	H-200	J-128	286	8.0	PVC	130.0	3,822	0.02	87
P-175	J-104	J-103	292	8.0	PVC	130.0	17,080	0.08	96
P-176	J-104	J-105	215	8.0	PVC	130.0	43,918	0.19	90
P-177	J-104	H-108	408	8.0	PVC	130.0	22,358	0.10	91
P-178	H-111	J-111	194	8.0	PVC	130.0	15,523	0.07	93
P-179	H-106	J-111	469	8.0	PVC	130.0	19,415	0.09	93
P-180	J-106	J-108	352	8.0	PVC	130.0	9,884	0.04	93
P-181	H-114	J-114	508	8.0	PVC	130.0	19,871	0.09	89
P-182	J-117	J-118	263	8.0	PVC	130.0	1,607	0.01	90
P-183	J-117	H-118	48	8.0	PVC	130.0	13,328	0.06	88
P-184	J-123	J-124	388	8.0	PVC	130.0	17,539	0.08	91

Willow Bend
Active Scenario: PHD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-185	J-123	H-122	117	8.0	PVC	130.0	21,670	0.10	88
P-186	J-130	H-127	77	8.0	PVC	130.0	44,362	0.20	89
P-187	J-130	H-123	387	8.0	PVC	130.0	42,533	0.19	91
P-188	J-110	H-110	43	8.0	PVC	130.0	15,918	0.07	90
PE-1	R-374	J-3	1,407	12.0	PVC	130.0	0	0.00	82
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	286,724	1.27	89
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	286,724	0.32	88
PE-274	R-274	HE-274	1	16.0	PVC	130.0	286,724	0.32	78
PE-374	R-374	HE-374	1	12.0	PVC	130.0	5	0.00	74

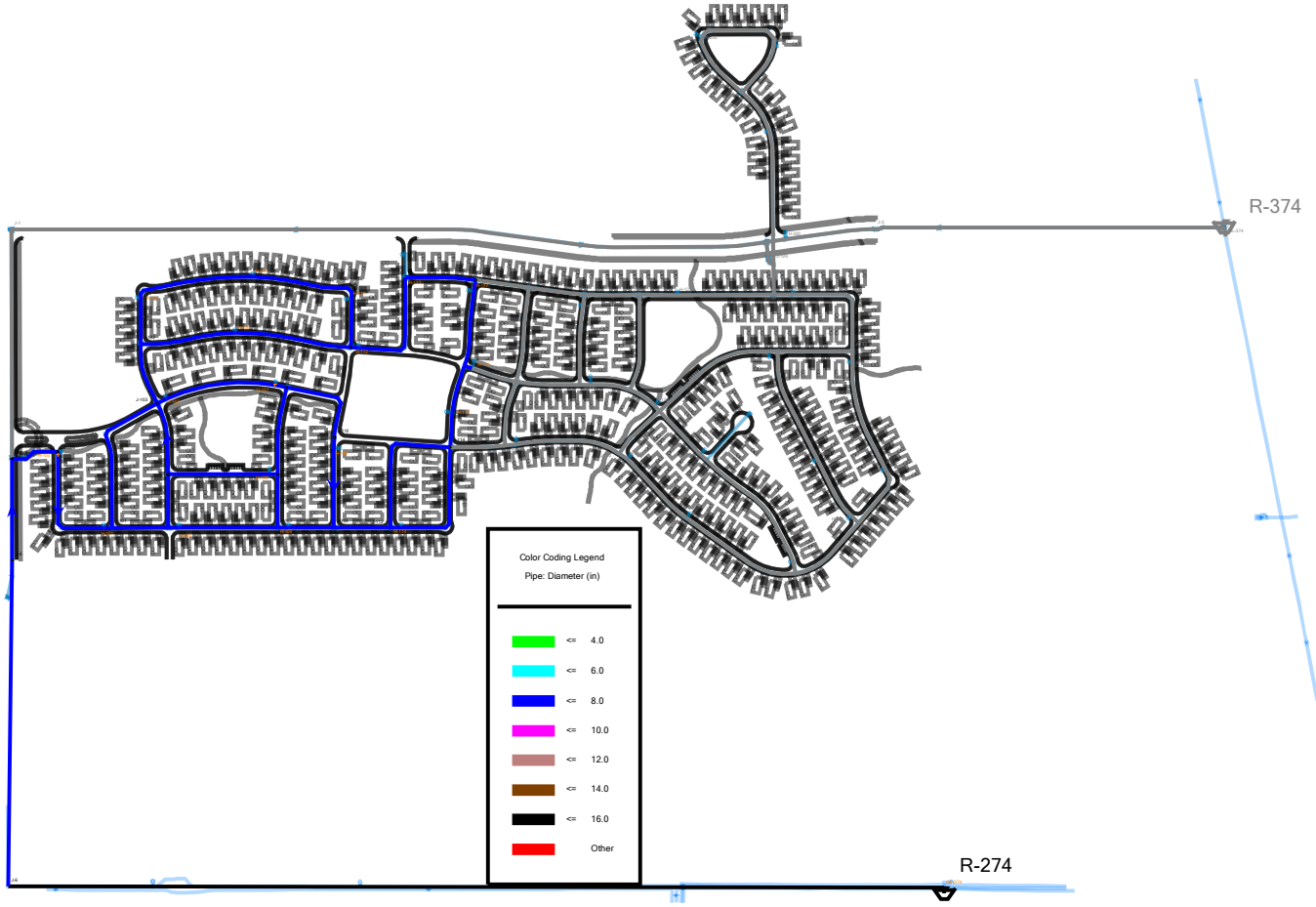
Willow Bend
Active Scenario: PHD
FlexTable: Hydrant Table

Label	Elevation (ft)	Pressure (psi)
H-100	4,944.58	95
H-101	4,959.23	89
H-102	4,956.95	90
H-103	4,944.22	96
H-104	4,939.80	97
H-105	4,942.59	96
H-106	4,944.69	95
H-107	4,948.66	94
H-108	4,955.21	91
H-109	4,961.36	88
H-110	4,956.72	90
H-111	4,946.79	94
H-112	4,949.56	93
H-113	4,943.12	96
H-114	4,965.85	86
H-115	4,957.32	90
H-116	4,953.87	91
H-117	4,946.99	94
H-118	4,962.76	88
H-119	4,951.89	92
H-120	4,958.93	89
H-121	4,967.42	85
H-122	4,961.73	88
H-123	4,955.66	91
H-124	4,964.38	87
H-125	4,970.60	84
H-126	4,959.87	89
H-127	4,959.95	89
H-128	4,970.09	84
H-129	4,966.30	86
H-130	4,964.37	87
H-131	4,970.15	84
H-132	4,968.46	85
H-200	4,965.31	86
H-201	4,966.14	86
H-202	4,961.41	88
H-300	4,969.81	84
HE-274	4,987.15	78
HE-374	4,991.00	74

Willow Bend
Active Scenario: PHD
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	5	5,163.00
R-274	5,167.00	286,724	5,167.00

Willow Bend
Active Scenario: PHASE 1 PHD
Scenario: PHASE 1 PHD



Willow Bend
Active Scenario: PHASE 1 ADD
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-4	4,948.88	0	5,166.97	94	0	
J-5	4,960.16	0	5,166.97	89	0	
J-6	4,963.00	0	5,167.00	88	0	
J-100	4,944.58	640	5,166.96	96	0	A
J-101	4,958.89	3,840	5,166.95	90	0	B
J-102	4,941.32	5,120	5,166.95	98	0	F
J-103	4,943.78	1,120	5,166.95	97	0	E
J-104	4,951.13	1,120	5,166.95	93	0	D
J-105	4,956.86	1,920	5,166.95	91	0	C
J-106	4,955.79	1,760	5,166.95	91	0	I
J-107	4,960.91	1,600	5,166.95	89	0	J
J-108	4,949.13	1,600	5,166.95	94	0	G
J-109	4,963.17	1,600	5,166.95	88	0	K
J-110	4,955.94	1,280	5,166.95	91	0	L
J-111	4,949.28	4,800	5,166.95	94	0	H
J-112	4,965.41	1,920	5,166.95	87	0	P
J-113	4,943.93	1,280	5,166.95	96	0	M
J-114	4,960.07	2,080	5,166.95	90	0	Q
J-115	4,954.18	1,760	5,166.95	92	0	O
J-116	4,946.66	1,280	5,166.95	95	0	N

Willow Bend
Active Scenario: PHASE 1 ADD
FlexTable: Hydrant Table

Label	Elevation (ft)	Pressure (psi)
H-100	4,944.58	96
H-101	4,959.23	90
H-102	4,956.95	91
H-103	4,944.22	96
H-104	4,939.80	98
H-105	4,942.59	97
H-106	4,944.69	96
H-107	4,948.66	94
H-108	4,955.21	92
H-109	4,961.36	89
H-110	4,956.72	91
H-111	4,946.79	95
H-112	4,949.56	94
H-113	4,943.12	97
H-114	4,965.85	87
H-115	4,957.32	91
H-116	4,953.87	92
H-117	4,946.99	95
HE-274	4,987.15	78

Willow Bend
Active Scenario: PHASE 1 ADD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-5	J-5	J-4	407	8.0	PVC	130.0	34,726	0.15	94
P-102	J-4	J-100	196	8.0	PVC	130.0	34,726	0.15	96
P-103	J-100	H-100	12	8.0	PVC	130.0	34,086	0.15	96
P-104	J-103	J-102	251	8.0	PVC	130.0	10,840	0.05	98
P-105	J-103	J-101	622	8.0	PVC	130.0	12,092	0.05	90
P-106	J-103	H-103	41	8.0	PVC	130.0	3,404	0.02	96
P-107	J-102	H-104	186	8.0	PVC	130.0	2,541	0.01	98
P-108	J-102	H-106	384	8.0	PVC	130.0	3,178	0.01	96
P-109	H-104	H-105	477	8.0	PVC	130.0	2,541	0.01	97
P-110	H-105	H-111	434	8.0	PVC	130.0	2,541	0.01	95
P-111	J-111	H-112	32	8.0	PVC	130.0	920	0.00	94
P-112	J-116	H-113	260	8.0	PVC	130.0	360	0.00	97
P-118	J-101	H-101	33	8.0	PVC	130.0	34,086	0.15	90
P-119	J-101	J-105	226	8.0	PVC	130.0	18,155	0.08	91
P-120	J-105	H-102	42	8.0	PVC	130.0	7,533	0.03	91
P-121	J-107	H-109	44	8.0	PVC	130.0	6,551	0.03	89
P-122	J-107	J-106	215	8.0	PVC	130.0	618	0.00	91
P-123	J-109	J-112	228	8.0	PVC	130.0	7,407	0.03	87
P-124	J-112	H-114	43	8.0	PVC	130.0	2,764	0.01	87
P-125	J-112	J-114	567	8.0	PVC	130.0	2,723	0.01	90
P-126	J-114	H-115	140	8.0	PVC	130.0	3,407	0.02	91
P-128	H-115	J-115	193	8.0	PVC	130.0	3,407	0.02	92
P-129	J-115	H-116	31	8.0	PVC	130.0	6	0.00	92
P-130	J-115	H-117	305	8.0	PVC	130.0	1,640	0.01	95
P-138	H-103	H-107	445	8.0	PVC	130.0	3,404	0.02	94
P-139	H-110	J-109	320	8.0	PVC	130.0	2,455	0.01	88
P-156	J-108	J-110	374	8.0	PVC	130.0	3,735	0.02	91
P-161	H-100	H-101	467	8.0	PVC	130.0	34,086	0.15	90
P-162	H-102	J-107	397	8.0	PVC	130.0	7,533	0.03	89
P-163	H-109	J-109	181	8.0	PVC	130.0	6,551	0.03	88
P-164	H-108	J-106	33	8.0	PVC	130.0	4,309	0.02	91
P-165	H-112	J-113	470	8.0	PVC	130.0	920	0.00	96
P-166	H-113	J-113	24	8.0	PVC	130.0	360	0.00	96
P-167	H-117	J-116	43	8.0	PVC	130.0	1,640	0.01	95
P-168	H-107	J-108	48	8.0	PVC	130.0	3,404	0.02	94
P-175	J-104	J-103	292	8.0	PVC	130.0	3,272	0.01	97
P-176	J-104	J-105	215	8.0	PVC	130.0	8,702	0.04	91
P-177	J-104	H-108	408	8.0	PVC	130.0	4,309	0.02	92
P-178	H-111	J-111	194	8.0	PVC	130.0	2,541	0.01	94
P-179	H-106	J-111	469	8.0	PVC	130.0	3,178	0.01	94
P-180	J-106	J-108	352	8.0	PVC	130.0	1,931	0.01	94
P-181	H-114	J-114	508	8.0	PVC	130.0	2,764	0.01	90
P-188	J-110	H-110	43	8.0	PVC	130.0	2,455	0.01	91
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	34,726	0.15	89
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	34,726	0.04	88

Willow Bend
Active Scenario: PHASE 1 ADD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
PE-274	R-274	HE-274	1	16.0	PVC	130.0	34,726	0.04	78

Willow Bend
Active Scenario: PHASE 1 ADD
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	(N/A)	(N/A)
R-274	5,167.00	34,726	5,167.00

Willow Bend
Active Scenario: PHASE 1 MDD+FF
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-4	4,948.88	0	5,166.81	94	0	
J-5	4,960.16	0	5,166.86	89	0	
J-6	4,963.00	0	5,166.99	88	0	
J-100	4,944.58	1,600	5,166.79	96	0	A
J-101	4,958.89	9,600	5,166.75	90	0	B
J-102	4,941.32	12,800	5,166.73	98	0	F
J-103	4,943.78	2,800	5,166.74	96	0	E
J-104	4,951.13	2,800	5,166.74	93	0	D
J-105	4,956.86	4,800	5,166.74	91	0	C
J-106	4,955.79	4,400	5,166.74	91	0	I
J-107	4,960.91	4,000	5,166.74	89	0	J
J-108	4,949.13	4,000	5,166.74	94	0	G
J-109	4,963.17	4,000	5,166.73	88	0	K
J-110	4,955.94	3,200	5,166.73	91	0	L
J-111	4,949.28	12,000	5,166.73	94	0	H
J-112	4,965.41	4,800	5,166.73	87	0	P
J-113	4,943.93	3,200	5,166.73	96	0	M
J-114	4,960.07	5,200	5,166.73	89	0	Q
J-115	4,954.18	4,400	5,166.73	92	0	O
J-116	4,946.66	3,200	5,166.73	95	0	N

Willow Bend
Active Scenario: PHASE 1 MDD+FF
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-5	J-5	J-4	407	8.0	PVC	130.0	86,800	0.38	94
P-102	J-4	J-100	196	8.0	PVC	130.0	86,800	0.38	96
P-103	J-100	H-100	12	8.0	PVC	130.0	85,200	0.38	96
P-104	J-103	J-102	251	8.0	PVC	130.0	27,092	0.12	98
P-105	J-103	J-101	622	8.0	PVC	130.0	30,223	0.13	90
P-106	J-103	H-103	41	8.0	PVC	130.0	8,509	0.04	96
P-107	J-102	H-104	186	8.0	PVC	130.0	6,350	0.03	98
P-108	J-102	H-106	384	8.0	PVC	130.0	7,942	0.04	96
P-109	H-104	H-105	477	8.0	PVC	130.0	6,350	0.03	97
P-110	H-105	H-111	434	8.0	PVC	130.0	6,350	0.03	95
P-111	J-111	H-112	32	8.0	PVC	130.0	2,292	0.01	94
P-112	J-116	H-113	260	8.0	PVC	130.0	908	0.00	97
P-118	J-101	H-101	33	8.0	PVC	130.0	85,200	0.38	90
P-119	J-101	J-105	226	8.0	PVC	130.0	45,377	0.20	91
P-120	J-105	H-102	42	8.0	PVC	130.0	18,828	0.08	91
P-121	J-107	H-109	44	8.0	PVC	130.0	16,373	0.07	89
P-122	J-107	J-106	215	8.0	PVC	130.0	1,545	0.01	91
P-123	J-109	J-112	228	8.0	PVC	130.0	18,508	0.08	87
P-124	J-112	H-114	43	8.0	PVC	130.0	6,905	0.03	87
P-125	J-112	J-114	567	8.0	PVC	130.0	6,803	0.03	89
P-126	J-114	H-115	140	8.0	PVC	130.0	8,508	0.04	91
P-128	H-115	J-115	193	8.0	PVC	130.0	8,508	0.04	92
P-129	J-115	H-116	31	8.0	PVC	130.0	0	0.00	92
P-130	J-115	H-117	305	8.0	PVC	130.0	4,108	0.02	95
P-138	H-103	H-107	445	8.0	PVC	130.0	8,509	0.04	94
P-139	H-110	J-109	320	8.0	PVC	130.0	6,136	0.03	88
P-156	J-108	J-110	374	8.0	PVC	130.0	9,336	0.04	91
P-161	H-100	H-101	467	8.0	PVC	130.0	85,200	0.38	90
P-162	H-102	J-107	397	8.0	PVC	130.0	18,828	0.08	89
P-163	H-109	J-109	181	8.0	PVC	130.0	16,373	0.07	88
P-164	H-108	J-106	33	8.0	PVC	130.0	10,771	0.05	91
P-165	H-112	J-113	470	8.0	PVC	130.0	2,292	0.01	96
P-166	H-113	J-113	24	8.0	PVC	130.0	908	0.00	96
P-167	H-117	J-116	43	8.0	PVC	130.0	4,108	0.02	95
P-168	H-107	J-108	48	8.0	PVC	130.0	8,509	0.04	94
P-175	J-104	J-103	292	8.0	PVC	130.0	8,178	0.04	96
P-176	J-104	J-105	215	8.0	PVC	130.0	21,749	0.10	91
P-177	J-104	H-108	408	8.0	PVC	130.0	10,771	0.05	92
P-178	H-111	J-111	194	8.0	PVC	130.0	6,350	0.03	94
P-179	H-106	J-111	469	8.0	PVC	130.0	7,942	0.04	94
P-180	J-106	J-108	352	8.0	PVC	130.0	4,826	0.02	94
P-181	H-114	J-114	508	8.0	PVC	130.0	6,905	0.03	89
P-188	J-110	H-110	43	8.0	PVC	130.0	6,136	0.03	91
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	86,800	0.38	89
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	86,800	0.10	88

Willow Bend
Active Scenario: PHASE 1 MDD+FF
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
PE-274	R-274	HE-274	1	16.0	PVC	130.0	86,800	0.10	78

Willow Bend
Active Scenario: PHASE 1 MDD+FF
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	(N/A)	(N/A)
R-274	5,167.00	86,800	5,167.00

Willow Bend

Active Scenario: PHASE 1 MDD+FF

Fire Flow Node FlexTable: Fire Flow Report

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpd)	Fire Flow (Available) (gpd)	Pressure (psi)	Pressure (Calculated Residual) (psi)	Pressure (Residual Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pressure (Calculated System Lower Limit) (psi)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
H-100	True	1,440,000	1,441,440	96	78	20	H-114	69	P-5	6.77
H-101	True	1,440,000	1,441,440	90	68	20	H-114	65	P-5	6.77
H-102	True	1,440,000	1,441,440	91	67	20	H-114	64	P-5	6.77
H-103	True	1,440,000	1,441,440	96	73	20	H-114	63	P-5	6.77
H-104	True	1,440,000	1,441,440	98	73	20	H-114	63	P-5	6.77
H-105	True	1,440,000	1,441,440	97	71	20	H-114	63	P-5	6.77
H-106	True	1,440,000	1,441,440	96	70	20	H-114	63	P-5	6.77
H-107	True	1,440,000	1,441,440	94	70	20	H-114	63	P-5	6.77
H-108	True	1,440,000	1,441,440	92	68	20	H-114	63	P-5	6.77
H-109	True	1,440,000	1,441,440	89	65	20	H-114	63	P-5	6.77
H-110	True	1,440,000	1,441,440	91	66	20	H-114	63	P-5	6.77
H-111	True	1,440,000	1,441,440	95	69	20	H-114	63	P-5	6.77
H-112	True	1,440,000	1,441,440	94	68	20	H-114	63	P-5	6.77
H-113	True	1,440,000	1,441,440	97	71	20	H-114	63	P-5	6.77
H-114	True	1,440,000	1,441,440	87	62	20	J-112	62	P-5	6.77
H-115	True	1,440,000	1,441,440	91	65	20	H-114	62	P-5	6.77
H-116	True	1,440,000	1,441,440	92	66	20	H-114	62	P-5	6.77
H-117	True	1,440,000	1,441,440	95	69	20	H-114	63	P-5	6.77
HE-274	True	1,440,000	1,441,440	78	78	20	H-114	87	PE-274	1.69

Willow Bend
Active Scenario: PHASE 1 PHD
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpd)	Hydraulic Grade (ft)	Pressure (psi)	Demand Shortage (gpd)	Notes
J-4	4,948.88	0	5,166.56	94	0	
J-5	4,960.16	0	5,166.65	89	0	
J-6	4,963.00	0	5,166.97	88	0	
J-100	4,944.58	2,560	5,166.51	96	0	A
J-101	4,958.89	15,360	5,166.39	90	0	B
J-102	4,941.32	20,480	5,166.36	97	0	F
J-103	4,943.78	4,480	5,166.37	96	0	E
J-104	4,951.13	4,480	5,166.37	93	0	D
J-105	4,956.86	7,680	5,166.38	91	0	C
J-106	4,955.79	7,040	5,166.37	91	0	I
J-107	4,960.91	6,400	5,166.37	89	0	J
J-108	4,949.13	6,400	5,166.37	94	0	G
J-109	4,963.17	6,400	5,166.37	88	0	K
J-110	4,955.94	5,120	5,166.37	91	0	L
J-111	4,949.28	19,200	5,166.36	94	0	H
J-112	4,965.41	7,680	5,166.36	87	0	P
J-113	4,943.93	5,120	5,166.36	96	0	M
J-114	4,960.07	8,320	5,166.36	89	0	Q
J-115	4,954.18	7,040	5,166.36	92	0	O
J-116	4,946.66	5,120	5,166.36	95	0	N

Willow Bend
Active Scenario: PHASE 1 PHD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
P-5	J-5	J-4	407	8.0	PVC	130.0	138,886	0.62	94
P-102	J-4	J-100	196	8.0	PVC	130.0	138,886	0.62	96
P-103	J-100	H-100	12	8.0	PVC	130.0	136,326	0.60	96
P-104	J-103	J-102	251	8.0	PVC	130.0	43,350	0.19	97
P-105	J-103	J-101	622	8.0	PVC	130.0	48,359	0.21	90
P-106	J-103	H-103	41	8.0	PVC	130.0	13,616	0.06	96
P-107	J-102	H-104	186	8.0	PVC	130.0	10,161	0.05	98
P-108	J-102	H-106	384	8.0	PVC	130.0	12,709	0.06	96
P-109	H-104	H-105	477	8.0	PVC	130.0	10,161	0.05	97
P-110	H-105	H-111	434	8.0	PVC	130.0	10,161	0.05	95
P-111	J-111	H-112	32	8.0	PVC	130.0	3,670	0.02	94
P-112	J-116	H-113	260	8.0	PVC	130.0	1,450	0.01	97
P-118	J-101	H-101	33	8.0	PVC	130.0	136,326	0.60	90
P-119	J-101	J-105	226	8.0	PVC	130.0	72,607	0.32	91
P-120	J-105	H-102	42	8.0	PVC	130.0	30,126	0.13	91
P-121	J-107	H-109	44	8.0	PVC	130.0	26,198	0.12	89
P-122	J-107	J-106	215	8.0	PVC	130.0	2,472	0.01	91
P-123	J-109	J-112	228	8.0	PVC	130.0	29,617	0.13	87
P-124	J-112	H-114	43	8.0	PVC	130.0	11,050	0.05	87
P-125	J-112	J-114	567	8.0	PVC	130.0	10,886	0.05	89
P-126	J-114	H-115	140	8.0	PVC	130.0	13,617	0.06	90
P-128	H-115	J-115	193	8.0	PVC	130.0	13,617	0.06	92
P-129	J-115	H-116	31	8.0	PVC	130.0	6	0.00	92
P-130	J-115	H-117	305	8.0	PVC	130.0	6,570	0.03	95
P-138	H-103	H-107	445	8.0	PVC	130.0	13,616	0.06	94
P-139	H-110	J-109	320	8.0	PVC	130.0	9,818	0.04	88
P-156	J-108	J-110	374	8.0	PVC	130.0	14,938	0.07	91
P-161	H-100	H-101	467	8.0	PVC	130.0	136,326	0.60	90
P-162	H-102	J-107	397	8.0	PVC	130.0	30,126	0.13	89
P-163	H-109	J-109	181	8.0	PVC	130.0	26,198	0.12	88
P-164	H-108	J-106	33	8.0	PVC	130.0	17,235	0.08	91
P-165	H-112	J-113	470	8.0	PVC	130.0	3,670	0.02	96
P-166	H-113	J-113	24	8.0	PVC	130.0	1,450	0.01	96
P-167	H-117	J-116	43	8.0	PVC	130.0	6,570	0.03	95
P-168	H-107	J-108	48	8.0	PVC	130.0	13,616	0.06	94
P-175	J-104	J-103	292	8.0	PVC	130.0	13,086	0.06	96
P-176	J-104	J-105	215	8.0	PVC	130.0	34,801	0.15	91
P-177	J-104	H-108	408	8.0	PVC	130.0	17,235	0.08	91
P-178	H-111	J-111	194	8.0	PVC	130.0	10,161	0.05	94
P-179	H-106	J-111	469	8.0	PVC	130.0	12,709	0.06	94
P-180	J-106	J-108	352	8.0	PVC	130.0	7,723	0.03	94
P-181	H-114	J-114	508	8.0	PVC	130.0	11,050	0.05	89
P-188	J-110	H-110	43	8.0	PVC	130.0	9,818	0.04	91
PE-2	J-6	J-5	1,308	8.0	PVC	130.0	138,886	0.62	89
PE-4	HE-274	J-6	3,760	16.0	PVC	130.0	138,886	0.15	88

Willow Bend
Active Scenario: PHASE 1 PHD
FlexTable: Pipe Table

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (Absolute) (gpd)	Velocity (ft/s)	Pressure (Stop) (psi)
PE-274	R-274	HE-274	1	16.0	PVC	130.0	138,886	0.15	78

Willow Bend
Active Scenario: PHASE 1 PHD
FlexTable: Hydrant Table

Label	Elevation (ft)	Pressure (psi)
H-100	4,944.58	96
H-101	4,959.23	90
H-102	4,956.95	91
H-103	4,944.22	96
H-104	4,939.80	98
H-105	4,942.59	97
H-106	4,944.69	96
H-107	4,948.66	94
H-108	4,955.21	91
H-109	4,961.36	89
H-110	4,956.72	91
H-111	4,946.79	95
H-112	4,949.56	94
H-113	4,943.12	97
H-114	4,965.85	87
H-115	4,957.32	90
H-116	4,953.87	92
H-117	4,946.99	95
HE-274	4,987.15	78

Willow Bend
Active Scenario: PHASE 1 PHD
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpd)	Hydraulic Grade (ft)
R-374	5,163.00	(N/A)	(N/A)
R-274	5,167.00	138,886	5,167.00

APPENDIX C – Sanitary Sewer Flows

Willow Bend ATWELL

Sanitary Sewer Flow Calculations

Date: July 17, 2020 | Prepared For: Sun Communities

DesignValues

Design values are per *City Of Fort Lupton Standards and Specifications for the Design and Construction of Public Improvements* , Chapter 4, Section 4.13.00

Average Daily Flow per capita	70	gpd/capita
Per lot capita	2.9	
Peaking factor	3	
Peak flow per lot	609	gpd
Infiltration and Inflow rate	1000	gpd/acre

Sanitary Sewer Flow and Routing Table

Sewer Basin		A	B	A+B	C	D	C+D	E	Total
Design Point		1	2	3	4	5	6	7	Total
Discharge Manhole		SS-MH_A1	SS-MH_A1	EX SSMH_A	SSMH_C1L.1	SSMH_C1	EX SSMH_C	EX SSMH_B	
Number of lots		128	173	301	45	86	131	17	449
Tributary Area	(acres)	24.8	52.0	76.8	19.3	10.9	10.9	5.6	200.3
Peak Flow Total	(gpd)	77,952	105,357	183,309	27,405	52,374	79,779	10,353	536,529
Infiltration and Inflow Total	(gpd)	24,840	51,978	76,818	19,328	10,871	10,871	5,566	200,271
Sanitary Sewer Design Flow	(gpd)	102,792	157,335	260,127	46,733	63,245	90,650	15,919	736,800
Sanitary Sewer Design Flow	(gpm)	71	109	181	32	44	63	11	511

Minimum Pipe Size	(in)	6	6	8	6	6	6	6	12
Minimum Pipe Slope	(%)	0.60	0.80	0.50	0.60	0.60	0.60	0.60	0.45

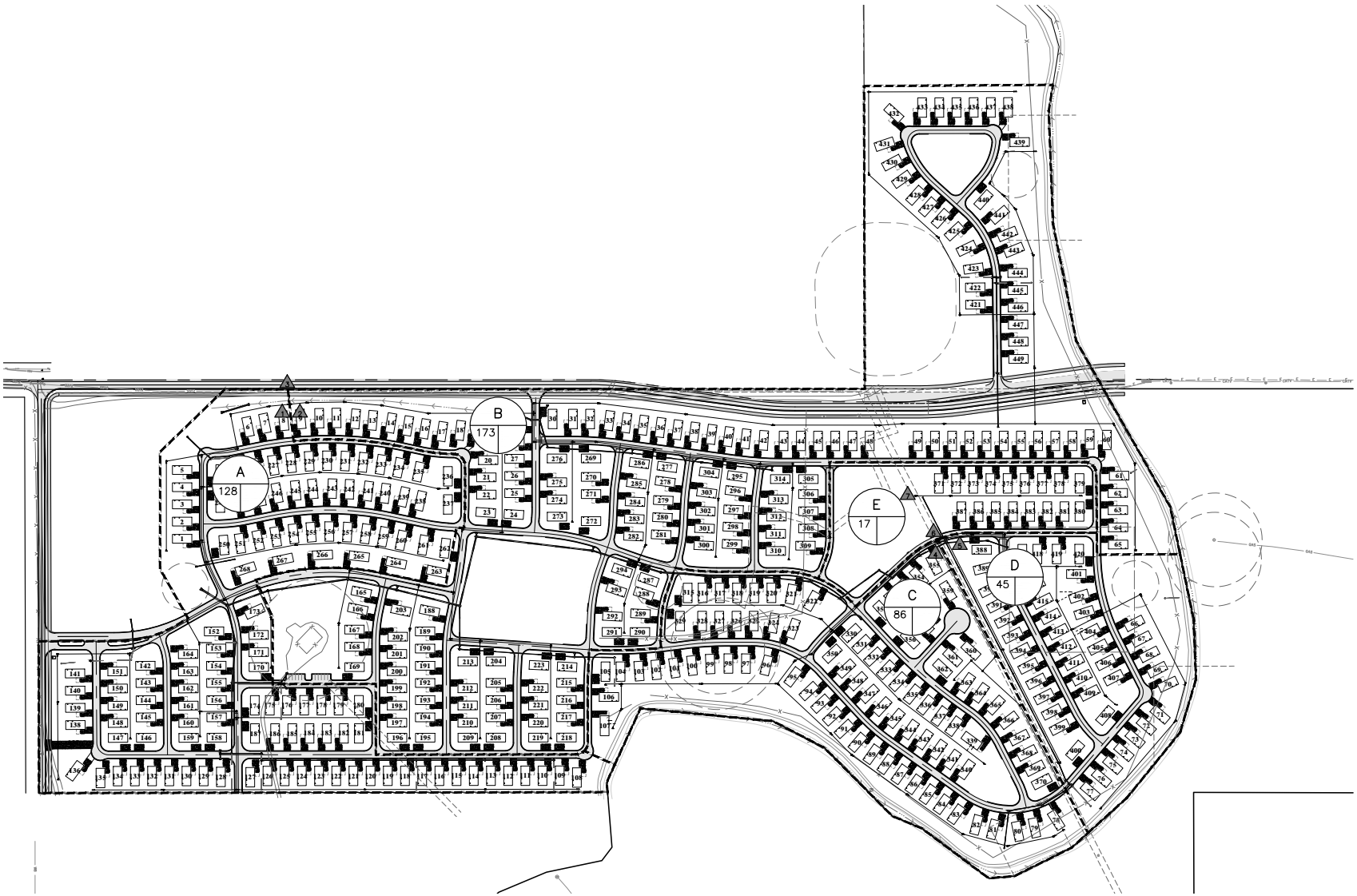
APPENDIX D – Sanitary Sewer Hydraulic Analysis and Modeling

-Sewer Basin Map

-Pipe Capacity Report

WILLOW BEND

WASTEWATER BASIN MAP



(IN FEET)
1 inch = 150 ft.

PROJECT NO.:19001956
DATE: 07/17/2020

ATWELL
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.468.1100
WILLOWBENDLLC-GROUP.COM

CAD FILE: 19001956 - SANITARY SEWER MODELING.DWG

Willow Bend

Sanitary Sewer Pipe Capacity Calculations

Label	Diameter (in)	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)	Discharge (gpm)	Percent Full (%)	Velocity (ft/s)	Froude Number	Maximum Discharge (gpm)
6" San @ 0.6%	6	Discharge	Manning Formula	0.013	0.006	3	97.5	50	2.21	0.88	209.8
6" San @ 0.7%	6	Discharge	Manning Formula	0.013	0.007	3	105.4	50	2.39	0.95	226.7
6" San @ 0.8%	6	Discharge	Manning Formula	0.013	0.008	3	112.6	50	2.56	1.02	242.3
6" San @ 0.9%	6	Discharge	Manning Formula	0.013	0.009	3	119.4	50	2.71	1.08	257
6" San @ 1.0%	6	Discharge	Manning Formula	0.013	0.01	3	125.9	50	2.86	1.14	270.9
6" San @ 2.0%	6	Discharge	Manning Formula	0.013	0.02	3	178.1	50	4.04	1.61	383.1
8" San @ 0.5%	8	Discharge	Manning Formula	0.013	0.005	4	191.8	50	2.45	0.84	412.5
8" San @ 0.6%	8	Discharge	Manning Formula	0.013	0.006	4	210.1	50	2.68	0.92	451.9
8" San @ 1.0%	8	Discharge	Manning Formula	0.013	0.01	4	271.2	50	3.46	1.19	583.4
8" San @ 2.0%	8	Discharge	Manning Formula	0.013	0.02	4	383.5	50	4.9	1.69	825
8" San @ 3.0%	8	Discharge	Manning Formula	0.013	0.03	4	469.7	50	6.00	2.07	1010.5
8" San @ 4.0%	8	Discharge	Manning Formula	0.013	0.04	4	542.3	50	6.92	2.42	1166.8
12" San @ 0.3%	12	Discharge	Manning Formula	0.013	0.03	6	437.9	50	2.48	0.7	942.1
12" San @ 0.4%	12	Discharge	Manning Formula	0.013	0.04	6	505.7	50	2.87	0.81	1087.9
12" San @ 0.5%	12	Discharge	Manning Formula	0.013	0.05	6	565.3	50	3.21	0.90	1216.3
12" San @ 0.6%	12	Discharge	Manning Formula	0.013	0.06	6	619.3	50	3.51	0.99	1332.4

Calculations from Bentley Flowmaster V8i (SELECTseries 1)

APPENDIX E –Utility Exhibits and Plans

-Preliminary Utility Plan

-Aims Outfall Sewer Plans by Alpha Engineering, selected sheets

WILLOW BEND SUBDIVISION

PRELIMINARY UTILITY PLAN EXHIBIT

SHEET 1 OF 1



150 0 150 300

(IN FEET)
1 inch = 150 ft.

PROJECT NO.:19001956
DATE: 04/18/2021

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100
CONTACT: RICK WEED
RWEED@ATWELL-GROUP.COM

CAD FILE: WILLOW BEND UTILITY PLAN.DWG

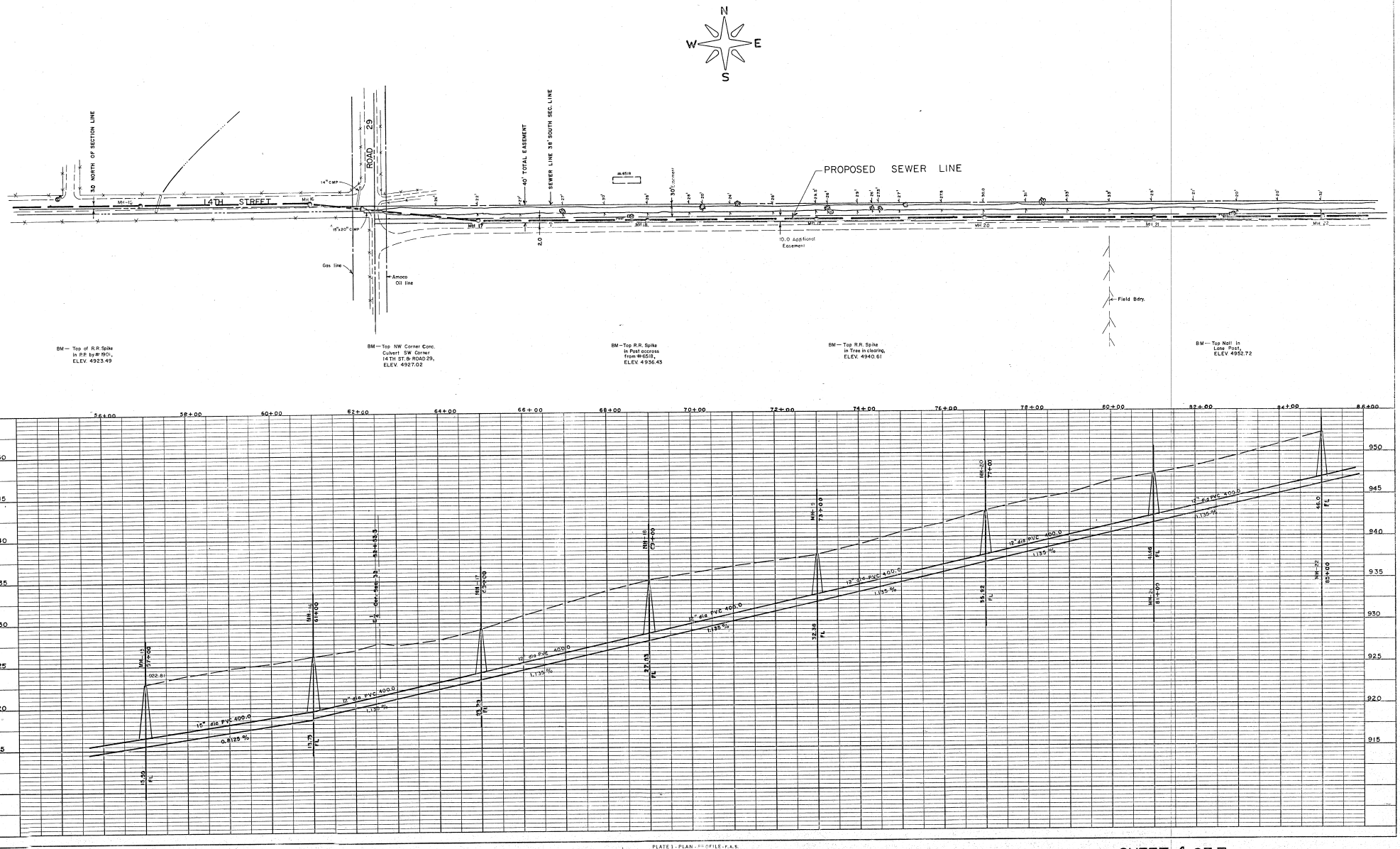


PLATE 1 - PLAN - PROFILE - F.A.S.
CLEARPRINT PAPER CO. S.F. CAL.
NO. 1000-1

SHEET 4 OF 7

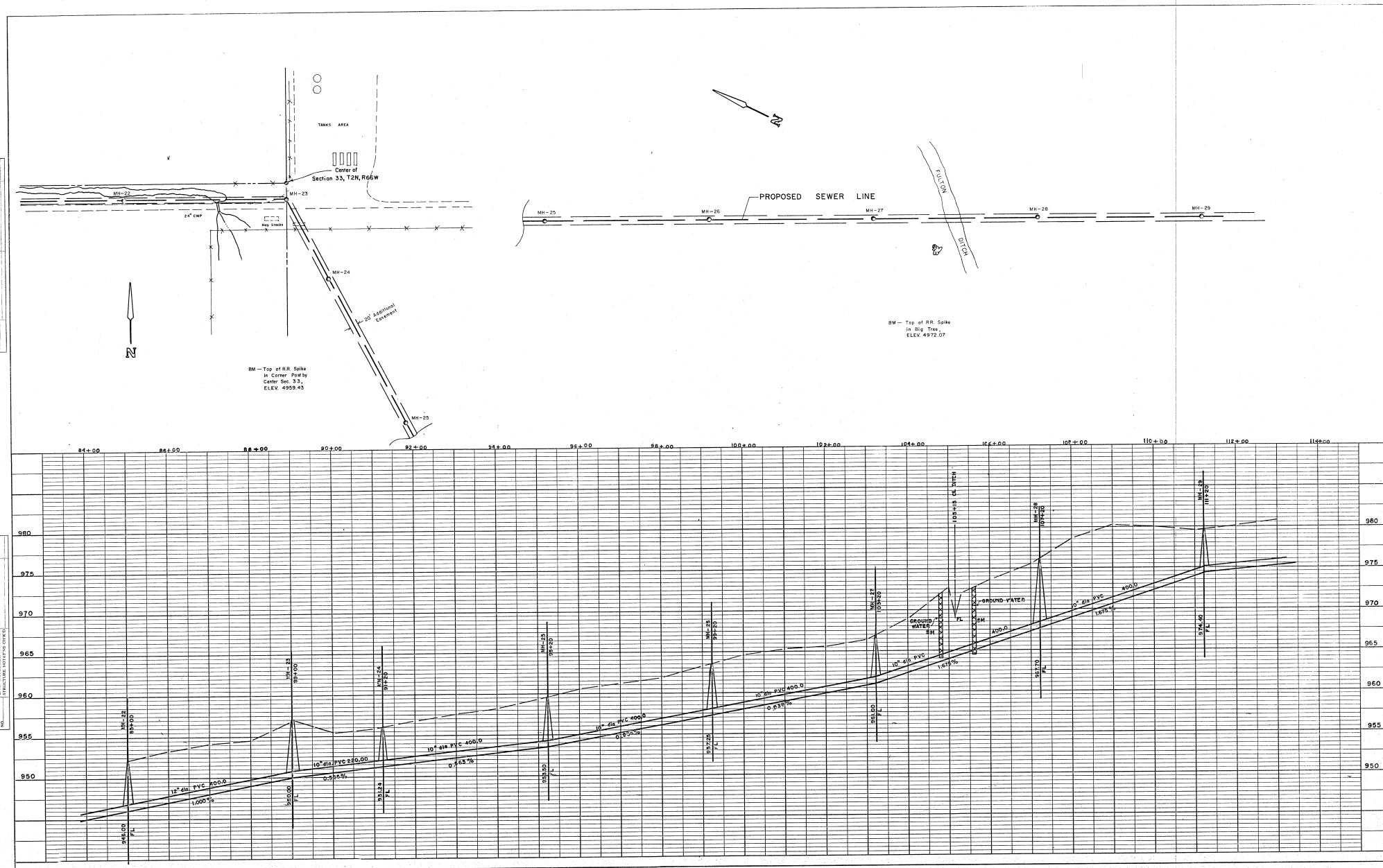


PLATE 1 - PLAN - PROFILE - F.A.S.
CLEARPRINT PAPER CO., S.F. CAL.
NO. 1000H-1

SHEET 5 OF 7

ERO

Consultants in Natural Resources and the Environment

Tree Inventory Report
Fort Lupton Coyote Creek North
Weld County, Colorado

Prepared for—

Sun Communities, Inc.
27777 Franklin Road, Suite 200
Southfield, Michigan 48034

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188
ERO Project #10738

September 17, 2020

Contents

Introduction **1**

Location **1**

Summary of Ecological Setting **1**

Project Area Description **3**

Methods **9**
Results 9
Recommendation 12

References **12**

Tables

Table 1. Tree Inventory 10

Figures

Figure 1. Vicinity Map 2
Figure 2. Tree Inventory Index 4
Figure 2a. Tree Inventory 5
Figure 2b. Tree Inventory 6
Figure 2c. Tree Inventory 7
Figure 2d. Tree Inventory 8

Appendices

Appendix A Photo Log

Wetland Delineation Report
Fort Lupton Coyote Creek North
Weld County, Colorado

September 17, 2020

Introduction

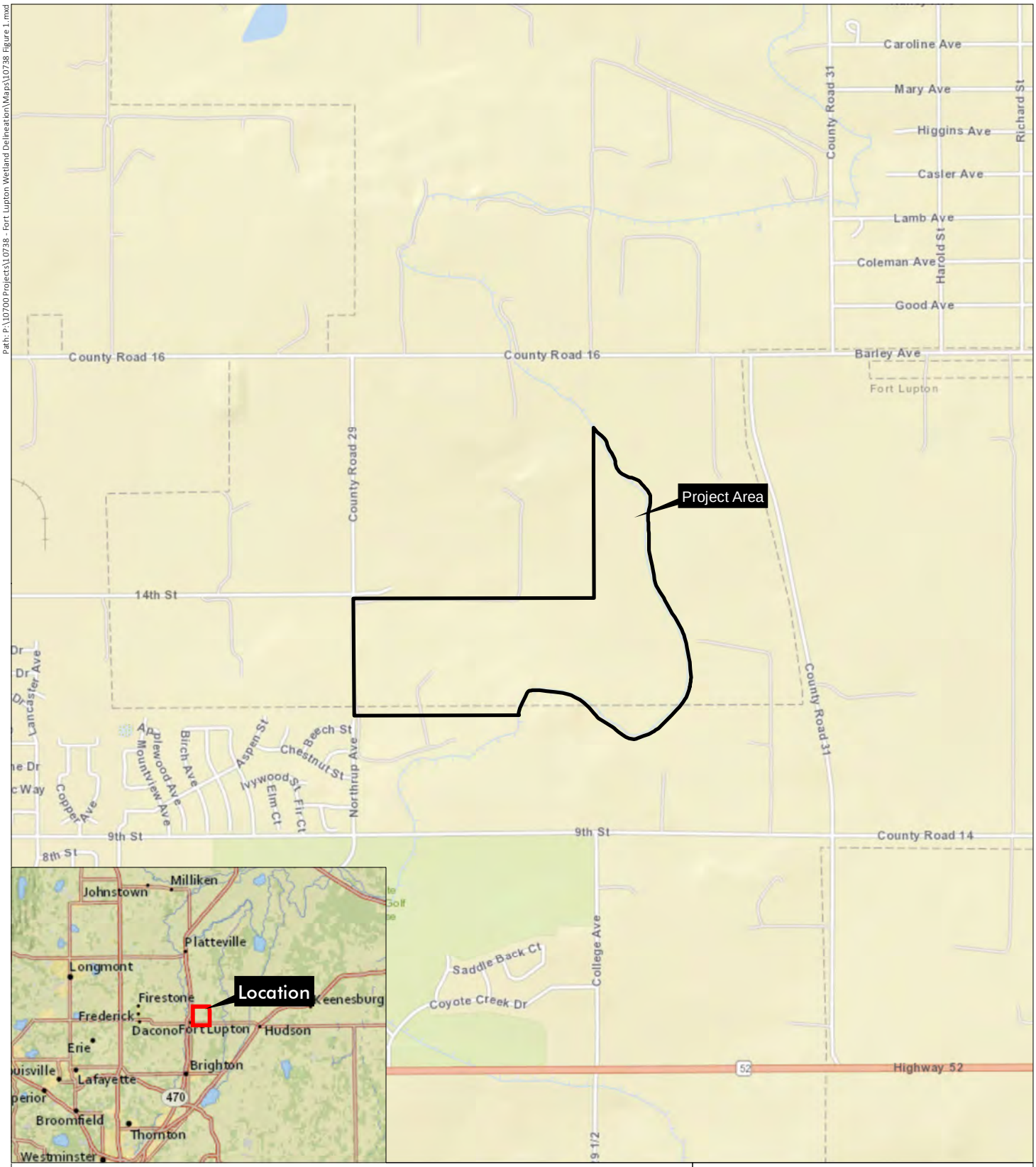
Sun Communities, Inc. (Sun Communities) retained ERO Resources Corporation (ERO) to provide a tree inventory for a parcel of land generally north of the Fulton Ditch in Fort Lupton, Weld County, Colorado (project area; Figure 1). ERO assessed the project area for trees and identified trees by species, diameter at breast height (DBH), growth form, age class, and habitat and aesthetic values. On September 8, 2020, Hidde Snieder with ERO visited the project area (2020 site visit).

Location

The project area is in Section 33, Township 2 North, Range 66 West of the 6th Principal Meridian in Fort Lupton, Weld County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are 518378mE, 4438144mN of NAD 83 Zone 13N. The longitude/latitude of the project area is 104.784409°W/40.093380°N. The elevation of the project area is approximately 4,970 feet above sea level.

Summary of Ecological Setting

The U.S. Department of Agriculture (USDA) maps the project area within the southern part of the Central High Plains Major Land Resource Area (MLRA), which is characterized by a flat to gently rolling landscape formed by glacial drift material and sediment deposition from the Rocky Mountains (USDA, Natural Resources Conservation Service (NRCS) 2006). This MLRA is part of the Colorado Piedmont section of the Great Plains physiographic province and ranges in elevation from 3,000 to 7,800 feet. The climate of the area is typical of mid-continental semiarid temperate zones, but the strong rain shadow effect of the Southern Rocky Mountains makes the area somewhat drier. The average annual precipitation is 12 to 18 inches, most of which occurs from April to September. The mean annual temperature is 45°F to 55°F with the number of frost-free days ranging from 135 to 190.



Fort Lupton Coyote Creek North

Section 33, T2N, R66W; 6th PM

UTM NAD 83: Zone 13N; 518378mE, 4438144mN

Longitude 104.784409°W, Latitude 40.093380°N

USGS Fort Lupton, CO Quadrangle

Weld County, Colorado

0 750 1,500 Feet

N

Figure 1
Vicinity Map

Prepared for: Sun Communities, Inc.
File: 10738 Figure 1.mxd (GS)
June 28, 2019

ERO Resources Corp.

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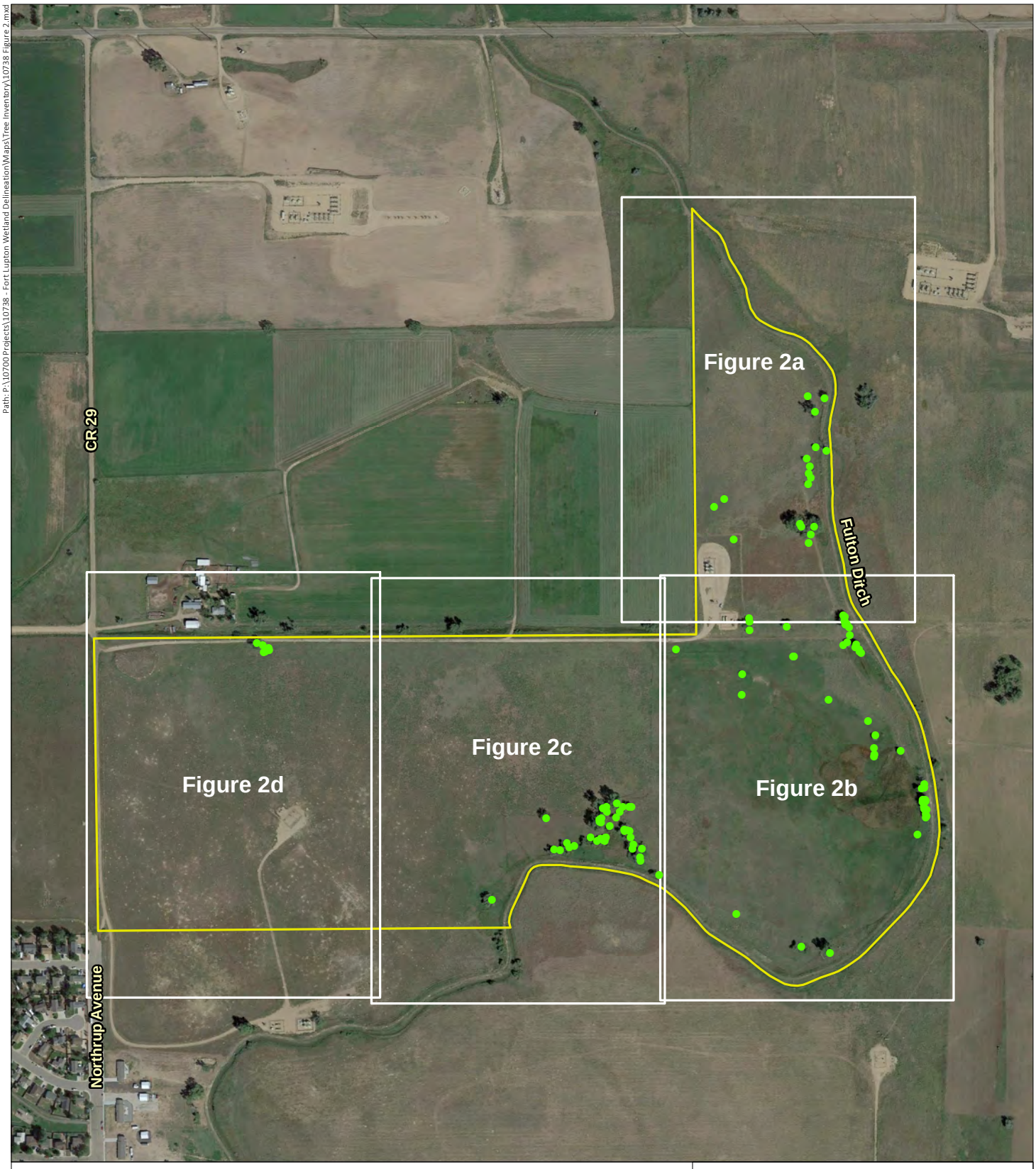
The project area is further divided into the Flat to Rolling Plains ecoregion of Colorado within the High Plains region of the United States (Chapman et al. 2006). This ecoregion is more level and less dissected than the adjacent Moderate Relief Plains. The geology of the Flat to Rolling Plains is generally silty with a veneer of loess. Most of the ecoregion historically consisted of shortgrass and midgrass prairie intermixed with riparian and wetland areas along stream corridors. Most of the Flat to Rolling Plains land use has undergone, or is currently undergoing, a shift from cropland and rangeland to urban development. The development has resulted in a shift from native habitat to urban areas that contain a high number of manmade lakes and gravel pits, public infrastructure, buildings, and narrower riparian corridors along streams and rivers in the region. Located within the South Platte River watershed of central Colorado, streams flow from west to east, out of the Front Range mountains and foothills or from southeast to northwest off the Palmer Divide, and into the South Platte River. The South Platte River converges with the North Platte River just west of Ogallala, Nebraska to form the Platte River. The Platte River is tributary to the Missouri River, which eventually flows into the Mississippi River. Most of the tributaries that flow into the South Platte River watershed contain riparian corridors dominated by deciduous woodlands and transitional shrubs and grasslands.

Project Area Description

The project area is north of the Fulton Ditch in Fort Lupton, Colorado (Figure 1). The project area is generally bounded to the north by County Road 14½ and agricultural land, the Fulton Ditch to the east and south, and County Road 29 and undeveloped land to the west. Photo points of the project area are shown on Figure 2 and Figure 2a through Figure 2d, and the photo log is in Appendix A.

The majority of the project area consists of undeveloped agricultural land dominated by a mixture of native and nonnative upland species including smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), western wheatgrass (*Pascopyrum smithii*), white top (*Lepidium draba*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutams*), and Scotch thistle (*Onopordum acanthium*). The Fulton Ditch occurs along the southern and eastern borders of the project area and contains a narrow wetland fringe along the entire ditch. A large wetland complex occurs in the eastern half of the project area. A second wetland occurs north of the Fulton Ditch near the center of the project area. Trees occur near the Fulton Ditch sporadically throughout the project area and observed species include plains cottonwood (*Populus deltoides*), Russian olive (*Elaeagnus angustifolia*), Siberian elm (*Ulmus pumila*), and crack willow (*Salix fragilis*).



Fort Lupton Coyote Creek North

Tree

Project Area Boundary/Limit of Delineation

Image Source: Google Earth©, September 2019

0 275 550 Feet

N

Figure 2
Tree Inventory
Index

Prepared for: Sun Communities, Inc.
File: 10738 Figure 2.mxd (GS)
September 14, 2020

ERO Resources Corp.

Path: P:\10700 Projects\10738 - Fort Lupton Wetland Delineation\Maps\Tree Inventory\10738 Figures 2a-2d.mxd

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Fort Lupton Coyote Creek North

Photo Point

Tree

Project Area Boundary/Limit of Delineation

Image Source: Google Earth©, September 2019

0 65 130 Feet

N

Figure 2a
Tree Inventory

Prepared for: Sun Communities, Inc.
File: 10738 Figures 2a-2d.mxd (GS)
September 16, 2020

ERO Resources Corp.

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Fort Lupton Coyote Creek North

Photo Point

Tree

Project Area Boundary/Limit of Delineation

Image Source: Google Earth©, September 2019

0 65 130 Feet

N

Figure 2b
Tree Inventory

Prepared for: Sun Communities, Inc.
File: 10738 Figures 2a-2d.mxd (GS)
September 16, 2020

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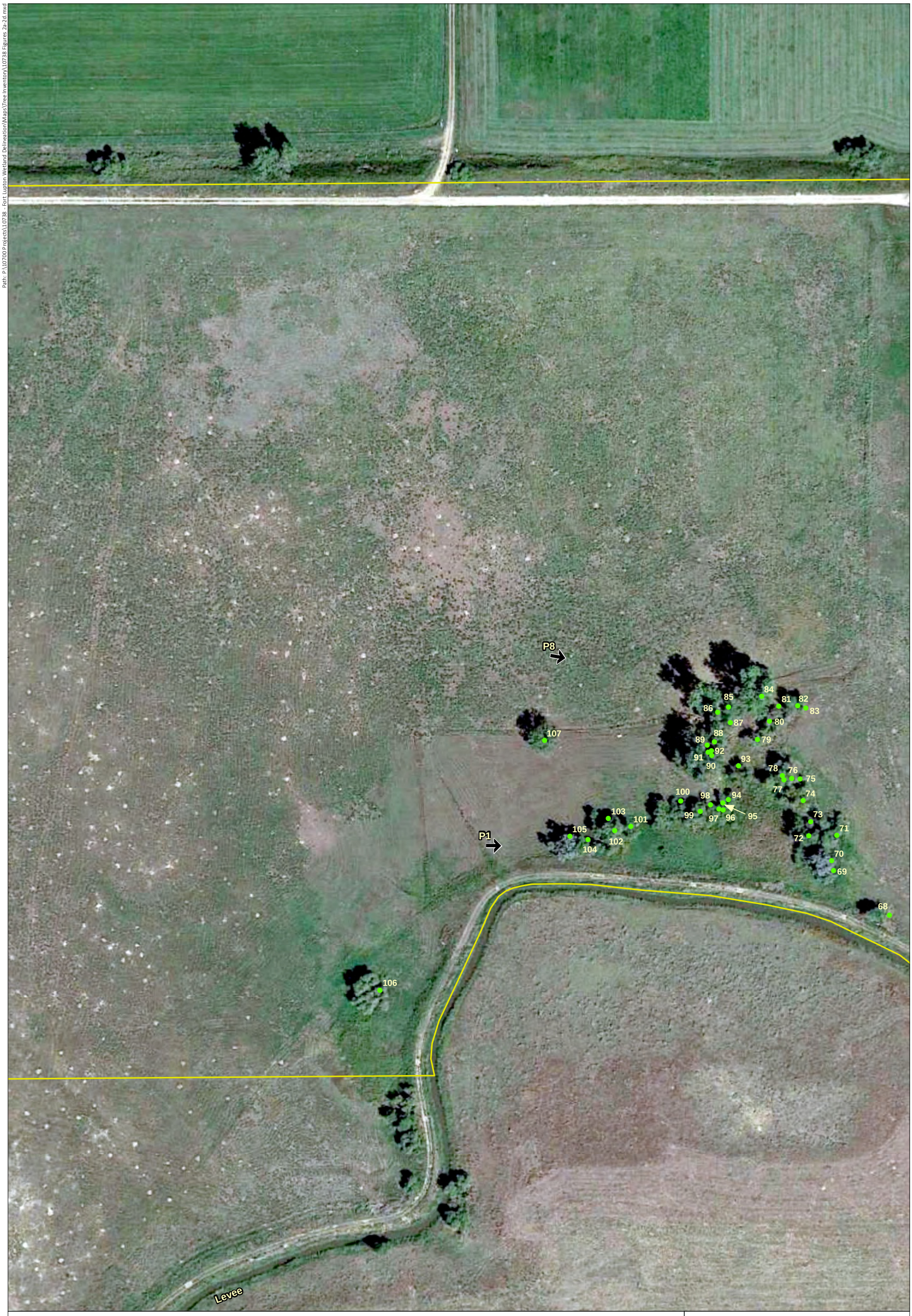

Fort Lupton Coyote Creek North

Photo Point

Tree

Project Area Boundary/Limit of Delineation

Image Source: Google Earth©, September 2019

0 65 130 Feet

N

Figure 2c
Tree Inventory

Prepared for: Sun Communities, Inc.
File: 10738 Figures 2a-2d.mxd (GS)
September 16, 2020

ERO Resources Corp.

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Fort Lupton Coyote Creek North

Photo Point

Tree

Project Area Boundary/Limit of Delineation

Image Source: Google Earth©, September 2019

0 65 130 Feet

N

Figure 2d
Tree Inventory

Prepared for: Sun Communities, Inc.
File: 10738 Figures 2a-2d.mxd (GS)
September 16, 2020

ERO Resources Corp.

Methods

During the 2020 site visit, ERO surveyed the project area for trees and noted the species, DBH, growth form, age class, and habitat and aesthetic values. Taxonomy was determined using *Flora of Colorado* (Ackerfield 2015) and *Colorado Flora: Eastern Slope* (Weber and Wittmann 2012), and nomenclature was determined using *The PLANTS Database* (USDA, NRCS 2020).

The trees were mapped using a Trimble Global Positioning System (GPS) unit. Data were differentially corrected using the CompassCom base station. All differential correction was completed using Trimble Pathfinder Office 5.9 software. GPS data were incorporated using ESRI® ArcGIS Desktop software. Additionally, where appropriate, wetlands were drawn on georectified aerials and then digitized.

Results

During the 2020 site visit, ERO identified 116 trees within the project area (Table 1). The observed tree species include plains cottonwood (native), Russian olive (introduced – List B Colorado noxious weed), Siberian elm (introduced), and crack willow (introduced). Of the 116 trees observed, 35 trees were native plains cottonwood trees while the remaining 81 trees were identified as introduced species. The DBH of the trees ranged from 2 inches for young species up to 74 inches for mature plains cottonwood trees. The introduced trees in the project area included a mixture of mature and young Russian olive, Siberian elm, and crack willow trees (Photos 1, 2, and 3). Mature plains cottonwood trees occur as individuals or as clusters near the Fulton Ditch along the project area boundaries (Photos 4, 5, 6, 7, and 8). The majority of the mature plains cottonwood trees appeared healthy; however, one individual tree (Tree 5) was mostly senescent and had lost the majority of its branches and upper trunk structure (Photo 6). The invasive tree species do not provide significant habitat and aesthetic values due to their short growth form and their status as invasive species. The young plains cottonwood trees in the project area consisted of single stem trees that are relatively short and do not provide much visual relief from the surrounding area. However, the healthy mature plains cottonwood trees, including numbers 6, 7, 14, 15, 16, 17, 65, 84, 86, 87, 88, 89, 90, 91, 92, and 114, provide habitat and aesthetic values. Trees 6, 7, 14, 15, 16, 17, 65, 84, 86, 87, 88, 89, 90, 91, 92, and 114 serve as a visual buffer for the project area by breaking up the viewshed of the surrounding area, serve as wildlife habitat for a variety of migratory bird species including raptors, and provide shelter for small to large mammals that frequent the project area.

Table 1. Tree Inventory

Label	Latitude	Longitude	Species	Status	DBH (inches)	Growth Form	Age Class	Aesthetic and Habitat Values
1	40.095661	104.781555	Plains Cottonwood	Native	4	Multi Stem	Young	No
2	40.096062	104.781856	Russian Olive	Introduced	3	Single Stem	Young	No
3	40.096159	104.781698	Russian Olive	Introduced	3	Single Stem	Young	No
4	40.097393	104.780372	Russian Olive	Introduced	4	Single Stem	Young	No
5	40.097359	104.780110	Plains Cottonwood	Native	55	Single Stem	Mature	No
6	40.097203	104.780260	Plains Cottonwood	Native	74	Multi Stem	Mature	**Yes**
7	40.096728	104.780086	Plains Cottonwood	Native	70	Multi Stem	Mature	**Yes**
8	40.096771	104.780246	Russian Olive	Introduced	5	Single Stem	Young	No
9	40.096634	104.780394	Russian Olive	Introduced	6	Single Stem	Young	No
10	40.096538	104.780341	Russian Olive	Introduced	6	Multi Stem	Young	No
11	40.096457	104.780369	Russian Olive	Introduced	5	Multi Stem	Young	No
12	40.096405	104.780334	Russian Olive	Introduced	3	Multi Stem	Young	No
13	40.096327	104.780378	Russian Olive	Introduced	3	Single Stem	Young	No
14	40.095847	104.780506	Plains Cottonwood	Native	68	Multi Stem	Mature	**Yes**
15	40.095812	104.780484	Plains Cottonwood	Native	38	Single Stem	Mature	**Yes**
16	40.095720	104.780341	Plains Cottonwood	Native	41	Single Stem	Mature	**Yes**
17	40.095806	104.780289	Plains Cottonwood	Native	72	Multi Stem	Mature	**Yes**
18	40.095611	104.780377	Plains Cottonwood	Native	3	Single Stem	Young	No
19	40.094712	104.781324	Crack Willow	Introduced	12	Single Stem	Young	No
20	40.094668	104.781317	Crack Willow	Introduced	36	Multi Stem	Mature	No
21	40.094563	104.781319	Crack Willow	Introduced	24	Multi Stem	Mature	No
22	40.094601	104.780730	Crack Willow	Introduced	36	Multi Stem	Mature	No
23	40.094245	104.780633	Russian Olive	Introduced	3	Single Stem	Young	No
24	40.094245	104.780615	Russian Olive	Introduced	3	Single Stem	Young	No
25	40.093713	104.780078	Siberian Elm	Introduced	4	Single Stem	Young	No
26	40.094737	104.779842	Russian Olive	Introduced	4	Single Stem	Young	No
27	40.094717	104.779816	Russian Olive	Introduced	2	Single Stem	Young	No
28	40.094681	104.779822	Plains Cottonwood	Native	46	Single Stem	Mature	No
29	40.094658	104.779814	Plains Cottonwood	Native	36	Multi Stem	Young	No
30	40.094631	104.779785	Plains Cottonwood	Native	16	Multi Stem	Young	No
31	40.094625	104.779807	Plains Cottonwood	Native	10	Single Stem	Young	No
32	40.094590	104.779750	Plains Cottonwood	Native	12	Single Stem	Young	No
33	40.094498	104.779738	Russian Olive	Introduced	4	Single Stem	Young	No
34	40.094380	104.779847	Russian Olive	Introduced	5	Single Stem	Young	No
35	40.094410	104.779782	Russian Olive	Introduced	18	Multi Stem	Mature	No
36	40.094383	104.779640	Russian Olive	Introduced	19	Multi Stem	Mature	No
37	40.094350	104.779653	Plains Cottonwood	Native	14	Multi Stem	Young	No
38	40.094321	104.779597	Russian Olive	Introduced	3	Multi Stem	Young	No
39	40.094295	104.779589	Russian Olive	Introduced	2	Multi Stem	Young	No
40	40.094279	104.779559	Russian Olive	Introduced	2	Multi Stem	Young	No
41	40.093456	104.779464	Siberian Elm	Introduced	2	Single Stem	Young	No
42	40.093282	104.779348	Russian Olive	Introduced	12	Single Stem	Mature	No
43	40.093129	104.779371	Russian Olive	Introduced	6	Multi Stem	Young	No
44	40.093053	104.779368	Russian Olive	Introduced	5	Multi Stem	Young	No
45	40.093028	104.779375	Siberian Elm	Introduced	6	Single Stem	Young	No
46	40.093094	104.778950	Siberian Elm	Introduced	18	Single Stem	Mature	No
47	40.092687	104.778584	Siberian Elm	Introduced	12	Single Stem	Mature	No
48	40.092648	104.778581	Siberian Elm	Introduced	17	Single Stem	Mature	No
49	40.092638	104.778626	Siberian Elm	Introduced	16	Single Stem	Mature	No

Label	Latitude	Longitude	Species	Status	DBH (inches)	Growth Form	Age Class	Aesthetic and Habitat Values
50	40.092499	104.778568	Siberian Elm	Introduced	14	Single Stem	Mature	No
51	40.092484	104.778567	Siberian Elm	Introduced	20	Single Stem	Mature	No
52	40.092482	104.778583	Siberian Elm	Introduced	10	Single Stem	Young	No
53	40.092496	104.778616	Siberian Elm	Introduced	4	Single Stem	Young	No
54	40.092471	104.778615	Siberian Elm	Introduced	8	Single Stem	Mature	No
55	40.092465	104.778601	Siberian Elm	Introduced	3	Single Stem	Young	No
56	40.092452	104.778590	Siberian Elm	Introduced	14	Single Stem	Mature	No
57	40.092414	104.778590	Siberian Elm	Introduced	8	Single Stem	Mature	No
58	40.092400	104.778589	Siberian Elm	Introduced	3	Single Stem	Young	No
59	40.092386	104.778583	Siberian Elm	Introduced	12	Single Stem	Mature	No
60	40.092375	104.778549	Siberian Elm	Introduced	6	Single Stem	Young	No
61	40.092330	104.778566	Siberian Elm	Introduced	18	Single Stem	Mature	No
62	40.092302	104.778550	Siberian Elm	Introduced	4	Single Stem	Young	No
63	40.092286	104.778566	Siberian Elm	Introduced	5	Single Stem	Mature	No
64	40.092081	104.778700	Russian Olive	Introduced	4	Multi Stem	Young	No
65	40.090650	104.780092	Plains Cottonwood	Native	54	Single Stem	Mature	**Yes**
66	40.090735	104.780544	Crack Willow	Introduced	12	Multi Stem	Mature	No
67	40.091136	104.781558	Crack Willow	Introduced	36	Multi Stem	Mature	No
68	40.091615	104.782771	Crack Willow	Introduced	34	Single Stem	Mature	No
69	40.091792	104.783058	Russian Olive	Introduced	8	Single Stem	Young	No
70	40.091831	104.783068	Russian Olive	Introduced	24	Multi Stem	Mature	No
71	40.091932	104.783040	Crack Willow	Introduced	24	Multi Stem	Mature	No
72	40.091933	104.783184	Plains Cottonwood	Native	36	Multi Stem	Mature	No
73	40.091987	104.783174	Crack Willow	Introduced	18	Multi Stem	Mature	No
74	40.092071	104.783212	Crack Willow	Introduced	38	Multi Stem	Mature	No
75	40.092156	104.783227	Crack Willow	Introduced	6	Multi Stem	Young	No
76	40.092159	104.783269	Crack Willow	Introduced	8	Single Stem	Young	No
77	40.092153	104.783309	Crack Willow	Introduced	24	Multi Stem	Mature	No
78	40.092171	104.783317	Crack Willow	Introduced	28	Multi Stem	Mature	No
79	40.092315	104.783445	Crack Willow	Introduced	24	Single Stem	Mature	No
80	40.092386	104.783381	Crack Willow	Introduced	36	Multi Stem	Mature	No
81	40.092446	104.783333	Plains Cottonwood	Native	10	Single Stem	Young	No
82	40.092447	104.783236	Plains Cottonwood	Native	6	Multi Stem	Young	No
83	40.092437	104.783194	Plains Cottonwood	Native	7	Single Stem	Young	No
84	40.092485	104.783422	Plains Cottonwood	Native	70	Single Stem	Mature	**Yes**
85	40.092444	104.783591	Plains Cottonwood	Native	12	Multi Stem	Young	No
86	40.092423	104.783647	Plains Cottonwood	Native	72	Multi Stem	Mature	**Yes**
87	40.092382	104.783584	Plains Cottonwood	Native	50	Single Stem	Mature	**Yes**
88	40.092306	104.783667	Plains Cottonwood	Native	30	Single Stem	Mature	**Yes**
89	40.092293	104.783703	Plains Cottonwood	Native	41	Single Stem	Mature	**Yes**
90	40.092266	104.783699	Plains Cottonwood	Native	48	Single Stem	Mature	**Yes**
91	40.092270	104.783681	Plains Cottonwood	Native	30	Single Stem	Mature	**Yes**
92	40.092253	104.783681	Plains Cottonwood	Native	70	Multi Stem	Mature	**Yes**
92	40.092253	104.783681	Crack Willow	Introduced	36	Multi Stem	Mature	No
93	40.092210	104.783544	Crack Willow	Introduced	12	Single Stem	Mature	No
94	40.092078	104.783598	Crack Willow	Introduced	18	Multi Stem	Mature	No
95	40.092063	104.783625	Crack Willow	Introduced	24	Multi Stem	Mature	No
96	40.092036	104.783624	Crack Willow	Introduced	20	Multi Stem	Mature	No
97	40.092041	104.783646	Crack Willow	Introduced	24	Multi Stem	Mature	No
98	40.092056	104.783689	Crack Willow	Introduced	30	Multi Stem	Mature	No
99	40.092030	104.783742	Crack Willow	Introduced	30	Single Stem	Mature	No

Label	Latitude	Longitude	Species	Status	DBH (inches)	Growth Form	Age Class	Aesthetic and Habitat Values
100	40.092073	104.783843	Crack Willow	Introduced	36	Multi Stem	Mature	No
101	40.091974	104.784101	Crack Willow	Introduced	6	Multi Stem	Young	No
102	40.091959	104.784185	Crack Willow	Introduced	24	Multi Stem	Mature	No
103	40.092006	104.784216	Crack Willow	Introduced	36	Multi Stem	Mature	No
104	40.091924	104.784323	Crack Willow	Introduced	36	Multi Stem	Mature	No
105	40.091937	104.784415	Russian Olive	Introduced	24	Single Stem	Mature	No
106	40.091335	104.785400	Crack Willow	Introduced	38	Multi Stem	Mature	No
107	40.092318	104.784541	Siberian Elm	Introduced	28	Single Stem	Mature	No
108	40.094342	104.782477	Russian Olive	Introduced	6	Single Stem	Young	No
109	40.094031	104.781434	Russian Olive	Introduced	8	Single Stem	Young	No
110	40.093792	104.781443	Russian Olive	Introduced	6	Single Stem	Young	No
111	40.094398	104.788887	Plains Cottonwood	Native	2	Single Stem	Young	No
112	40.094373	104.788884	Plains Cottonwood	Native	4	Multi Stem	Young	No
113	40.094359	104.788937	Plains Cottonwood	Native	4	Multi Stem	Young	No
114	40.094349	104.788969	Plains Cottonwood	Native	3	Single Stem	Young	**Yes**
115	40.094433	104.788983	Plains Cottonwood	Native	24	Multi Stem	Mature	No
116	40.094457	104.789075	Plains Cottonwood	Native	18	Multi Stem	Young	No

Recommendation

If possible ERO recommends preserving the mature cottonwood trees that provide aesthetic value and wildlife habitat including trees 6, 7, 14, 15, 16, 17, 65, 84, 86, 87, 88, 89, 90, 91, 92, and 114. Additionally, invasive and noxious tree species including Russian olive, Siberian elm, and crack willow should be removed and, if possible, replaced with native tree species.

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Appendix A Photo Log



Photo 1 - Overview of Russian olive trees along the Fulton Ditch (101 to 105). View is to the east.



Photo 2 - Overview of Siberian elm trees along the Fulton Ditch (47 to 63). View is to the north.



Photo 3 - Overview of crack willow trees in the project area (22). View is to the southeast.



Photo 4 - Overview of mature plains cottonwood trees (14 to 17). View is to the south.



Photo 5 - Overview of a mature plains cottonwood tree in the project area (6). View is to the south.



Photo 6 - Overview of a senescent plains cottonwood tree in the project area (5). View is to the east.



Photo 7 - Overview of a mature plains cottonwood tree in the project area (65). View is to the south.



Photo 8 - Overview of mature plains cottonwood trees in the project area (84 to 92). View is to the east.

Traffic Impact Study
Fulton Ranch

December 2, 2019



Prepared for:
Sun ACQ LLC

Rollins Consult LLC

Table of Contents

Page

1 Introduction ……4
2 Existing Conditions ……8
3 Project Travel Demand……14
4 Future Traffic Projections……17
5 Traffic Impact Analysis……24
6 Auxiliary Lane Analysis ……29
7 Conclusions……30
Appendices……33

Appendix A: Traffic Counts
Appendix B: Level of Service Worksheets
Appendix C: Figure and Table 4C-3 Manual on Uniform Traffic Control Devices
Appendix D: NCHRP Report 279

List of Figures

1 Project Location……5
2 Project Site……6
3 Existing Peak Hour Volumes……10
4 Existing Lane Configurations ……11
5 Project Traffic Distribution……15
6 Project Traffic ……16
7 Background Traffic 2024……18
8 Lane Configurations 2040……20
9 Background Traffic 2040……21
10 Total Traffic 2024……22
11 Total Traffic 2040……23

List of Tables

1 Unsignalized Level of Service Definitions ……..…….....9
2 Signalized Intersection Level of Service Definitions……..……12
3 Existing Weekday Peak Hour Intersection Level of Service…….……..…....13
4 Estimated Trip Generation …….. ……....14
5 Future 2024 Intersection Level of Service…….....25
6 Future 2040 Intersection Level of Service…….....26
7 2040 – Northrup/14th With Signalization…….……28

1 INTRODUCTION

This report documents the results of a study to evaluate the potential traffic impacts of the proposed Fulton Ranch project in the City of Fort Lupton, Colorado. Rollins Consult LLC conducted the study in support of the development application for the proposed project.

PROJECT DESCRIPTION

The Fulton Ranch project is located in the City of Fort Lupton, west of Weld County Road (CR) 31 roughly between 14th Street and the Fulton Highline Canal. The project site is comprised of approximately 127 acres. The site is surrounded by primarily undeveloped land to the north, east and west. South of the site is undeveloped land that is proposed as the Cottonwood Greens residential project. Figure 1 illustrates the project location and study area.

The project site is depicted on Figure 2. The site was designed with numerous roadways which allow for distribution of pedestrians, bicycles and vehicles. The internal roadways were designed as a basic and curvilinear grid. There are two pedestrian and bicycle trail connections proposed to the future Main Fulton Ditch Trail that follows the alignment of the Fulton Highline Canal. One exclusive pedestrian/bicycle connection is proposed to 14th Street.

The project proposes the following land uses and transportation elements:

- There are 466 manufactured homes proposed.
- 30 homes would be located north of 14th Street.
- Access to public roadways would be provided at two connections. One access location is proposed from Northrup Avenue and one from 14th Street.
- The internal roadway system has been designed to accommodate the project traffic.
- There are two connections from the project to the future Main Fulton Ditch Trail.
- One central open space/trail connection is provided in the center of the project. This provides a connection from 14th Street to the Main Fulton Ditch Trail.

Figure 1 – Project Location

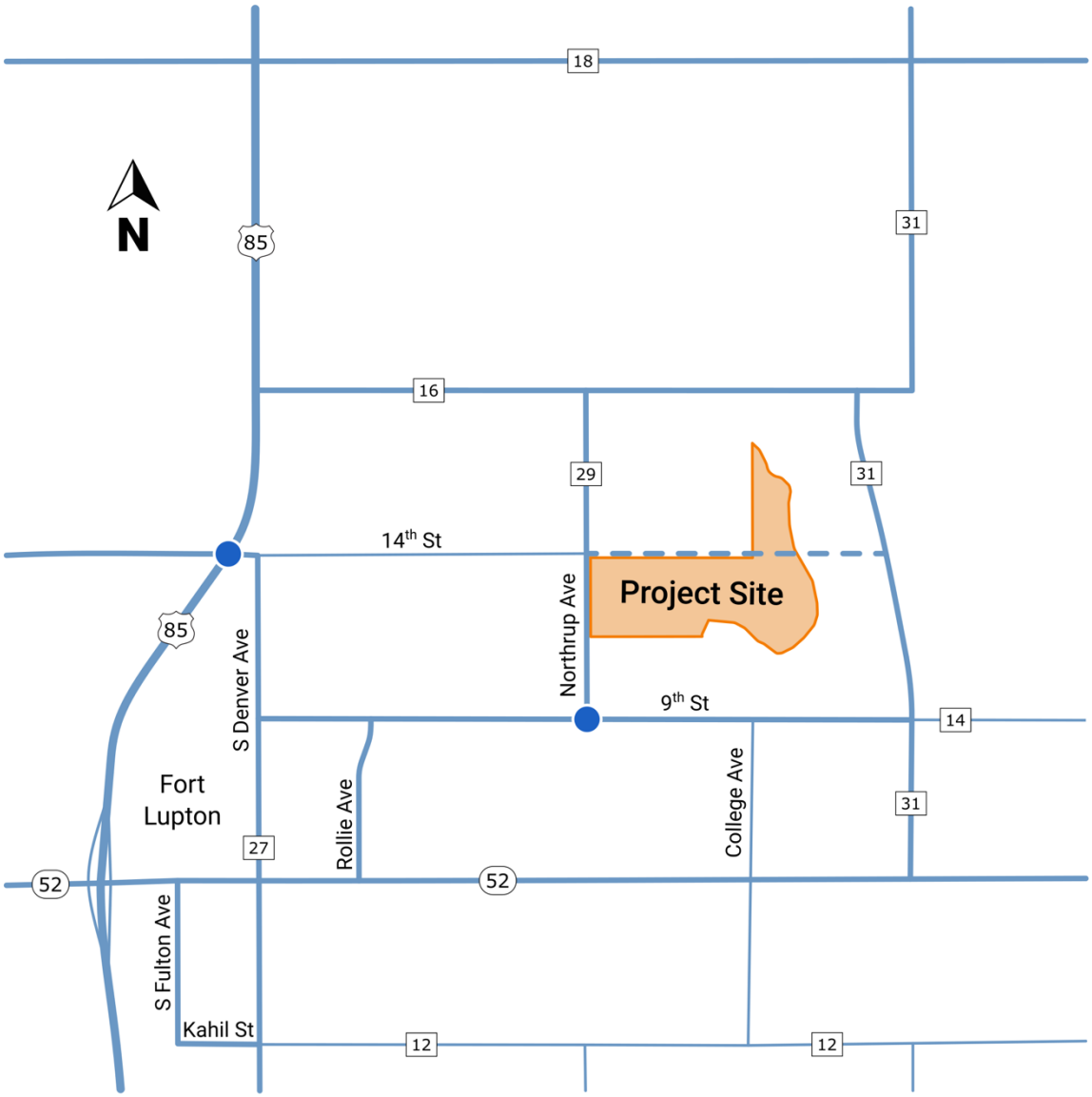
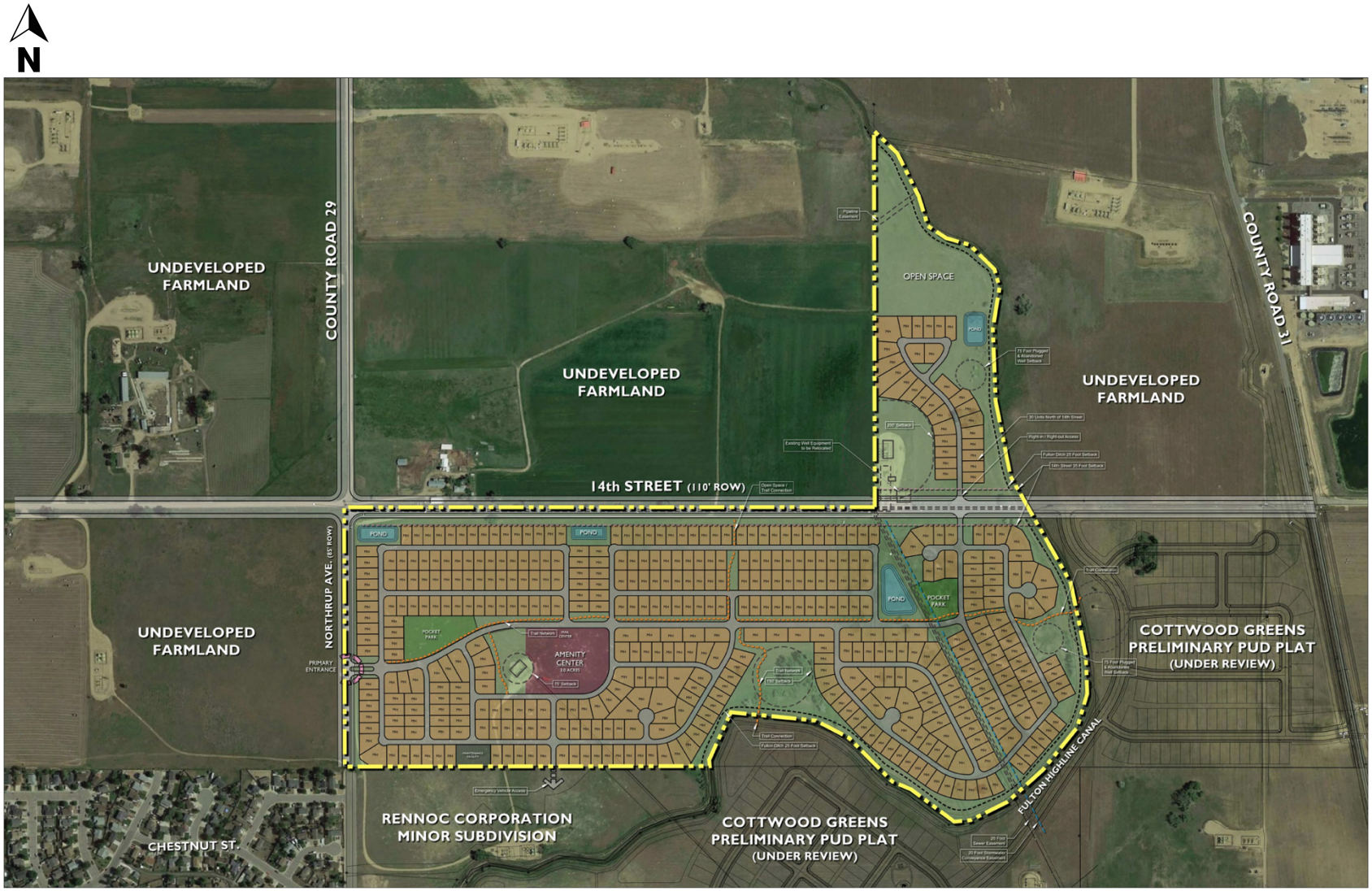


Figure 2 - Project Site Plan



STUDY SCOPE

The scope of work for this study was developed in conjunction with the City of Fort Lupton's Public Works department. The base assumptions, technical methodologies, and geographic coverage of the study were all identified as part of the study approach. The study analyzes the potential project-generated traffic impacts on the adjacent street system.

The study evaluates the potential changes to the transportation system after completion of the proposed Fulton Ranch residential project for two future horizon years. The analysis of future year traffic forecasts is based on projected conditions in year 2024 (short range conditions) and 2040 (long range future conditions) both with and without the addition of the project traffic. The following transportation scenarios were analyzed for the AM and PM peak hours:

- **Existing Conditions** – The analysis of existing traffic conditions provides a basis for the remainder of the study. The existing transportation system is described. Peak hour intersection operations are evaluated.
- **Project Travel Demand** – The traffic generated by the Project will be estimated, distributed, and assigned to the transportation network.
- **2024 and 2040 Background Conditions** – Future traffic conditions are projected without the proposed Project for the project buildout year 2024 and the long range future year 2040. The traffic volumes on the roadway system will be factored and analyzed to reflect conditions for 2024 and 2040. This analysis will include the addition of traffic from other potential projects.
- **Total Future Conditions** – The traffic associated with the project will be projected and added to the Background traffic. The intersection operations will be determined.

The study examined two existing and three future intersections within the study area. These were identified by the City of Fort Lupton for inclusion in the study. The study intersections are:

1. US 85 & 14th Street/CR 14 ½
2. Northrup Avenue & 9th Street
3. Future Northrup Avenue & 14th Street
4. Future Northrup Avenue & proposed Access Street A
5. Future Access Street B & 14th Street

2 EXISTING CONDITIONS

The transportation system has numerous elements that are described in this chapter. The roadway network identified for this study is described and traffic volume information presented for the study intersections.

ADJACENT LANDUSE

The Project site is located west of CR 31 and north of the Fulton Highline Canal. The site is currently undeveloped land and is located to the east of downtown Fort Lupton. It is surrounded by undeveloped land, rural residential and industrial to the north and east. South of the site is the proposed Cottonwood Greens residential development. West of the project site is undeveloped land.

TRANSPORTATION NETWORK

The primary roadways that serve the Project site are described below. Roadway designations were provided in the *Fort Lupton Transportation Plan,* June 2018.

Roadway Network

US Highway 85 – This is a four-lane state highway that provides regional connections from Denver north to the Wyoming boarder. In the study area, US 85 is a four-lane north-south roadway with paved shoulders. The speed limit is posted at 55 mph. At the signalized intersection with 14th street there are turn/auxiliary lanes provided. The Colorado Department of Transportation (CDOT) completed, the *US 85 Planning and Environmental linkages (PEL) Study,* in April 2017. This study was performed to look at the overall operations and vision of US 85 between Interstate 76 and Weld County Road 100. The preferred recommendation for this intersection was to be a junior interchange to be relocated to the west.

14th Street is a east-west two-lane roadway. The posted speed varies between 25 and 30 mph. 14th is paved between US 85 and the eastern most aluminum business (approximately 6/10 of a mile east of US 85). East of that, it becomes a gravel road.

9th Street is an east-west two-lane roadway. Portions of 9th have been improved to include sidewalks. There are narrow shoulders. Near Northrup Avenue there is no posted speed limit. West of Northrup the speed is 20 mph near the Twonbly Elementary School.

Northrup Avenue is currently a two-lane north-south roadway. It exists north and south of 9th Street. To the south of 9th Street, Northrup has been constructed to provide access to future residential however, it currently does not connect to any existing residential areas south of 9th. North of 9th it provides access to existing residential and a church. It terminates approximately 1,300 feet north of 9th.

EXISTING TRAFFIC CONDITIONS

Existing intersection operations were evaluated for both the morning and evening peak hours. Intersection count data and daily counts were collected on Tuesday, November 12, 2019. **Appendix A** includes the intersection turning movement count data. The resulting peak hour turning movements are provided on Figure 3. The current lane configurations of the study intersections are shown on Figure 4.

Intersection Level of Service Analysis Methodologies

Transportation professionals evaluate intersections to determine how they are currently operating and will operate in the future. The methods employed can be found in the Transportation Research Board's, 6th Edition, 2016 *Highway Capacity Manual* (HCM). Level of service (LOS) is based on a "graded" system from LOS A, very little to no delays, to LOS F which represents excessive delays and congestion.

The City of Fort Lupton has established a Level of Service criteria within their *Standards and Specifications for the Design and Construction of Public Improvements,* 2015. Chapter 8 – Traffic Control states: "Level of Service "C" shall be the design objective for all movements, and under no circumstances will less than level of Service "D" be accepted for site and non-site traffic, including existing traffic at Build-out of the study area." Definitions for level of service are provided for both unsignalized (existing operations) and signalized conditions.

Unsignalized Intersection

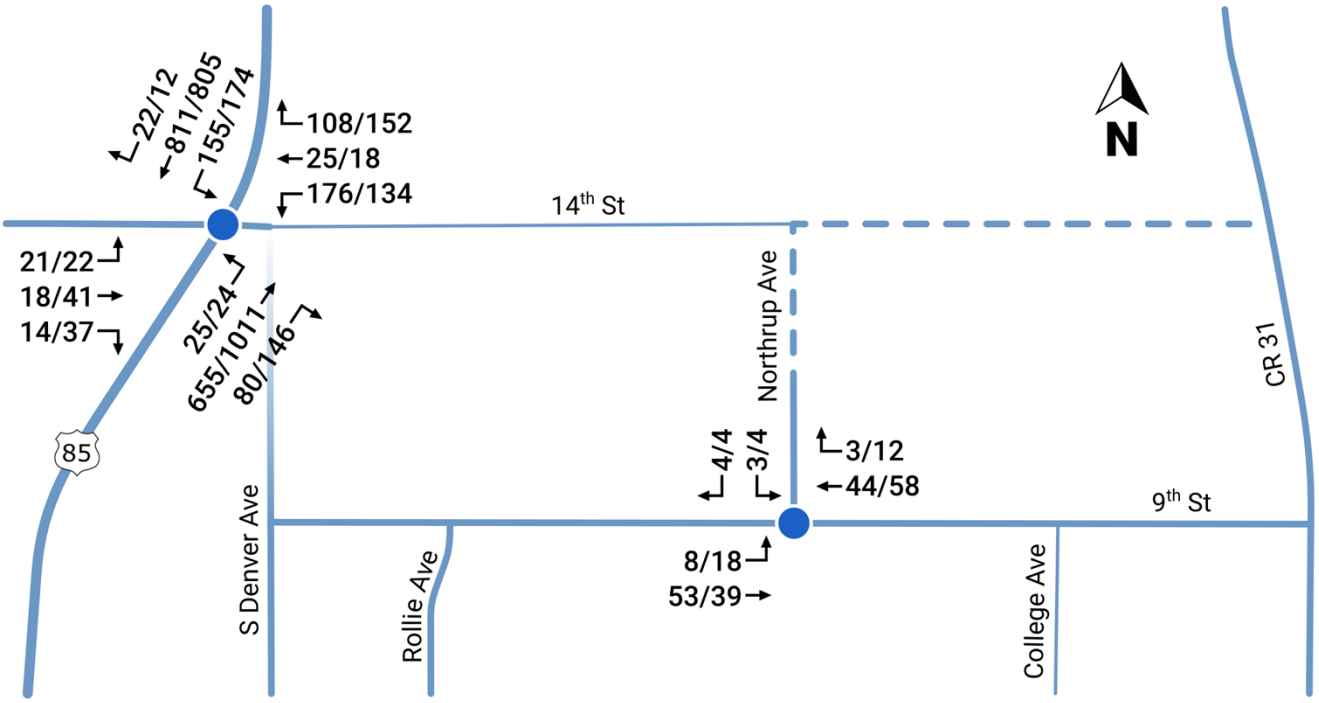
Peak hour levels of motor vehicle delay at unsignalized intersections were estimated using the method from Chapter 17 of the 2016 *Highway Capacity Manual*. The delays for the entire intersection and for each of the constrained movements are reported. Table 1 summarizes the relationship between average control delay per vehicle and LOS for unsignalized intersections.

Table 1 Unsignalized Intersection Level of Service Definitions

Level of Service	Average Control Delay Per Vehicle (Seconds)	Description
A	≤10.0	No delay for stop-controlled approaches.
B	10.0 and ≤15.0	Operations with minor delay.
C	>15.0 and ≤25.0	Operations with moderate delays.
D	>25.0 and ≤35.0	Operations with increasingly unacceptable delays.
E	>35.0 and ≤50.0	Operations with high delays, and long queues.
F	>50.0	Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.

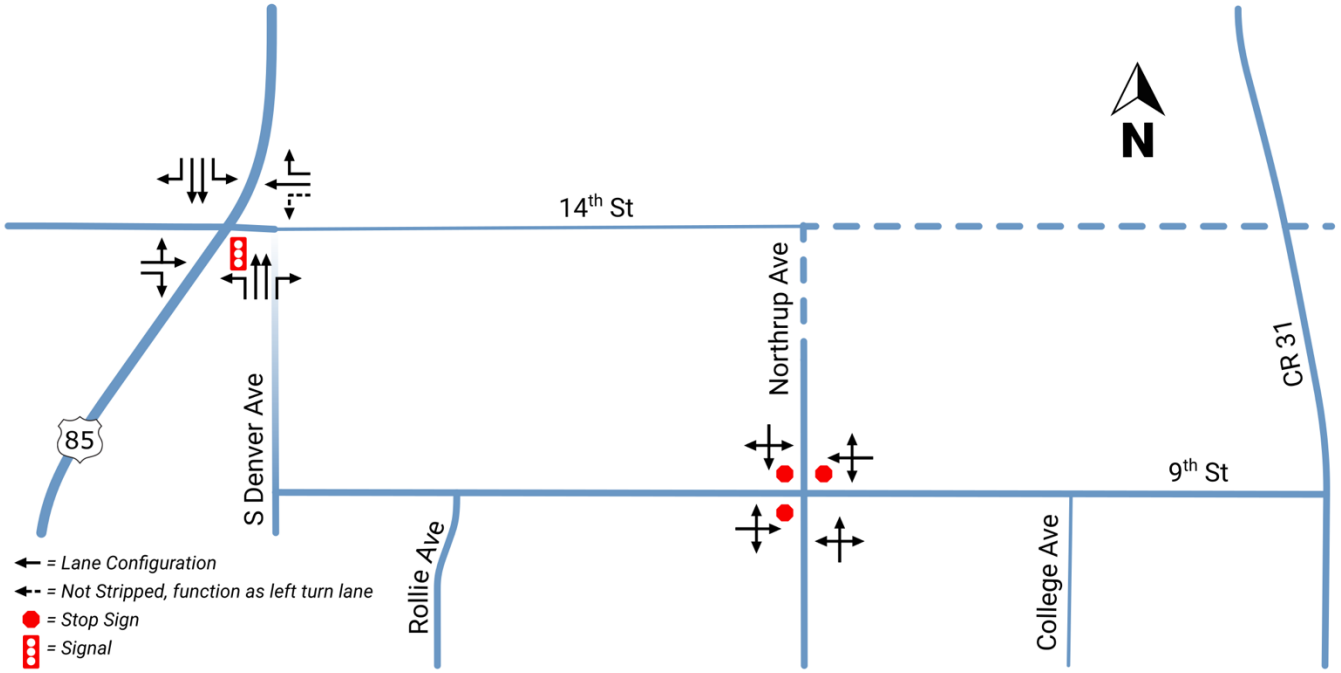
Source: Transportation Research Board, Highway Capacity Manual, 2016.

Figure 3 – Existing Peak Hour Volumes



AM/PM Peak Hour Turning Movements

Figure 4 – Existing Lane Configurations



Signalized Intersections

Peak hour levels of motor vehicle delay at signalized intersections were estimated using methods provided in Transportation Research Board's 2010 Highway Capacity Manual. This operations analysis method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue Table 2 summarizes the relationship between average control delay per vehicle and LOS for signalized intersections.

Table 2 Signalized Intersection Level of Service Definitions

Level of Service	Average Control Delay Per Vehicle (Seconds)	Description
A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally, occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

Source: Transportation Research Board, Highway Capacity Manual, 2016.

Existing Intersection Conditions

Using the HCM methodology, the weekday AM and PM peak hour intersection operations were determined. The results are provided in Table 3. As indicated in the table, both of the study intersections are currently operating at acceptable levels of service. The detailed analysis worksheets are provided in Appendix B.

Table 3 Existing Weekday Peak-Hour Intersection Level of Service

#	Intersection	Overall Movement	AM Peak		PM Peak	
			Delay	LOS	Delay	LOS
1	US 85 & 14th Street Signal	Overall	20.4	C	25.5	C
		EB	15.2	B	15.6	B
		WB	18.6	B	18.7	B
		NB	20.9	C	30.5	C
		SB	20.8	C	22.5	C
2	Northrup Ave & 9th St All-Way Stop Control	Overall	7.2	A	7.3	A
		EB	7.3	A	7.4	A
		WB	7.2	A	7.3	A
		NB	0	A	0	A
		SB	7	A	7.1	A

Notes:
1. LOS calculations performed using Synchro which is based on the Transportation Research Board HCM 2016.
2. Average vehicle delay (in seconds per vehicle) is reported for both overall intersection and each constrained /STOP-controlled movement or approach. Movements with LOS greater than or equal to E are also provided.

3 PROJECT TRAVEL DEMAND

This chapter provides an overview of the project and a description of the travel demand methodology to estimate vehicle trip generation, distribution, and assignment of project-generated traffic along area roadways and intersections.

PROJECT CHARACTERISTICS

The proposed Fulton Ranch project is a residential project located west of CR 31 and north of the Fulton Highline Canal. The project site plan was depicted on Figure 2. The project is planned on approximately 127 acres. Vehicular access to the project will be from: Northrup Avenue (one location), 14th Street (one location). The project will be developed with 466 manufactured homes. The transportation characteristics of the site includes a classic and curvilinear grid roadway layout, a pedestrian/bicycle trail that allows for future connections to the Main Fulton Ditch Trail and 14th Street.

PROJECT TRIP GENERATION

The trip generation characteristics of the project were estimated using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual,* 10th Edition. Table 4 provides the trip generation estimated for the project. As indicated in the table, the full buildout of the project is estimated to generate approximately 2,330 daily trips, 120 morning and 215 evening peak hour trips.

PROJECT TRIP DISTRIBUTION | ASSIGNMENT

The distribution of the project traffic onto the roadway system was based on: the existing peak hour traffic counts, the roadway network, the adjacent land use, the location of the project within the region and the City of Fort Lupton, traffic forecasts from the *Transportation Plan,* and input from the City engineer. The project trip distribution is depicted on Figure 5.

The project assigned peak hour traffic volumes for are shown on Figure 6. The City of Fort Lupton, City Engineer has expressed concerns with the proposed Access B onto 14th Street and has advised that this location may become a right-in/right-out when 14th Street becomes four lanes. This study was done with a full access onto 14th Street. The impacts of this will be discussed in the conclusions.

Table 4 – Estimated Trip Generation

ITE Land Use Code & Rates		Project	Project Trip Generation						
				AM			PM		
Land Use	Land Use Code	Dwelling Units	Daily	IN	Out	Total	IN	Out	Total
Manufactured Housing	240	466	2,330	38	84	121	133	81	214
Based on ITE Trip Generation 10th Edition									

Figure 5 – Trip Distribution

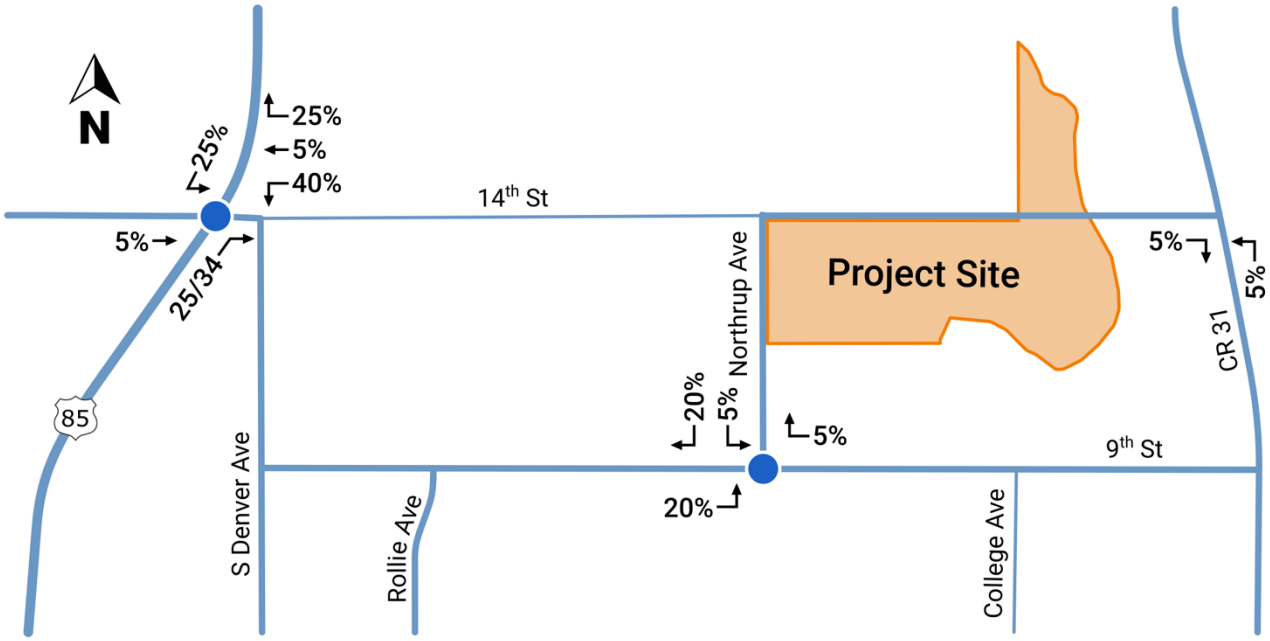
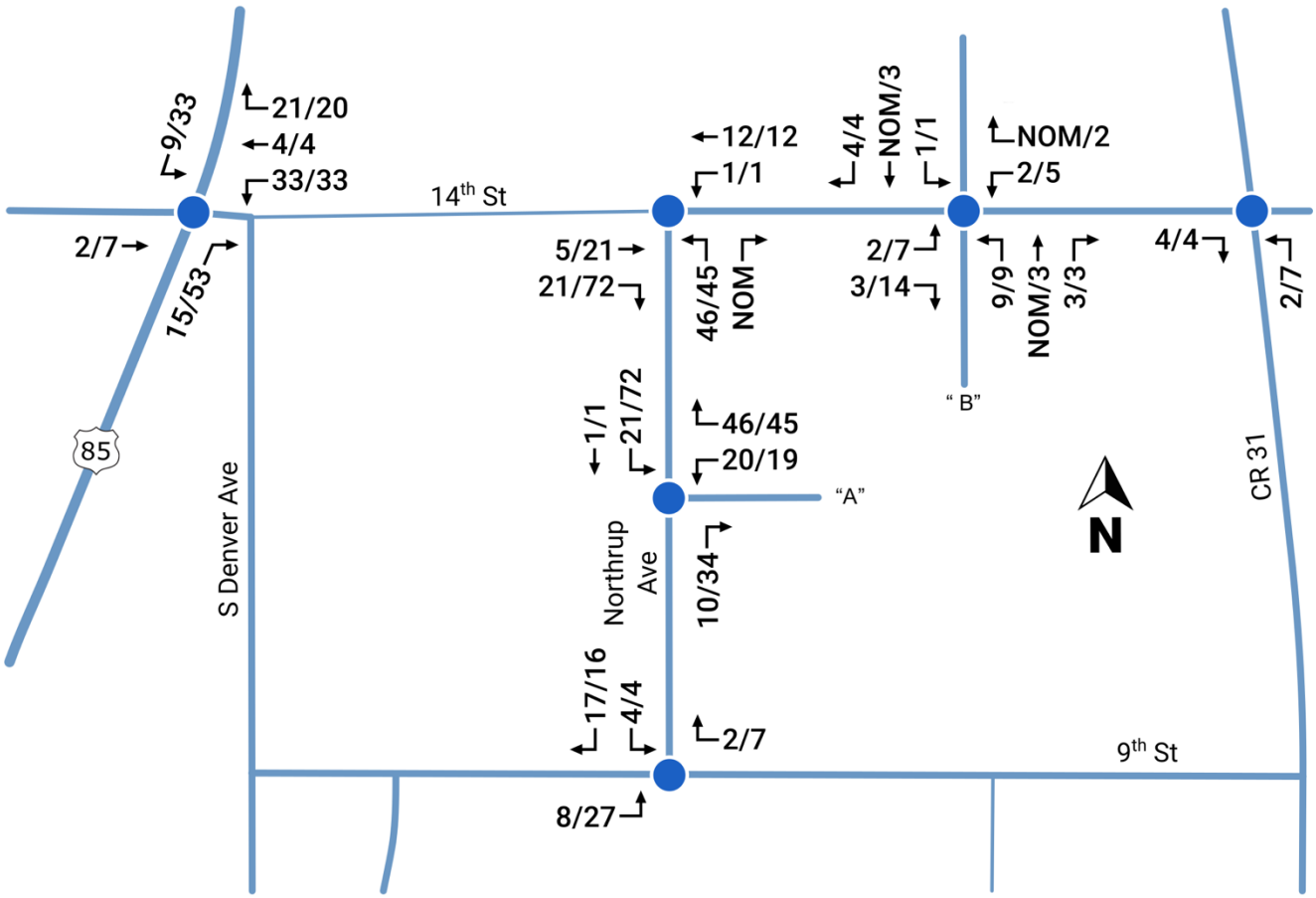


Figure 6 – Project Traffic



AM/PM Peak Hour Turning Movements

4 FUTURE TRAFFIC PROJECTIONS

Estimates of future traffic conditions both with and without the proposed Project were necessary to evaluate the potential impact of the Project on the local street system. The background base traffic scenario represents future traffic conditions without the addition of the Project, while the total scenario represents future traffic conditions with completion of the proposed Project. Two future years were analyzed, Year 2024 and Year 2040. The development of these future traffic scenarios is described in this chapter.

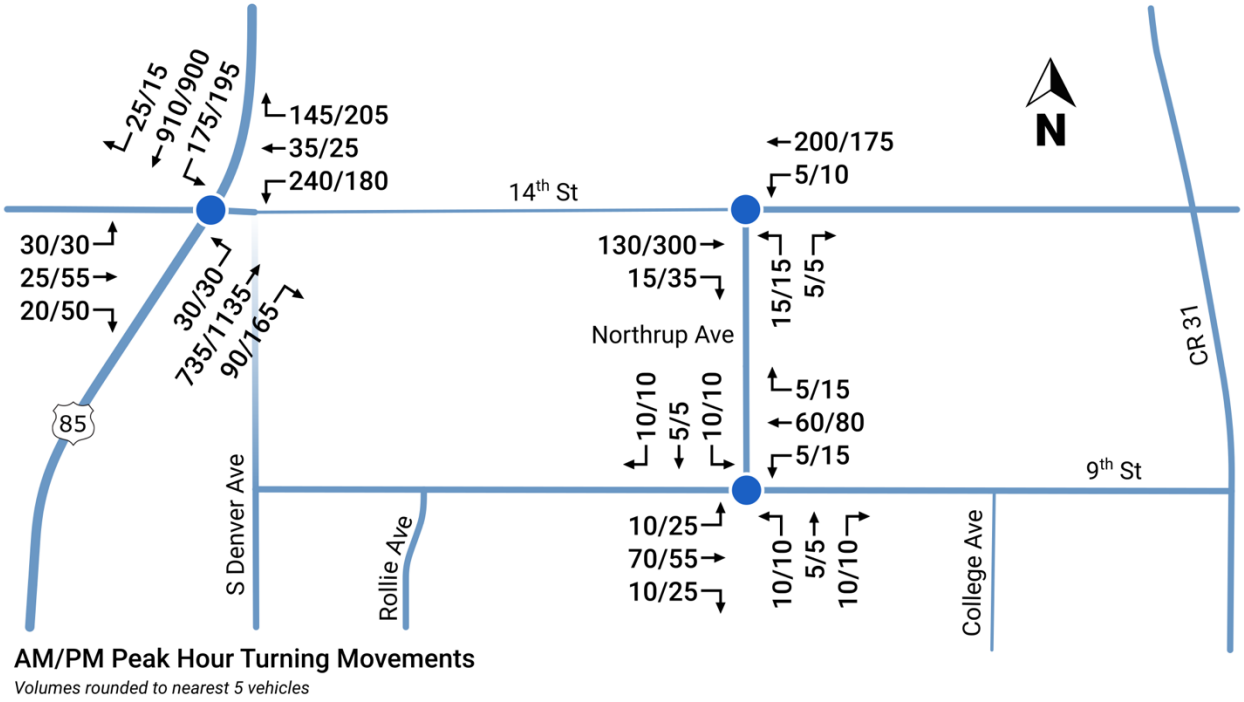
BACKGROUND 2024 TRAFFIC PROJECTIONS

The background traffic projections reflect growth in traffic from two primary sources: ambient growth in the existing traffic volumes due to regional growth both in and outside of the study area, and traffic generated by potential projects. Additionally, 14th Street will be constructed to CR 31 by 2024. Each of these elements are described below.

- The **ambient growth** in traffic was determined with information from the *Fort Lupton Transportation Plan,* June 2018. Based on these projections an annual compounded growth rate of 6.3% per year was established for the short range for each roadway except US 85. It should be noted that the future projections were adjusted to account for traffic from the proposed project. This eliminates double counting the Project traffic which is already included in the future projections in the *Transportation Plan*. The growth rate for US 85 was 2.3% per year. This value will be applied to the existing counts to determine the Year 2024 volumes due to regional growth.
- Traffic associated with the proposed Cottonwood Greens project was included in the background traffic. The *Cottonwood Greens, Traffic Impact Study,* October 7, 2019 was used in this effort.
- Traffic on Northrup Avenue, south of 9th Street was assumed to be similar to the existing traffic north of 9th.
- 14th Street is expected to be built as a 2-lane roadway to CR 31. Northrup Avenue will be completed north to 14th Street.

The resulting Background 2024 traffic projections for the study intersections is provided on Figure 7.

Figure 7 – Background Traffic 2024



AM/PM Peak Hour Turning Movements

Volumes rounded to nearest 5 vehicles

BACKGROUND 2040 TRAFFIC PROJECTIONS

The traffic projections for 2040 was estimated using a similar methodology as for 2024. The City of Fort Lupton has plans for roadway improvements by Year 2040. Each of these components to the 2040 projections are discussed below.

- The **ambient growth** in traffic was based on the values developed for 2024. An annual compounded growth of 6.3 % per year will be used for each roadway except for US 85 which was 2.3% per year.
- Similar to 2024, Cottonwood Greens was assumed to be completed.
- 14th Street was assumed to be built to CR 31 to a 4-lane arterial street.
- Northrup Avenue was assumed to extend north of 14th Street. This would be a 2-lane collector road.

The assumed intersection configurations for 2040 are illustrated on Figure 8. The resulting Background 2040 traffic projections for each of the study intersections are provided on Figure 9.

TOTAL TRAFFIC PROJECTIONS

The total traffic projections include both the background plus project traffic. Total traffic projections were developed for Year 2024 and 2040. The project-generated traffic volumes from Figure 6 were added to the Year 2024 background traffic volumes illustrated on Figure 8 to develop background plus project peak hour traffic volumes. The resulting Year 2024 total traffic is depicted on Figure 10.

The Year 2040 Total traffic projections were developed by adding the Project traffic from Figure 6, to the Year 2040 Background traffic from Figure 9. The resulting Year 2040 total traffic is illustrated on Figure 11.

INTERNAL SITE TRAFFIC

The Project site was designed to accommodate the traffic generated by the project. The City of Fort Lupton, within Chapter 6 of the *Standards and Specifications for the Design and Construction of Public Improvements,* has established that Local streets can accommodate up to 2,500 daily vehicular trips. It was estimated that the streets within Fulton Ranch will accommodate between 400 and 1,900 daily trips at locations near their intersections with public roadways. The design of the internal streets as local streets is therefore appropriate.

Figure 8 – Lane Configurations 2040

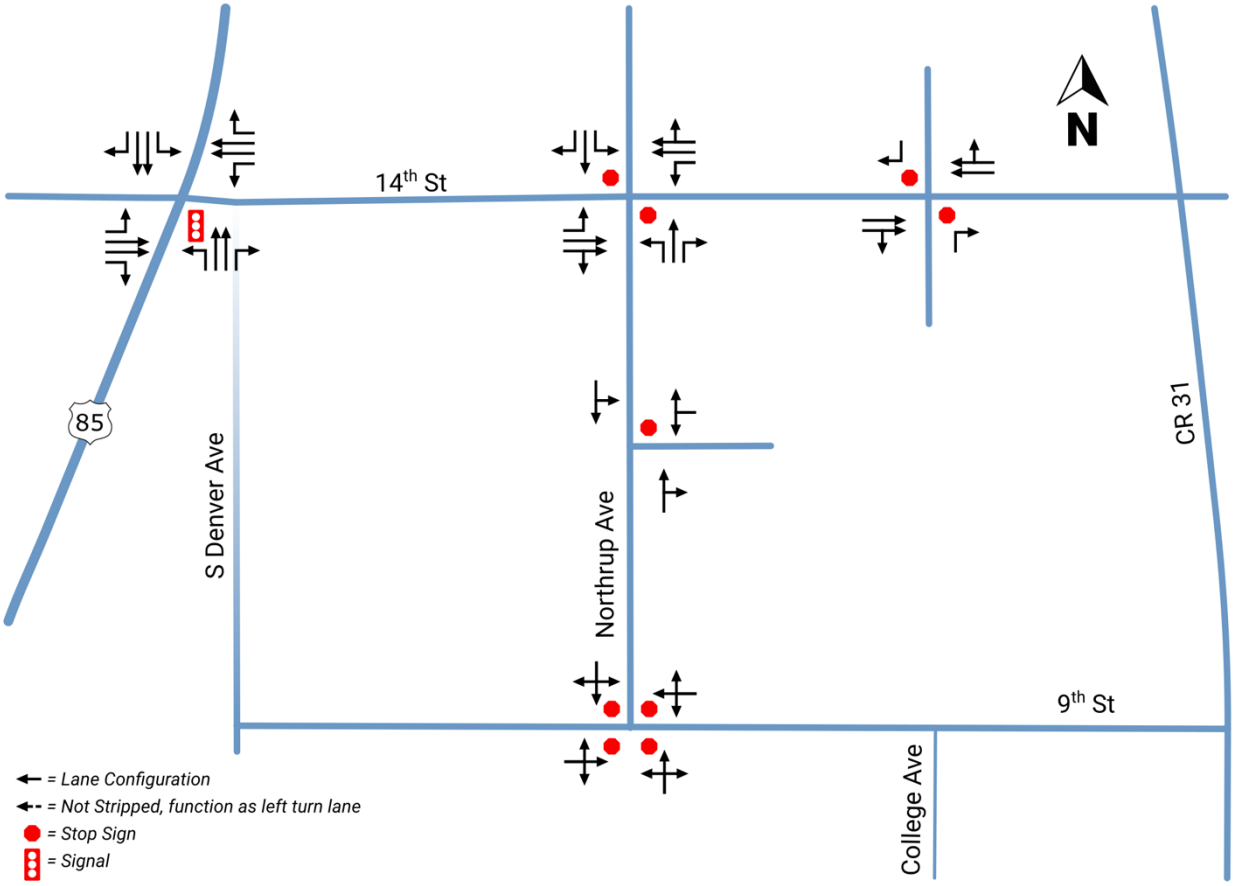
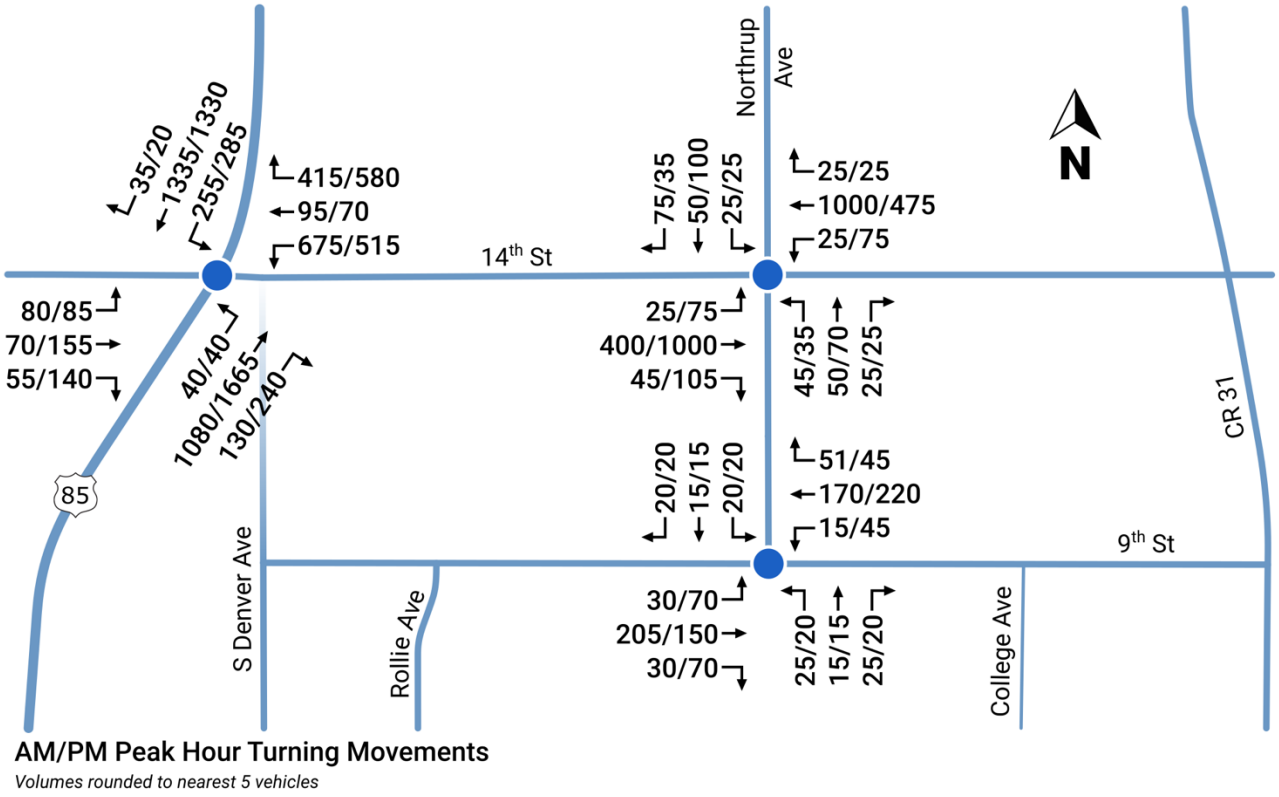


Figure 9 – Background Traffic 2040



AM/PM Peak Hour Turning Movements

Volumes rounded to nearest 5 vehicles

Figure 10 – Total Traffic 2024

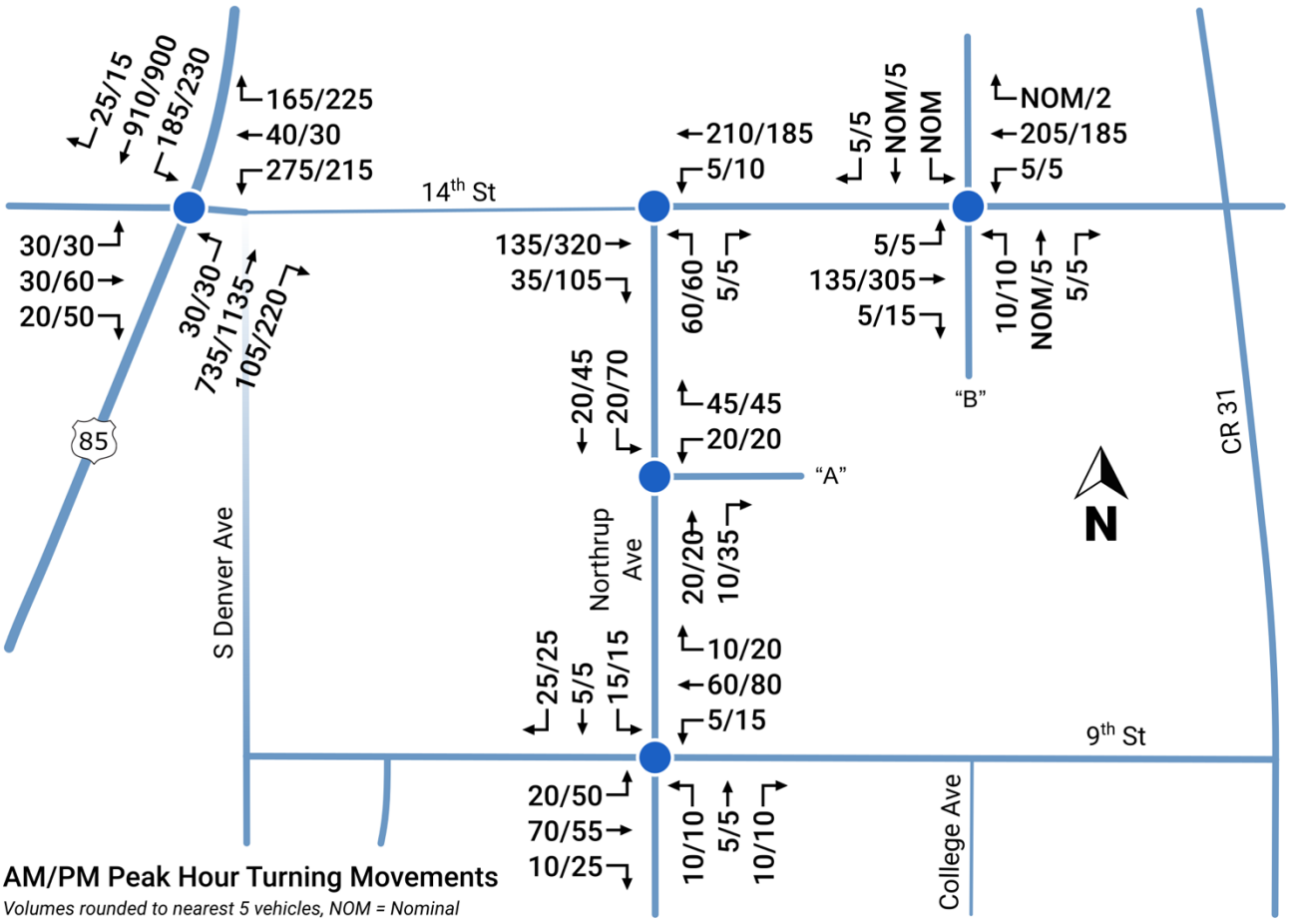
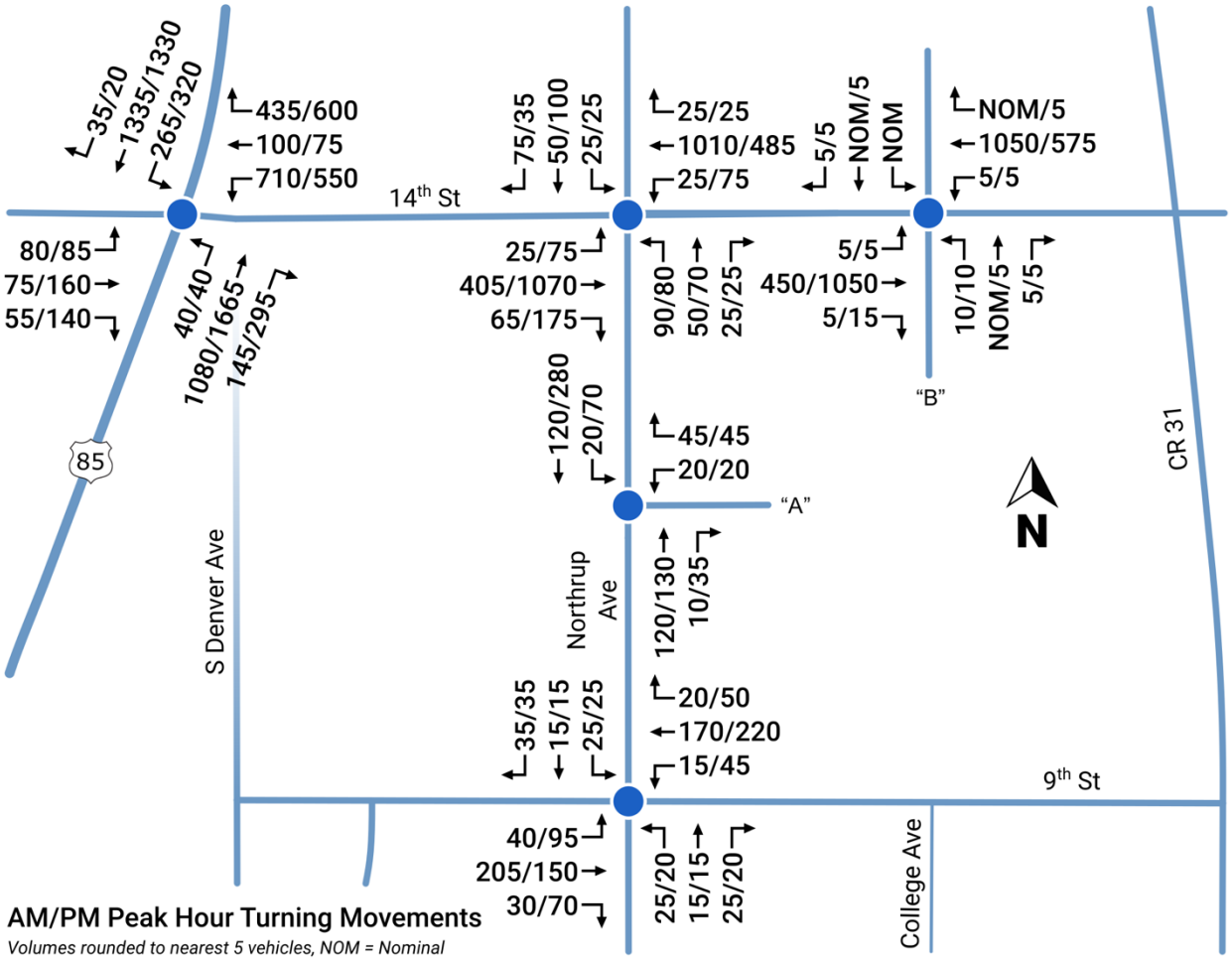


Figure 11 – Total Traffic 2040



5 TRAFFIC IMPACT ANALYSIS

This chapter presents an analysis of the potential impacts of the traffic generated by the proposed Fulton Ranch project on the local street system. The analysis compares the projected levels of service at each study intersection under future background and total conditions to estimate the incremental increase in the delay caused by the proposed project. This provides the information needed to assess the potential impact of the project using the significance criteria.

SIGNIFICANT TRAFFIC IMPACT CRITERIA

Threshold criteria were applied to determine if the growth in traffic due to regional growth/other projects and/or the proposed Project has a significant traffic impact at an intersection. If the future traffic projections for either Background (without Project) or Total (with Project) resulted in any portion of an intersection to exceed the LOS standards, this would be considered an impact.

As presented earlier, based on the City of Fort Lupton standards, LOS C is the design objective for all movements at an intersection. Level of service less than D is unacceptable.

FUTURE TRAFFIC CONDITIONS

The future traffic projections at the three study intersections were analyzed to determine their future operating conditions. The results for Year 2024 are provided in Table 5 for both the background and total traffic scenarios. The future operating conditions for Year 2040 are provided in Table 6.

It should be noted that under 2040 conditions, the intersection of CR 31 and SH 52 was projected to have peak hour volumes that would warrant signalization. The operational analysis for this location was performed assuming it was signalized. The need for a traffic signal is documented in the Federal Highways Administration, *Manual On Uniform Traffic Control Devices* (MUTCD), 2009. The Peak Hour - Warrant 3 is provided in Appendix C.

Note that the results provided in Tables 5 and 6 indicate both the overall delay/LOS for the intersection and the delay/LOS for each approach. An individual movement is also shown if it is projected to operate at LOS E or F. If an intersection, a movement, or leg is projected to operate at unacceptable levels it is highlighted in grey.

Table 5 Future 2024 Intersection Level of Service

#	Intersection	Movement	AM Peak Hr				PM Peak Hr			
			Background		Total		Background		Total	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	CR 31 & SH 52 Signalized	Overall	21.7	C	22.0	C	23.4	C	27.5	C
		EB	15.5	B	15.6	B	18.4	B	17.7	B
		WB	20.9	C	22.6	C	25.4	C	25.6	C
		NB	19.5	B	19.5	B	25.6	C	30.3	D
		SB	24.2	C	24.3	C	20.7	C	26.0	C
2	Northrup Ave & 9th St All-Way Stop Control	Overall	7.5	A	7.6	A	7.7	A	7.9	A
		EB	7.6	A	7.8	A	7.7	A	8	A
		WB	7.5	A	7.6	A	7.8	A	7.9	A
		NB	7.3	A	7.4	A	7.5	A	7.6	A
		SB	7.3	A	7.4	A	7.5	A	7.5	A
3	Northrup Ave & 14th Street (to be built) T-Stop Control	Overall	0.7	A	1.8	A	0.6	A	1.5	A
		EB	0	A	0	A	0	A	0	A
		WB	0.2	A	0.2	A	0.4	A	0.4	A
		NB	10.5	B	11.6	B	12.1	B	14.4	B
4	Northrup Ave & Access A T-Stop Control	Overall			5.4	A			4.8	A
		WB			8.9	A			9.3	A
		NB			0	A			0	A
		SB			3.7	A			4.5	A
5	Access B & 14th Street Two-Way Stop Control	Overall			0.9	A			0.8	A
		EB			0.3	A			0.1	A
		WB			0.2	A			0.2	A
		NB			10.9	B			13	B
		SB			10.1	B			11.7	B

Notes:

1. LOS calculations performed using Synchro which is based on the Transportation Research Board HCM 2016.
2. Average vehicle delay (in seconds per vehicle) is reported for both overall intersection and each constrained STOP-controlled movement, lane group (signalized) or approach. Movements with LOS greater than or equal to E are also provided.
3. Delays greater than 50 seconds are rounded to nearest second.

Table 6 Future 2040 Intersection Level of Service

#	Intersection	Movement	AM Peak Hr				PM Peak Hr			
			Background		Total		Background		Total	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	CR 31 & SH 52 Signalized	Overall	143	F	157	F	198	F	212	F
		EB	18.2	B	18.4	B	20.4	C	20.6	C
		WB	306	F	345	F	311	F	362	F
		WB LT	503	F	567	F	498	F	586	F
		WB RT	51	D	61	E	181	F	201	F
		NB	40.2	D	40.2	D	227	F	227	F
		NB LT	-	-	-	-	57.7	F	57.7	F
		NB Thru	-	-	-	-	262	F	262	F
		SB	119	F	120	F	125	F	135	F
		SB LT	79	F	91	F	121	F	176	F
		SB Thru	129	F	129	F	127	F	127	F
2	Northrup Ave & 9th St All-Way Stop Control	Overall	9.5	A	9.7	A	10.4	B	10.5	A
		EB	10	A	10.3	B	10.5	B	11.1	B
		WB	9.3	A	9.5	A	10.9	B	10.9	B
		NB	8.6	A	8.7	A	8.9	A	9	A
		SB	8.5	A	8.7	A	8.9	A	9.1	A
3	Northrup Ave & 14th Street (to be built) Two-Way Stop Control	Overall	13.5	B	35.4	D	0.8	A	0.8	A
		EB	0.6	A	0.6	A	0.6	A	0.6	A
		WB	0.2	A	0.2	A	1.6	A	1.7	A
		NB	107	F	325	F	513	F	722	F
		SB	72	F	80	F	895	F	1285	F
4	Northrup Ave & Access A T-Stop Control	Overall			2.4	A			2.1	A
		WB			9.8	A			11.1	B
		NB			0	A			0	A
		SB			7.5	A			7.7	A
5	Access B & 14th Street Two-Way Stop Control	Overall			0.5	A			1	A
		EB			0.2	A			0.1	A
		WB			0.1	A			0.2	A
		NB			34.1	C			51	F
		SB			21.9	C			34.2	D

Notes:

1. LOS calculations performed using Synchro which is based on the Transportation Research Board HCM 2016.
2. Average vehicle delay (in seconds per vehicle) is reported for both overall intersection and each constrained STOP-controlled movement, lane group (signalized) or approach. Movements with LOS greater than or equal to E are also provided.
3. Delays greater than 50 seconds are rounded to nearest second.
4. Grey highlighted indicates intersection operating at unacceptable LOS conditions.

The study results for 2024 indicate the following:

- Each of the five study intersections are projected to operate at acceptable levels of service.

The study results for 2040 indicate the following:

- At US 85 and 14th Street the overall intersection and numerous movements are projected at LOS F under both Background and Total conditions.
- The Background and Total traffic projections for the intersection of Northrup Avenue and 14th Street indicate high delays in the northbound and southbound directions.
- At the proposed Access Street B and 14th Street the northbound direction is projected to experience LOS F during the evening peak hour.

FUTURE YEAR 2040 IMPROVEMENT MEASURES

US 85 at 14th Street

The future 2040 traffic volume projections and operations were evaluated at US 85 and 14th Street to determine effective improvements. With the high traffic projections for the intersection, significant improvements would be necessary to bring operations to a LOS D. Widening of US 85 to a six lane facility would be necessary and is impractical. The earlier referenced CDOT *US 85 Planning and Environmental linkages (PEL) Study,* suggested that the intersection of US 85 at 14th Street be reconfigured to a junior interchange. This high level improvement will be required for desirable operations at this location in the long range future.

Northrup Avenue at 14th Street

The intersection of Northrup Avenue and 14th Street is projected to experience long delays for the stop-controlled movements in the north and southbound directions. A review of the projected volumes indicates that during the peak hours signalization may be warranted. The need for a traffic signal is documented in the Federal Highways Administration, *Manual On Uniform Traffic Control Devices* (MUTCD), 2009. The Peak Hour - Warrant 3 is provided in Appendix C. It should be noted that satisfaction of one warrant in and of itself does not justify signalization. The City will be monitoring this location as these roadways are built and traffic volumes increase. At the time higher volumes are achieved, an engineering study should be conducted to ensure that installing a signal will improve overall operations and safety of this intersection.

Northrup Avenue at 14th Street was analyzed with a signal. The results are provided in Table 7. Under signalization the intersection is projected to operate acceptably under both Background and Total traffic conditions.

Table 7 - 2040 Northrup/14th With Signalization

#	Intersection	Movement	AM Peak Hr				PM Peak Hr			
			Background		Total		Background		Total	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3	Northrup Ave & 14th Street **Signalized**	Overall	13.3	B	14.5	B	6.2	A	7.0	A
		EB	10.1	B	11.1	B	2.8	A	4.1	A
		WB	15.4	B	17.3	B	8.2	A	8.4	A
		NB	10.7	B	10.6	B	15.8	B	16.7	B
		SB	10.8	B	10.1	B	15.8	B	15.8	B

Access Street B at 14th Street

The northbound movement at Access Street B is projected to experience long delays under 2040 future conditions. The projected volumes are very low. When vehicles from a local street enter a higher volume roadway it is typical for them to experience long delays. The residents on the south side of 14th Street will have the option of utilizing Northrup Avenue as an alternative. Additionally, if the intersection of Northrup Avenue at 14th is signalized, this will create gaps in the flows along 14th and may reduce the delays experienced in the northbound direction.

The City Engineer for Fort Lupton expressed concerns with Access Street B's location on 14th Street in addition to the ability of the 30 homes north of 14th to access the community facilities on the south side of 14th Street. The future signalization of Northrup Avenue at 14th Street could create gaps to enable the ease of these movements. However, from an overall transportation system design perspective the proposed location of Access Street B would be better if it were located midway between Northrup Avenue and the proposed Cottonwood Greens access. This would allow for a future access to the property on the north side of 14th Street to utilize this same location. The access to the 30 homes could remain at its' current location however it would most likely become restricted to right-in/right-out only, when 14th Street becomes a 4-lane facility. If the applicant desires for these homes to have a full access from14th Street, a future connection to the west (connecting to a future development) should be provided. If the applicant finds that a right-turn restricted access is acceptable at Access Street B (for both the northbound and southbound directions), the roadway system does not need to be changed.

6 AUXILIARY LANE ANALYSIS

An analysis was conducted to determine the need for auxiliary right-turn and left-turn lanes at the Project access locations. This analysis was performed for both 2024 and 2040. The projected peak hour traffic volumes at these locations were provided earlier on Figure 6. The turning volumes were analyzed based on the guidelines set forth in the Transportation Research Board's *NCHRP Report 279*, 1985 provided in Appendix D.

It was assumed that 14th Street would have a posted speed limit of 40 to 45 mph and Northrup Avenue at 35 mph.

Using the criteria provided in the Report 279, it was determined that no auxiliary lanes are required for 2024.

For 2040 it was determined that a southbound left-turn lane from Northrup Avenue into Access Street A would most likely be warranted.

No right-turn lanes were determined to be required.

7 CONCLUSIONS

This study was undertaken to analyze the potential traffic impacts of the proposed Fulton Ranch project in the City of Fort Lupton. The following summarizes the results of this analysis:

- The full buildout proposed Project consists of 466 manufactured homes.
- The Project site is located north of the Fulton Highline Canal and west of CR 31 on land that is undeveloped.
- The Project is expected to generate approximately 2,330 daily trips, 120 trips during the AM peak hour and 215 trips during the PM peak hour.
- Currently the two study intersections of US 85 at 14th Street and Northrup Avenue at 9th Street are operating at acceptable levels.
- For 2024 is was assumed that 14th Street would connect from its' current terminus, east to CR 31 and Northrup Avenue would be paved from its' current terminus, north to 14th Street.
- Under the future 2024 conditions, the intersections are projected to operate at acceptable levels.
- Under the future 2040 conditions it was assumed that Northrup Avenue would be extended north of 14th Street as a two-lane collector. 14th Street would be improved to a 4-lane arterial street.
- Under 2040 projected conditions, the traffic at US 85 and 14th Street will experience long delays. A future junior interchange was suggested for this location in the CDOT *US 85 Planning and Environmental linkages (PEL) Study.* The findings of this study support that recommendation.
- Under 2040 projected conditions, the north and southbound traffic at Northrup Avenue and 14th Street will experience long delays. The future traffic volumes at this location suggest that signalization may be appropriate. With a signal, this intersection would operate acceptably in 2040.
- The northbound direction of traffic at the proposed Access Street B at 14th Street will experience long delays during the PM peak hour. These volumes are very low and this is typical for intersections of local streets with 4-lane

arterials. The City Engineer has indicated that this location may need to be restricted to right-in/right-out only for both the north and southbound directions. If the applicant desires full movement for the northbound direction, it is suggested that this intersection be moved to the west. This location should be approximately midway between Northrup Avenue and the proposed Cottonwood Greens street to the east.

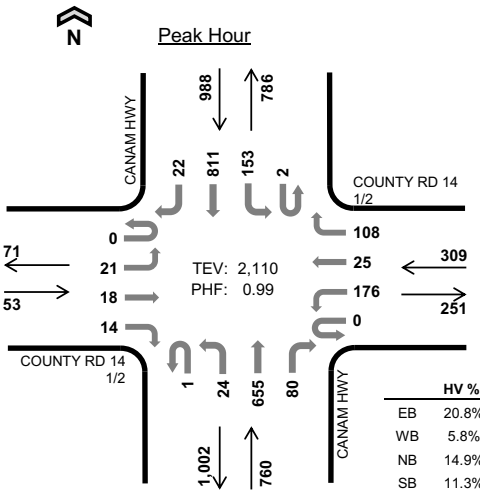
- Under 2040 conditions a southbound left-turn lane would be needed on Northrup Avenue at the proposed Access Street A.

APPENDICIES

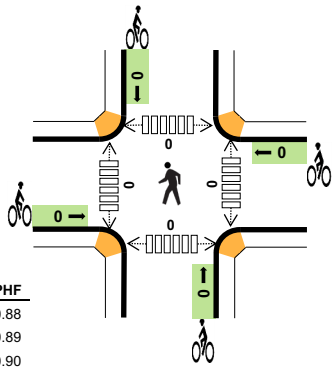
- Appendix A: Traffic Counts
- Appendix B: HCM LOS Calculation Outputs
- Appendix C: Figure and Table 4C-3 Manual on Uniform Traffic Control Devices
- Appendix D: NCHRP Report 279

Appendix A
Traffic Counts

CANAM HWY
COUNTY RD 14 1/2



	HV %:	PHF
EB	20.8%	0.88
WB	5.8%	0.89
NB	14.9%	0.90
SB	11.3%	0.95
TOTAL	12.0%	0.99



Date: Tue, Nov 12, 2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Two-Hour Count Summaries

Interval Start	COUNTY RD 14 1/2 Eastbound				COUNTY RD 14 1/2 Westbound				CANAM HWY Northbound				CANAM HWY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**7**	**5**	**3**	**0**	**47**	**5**	**32**	**0**	**6**	**165**	**23**	**1**	**29**	**202**	**1**	**526**	0
7:15 AM	**0**	**6**	**2**	**4**	**0**	**41**	**10**	**36**	**0**	**5**	**153**	**17**	**0**	**32**	**221**	**6**	**533**	0
7:30 AM	**0**	**4**	**5**	**3**	**0**	**48**	**5**	**20**	**0**	**8**	**177**	**25**	**1**	**44**	**190**	**3**	**533**	0
7:45 AM	**0**	**4**	**6**	**4**	**0**	**40**	**5**	**20**	**1**	**5**	**160**	**15**	**0**	**48**	**198**	**12**	**518**	**2,110**
8:00 AM	0	2	7	9	0	34	3	16	0	6	137	14	0	36	183	0	447	2,031
8:15 AM	0	5	3	8	0	32	4	23	0	7	119	20	0	38	178	3	440	1,938
8:30 AM	0	5	4	3	0	27	9	26	0	3	119	19	0	26	130	5	376	1,781
8:45 AM	0	4	4	4	0	27	7	21	0	2	140	15	0	31	166	1	422	1,685
Count Total	0	37	36	38	0	296	48	194	1	42	1,170	148	2	284	1,468	31	3,795	0
Peak Hour	**0**	**21**	**18**	**14**	**0**	**176**	**25**	**108**	**1**	**24**	**655**	**80**	**2**	**153**	**811**	**22**	**2,110**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

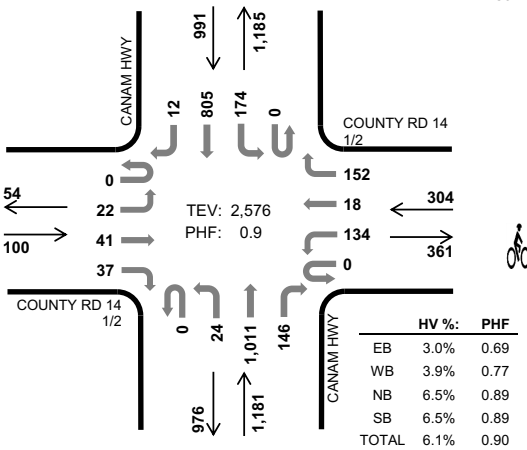
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**2**	**7**	**30**	**23**	***62***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**2**	**2**	**23**	**29**	***56***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**3**	**6**	**32**	**17**	***58***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**4**	**3**	**28**	**43**	***78***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	4	2	24	30	*60*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	6	3	36	34	*79*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	5	8	24	23	*60*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	4	5	28	28	*65*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	30	36	225	227	*518*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**11**	**18**	**113**	**112**	***254***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

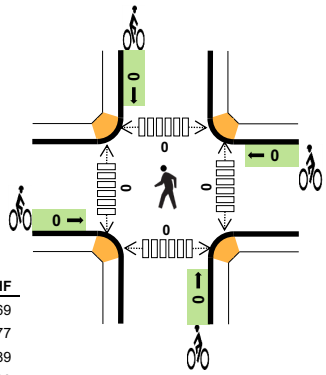
Mark Skaggs: (425) 250-0777 mark.skaggs@idaxdata.com

CANAM HWY
COUNTY RD 14 1/2

Peak Hour

Date: Tue, Nov 12, 2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	3.0%	0.69
WB	3.9%	0.77
NB	6.5%	0.89
SB	6.5%	0.89
TOTAL	6.1%	0.90

Two-Hour Count Summaries

Interval Start	COUNTY RD 14 1/2 Eastbound				COUNTY RD 14 1/2 Westbound				CANAM HWY Northbound				CANAM HWY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	6	6	0	38	4	38	0	7	231	31	0	29	189	2	583	0
4:15 PM	**0**	**3**	**12**	**8**	**0**	**24**	**1**	**33**	**0**	**4**	**217**	**39**	**0**	**39**	**189**	**5**	**574**	0
4:30 PM	**0**	**7**	**6**	**4**	**0**	**35**	**6**	**32**	**0**	**3**	**253**	**31**	**0**	**40**	**184**	**2**	**603**	0
4:45 PM	**0**	**6**	**7**	**11**	**0**	**37**	**7**	**30**	**0**	**12**	**283**	**36**	**0**	**49**	**203**	**2**	**683**	2,443
5:00 PM	**0**	**6**	**16**	**14**	**0**	**38**	**4**	**57**	**0**	**5**	**258**	**40**	**0**	**46**	**229**	**3**	**716**	**2,576**
5:15 PM	0	3	7	5	0	35	3	33	0	3	197	32	0	49	196	3	566	2,568
5:30 PM	0	0	3	2	0	27	2	27	0	0	188	34	0	61	187	1	532	2,497
5:45 PM	0	3	17	2	0	28	7	30	1	2	232	39	1	59	226	4	651	2,465
Count Total	0	30	74	52	0	262	34	280	1	36	1,859	282	1	372	1,603	22	4,908	0
Peak Hour	**0**	**22**	**41**	**37**	**0**	**134**	**18**	**152**	**0**	**24**	**1,011**	**146**	**0**	**174**	**805**	**12**	**2,576**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	23	24	*47*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**0**	**9**	**22**	**18**	***49***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**1**	**1**	**18**	**17**	***37***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**1**	**20**	**14**	***36***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**1**	**17**	**15**	***34***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:15 PM	1	3	10	8	*22*	0	0	0	0	*0*	0	2	0	0	*2*
5:30 PM	0	3	17	14	*34*	0	0	0	0	*0*	0	3	0	0	*3*
5:45 PM	1	2	16	18	*37*	0	0	0	0	*0*	0	1	0	0	*1*
Count Total	5	20	143	128	*296*	0	0	0	0	*0*	0	6	0	0	*6*
Peak Hour	**3**	**12**	**77**	**64**	***156***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

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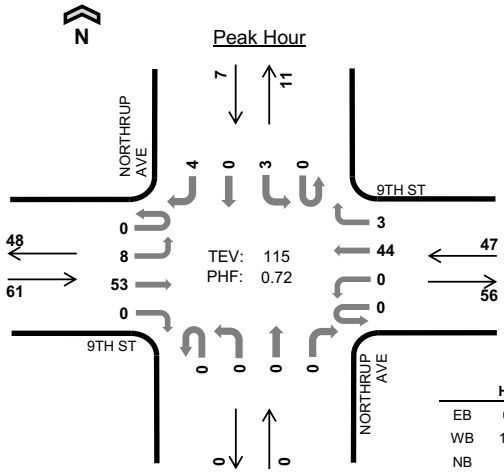
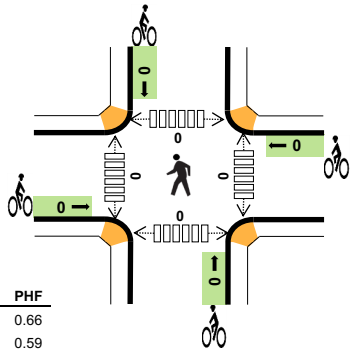
NORTHRUP AVE
9TH ST



Date: Tue, Nov 12, 2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	0.0%	0.66
WB	10.6%	0.59
NB	-	-
SB	14.3%	0.58
TOTAL	5.2%	0.72

Two-Hour Count Summaries

Interval Start	9TH ST Eastbound				9TH ST Westbound				NORTHRUP AVE Northbound				NORTHRUP AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	3	0	3	14	0
7:15 AM	0	0	3	0	0	0	4	2	0	0	0	0	0	4	0	1	14	0
7:30 AM	0	3	9	0	0	0	7	1	0	0	0	0	0	0	0	0	20	0
7:45 AM	**0**	**1**	**8**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**17**	65
8:00 AM	**0**	**2**	**12**	**0**	**0**	**0**	**19**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**37**	88
8:15 AM	**0**	**2**	**21**	**0**	**0**	**0**	**15**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**40**	114
8:30 AM	**0**	**3**	**12**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**21**	**115**
8:45 AM	0	0	5	0	0	0	2	1	0	0	0	0	0	0	0	1	9	107
Count Total	0	11	74	0	0	0	61	7	0	0	0	0	0	10	0	9	172	0
Peak Hour	**0**	**8**	**53**	**0**	**0**	**0**	**44**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**4**	**115**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**3**	**0**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	1	5	0	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**5**	**0**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

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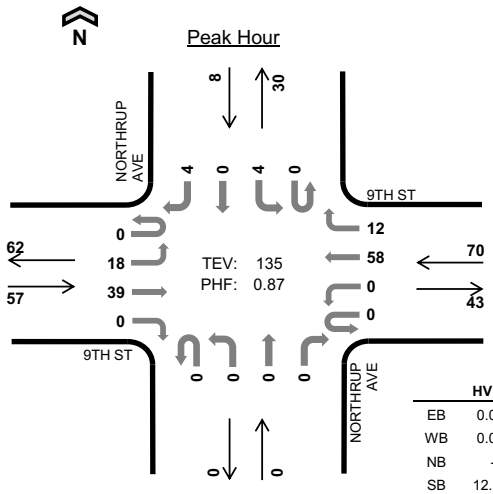
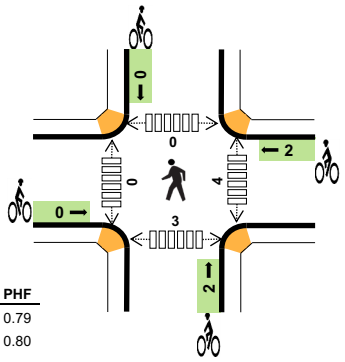
NORTHRUP AVE
9TH ST



Date: Tue, Nov 12, 2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	0.0%	0.79
WB	0.0%	0.80
NB	-	-
SB	12.5%	0.67
TOTAL	0.7%	0.87

Two-Hour Count Summaries

Interval Start	9TH ST Eastbound				9TH ST Westbound				NORTHRUP AVE Northbound				NORTHRUP AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**1**	**7**	**0**	**0**	**0**	**12**	**7**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**30**	0
4:15 PM	**0**	**9**	**7**	**0**	**0**	**0**	**17**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**38**	0
4:30 PM	**0**	**4**	**14**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**28**	0
4:45 PM	**0**	**4**	**11**	**0**	**0**	**0**	**20**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**39**	**135**
5:00 PM	0	4	4	0	0	0	9	2	0	0	0	0	0	1	0	2	22	127
5:15 PM	0	3	1	0	0	0	9	2	0	0	0	0	0	0	0	1	16	105
5:30 PM	0	4	8	0	0	0	3	1	0	0	0	0	0	1	0	2	19	96
5:45 PM	0	4	3	0	0	0	8	5	0	0	0	0	0	2	0	1	23	80
Count Total	0	33	55	0	0	0	87	22	0	0	0	0	0	8	0	10	215	0
Peak Hour	**0**	**18**	**39**	**0**	**0**	**0**	**58**	**12**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**135**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**1**	*2*
4:15 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**2**	*5*
4:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	1	1	*2*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	1	0	0	1	*2*	0	2	2	0	*4*	4	0	1	4	*9*
Peak Hour	**0**	**0**	**0**	**1**	***1***	**0**	**2**	**2**	**0**	***4***	**4**	**0**	**0**	**3**	***7***

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Appendix B
Level of Service Worksheets

EXISTING

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	18	14	176	25	108	25	655	80	155	811	22
Future Volume (veh/h)	21	18	14	176	25	108	25	655	80	155	811	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	20	15	191	27	117	27	712	87	168	882	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	240	476	509	561	476	338	1066	476	413	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.30	0.30	0.12	0.33	0.33
Sat Flow, veh/h	712	800	1585	1373	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	43	0	15	191	27	117	27	712	87	168	882	24
Grp Sat Flow(s),veh/h/ln	1512	0	1585	1373	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.4	6.9	0.6	3.3	0.6	10.5	2.4	3.6	13.2	0.6
Cycle Q Clear(g_c), s	1.0	0.0	0.4	7.9	0.6	3.3	0.6	10.5	2.4	3.6	13.2	0.6
Prop In Lane	0.53		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	546	0	476	509	561	476	338	1066	476	413	1185	528
V/C Ratio(X)	0.08	0.00	0.03	0.37	0.05	0.25	0.08	0.67	0.18	0.41	0.74	0.05
Avail Cap(c_a), veh/h	546	0	476	509	561	476	338	1066	476	413	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	14.8	17.9	14.9	15.9	12.7	18.4	15.6	12.5	17.7	13.5
Incr Delay (d2), s/veh	0.3	0.0	0.1	2.1	0.2	1.2	0.5	3.3	0.8	3.0	4.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.1	2.3	0.3	1.3	0.2	4.4	0.9	1.6	5.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	15.0	20.0	15.1	17.1	13.1	21.7	16.4	15.5	22.0	13.7
LnGrp LOS	B	A	B	B	B	B	B	C	B	B	C	B
Approach Vol, veh/h		58			335			826			1074	
Approach Delay, s/veh		15.2			18.6			20.9			20.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	25.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	7.0	18.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	5.6	12.5		3.0	2.6	15.2		9.9				
Green Ext Time (p_c), s	0.1	2.4		0.2	0.0	2.5		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	41	37	134	18	152	24	1011	146	174	805	12
Future Volume (veh/h)	22	41	37	134	18	152	24	1011	146	174	805	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	45	40	146	20	165	26	1099	159	189	875	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	358	476	479	561	476	341	1185	528	284	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	433	1194	1585	1313	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	69	0	40	146	20	165	26	1099	159	189	875	13
Grp Sat Flow(s),veh/h/ln	1627	0	1585	1313	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	1.1	5.5	0.5	4.9	0.5	17.9	4.5	4.2	13.1	0.3
Cycle Q Clear(g_c), s	1.6	0.0	1.1	7.1	0.5	4.9	0.5	17.9	4.5	4.2	13.1	0.3
Prop In Lane	0.35		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	569	0	476	479	561	476	341	1185	528	284	1185	528
V/C Ratio(X)	0.12	0.00	0.08	0.31	0.04	0.35	0.08	0.93	0.30	0.67	0.74	0.02
Avail Cap(c_a), veh/h	569	0	476	479	561	476	341	1185	528	284	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	15.1	17.8	14.9	16.4	11.8	19.3	14.8	14.7	17.7	13.4
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.6	0.1	2.0	0.4	13.7	1.5	11.7	4.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.4	1.7	0.2	1.9	0.2	8.8	1.7	2.4	5.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.0	15.4	19.5	15.0	18.4	12.3	33.0	16.3	26.4	21.8	13.5
LnGrp LOS	B	A	B	B	B	B	B	C	B	C	C	B
Approach Vol, veh/h		109			331			1284			1077	
Approach Delay, s/veh		15.6			18.7			30.5			22.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	6.2	19.9		3.6	2.5	15.1		9.1				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	2.5		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	53	0	0	44	3	0	0	0	3	0	4
Future Vol, veh/h	8	53	0	0	44	3	0	0	0	3	0	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	58	0	0	48	3	0	0	0	3	0	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	0	7
HCM LOS	A	A	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	13%	0%	43%
Vol Thru, %	100%	87%	94%	0%
Vol Right, %	0%	0%	6%	57%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	61	47	7
LT Vol	0	8	0	3
Through Vol	0	53	44	0
RT Vol	0	0	3	4
Lane Flow Rate	0	66	51	8
Geometry Grp	1	1	1	1
Degree of Util (X)	0	0.074	0.056	0.008
Departure Headway (Hd)	4.142	4.012	3.959	3.878
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	0	896	907	917
Service Time	2.193	2.023	1.973	1.927
HCM Lane V/C Ratio	0	0.074	0.056	0.009
HCM Control Delay	7.2	7.3	7.2	7
HCM Lane LOS	N	A	A	A
HCM 95th-tile Q	0	0.2	0.2	0

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	39	0	0	58	12	0	0	0	4	0	4
Future Vol, veh/h	18	39	0	0	58	12	0	0	0	4	0	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	42	0	0	63	13	0	0	0	4	0	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.3	0	7.1
HCM LOS	A	A	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	32%	0%	50%
Vol Thru, %	100%	68%	83%	0%
Vol Right, %	0%	0%	17%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	57	70	8
LT Vol	0	18	0	4
Through Vol	0	39	58	0
RT Vol	0	0	12	4
Lane Flow Rate	0	62	76	9
Geometry Grp	1	1	1	1
Degree of Util (X)	0	0.07	0.082	0.01
Departure Headway (Hd)	4.18	4.07	3.893	3.971
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	0	882	922	894
Service Time	2.237	2.086	1.909	2.027
HCM Lane V/C Ratio	0	0.07	0.082	0.01
HCM Control Delay	7.2	7.4	7.3	7.1
HCM Lane LOS	N	A	A	A
HCM 95th-tile Q	0	0.2	0.3	0

BACKGROUND 2024

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	25	20	240	35	145	30	735	90	175	910	25
Future Volume (veh/h)	30	25	20	240	35	145	30	735	90	175	910	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	27	22	261	38	158	33	799	98	190	989	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	225	476	495	561	476	311	1185	528	355	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	710	751	1585	1356	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	60	0	22	261	38	158	33	799	98	190	989	27
Grp Sat Flow(s),veh/h/ln	1461	0	1585	1356	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.6	10.3	0.9	4.7	0.7	11.6	2.6	4.2	15.4	0.7
Cycle Q Clear(g_c), s	1.4	0.0	0.6	11.7	0.9	4.7	0.7	11.6	2.6	4.2	15.4	0.7
Prop In Lane	0.55		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	531	0	476	495	561	476	311	1185	528	355	1185	528
V/C Ratio(X)	0.11	0.00	0.05	0.53	0.07	0.33	0.11	0.67	0.19	0.53	0.83	0.05
Avail Cap(c_a), veh/h	531	0	476	495	561	476	311	1185	528	355	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	14.9	19.4	15.0	16.3	12.5	17.2	14.2	13.0	18.5	13.6
Incr Delay (d2), s/veh	0.4	0.0	0.2	4.0	0.2	1.9	0.7	3.1	0.8	5.7	7.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.2	3.5	0.4	1.8	0.3	4.7	1.0	2.0	6.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	0.0	15.1	23.4	15.2	18.2	13.2	20.3	15.0	18.7	25.5	13.7
LnGrp LOS	B	A	B	C	B	B	B	C	B	B	C	B
Approach Vol, veh/h		82			457			930			1206	
Approach Delay, s/veh		15.5			20.9			19.5			24.2	
Approach LOS		B			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	6.2	13.6		3.4	2.7	17.4		13.7				
Green Ext Time (p_c), s	0.0	3.0		0.3	0.0	1.6		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	55	50	180	25	205	30	1135	165	195	900	15
Future Volume (veh/h)	30	55	50	180	25	205	30	1135	165	195	900	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	60	54	196	27	223	33	1234	179	212	978	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	297	396	389	468	396	353	1362	608	289	1362	608
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.08	0.38	0.38	0.08	0.38	0.38
Sat Flow, veh/h	413	1187	1585	1279	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	93	0	54	196	27	223	33	1234	179	212	978	16
Grp Sat Flow(s),veh/h/ln	1600	0	1585	1279	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	1.6	8.6	0.7	7.4	0.6	19.7	4.7	4.3	14.0	0.4
Cycle Q Clear(g_c), s	2.4	0.0	1.6	10.9	0.7	7.4	0.6	19.7	4.7	4.3	14.0	0.4
Prop In Lane	0.35		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	481	0	396	389	468	396	353	1362	608	289	1362	608
V/C Ratio(X)	0.19	0.00	0.14	0.50	0.06	0.56	0.09	0.91	0.29	0.73	0.72	0.03
Avail Cap(c_a), veh/h	481	0	396	389	468	396	353	1362	608	289	1362	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	17.5	22.1	17.1	19.6	10.4	17.5	12.9	13.9	15.7	11.5
Incr Delay (d2), s/veh	0.9	0.0	0.7	4.6	0.2	5.7	0.5	10.2	1.2	15.1	3.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.6	2.9	0.3	3.1	0.3	8.9	1.7	2.7	5.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	18.2	26.7	17.4	25.3	11.0	27.7	14.1	29.0	19.0	11.6
LnGrp LOS	B	A	B	C	B	C	B	C	B	C	B	B
Approach Vol, veh/h		147			446			1446			1206	
Approach Delay, s/veh		18.5			25.4			25.6			20.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		20.0	10.0	30.0		20.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	23.0		15.0	5.0	23.0		15.0				
Max Q Clear Time (g_c+I1), s	6.3	21.7		4.4	2.6	16.0		12.9				
Green Ext Time (p_c), s	0.0	1.0		0.4	0.0	3.7		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	70	10	5	60	5	10	5	10	10	5	10
Future Vol, veh/h	10	70	10	5	60	5	10	5	10	10	5	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	76	11	5	65	5	11	5	11	11	5	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.5	7.3	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	11%	7%	40%
Vol Thru, %	20%	78%	86%	20%
Vol Right, %	40%	11%	7%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	90	70	25
LT Vol	10	10	5	10
Through Vol	5	70	60	5
RT Vol	10	10	5	10
Lane Flow Rate	27	98	76	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.031	0.11	0.086	0.031
Departure Headway (Hd)	4.095	4.041	4.073	4.095
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	883	875	862
Service Time	2.18	2.084	2.121	2.18
HCM Lane V/C Ratio	0.031	0.111	0.087	0.031
HCM Control Delay	7.3	7.6	7.5	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.3	0.1

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	55	25	15	80	15	10	5	10	10	5	10
Future Vol, veh/h	25	55	25	15	80	15	10	5	10	10	5	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	60	27	16	87	16	11	5	11	11	5	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	7.8	7.5	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	24%	14%	40%
Vol Thru, %	20%	52%	73%	20%
Vol Right, %	40%	24%	14%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	105	110	25
LT Vol	10	25	15	10
Through Vol	5	55	80	5
RT Vol	10	25	15	10
Lane Flow Rate	27	114	120	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.033	0.128	0.135	0.033
Departure Headway (Hd)	4.308	4.023	4.059	4.308
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	836	883	876	836
Service Time	2.309	2.084	2.118	2.309
HCM Lane V/C Ratio	0.032	0.129	0.137	0.032
HCM Control Delay	7.5	7.7	7.8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.5	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	15	5	200	15	5
Future Vol, veh/h	130	15	5	200	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	141	16	5	217	16	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	376	149
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1423	-	625	898
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1423	-	623	898
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1423	-
HCM Lane V/C Ratio	0.032	-	-	0.004	-
HCM Control Delay (s)	10.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	35	10	175	15	5
Future Vol, veh/h	300	35	10	175	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	326	38	11	190	16	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	364	0	557	345
Stage 1	-	-	-	-	345	-
Stage 2	-	-	-	-	212	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1195	-	491	698
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1195	-	486	698
Mov Cap-2 Maneuver	-	-	-	-	486	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	815	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	526	-	-	1195	-
HCM Lane V/C Ratio	0.041	-	-	0.009	-
HCM Control Delay (s)	12.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

TOTAL 2024

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	20	275	40	165	30	735	105	185	910	25
Future Volume (veh/h)	30	30	20	275	40	165	30	735	105	185	910	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	33	22	299	43	179	33	799	114	201	989	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	253	476	490	561	476	311	1185	528	354	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	636	844	1585	1349	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	66	0	22	299	43	179	33	799	114	201	989	27
Grp Sat Flow(s),veh/h/ln	1480	0	1585	1349	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.6	12.4	1.0	5.3	0.7	11.6	3.1	4.5	15.4	0.7
Cycle Q Clear(g_c), s	1.5	0.0	0.6	13.9	1.0	5.3	0.7	11.6	3.1	4.5	15.4	0.7
Prop In Lane	0.50		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	534	0	476	490	561	476	311	1185	528	354	1185	528
V/C Ratio(X)	0.12	0.00	0.05	0.61	0.08	0.38	0.11	0.67	0.22	0.57	0.83	0.05
Avail Cap(c_a), veh/h	534	0	476	490	561	476	311	1185	528	354	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	14.9	20.3	15.0	16.6	12.5	17.2	14.4	13.2	18.5	13.6
Incr Delay (d2), s/veh	0.5	0.0	0.2	5.6	0.3	2.3	0.7	3.1	0.9	6.5	7.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	4.3	0.4	2.1	0.3	4.7	1.1	2.2	6.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.0	15.1	25.9	15.3	18.8	13.2	20.3	15.3	19.6	25.5	13.7
LnGrp LOS	B	A	B	C	B	B	B	C	B	B	C	B
Approach Vol, veh/h		88			521			946			1217	
Approach Delay, s/veh		15.6			22.6			19.4			24.3	
Approach LOS		B			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	6.5	13.6		3.5	2.7	17.4		15.9				
Green Ext Time (p_c), s	0.0	3.1		0.3	0.0	1.6		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	60	50	215	30	225	30	1135	220	230	900	15
Future Volume (veh/h)	30	60	50	215	30	225	30	1135	220	230	900	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	65	54	234	33	245	33	1234	239	250	978	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	323	423	408	499	423	340	1303	581	279	1303	581
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.08	0.37	0.37	0.08	0.37	0.37
Sat Flow, veh/h	389	1210	1585	1273	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	98	0	54	234	33	245	33	1234	239	250	978	16
Grp Sat Flow(s),veh/h/ln	1599	0	1585	1273	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	1.6	10.5	0.8	8.0	0.6	20.2	6.7	5.0	14.4	0.4
Cycle Q Clear(g_c), s	2.4	0.0	1.6	12.9	0.8	8.0	0.6	20.2	6.7	5.0	14.4	0.4
Prop In Lane	0.34		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	507	0	423	408	499	423	340	1303	581	279	1303	581
V/C Ratio(X)	0.19	0.00	0.13	0.57	0.07	0.58	0.10	0.95	0.41	0.90	0.75	0.03
Avail Cap(c_a), veh/h	507	0	423	408	499	423	340	1303	581	279	1303	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	16.7	22.0	16.4	19.1	11.1	18.4	14.2	15.4	16.6	12.2
Incr Delay (d2), s/veh	0.9	0.0	0.6	5.8	0.3	5.7	0.6	15.1	2.1	32.6	4.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.6	3.5	0.3	3.4	0.3	10.0	2.5	4.3	5.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	17.3	27.8	16.7	24.8	11.7	33.5	16.3	48.1	20.6	12.2
LnGrp LOS	B	A	B	C	B	C	B	C	B	D	C	B
Approach Vol, veh/h		152			512			1506			1244	
Approach Delay, s/veh		17.7			25.6			30.3			26.0	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	29.0		21.0	10.0	29.0		21.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	22.0		16.0	5.0	22.0		16.0				
Max Q Clear Time (g_c+I1), s	7.0	22.2		4.4	2.6	16.4		14.9				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	3.1		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	70	10	5	60	10	10	5	10	15	5	25
Future Vol, veh/h	20	70	10	5	60	10	10	5	10	15	5	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	76	11	5	65	11	11	5	11	16	5	27
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.6	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	20%	7%	33%
Vol Thru, %	20%	70%	80%	11%
Vol Right, %	40%	10%	13%	56%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	100	75	45
LT Vol	10	20	5	15
Through Vol	5	70	60	5
RT Vol	10	10	10	25
Lane Flow Rate	27	109	82	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.032	0.124	0.092	0.055
Departure Headway (Hd)	4.241	4.107	4.082	4.015
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	866	870	876
Service Time	2.241	2.164	2.145	2.112
HCM Lane V/C Ratio	0.032	0.126	0.094	0.056
HCM Control Delay	7.4	7.8	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.3	0.2

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	55	25	15	80	20	10	5	10	15	5	25
Future Vol, veh/h	50	55	25	15	80	20	10	5	10	15	5	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	60	27	16	87	22	11	5	11	16	5	27
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	7.9	7.6	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	38%	13%	33%
Vol Thru, %	20%	42%	70%	11%
Vol Right, %	40%	19%	17%	56%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	130	115	45
LT Vol	10	50	15	15
Through Vol	5	55	80	5
RT Vol	10	25	20	25
Lane Flow Rate	27	141	125	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.033	0.162	0.142	0.058
Departure Headway (Hd)	4.408	4.122	4.095	4.278
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	817	861	864	842
Service Time	2.41	2.197	2.174	2.279
HCM Lane V/C Ratio	0.033	0.164	0.145	0.058
HCM Control Delay	7.6	8	7.9	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.5	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	35	5	210	60	5
Future Vol, veh/h	135	35	5	210	60	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	38	5	228	65	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	185	0	404	166
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1390	-	603	878
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1390	-	601	878
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	616	-	-	1390	-
HCM Lane V/C Ratio	0.115	-	-	0.004	-
HCM Control Delay (s)	11.6	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	320	105	10	185	60	5
Future Vol, veh/h	320	105	10	185	60	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	348	114	11	201	65	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	462	0	628	405
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1099	-	447	646
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	814	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	442	646
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	453	-	-	1099	-
HCM Lane V/C Ratio	0.156	-	-	0.01	-
HCM Control Delay (s)	14.4	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	45	20	10	20	20
Future Vol, veh/h	20	45	20	10	20	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	49	22	11	22	22

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	94	28	0	0	33	0
Stage 1	28	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	906	1047	-	-	1579	-
Stage 1	995	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	893	1047	-	-	1579	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	994	1579	-
HCM Lane V/C Ratio	-	-	0.071	0.014	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	45	20	35	70	45
Future Vol, veh/h	20	45	20	35	70	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	49	22	38	76	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	41	0	0	60	0
Stage 1	41	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	746	1030	-	-	1544	-
Stage 1	981	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	708	1030	-	-	1544	-
Mov Cap-2 Maneuver	708	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	4.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	904	1544	-
HCM Lane V/C Ratio	-	-	0.078	0.049	-
HCM Control Delay (s)	-	-	9.3	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	135	5	5	205	1	10	1	5	1	1	5
Future Vol, veh/h	5	135	5	5	205	1	10	1	5	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	147	5	5	223	1	11	1	5	1	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	224	0	0	152	0	0	397	394	150	397	396	224
Stage 1	-	-	-	-	-	-	160	160	-	234	234	-
Stage 2	-	-	-	-	-	-	237	234	-	163	162	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1345	-	-	1429	-	-	563	542	896	563	541	815
Stage 1	-	-	-	-	-	-	842	766	-	769	711	-
Stage 2	-	-	-	-	-	-	766	711	-	839	764	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1345	-	-	1429	-	-	555	538	896	555	537	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	555	538	-	555	537	-
Stage 1	-	-	-	-	-	-	839	763	-	766	708	-
Stage 2	-	-	-	-	-	-	757	708	-	829	761	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	10.9	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	629	1345	-	-	1429	-	-	714
HCM Lane V/C Ratio	0.028	0.004	-	-	0.004	-	-	0.011
HCM Control Delay (s)	10.9	7.7	0	-	7.5	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	0.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	305	15	5	185	2	10	5	5	1	5	5
Future Vol, veh/h	5	305	15	5	185	2	10	5	5	1	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	332	16	5	201	2	11	5	5	1	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	348	0	0	567	563	340	567	570	202
Stage 1	-	-	-	-	-	-	350	350	-	212	212	-
Stage 2	-	-	-	-	-	-	217	213	-	355	358	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1369	-	-	1211	-	-	434	435	702	434	431	839
Stage 1	-	-	-	-	-	-	666	633	-	790	727	-
Stage 2	-	-	-	-	-	-	785	726	-	662	628	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1369	-	-	1211	-	-	424	431	702	423	427	839
Mov Cap-2 Maneuver	-	-	-	-	-	-	424	431	-	423	427	-
Stage 1	-	-	-	-	-	-	663	630	-	786	723	-
Stage 2	-	-	-	-	-	-	770	722	-	648	625	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	13	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	473	1369	-	-	1211	-	-	549
HCM Lane V/C Ratio	0.046	0.004	-	-	0.004	-	-	0.022
HCM Control Delay (s)	13	7.6	0	-	8	0	-	11.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

BACKGROUND 2040

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	70	55	675	95	415	40	1080	130	255	1335	35
Future Volume (veh/h)	80	70	55	675	95	415	40	1080	130	255	1335	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	76	60	734	103	451	43	1174	141	277	1451	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	193	476	360	561	476	268	1185	528	270	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	528	642	1585	1253	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	163	0	60	734	103	451	43	1174	141	277	1451	38
Grp Sat Flow(s),veh/h/ln	1170	0	1585	1253	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.1	0.0	1.7	11.5	2.4	16.7	0.9	19.7	3.9	5.0	20.0	1.0
Cycle Q Clear(g_c), s	6.5	0.0	1.7	18.0	2.4	16.7	0.9	19.7	3.9	5.0	20.0	1.0
Prop In Lane	0.53		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	0	476	360	561	476	268	1185	528	270	1185	528
V/C Ratio(X)	0.37	0.00	0.13	2.04	0.18	0.95	0.16	0.99	0.27	1.02	1.22	0.07
Avail Cap(c_a), veh/h	443	0	476	360	561	476	268	1185	528	270	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.3	26.2	15.6	20.5	13.8	19.9	14.6	17.6	20.0	13.7
Incr Delay (d2), s/veh	2.3	0.0	0.5	476.8	0.7	30.2	1.3	24.1	1.2	61.3	108.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.6	52.6	1.1	9.5	0.4	11.2	1.5	6.8	25.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	15.8	503.0	16.3	50.8	15.1	44.0	15.9	78.9	128.9	13.9
LnGrp LOS	B	A	B	F	B	D	B	D	B	F	F	B
Approach Vol, veh/h		223			1288			1358			1766	
Approach Delay, s/veh		18.2			305.7			40.2			118.6	
Approach LOS		B			F			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	7.0	21.7		8.5	2.9	22.0		20.0				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	142.8
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	155	140	515	70	580	40	1665	240	285	1330	20
Future Volume (veh/h)	85	155	140	515	70	580	40	1665	240	285	1330	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	168	152	560	76	630	43	1810	261	310	1446	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	298	476	278	561	476	268	1185	528	268	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	348	992	1585	1060	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	260	0	152	560	76	630	43	1810	261	310	1446	22
Grp Sat Flow(s),veh/h/ln	1341	0	1585	1060	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.6	0.0	4.5	8.9	1.8	18.0	0.9	20.0	7.9	5.0	20.0	0.6
Cycle Q Clear(g_c), s	9.1	0.0	4.5	18.0	1.8	18.0	0.9	20.0	7.9	5.0	20.0	0.6
Prop In Lane	0.35		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	483	0	476	278	561	476	268	1185	528	268	1185	528
V/C Ratio(X)	0.54	0.00	0.32	2.02	0.14	1.32	0.16	1.53	0.49	1.15	1.22	0.04
Avail Cap(c_a), veh/h	483	0	476	278	561	476	268	1185	528	268	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	16.3	27.5	15.3	21.0	13.8	20.0	16.0	17.6	20.0	13.5
Incr Delay (d2), s/veh	4.2	0.0	1.8	470.2	0.5	160.3	1.3	241.9	3.3	103.4	107.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	1.7	40.1	0.8	27.1	0.4	47.1	3.0	9.9	24.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	18.0	497.6	15.8	181.3	15.1	261.9	19.2	120.9	127.1	13.7
LnGrp LOS	C	A	B	F	B	F	B	F	B	F	F	B
Approach Vol, veh/h		412			1266			2114			1778	
Approach Delay, s/veh		20.4			311.3			226.9			124.6	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	7.0	22.0		11.1	2.9	22.0		20.0				
Green Ext Time (p_c), s	0.0	0.0		1.4	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	198.2
HCM 6th LOS	F

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	205	30	15	170	15	25	15	25	20	15	20
Future Vol, veh/h	30	205	30	15	170	15	25	15	25	20	15	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	223	33	16	185	16	27	16	27	22	16	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	9.3	8.6	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	11%	7%	36%
Vol Thru, %	23%	77%	85%	27%
Vol Right, %	38%	11%	7%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	265	200	55
LT Vol	25	30	15	20
Through Vol	15	205	170	15
RT Vol	25	30	15	20
Lane Flow Rate	71	288	217	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.098	0.357	0.275	0.083
Departure Headway (Hd)	4.997	4.457	4.546	5.022
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	714	807	789	710
Service Time	3.049	2.491	2.581	3.076
HCM Lane V/C Ratio	0.099	0.357	0.275	0.085
HCM Control Delay	8.6	10	9.3	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	1.6	1.1	0.3

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	150	70	45	220	45	20	15	20	20	15	20
Future Vol, veh/h	70	150	70	45	220	45	20	15	20	20	15	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	163	76	49	239	49	22	16	22	22	16	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	10.9	8.9	8.9
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	24%	15%	36%
Vol Thru, %	27%	52%	71%	27%
Vol Right, %	36%	24%	15%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	290	310	55
LT Vol	20	70	45	20
Through Vol	15	150	220	15
RT Vol	20	70	45	20
Lane Flow Rate	60	315	337	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.088	0.396	0.425	0.088
Departure Headway (Hd)	5.323	4.523	4.536	5.323
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	794	792	668
Service Time	3.399	2.566	2.578	3.399
HCM Lane V/C Ratio	0.09	0.397	0.426	0.09
HCM Control Delay	8.9	10.5	10.9	8.9
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.3	1.9	2.1	0.3

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	15	5	200	15	5
Future Vol, veh/h	130	15	5	200	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	141	16	5	217	16	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	376	149
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1423	-	625	898
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1423	-	623	898
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1423	-
HCM Lane V/C Ratio	0.032	-	-	0.004	-
HCM Control Delay (s)	10.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	1000	105	75	475	25	35	70	25	25	100	35
Future Vol, veh/h	75	1000	105	75	475	25	35	70	25	25	100	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	1087	114	82	516	27	38	76	27	27	109	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	543	0	0	1201	0	0	1785	2015	601	1440	2059	272
Stage 1	-	-	-	-	-	-	1308	1308	-	694	694	-
Stage 2	-	-	-	-	-	-	477	707	-	746	1365	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1022	-	-	577	-	-	51	~ 58	443	93	~ 54	726
Stage 1	-	-	-	-	-	-	168	228	-	399	442	-
Stage 2	-	-	-	-	-	-	538	436	-	372	214	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1022	-	-	577	-	-	-	~ 46	443	-	~ 43	726
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 46	-	-	~ 43	-
Stage 1	-	-	-	-	-	-	155	210	-	367	379	-
Stage 2	-	-	-	-	-	-	312	374	-	205	197	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.6		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	46	443	1022	-	-	577	-	-	-	43	726
HCM Lane V/C Ratio	-	1.654	0.061	0.08	-	-	0.141	-	-	-	2.528	0.052
HCM Control Delay (s)	-$	513.1	13.7	8.8	-	-	12.3	-	-	-$	894.4	10.2
HCM Lane LOS	-	F	B	A	-	-	B	-	-	-	F	B
HCM 95th %tile Q(veh)	-	7.5	0.2	0.3	-	-	0.5	-	-	-	11.7	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

TOTAL 2040

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	75	55	710	100	435	40	1080	145	265	1335	35
Future Volume (veh/h)	80	75	55	710	100	435	40	1080	145	265	1335	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	82	60	772	109	473	43	1174	158	288	1451	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	201	476	354	561	476	268	1185	528	270	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	502	669	1585	1246	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	169	0	60	772	109	473	43	1174	158	288	1451	38
Grp Sat Flow(s),veh/h/ln	1170	0	1585	1246	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.1	0.0	1.7	11.3	2.6	17.9	0.9	19.7	4.4	5.0	20.0	1.0
Cycle Q Clear(g_c), s	6.7	0.0	1.7	18.0	2.6	17.9	0.9	19.7	4.4	5.0	20.0	1.0
Prop In Lane	0.51		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	442	0	476	354	561	476	268	1185	528	270	1185	528
V/C Ratio(X)	0.38	0.00	0.13	2.18	0.19	0.99	0.16	0.99	0.30	1.07	1.22	0.07
Avail Cap(c_a), veh/h	442	0	476	354	561	476	268	1185	528	270	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.3	26.3	15.6	21.0	13.8	19.9	14.8	17.6	20.0	13.7
Incr Delay (d2), s/veh	2.5	0.0	0.5	540.7	0.8	40.0	1.3	24.1	1.4	73.2	108.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.6	58.0	1.1	11.2	0.4	11.2	1.7	7.7	25.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	15.8	567.0	16.4	60.9	15.1	44.0	16.3	90.8	128.9	13.9
LnGrp LOS	B	A	B	F	B	E	B	D	B	F	F	B
Approach Vol, veh/h		229			1354			1375			1777	
Approach Delay, s/veh		18.4			345.9			39.9			120.3	
Approach LOS		B			F			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	7.0	21.7		8.7	2.9	22.0		20.0				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	156.5
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
1: US 85 & CR 14 1/2/14th Street 11/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	160	140	550	75	600	40	1665	295	320	1330	20
Future Volume (veh/h)	85	160	140	550	75	600	40	1665	295	320	1330	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	174	152	598	82	652	43	1810	321	348	1446	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	299	476	270	561	476	268	1185	528	268	1185	528
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	338	996	1585	1054	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	266	0	152	598	82	652	43	1810	321	348	1446	22
Grp Sat Flow(s),veh/h/ln	1334	0	1585	1054	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.0	0.0	4.5	8.5	1.9	18.0	0.9	20.0	10.2	5.0	20.0	0.6
Cycle Q Clear(g_c), s	9.5	0.0	4.5	18.0	1.9	18.0	0.9	20.0	10.2	5.0	20.0	0.6
Prop In Lane	0.35		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	481	0	476	270	561	476	268	1185	528	268	1185	528
V/C Ratio(X)	0.55	0.00	0.32	2.21	0.15	1.37	0.16	1.53	0.61	1.30	1.22	0.04
Avail Cap(c_a), veh/h	481	0	476	270	561	476	268	1185	528	268	1185	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	16.3	27.6	15.4	21.0	13.8	20.0	16.7	17.6	20.0	13.5
Incr Delay (d2), s/veh	4.5	0.0	1.8	558.0	0.5	180.0	1.3	241.9	5.1	158.1	107.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.7	45.6	0.8	29.7	0.4	47.1	4.1	13.9	24.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	0.0	18.0	585.6	15.9	201.0	15.1	261.9	21.8	175.7	127.1	13.7
LnGrp LOS	C	A	B	F	B	F	B	F	C	F	F	B
Approach Vol, veh/h		418			1332			2174			1816	
Approach Delay, s/veh		20.6			362.3			221.6			135.0	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		23.0	10.0	27.0		23.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	5.0	20.0		18.0	5.0	20.0		18.0				
Max Q Clear Time (g_c+I1), s	7.0	22.0		11.5	2.9	22.0		20.0				
Green Ext Time (p_c), s	0.0	0.0		1.4	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	212.2
HCM 6th LOS	F

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	205	30	15	170	20	25	15	25	25	15	35
Future Vol, veh/h	40	205	30	15	170	20	25	15	25	25	15	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	223	33	16	185	22	27	16	27	27	16	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	9.5	8.7	8.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	15%	7%	33%
Vol Thru, %	23%	75%	83%	20%
Vol Right, %	38%	11%	10%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	275	205	75
LT Vol	25	40	15	25
Through Vol	15	205	170	15
RT Vol	25	30	20	35
Lane Flow Rate	71	299	223	82
Geometry Grp	1	1	1	1
Degree of Util (X)	0.1	0.376	0.285	0.113
Departure Headway (Hd)	5.077	4.533	4.608	5.001
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	702	792	778	713
Service Time	3.139	2.574	2.652	3.062
HCM Lane V/C Ratio	0.101	0.378	0.287	0.115
HCM Control Delay	8.7	10.3	9.5	8.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.3	1.8	1.2	0.4

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	95	150	70	15	220	50	20	15	20	25	15	35
Future Vol, veh/h	95	150	70	15	220	50	20	15	20	25	15	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	163	76	16	239	54	22	16	22	27	16	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	10.6	9	9.1
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	30%	5%	33%
Vol Thru, %	27%	48%	77%	20%
Vol Right, %	36%	22%	18%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	315	285	75
LT Vol	20	95	15	25
Through Vol	15	150	220	15
RT Vol	20	70	50	35
Lane Flow Rate	60	342	310	82
Geometry Grp	1	1	1	1
Degree of Util (X)	0.089	0.435	0.395	0.119
Departure Headway (Hd)	5.37	4.577	4.592	5.264
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	661	784	781	674
Service Time	3.457	2.63	2.645	3.347
HCM Lane V/C Ratio	0.091	0.436	0.397	0.122
HCM Control Delay	9	11.1	10.6	9.1
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.3	2.2	1.9	0.4

Intersection												
Int Delay, s/veh	35.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	405	65	25	1010	25	90	50	25	25	50	75
Future Vol, veh/h	25	405	65	25	1010	25	90	50	25	25	50	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	440	71	27	1098	27	98	54	27	27	54	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1125	0	0	511	0	0	1160	1709	256	1467	1731	563
Stage 1	-	-	-	-	-	-	530	530	-	1166	1166	-
Stage 2	-	-	-	-	-	-	630	1179	-	301	565	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	617	-	-	1050	-	-	151	90	743	89	87	470
Stage 1	-	-	-	-	-	-	500	525	-	206	266	-
Stage 2	-	-	-	-	-	-	436	262	-	683	506	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	617	-	-	1050	-	-	~ 55	84	743	39	81	470
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 55	84	-	39	81	-
Stage 1	-	-	-	-	-	-	478	502	-	197	259	-
Stage 2	-	-	-	-	-	-	277	255	-	561	484	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	$ 324.7	80.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	55	84	743	617	-	-	1050	-	-	39	81	470
HCM Lane V/C Ratio	1.779	0.647	0.037	0.044	-	-	0.026	-	-	0.697	0.671	0.173
HCM Control Delay (s)	$ 533.9	105.5	10	11.1	-	-	8.5	-	-	212.4	112.9	14.3
HCM Lane LOS	F	F	B	B	-	-	A	-	-	F	F	B
HCM 95th %tile Q(veh)	9.3	3	0.1	0.1	-	-	0.1	-	-	2.5	3.1	0.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	0.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	1070	175	75	485	25	80	70	25	25	100	35
Future Vol, veh/h	75	1070	175	75	485	25	80	70	25	25	100	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	1163	190	82	527	27	87	76	27	27	109	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	554	0	0	1353	0	0	1904	2140	677	1489	2222	277
Stage 1	-	-	-	-	-	-	1422	1422	-	705	705	-
Stage 2	-	-	-	-	-	-	482	718	-	784	1517	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1012	-	-	504	-	-	~ 42	~ 48	395	86	~ 43	720
Stage 1	-	-	-	-	-	-	143	200	-	393	437	-
Stage 2	-	-	-	-	-	-	534	431	-	352	180	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1012	-	-	504	-	-	-	~ 37	395	-	~ 33	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 37	-	-	~ 33	-
Stage 1	-	-	-	-	-	-	131	184	-	361	366	-
Stage 2	-	-	-	-	-	-	298	361	-	177	165	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.7		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	37	395	1012	-	-	504	-	-	-	33	720
HCM Lane V/C Ratio	-	2.056	0.069	0.081	-	-	0.162	-	-	-	3.294	0.053
HCM Control Delay (s)	-	$ 722.8	14.8	8.9	-	-	13.5	-	-	-	$ 1284.5	10.3
HCM Lane LOS	-	F	B	A	-	-	B	-	-	-	F	B
HCM 95th %tile Q(veh)	-	8.3	0.2	0.3	-	-	0.6	-	-	-	12.7	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	45	120	10	20	120
Future Vol, veh/h	20	45	120	10	20	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	49	130	11	22	130

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	310	136	0	0	141	0
Stage 1	136	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	682	913	-	-	1442	-
Stage 1	890	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	671	913	-	-	1442	-
Mov Cap-2 Maneuver	671	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	822	1442	-
HCM Lane V/C Ratio	-	-	0.086	0.015	-
HCM Control Delay (s)	-	-	9.8	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	45	130	35	70	280
Future Vol, veh/h	20	45	130	35	70	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	49	141	38	76	304

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	616	160	0	0	179	0
Stage 1	160	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	454	885	-	-	1397	-
Stage 1	869	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	424	885	-	-	1397	-
Mov Cap-2 Maneuver	424	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	663	1397	-
HCM Lane V/C Ratio	-	-	0.107	0.054	-
HCM Control Delay (s)	-	-	11.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection												
Int Delay, s/veh	0.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	450	5	5	1050	1	10	1	5	1	1	5
Future Vol, veh/h	5	450	5	5	1050	1	10	1	5	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	489	5	5	1141	1	11	1	5	1	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1142	0	0	494	0	0	1083	1654	247	1407	1656	571
Stage 1	-	-	-	-	-	-	502	502	-	1152	1152	-
Stage 2	-	-	-	-	-	-	581	1152	-	255	504	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	608	-	-	1066	-	-	172	97	753	99	97	464
Stage 1	-	-	-	-	-	-	520	540	-	210	270	-
Stage 2	-	-	-	-	-	-	467	270	-	727	539	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	608	-	-	1066	-	-	165	95	753	96	95	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	95	-	96	95	-
Stage 1	-	-	-	-	-	-	514	534	-	208	266	-
Stage 2	-	-	-	-	-	-	454	266	-	712	533	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	24.1	21.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	608	-	-	1066	-	-	221
HCM Lane V/C Ratio	0.084	0.009	-	-	0.005	-	-	0.034
HCM Control Delay (s)	24.1	11	0.1	-	8.4	0.1	-	21.9
HCM Lane LOS	C	B	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1050	15	5	575	5	10	5	5	1	5	5
Future Vol, veh/h	5	1050	15	5	575	5	10	5	5	1	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	1141	16	5	625	5	11	5	5	1	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	630	0	0	1157	0	0	1484	1799	579	1221	1805	315
Stage 1	-	-	-	-	-	-	1159	1159	-	638	638	-
Stage 2	-	-	-	-	-	-	325	640	-	583	1167	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	948	-	-	600	-	-	87	79	458	136	78	681
Stage 1	-	-	-	-	-	-	208	268	-	431	469	-
Stage 2	-	-	-	-	-	-	661	468	-	465	266	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	600	-	-	80	77	458	124	76	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	77	-	124	76	-
Stage 1	-	-	-	-	-	-	205	264	-	425	463	-
Stage 2	-	-	-	-	-	-	640	462	-	443	262	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	50.7	34.2
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	100	948	-	-	600	-	-	135
HCM Lane V/C Ratio	0.217	0.006	-	-	0.009	-	-	0.089
HCM Control Delay (s)	50.7	8.8	0.1	-	11.1	0.1	-	34.2
HCM Lane LOS	F	A	A	-	B	A	-	D
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.3

Northrup & 14th With Improvements
Appendix C

HCM 6th Signalized Intersection Summary
3: Northrup Ave & 14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	400	45	25	1000	25	45	50	25	25	50	75
Future Volume (veh/h)	25	400	45	25	1000	25	45	50	25	25	50	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	435	49	27	1087	27	49	54	27	27	54	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	1450	162	475	1595	40	584	692	586	607	692	586
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	506	3221	361	911	3543	88	1253	1870	1585	1317	1870	1585
Grp Volume(v), veh/h	27	239	245	27	545	569	49	54	27	27	54	82
Grp Sat Flow(s),veh/h/ln	506	1777	1805	911	1777	1855	1253	1870	1585	1317	1870	1585
Q Serve(g_s), s	2.2	4.3	4.3	1.0	12.2	12.2	1.3	0.9	0.5	0.7	0.9	1.7
Cycle Q Clear(g_c), s	14.4	4.3	4.3	5.3	12.2	12.2	2.3	0.9	0.5	1.6	0.9	1.7
Prop In Lane	1.00		0.20	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	800	812	475	800	835	584	692	586	607	692	586
V/C Ratio(X)	0.11	0.30	0.30	0.06	0.68	0.68	0.08	0.08	0.05	0.04	0.08	0.14
Avail Cap(c_a), veh/h	248	800	812	475	800	835	584	692	586	607	692	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	8.7	8.7	10.4	10.9	10.9	10.9	10.2	10.1	10.7	10.2	10.5
Incr Delay (d2), s/veh	0.9	1.0	1.0	0.2	4.7	4.5	0.3	0.2	0.1	0.1	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	1.6	0.2	4.8	4.9	0.4	0.4	0.2	0.2	0.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	9.7	9.7	10.7	15.6	15.4	11.2	10.4	10.2	10.9	10.4	11.0
LnGrp LOS	B	A	A	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		511			1141			130			163	
Approach Delay, s/veh		10.1			15.4			10.7			10.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		27.0		23.0		27.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		22.5		18.5		22.5				
Max Q Clear Time (g_c+I1), s		4.3		16.4		3.7		14.2				
Green Ext Time (p_c), s		0.4		1.6		0.5		4.5				

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

HCM 6th Signalized Intersection Summary
3: Northrup Ave & 14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1000	105	75	475	25	35	70	25	25	100	35
Future Volume (veh/h)	75	1000	105	75	475	25	35	70	25	25	100	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	1087	114	82	516	27	38	76	27	27	109	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	1758	184	372	1861	97	449	577	489	480	577	489
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	863	3246	340	466	3435	179	1241	1870	1585	1291	1870	1585
Grp Volume(v), veh/h	82	595	606	82	266	277	38	76	27	27	109	38
Grp Sat Flow(s),veh/h/ln	863	1777	1809	466	1777	1838	1241	1870	1585	1291	1870	1585
Q Serve(g_s), s	1.0	0.0	0.0	5.9	4.9	4.9	1.4	1.8	0.7	0.9	2.6	1.0
Cycle Q Clear(g_c), s	5.9	0.0	0.0	5.9	4.9	4.9	4.0	1.8	0.7	2.7	2.6	1.0
Prop In Lane	1.00		0.19	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	962	980	372	962	996	449	577	489	480	577	489
V/C Ratio(X)	0.16	0.62	0.62	0.22	0.28	0.28	0.08	0.13	0.06	0.06	0.19	0.08
Avail Cap(c_a), veh/h	517	962	980	372	962	996	449	577	489	480	577	489
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.4	0.0	0.0	7.6	7.4	7.4	16.7	15.0	14.6	15.9	15.2	14.7
Incr Delay (d2), s/veh	0.7	3.0	2.9	1.4	0.7	0.7	0.4	0.5	0.2	0.2	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.8	0.6	1.7	1.7	0.4	0.8	0.3	0.3	1.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	3.0	2.9	9.0	8.1	8.1	17.1	15.4	14.8	16.1	16.0	15.0
LnGrp LOS	A	A	A	A	A	A	B	B	B	B	B	B
Approach Vol, veh/h		1283			625			141			174	
Approach Delay, s/veh		2.8			8.2			15.8			15.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		37.0		23.0		37.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		32.5		18.5		32.5				
Max Q Clear Time (g_c+I1), s		6.0		7.9		4.7		7.9				
Green Ext Time (p_c), s		0.4		9.9		0.6		4.7				

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
3: Northrup Ave & 14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	405	65	25	1010	25	90	50	25	25	50	75
Future Volume (veh/h)	25	405	65	25	1010	25	90	50	25	25	50	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	440	71	27	1098	27	98	54	27	27	54	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	1319	211	441	1524	37	610	729	618	634	729	618
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	501	3067	492	889	3544	87	1253	1870	1585	1317	1870	1585
Grp Volume(v), veh/h	27	254	257	27	550	575	98	54	27	27	54	82
Grp Sat Flow(s),veh/h/ln	501	1777	1782	889	1777	1855	1253	1870	1585	1317	1870	1585
Q Serve(g_s), s	2.4	4.7	4.8	1.0	12.8	12.8	2.7	0.9	0.5	0.7	0.9	1.7
Cycle Q Clear(g_c), s	15.1	4.7	4.8	5.9	12.8	12.8	3.6	0.9	0.5	1.6	0.9	1.7
Prop In Lane	1.00		0.28	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	764	766	441	764	798	610	729	618	634	729	618
V/C Ratio(X)	0.12	0.33	0.34	0.06	0.72	0.72	0.16	0.07	0.04	0.04	0.07	0.13
Avail Cap(c_a), veh/h	231	764	766	441	764	798	610	729	618	634	729	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	9.5	9.5	11.4	11.8	11.8	10.7	9.6	9.5	10.1	9.6	9.8
Incr Delay (d2), s/veh	1.0	1.2	1.2	0.3	5.8	5.6	0.6	0.2	0.1	0.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.7	1.8	0.2	5.2	5.4	0.7	0.3	0.2	0.2	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	10.6	10.7	11.7	17.6	17.3	11.3	9.8	9.6	10.2	9.8	10.3
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	B
Approach Vol, veh/h		538			1152			179			163	
Approach Delay, s/veh		11.1			17.3			10.6			10.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.0		26.0		24.0		26.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		21.5		19.5		21.5				
Max Q Clear Time (g_c+I1), s		5.6		17.1		3.7		14.8				
Green Ext Time (p_c), s		0.5		1.3		0.5		3.9				

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
3: Northrup Ave & 14th Street 11/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1070	175	75	485	25	80	70	25	25	100	35
Future Volume (veh/h)	75	1070	175	75	485	25	80	70	25	25	100	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	1163	190	82	527	27	87	76	27	27	109	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	512	1657	270	338	1863	95	449	577	489	480	577	489
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	854	3060	498	403	3440	176	1241	1870	1585	1291	1870	1585
Grp Volume(v), veh/h	82	673	680	82	272	282	87	76	27	27	109	38
Grp Sat Flow(s),veh/h/ln	854	1777	1781	403	1777	1839	1241	1870	1585	1291	1870	1585
Q Serve(g_s), s	1.1	0.0	0.0	7.0	5.0	5.0	3.3	1.8	0.7	0.9	2.6	1.0
Cycle Q Clear(g_c), s	6.1	0.0	0.0	7.0	5.0	5.0	5.9	1.8	0.7	2.7	2.6	1.0
Prop In Lane	1.00		0.28	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	512	962	965	338	962	996	449	577	489	480	577	489
V/C Ratio(X)	0.16	0.70	0.70	0.24	0.28	0.28	0.19	0.13	0.06	0.06	0.19	0.08
Avail Cap(c_a), veh/h	512	962	965	338	962	996	449	577	489	480	577	489
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	7.9	7.4	7.4	17.4	15.0	14.6	15.9	15.2	14.7
Incr Delay (d2), s/veh	0.7	4.2	4.3	1.7	0.7	0.7	1.0	0.5	0.2	0.2	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	1.2	0.6	1.7	1.8	1.0	0.8	0.3	0.3	1.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	4.2	4.3	9.6	8.2	8.2	18.4	15.4	14.8	16.1	16.0	15.0
LnGrp LOS	A	A	A	A	A	A	B	B	B	B	B	B
Approach Vol, veh/h		1435			636			190			174	
Approach Delay, s/veh		4.1			8.4			16.7			15.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		37.0		23.0		37.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		32.5		18.5		32.5				
Max Q Clear Time (g_c+I1), s		7.9		8.1		4.7		9.0				
Green Ext Time (p_c), s		0.5		11.6		0.6		4.9				

Intersection Summary		
HCM 6th Ctrl Delay		7.0
HCM 6th LOS		A

Figure and Table 4C-3 Manual on Uniform Traffic Control Devices

Excerpt from the Federal Highway Administration's, "Manual on Uniform Traffic Control Devices" (MUTCD), 2009

2009 EDITION PART 4 FIGURE 4C-3. WARRANT 3, PEAK HOUR

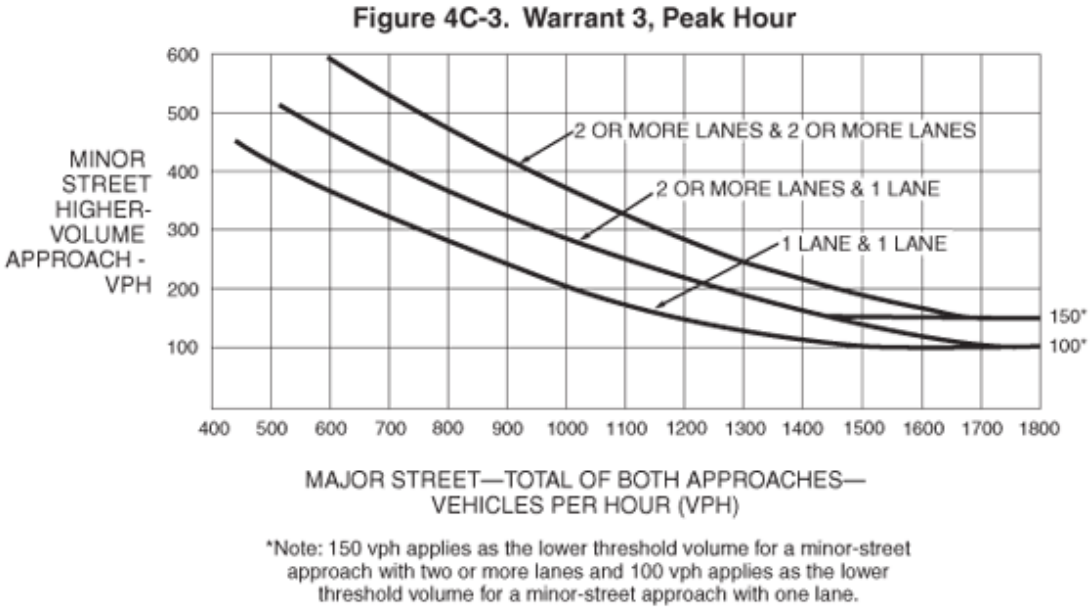


Figure 4C-3. Warrant 3, Peak Hour

This figure shows a graph depicting numerical values for Warrant 3, Peak Hour (see Section 4C.04 for further details). The figure displays three curves—one for each existing combination of approach lanes: one lane and one lane, two or more lanes and one lane, and two or more lanes and two or more lanes.

The table below shows the approximate VPH on the major street and corresponding VPH on the minor street for each combination of approach lanes.

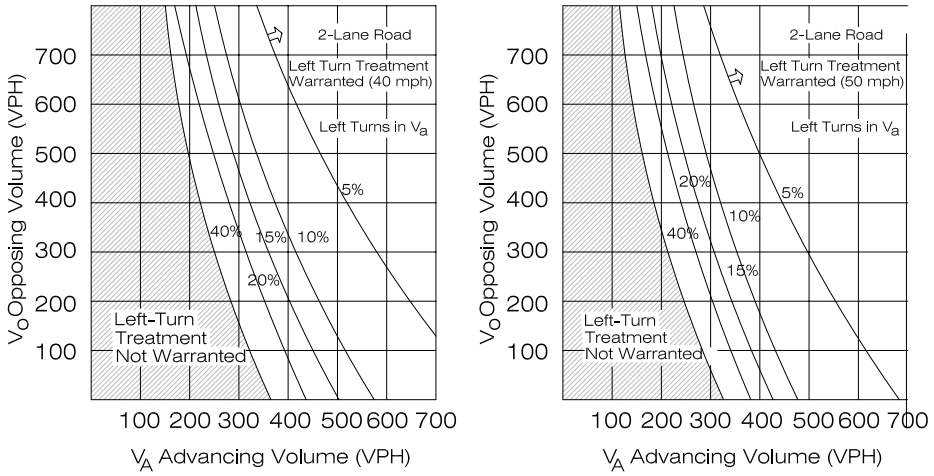
Table for Figure 4C-3					
One lane and one lane		Two or more lanes and one lane		Two or more lanes and two or more lanes	
VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)	VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)	VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)
1800	100	1800	100 or 150*	1800	150
1700	100	1700	100 or 150*	1700	150
1600	100	1600	120 or 150*	1600	170
1500	100	1500	145 or 150*	1500	180
1400	120	1400	155	1400	220
1300	130	1300	190	1300	250
1200	150	1200	220	1200	285
1100	175	1100	250	1100	340
1000	200	1000	285	1000	370
900	245	900	325	900	425
800	285	800	360	800	475
700	325	700	420	700	540
600	360	600	460	600	590
500	420	500	Not available	500	Not available

* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

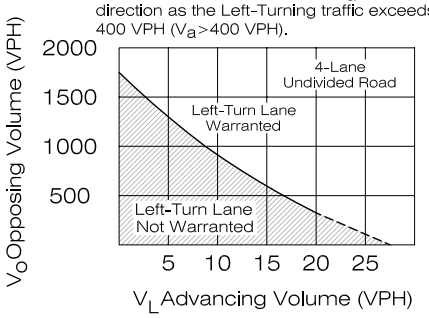
Source: Federal Highway Administration's on-line "Manual on Uniform Traffic Control Devices" (MUTCD) 2009

Appendix D
NCHRP REPORT 279

Based on Transportation Research Board's, *NCHRP – Report 279*, 1985

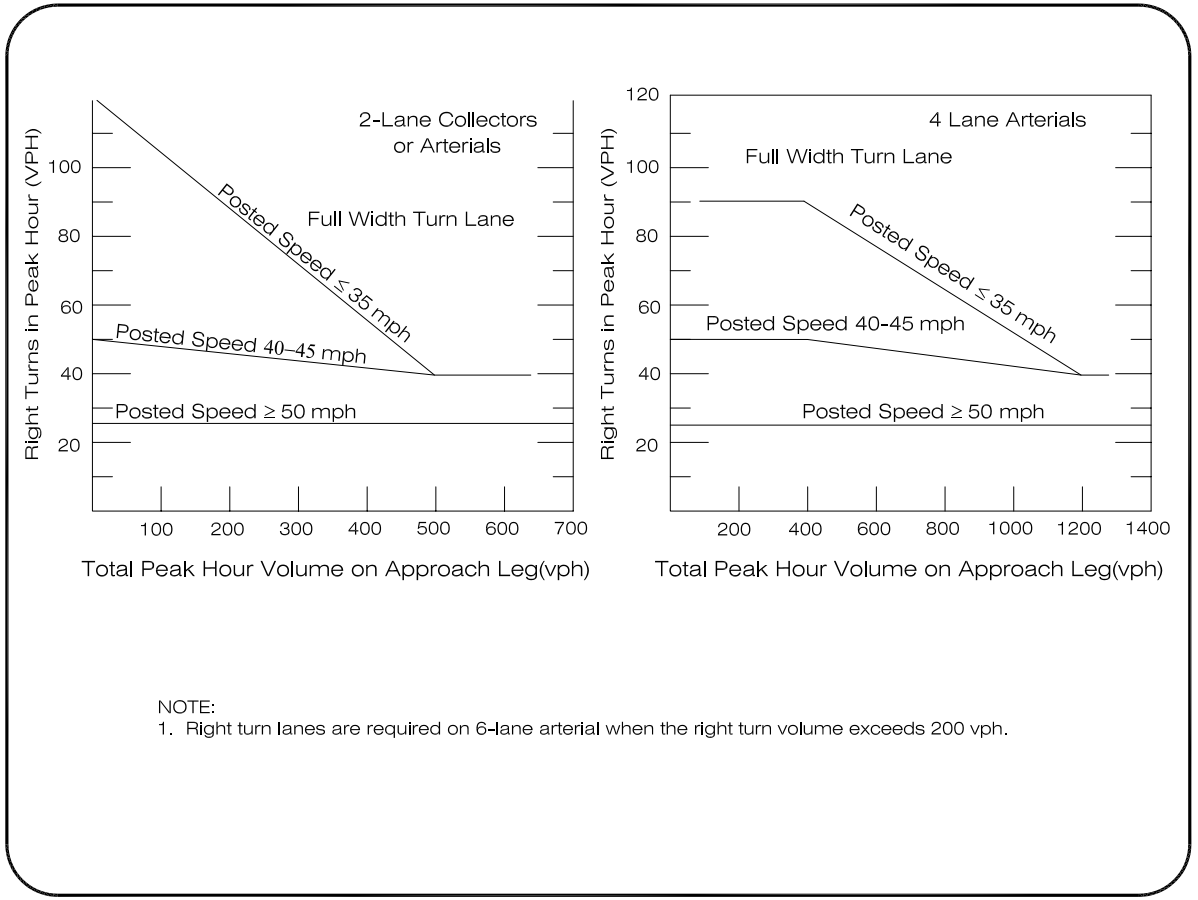


NOTE: When V_O < 400 VPH (dashed line). A Left-Turn Lane is not normally warranted unless the advancing volume (V_a) in the same direction as the Left-Turning traffic exceeds 400 VPH (V_a>400 VPH).



Notes: 1. Left turn lanes are required at all intersections and all-movement accesses on arterial roadways except where roundabouts are provided.

Based on Transportation Research Board's, *NCHRP – Report 279*, 1985



NOTE:
1. Right turn lanes are required on 6-lane arterial when the right turn volume exceeds 200 vph.

Rollins Consult LLC

MEMORANDUM

To: Roy Vestal, Public Works Director, City of Fort Lupton

From: Ruth Rollins, Principal, Rollins Consult LLC

Date: August 26, 2020

Subject: Supplemental Analysis of Willow Bend with Northrup Access Only

The following memorandum is a supplemental analysis of the proposed Willow Bend residential project in Fort Lupton. The original study *Traffic Impact Study, Fulton Ranch*, December 2, 2019, is used as a reference for this supplemental analysis. The project location is depicted on Figure 1. The project name has changed from Fulton Ranch to Willow Bend. The revised site plan allows for a total of 449 homes (the previous study included 466 homes) and is shown on Figure 2.

This study was required by the City to address the proposed project and it's short term use of Northrup Avenue exclusively. Northrup would be constructed to the south connecting to the existing road. Northrup would not connect to the north. The long term build out of the area would include two access points onto 14th Street and the completion of Northrup Avenue, north to 14th Street.

This memo includes:

- A description of the existing transportation network.
- Updated project trip generation estimates at Northrup Avenue and 9th Street.
- Analysis of the intersection of Northrup Avenue at 9th Street for the Year 2024. This includes a background scenario that accounts for other projects in the area/general growth and a total scenario with buildout of the project.
- Determination if any improvements are needed near the existing Twombly Elementary School.
- Discussion of project traffic that may travel south of 9th Street on Northrup Avenue and impacts to the neighborhood.
- Recommended improvements.

Figure 1 – Study Area

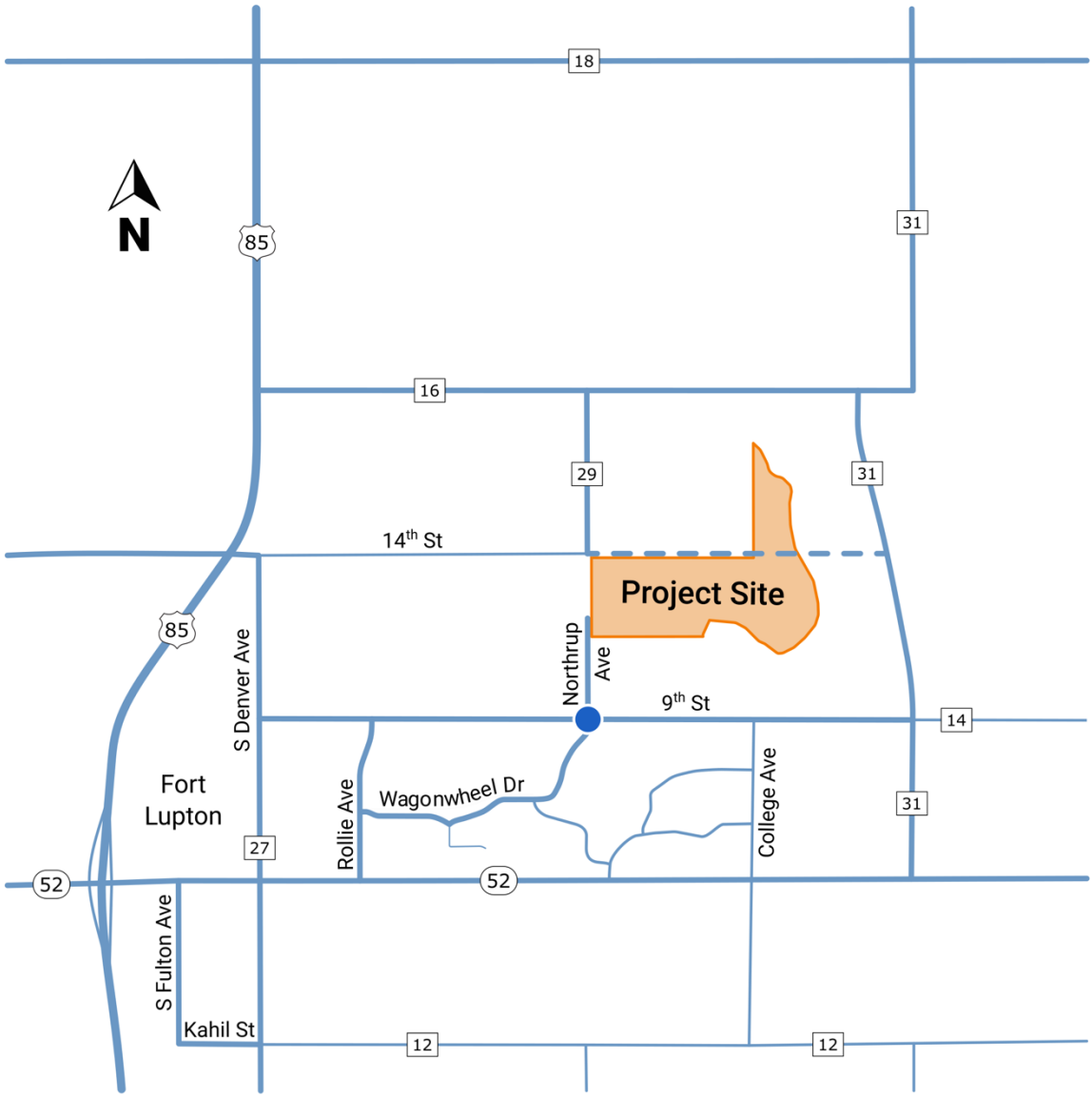
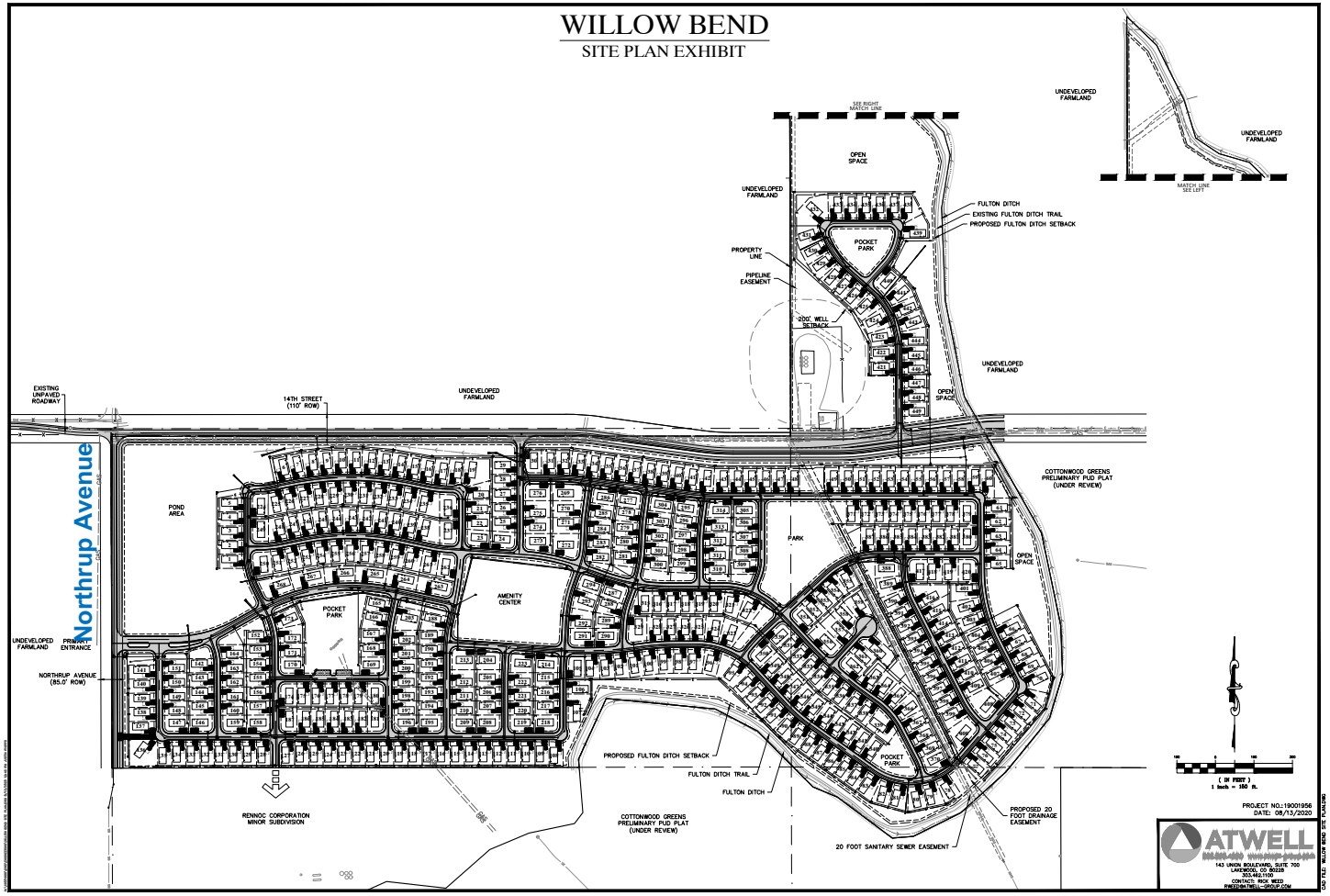


Figure 2 – Site Plan



EXISTING TRANSPORTATION NETWORK

The current transportation network is briefly described below.

9th Street is an east-west two-lane roadway. Portions of 9th Street have been improved to include sidewalks. There are narrow shoulders on 9th Street east of Northrup. Near Northrup Avenue there is no posted speed limit however, the City has a 25 mph speed limit unless posted otherwise. West of Northrup Avenue the speed is 20 mph near the Twombly Elementary School when the school flashers are active. There are sidewalks on both sides of 9th Street west of Northrup Avenue with the exception of a gap on the south side just east of Twombly School. This section will be completed in the near future. To the east of Northrup Avenue there are no sidewalks.

Northrup Avenue is currently a two-lane north-south roadway. It exists north and south of 9th Street. To the south of 9th Street, Northrup Avenue is posted at 25 mph and provides access to the residential area and the Coyote Creek Golf Course. There is parking allowed on both sides of the street. South of 9th the road is 30 feet wide which allows for access and is narrow enough to slightly calm traffic with the presence of on-street parking.

North of 9th Street, Northrup is between 51 and 55 feet wide (based on Google Earth Pro) and allows for parking on both sides of the street. There are sidewalks on both sides (with one exception) ranging from 3.5 to 5 feet in width. On the east side of Northrup the sidewalk ends on the northern boundary of the existing residential development.

Two conditions that should be noted:

- the lack of sidewalk on the east side of Northrup Avenue south of the proposed Willow Bend project
- The southbound approach of Northrup Avenue at 9th Street is offset due to the difference in roadway widths.

UPDATED PROJECT TRAFFIC

The estimated project traffic projections at the study intersection were updated to account for a decrease in dwellings from 466 to 449 and an assignment to Northrup Avenue only.

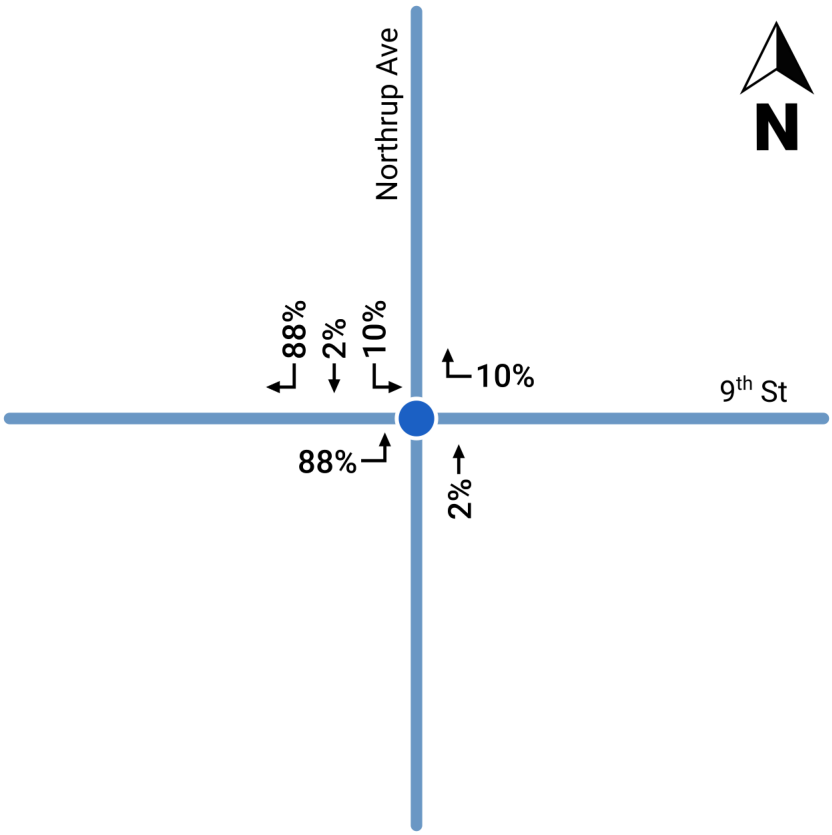
The revised trip generation of the project is shown in Table 1.

Table 1 – Estimated Trip Generation

ITE Land Use Code & Rates		Project	Project Trip Generation						
Land Use	Land Use Code	Dwelling Units	Daily	AM			PM		
				IN	Out	Total	IN	Out	Total
Manufactured Housing	240	449	2,245	36	81	117	128	78	207
Based on ITE Trip Generation 10th Edition									

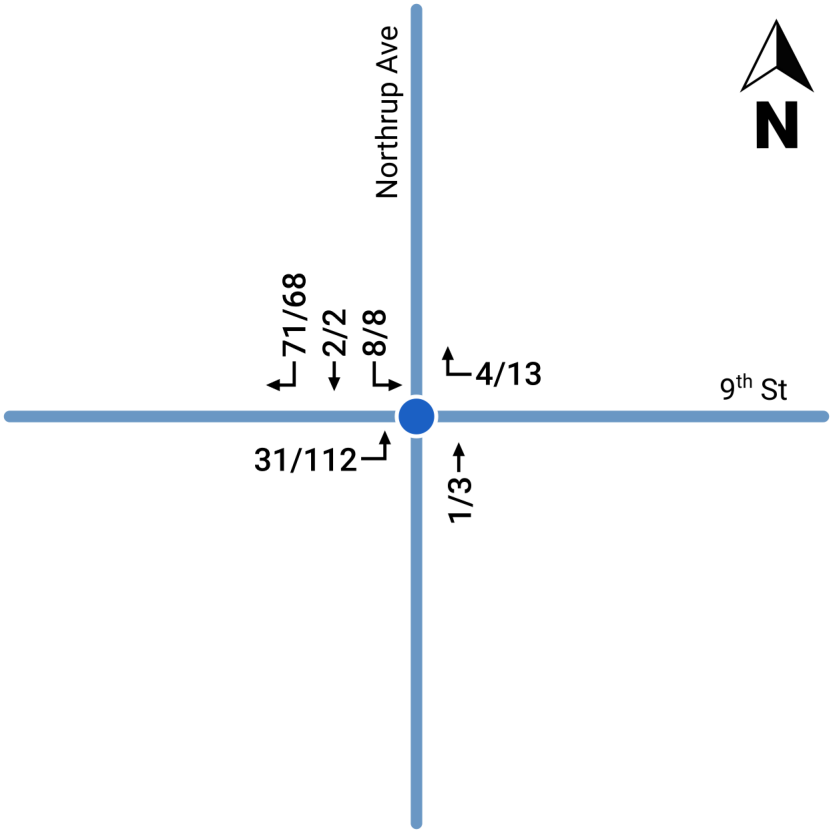
The distribution of the project was updated to reflect the Northrup Avenue only access point. The distribution is shown on Figure 3.

Figure 3 – Trip Distribution



The assignment of the project traffic to the study intersection is depicted on Figure 4. This includes the full buildout of the Willow Bend project.

Figure 4 – Project Traffic



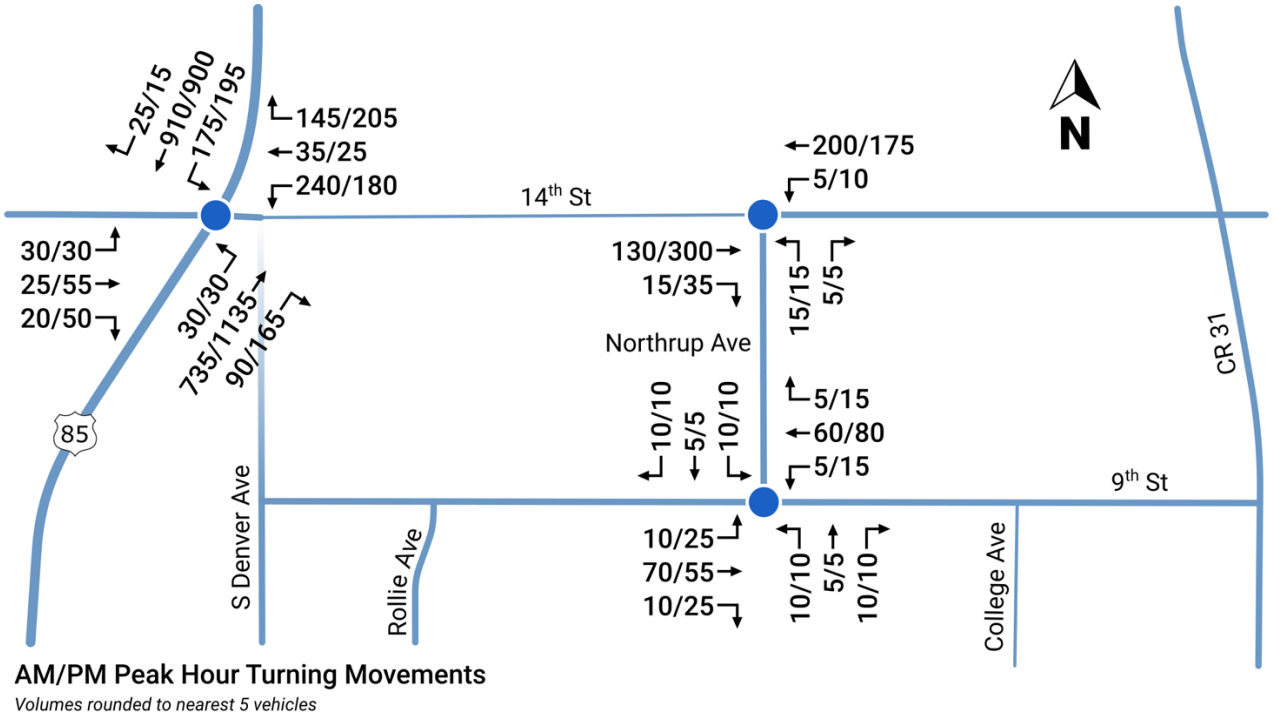
AM/PM Peak Hour Turning Movements

2024 TRAFFIC PROJECTIONS

The background traffic conditions for 2024 were developed in the original traffic study. These projections are shown on Figure 5. The volumes projected for 14th Street were relocated to 9th Street. The 2024 background projections include:

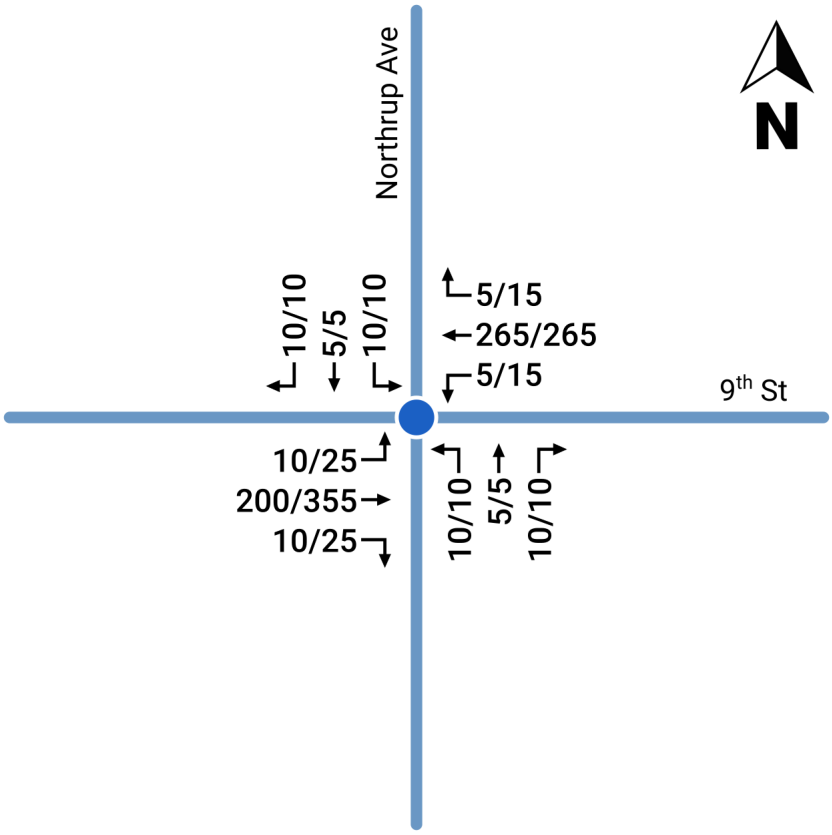
- An annual growth rate in existing traffic of just over 6% per year.
- Traffic associated with the proposed Cottonwood Greens project (located between 9th and the future 14th Streets and east/south of Willow Bend).

Figure 5 – 2024 Original Background Traffic



The resulting revised projections for the intersection of Northrup Avenue at 9th Street are illustrated on Figure 6.

Figure 6 – 2024 Revised Background Traffic

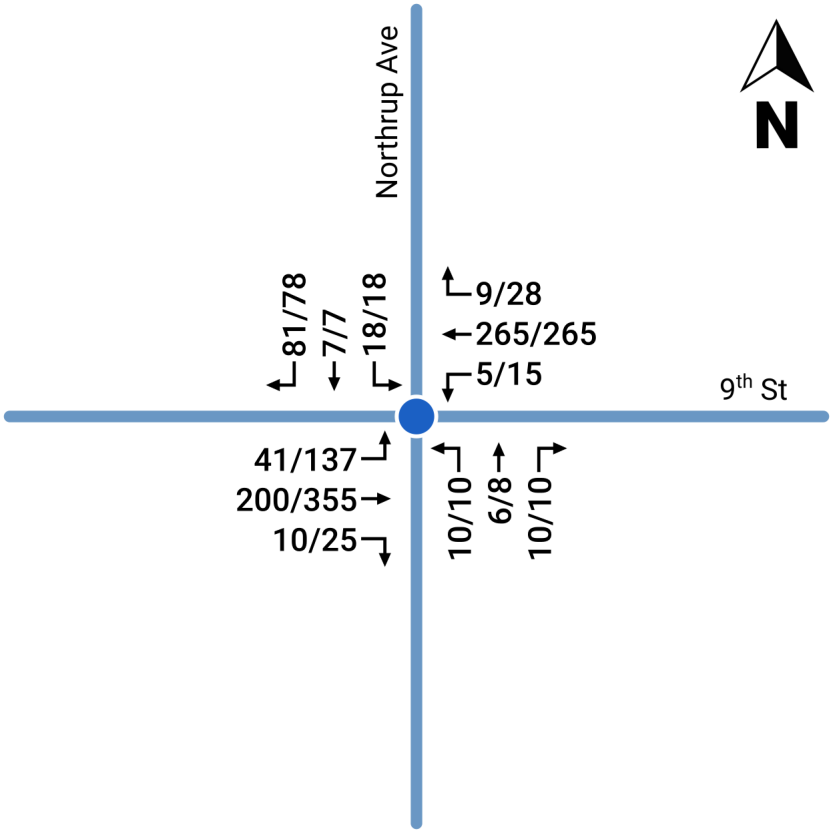


AM/PM Peak Hour Turning Movements

Volumes rounded to nearest 5 vehicles

The total traffic projections for 2024 were developed by adding the project traffic at full build-out, depicted on Figure 4 to the background 2024 traffic shown on Figure 6. The resulting total traffic for 2024 is shown on Figure 7.

Figure 7 – 2024 Total Traffic



AM/PM Peak Hour Turning Movements

TRAFFIC OPERATIONS NORTHRUP/9TH

The future traffic projections at Northrup Avenue and 9th Street were analyzed to determine the anticipated traffic operations. This analysis was done using the same methodology as in the original TIS. The methods employed are based on the Transportation Research Board's, 6th Edition, 2016 *Highway Capacity Manual* (HCM). Level of service (LOS) is based on a "graded" system from LOS A, very little to no delays, to LOS F which represents excessive delays and congestion. The City of Fort Lupton has established a LOS C as the design objective and LOS D as the threshold.

The future background and total 2024 traffic operations are provided on Table 2.

Table 2 - Future 2024 Intersection Level of Service

Intersection	Movement	AM Peak Hr				PM Peak Hr			
		Background		Total		Background		Total	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Northrup Ave & 9th St All-Way Stop Control	Overall	9.3	A	10	A	11.5	B	16.4	C
	EB	9.1	A	10.2	B	12.4	B	20.4	C
	WB	9.7	A	10.5	B	10.6	B	12.4	B
	NB	8.2	A	8.6	A	8.8	A	9.6	A
	SB	8.2	A	8.8	A	8.8	A	10	A

Notes:

1. LOS calculations performed using Synchro which is based on the Transportation Research Board HCM 2016.
2. Average vehicle delay (in seconds per vehicle) is reported for both overall intersection and each constrained STOP-controlled movement or approach.

As indicated in the table, the intersection is projected to operate at acceptable levels of service.

9TH STREET NEAR TWOMBLY SCHOOL

The need for additional school area crossing treatments was evaluated with the addition of future traffic along 9th Street. Currently there are numerous marked crossings on 9th Street with S1-1 “School Crossing” signs and striped crosswalks. School flashers are located on both approaches to the school with an advisory speed of 20 mph during flashing operations.

Sidewalks exist on both sides of 9th Street west of 9th Street with the exception of one segment. The missing sidewalk is located on the south side of 9th Street directly east of the school. This section is planned to be constructed in the near future.

It is recommended that crosswalks be installed at the intersection of 9th Street and Northrup Avenue.

TRAVEL ON NORTHRUP SOUTH OF 9TH STREET

The potential for traffic to travel on the public streets such as Northrup Avenue south of 9th Street was considered. This roadway network was driven on August 19, 2020. The roadway system was designed with the intent of minimizing cut-through traffic while providing mobility for the residents, visitors and deliveries. The roadways allow parking on both sides of the street with a narrower cross section of 30 feet from curb face to curb face. The roadway layout is meandering

with stop control at many intersections. It is not anticipated that a significant amount of traffic will utilize this area as a means of accessing destinations outside of the neighborhood.

RECOMMENDED IMPROVEMENTS

The following improvements are recommended to enhance mobility in the area:

- Install crosswalks on all approaches at the intersection of Northrup Avenue and 9th Street.
- Install a crosswalk on Northrup Avenue on the south side of the Willow Bend entrance and on the project driveway. This should include a W11-2 (Pedestrian Crossing) and a R1-5 or R1-5b (Yield Here to Pedestrian) signs. Installation of a sidewalk on the west side of Northrup Avenue, on property not owned by the applicant, will be necessary to provide a continuous sidewalk for pedestrians. The City/Applicant will need to work with the property owner to determine if this is feasible.
- Stripe the southbound direction of Northrup Avenue at 9th Street as an exclusive right-turn lane and a shared through/left-turn lane. This will require the shifting of the shared through/left-turn lane to the east to align with Northrup Avenue on the south side of 9th Street.

APPENDIX A – LEVEL OF SERVICE WORKSHEETS

HCM 6th AWSC
2: Northrup Ave & 9th St 08/18/2020

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	200	10	5	265	5	10	5	10	10	5	10
Future Vol, veh/h	10	200	10	5	265	5	10	5	10	10	5	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	217	11	5	288	5	11	5	11	11	5	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9.7	8.2	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	5%	2%	40%
Vol Thru, %	20%	91%	96%	20%
Vol Right, %	40%	5%	2%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	220	275	25
LT Vol	10	10	5	10
Through Vol	5	200	265	5
RT Vol	10	10	5	10
Lane Flow Rate	27	239	299	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.289	0.358	0.038
Departure Headway (Hd)	4.982	4.354	4.306	4.982
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	718	827	837	718
Service Time	3.015	2.374	2.325	3.015
HCM Lane V/C Ratio	0.038	0.289	0.357	0.038
HCM Control Delay	8.2	9.1	9.7	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.2	1.6	0.1

HCM 6th AWSC
2: Northrup Ave & 9th St 08/18/2020

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	355	25	15	265	15	10	5	10	10	5	10
Future Vol, veh/h	25	355	25	15	265	15	10	5	10	10	5	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	386	27	16	288	16	11	5	11	11	5	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.4	10.6	8.8	8.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	6%	5%	40%
Vol Thru, %	20%	88%	90%	20%
Vol Right, %	40%	6%	5%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	405	295	25
LT Vol	10	25	15	10
Through Vol	5	355	265	5
RT Vol	10	25	15	10
Lane Flow Rate	27	440	321	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.537	0.402	0.041
Departure Headway (Hd)	5.463	4.393	4.512	5.463
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	652	823	798	652
Service Time	3.523	2.419	2.54	3.523
HCM Lane V/C Ratio	0.041	0.535	0.402	0.041
HCM Control Delay	8.8	12.4	10.6	8.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.1	3.3	2	0.1

HCM 6th AWSC
2: Northrup Ave & 9th St 08/18/2020

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	41	200	10	5	265	9	10	6	10	18	7	81
Future Vol, veh/h	41	200	10	5	265	9	10	6	10	18	7	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	217	11	5	288	10	11	7	11	20	8	88
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.2	10.5	8.6	8.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	16%	2%	17%
Vol Thru, %	23%	80%	95%	7%
Vol Right, %	38%	4%	3%	76%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	251	279	106
LT Vol	10	41	5	18
Through Vol	6	200	265	7
RT Vol	10	10	9	81
Lane Flow Rate	28	273	303	115
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.351	0.386	0.155
Departure Headway (Hd)	5.256	4.634	4.579	4.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	676	772	782	735
Service Time	3.328	2.68	2.622	2.908
HCM Lane V/C Ratio	0.041	0.354	0.387	0.156
HCM Control Delay	8.6	10.2	10.5	8.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.1	1.6	1.8	0.5

HCM 6th AWSC
2: Northrup Ave & 9th St 08/18/2020

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	137	355	25	15	265	28	10	8	10	18	7	78
Future Vol, veh/h	137	355	25	15	265	28	10	8	10	18	7	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	386	27	16	288	30	11	9	11	20	8	85
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	20.4	12.4	9.6	10
HCM LOS	C	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	26%	5%	17%
Vol Thru, %	29%	69%	86%	7%
Vol Right, %	36%	5%	9%	76%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	517	308	103
LT Vol	10	137	15	18
Through Vol	8	355	265	7
RT Vol	10	25	28	78
Lane Flow Rate	30	562	335	112
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.741	0.468	0.178
Departure Headway (Hd)	6.197	4.745	5.031	5.708
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	579	753	720	630
Service Time	4.22	2.844	3.031	3.725
HCM Lane V/C Ratio	0.052	0.746	0.465	0.178
HCM Control Delay	9.6	20.4	12.4	10
HCM Lane LOS	A	C	B	A
HCM 95th-tile Q	0.2	6.7	2.5	0.6



SUN COMMUNITIES

WILLOW BEND

Proposed Home Elevations
Final Plat & PUD Submittal
April 16, 2021

SUN COMMUNITIES, INC.

Fort Lupton EST 1836

HOME VARIETY

- Minimum of 10 Different Exterior Elevations
- Garage & Carport options on most lots
- Front Porch options on most elevations
- Multiple color options for each elevation
- Houses will come in a variety of sizes, floor plans and bedroom options
- Perpendicular & Parallel set homes

ELEVATION #1 – “Coyote”









ELEVATION #2 – “Rainbow Trout”









ELEVATION #3 – “Orion”





[Click to view Orion Interior]





ELEVATION #4 – “Bald Eagle”









ELEVATION #5 – “Nova”

Click to view Nova Interior











ELEVATION #6 – “Aurora”

Click to view Aurora Interior











ELEVATION #7 – “Model C”









ELEVATION #8 – “Apollo”







Click to view Apollo Interior





ELEVATION #9 – “Mule Deer”









ELEVATION #10 – “River Otter”



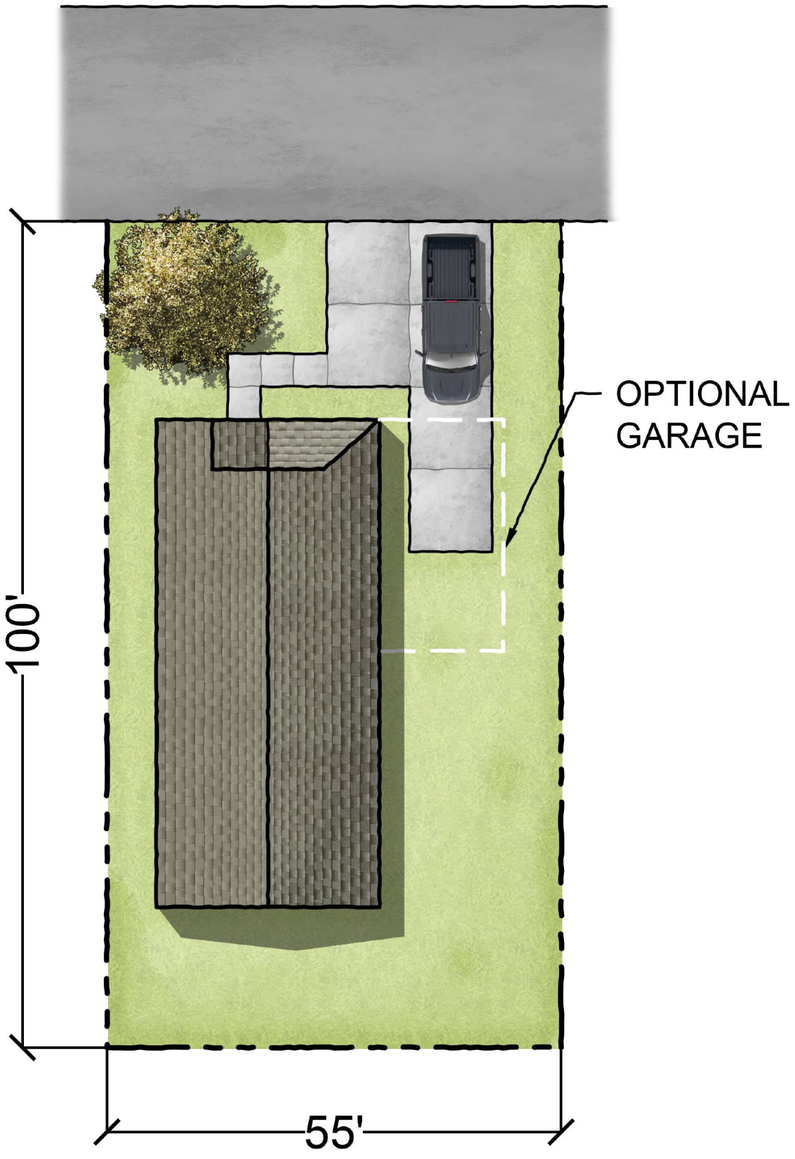




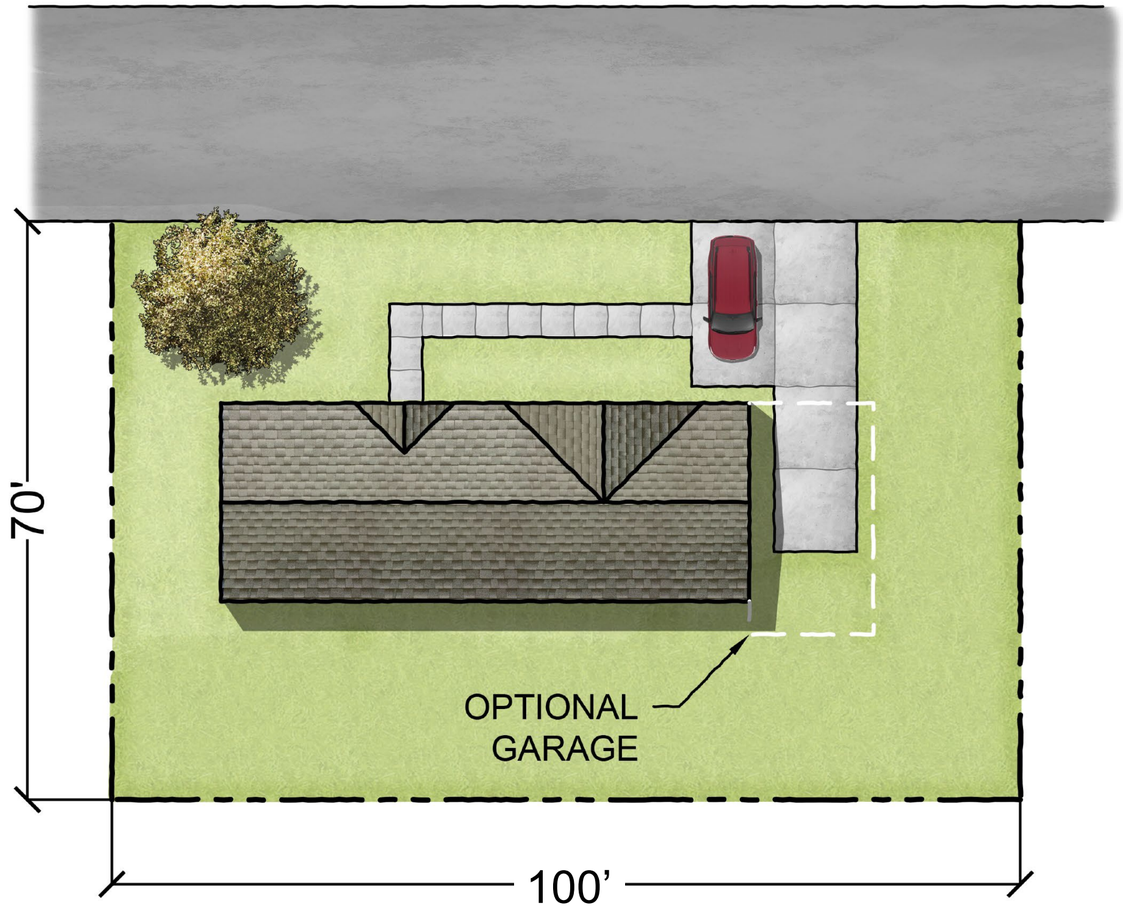


HOME SITE DETAILS

PERPENDICULAR UNIT



PARALLEL UNIT



ATWELL

CONSULTING. ENGINEERING. CONSTRUCTION.

April 22, 2021

Ms. Alyssa Knutson
Planner II
130 S McKinley Avenue
Fort Lupton, CO 80621

RE: Willow Bend Subdivision, Final Plat/PUD Submittal
Atwell Project Number: **19001956**

Dear Ms. Knutson,

Below are our responses to the Conditions noted in City of Fort Lupton Resolution 2021R010, dated January 19, 2021. The outline of the responses follows the outline shown in the Resolution. Our responses are shown in ***Bold/Italics***.

COMMENT

I.A The title of the map shall be updated to include the Project No. LUP2020-0031 & Plan No. PPL2020-004.

RESPONSE

The plans have been updated to show this information.

COMMENT

I.B Any redline comments provided by City staff shall be made to the preliminary plat and preliminary PUD plan. Applicant shall adequately address the referral comments from CDOT.

RESPONSE

The redline comments provided by City staff have been addressed on the resubmitted plans.

COMMENT

I.C Referral comments that impact the layout of the preliminary plat shall be incorporated into the preliminary plat, including providing easements as required by utility companies, as well as comments from Public Works that affect layouts shown.

RESPONSE

All referral comments that affect the layout have been considered. Easement have been shown where anticipated at this time. Additional easements may be required by separate document as the dry utility companies finalize their designs to serve this property. All know anticipated easements have been shown on the Final Plat.

COMMENT

I.D Applicant shall submit a pre-application meeting request with City staff to determine requirements of the final plat and final PUD plan submittal.t.

RESPONSE

The meeting was requested and held on February 4, 2021.

COMMENT

II.A Applicant shall provide an update on the status of obtaining access permit(s) from CDOT.

RESPONSE

According to the most recent comments from CDOT dated 11/9/2020, an updated Access Permit will not be required since traffic volumes at US 85 and 14th Street are not increasing by more than 20%.

COMMENT

II.B. Applicant shall adequately address the referral comments from the Fort Lupton Fire Protection District.

RESPONSE

The comments have been noted and have been incorporated into the construction documents. We expect to have further discussions with the Fort Lupton Fire Protection District as the final design review process progresses.

COMMENT

II.C Applicant shall adequately address the referral comments from the Public Works Director.

RESPONSE

1. ***Preliminary Plat***
   a. ***The Final Plat defines the private road as an easement for "Private Access, Pedestrian Access, Private Utilities, and Emergency Service Access".***
   b. ***Where applicable, easements have been provided and depicted on the Final Plat for the benefit of the City to gain access to those portions of the utilities that are considered public.***
2. ***Utilities***
   a. ***Utility Study***
      i. ***Willow Bend is proposing to construct a 6" non-potable water connection to the proposed non-potable infrastructure being proposed for the Cottonwood Greens subdivision located to the south of Willow Bend. This was discussed and agree to with Mr. Vestal. If the Cottonwood Greens infrastructure is not available at the time Willow Bend needs to connect into the non-potable system an alternative design will be proposed. In***

addition, it is anticipated a booster pump will be required at this connection, along with a meter. Downstream of the meter the system is proposed to be privately owned and maintained.

- ***ii. The proposed private water system has been modified to indicate a minimum 8-inch mainline.***
- ***iii. The WaterCad Model for Willow Bend provides a model for Phase 1 with fire flow to verify Phase 1 can operate off a single feed. We have also provided a model showing Phase 1 & 2 to determine the need for the second point of connection.***

3. ***Drainage***
   - ***a. The reference to Teller County has been removed.***
   - ***b. Grading near and around the Fulton Ditch will continue to be evaluated for potential seepage and leakage as well as slope stability. We have an ongoing groundwater monitoring study being performed by AG Wassenhaar and BBA Water Consultants, Inc. to assist in determining the proper course to take.***
   - ***c. Language addressing the maintenance of the drainage facilities has been added to the Drainage Study.***
4. ***Transportation***
   - ***a. The ROW dedication for Northrup Avenue and 14th Street has been indicated on the Final Plat.***
5. ***Landscape/Grading***
   - ***a. The final Landscape plans are included with this submittal. Sight Triangles have been evaluated for conflicts and adjusted as applicable.***
   - ***b. The concern about grading along the ditch is noted. We are still in the process of evaluating options based on the ground water monitoring study that is ongoing at this time.***
6. ***Utilities***
   - ***a. Utility Memo***
     - ***i. No response needed***
     - ***ii. The current design minimized the utilities along the ditch as much as possible.***
     - ***iii. An additional 10-foot Utility Easement has been added adjacent to the easterly side of the existing sanitary sewer utility easement for relocation of the existing sanitary sewer. A proposed storm sewer from the Cottonwood Greens development will go where the existing sanitary sewer is now. This easement is indicated on the Final Plat.***
   - ***b. Water-Chapter 3***
     - ***i. The pipe material have been specified on the plans.***
   - ***c. Non-Potable Irrigation***
     - ***i. As discussed previously, we will be tying into a 6inch stub provided with the Cottonwood Greens development. If this***

stub is not available when needed by Willow Bend an alternate solution will be discussed.

ii. The private portion of the non-potable irrigation line is shown in the Final Irrigation Plans included with this submittal. The public portion, from the connection point in Cottonwood Greens to the meter location within Willow Bend has been placed in a utility easement.

iii. Purple pipe has been specified on the irrigation plans.

d. Storm Sewer-Chapter 5

i. The existing easement has been widened by an additional 10-feet to the east for a total of 30-feet to accommodate the storm sewer and realignment of the sanitary sewer.

e. Roadway-Chapter 6

i. The ditch crossing of 14th Street and associated box culvert has been included in the construction documents. This crossing occurs on the Willow Bend property. The two trail crossings are located on the plans but final design is still pending, based on additional conversations with the ditch company. If the opportunity exists to share the cost of these crossings with the developer of Cottonwood Greens it will be utilized.

7. Public Improvement Agreement-Comment noted.

COMMENT

II.D Applicant shall adequately address the referral comments from the Superintendent of Weld County School District RE-8.

RESPONSE

The Developer is working with the School District in a good faith effort to determine the amount of a cash in-lieu payment to satisfy the District's needs.

COMMENT

II.E Applicant shall adequately address the referral comments from the Colorado Department of Transportation.

RESPONSE

The Traffic Impact Study has been modified to route traffic to Northrup Avenue and then south to 9th Street thus diverting traffic off 14th Street until some point in the future when the Right-of Way necessary to build 14th Street adjacent to Willow Bend is secured. The comments presented by CDOT are directed toward the City and not the developer.

COMMENT

II.F Applicant shall begin the process of dedicating right of way requested by the Public Works Director.

RESPONSE

The Final Plat is dedicating the required right-of-way for the east half of Northrup Avenue and the south half of 14th Street located within the limits of Willow Bend.

COMMENT

II.G Applicant shall adequately address the referral comments from the United Power.

RESPONSE

The comments from United Power have been noted and addressed in the plans and the Final Plat as applicable. In particular, the easement adjacent to both sides of the Private Streets has been increased to 14' wide to accommodate both electric and natural gas. The final design for the dry utilities is ongoing. Additional easements may be required and will be provided by separate document as needed. The streetlights adjacent to the private streets will be owned and maintained by the developer. Streetlights adjacent to Northrup Avenue and 14th Street will be owned and maintained by the City. An 8' wide easement has been provided on the Final Plat adjacent to the right-of-way for this purpose.

COMMENT

II.H Applicant shall work with City staff to finalize proposed street names.

RESPONSE

Atwell has provided proposed street name changes to City staff for review and approval for the street names that were not allowed. The plans have been updated to reflect these proposed street name changes.

COMMENT

II.I Applicant shall work with City staff to incorporate the results of the tree inventory study into the final plat and final PUD plan.

RESPONSE

A Tree Inventory Study was prepared by ERO and submitted to the City as part of the Preliminary Plat/PUD Submittal. The existing trees are indicated on the Preliminary Plat/PUD and the Final PUD. Existing trees will be saved wherever possible. The developer will continue to work with City staff to best incorporate the recommendations provided in the Tree Inventory Study.

COMMENT

II.J Applicant shall provide City staff with any updates on the status of addressing the Colorado Parks and Wildlife comments received during the sketch plan review.

RESPONSE

All recommendations from Colorado Parks and Wildlife will be followed. Our environmental consultant for this project, ERO Resources, did not observe any raptor or burrowing owls on the site. We have proposals for a burrowing

owl survey and raptor nest survey and will have ERO complete the surveys just prior to the start of construction. If any nesting habitats are found, the Applicant will follow the consultants' recommendations prior to commencing construction. Prairie Dogs will be humanely euthanized. A buffer along the Fulton Ditch has been provided.

COMMENT

II.K Applicant shall adequately address the referral comments from Xcel Energy (Public Service Company).

RESPONSE

The easement widths have been increased as requested. We are aware of the existing Xcel gas line crossing the site at the far northerly end of the project. Xcel comments are noted regarding any activity in their easement. The final design for the dry utilities is ongoing. Additional easements may be required and will be provided by separate document as needed.

COMMENT

II.L Applicant shall provide updated information concerning any existing surface use agreements and provide details on how the agreements have been addressed on the design of the development, and how any oil and gas easements are being addressed..

RESPONSE

The Site has been designed around existing KPK facilities that will remain. In addition, there are no proposed home sites over top of Oxy's existing wells on the Site. These wells are to be abandoned and Sun is currently in negotiation with Oxy on the timeframe for plugging and abandoning these wells and associated flowlines. Applicant has been involved in ongoing negotiations with Kerr McGee (Oxy) and K.P. Kauffman regarding the existing SUAs on the site. The KPK Agreement is close to being ready for execution and we expect the Oxy Agreement will be ready shortly thereafter. The most current drafts of these Agreements are included with the submittal.

COMMENT

II.M Applicant shall provide final recommendations on how high ground water on this site will be addressed and how it affects proposed site layout.

RESPONSE

A ground water monitoring study is ongoing by AG Wassenhaar. Ground water monitoring holes have been located on the site in accordance with recommendations made by BBA Water Consultants Inc. The purpose of the monitoring is to attempt to determine the source of the water contributing to the high ground water levels. The assumption has been made that the source of the water is from the Fulton Ditch. AGW is providing monthly measurements to determine if the assumption is validated. Any recommendations, based on the results of the measurements, will be

incorporated into the construction methods and/or design as applicable once the results are finalized.

COMMENT

II.N Applicant shall adequately address each of the commitments made by applicant in Applicant's presentation at the public hearing on January 19, 2021, which include:

1. Providing at least ten different home elevations in the community as well as a mix of colors for those homes;
2. Confirming that the Applicant will not make any use of the existing metropolitan district;
3. Placing the home on permanent foundations as required by the Manufactured Homes and Factory Built Housing Installation Handbook as depicted in Applicant's presentation;
4. Entering into a Subdivision Improvements Agreement with the City; and
5. The Applicant will not be building a tornado shelter, but all buildings and homes will be designed and built according to local and state wind load requirements.

RESPONSE

N. 1. Home Elevations – Sun will provide at least ten different home elevations in the Willow Bend Community along with different color options. Sample home elevations have been included with this submittal.

N. 2. Metro District – Sun Communities will <u>not</u> make use of the existing Metropolitan District as part of the Willow Bend project.

N. 3. Home Foundations - Each manufactured home will be built to HUD Standards and placed on permanent foundations as shown in the Manufactured Homes & Factory Built Housing Installation Handbook.

N. 4. Subdivision Improvements Agreement – Sun has been negotiating a Subdivision Improvement Agreement with the City and expects it will come before City Council for approval in the next two months. Sun will execute this Agreement prior to starting construction on the project.

N. 5. Tornado Shelter – Requirement acknowledged. All buildings and homes will be designed and built according to local and state wind load requirements.

With this submittal for the Willow Bend Subdivision Final Plat and Final PUD, we are also resubmitting the Revised Willow Bend Preliminary Plat/PUD based on the City comments we received on or around January 25, 2021. With this resubmittal we believe we have met the conditions of approval for the Preliminary Plat/PUD.

If you have any further questions or comments, please don't hesitate to contact me at 303-880-6591 or by email at: rweed@atwell-group.com.

Respectfully,
ATWELL, LLC



Richard J. Weed, P.E.
Senior Project Manager

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Planning & Building

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Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortlupton.org

MEMO

To: Alyssa Knutson

From: Magaly Morales-Tejada

Date: May 20, 2021

Subject: Colorado Parks and Wildlife Referral Response
Willow Bend Minor Subdivision and Special Use Permit
Project No. LUP2021-0013 & Plan No. FPL2021-0002

On March 20, 2021 Chris Mettenbrink with Colorado Parks and Wildlife called regarding the Willow Bend Final PUD Plat (Project No. LUP2021-0015). He stated that upon reviewing the files for this project he remembered previously responding to a project at this location but had no record of his response so was unsure if this was the same project. I reviewed the previous files associated with this project and told him that he had responded to the sketch plat for this project in February 2020, but it was previously known as "Fulton Ranch" and told him that I could send his response back to him if needed. Mr. Mettenbrink said that was not necessary as he does remember the property and stated that Colorado Parks and Wildlife has no additional comments other than those in the original response.

Magaly Morales-Tejada
Magaly Morales-Tejada
Planning Administrative Assistant

COLORADO
Division of Water Resources
Department of Natural Resources

June 15, 2021

Alyssa Knutson
City of Fort Lupton
Transmitted via email:
aknutson@fortluptonco.gov

RE: Willow Bend Final PUD Plat
Project no. LUP2021-0015, & Plan No. FPL2021-0002
Part of Sec. 33, T2N, R66W, 6th P.M.
Water Division 1, Water District 2

Dear Ms. Knutson:

We have reviewed the information received by this office on May 14, 2021 regarding the above referenced referrals. The Applicant is proposing to divide 127.5 acres into 449 single family manufactured homes, amenities, open space and water quality treatment ponds.

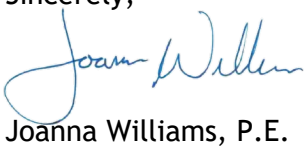
Pursuant to Section 30-28-136, C.R.S. the State Engineer's office will provide an opinion on water supply plans for new subdivisions regarding material injury to existing water rights or the adequacy of the proposed plan if a referral is submitted to this office by the board of county commissioners. This referral was submitted to this office from the City of Fort Lupton ("City") therefore, pursuant to the State Engineer's March 4, 2005 and March 11, 2011 memorandums to the county planning directors, this office will only perform a cursory review of the referral information and provide comments. The comments do not address the adequacy of the water supply plan for this project or the ability of the water supply plan to satisfy any County regulations or requirements.

The proposed water supply is the City of Fort Lupton. Our office has no comments on the City of Fort Lupton's ability to supply the proposed subdivision.

The applicant should be aware that any proposed detention pond for this project, must meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), Colorado Revised Statutes, otherwise the structure may be subject to administration by this office. The applicant should review DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The applicant is encouraged to use Colorado Stormwater Detention and Infiltration Facility Notification Portal, located at https://maperture.digitaldataservices.com/gvh/?viewer=cswdif, to meet the notification requirements.

Should you or the applicant have any questions, please contact Ailis Thyne at (303) 866-3581 x8216.

Sincerely,



Joanna Williams, P.E.
Water Resource Engineer

Ec: Subdivision File #27745

Magaly Morales-Tejada

From: Jake Freier
Sent: Friday, May 14, 2021 11:30 AM
To: Magaly Morales-Tejada
Cc: Alyssa Knutson; Todd Hodges; Maria Lancto
Subject: RE: Referral Response Request: Willow Bend Final PUD Plat (LUP2021-0015)
Attachments: 19001956-Base-Proposed Street Names_2021-04-28_2.pdf

I did a quick look at the plat and noticed that they did not update the street names. This will have to be corrected before recording. I'm attaching the street name map and street name list that Todd Nelson sent Alyssa, Rick Weed and me on 4/28/2021. The list of proposed street names he put together works well for the City.

I'll do some more review on the submittal but I want to make sure the street name issue is resolved.

Thanks,
Jake

JAKE FREIER, GISP
GIS Specialist
City of Fort Lupton

720-466-6115 (office)
303-720-5155 (cell)
jfreier@fortluptonco.gov

130 S. McKinley Ave.
Fort Lupton, CO 80621
www.fortluptonco.gov

Thanks for getting back to me so quickly. See the attached PDF and list below for the revision of St. Vrain Drive. Please advise if Diamondback Drive is a sufficient name change.

WILLOW BEND - STREET NAMES	
CURRENT	**PROPOSED**
BISON BEND CIRCLE	BISON BEND AVENUE
BISON BEND STREET	
STAGECOACH AVENUE	WHITETAIL AVENUE
ST. VRAIN DRIVE	DIAMONDBACK DRIVE
TOMASINA AVENUE (North)	*unchanged*
TOMASINA AVENUE (South)	PALOMINO AVENUE
TRAPPERS AVENUE	SETTLER AVENUE
WAGON TRAIN DRIVE	PRAIRIE WAGON DRIVE

Thank you,

Todd Nelson
Designer
ATWELL, LLC
720.288.0153 Mobile
143 Union Boulevard | Suite 700 | Lakewood, CO 80228
www.atwell-group.com

From: Magaly Morales-Tejada
Sent: Friday, May 14, 2021 10:30 AM
Cc: Alyssa Knutson; Todd Hodges; Maria Lancto
Subject: Referral Response Request: Willow Bend Final PUD Plat (LUP2021-0015)

Good Morning,

The documentation located at the following link is submitted to you for review and recommendation for a final PUD plat being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/596.

Any comments you consider relevant to this request would be appreciated. Please reply by **June 4, 2021** so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearing for this matter is scheduled for:

- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

Magaly Morales-Tejada

From: Jonathan Gesick
Sent: Friday, May 14, 2021 2:06 PM
To: Magaly Morales-Tejada
Cc: Alyssa Knutson; Todd Hodges; Maria Lancto
Subject: RE: Referral Response Request: Willow Bend Final PUD Plat (LUP2021-0015)

Building has no concerns at this time. If the city wants to ProCode to inspect the installation of the units then we would need to get Fort Lupton on the list of Jurisdiction under the MHIP program. Currently the way we are set up for modular homes is that ProCode would inspect the hook-ups and the installer does their own inspections on the install and places the State seal. Under the MHIP program, once setup, ProCode would inspect the setup and installation of the home as well as the hook-ups to the home.

Please let me know how the City would like us to proceed.

Thanks.

Jonathan Gesick
Certified Building Official
(970) 305-3161
www.procodeinc.net

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From: Magaly Morales-Tejada <MMTejada@Fortluptonco.gov>
Sent: Friday, May 14, 2021 10:30 AM
Cc: Alyssa Knutson; Todd Hodges; Maria Lancto
Subject: Referral Response Request: Willow Bend Final PUD Plat (LUP2021-0015)

Good Morning,

The documentation located at the following link is submitted to you for review and recommendation for a final PUD plat being reviewed by the City of Fort Lupton. The application documents can be reviewed at the following link: https://www.fortlupton.org/DocumentCenter/Index/596.

Any comments you consider relevant to this request would be appreciated. Please reply by **June 4, 2021** so that we may give full consideration to your recommendation. Any response not received before or on this date may be deemed to be a favorable response to the Planning & Building Department.

The Public Hearing for this matter is scheduled for:

- City Council: Tuesday, July 6, 2021 at 7:00 PM

Your time in this matter is greatly appreciated!

Magaly Morales-Tejada
Planning assistant
130 S. McKinley Ave.
Fort Lupton, CO 80621
Direct: 720-466-6111

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Please be cautious
This email was sent outside of your organization

CITY OF Fort Lupton EST 1836

Public Works

130 S. McKinley Avenue
Fort Lupton, CO 80621
Phone: 303.857.6694
Fax: 303.857.0351
www.fortluptonco.gov

MEMO

To: Todd Hodges
Alyssa Knutson
CC: Michael McGoldrick (Atwell)

From: Roy Vestal

Date: May 28, 2021

Subject: Willow Bend Final PUD Plat (LUP2021-0015)
Public Works Review

Public Works has reviewed the submitted documents for the above referenced development project with the following comments for inclusion with the Final Plat submittal. Be advised, review of construction drawings is for general compliance with city standards. There may be additional concerns as this design develops.

1. **Utilities - Utility Study**
    a. **Water - Chapter 3**
        i. Please help me identify the tie water main system pressures. This development is proposing 2 tie-ins on both sides of an existing PRV (located at 9th and Northrup).
        ii. We need to discuss water meter configuration.

    b. **Sanitary Sewer - Chapter 4**
        i. I am looking for flow assumptions of existing flows in the existing sanitary sewer.

    c. **Non Potable Irrigation**
        i. We need to discuss meter scenarios and potential connections to the main.
2. **Plat**
    a. Tract ownership to City for Tract A and B is not appropriate. I don't think we want to own property that is entirely ditch easement.
    b. Tract ownership to City for Tract C is not appropriate. I don't think we want to own property that is an oil related set back and inaccessible.
    c. Radius of Commissary Court appears to be less than 45-feet as required by fire department access.
    d. Sheet 5 and 10 - "B" tag should be for storm sewer easement.

3. **Site Plan**
    a. The water line will require an easement dedication, 20' wide.

b. How is Tract C accessed for maintenance purposes?

4. Drainage

a. Coordination with current staff planning for this basin is required.
b. Participation in ultimate outfall plan will be required.
c. Proposed off-site grading along southern property line will need to be coordinated with adjacent property owner.
d. Please coordinate final grading plans with the Cottonwoods Greens project for design of the out fall storm sewer.

5. Transportation

a. ROW dedications are acceptable for 14th Street and Northrup Avenue.

6. **Landscape / Grading** - *Chapter 2 Design Standards*

a. A SWMP and Stormwater Discharge permit must be acquired from CDPH&E. Please submit proof of prior to receiving construction permits. Please provide copy of permit from CDPH&E.
b. Review proposed landscape plans at street locations and evaluate for sight triangle conflicts.
c. Coordination with the Fulton Ditch Company regarding grade changes and ground water dewatering whooul begin as soon as possible.

7. Roadway - Chapter 6

a. Sheet 3 Final PUD - Cul-de-sac detail - revise to meet Fire Department requirement of 45-feet radius.
b. Preliminary Soils Report indicates presence of swelling soils, collapsible soils and shallow groundwater.
c. *Section 6.33.00* A Pavement Design Report is required prior to roadway paving. City preferred pavement section is a composite section of asphalt surface with Class VI base.
d. Coordination on timing and/or participation of 14th Street Improvements with City project will be required.

8. Traffic Control - Chapter 8

a. The Traffic Study as submitted is acceptable.

9. **Public Improvement Agreement** – The Subdivision Improvements Agreement is ready to take to Council for the construction of roadways, water, sewer and nonpotable water systems.

10. A Geotechnical report for final pavement design will be required prior to paving Northrup Avenue and 14th Street.

11. Final Construction Drawings are still required.

June 4, 2021

Fort Lupton Planning Department
130 S. McKinley Avenue
Fort Lupton, CO 80621
www.fortlupton.org

Re: Willow Bend Final PUD Plat Project No. LUP2021-0015; Plan No. FPL2021-0002

Dear Mr. Hodges and Ms. Knutson:

On behalf of United Power, Inc., thank you for inviting us to review and comment on the Willow Bend Final PUD Plat. After review of the information, United Power has no concerns or objection to the proposed Project No. LUP2021-0015; Plan No. FPL2021-0002; contingent upon United Power's ability to maintain all existing rights, facilities/equipment, and existing easements. This request should not hinder our ability for future expansion, including all present and any future accommodations for electrical distribution.

Please note, the property owner/developer/contractor must submit an application along with CAD data for new electric service via https://www.unitedpower.com/construction. United Power would like to work with these persons early in the construction process on getting an electric design prepared so that we can request any additional easements needed and hopefully have those easements dedicated on the plat rather than obtaining separate document(s). Obtaining easements via a separate document can be time consuming and could cause delays.

As a Reminder: No permanent structures are acceptable within the dry utility easement(s); such as, window wells, wing walls, retaining walls, basement walls, roof overhang, anything affixed to the house like decks, etc. United Power considers any structure that impedes the access, maintenance, and safety of our facilities a permanent structure. No exceptions will be allowed, and any encroachments could result in penalties.

Service will be provided according to the rules, regulations, and policies in effect by United Power at the time service is requested. We look forward to safely and efficiently providing reliable electric power and outstanding service.

Thank you,

Amber Mendoza

Amber Mendoza, RWA
ROW Agent
720.249.9315 | platreferral@unitedpower.com

DEPARTMENT OF PLANNING SERVICES
1555 N. 17th Ave
Greeley, CO 80631
Website: www.weldgov.com
Email: jflesher@weldgov.com
Phone: (970) 400-3552
Fax: (970) 304-6498

Via email to mmtejada@fortluptonco.gov

May 26, 2021

Magaly Morales-Tejada, Planning Assistant
City of Fort Lupton
130 S. McKinley Avenue
Fort Lupton, CO 80621

Subject: Willow Bend Final PUD Plat (LUP2021-0015)

Dear Magaly:

The Weld County Department of Planning Services has reviewed this proposal and submits the following comments for your consideration.

General comments

The present zoning of adjacent and surrounding unincorporated properties are predominantly Agricultural. Owners of property in the area of this proposal should be made aware that agricultural uses, even when done in a manner consistent with good agricultural practices, may generate impacts such as noise, dust, flies, odors, aerial spraying, and slow-moving equipment on County roadways. It is important for future residents to note that adjacent properties may be in unincorporated Weld County and that Weld County has adopted a Right-to-Farm Statement and a Right to Extract Mineral Resources Statement and recommends they be placed on all plats adjacent to unincorporated areas:

Right-to-Farm Statement

Weld County is one of the most productive agricultural counties in the United States, typically ranking in the top ten counties in the country in total market value of agricultural products sold. The rural areas of Weld County may be open and spacious, but they are intensively used for agriculture. Persons moving into a rural area must recognize and accept there are drawbacks, including conflicts with long-standing agricultural practices and a lower level of services than in town. Along with the drawbacks come the incentives which attract urban dwellers to relocate to rural areas: open views, spaciousness, wildlife, lack of city noise and congestion, and the rural atmosphere and way of life. Without neighboring farms, those features which attract urban dwellers to rural Weld County would quickly be gone forever.

Agricultural users of the land should not be expected to change their long-established agricultural practices to accommodate the intrusions of urban users into a rural area. Well-run agricultural activities will generate off-site impacts, including noise from tractors and equipment; slow-moving farm vehicles on rural roads; dust from animal pens, field work, harvest and gravel roads; odor from animal confinement, silage and manure; smoke from ditch burning; flies and mosquitoes; hunting and trapping activities; shooting sports, legal hazing of nuisance wildlife; and the use of pesticides and fertilizers in the fields, including the use of aerial spraying. It is common practice for agricultural producers to utilize an accumulation of agricultural machinery and supplies to assist in their agricultural operations. A concentration of miscellaneous agricultural materials often produces a visual disparity between rural and urban areas of the County. Section 35-3.5-102, C.R.S., provides that an agricultural operation shall not be found to be a public or private nuisance if the agricultural operation alleged to be a nuisance employs methods or practices that are commonly or reasonably associated with agricultural production.

Water has been, and continues to be, the lifeline for the agricultural community. It is unrealistic to assume that ditches and reservoirs may simply be moved "out of the way" of residential development. When moving to the County, property owners and residents must realize they cannot take water from irrigation ditches, lakes or other structures, unless they have an adjudicated right to the water.

Weld County covers a land area of approximately four thousand (4,000) square miles in size (twice the size of the State of Delaware) with more than three thousand seven hundred (3,700) miles of state and County roads

outside of municipalities. The sheer magnitude of the area to be served stretches available resources. Law enforcement is based on responses to complaints more than on patrols of the County, and the distances which must be traveled may delay all emergency responses, including law enforcement, ambulance and fire. Fire protection is usually provided by volunteers who must leave their jobs and families to respond to emergencies. County gravel roads, no matter how often they are bladed, will not provide the same kind of surface expected from a paved road. Snow removal priorities mean that roads from subdivisions to arterials may not be cleared for several days after a major snowstorm. Services in rural areas, in many cases, will not be equivalent to municipal services. Rural dwellers must, by necessity, be more self-sufficient than urban dwellers.

People are exposed to different hazards in the County than in an urban or suburban setting. Farm equipment and oil field equipment, ponds and irrigation ditches, electrical power for pumps and center pivot operations, high-speed traffic, sand burs, puncture vines, territorial farm dogs and livestock and open burning present real threats. Controlling children's activities is important, not only for their safety, but also for the protection of the farmer's livelihood.

Weld County Right to Extract Mineral Resources Statement

Weld County has some of the most abundant mineral resources, including, but not limited to, sand and gravel, oil, natural gas, and coal. Under title 34 of the Colorado Revised Statutes, minerals are vital resources because (a) the State's commercial mineral deposits are essential to the State's economy; (b) the populous counties of the state face a critical shortage of such deposits; and (c) such deposits should be extracted according to a rational plan, calculated to avoid waste of such deposits and cause the least practicable disruption of the ecology and quality of life of the citizens of the populous counties of the state.

Mineral resource locations are widespread throughout the County and person moving into these areas must recognize the various impacts associated with this development. Often times, mineral resource sites are fixed to their geographical and geophysical locations. Moreover, these resources are protected property rights and mineral owners should be afforded the opportunity to extract the mineral resource.

Thank you for the opportunity to comment on this proposal. This response addresses general requirements, concerns, or issues and is intended to assist in your community's decision-making process regarding this land use proposal. Weld County respectfully reserves the right to make further comment on information or issues as they are discovered.

Sincerely,

Jim Flesher, AICP
Long-Range Planner
Weld County

DEPARTMENT OF PUBLIC WORKS
1111 H Street
Greeley, Colorado 80631
Website: www.weldgov.com
Email: epinkham@weldgov.com
Phone: (970) 400-3750
Fax: (970) 304-6497

June 22, 2021

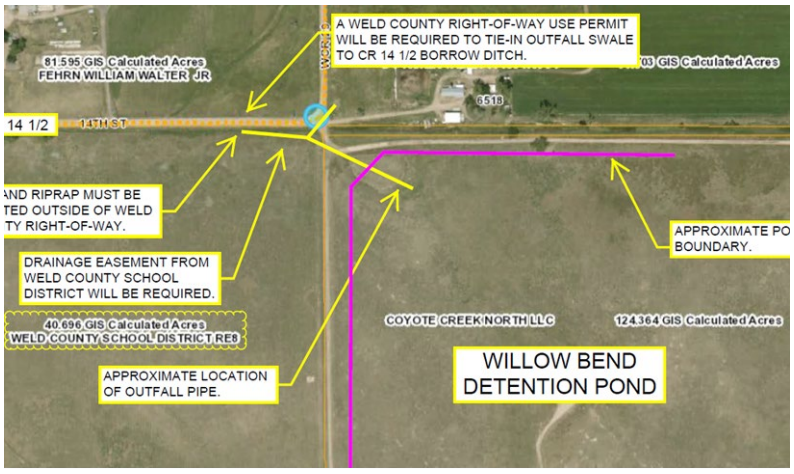
Magaly Morales-Tejada
City of Fort Lupton
130 S. McKinley Ave.
Fort Lupton, CO 80621

Subject: Willow Bend Final PUD

Dear Magaly,

The Weld County Department of Public Works has reviewed the application materials and has the following comments for the proposal.

- The proposed pond release rates are acceptable.
- The pond outfall pipe and riprap must fall outside of the County Road 14 ½ right-of-way.
- Any work done in the County's right-of-way (i.e., constructing a swale from the CR 14 ½ southern borrow ditch to the outfall discharge point) will require a Right-of-Way Use Permit.
- A drainage easement from the Weld County School District will be required where the outfall pipe and swale cross their property.
- According to the drainage report the pond will pond four feet in depth prior to releasing at the 5-year historic rate.



Thank you for the opportunity to comment on this proposal. Please contact me with any questions or concerns. Additional comments for this proposal may come from other departments within Weld County.

Sincerely,

Evan Pinkham, MPA
Transportation Planner
Weld County Public Works

Administration Office
200 South Fulton Ave.
Fort Lupton, CO 80621

www.weld8.org
Ph: 303-857-3200
Fax: 303-857-3219

June 4, 2021

Sent Via U.S. Mail and Email to AKnutson@Fortluptonco.gov

Ms. Alyssa Knutson, AICP
Planner II & FLURA Staff Liaison
City of Fort Lupton
130 S. McKinley Avenue
Fort Lupton, Colorado 80621

Re: Willow Bend Final PUD Plat, Project No. LUP2021-0015; Plan No. FPL2021-0002 (the "Application")

Dear Ms. Knutson:

Weld County School District RE-8 (the "School District") is submitting this letter in reference to the above-referenced Application submitted by Sun Communities ("Developer") at your request and pursuant to the requirements of the City of Fort Lupton Planning Department.

It is our understanding that the Application seeks final approval of its planned development, comprised of 449 single family manufactured homes to be built during the course of four phases, on a 127.5-acre parcel located at the southeast corner of 14th Street and Northrup Avenue in the City of Fort Lupton, State of Colorado (the "Property").

Recommendation

The Application proposes residential development for property located within the School District's boundaries and, therefore, will have an impact on the School District's responsibility to provide adequate school facilities. The Developer has indicated that there is no land area available within the Property that could

be dedicated and conveyed to the School District to address school site requirements created by the student generation expected by the Application. The parties, therefore, have determined the amount of cash in-lieu thereof for the proposed number of dwelling units, have agreed upon the terms of payment of such cash-in-lieu amount, and are finalizing these terms into a Cash-in-Lieu of Land Dedication Agreement. The parties agree that material terms of this Cash-in-Lieu of Land Dedication Agreement are as follows: cash-in-lieu based on a $1,650 per dwelling unit value; payment of cash-in-lieu to the School District in one lump sum upon recording of final plat; no requirement that the School District repay cash-in-lieu if Developer builds fewer than 449 dwelling units; cash-in-lieu for any dwelling units exceeding the 449 project amount will be valued at the same cash-in-lieu figure adjusted for inflation as defined in TABOR; and the Cash-in-Lieu of Land Dedication Agreement will be a covenant running with the land. The School District requests that the City make its approval of the Subdivision Agreement with the Developer conditional on the Developer's execution of the Cash-in-Lieu of Land Dedication Agreement with the School District containing at least these stated material terms. The parties have also reached an agreement as to the School District's right of way dedication to the City and grant of temporary easement to the Developer as required for the Developer to complete its project within the City's requirements.

Thank you for the opportunity to comment on issues of interest to the City, the School District, and our mutual constituents. Should you have any questions or desire further information, please contact me at your convenience.

Sincerely,

Alan Kaylor

Alan Kaylor
Superintendent
Weld County School District RE-8

4814-1789-9501, v. 2

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: **303.571.3306**
Facsimile: 303. 571. 3284
donna.l.george@xcelenergy.com

June 3, 2021

City of Fort Lupton Planning Department
130 South McKinley Avenue
Fort Lupton, CO 80621

Attn: Alyssa Knutson and Todd Hodges

Re: Willow Bend Final PUD Plat, Case # LUP2021-0015

Public Service Company of Colorado's Right of Way & Permits Referral Desk acknowledges the comment responses for **Willow Bend Final PUD Plat** and has no additional concerns at this time.

Donna George
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-571-3306 – Email: donna.l.george@xcelenergy.com

Fort Lupton Fire Protection District
1121 Denver Avenue • Fort Lupton, Colorado 80621
Office: (303)857-4603 • Fax: (303)857-6619 • Website: www.fortluptonfire.org

Date: 06/29/2021
Project name: Willow Bend Final PUD Plat (LUP2021-0015)
Project address: Parcel # 130933000043, Fort Lupton, CO 80621
FLFPD Project # R2021-0028
Plan reviewer: Taw Tamlin, Fire Marshal

The Fire District has reviewed the submittal review for **Willow Bend Final PUD Plat (LUP2021-0015)** located at **Parcel #130933000043,** Fort Lupton, CO 80621. The submittal was reviewed for compliance with *2012 International Fire Code (IFC)* and National Fire Protection Association (*NFPA)* standards as adopted by the Fort Lupton Fire Protection District, the City Council of Fort Lupton and the Weld County Commissioners. The following specific requirements and conditions shall be met prior to operations.

Specific Requirements

1. Any property owner or authorized agent who intends to conduct an operation or business, or install or modify systems and equipment which is regulated by this code, or to cause any such work to be done, shall first make application to the fire code official and obtain the required permit. *2012 IFC, 105.1.1*

2. Application for a permit required by this code shall be made to the fire code official in such form and detail as prescribed by the fire code official. Applications for permits shall be accompanied by such plans as prescribed by the fire code official. *2012 IFC, 105.2*

    a. *Directions for submitting for plan reviews, Fee Schedule, and Plan Review Application can be found at https://fortluptonfire.org/contractors/*

3. The following items shall be submitted for review prior to construction.
    a. Site Plan showing,
        i. Width of fire department access roads
        ii. Hydrant Locations & Distancing
        iii. Street lengths to dead end

4. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1). 2012 IFC, D103.1

5. The minimum turning radius shall be determined by the fire code official. 2012 IFC, D103.3
    a. See attached document showing the minimum turning radius needed.

6. The minimum fire-flow and flow duration requirements for one- and two-family dwellings having a fire-flow calculation area that does not exceed 3,600 square feet (344.5 m2) shall be 1,000 gallons per minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for dwellings having a fire-flow calculation area in excess of 3,600 square feet (344.5m2) shall not be less than that specified in Table B105.1. 2012 IFC, B105.1

    a. Exception: A reduction in required fire-flow of 50 percent, as approved, is allowed when the building is equipped with an approved automatic sprinkler system.

7. The minimum number of fire hydrants available to a building shall not be less than that listed in Table C105.1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table C105.1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted. 2012 IFC, C103.1

8. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads and shall meet the requirements of Section D104.3. *2012 IFC, D107.1*

Exceptions:

    1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the International Fire Code, access from two directions shall not be required.

    2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

9. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses. *2012 IFC, 104.3*

10. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater. *2012 IFC, D105.1*

11. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building

cannot be viewed from the public way a monument, pole or other sign or means shall be used to identify the structure. Address numbers shall be maintained. *2021 IFC, 505.1*

Please contact Fire Marshal, Taw Tamlin at 303-857-4603 or ttamlin@ftluptonfire.com if you have questions or need further assistance.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-108
APPROVE A RESOLUTION TO APPROVE AN ADDITIONAL $350,000.00 FOR THE NEW PUBLIC LIBRARY FACILITY.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. New Public Library Building Project Budget and Current New Facility Design Draft.

III. **Summary Statement:**

The original budget for the new library facility included $500,000.00 for land purchase. The land we are purchasing cost $850,000.00. During the past year construction cost have also risen. Much of our project's contingency funds will be needed to cover the increased construction cost and will not be available to cover the increased land cost. Approval is requested to increase the land budget to $850,000.00. This will increase the total project budget to $8,852,000.00.

IV. **Submitted by:** Sarah Frank, Library Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

In 2018 the Fort Lupton Public & School Library board voted to move forward with building a separate facility to serve as the public library. The City Council approved the library's decision to move forward with a new facility and hire an Owner's Representative (approved agreement AM 2018-147). The library would continue to run and maintain the high school library in the current facility. A decision has not yet been made as to the location of the new building. Purchasing land to build a public facility will enable us to better serve and protect our the public and our students. We examined several possible locations and after careful review of the locations we determined the Lupton Village two acre lot would be the best option. The cost is $850,000.

- *We chose this land because it is the perfect size for the building we wanted, with outdoor space and appropriate parking and in the center of town*
- *Walkable from four of the schools*
- *One block from the Rec Center*
- *Close to several shopping locations*
- *Convenient to future bicycle path from the high school ball fields to the Rec Center*

We have a signed Purchase and Sale Agreement for the land. The original intention was to use some contingency funds for the increased land cost. When the construction meetings restarted this month, it was determined that much of the contingency funds would be needed for construction costs. It was decided by staff and approved by the Library Board to increase the land budget to $850,000.00 which will increase the total building project budget to $8,852,000.00.

X. Legal/Political Considerations:

The increase in the budget is needed so the new building will be of the appropriate size to best serve the needs and desires of the community. If we do not increase the budget the building will be downsized to the point of losing some of the functionality that the community needs and wants.

XI. Alternatives/Options:

The City Council has three options:
A) Approve the increased land and building project budget.
B) Reject the budget increase.
C) Delay action on the budget to gather more information.

XII. Financial Considerations:

We have an approved budget of $8,500,000 for a new building and land. Increasing the land budget will bring the total building project budget to $8,852,000.00. Were the library to pay out the entire costs for the building this year, it would leave us with approximately $4,000,000.00. The current plan is to break ground in March of 2022 and finish the building in approximately 11 months.

XIII. Staff Recommendation:

Staff recommends approving the increase in the land and building project budget.

New Public Library Facility Budget June 2021

Project Accounting			Budget		
			A Initial Budget	B Budget Changes	C Current Budget A+B
▼ A	**Design & Engineering**		**$560,000.00**	**$0.00**	**$560,000.00**
	A.1	Architect	$560,000.00	($5,144.00)	$554,856.00
	A.2	Site Evaluation Engineering	$0.00	$5,144.00	$5,144.00
▼ B	**Owner's Requirements**		**$325,000.00**	**($240,000.00)**	**$85,000.00**
	B.1	Owner's Representation	$225,000.00	($225,000.00)	$0.00
	B.2	Owner's Representation Reimbursables	$15,000.00	($15,000.00)	$0.00
	B.3	Commissioning	$25,000.00	$0.00	$25,000.00
	B.4	Surveys (Flown, Alta, Topographic)	$0.00	$0.00	$0.00
	B.5	Geotechinical Report	$30,000.00	$0.00	$30,000.00
	B.6	Testing & Inspection (Construction Materials)	$30,000.00	$0.00	$30,000.00
▼ C	**Construction**		**$5,770,000.00**	**$590,000.00**	**$6,360,000.00**
	C.1	General Contractor	$5,770,000.00	$590,000.00	$6,360,000.00
▼ D	**Permits, Utility Fees, Impact Fees & Resource Rights**		**$250,000.00**	**$0.00**	**$250,000.00**
	D.1	Permits and Development Fees	$250,000.00	$0.00	$250,000.00
▼ E	**Fixtures Furnishings & Equipment**		**$275,000.00**	**$0.00**	**$275,000.00**
	E.1	Furnishings	$200,000.00	$0.00	$200,000.00
	E.2	Opening Day Collection	$50,000.00	$0.00	$50,000.00
	E.3	Wayfinding signage	$10,000.00	$0.00	$10,000.00
	E.4	Move Management	$15,000.00	$0.00	$15,000.00
	E.5	FF&E Misc	$0.00	$0.00	$0.00
▼ F	**Technology**		**$245,000.00**	**($125,000.00)**	**$120,000.00**
	F.1	Technology	$120,000.00	$0.00	$120,000.00
	F.2	Automated Book Sorter	$125,000.00	($125,000.00)	$0.00
▼ G	**Contingencies & Escalation**		**$577,000.00**	**($225,000.00)**	**$352,000.00**
	G.1	Contingency--Design	$0.00	$0.00	$0.00
	G.2	Contingency - Construction	$577,000.00	($225,000.00)	$352,000.00
▼ H	**Real Estate**		**$500,000.00**	**$350,000.00**	**$850,000.00**
	H.1	Land	$500,000.00	$350,000.00	$850,000.00
	Total		**$8,502,000.00**	**$350,000.00**	**$8,852,000.00**



Green area represents
1,173 sf reduction
(Building Area = 14,220 sf)

FORT LUPTON LIBRARY
FIRST FLOOR PLAN

0 8' 16' 32'

PROJECT TRUE

BARKER RINKER SEACAT ARCHITECTURE

A-2

06/11/21

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-109
APPROVE LIBRARY BUDGET POLICY.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. Library Budget Policy.

III. **Summary Statement:**

The Fort Lupton Public and School Library needs to have Policies and Bylaws approved by its governing bodies. The library staff and the Library Board are reviewing and updating their Bylaws and Policies because many of them do not represent how things are handled. Attached is a Library Budget Policy that has been approved by staff. The Library Board voted to approve it on June 17, 2021. We are asking that the City Council approve the Budget Policy. If the City Council approves the policy and the library will take it to the Re8 School Board in August for approval.

IV. **Submitted by:** Sarah Frank, Library Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

Per Library Law a library's Policies and Library Board's Bylaws need to be approved by governing bodies. The Fort Lupton Public & School Library's governing bodies are the City of Fort Lupton and the Weld Re8 School District. Therefore, the library is asking the Fort Lupton City Council to approve the attached Library Budget Policy.

X. Legal/Political Considerations:

Per Library Law a library's Policies and Library Board's Bylaws need to be approved by governing bodies. The Fort Lupton Public & School Library's governing bodies are the City of Fort Lupton and the Weld Re8 School District.

XI. Alternatives/Options:

The City Council has three options:
A) Approve the Library Budget Policy.
B) Reject the Budget Policy.
C) Delay action on the Budget Policy to gather more information.

XII. Financial Considerations:

The proposed Library Budget Policy presents how the library's budget is handled.

XIII. Staff Recommendation:

Staff recommends approving the Library Budget Policy.

BUDGET POLICY

Budget Policy drafted May 2019
Budget Adoption: Each year on or before the June Library Board meeting, the budget committee will convene and draft a proposed budget for the Library's upcoming fiscal year. The Board will consider the proposed budget and approve the final budget on or before the regular meeting in July. The Board will then forward the final approved budget to the Ft. Lupton City Council for inclusion in the City's annual budget package.

Budget Policy recommended by the Library Director with approval of the City Administrator and approved in a Library Board vote on June 17, 2021.
Budget Adoption: Each year on or before the June Library Board meeting, the budget committee will convene and draft a proposed budget for the Library's upcoming fiscal year. The Board will consider the proposed budget and approve the final budget on or before the regular meeting in July. The Board, via the Director, will then forward their recommended budget to the Ft. Lupton City Council for inclusion in the City's annual budget.

CITY OF FORT LUPTON
CITY COUNCIL

CITY OF Fort Lupton EST 1836

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-110
APPROVE LIBRARY PERSONNEL POLICY AND BYLAWS SECTIONS 29 & 30.

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:**

a. Library 2019 Policies
b. Library 2019 Bylaws
c. Library 2021 Personnel Policy proposals.
d. Library 2021 Bylaws Sections 29 & 30 proposals

III. **Summary Statement:**

The Fort Lupton Public and School Library needs to have Policies and Bylaws approved by its governing bodies. The library staff and the Library Board are reviewing and updating their Bylaws and Policies because many of them do not represent how things are handled. Attached is the library's 2019 Policies and Bylaws for reference. Also attached are the library's Personnel Policy proposal and the proposals for personnel related Bylaws Sections 29 & 30. If the City Council approves the policy and bylaws then the library will take it to the Re8 School Board in August for approval.

IV. **Submitted by:** Sarah Frank, Library Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

Per Library Law a library's Policies and Library Board's Bylaws need to be approved by governing bodies. The Fort Lupton Public & School Library's governing bodies are the City of Fort Lupton and the Weld Re8 School District. The attachments have the original draft from 2019 in black. The proposal from staff is in green. The proposal from the Library Board is in blue. The Library Board is asking the Fort Lupton City Council to approve the attached Library Personnel Policy and the Bylaws Sections 29 & 30 which are in green print.

X. Legal/Political Considerations:

Per Library Law a library's Policies and Library Board's Bylaws need to be approved by governing bodies. The Fort Lupton Public & School Library's governing bodies are the City of Fort Lupton and the Weld Re8 School District. The Library Board's proposals are not standard for an advisory board. It would need to be determined whether the Library Board has adequate liability insurance should a staff member sue them. If the Library Board becomes the supervisor of the Director how does that impact the Director as an employee of the City.

XI. Alternatives/Options:

The City Council has three options:

A) Approve the Library Personnel Policy and Bylaws Sections 29 & 30.
B) Reject the Library Personnel Policy and Bylaws Sections 29 & 30.
C) Delay action on the Library Personnel Policy and Bylaws Sections 29 & 30 to gather more information.

XII. Financial Considerations:

The proposal from the Library Board could put the Library Board and/or the city at risk of lawsuits if the Library Board handled a personnel matter inappropriately.

XIII. Staff Recommendation:

Staff recommends rejecting the Personnel Policy and the Bylaws Sections 29 & 30 as proposed by the Library Board.

FORT LUPTON
PUBLIC & SCHOOL LIBRARY

425 South Denver Avenue

Fort Lupton, Colorado

POLICIES

2019

Contents

PURPOSE....3
GENERAL LIBRARY OBJECTIVES....3
BUDGET POLICY....4
COLLECTION DEVELOPMENT....4
CENSORSHIP....6
APPROPRIATE INTERNET USAGE....7
CONFIDENTIALITY....7
GIFTS....8
ART PURCHASE POLICY....8
USE OF FACILITIES....9
BEHAVIOR AT THE LIBRARY....9
LOAN POLICIES....10
EQUIPMENT POLICY....11
HOURS OF SERVICE....11
INTER-LIBRARY COOPERATION....11
COOPERATION WITH OTHER LIBRARIES / SYSTEMS....11
PERSONNEL....12
UNATTENDED CHILD....12
ENVIRONMENT POLICY....13
OTHER....13

PURPOSE

The mission of the Fort Lupton Public and School Library is to provide all people with access to information for education, enlightenment, and entertainment. —Rev. 1996

GENERAL LIBRARY OBJECTIVES

We believe that all people have a right to have access to all expressions of knowledge, creativity, and intellectual activity. The primary objective of the Library is to serve the information needs of people in the Library area, which encompasses the City of Fort Lupton and that portion of Weld County within the boundaries of School District Re-8. The Library shall honor the ALA (American Library Association) guidelines in offering free and equal access to information, and not deny or limit access because of its allegedly controversial content.

In conducting its programs, the Fort Lupton Public and School Library will maintain non-partisanship and objectivity to support the individuality and ethnicity of the citizens and will provide service with sensitivity, courtesy, and respect. The Library will develop partnerships with community groups to understand better the needs of its diverse citizens and will use every practical means to satisfy their information needs. The Fort Lupton Public and School Library will provide access to a wide variety of materials, by, about, and in the language of the local ethnic populations.

Service will include but not be limited to:

1. Providing free basic service to every person desiring Library access.
2. Maintaining an atmosphere of conscientious responsiveness and interest.
3. Exploiting all reasonable opportunities for utilization of local, regional, state, national, and international information systems.
4. Identifying the community needs and wishes of distinct population segments.
5. Exerting deliberate efforts to inform non-users of the advantages of available Library services.
6. Assuming a leadership role in the community in promoting culture, quality of life, enlightened citizenship, and continuous self-education.
7. Supporting the School Library Bill of Rights, the Library Bill of Rights, the Freedom to Read Statement, the Freedom to View Statement, and the ALA Statement on Access to Electronic Information, Services, and Networks: An Interpretation of the Library Bill of Rights.

BUDGET POLICY

Budget Adoption: Each year on or before the June Library Board meeting, the budget committee will convene and draft a proposed budget for the Library's upcoming fiscal year. The Board will consider the proposed budget and approve the final budget on or before the regular meeting in July. The Board will then forward the final approved budget to the Ft. Lupton City Council for inclusion in the City's annual budget package.

(approved May 2019)

COLLECTION DEVELOPMENT

Purpose

The purpose of this policy is to guide staff and inform the public of the principles on which the District bases selection and collection maintenance decisions.

Intellectual Freedom

Collection development at Fort Lupton Public & School Library is founded on the principles of intellectual freedom and equal access for all. The library strives to provide a collection that balances viewpoints across a broad spectrum of opinion and subject matter in formats suitable to a variety of learning and recreational interests and skills. Using selection practices that are flexible and responsive to the changing needs of the community, the library builds and maintains collections for the general public while recognizing the needs of special population groups in the community.

The three basic supporting documents used to achieve these principles are the American Library Association's *Freedom to Read Statement*, the *Freedom to View Statement*, and the *Library Bill of Rights*.

Resource Sharing Partners

The Fort Lupton Public & School Library is a member of the High Plains Library District and participates in cooperative interlibrary loan networks, including Prospector. This expands the range of materials available to library users while minimizing purchases of lesser used materials.

Collection Development Criteria

Selection Criteria

- Sustained interest
- Price
- Availability
- Library materials budget
- Reputation and qualifications of the author, creator, or publisher of the work, with preference generally given to titles vetted in the editing and publishing industry.
- Space availability
- Local significance of the author, subject or creator of the work
- Suitability of format or physical form for library use

- Textbooks or other curriculum-related materials will be acquired only in subject areas where there is little or no material in any other format or where they substantially add to the collection.
- Availability of material elsewhere
- Presentation of all sides of controversial issues
- Inclusion of materials which some may consider unconventional, unpopular, unorthodox, or unacceptable:

(a) Ideologies

The Library should, without making any effort to sway the users' judgment make available basic factual information on an ideology or philosophy which exerts a strong force, either favorably or unfavorably, in government, current events, politics, education, or any other phase of life.

(b) Sex and Profanity

Materials presenting accents on sex should be subjected to a stern test of literary merit and reality by the librarian. While we would not in any case include the sensational or over dramatic, the facts of sexual incidents or profanity appearing should not automatically disqualify a resource. Rather the decision should be made on the basis of whether the material presents life in its true proportions, whether circumstances are realistically dealt with, and whether the material is of literary value. Education and factual material on the level of the users should be included in the Library collection.

(c) Science

Medical and scientific knowledge should be made available without any biased selection of facts.

Recommendations for purchase from staff or the public are considered, with criteria noted above being applied.

Materials need not meet all criteria to be selected.
For items not purchased, patrons have the option to request through our resource sharing partners or through the District's interlibrary loan service.

Criteria for Withdrawal

The collection is continually refreshed. Items are withdrawn if they meet certain criteria.
• Damaged or poor condition
• Infrequency of use of a particular copy
• Number of copies in the collection exceeds level of demand
• Relevance to the needs and interest of the community
• To create shelf space for newer materials
• Availability elsewhere including other libraries and online
• Out of date or replaced by newer editions

Donation of Materials

At this time the Library discourages donations of materials due to limited space and resources.
Any donated items not selected for inclusion in the collection will be sold, donated, discarded, or otherwise removed from the building at the discretion of the Library.

Related Documents
Websites:
American Library Association Freedom to Read Statement
American Library Association Freedom to View
American Library Association Library Bill of Rights

(Approved December 19, 2019)

CENSORSHIP

Censorship must be exercised by the patron for himself alone. The director and the Library Board cannot restrict the freedom of selection of the patron, and neither can the patron restrict the freedom of selection of other patrons. It is left to each user to determine what is appropriate. Parents and legal guardians who are concerned about their children's use of resources shall provide guidance to their own children. Library patrons who are residents of the Fort Lupton Public & School service area who object to materials may fill out a "Request for Reconsideration" form. The librarian who receives the request will temporarily remove the material from circulation and forward the request to the Fort Lupton Public and School Library director. The Library Director will consider the request and respond to the request within 21 days.

If the complainant is not satisfied with the response, the Library Board will conduct a final review. A quorum of the Public and School Library Board shall provide the complainant with a written decision regarding the material within 40 days of the final review request. If the complainant is not satisfied, he/she may file a written request for appeal. If the complaint is filed on behalf of a Re-8 student, the request for appeal is filed with the Board of Education. The request for appeal will be filed with the City Council if on behalf of an adult or other public patron. This request must be filed within five calendar days from the date on which he/she received the decision of the Public and School Library Board.

A quorum of the Board of Education or City Council (see above) or its designated agent shall render a written decision to the complainant within 40 days from the receipt of the appeal. The decision of the Board of education or City Council or its designated agent will be final. Once a decision has been made, the materials will not be reconsidered for a period of one year.

The re-evaluation of the material shall be based on the original criteria used for selection of materials. (See "Materials Selection Policy" and "Criteria for Selection of Materials") Additionally, no materials shall be excluded because of the writer's race or

nationality or his political or religious views. The value of any material shall be judged as a whole, considering the purpose of the materials, rather than individual, isolated expressions or incidents in the work.

All requests for reconsideration will be reported to the Colorado State Library.

(approved Oct. 2019)

APPROPRIATE INTERNET USAGE

Library staff should never act as "internet cops." It is not and should not be the duty of library staff to censor what (i.e., content) patrons are accessing on the internet. Any such monitoring constitutes unconstitutional content-based censorship. When a patron accesses (or is suspected of accessing) unlawful materials via the internet, library staff may contact the appropriate law enforcement authorities to enforce the law, rather than attempt to enforce the law themselves. Knowing what materials are actually obscene or child pornography or "harmful to minors" (in the case of a juvenile) is extremely difficult and applicable statutory and case law are the only "true" guidelines. Thus, only courts have the authority to determine, pursuant to due process considerations, whether materials accessed online by a patron are actually obscene, child pornography or "harmful to minors." (Note the same analysis applies if a patron is sending [or is suspected of sending] unlawful materials via the internet from public library computers; library staff should contact appropriate law enforcement officials to enforce the laws.)

Internet "behavioral" problems should be addressed by library staff in the same way as other general library behavioral problems, such as making too much noise, inappropriate conduct in the library (i.e., sexual acts), and similar disorderly behavior.

Access to the internet at the library is a privilege and not an absolute right. Public library internet access computers are not private; library or school district personnel may access "tracing" files to maintain system integrity and to investigate suspected violations of law or policy. Patrons should be informed that other patrons may be able to access such information. Users should be fully aware that websites visited and images viewed may not be "private" because the library, and its access to the internet via computer terminals, is necessarily public in nature.

Adapted From:
Internet Safety Policy Guidelines by Cathy Harris Helms. *Georgia Library Quarterly* 40 no2 19-23 Summer 2003.

CONFIDENTIALITY

The Library shall safeguard the privacy of each user. Information about the patron and his use of the Library shall be free of surveillance and disclosure. The Library recognizes that children and youth have the same rights to privacy as adults.

Any information supplied to the Library or gathered by it shall not be given, made available, or disclosed to any individual, corporation, institution, government or other agency without a valid process order or subpoena. Upon presentation of such a process or subpoena, the Library shall resist its enforcement until such time as proper showing of good cause has been made in a court of competent jurisdiction.

The Library shall safeguard the following information about Library patrons:

1. A patron's name or whether an individual is a registered borrower or has been a patron.
2. A patron's address.
3. A patron's telephone number.
4. The Library's circulation records and their contents.
5. The Library's borrowers' records and their contents including internet usage.
6. The number or character of questions asked by patrons.
7. The frequency or content of a patron's lawful visits to the Library or any other information supplied to the Library or gathered by it.
8. The titles or subject of materials ordered from other libraries for individuals.
9. The presence of an individual patron in the Library at a given time.

GIFTS

The same principles of selection which are applied to purchases apply to gifts. Gifts of books or other materials are accepted with the following provisions:

1. Gifts shall not necessarily be housed in a special location.
2. Gifts will be kept by the Fort Lupton Public and School Library only if they can be of active value to the collection.
3. If the Library cannot use the material, it may be offered to other libraries or organizations before disposal or sale.
4. Specialized materials which would have infrequent or no use should be given to a research Library or other appropriate agency.

Monetary gifts may be accepted by the Library Board and shall be managed by the Library Board Trust Committee.

ART PURCHASE POLICY

Fort Lupton Public and School Library, in an effort to encourage local artists, shall purchase local art to be displayed in the Library.

At the direction of the Library Board, work produced by local artists in the Fort Lupton area shall be sought and recommended for purchase by the Art Committee. The same principles of selection used for the purchase of Library materials will apply to the

purchase of local art. Funds for the purchase of local art shall be sought from local clubs, individual donations, and the Library budget. Artists shall be encouraged to donate samples of their artwork to the Library. Withdrawal of any art purchased by the Library shall follow the usual withdrawal procedures for other Library materials.

USE OF FACILITIES

The conference room and other rooms in the Library complex will be made available primarily to cultural and educational groups. Priority will be given to Library-sponsored functions. Youth groups may be scheduled if there is adequate adult sponsorship. The rooms may not be used by anyone to promote his/her own business or for financial gain. The rooms will be available on equal terms to all groups in the community regardless of the beliefs and affiliations of their members. Meeting in the Library does not constitute sponsorship or acceptance by the Library of the views of the group using the facility. Citizens may appeal staff decisions on use of the room to the Library Board. Scheduling will be handled by the Library staff coordinated through the high school for times when the Library is not open. The Library director shall establish a rolling three month reservation system for use of space at the library. There will be no use of alcohol, tobacco, or drugs on the premises.

All persons at the Library are expected to observe the laws of Colorado including, but not limited to criminal statutes pertaining to Disorderly Conduct, Trespass and Interference at Public Buildings, Disrupting Lawful Assembly, and Harassment. Section 18-9-117, Colorado Revised Statutes, Unlawful Conduct on Public Property, authorizes state entities to establish additional limitations and prohibitions regulating behavior on public property. Pursuant to that authority, the Library adopts the following policy:

BEHAVIOR AT THE LIBRARY

When you enter the facilities of the Fort Lupton Public & School Library, you make a commitment to act courteously toward all other persons working in or visiting the facility, to act respectfully regarding the property of the Library and other patrons, to follow the policies and rules of the facility, and to not cause a disturbance that interrupts the use of the Library by others. Under this standard of conduct, the following activities are prohibited at all Library facilities:

- Engaging in any activity or behavior that constitutes a crime
- Engaging in any activity or behavior that could result in injury to yourself or others
- Damaging property of the Library or of other patrons
- Infringing on the right of others to use the library peacefully
- Harassing or intimidating patrons or staff members
- Engaging in rowdy behavior or loud or prolonged conversations or laughter, including use of cell phones, that can be heard by others
- Using electronic devices with volume or ring tone loud enough to disturb others
- Bringing animals into the Library except those required for disability aid

- Loitering, soliciting or selling items without Library consent
- Making disturbing noises
- Using Library or personal computers or other electronic devices to view pornographic or adult material
- Sleeping on the floor or furniture
- Failing to maintain a standard of personal hygiene (i.e., offensive body odor, bringing vermin-infested clothing and personal effects into the Library)
- Bringing or consuming food or beverages except in areas of the Library where specifically allowed
- Smoking or using smokeless tobacco or devices
- Any other act or behavior that causes a disturbance which effects the ability of Library staff to perform regular operations or which denies Library patrons the ability to use Library facilities peacefully

Parents or guardians are responsible to see that their children observe these rules.

The Library staff will ask people who do not behave in accordance with these standards to correct their behavior or to leave the Library. The Library may request the police to assist with people who do not comply with these rules. The Library reserves the right to ban a patron from using Library facilities for repeated violations of this policy or other Library policies or for refusing to comply with Library policies.

(approved May 2019)

LOAN POLICIES

The Library is supported by the taxpayers of Fort Lupton and that portion of Weld County within the boundaries of School District Re-8. Basic services will be granted free of charge to everyone in the service area and holders of Colorado Library Cards. Visitors who do not have valid Library cards may be given Library privileges on recommendation of a responsible local resident. Library cards shall be issued free of charge. No fines shall be charged for overdue materials, but list price shall be charged for damaged and lost items. This applies to all users of the Library. All print and non-print materials are loaned according to an established period deemed reasonable by the Library staff. Materials may be renewed if the items have not been requested by another patron. No patron shall be permitted to borrow materials from the Library while he or she has overdue materials or while an assessment against him or her remains unpaid, however, all materials and equipment may be used in the Library.

Specialty checkout will follow the High Plains Library District checkout policies. Reasonable extenuating situations will be determined by the Fort Lupton Public & School Library Director.

EQUIPMENT POLICY

Audiovisual and similar equipment shall be loaned to library card holders 18 years of age or older at the discretion of the media specialist and/or the Library director. In exercising such discretion, those individuals shall be governed by the following minimum criteria:

1. Loans for educational uses shall receive first priority.
2. Loans shall be made only for purposes which are legal.
3. Loans shall be made only to users who are financially and otherwise responsible and who are qualified to operate and care for the equipment being loaned.
4. Security deposits may be required where deemed necessary to ensure proper use and return of the equipment. In the event of loss or damage, other than ordinary wear and tear to any equipment loaned, the user shall be responsible for the cost of repair or replacement of such equipment.

HOURS OF SERVICE

Decisions on the opening or closing of the Library may be made by the Library director with the needs of the users considered paramount. Library hours will be posted on social media and on the doors (if possible) with the Library Board notified by email.

The Library will be closed for New Year's Day, Martin Luther King Day, Presidents' Day, Graduation Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and the following Friday, December 24th and Christmas Day, and New Year's Eve, or as agreed upon with the City and School District.

INTER-LIBRARY COOPERATION

Sharing of resources is essential in serving the information needs of all users. Technology promotes the free flow of materials from Library to Library. The Library staff shall encourage our patrons to borrow materials unavailable in our Library and the lending of our materials wherever needed and all reasonable efforts will be expended to assure the highest quality service possible. Any borrower of the Library will be offered all services possible to supplement local holdings.

COOPERATION WITH OTHER LIBRARIES / SYSTEMS

The Library recognizes that some services can best be provided through cooperation with other libraries, and therefore, is a member of the High Plains Library District and the Colorado Library Consortium (CLiC). The Library seeks to contribute to, as well as receive from, the cooperative projects in which it is involved.

PERSONNEL

Hiring procedures for Library director will follow guidelines which are outlined in the Intergovernmental Agreement. The Library Board is responsible for making recommendations to City Council for hiring and discharging the Library director. The Library staff is hired for a one-year term with annual recommendations for renewal to the personnel officer who in turn shall make recommendations to City Council.

Time with pay is allowed staff members to attend Library conferences and other professional meetings. As far as possible, the privilege of attendance at such meetings is rotated among members of the staff belonging to the associations. The Library budget should include sufficient funds to pay institutional memberships in the Library association. It should also include money for Library Board memberships in the state Library associations and for at least one in the American Association of Library Trustees. Funds should also be provided for representative staff and Trustee attendance at state, regional, and national meetings.

It is the duty of staff to provide the highest quality service possible. Each member of the staff must keep uppermost in mind that service comes before time schedules, personal convenience, or personal opinions.

Any staff member having a complaint or personal grievance should feel free to bring it to the attention of the director. Criticism within the Library should be constructive. Staff members and Library Board members do not criticize the Library or associates in public.

It is important that each employee completely understands the policies and service programs of the Library. Toward this end, staff meetings are held regularly during working hours. The purpose of these meetings is to inform staff members of actions taken by the Library Board; to present and explain matters of policy; to discuss professional problems, new trends, procedures, and materials; and to consider matters involving the staff and its interests. All staff members are urged to take part in the discussion of common problems and to offer suggestions for changes in policy and procedures.

UNATTENDED CHILD

1. **Responsibility** for the welfare and the behavior of children using the library rests with the parent, guardian, or responsible caregiver. Though staff will always respond with care and concern, they cannot assume responsibility for children's safety and comfort when they are unattended.
2. **Supervision of children**: **Children age 10 and younger** should be in sight of and supervised by a parent, guardian, or responsible caregiver (of at least 12 years of age) who acknowledges responsibility for the child during their entire stay in the

library. Parents or caregivers of these children are expected to remain in the library while children are attending library programs.

Older children able to maintain proper library behavior may use the library while unattended, otherwise they should be adequately supervised by a parent, guardian, or responsible caregiver. Staff may, as needed, notify parents, guardians, or responsible caregivers whose children need additional supervision.

3. **In the case of unattended and disruptive children, library staff members have authority to intervene in situations, such as but not limited to the following:**
    a. An unattended child is found frightened or crying in the Library
    b. An unattended child is perceived to be endangering him or herself, or that another person in the library poses a perceived threat to the unattended child
    c. An unattended child exhibits specific inappropriate behavior
    d. An unattended child has not been met by a responsible caregiver at closing time

    After evaluating the situation, Library staff members will attempt to contact the parent or guardian of an unattended child. Staff may videotape disruptive children for the sole purpose of showing to parents/guardians. In the event that the parent or guardian cannot be reached, the child will be placed in the care of the Fort Lupton Police Department.

    If the child is repeatedly left unsupervised, parents will be notified that their child is no longer permitted to use the library unattended.

Parents are responsible for their children's behavior while in the library. Children and young adults who are disruptive in the library or on library property interfere with library service to all patrons. **The Library is not a daycare institution and the staff members are not babysitters. It is a public institution where all patrons have an equal right to quality library service in a friendly and peaceful environment.**

ENVIRONMENT POLICY

The role of the Fort Lupton Public and School Library is to maintain a healthy and clean environment for all library users. Animals are therefore prohibited in the library except for service animals or animals that are part of a library program. (9/21/17)

OTHER

Bylaws and Policy shall be void if in conflict with the Intergovernmental Agreement, school district policy, city regulations or state law.

FORT LUPTON
PUBLIC & SCHOOL LIBRARY

425 South Denver Avenue
Fort Lupton, Colorado

BYLAWS

November 18, 2019

Contents

BYLAWS....3
NAME....3
BOARD OF TRUSTEES....3
MEETINGS OF THE BOARD OF TRUSTEES……...……...4
OFFICERS....5
COMMITTEES....7
LIBRARY DIRECTOR AND STAFF....7
POLICIES AND ADMINISTRATION....7
FISCAL YEAR....7
AMENDMENTS TO BYLAWS AND POLICIES....8

Bylaws

These are the Bylaws of the Board of Trustees (the "Board") of the Fort Lupton Public and School Library (the "Library"), established and existing by virtue of the Intergovernmental Agreement between Weld County School District RE-8 and the City of Fort Lupton ("IGA") pursuant to §§24-90-101 *et seq.* of the Colorado Revised Statutes (the "Colorado Library Law"). These bylaws are adopted pursuant to C.R.S. §24-90-109(1)(a).

I. NAME (Approved May 16, 2019)

The name of this organization shall be the Fort Lupton Public and School Library.

II. BOARD OF TRUSTEES (Approved May 16, 2019)

Section 1. Appointment. Management and control of the Library shall be vested in a Board of seven (7) trustees appointed in accordance with the Colorado Library Law.

Section 2. Number, Geographic Area and Terms. The Board shall consist of seven (7) members, all of whom must reside within the boundaries of the Library's legal service area. Trustees shall serve no more than two (2) consecutive terms and terms shall not exceed four (4) years which shall be staggered so that from one to three Trustees are appointed or reappointed each year.

Section 3. Ex-Officio Members. There shall be two non-voting *ex-officio* members who serve on the library board by virtue of holding office as follows: either the Mayor or a City Council member and one member of the Weld Re-8 Board of Education.

Section 4. Appointment of New Trustees. When the term of an existing Trustee will expire, and such Trustee is either ineligible for reappointment or elects not to be reappointed, or when the appointing governmental entity elects not to re-appoint an existing Trustee, a new Trustee shall be appointed in accordance with C.R.S. §24-90-108(2)(e) and the IGA.

Section 5. Vacancies. Vacancies shall be filled for the remainder of the unexpired term as soon as possible in the manner in which Trustees are regularly chosen. Unexpired terms completed by an appointed Trustee shall not count against that Trustee's term limit as described in Section 2.

Section 6. No Salary. Trustees shall not receive a salary or other compensation as a Trustee, but necessary traveling and other necessary, documented expenses actually incurred may be paid from Library funds.

Section 7. Removal. A Trustee may be removed by a 2/3 vote of the appointing governmental entity and only upon a showing of good cause. Good cause shall include, but not be limited to, failure to attend (in person or by remote access), without justification, three consecutive regular meetings of the Board; failing to act in the best interests of the Library; or conduct unsuitable to their position.

Section 8. Power and Duties. The Board shall have those duties and responsibilities set forth in the authorized powers under the Colorado Library Law, as such may be revised from time to time. In addition, the Board shall have all powers necessary or incidental to the specific powers granted by statute.

Section 9. Authorization. Board membership does not, under any circumstances, authorize a Trustee to represent or bind the Board or Library in any official capacity whatsoever except as such authority is granted and approved in writing by a vote of the Board taken at a regular or special meeting.

III. MEETINGS OF THE BOARD OF TRUSTEES (Approved March 21, 2019)

Section 10. Regular Meetings. A regular meeting of the Board shall be held pursuant to a schedule determined by the Board, but at least quarterly, for the purpose of transacting the business of the Library. All business of the Board shall be conducted only during regular or special meetings hereinafter provided for, and all of such regular or special meetings shall be open to the public, subject to the right of the Board to meet in executive session.

Section 11. Time and Place. The time and place of all regular and special meetings will be announced as required by law.

Section 12. Notice; Open Meetings; Executive Sessions. Notice of all meetings of three (3) or more Trustees shall be given in the manner prescribed in C.R.S. §24-6-402(c). At a minimum, the Board shall cause notice of meetings to be posted in designated public places no less than twenty-four hours prior to the meeting. All meetings shall be open to the public, except that at any regular or special meeting, the Board may proceed into executive session upon a majority vote of two-thirds (2/3) of members present for the purpose of considering any matters permitted under C.R.S. § 24-6-402(4). The Board shall retain executive session records for ninety (90) days after the date of the executive session in compliance with C.R.S. §24-6-402(2)(d.5)(II)(E).

Section 13. Special Meetings. Special meetings may be called by any Trustee or the Library Director for any purpose, including for the purpose of planning and goal-setting or the study and discussion of matters to come before the Board. Minutes will be taken at all special meetings and will be part of the public record. Special meetings may be called upon 24 hours

notice to the Trustees and to the public. Notice to the public shall be given in the manner required by law. Notice to Trustees may be given in person in writing or by email.

Section 14. Other Meetings Disallowed. No meetings of three or more Trustees or a quorum, whichever is fewer, shall be held except pursuant to the posting of notice as a regular or special meeting.

Section 15. Quorum. A majority of the Trustees of the Library shall constitute a quorum necessary for the transaction of any business at a regular or special meeting of the Board. The act of the majority of Trustees constituting a quorum at a regular or special meeting shall be the act of the Board. Board members may attend meetings by real-time audio or video service or by such other electronic means that may afford full audio access to Board discussions. When these Bylaws refer to a Trustee being "present", the term "present" shall include attendance by real-time audio or video service. However, to the extent required by Colorado law, Trustees must be physically present for purposes of determining whether a quorum has been established. Trustees participating remotely must be able to hear all discussions and public comments and must have all materials and documents that have been provided to the Trustees who are physically present at the meeting.

Section 16. Public Participation. Citizens shall be invited to participate in all regular meetings of the Board during a portion of the agenda set aside for this purpose. The president shall determine a time limit for comments based upon the number of persons wishing to speak.

Section 17. Annual Meeting. The regular meeting of the Board for the month of January each year shall be designated as the annual meeting. At the annual meeting the officers shall be elected to serve for the ensuing year.

Section 18. Roll Call Votes. A Trustee may call for a roll call vote at any time.

IV. OFFICERS (Approved May 16, 2019)

Section 19. Designation of Officers. Board officers shall consist of a president, a vice president, and a secretary and such other officers as the Board deems necessary.

Section 20. Date of Election. All officers of the Board shall be elected by the Board at the annual meeting.

Section 21. Term of Office. Officers shall serve for one (1)-year terms and shall begin their terms of office at the next meeting immediately following the election.

Section 22. Number of Terms of Office. A Trustee serving as a Board officer shall not be eligible to serve more than two consecutive terms in the same office, except by affirmative vote of two-thirds (2/3) of the Library Trustees.

Section 23. Vacancies. Any vacancy occurring during the regular term of any office, for any reason, shall be filled by a Trustee elected by a vote at a regular or special meeting of the Board for the remaining portion of the term of such office.

Section 24. Removal. Any officer may be removed by an affirmative vote of two thirds of the Library Trustees taken at a regular or special Board meeting when in such Trustees' reasonable judgment, the best interest of the Library will be served thereby.

DUTIES OF OFFICERS

Section 25. President. The president shall, subject to the direction and supervision of the Board, be the principal executive officer of the Library. The president shall perform all duties incident to the office of president and such other duties as may be prescribed by the Board from time to time, including, but not limited to, the following:

- The president shall preside at all meetings of the Board

- The president is the authorized spokesperson for the Board, unless delegated to another Trustee.

- The president, along with the secretary or one other designated Trustee, shall sign all checks or warrants either by manual or facsimile signature. The president may designate another Trustee or the Library Director to sign in the president's absence, but in any event at least two (2) authorized persons shall sign all Library checks or warrants. The City of Fort Lupton is the fiscal agent for the Fort Lupton Public & School Library. As the fiscal agent the city's Mayor will sign all checks for payroll and accounts payable. Checks from the Library Board's CD funds held at the Bank of Colorado are signed by at least two of the board's designated signers. Check's from the board's CD funds held at ColoTrust will be authorized by the library board and signed by the city's designee.

Section 26. Vice President. The vice president shall assist the president and shall perform such duties as may be assigned by the president or the Board. In the absence of the president, the vice president shall have the powers and perform the duties of the president.

Section 27. Secretary. The secretary shall oversee the keeping of the minutes of Board meetings and shall perform all other duties delegated by the Board or that may be incidental to the

office of secretary, such as publishing legal notices and executing legal documents as such may be required. The duties for taking the minutes and keeping them on file, publishing legal notices and executing legal documents have been delegated to the library director or their designee. The board secretary is responsible for auditing the paper copies of library board minutes which are kept on file at the library.

V. COMMITTEES (Approved May 16, 2019)

Section 28. Appointment and Membership. The Board may create a committee or committees for any specific purpose, with its members appointed by the Board, or the president if such authority is delegated to the president by the Board. Committees shall be dissolved when their stated purposes have been fulfilled. A Board committee may consist of Trustees only, a mixture of Trustees and non-Trustees or wholly non-Trustees. Committees shall report to the Board and shall have no power to act for the Board.

VI. LIBRARY DIRECTOR AND STAFF (Approved May 16, 2019)

Section 29. Employment of Library Director. A Library Director may be engaged or employed by the city upon recommendation of the Board to serve as the chief administrative officer of the Library.

Section 30. Duties of Library Director. The Library Director, under the supervision and direction of the Board, shall perform all duties incident to the position of Library Director including those contained in the Library Director's contract and such other duties as may be prescribed from time to time by the Board.

Section 31. Staff. All other Library staff shall be employed by the city upon the recommendation of the Library Director.

VII. POLICIES AND ADMINISTRATION (Approved May 16, 2019)

Section 32. Policy-Based Governance. The Board shall adopt and revise administrative policies by which the Library Director and other staff shall conduct the affairs of the Library. These policies shall be available to the public.

VIII. FISCAL YEAR (Approved May 16, 2019)

Section 33. The Library's fiscal year shall begin on the first day of January of each year and shall end on December 31st of each year.

IX. AMENDMENTS TO BYLAWS AND POLICIES (Approved March 21, 2019)

Section 34. Amendment by Vote. Bylaws and administrative policies may be altered, amended or repealed on first reading if all Trustees are present and the vote is unanimous. If all Trustees are not present or the vote is not unanimous, the bylaw or policy change will be presented at the next regular Board meeting, when it can be added, altered, amended or repealed by a simple majority of the Board present and voting.

Section 35. Notice of Proposed Amendment. Notice of proposed bylaw or policy changes must be in written form (including email) and received by all Trustees at least five (5) days prior to the first reading.

Section 36. Automatic Amendment. These bylaws shall at all times conform to the Colorado Library Law and other Colorado laws as such laws may be amended from time to time. Such amendments as may be necessary to affect such conformation shall be automatic and these bylaws shall be updated from time to time by the Board to reflect such statutorily-mandated automatic amendments.

Adopted by the Board of Trustees as of _____, _____.

_____ _____

President Secretary

PERSONNEL POLICY

Drafted in 2019 by Library Board

Hiring procedures for Library director will follow guidelines which are outlined in the Intergovernmental Agreement. The Library Board is responsible for making recommendations to City Council for hiring and discharging the Library director. The Library staff is hired for a one-year term with annual recommendations for renewal to the personnel officer who in turn shall make recommendations to City Council.

Time with pay is allowed staff members to attend Library conferences and other professional meetings. As far as possible, the privilege of attendance at such meetings is rotated among members of the staff belonging to the associations. The Library budget should include sufficient funds to pay institutional memberships in the Library association. It should also include money for Library Board memberships in the state Library associations and for at least one in the American Association of Library Trustees. Funds should also be provided for representative staff and Trustee attendance at state, regional, and national meetings.

It is the duty of staff to provide the highest quality service possible. Each member of the staff must keep uppermost in mind that service comes before time schedules, personal convenience, or personal opinions.

Any staff member having a complaint or personal grievance should feel free to bring it to the attention of the director. Criticism within the Library should be constructive. Staff members and Library Board members do not criticize the Library or associates in public.

It is important that each employee completely understands the policies and service programs of the Library. Toward this end, staff meetings are held regularly during working hours. The purpose of these meetings is to inform staff members of actions taken by the Library Board; to present and explain matters of policy; to discuss professional problems, new trends, procedures, and materials; and to consider matters involving the staff and its interests. All staff members are urged to take part in the discussion of common problems and to offer suggestions for changes in policy and procedures.

Personnel Policy recommended by the Library Director with the approval of the City Administrator:
All library staff are city employees and follow the city's personnel policies in the city's Employee Handbook.

Personnel Policy voted on by Library Board on June 17, 2021:
All library staff are city employees and follow the city's personnel policies in the city's Employee Handbook, except for the Library Director. See Library Board Bylaws Section 29.

Bylaws Section 29

Section 29 as drafted by the Library Board May 2019

Section 29. Employment of Library Director. A Library Director may be engaged or employed by the city upon recommendation of the Board to serve as the chief administrative officer of the Library.

Section 29 as proposed by the Library Director with approval of the City Administrator.

Section 29. Employment of Library Director. The Director is hired via the city's hiring process and supervised by the City Administrator. The board shall offer to participate in the hiring and evaluation processes.

The Library Board voted June 17, 2021 to keep Section 29 as is .

Section 29. Employment of Library Director. A Library Director may be engaged or employed by the city upon recommendation of the Board to serve as the chief administrative officer of the Library.

Bylaws Section 30

Section 30 as drafted by the Library Board May 2019

Section 30. Duties of Library Director. The Library Director, under the supervision and direction of the Board, shall perform all duties incident to the position of Library Director including those contained in the Library Director's contract and such other duties as may be prescribed from time to time by the Board.

The Library Director with the approval of the City Administrator recommended Section 30 be removed.

The Library Board voted June 17, 2021 to change Section 30 to the following on :

Section 30. Duties of Library Director. The Library Director, under the supervision and direction of the Board, shall perform all duties incident to the position of Library Director and such other duties as may be prescribed from time to time by the Board. The Library Director shall follow the personnel policies in the City's employee handbook.

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-111

APPROVAL OF A RESOLUTION APPROVING THE SUBDIVISION IMPROVEMENTS AGREEMENT FOR THE WILLOW BEND FINAL PUD PLAT

I. Agenda Date: Council Meeting – July 6, 2021

II. Attachments:
a. Resolution 2021-0xx.
b. Subdivision Improvement Agreement.

III. Summary Statement:

Approval of the Subdivision Improvements Agreement between the City of Fort Lupton and Sun Willow Bend LLC, for the Willow Bend Final PUD.

IV. Submitted by: _____
Public Works Director

V. Finance Reviewed _____
Finance Director

VI. Approved for Presentation: _____
City Administrator

VII. Attorney Reviewed Approved Pending Approval

VIII. Certification of Council Approval: _____ _____
City Clerk Date

IX. Detail of Issue/Request:

This Subdivision Improvement Agreement was drafted for the Willow Bend Final PUD Plat Final Plat (LUP2021-0031 and Plan No. FPL2021-0004) approved by City Council on July 6, 2021, which is located south of future 14th Street, immediately east of Northrup Avenue extension.

Improvements are for the construction of 14th Street, Northrup Avenue, water, nonpotable water and sanitary sewer main extensions. Approximate cost of this agreement for construction is $2,029,494.49.

X. Legal/Political Considerations:

Not Applicable

XI. Alternatives/Options:

- *Approve Resolution*
- *Do not approve Resolution*

XII. Financial Considerations:

None

XIII. Staff Recommendation:

Staff recommends approval of this Subdivision Improvement Agreement between the City of Fort Lupton and Sun Willow Bend LLC.

RESOLUTION NO. 2021R0xx

A RESOLUTION OF THE CITY COUNCIL OF FORT LUPTON APPROVING THE LUPTON VILLAGE LAND DEVELOPER, LLC SUBDIVISION IMPROVEMENT AGREEMENT OF THE LUPTON VILLAGE PUD SECOND FILING FINAL PLAT LOCATED IN FORT LUPTON, WELD COUNTY, COLORADO.

WHEREAS, the City Council Resolution No. 2021R022 approved the Willow Bend Final PUD Plat with conditions July 6, 2021; and

WHEREAS, Developer is required to construct certain public improvements as a condition of subdivision approval for the Development; and

WHEREAS, the City Council finds that the Subdivision Improvement Agreement is in conformance with the Fort Lupton Land Use Plan, zoning code and is consistent with the goals and policies therein; and

NOW THEREFORE BE IT RESOLVED that the Fort Lupton City Council reviewed the Subdivision Improvement Agreement with supporting documentation. Based upon review of the applicable policies and goals in the Fort Lupton Land Use Plan, review of the Zoning Regulations, and analysis of staff comments, the City hereby approves the Lupton Village Land Developers, LLC Subdivision Improvement Agreement and authorizes the Mayor to sign.

APPROVED AND PASSED BY A MAJORITY VOTE OF THOSE ELECTED TO THE CITY COUNCIL THIS 6th DAY OF JULY 2021.

City of Fort Lupton, Colorado

_____

Zo Stieber, Mayor

Attest:

_____

Maricela Peña, City Clerk

Approved as to form:

_____

Andy Ausmus, City Attorney

PUBLIC IMPROVEMENT AGREEMENT
FOR
WILLOW BEND

THIS AGREEMENT is made and entered into this _____ day of _____(the "**Effective Date**"), by and between the **CITY OF FORT LUPTON**, a municipal corporation, in the County of Weld, State of Colorado, hereinafter referred to as the "**City**," and **SUN WILLOW BEND LLC**, a Michigan limited liability company. hereinafter referred to as "**Developer**", together referred to as the "**Parties**".

WHEREAS, Developer has submitted a Preliminary PUD, Preliminary Subdivision Plat and Preliminary Utility Plans for Willow Bend subdivision ("**Subdivision**" or "**PUD**"), a copy of which PUD Plat is attached hereto as **Exhibit "A"** and incorporated herein by reference, and which Plat has been reviewed and approved by the Planning Commission and City Council; and

WHEREAS the PUD will be submitted for approval by the City of Fort Lupton City Council Project No. LUP2020-0031 & PPL2020-0004 requiring a Subdivision Improvements Agreement; and

WHEREAS the Site Plan to be approved and recorded shall be subject to the terms and conditions of this Agreement; and

WHEREAS, Developer is required to construct certain public improvements (the "**Public Improvements**") as a condition of PUD and Site Plan approval for the Development; and

WHEREAS, Developer shall also construct certain private improvements serving the Subdivision (the "**Private Improvements**"); and

WHEREAS, Section 17-23(c) of the City of Fort Lupton Municipal Code requires that a subdivision agreement for Public Improvements be executed by the Developer and the City and recorded in the office of the Weld County Clerk and Recorder; and

WHEREAS, Section 17-23(f)(7) of the City of Fort Lupton Municipal Code requires that the installation of the required Public Improvements be guaranteed in the form of letter of credit, cash, or other suitable means, which have been approved by the City Attorney.

NOW, THEREFORE, in consideration of the foregoing, the Parties promise, covenant and agree as follows:

1.0 GENERAL CONDITIONS

1.1. Development Obligation. Developer shall be responsible for performance of the covenants set forth herein. Unless as otherwise amended within this agreement, the Developer shall be responsible for performance of all requirements in this agreement.

1.2. This agreement is applicable to Public Improvements required for this development. Private, on-site facilities and improvements are the responsibility of the developer.

1.3. Engineering and Surveying Services. Developer agrees to furnish, at its expense, all necessary engineering and surveying services relating to the design layout and construction of the Public Improvements and Private Improvements depicted on **Exhibit "A"** and

Exhibit "B" attached hereto and fully incorporated herein by this reference. Said engineering services shall be performed by or under the supervision of a Registered Professional Engineer or Registered Land Surveyor, or other professionals as appropriate, licensed by the State of Colorado, and in accordance with applicable Colorado law, and shall conform to the standards and criteria for public improvements as established and approved by the City as of the date of submittal to the City.

1.4. Construction Standards. Developer shall construct all Public Improvements required by this Agreement, in accordance with plans and specifications approved in writing by the City, in conformance with all applicable codes and ordinances as adopted by the City, and in full conformity with the City's construction and specifications applicable at the time of actual construction.

1.5. Development Coordination. Unless specifically provided in this Agreement to the contrary, all submittals to the City or approvals required of the City in connection with this Agreement shall be submitted to or rendered by the City Administrator, or his designee, who shall have general responsibility for coordinating development with Developer.

1.6. Construction Acceptance and Warranty.

No later than ten (10) days after the Public Improvements are completed for a particular Phase, Developer shall request and the City shall provide inspection by the City. If Developer does not request this inspection within ten (10) days of completion of the Public Improvements, the City may conduct the inspection without the approval of Developer. Developer shall provide "as-built" drawings of the Public Improvements for such Phase no later than thirty (30) days after the Public Improvements are completed. If the Improvements completed by Developer are satisfactory, the City shall grant construction acceptance ("**Construction Acceptance**") within ten (10) days of the Developer's submission of "as-built" drawings, which shall be subject to final acceptance ("**Final Acceptance**") as set forth herein. If the Public Improvements completed by Developer are unsatisfactory, the City shall provide written notice to Developer of the repairs, replacements, construction or other work required to receive Construction Acceptance within ten (10) days from the date of City inspection. Developer shall complete all needed repairs, replacements, construction or other work within thirty (30) days of said notice, weather permitting. After Developer does complete the repairs, replacements, construction or other work required, Developer shall request a re-inspection of such work within ten (10) days to determine if Construction Acceptance can be granted. The City shall provide either Construction Acceptance or written notice of additional repairs, replacements, construction or other work required to receive Construction Acceptance within ten (10) days of the re-inspection date. The City shall issue no certificate of occupancy until the City has granted the Construction Acceptance.

1.7. Final Acceptance. At least thirty (30) days before two (2) years has elapsed from the issuance of Construction Acceptance, or as soon thereafter as weather permits, Developer shall request a Final Acceptance inspection. The City shall inspect the Improvements and shall notify the Developer in writing of all deficiencies and necessary repairs. After Developer has corrected all deficiencies and made all necessary repairs identified in said written notice, the City shall issue to Developer a letter of Final Acceptance.

1.8. Testing and Inspection.

(a) At all times during construction of the Public Improvements, the City shall have access to inspect materials and workmanship, and all materials and work not conforming to

the approved plans and specifications shall be repaired or removed and replaced at Developer's expense so as to conform to the approved plans and specifications.

(b) The Developer will be responsible for oversight of the construction of the Public Improvements. The Developer shall solicit and retain a third-party engineer or inspector, solely at Developer's cost, to perform oversight, provided the engineer/inspector's qualifications are approved by the City prior to commencement of construction of the Public Improvements. The Developer will provide the resume of a Civil Engineer, or other qualified inspector(s), of the construction and installation of such improvements before construction may begin. The City Engineer or the City's designee shall determine the amount of oversight required, after consultation with the Developer.

(c) All testing required by the City's "Standards and Specifications for the Design and Construction of Public Improvements" shall be the responsibility of the Developer. All test reports shall be provided to the City Engineer.

(d) Any inspection of the Public Improvements required by this Agreement shall be completed during the City's regular time frames for such inspections. City inspection services are provided Monday through Friday, except legal holidays, from 8:00 a.m. to 4:00 p.m. During the hours listed above and except as otherwise provided for in advance, inspections shall be scheduled a minimum of three (3) business days in advance.

1.9. Indemnification and Release of Liability. Developer agrees to defend, indemnify and hold harmless the City, its officers, employees, agents or servants, and to pay any and all judgments rendered against said persons on account of any suit, actions or claim caused by, arising from, or on account of acts or omissions by the Developer, its officers, employees, agents, consultants, contractors and subcontractors; provided, however, that Developer's obligation herein shall not apply to the extent said suit, action or claim results from any acts or omissions of officers, employees, agents or servants of the City. Said obligation of Developer shall be limited to suits, actions or claims based upon conduct prior to Final Acceptance by the City of the construction work. Developer acknowledges that the City's review and approval of plans for development of the Subject Property is done in furtherance of the general public's health, safety and welfare and that no immunity is waived and no specific relationship with, or duty of care to, the Developer or third parties is assumed by such review approval.

1.10. Insurance. Developer shall furnish to the City upon request proof thereof that all employees and contractors engaged in the construction of Improvements are covered by adequate Worker's Compensation Insurance and Public Liability Insurance.

1.11. OSHA Requirements. Developer agrees that it alone bears the responsibility for providing a safe and healthy work environment and shall provide its employees with adequate orientation and training to safely perform the scope of work set forth in this contract. Developer's Contractor shall at all times comply with the safety and health regulations of the Occupational Safety and Health Act of 1970 (29 CFR 1926) including all amendments and modifications thereto. In the event there is a conflict between the safety and health provisions of federal, state or local regulations, the more stringent provision shall prevail. Developer acknowledges and agrees that with respect to the scope of work under this contract, Developer's Contractor shall comply with all obligations and assume all responsibilities for its actions as required by all OSHA rules and regulations. The Contractor shall adhere to all federal, state and local safety and health regulations, laws and ordinances and shall comply with all obligations and assume all

responsibilities imposed upon the "controlling contractor" as such term is defined and construed under all OSHA rules and regulations.

2.0 CONSTRUCTION OF IMPROVEMENTS

2.1. Rights-of-Way, Easements and Permits. Before the City may approve construction plans for any Improvements herein agreed upon, Developer shall acquire, at its own expense, all rights-of-way and easements depicted on the, as required by the City for the construction of the Improvements. All such conveyances shall be free and clear of liens, taxes and encumbrances and shall be by deed, easement, license, agreement in form and substance acceptable to the City Administrator or the Administrator's designee. All title documents shall be recorded at the Developer's expense.

2.2. Phasing Plan. Developer proposes to develop the Development in phases depending upon market demand. The City agrees such phased development is appropriate and approvals, deadlines, acceptances and related matters shall be handled on a phase by phase basis. The anticipated phases of development are generally depicted on the Phasing Plan attached hereto as **Exhibit "C"**, and each phase of the development shall be referred to as a "Phase."

3.0 INFRASTRUCTURE IMPROVEMENTS

3.1. Public Improvements

The Developer agrees to construct phased Public Improvements (the "**Public Improvements**"), within the Development, depicted on **Exhibit "A"** and **Exhibit "B"** attached hereto and fully incorporated herein by this reference. The Developer shall be responsible for providing the City with a Security Bond, Letter of Credit, or cash deposit with the City (the "**Security**") guaranteeing installation of the Public Improvements that are not completed prior to issuance of the first building permit for each Phase. The amount shall be one hundred twenty-five percent (125%) of the applicable phased estimated cost of the required Improvements per approved Construction Drawings. The City may accept portions of the Improvements, reducing the Security for each portion completed and accepted by the City, to no less than twenty-five percent (25%) of the actual or estimated construction costs, whichever is greater, for each completed system. Each Improvement phase shall define a system, i.e. roadways system, sewer system, water system. The remaining twenty-five percent (25%) percent for each system shall be retained to secure the Developer's warranty during the designated warranty period. A warranty period of two (2) years shall apply to all Public Improvements. The City shall release or return the Security to the Developer within Thirty (30) days of receipt of the Conditional Construction Acceptance of any phase or system as provided in paragraph 1.5 herein, less the twenty-five percent (25%) of construction costs to be retained during the warranty period. Upon Final Acceptance of the Public Improvements, as provided in paragraph 1.6 herein, the twenty-five percent (25%) Security retained during the warranty period shall be released or returned to the Developer within Thirty (30) days of issuance of the Final Acceptance.

3.2. Non-Potable Water Public Improvements

The Developer will construct non-potable water main improvements (the "**NPW**") for the purposes of providing raw water to the Development for landscape irrigation. Construction and probationary acceptance of the NPW is required by Developer to qualify for CBT share requirements per Paragraph 6.3(c) of this Agreement.

4.0 LANDSCAPE, PARK AND TRAIL IMPROVEMENTS

The Developer agrees to construct certain Landscape, Park and Trail improvements located within the Development (the "**Landscape, Park and Trail Improvements**") pursuant to the Phasing Plan and the approved P.U.D. and the Landscape Plan attached as **Exhibit "D"** attached hereto and fully incorporated herein by this reference, in accordance with the Phasing plan. The Landscape, Park and Trail Improvements shall be part of the Private Improvements. The City shall not issue Final Acceptance of any Phase until the associated Landscape, Park and Trail Improvements are Substantially Complete. Developer shall provide a surety in the amount of one hundred twenty-five percent (125%) of the estimated cost of the Landscape, Park and Trail Improvements as shown on **Exhibit "E"**, or portion thereof, for improvements that do not have construction acceptance at the time of application for Construction Acceptance of a Phase. Surety in the amount of 25% shall be provided, at the time of recording, for improvements that have received construction acceptance under the terms of this agreement.

5.0 SPECIFICATIONS.

All Public Improvements, including public: (i) street improvements; (ii) curb, gutter and sidewalks and appurtenances thereto; (iii) water mains; (iv) sewer mains; and (v) stormwater improvements shall be constructed and installed so as to meet or exceed City-approved plans, specifications and the Public Improvements described on **Exhibit "A"** and **Exhibit "B"** Public Improvements.

6.0 OTHER REQUIREMENTS

6.1. Trash, Debris, Mud. Developer agrees that, during construction of the Development and Improvements described herein, Developer shall take any and all steps necessary to control trash, debris and wind or water erosion in the Development. Developer agrees to take any and all steps necessary to prevent the transfer of mud or debris from the construction site into public rights-of-way and to immediately remove such mud and debris from public rights-of-way after notification by the City. If these requirements are not met, the developer will be responsible for reimbursing the City for any costs incurred by the City in mitigating impacts of trash, debris, and mud.

6.2. Erosion Control and Sedimentation Plan. Developer agrees to submit an erosion control and sedimentation plan for review and approval by the City Engineer prior to commencement of construction on the site. Each individual lot will require erosion control measures be taken. Colorado State permits required shall be the responsibility of the Developer.

6.3. Colorado Big Thompson (CBT) Water Shares or equivalent. Developer agrees to dedicate to the City the appropriate water required by the applicable City Codes and regulations and deliverable to the City Water Treatment Plant at the time of development in the form of CBT Water, Windy Gap Units or their equivalent. The City will not receive dedication or supply water service to the project until and unless the subject property is included within the Northern Colorado Water Conservancy District and Municipal Sub-District. The Developer may, at its discretion, elect to pay cash-in-lieu to the City to satisfy the CBT water dedication requirement Said cash-in-lieu payments will be made on a per-dwelling unit basis within the Subdivision. For purposes of this Agreement, a "Dwelling Unit" shall mean a land-lease residential unit located on a Dwelling Site and a "Dwelling Site" shall mean the indicated site for each Dwelling Unit as identified on the Final Plat and this Agreement. Developer may, at its discretion, satisfy the water requirements as follows:

(a) Up Front Satisfaction. Developer may, at any time, provide CBT, pay cash-in-lieu, or some combination thereof, for one or more phases or for the entire project; or

(b) Phased Satisfaction. Developer may provide CBT, pay cash-in-lieu, or some combination thereof, prior to the issuance of the first Building Permit for a Dwelling Unit in any particular Phase.

Dedicated CBT water shares shall remain attached to the Property and may be allocated to Dwelling Sites and Dwelling Units at Developer discretion.

(c) Equivalent Shares. The City herein agrees that the Developer may satisfy the CBT Water Shares or equivalent requirement of Paragraph 6.3 by purchasing equivalents via cash-in-lieu at a cost of 25% of current market price for one share of CBT or $10,000 (whichever is more) per dwelling site, in accordance with Resolution No. 2020R060.

6.4. Maintenance Responsibility. Interior roadways, storm drainage system, water lines, sewer lines and other privately owned utility or service facilities shall be maintained in good working condition by Developer/Property Owner.

6.5. Drainage Participation. Developer agrees to participation in the drainage basin outfall construction costs based on the site detention release rates as a percentage of total basin flow to the storm conveyance from the northwest corner of this property to the Golden Pond Regional Detention facility located at 14th Street and Pacific Court.

7.0 MISCELLANEOUS TERMS

7.1. Local Codes and Ordinances. In addition to any of the items listed in this Agreement, all construction in the Development is subject to all local Codes and Ordinances as adopted by the City subject to exceptions agreed or granted.

7.2. Recording of Agreement. The City shall record this Agreement at Developer's expense in the office of the Clerk and Recorder, County of Weld, State of Colorado, and the City shall retain the recorded Agreement.

7.3. Binding Effect of Agreement. This Agreement shall run with the land included within the Development and shall inure to the benefit of and be binding upon the successors and assigns of the parties hereto.

7.4. Modification and Waiver. No modification of the terms of this Agreement shall be valid unless in writing and executed with the same formality as this Agreement, and no waiver of the breach of the provisions of any section of this Agreement shall be construed as a waiver of any subsequent breach of the same section or any other sections which are contained herein.

7.5. Notices. Any notice or communication required or permitted hereunder shall be given in writing and shall be personally delivered or sent by United States mail, postage prepaid, registered or certified mail, return receipt requested, addressed as follows:

CITY:	WITH COPY TO:
City of Fort Lupton Attention: City Administrator 130 South McKinley Avenue Fort Lupton, Colorado 80621	City Attorney 130 South McKinley Avenue Fort Lupton, Colorado 80621
DEVELOPER:	WITH COPY TO:
SUN WILLOW BEND LLC 27777 Franklin Road, Suite 200 Southfield, Michigan 48034 Attn: Chief Operating Officer	Lyons Gaddis 515 Kimbark Street, Suite 200 Longmont, Colorado 80502-0908 Attn: Cameron A. Grant

or to such other address or the attention of such other person(s) as hereafter designated in writing by the applicable parties in conformance with this procedure. Notices shall be effective upon mailing or personal delivery in compliance with this paragraph.

7.6. No Waiver Of Governmental Immunity. The City, its elected officials, officers and employees are relying upon, and do not waive or intent to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. Sec. 24-10-101 et seq. as amended or otherwise available to the City. Nothing herein shall operate as a waiver of any right the City has of governmental immunity under Colorado law which is specifically herein reserved.

7.7. Force Majeure. Neither party shall be liable or responsible to the other party nor be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any obligation under this Agreement when such failure or delay is caused by or results from causes beyond the reasonable control of the affected party, including but not limited to fire, floods, embargoes, pandemics, wars, acts of war (whether war is declared or not), insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, instances affecting public health including pandemics, acts of God or acts, omission, or delays in acting by any governmental authority. Provided, however, that the party so affected shall use reasonable efforts to avoid or remove such causes of non-performance, and shall continue performance hereunder with reasonable dispatch whenever such causes are removed. Either party shall provide the other party with prompt written notice of any delay or failure to perform that occurs by reason of force majeure. The parties shall mutually seek a resolution of the delay or the failure to perform as noted above.

7.8. Approvals. Whenever approval or acceptance of a matter is required or requested of the City pursuant to any provisions of this Agreement, the City shall act reasonably in responding to such matter, and no such approval or acceptance shall be unreasonably withheld or delayed.

7.9. Title and Authority. Developer warrants to the City that it is the record owner of the Subject Property upon which the Development shall be constructed or is acting in accordance

with the authority of the owner. The undersigned further warrants to have full power and authority to enter into this Agreement.

7.10. Severability. This Agreement is to be governed and construed according to the laws of the State of Colorado. In the event that any provision of this Agreement is held to be violative of city, state or federal laws and hereby rendered unenforceable, either party, in its sole discretion, may determine whether the remaining provisions will or will not remain in force.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Parties hereto have caused their duly authorized officials to place their hands and seals upon this Agreement the day and year first above written.

CITY OF FORT LUPTON, a Colorado municipal corporation

By: _____
Zo Stieber, Mayor

Attest

_____
_____, City Clerk

SUN WILLOW BEND LLC, a Michigan limited liability company

By: SUN COMMUNITIES OPERATING LIMITED PARTNERSHIP, a Michigan limited partnership, its Sole Member

By: SUN COMMUNITIES, INC., a Maryland corporation, General Partner

By: _____
John McLaren, President and
Chief Operating Officer

State of Michigan)
)ss
County of Oakland)

The foregoing instrument was acknowledged before me this ___ day of _____, 2021 by John B. McLaren, as the President and Chief Operating Officer of Sun Communities, Inc., a Maryland corporation, which is the sole general partner of Sun Communities Operating Limited Partnership, a Michigan limited partnership, which is the sole member of SUN WILLOW BEND LLC, a Michigan limited liability company, on behalf of such company.

_____
_____
Notary Public, _____ County,

My Commission Expires _____
Acting in Oakland County

EXHIBIT A

WILLOW BEND SUBDIVISION

PRELIMINARY PLAT & PRELIMINARY PUD PLAN

SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT NO. LUP2020-0031 & PLAN NO. PPL2020-0004

LEGEND

- PROPERTY BOUNDARY
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED CATCH CURB & GUTTER
- PROPOSED SPILL CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- EXISTING SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED SANITARY
- SS — EXISTING SANITARY (# = SIZE)
- S — PROPOSED SANITARY SERVICE
- PROPOSED STORM
- EXISTING STORM
- PROPOSED WATER
- W — EXISTING WATER
- W — PROPOSED WATER SERVICE
- PROPOSED HYDRANT
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- FO — EXISTING FIBER OPTIC
- GAS — EXISTING GAS

BENCHMARK

VERTICAL DATUM: NAVD 88 – GEOID MODEL 12B
ELEVATIONS BASED ON NGS "U 260 RESET" WITH PUBLISHED ELEVATION OF 4893.9'.

BASIS OF BEARING

THE EAST LINE OF THE SOUTHEAST QUARTER OF SECTION 33 AS BEARING NORTH 00° 09' 31" WEST.

CONTACT LIST

OWNER:
SUN COMMUNITIES, INC.
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48114
(248) 208-2556
CONTACT: JOHN B. MCLAREN

PLANNING & LANDSCAPING:
RVI
120 SOUTH ASH AVENUE
SUITE 201
TEMPE, AZ 85281
(480) 994-0994
CONTACT: BRITTANY GEIST

SURVEYOR:
ATWELL, LLC.
143 UNION BLVD.,
SUITE 700
LAKEWOOD, CO 80228
(303) 462-1100
CONTACT: BRIAN RITZ

CIVIL ENGINEER:
ATWELL, LLC.
143 UNION BLVD.,
SUITE 700
LAKEWOOD, CO 80228
(720) 541-6601
CONTACT: RICK WEED

UNITED POWER (ELEC):
P.O. BOX 929
BRIGHTON, CO 80601
(720) 659-0551
CONTACT: HECTOR AVENDANO

CITY OF FORT LUPTON:
130 S. MCKINLEY AVE.
FORT LUPTON, CO 80621
(720) 857-6694
CONTACT: ROY VESTAL

XCEL ENERGY(GAS):
5460 W. 60TH AVE.
ARVADA, CO 80003
(720) 895-4999
CONTACT: DONNA SANDERS

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2" ALUMINUM CAP STAMPED "ALPHA ENGNRG 1997 25937" AND AT THE EAST END BY A FOUND 2-1/2" ALUMINUM CAP STAMPED "GREENHORNE & O'MARA INC. 1993 PLS 28656". SAID NORTH LINE BEARS NORTH 89°58'12" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO;

COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER SOUTH 00°10'09" EAST 30.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 14-1/2 (14TH/ STREET) AS DESCRIBED IN BOOK 76 AT PAGE 126 WELD COUNTY RECORDS, AND THE POINT OF BEGINNING;

THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE NORTH 89°58'06" EAST 2645.50 FEET TO A POINT ON THE EAST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID EAST LINE NORTH 00°08'34" WEST 30.00 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 33;

THENCE ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 33 NORTH 00°08'25" WEST 1842.81 FEET TO THE CENTERLINE OF FULTON DITCH;

THENCE ALONG THE CENTERLINE OF FULTON DITCH THE FOLLOWING TWENTY-SIX (26) COURSES:

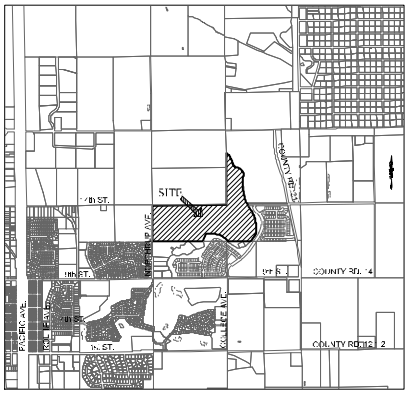
1. SOUTH 46°09'18" EAST 161.51 FEET;
2. SOUTH 26°34'39" EAST 237.74 FEET;
3. SOUTH 17°06'19" EAST 155.42 FEET;
4. SOUTH 56°18'27" EAST 109.68 FEET;
5. SOUTH 73°59'11" EAST 122.24 FEET;
6. SOUTH 45°26'22" EAST 173.40 FEET;
7. SOUTH 15°54'54" EAST 92.77 FEET;
8. SOUTH 09°11'44" WEST 208.08 FEET;
9. SOUTH 02°10'36" EAST 360.14 FEET;
10. SOUTH 11°12'41" EAST 382.04 FEET;
11. SOUTH 29°24'52" EAST 143.19 FEET;
12. SOUTH 29°31'20" EAST 467.66 FEET;
13. SOUTH 11°45'35" EAST 367.88 FEET;
14. SOUTH 02°13'20" EAST 191.53 FEET;
15. SOUTH 16°42'35" WEST 177.01 FEET;
16. SOUTH 39°03'23" WEST 269.72 FEET;
17. SOUTH 47°56'22" WEST 237.78 FEET;
18. SOUTH 63°33'42" WEST 205.14 FEET;
19. SOUTH 85°19'19" WEST 82.20 FEET;
20. NORTH 53°17'11" WEST 266.98 FEET;
21. NORTH 67°19'06" WEST 102.80 FEET;
22. NORTH 44°49'06" WEST 306.80 FEET;
23. NORTH 62°30'49" WEST 185.28 FEET;
24. NORTH 84°27'39" WEST 426.41 FEET;
25. SOUTH 24°35'11" WEST 259.79 FEET;
26. SOUTH 04°39'12" EAST 31.82 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH HALF OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID SOUTH LINE SOUTH 89°54'18" WEST 1818.70 FEET TO A POINT ON THE WEST LINE OF SAID SOUTHWEST QUARTER;

THENCE ALONG SAID WEST LINE NORTH 00°09'06" WEST 1291.08 FEET TO THE POINT OF BEGINNING.

SUBJECT TO WELD COUNTY ROAD RIGHT-OF-WAY.

CONTAINING 5,554,830 SQUARE FEET, OR 127.52 ACRES, MORE OR LESS.



VICINITY MAP
SCALE: 1"=2,000'

WILLOW BEND PUD ZONING REQUIREMENTS TABLE

PARCEL	PROPOSED PUD ZONE	R-1A ZONE
AREA (AC)	127.5290	
ALLOWABLE LAND USE	SFD	SFD
PERMITTED DENSITY (UNITS/AC)	7	6.7
MAXIMUM UNITS	450	
MINIMUM STILL SIZE (SF)	5500	6500
MINIMUM SITE WIDTH AT STREET (FT) (1)	40	30
MAXIMUM BUILDING COVERAGE (FOR STRUCTURES ONLY)	45%	
PRINCIPAL BUILDING		
MAXIMUM HEIGHT (FT)	35	35
MINIMUM SETBACK FOR ALL STRUCTURES FROM 14TH STREET (FT)	25	NA
MINIMUM SETBACK FOR ALL STRUCTURES FROM NORTHRUP AVE. (FT)	25	NA
MINIMUM FRONT YARD SETBACK FOR PRINCIPAL BUILDING (FT)	24	25
MINIMUM FRONT YARD SETBACK - GARAGE (GARAGE DOOR SIDE) (FT)	24	25
MINIMUM SIDE YARD SETBACK (FT)	5	5
MINIMUM REAR YARD SETBACK (FT)	10	20
MINIMUM CORNER SIDE YARD SETBACK (FT)	15	20
MINIMUM DWELLING SIZE (SF)	900	900
ACCESSORY USE		
MAXIMUM HEIGHT (FT)	15	NA
MAXIMUM ACCESSORY BUILDING SIZE (SF)	600	1000
FRONT SETBACK (NOT ALLOWED IN FRONT YARD)	NA	NA
MINIMUM SIDE SETBACK (FT)	5	5
MINIMUM CORNER SETBACK (FT)	15	20
MINIMUM REAR SETBACK (FT)	5	5
PARKING REQUIREMENTS		
OFFSTREET SPACES PER UNIT	3	2

(1) For sites fronting Cul-de-Sacs/Knuckles/Eyebrows the "Minimum Site Width At Street" can be reduced to a minimum of 20 feet.

SHEET INDEX

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	TYPICAL ROAD SECTIONS & DETAILS
4	PHASING PLAN
5	TYPICAL SITE DETAILS
6	EXISTING CONDITIONS MAP
PRELIMINARY PLAT	
7	OVERALL
8	PLAN VIEW 1
9	PLAN VIEW 2
10	PLAN VIEW 3
11	PLAN VIEW 4
12	PLAN VIEW 5
13	PLAN VIEW 6
14	PLAN VIEW 7
15	PLAN VIEW 8
16	LINE AND CURVE TABLES
OVREALL UTILITY PLANS	
17	AREA 1
18	AREA 2
19	AREA 3
OVERALL GRADING PLANS	
20	AREA 1
21	AREA 2
22	AREA 3
LANDSCAPE PLANS	
L0.00	COVER
L1.00	CONCEPTUAL LANDSCAPE PLAN
L2.00	FENCE DETAILS

TRACT SUMMARY TABLE

TRACT	AREA (SF)	AREA (AC)	USE	OWNERSHIP	MAINTENANCE
A	68,498	1.57	PRIVATE ROADWAY/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
B	562,272	12.91	PRIVATE ROADWAY/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
C	360,124	8.45	PUBLIC OPEN SPACE/DRAINAGE/UTILITIES	CITY OF FORT LUPTON	SUN COMMUNITIES, INC
D	34,591	0.79	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
E	385,521	8.85	PRIVATE OPEN SPACE/DRAINAGE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
F	16,474	0.38	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
G	7,649	0.17	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
H	9,934	0.23	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
I	78,848	1.81	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
J	7,235	0.17	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
K	139,310	3.20	PRIVATE AMENITY CENTER	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
L	6,274	0.14	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
M	8,872	0.20	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
N	6,965	0.16	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
O	10,457	0.24	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
P	114,355	2.63	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
Q	6,168	0.14	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
R	42,746	0.98	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
S	19,169	0.44	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
T	158,054	3.63	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
U	71,974	1.65	PUBLIC OPEN SPACE/UTILITIES FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC
V	135,318	3.11	PUBLIC OPEN SPACE/UTILITIES FULTON DITCH	CITY OF FORT LUPTON	SUN COMMUNITIES, INC
W	31,892	0.73	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
X	48,441	1.11	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
Y	6,662	0.15	PRIVATE OPEN SPACE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
Z	195,193	4.48	PRIVATE OPEN SPACE/DRAINAGE/UTILITIES	SUN COMMUNITIES, INC	SUN COMMUNITIES, INC
TOTAL	2,537,879	58.26			

LAND SUMMARY CHART

TYPE	NUMBER	AREA (SF)	AREA (AC)	PERCENT OF TOTAL AREA
MH SITES (LOTS 1-33)	1-9	2,774,730	63.70	49.95%
TRACTS A-B (PRIVATE ROADS)	2	630,770	14.40	11.35%
TRACTS D-F & I-Y (PRIVATE OPEN SPACE)	21	1,337,884	30.57	24.07%
TRACTS C, U & V (PUBLIC OPEN SPACE)	3	574,418	13.21	10.34%
PUBLIC RIGHT-OF-WAY		242,230	5.56	4.36%
TOTAL		5,554,830	127.52	100.00%

THESE PRELIMINARY DEVELOPMENT PLANS WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF FORT LUPTON RULES AND REGULATIONS.

RICHARD J. WEED, P.E. — DATE
COLORADO NO. 22076
FOR AND ON BEHALF OF ATWELL, LLC.
(720) 541-8601
RWEED@ATWELL-GROUP.COM

ATWELL, INC. ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL AND VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE RESPONSIBILITY OF THE CONTRACTOR TO FILED VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY ADJACENT STRUCTURES, OR OF ANY OTHER PERSONS.

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ATWELL
303.462.1100 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228

DEVELOPER
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48114
(248) 208-2556
JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
COVER SHEET

SUN

DATE 5/15/2020

A REVISED STREET NAMES PER CITY COMMENTS 5/7/2021 - SJH
REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 1

CAD FILE: 19001956-COVER-PLEDING

EXHIBIT A

VESTING NOTE

APPROVAL OF THIS DOCUMENT ESTABLISHES VESTED PROPERTY RIGHTS PURSUANT TO ARTICLE 68, TITLE 24, COLORADO REVISED STATUTES.

ENGINEERING NOTES

1. LOCATION OF ALL EXISTING UTILITIES (PRIVATE OR PUBLIC) SHALL BE IDENTIFIED OR VERIFIED BY CONTRACTOR PRIOR TO MOBILIZATION, CONSTRUCTION OR ORDERING OF MATERIALS. FOR INFORMATION CONTACT DENVER INTER-UTILITY GROUP, 1-800-922-1987 OR LOCAL AGENCY, PRIVATE ENTITY, OR OTHER ASSOCIATED ENTITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL, REPLACEMENT, AND DELAY RELATED TO UNVERIFIED EXISTING CONDITIONS WHERE THE CONTRACTOR FINDS CONFLICTS OR DISCREPANCIES THEY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

2. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE WORK SHOWN ON THE CONSTRUCTION PLANS OR DESCRIBED IN THE SPECIFICATIONS IN A SATISFACTORY MANNER. UNLESS OTHERWISE PROVIDED THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS TO COMPLETE THE WORK.

3. SITE "REFERENCE LINES" AS INDICATED ON THE PRELIMINARY PLAT/PUD DRAWING ARE SHOWN FOR PURPOSES OF ESTABLISHING AND MAINTAINING SPECIFIC SITE SETBACK CRITERIA FOR THE UNITS SET ON EACH SITE. THE SITES WILL REMAIN UNDER THE OWNERSHIP OF THE COMMUNITY ESTABLISHED BY THE DEVELOPER OR FUTURE ASSIGNS. INDIVIDUAL FEE SIMPLE LOTS ARE NOT, AND WILL NOT BE CREATED BY THIS PRELIMINARY AND FINAL PLAT.

WILLOW BEND PUD ZONE DISTRICT STANDARDS

1. INTENT. THIS PUD ZONE DISTRICT IS INTENDED TO PROVIDE FOR THE ESTABLISHMENT OF SINGLE-FAMILY USES ON STANDARD SIZE SITES, INCLUDING THE NECESSARY APPURTENANT AND ACCESSORY FACILITIES AND USES ASSOCIATED WITH SUCH LIVING AREAS. THE INDIVIDUAL SITES DEPICTED ON THIS PUD WILL BE OWNED BY THE DEVELOPER OR FUTURE ASSIGNS.

2. DEFINITIONS. REFER TO CHAPTER 16, SECTION 16-6 OF THE FORT LUPTON, COLORADO MUNICIPAL CODE

3. PERMITTED USES.
   a. SINGLE-FAMILY DWELLINGS, INCLUDING HOMES BUILT ON SITE, HUD-APPROVED MODULAR HOMES, AND HUD-APPROVED FACTORY-BUILT HOMES.
   b. HOME OCCUPATIONS.
   c. ACCESSORY BUILDINGS TYPICALLY FOUND WITH THE ABOVE PERMITTED USES.

4. BUILDING HEIGHT. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

5. SETBACKS. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

6. ACCESSORY BUILDING SETBACKS. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

7. MINIMUM LOT AREA. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.

8. MINIMUM SQUARE FEET OF FLOOR AREA (DWELLING SIZE). REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT

9. LOT FRONTAGE. REFER TO PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT. MINIMUM LOT FRONTAGE IS MEASURED AT FRONT SETBACK.

10. NO ENCROACHMENTS INTO EASEMENTS BY PERMANENT BUILDINGS WILL BE ALLOWED.

11. YARDS AND SETBACKS.
   a. EVERY PART OF A REQUIRED YARD OR SETBACK SHALL BE OPEN AND UNOBSTRUCTED, EXCEPT FROM THE ORDINARY PROJECTION OF SILLS, CORNICES, ORNAMENTAL FEATURES AND EAVES; PROVIDED, HOWEVER, THAT NONE OF THE ABOVE PROJECTIONS SHALL PROJECT INTO A SIDE YARD MORE THAN TWENTY-FOUR (24) INCHES.
   b. UNCOVERED PORCHES OR DECKS IN FRONT YARDS LESS THAN THIRTY (30) INCHES ABOVE FINISHED GRADE MAY EXTEND NOT MORE THAN TEN (10) FEET INTO THE REQUIRED FRONT YARD SETBACK.
   c. COVERED PORCHES OR DECKS THAT ARE OPEN ON AT LEAST THREE (3) SIDES WITH NO WALLS OR SCREENS AND LESS THAN (30) INCHES ABOVE FINISHED GRADE MAY EXTEND NOT MORE THAN SIX (6) FEET INTO THE REQUIRED FRONT YARD SETBACKS.

12. ACCESSORY BUILDINGS STANDARDS.
   a. SIZE. ACCESSORY BUILDINGS SHALL BE NO LARGER IN AREA THAN SIX HUNDRED (600) SQUARE FEET.
   b. THE USE OF ACCESSORY BUILDINGS WILL GENERALLY BE LIMITED TO THE PARKING OF MOTOR VEHICLES AND THE STORAGE OF PERSONAL BELONGINGS. HOME OCCUPATIONS MAY BE CONDUCTED IN ACCESSORY BUILDINGS, SUBJECT TO APPLICABLE LAWS.
   c. SETBACKS. SETBACKS FOR ACCESSORY BUILDINGS SHALL BE AS SPECIFIED IN THE PUD ZONING REQUIREMENTS TABLE ON SHEET 1 OF THIS DOCUMENT.
   d. DESIGN. ACCESSORY BUILDINGS SHALL BE DESIGNED AND CONSTRUCTED TO BE COMPATIBLE WITH THE PRINCIPAL BUILDING.

13. HOME OCCUPATIONS.
   a. IT IS THE INTENT OF THE CITY TO PERMIT COMMERCIAL ACTIVITIES TO BE CONDUCTED WITHIN DWELLINGS IN SPECIFIED ZONING DISTRICTS AND ON A LIMITED BASIS WHEN THE NATURE OF THE ACTIVITIES DOES NOT ATTRACT LARGE NUMBERS OF CUSTOMERS OR CLIENTS AND IS NOT EVIDENT OR DETRIMENTAL TO THE PEACE, ENJOYMENT AND QUALITY OF LIFE IN THE SURROUNDING NEIGHBORHOOD.
   b. STANDARDS FOR HOME OCCUPATIONS. HOME OCCUPATIONS MUST MEET THE FOLLOWING STANDARDS:
      (1) OTHER THAN RESIDENTS OF THE DWELLING CONTAINING THE HOME OCCUPATION, THERE SHALL BE NO MORE THAN ONE (1) ADDITIONAL FULL- OR PART-TIME EMPLOYEE WORKING AT THE SITE OF THE HOME OCCUPATION.
      (2) THE EMPLOYEE AND CLIENTS MAY PARK IN OFF-STREET PARKING SPACES ON THE SITE OF THE HOME OCCUPATION.
      (3) SPACE USED BY THE HOME OCCUPATION SHALL NOT EXCEED FIVE HUNDRED (500) SQUARE FEET OR THIRTY PERCENT (30%) OF THE TOTAL FLOOR AREA OF THE DWELLING, WHICHEVER IS LESS. THE HOME OCCUPATION SHALL BE CONDUCTED ENTIRELY WITHIN THE DWELLING OR DESIGNATED ACCESSORY BUILDINGS.
      (4) THE HOME OCCUPATION SHALL BE CLEARLY INCIDENTAL AND SECONDARY TO THE USE OF THE DWELLING FOR DWELLING PURPOSES AND MUST NOT CHANGE THE RESIDENTIAL CHARACTER THEREOF.
      (5) THERE SHALL BE NO CHANGE IN THE OUTSIDE APPEARANCE OF THE DWELLING OR OF THE PREMISES OR OTHER VISIBLE EVIDENCE OF THE CONDUCT OF SUCH HOME OCCUPATION, EXCEPT FOR A LIMITED AMOUNT OF SIGNAGE AS SPECIFIED IN THIS CHAPTER.
      (6) THERE SHALL BE NO EXTERIOR STORAGE ON THE PREMISES OF MATERIAL, MERCHANDISE OR EQUIPMENT USED AS A PART OF THE HOME OCCUPATION.
      (7) NO EQUIPMENT OR PROCESS SHALL BE USED IN SUCH HOME OCCUPATION WHICH CREATES ANY GLARE, FUMES, ODORS, NOISE OR OTHER OBJECTIONABLE CONDITIONS DETECTABLE TO THE NORMAL SENSES AT THE UNIT SITE LINE.
      (8) HOME OCCUPATIONS MAY NOT GENERATE MORE THAN TEN (10) BUSINESS-RELATED VEHICLE TRIPS PER DAY.
      (9) THE FOLLOWING USES SHALL NOT BE PERMITTED AS HOME OCCUPATIONS: MOTOR VEHICLE, BOAT OR TRAILER REPAIR OR SERVICE; MACHINE OR WELDING SHOPS; SEXUALLY ORIENTED BUSINESSES; OR ANY OTHER

ARCHITECTURAL GUIDELINES

1. REFER TO WILLOW BEND PUD ZONING REQUIREMENTS TABLE ON SHEET 1.

RESIDENTIAL DESIGN STANDARDS VARIANCES

OWNER/DEVELOPER HAS BEEN GRANTED VARIANCES TO SECTION IV, ITEMS C, E, F & G OF THE CITY OF FORT LUPTON RESIDENTIAL DESIGN STANDARDS. THE EXISTING STANDARD AND THE APPROVED VARIANCE IS NOTED IN THE TABLE BELOW.

EXISTING STANDARD	WILLOW BEND PUD STANDARD
SECTION IV RESIDENTIAL LOT & BUILDING DESIGN	
IV.C MIX OF RESIDENTIAL LOT DIMENSIONS	
NO MORE THAN 40% OF ANY ONE LOT SIZE, UNLESS AGREED TO OTHERWISE BY THE CITY OF FORT LUPTON	THE SITES SHOWN ON THE PUD ARE NOT FEE SIMPLE LOTS. THE SITE REFERENCE LINES ARE REPRESENTATIVE OF THE SPACE ALLOCATED FOR A PARTICULAR UNIT TYPE SET ON A RESPECTIVE SITE, I.E. PERPINDICULAR UNIT (PERPINDICULAR TO STREET), PARALLEL UNIT (UNIT PARALLEL TO STREET) AND CORNER UNITS. SITES WILL TYPICALLY HAVE A WIDTH OF 55', 110' AND 70', RESPECTIVELY WHILE LOT DEPTHS WILL TYPICALLY BE 100', 70' AND 100', RESPECTIVELY. MORE THAN 40% OF THE SITES CAN BE PERPENDICULAR TYPE SITES WHILE THE REMAINING SITES WILL BE MADE UP OF CORNER AND PARALLEL SITES..
IV.E MIX OF DIFFERENT HOUSING MODELS REQUIRED EACH HOME ELEVATION USED SHALL SUBSTANTIALLY AND DISTINCTLY DIFFER FROM OTHER HOME ELEVATIONS IN AT LEAST 4 OF THE FOLLOWING AREAS:	
1. PLACEMENT OF ALL WINDOWS AND DOORS ON THE FRONT FAÇADE (AT LEAST 2' VERTICAL OR HORIZONTIAL VARIATION IN SIZE OR LOCATION REQUIRED). THE USE OF DIFFERENT MATERIALS ON THE FRONT FAÇADE IS REQUIRED.	SOME VARIATIONS IN PLACEMENT OF WINDOWS AND DOORS ON FRONT FAÇADE SHALL BE PROVIDED. THE VARIATIONS ARE NOT REQUIRED ON ALL DOORS AND WINDOWS AND IN SOME CASES CAN BE LESS THAN 2'. THE USE OF DIFFERENT MATERIALS ON THE FRONT FAÇADE IS REQUIRED.
2. SUBSTANTIAL VARIATION IN LOCATION AND/OR PROPORTION OF GARAGES AND GARAGE DOORS.	WHERE GARAGES ARE PROVIDED, SUBSTANTIAL VARIATION IN LOCATION AND/OR PORPORTION OF GARAGES AND GARAGE DOORS, IS NOT REQUIRED.
3. THE WIDTH OF THE FRONT FAÇADE ELEVATION MUST DIFFER MORE THAN 2'.	THIS REQUIREMENT IS WAIVED.
4. VARIATION IN THE LOCATION AND PROPORTION OF FRONT PORCHES.	THIS REQUIREMENT IS WAIVED.
5. SUBSTANTIAL VARIATIONS IN ROOFLINES AND/OR IN THE ANGLE OF ROOF RUNS. ROOFS SHALL HAVE A MINIMUM PITCH OF 4:12.	WHERE POSSIBLE ROOF LINES SHALL BE VARIED. ROOFS SHALL HAVE A MINIMUM PITCH OF 3:12.
6. USE OF ROOF DORMERS.	THIS REQUIREMENT IS WAIVED.
7. A VARIATION OF UNIT TYPES: RANCH, TWO-STORY, AND SPLIT-LEVEL.	THIS REQUIREMENT IS WAIVED.
8. WINDOW SHAPES THAT ARE SUBSTANTIALLY DIFFERENT.	SOME DIFFERENT WINDOW SHAPES SHALL BE INCORPORATED.
9. OTHER DISTINCT AND SUBSTANTIAL DESIGN VARIATIONS APPROVED BY THE CITY.	N/A
10. AT LEAST FOUR DIFFERENT HOME ELEVATIONS WILL BE PROVIDED WITH AS MANY OF THE ABOVE VARIATIONS AS POSSIBLE.	AT LEAST FOUR DIFFERENT HOME ELEVATIONS WILL BE PROVIDED WITH AS MANY OF THE ABOVE VARIATIONS AS POSSIBLE.
IV.F MIX OF ROOF COLORS	
WHERE ASPHALT SHINGLES ARE USED, EACH SUBDIVISION OF 50 UNITS OR MORE SHALL USE AT LEAST FOUR (4) DISTINCT COLORS OF ROOF MATERIALS DISTRIBUTED IN ROUGHLY EQUAL PROPORTIONS THROUGHOUT.	WHERE ASPHALT SHINGLES ARE USED, EACH SUBDIVISION OF 50 UNITS OR MORE SHALL USE AT LEAST TWO (2) DISTINCT COLORS OF ROOF MATERIALS DISTRIBUTED IN ROUGHLY EQUAL PROPORTIONS THROUGHOUT.
IV.G REAR ELEVATIONS	
A HORIZONTIAL OR VERTICAL OFFSET, PROJECTION, OR RECESS OF TWELVE (12) INCHES OR GREATER IS REQUIRED ON ALL REAR ELEVATIONS.	THIS REQUIREMENT IS WAIVED.

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON WERE OBTAINED FROM RECORDS ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OF ITS REPRESENTATIVE. THE SURVEYOR SHALL NOTIFY/RE DISCLOSED ON THE DRAWINGS. EXISTING UTILITIES BEFORE COMMENCING WORK, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF SUCH RECORDS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE!
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER OWNER, ENGINEER, NOR ATWELL, LLC SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY OR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY ADJACENT STRUCTURES, OR OF ANY OTHER PERSONS.

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CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
GENERAL NOTES

SUN

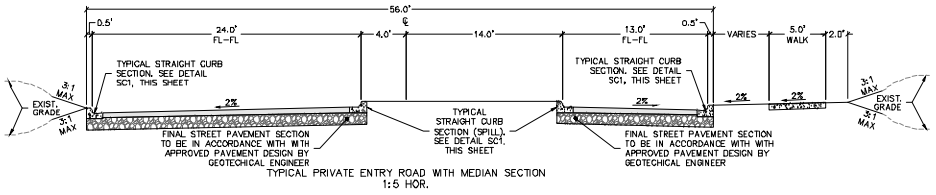
DATE 5/15/2020

A REVISED STREET NAMES PER CITY COMMENTS 5/5/2021 - B.M.
REVISIONS

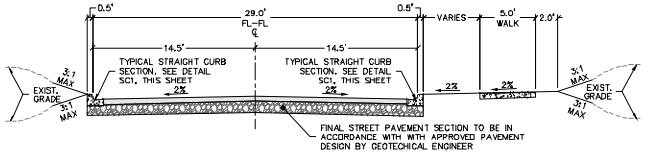
DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 2

CAD FILE: 19001956-COVER-PLDEVNG

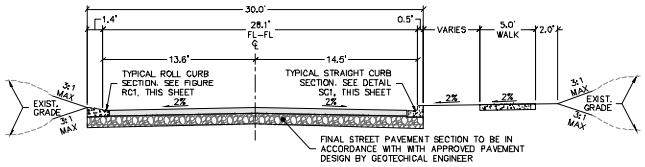
EXHIBIT A



TYPICAL PRIVATE ENTRY ROAD WITH MEDIAN SECTION
1:5 HOR.



TYPICAL PRIVATE ENTRY ROAD WITHOUT MEDIAN SECTION 1



TYPICAL PRIVATE ENTRY ROAD WITHOUT MEDIAN SECTION 2
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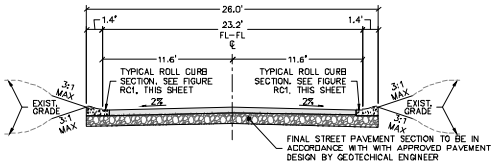
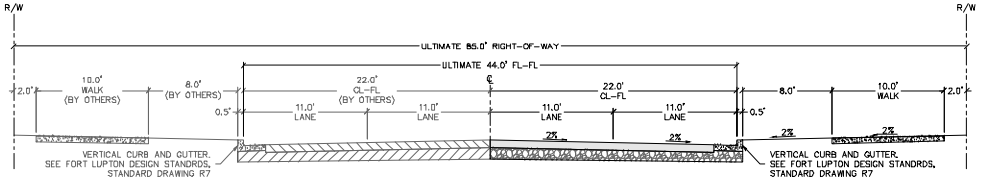
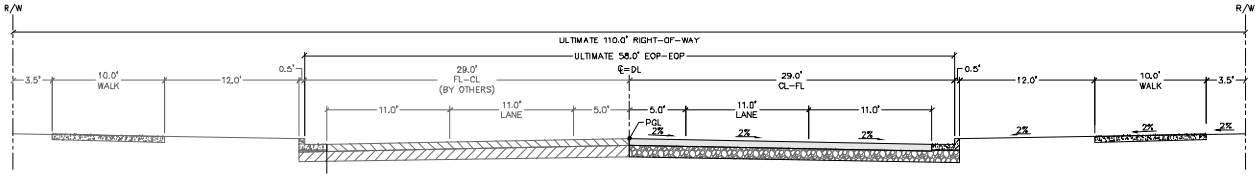


TYPICAL PRIVATE ROAD SECTION
1:5 HOR.



PUBLIC ROADWAY SECTION (NORTHRUP AVENUE)
1:5 HOR.



PUBLIC ROADWAY SECTION (14TH STREET/CR 14½)
1:5 HOR.

SUN COMMUNITIES, INC.
MANUFACTURED HOME COMMUNITIES
DEVELOPMENT CRITERIA & DESIGN STANDARDS

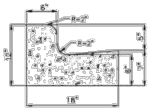


FIGURE SC1
Typical Straight Curb Section

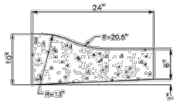


FIGURE RC1
Typical Roll Curb Section

SUN COMMUNITIES, INC.
MANUFACTURED HOME COMMUNITIES
DEVELOPMENT CRITERIA & DESIGN STANDARDS

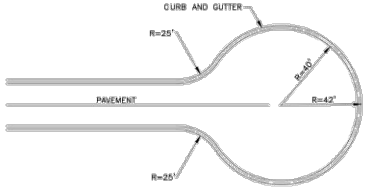
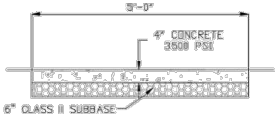


FIGURE CDS
Cul-De-Sac Plan View Standard



NOTES:
1. CONSTRUCTION SHALL BE TO LOCAL SPECIFICATIONS
2. ALL CONCRETE SHALL HAVE A 2% MAXIMUM CROSS SLOPE

FIGURE CW1
Concrete Walk Detail

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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NOTICE!
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FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
TYPICAL ROAD SECTIONS & DETAILS

SUN

DATE 5/15/2020

A REVISED STREET MARKS PER CITY COMMENTS 5/5/2021 - BJM
REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 3

CAD FILE: 19001956-DETAILS-PUD.DWG

EXHIBIT A

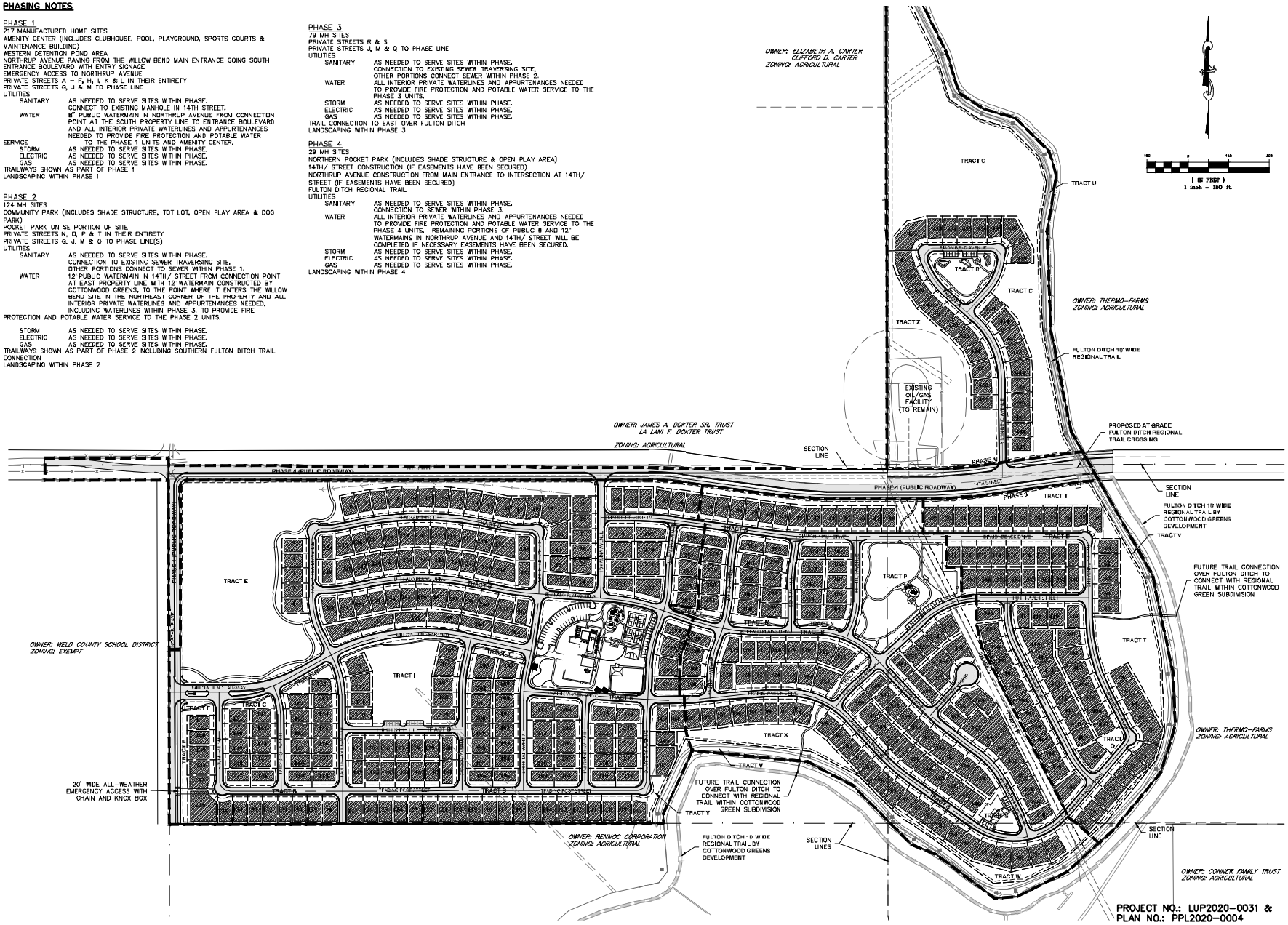
PHASING NOTES

PHASE 1
217 MANUFACTURED HOME SITES
AMENITY CENTER (INCLUDES CLUBHOUSE, POOL, PLAYGROUND, SPORTS COURTS & MAINTENANCE BUILDING)
WESTERN DETENTION POND AREA
NORTHRUP AVENUE PAVING FROM THE WILLOW BEND MAIN ENTRANCE GOING SOUTH
ENTRANCE BOULEVARD WITH ENTRY SIGNAGE
EMERGENCY ACCESS TO NORTHRUP AVENUE
PRIVATE STREETS A – F, H, I, K & L IN THEIR ENTIRETY
PRIVATE STREETS G, J & M TO PHASE LINE
UTILITIES
SANITARY AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECT TO EXISTING MANHOLE IN 14TH STREET.
WATER 8" PUBLIC WATERMAIN IN NORTHRUP AVENUE FROM CONNECTION POINT AT THE SOUTH PROPERTY LINE TO ENTRANCE BOULEVARD AND ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 1 UNITS AND AMENITY CENTER.
STORM AS NEEDED TO SERVE SITES WITHIN PHASE.
ELECTRIC AS NEEDED TO SERVE SITES WITHIN PHASE.
GAS AS NEEDED TO SERVE SITES WITHIN PHASE.
TRAILWAYS SHOWN AS PART OF PHASE 1
LANDSCAPING WITHIN PHASE 1

PHASE 2
124 MH SITES
COMMUNITY PARK (INCLUDES SHADE STRUCTURE, TOT LOT, OPEN PLAY AREA & DOG PARK)
POCKET PARK ON SE PORTION OF SITE
PRIVATE STREETS N, O, P & T IN THEIR ENTIRETY
PRIVATE STREETS G, J, M & Q TO PHASE LINE(S)
UTILITIES
SANITARY AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO EXISTING SEWER TRAVERSING SITE, OTHER PORTIONS CONNECT TO SEWER WITHIN PHASE 1.
WATER 12" PUBLIC WATERMAIN IN 14TH/ STREET FROM CONNECTION POINT AT EAST PROPERTY LINE WITH 12" WATERMAIN CONSTRUCTED BY COTTONWOOD GREENS, TO THE POINT WHERE IT ENTERS THE WILLOW BEND SITE IN THE NORTHEAST CORNER OF THE PROPERTY AND ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED, INCLUDING WATERLINES WITHIN PHASE 3, TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 2 UNITS.
STORM AS NEEDED TO SERVE SITES WITHIN PHASE.
ELECTRIC AS NEEDED TO SERVE SITES WITHIN PHASE.
GAS AS NEEDED TO SERVE SITES WITHIN PHASE.
TRAILWAYS SHOWN AS PART OF PHASE 2 INCLUDING SOUTHERN FULTON DITCH TRAIL CONNECTION
LANDSCAPING WITHIN PHASE 2

PHASE 3
79 MH SITES
PRIVATE STREETS R & S
PRIVATE STREETS J, M & Q TO PHASE LINE
UTILITIES
SANITARY AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO EXISTING SEWER TRAVERSING SITE, OTHER PORTIONS CONNECT SEWER WITHIN PHASE 2.
WATER ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 3 UNITS.
STORM AS NEEDED TO SERVE SITES WITHIN PHASE.
ELECTRIC AS NEEDED TO SERVE SITES WITHIN PHASE.
GAS AS NEEDED TO SERVE SITES WITHIN PHASE.
TRAIL CONNECTION TO EAST OVER FULTON DITCH
LANDSCAPING WITHIN PHASE 3

PHASE 4
29 MH SITES
NORTHERN POCKET PARK (INCLUDES SHADE STRUCTURE & OPEN PLAY AREA)
14TH/ STREET CONSTRUCTION (IF EASEMENTS HAVE BEEN SECURED)
NORTHRUP AVENUE CONSTRUCTION FROM MAIN ENTRANCE TO INTERSECTION AT 14TH/ STREET (IF EASEMENTS HAVE BEEN SECURED)
FULTON DITCH REGIONAL TRAIL
UTILITIES
SANITARY AS NEEDED TO SERVE SITES WITHIN PHASE. CONNECTION TO SEWER WITHIN PHASE 3.
WATER ALL INTERIOR PRIVATE WATERLINES AND APPURTENANCES NEEDED TO PROVIDE FIRE PROTECTION AND POTABLE WATER SERVICE TO THE PHASE 4 UNITS. REMAINING PORTIONS OF PUBLIC 8" AND 12" WATERMAINS IN NORTHRUP AVENUE AND 14TH/ STREET WILL BE COMPLETED IF NECESSARY EASEMENTS HAVE BEEN SECURED.
STORM AS NEEDED TO SERVE SITES WITHIN PHASE.
ELECTRIC AS NEEDED TO SERVE SITES WITHIN PHASE.
GAS AS NEEDED TO SERVE SITES WITHIN PHASE.
LANDSCAPING WITHIN PHASE 4



PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN

PHASING PLAN

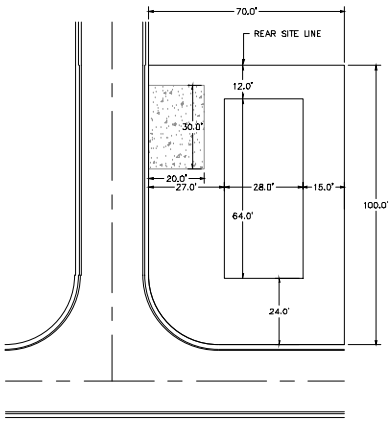
DATE 5/15/2020

REVISIONS
A REVISED STREET NAMES PER CITY COMMENTS 5/5/2021 – BJM

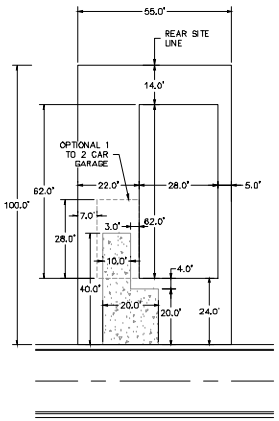
DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 4

CAD FILE: 19001956-PHASING PLAN-PUD.DWG

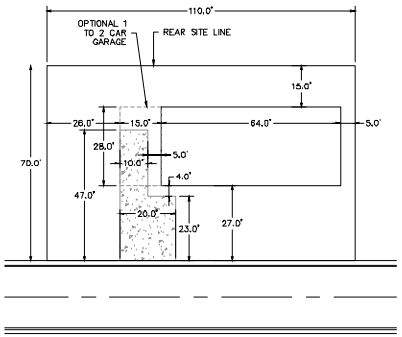
EXHIBIT A



TYPICAL END SITE/PRIVATE ROADWAY
1:20 HOR.



TYPICAL PERPENDICULAR SITE/PRIVATE ROADWAY
1:20 HOR.



TYPICAL PARALLEL SITE/PRIVATE ROADWAY
1:20 HOR.

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE BASED ON DATA OBTAINED FROM RECORDS ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER OWNER NOR ENGINEER SHALL BE RESPONSIBLE OR EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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JOHN B. MCLAREN

CLIENT
SUN

WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN

TYPICAL SITE DETAILS

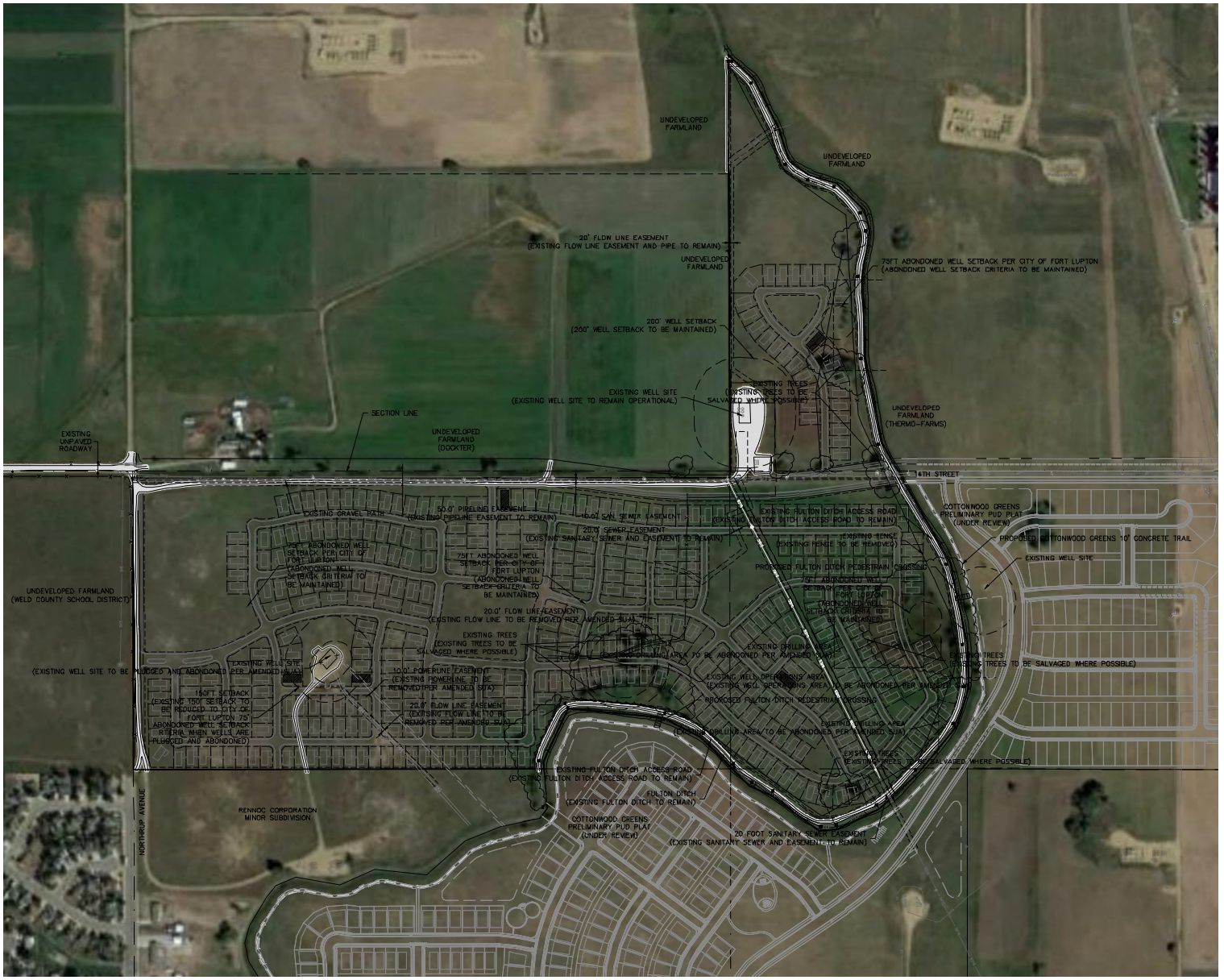
DATE 5/15/2020

A REVISED STREET NAMES PER CITY & COMMENTS 3/1/2021 - BJM
REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 5

CAD FILE: 19001956-DETAILS-PUD.DWG

EXHIBIT A



220 0 200 400

(IN FEET)
1 inch = 800 ft.

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OF ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY ADJACENT STRUCTURES, OR OF ANY OTHER PERSONS.

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JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
EXISTING CONDITIONS MAP

SUN

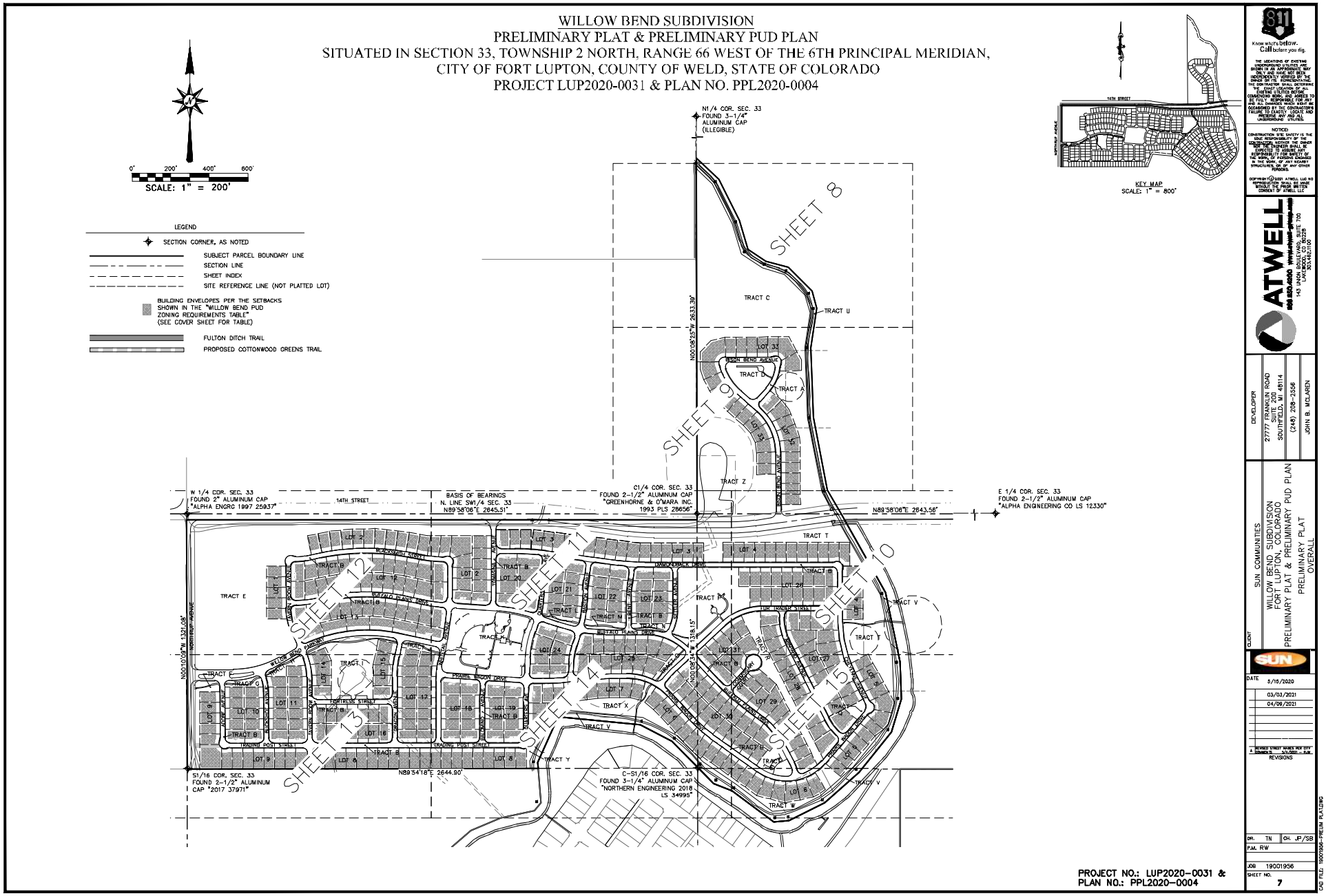
DATE 5/15/2020

A REVISED STREET NAMES PER CITY COMMENTS 3/1/2021 - RJM
REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 6

CAD FILE: 19001956-EXISTING CONDITIONS.DWG

EXHIBIT A



WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
SCALE: 1" = 200'
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL BOUNDARY LINE
SECTION LINE
SHEET INDEX
SITE REFERENCE LINE (NOT PLATTED LOT)
BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
FULTON DITCH TRAIL
PROPOSED COTTONWOOD GREENS TRAIL
N1/4 COR. SEC. 33 FOUND 3-1/4" ALUMINUM CAP (ILLEGIBLE)
W 1/4 COR. SEC. 33 FOUND 2" ALUMINUM CAP "ALPHA ENGRG 1997 25937"
BASIS OF BEARINGS N. LINE SW1/4 SEC. 33 N89°58'06"E 2645.51'
C1/4 COR. SEC. 33 FOUND 2-1/2" ALUMINUM CAP "GREENHORNE & O'MARA INC. 1993 PLS 28656"
E 1/4 COR. SEC. 33 FOUND 2-1/2" ALUMINUM CAP "ALPHA ENGINEERING CO LS 12330"
S1/16 COR. SEC. 33 FOUND 2-1/2" ALUMINUM CAP "2017 37971"
C-S1/16 COR. SEC. 33 FOUND 3-1/4" ALUMINUM CAP "NORTHERN ENGINEERING 2018 LS 34995"
N89°54'18"E 2644.90'
N00°08'25"W 2633.39'
N00°08'34"W 1318.15'
N00°10'09"W 1321.08'
14TH STREET
SHEET 8
SHEET 9
SHEET 10
SHEET 11
SHEET 12
SHEET 13
SHEET 14
SHEET 15
TRACT C
TRACT U
TRACT A
TRACT Z
TRACT T
TRACT E
TRACT V
TRACT X
TRACT Y
TRACT W
BISON BEND AVENUE
BUFFALO PLAINS DRIVE
PRAIRIE WAGON DRIVE
FORTRESS STREET
TRADING POST STREET
BLACKSMITH STREET
DIAMONDBACK DRIVE
FUR TRADER STREET
KEY MAP
SCALE: 1" = 800'
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
Know what's below. Call before you dig.
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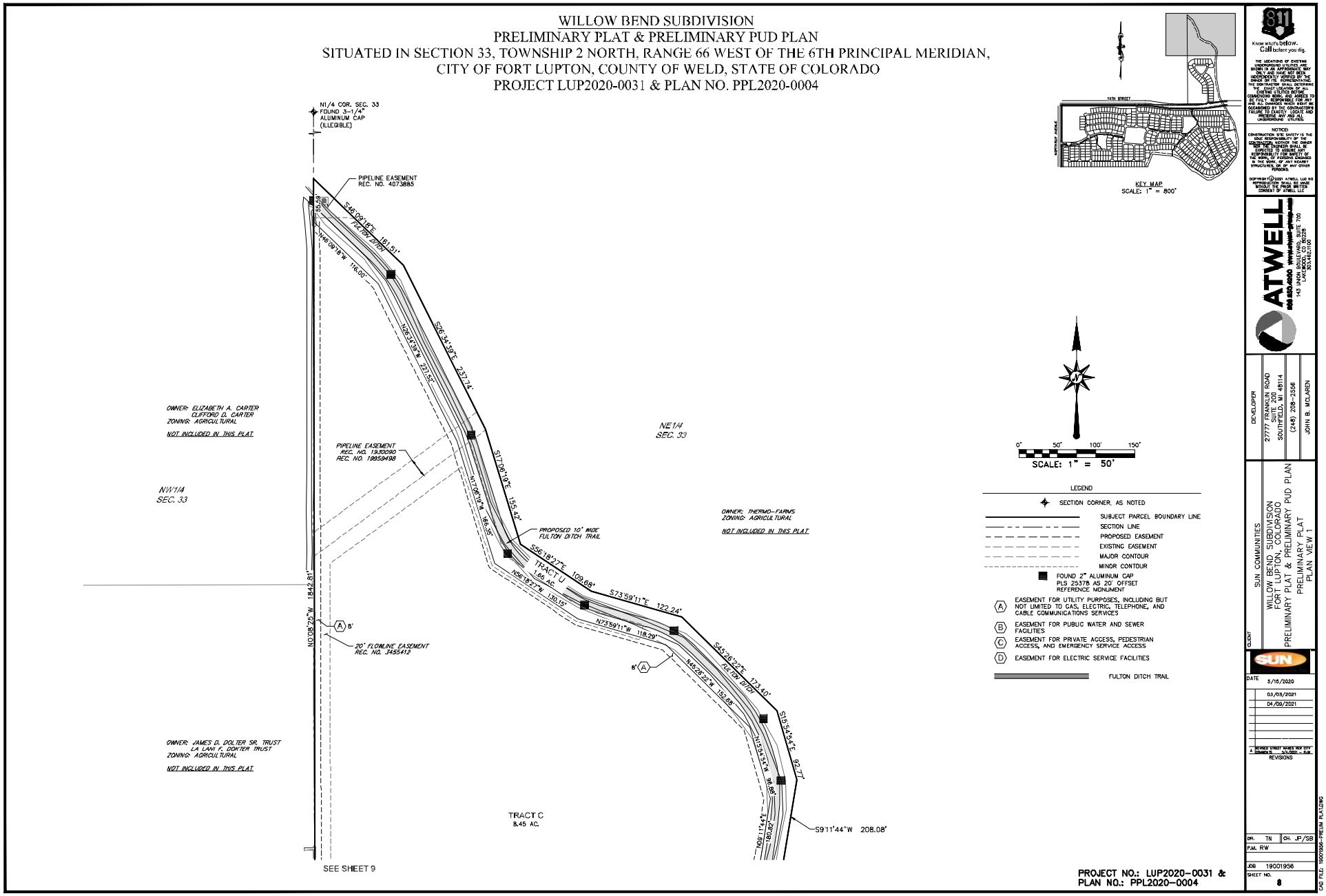
LAKEWOOD, CO 80228
303.462.1100
DEVELOPER
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48114
(248) 208-2556
JOHN B. MCLAREN
CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
OVERALL
SUN
DATE 5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN
CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 7
CAD FILE: 19001956-PRELIM PLAT.DWG

EXHIBIT A



WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
N1/4 COR. SEC. 33
FOUND 3-1/4" ALUMINUM CAP (ILLEGIBLE)
PIPELINE EASEMENT REC. NO. 4073885
S46°09'18"E 161.51'
FULTON DITCH
N46°09'18"W 116.00'
S26°34'39"E 237.74'
N26°34'39"W 227.52'
S17°06'19"E 155.42'
N17°06'19"W 166.35'
PIPELINE EASEMENT REC. NO. 1930090 REC. NO. 19959498
PROPOSED 10' WIDE FULTON DITCH TRAIL
S56°18'27"E 109.68'
TRACT U 1.85 AC.
N56°18'27"W 130.15'
S73°59'11"E 122.24'
N73°59'11"W 118.29'
S45°26'22"E 173.40'
N45°26'22"W 152.65'
S15°54'54"E 92.77'
N15°54'54"W 96.66'
N09°11'44"E 180.82'
S9°11'44"W 208.08'
N0°08'25"W 1842.81'
20' FLOWLINE EASEMENT REC. NO. 3455412
OWNER: ELIZABETH A. CARTER
CLIFFORD D. CARTER
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
NW1/4 SEC. 33
NE1/4 SEC. 33
OWNER: THERMO-FARMS
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
OWNER: JAMES D. DOLTER SR. TRUST
LA LANI F. DOKTER TRUST
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
TRACT C
8.45 AC.
SEE SHEET 9
KEY MAP
SCALE: 1" = 800'
SCALE: 1" = 50'
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL BOUNDARY LINE
SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
A EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
B EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
C EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
D EASEMENT FOR ELECTRIC SERVICE FACILITIES
FULTON DITCH TRAIL
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
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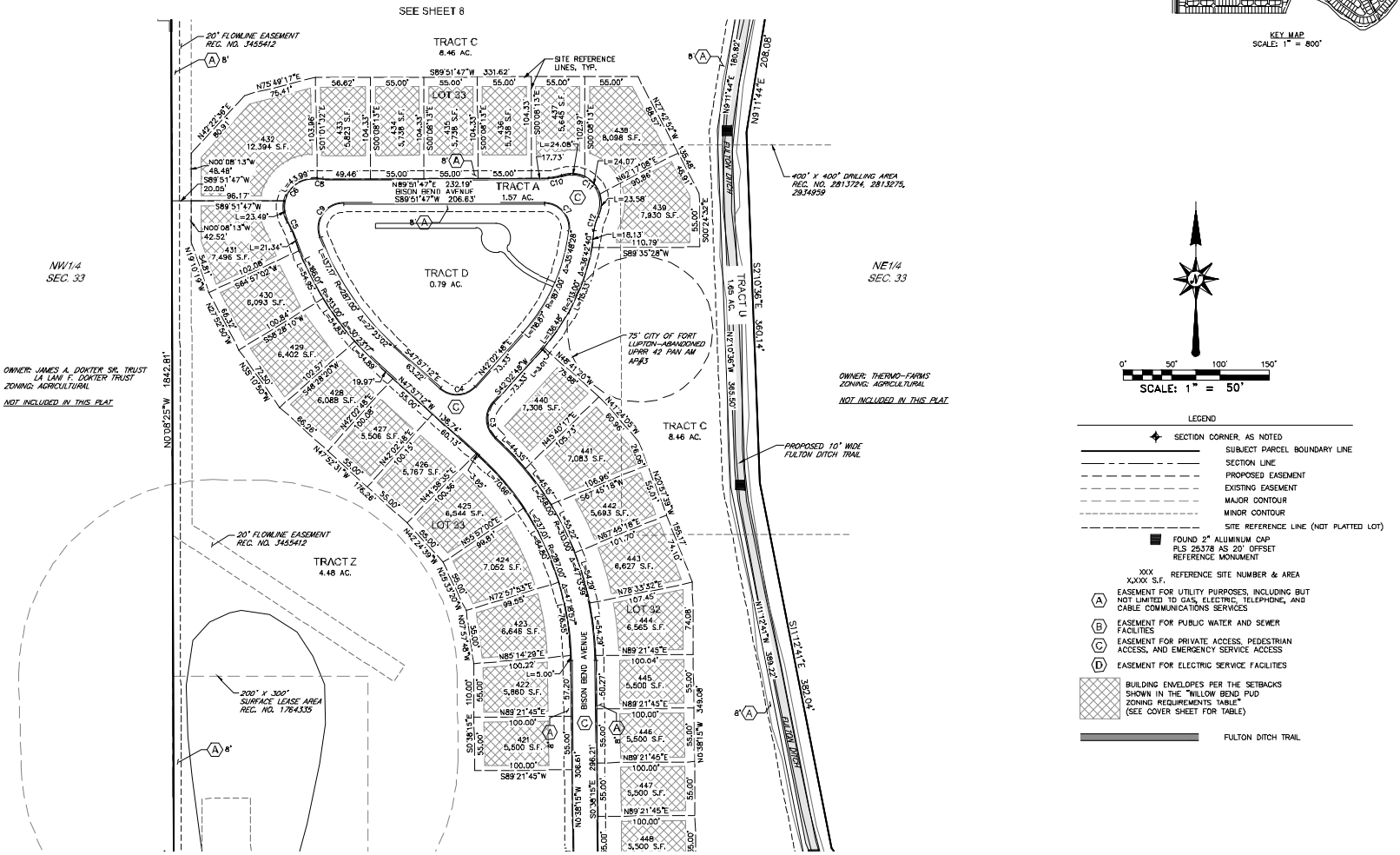
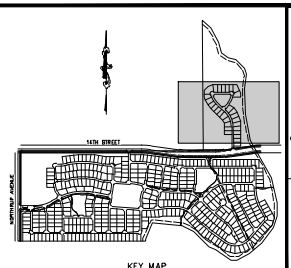
ATWELL
DEVELOPER
27777 FRANKLIN ROAD SUITE 200 SOUTHFIELD, MI 48114
(248) 208-2356
JOHN B. MCLAREN
CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 1
DATE 5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 8

EXHIBIT A

WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'

SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
- FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
- XXX / X,XXX S.F. — REFERENCE SITE NUMBER & AREA
- (A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
- (B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
- (C) EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
- (D) EASEMENT FOR ELECTRIC SERVICE FACILITIES
- BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
- FULTON DITCH TRAIL

PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004

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JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 2

DATE
5/15/2020
03/03/2021
04/09/2021

REVISIONS
4 REVISED STREET NAMES PER CITY COMMENTS 5/4/2021 - BJM

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 9

CAD FILE: 19001956-PRELIM PLAT.DWG

EXHIBIT A

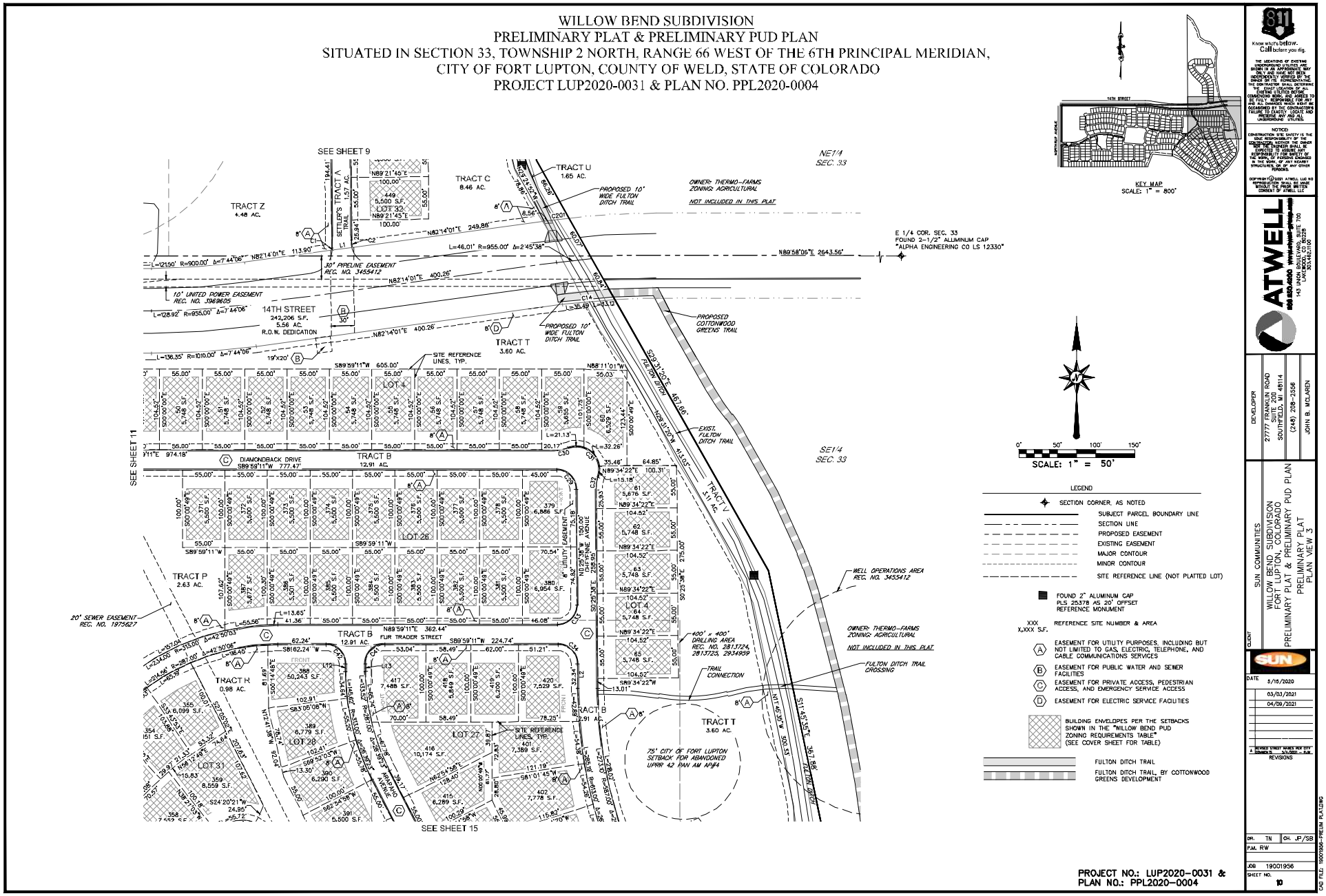
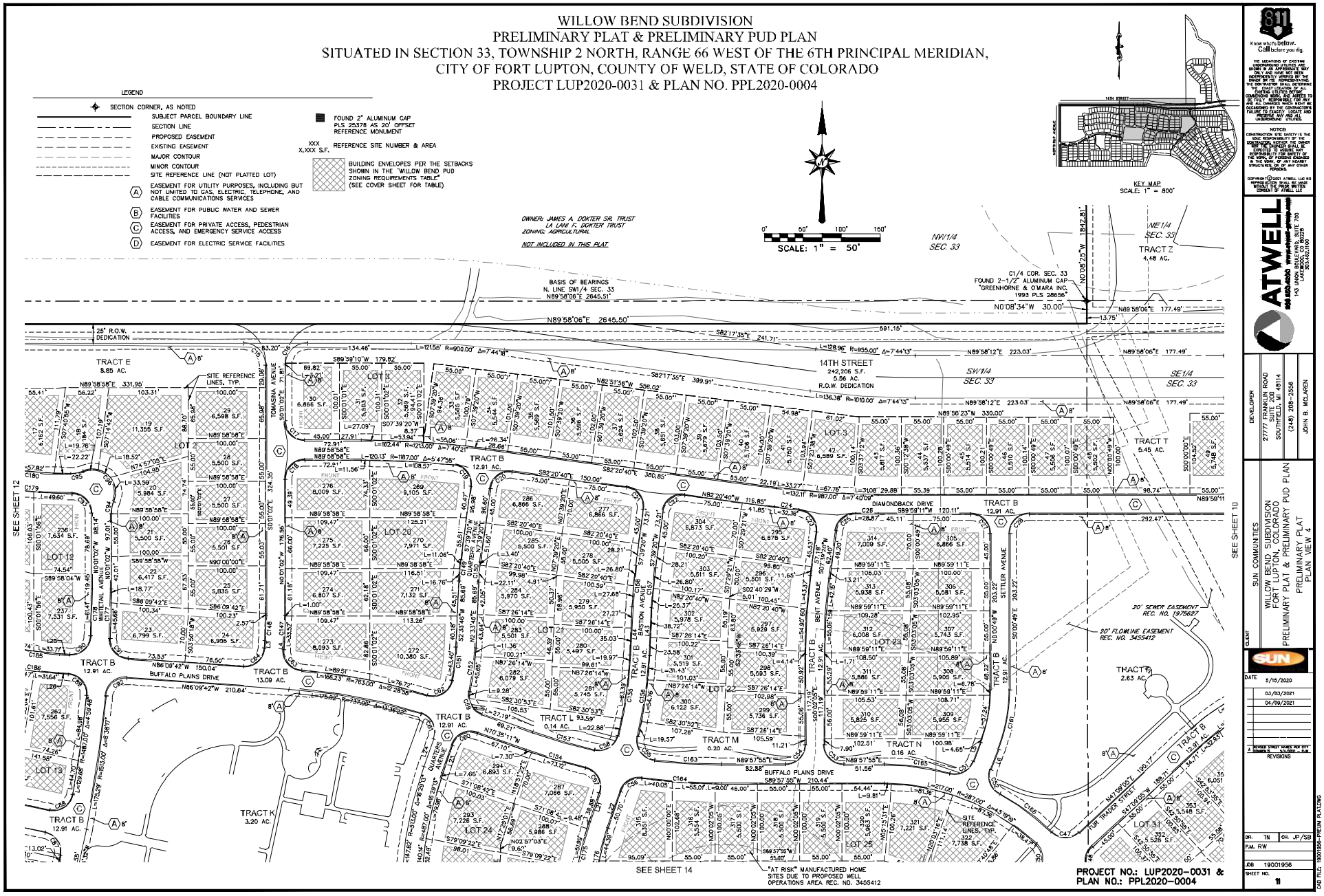

WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
SEE SHEET 9
SEE SHEET 11
SEE SHEET 15
TRACT Z
4.48 AC.
TRACT A
SETTLER'S
TRACT C
8.46 AC.
TRACT U
1.65 AC.
PROPOSED 10' WIDE FULTON DITCH TRAIL
OWNER: THERMO-FARMS
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
E 1/4 COR. SEC. 33
FOUND 2-1/2" ALUMINUM CAP
"ALPHA ENGINEERING CO LS 12330"
30' PIPELINE EASEMENT
REC. NO. 3455412
10' UNITED POWER EASEMENT
REC. NO. 3969605
14TH STREET
242,206 S.F.
5.56 AC.
R.O.W. DEDICATION
TRACT T
3.60 AC.
PROPOSED COTTONWOOD GREENS TRAIL
SITE REFERENCE LINES, TYP.
LOT 1
LOT 26
LOT 27
LOT 28
LOT 31
LOT 4
DIAMONDBACK DRIVE
TRACT B
12.91 AC.
FUR TRADER STREET
TRACT P
2.63 AC.
TRACT R
0.98 AC.
TRACT V
5.11 AC.
EXIST. FULTON DITCH TRAIL
FULTON DITCH TRAIL CROSSING
WELL OPERATIONS AREA
REC. NO. 3455412
400' x 400' DRILLING AREA
REC. NO. 2813724, 2813725, 2934999
TRAIL CONNECTION
20' SEWER EASEMENT
REC. NO. 1975627
75' CITY OF FORT LUPTON SETBACK FOR ABANDONED UPRR 42 PAN AM AP#4
NE1/4 SEC. 33
SE1/4 SEC. 33
KEY MAP
SCALE: 1" = 800'
SCALE: 1" = 50'
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL BOUNDARY LINE
SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
SITE REFERENCE LINE (NOT PLATTED LOT)
FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
XXX REFERENCE SITE NUMBER & AREA
X,XXX S.F.
EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
EASEMENT FOR ELECTRIC SERVICE FACILITIES
BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
FULTON DITCH TRAIL
FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
DEVELOPER
SUN COMMUNITIES
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48314
(248) 208-2536
JOHN B. McLAREN
CLIENT
SUN
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 3
DATE
5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 10

EXHIBIT A


WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL BOUNDARY LINE
SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
SITE REFERENCE LINE (NOT PLATTED LOT)
EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
EASEMENT FOR ELECTRIC SERVICE FACILITIES
FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
REFERENCE SITE NUMBER & AREA
BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
OWNER: JAMES A. DOKTER SR. TRUST
LA LANI F. DOKTER TRUST
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
KEY MAP
SCALE: 1" = 800'
SCALE: 1" = 50'
BASIS OF BEARINGS
N. LINE SW1/4 SEC. 33
N89°58'06"E 2645.51'
C1/4 COR. SEC. 33
FOUND 2-1/2" ALUMINUM CAP
"GREENHORNE & O'MARA INC.
1993 PLS 28656"
N89°58'06"E 2645.50'
N0°08'34"W 30.00'
N89°58'06"E 177.49'
13.75'
25' R.O.W. DEDICATION
14TH STREET
242,206 S.F.
5.56 AC.
R.O.W. DEDICATION
TRACT E
8.85 AC.
TRACT Z
4.48 AC.
TRACT T
5.45 AC.
TRACT B
12.91 AC.
TRACT B
13.09 AC.
TRACT K
3.20 AC.
TRACT L
0.14 AC.
TRACT M
0.20 AC.
TRACT N
0.16 AC.
TRACT P
2.63 AC.
LOT 1
LOT 2
LOT 3
LOT 12
LOT 13
LOT 20
LOT 21
LOT 22
LOT 24
LOT 25
LOT 31
TOMASINA AVENUE
WHITETAIL AVENUE
BUFFALO PLAINS DRIVE
DIAMONDBACK DRIVE
BENT AVENUE
SETTLER AVENUE
BASTION AVENUE
QUARTERS AVENUE
LUR TRADER STREET
20' SEWER EASEMENT REC. NO. 1975627
20' FLOWLINE EASEMENT REC. NO. 3455412
SITE REFERENCE LINES, TYP.
"AT RISK" MANUFACTURED HOME SITES DUE TO PROPOSED WELL OPERATIONS AREA REC. NO. 3455412
SEE SHEET 12
SEE SHEET 10
SEE SHEET 14
PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004
811 Know what's below. Call before you dig.
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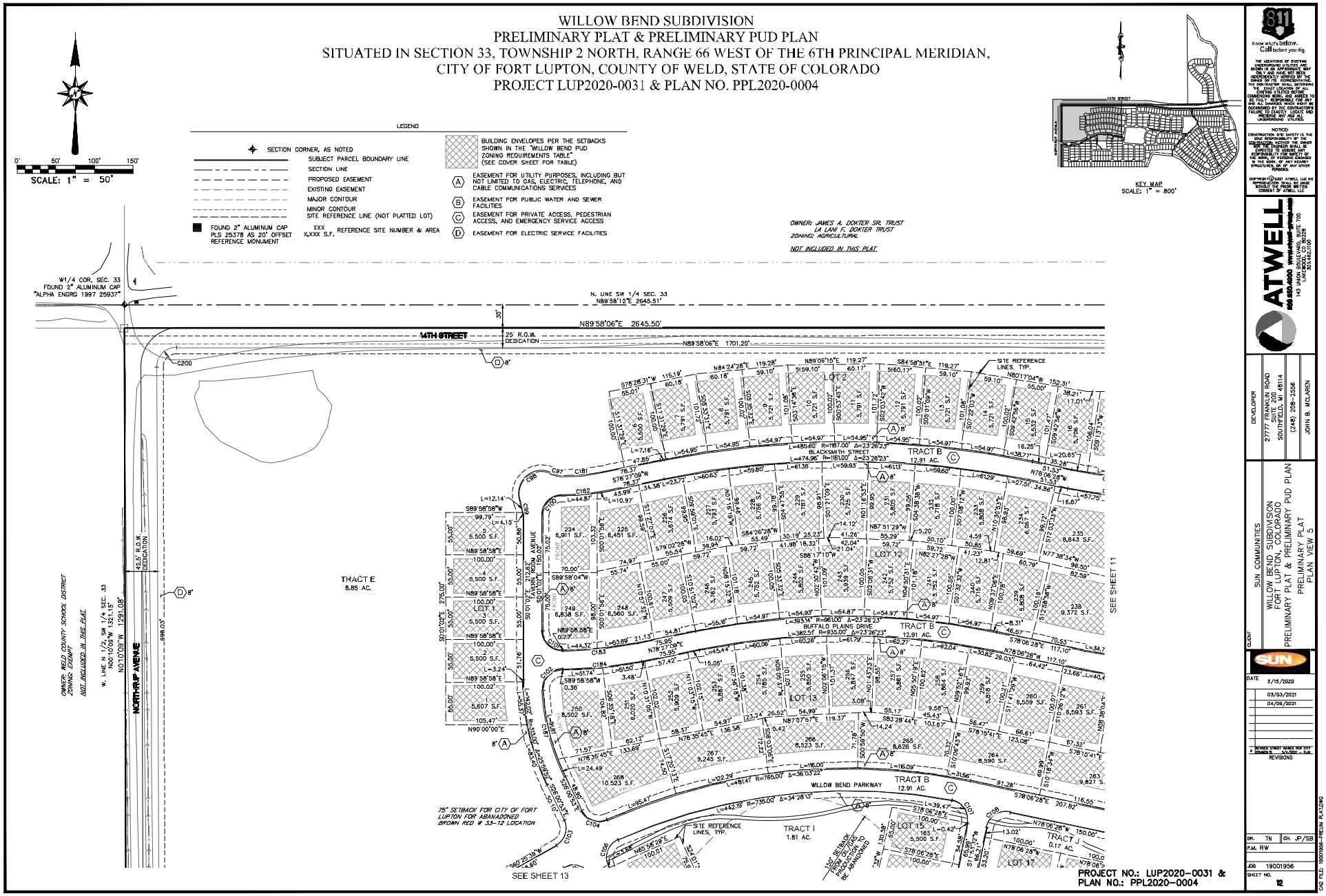
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
DEVELOPER
2777 FRANKLIN ROAD
SUITE 200
SOUTHLAKE, TX 76514
(248) 208-2356
JOHN B. MCLAREN
CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 4
SUN
DATE 5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 11
CAD FILE: 19001956-PRELIM PLAT.DWG

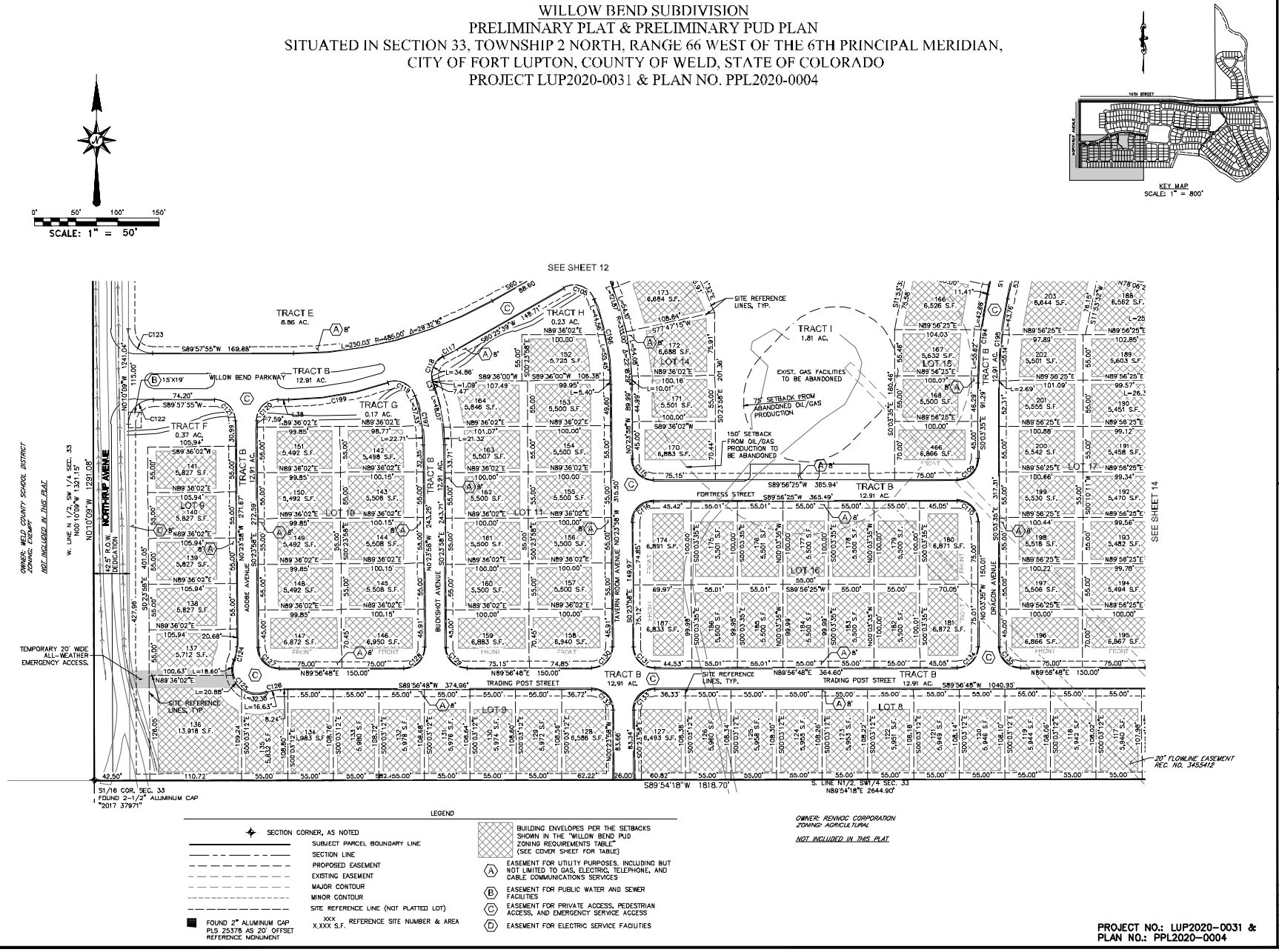
EXHIBIT A



WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
SCALE: 1" = 50'
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL BOUNDARY LINE
SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
SITE REFERENCE LINE (NOT PLATTED LOT)
FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
XXX X,XXX S.F. REFERENCE SITE NUMBER & AREA
BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
A EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
B EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
C EASEMENT FOR PRIVATE ACCESS, PEDESTRIAN ACCESS, AND EMERGENCY SERVICE ACCESS
D EASEMENT FOR ELECTRIC SERVICE FACILITIES
OWNER: JAMES A. DOKTER SR. TRUST
LA LANI F. DOKTER TRUST
ZONING: AGRICULTURAL
NOT INCLUDED IN THIS PLAT
KEY MAP
SCALE: 1" = 800'
W1/4 COR. SEC. 33
FOUND 2" ALUMINUM CAP
"ALPHA ENGRG 1997 25937"
N. LINE SW 1/4 SEC. 33
N89°58'12"E 2645.51'
N89°58'06"E 2645.50'
14TH STREET
25' R.O.W. DEDICATION
N89°58'06"E 1701.20'
SITE REFERENCE LINES, TYP.
TRACT E
8.85 AC.
TRACT B
12.91 AC.
TRACT I
1.81 AC.
TRACT J
0.17 AC.
LOT 1
LOT 2
LOT 12
LOT 13
LOT 15
LOT 17
BLACKSMITH STREET
BUFFALO PLAINS DRIVE
WILLOW BEND PARKWAY
NORTHRAP AVENUE
42.5' R.O.W. DEDICATION
OWNER: WELD COUNTY SCHOOL DISTRICT
ZONING: EXEMPT
NOT INCLUDED IN THIS PLAT
W. LINE N 1/2, SW 1/4 SEC. 33
N00°10'09"W 1321.15'
N0°10'09"W 1291.08'
75' SETBACK FOR CITY OF FORT LUPTON FOR ABANADONED BROWN RED W 33-12 LOCATION
SEE SHEET 11
SEE SHEET 13
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
Know what's below. Call before you dig.
ATWELL
DEVELOPER
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48114
(248) 208-2356
JOHN B. MCLAREN
CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 5
DATE 5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN
CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 12

EXHIBIT A

WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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LAKEWOOD, CO 80228
303.462.1100

DEVELOPER
27777 FRANKLIN ROAD
SUITE 200
SOUTHFIELD, MI 48114
(248) 206-2356
JOHN B. MCLAREN

CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 6

SUN

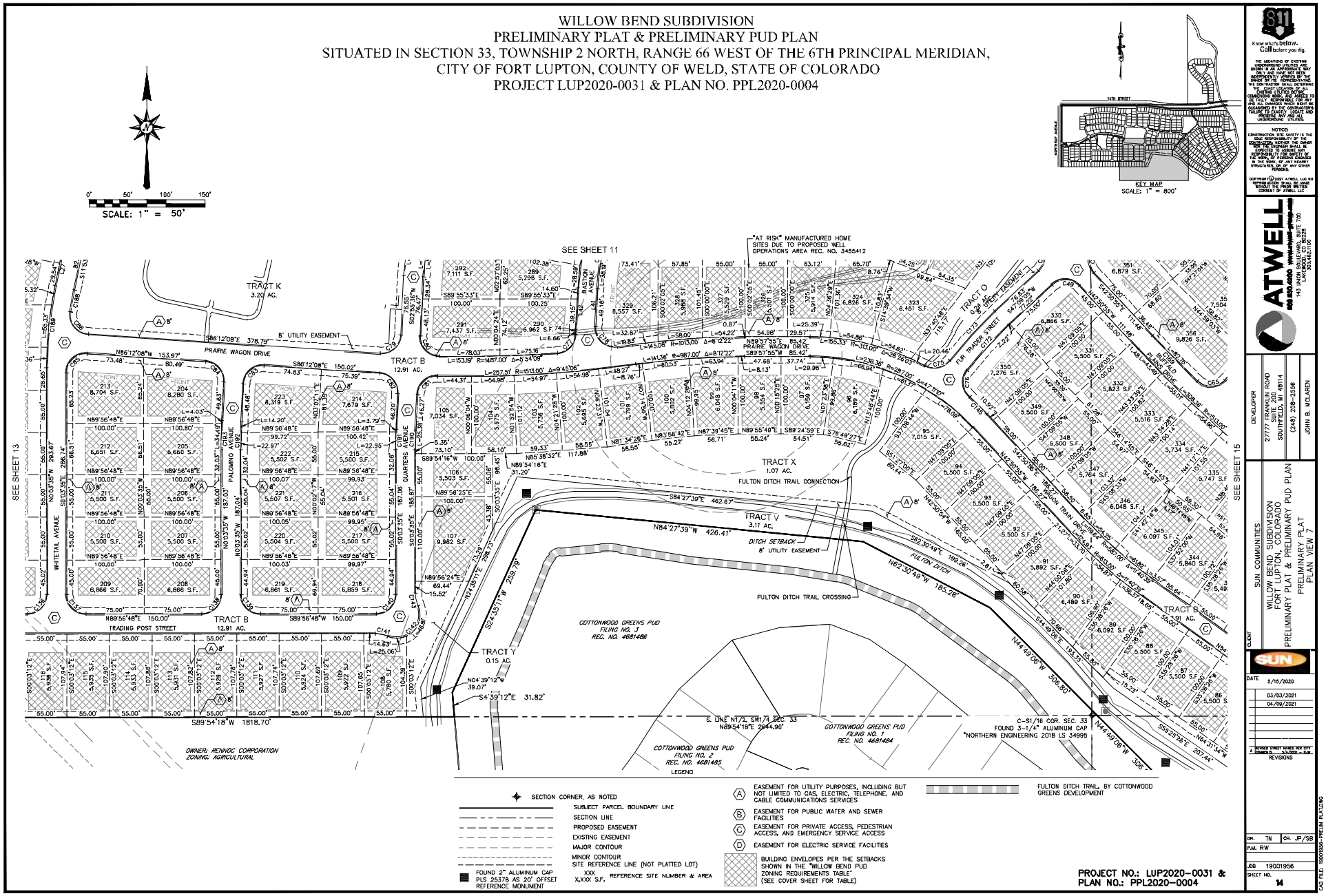
DATE 5/15/2020
03/03/2021
04/09/2021

REVISIONS

DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 13

CAD FILE: 19001956-PRELIM PLAT.DWG

EXHIBIT A


WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004
SCALE: 1" = 50'
KEY MAP
SCALE: 1" = 800'
SEE SHEET 11
SEE SHEET 13
SEE SHEET 15
"AT RISK" MANUFACTURED HOME SITES DUE TO PROPOSED WELL OPERATIONS AREA REC. NO. 3455412
TRACT K 3.20 AC.
TRACT B 12.91 AC.
TRACT X 1.07 AC.
TRACT V 3.11 AC.
TRACT Y 0.15 AC.
TRACT O 0.24 AC.
PRAIRIE WAGON DRIVE
TRADING POST STREET
WHITETAIL AVENUE
PALOMINO AVENUE
QUARTERS AVENUE
BASTION AVENUE
FLUR TRADER STREET
FULTON DITCH TRAIL CONNECTION
FULTON DITCH TRAIL CROSSING
DITCH SETBACK
8' UTILITY EASEMENT
COTTONWOOD GREENS PUD FILING NO. 3 REC. NO. 4681486
COTTONWOOD GREENS PUD FILING NO. 2 REC. NO. 4681485
COTTONWOOD GREENS PUD FILING NO. 1 REC. NO. 4681484
OWNER: RENNOC CORPORATION
ZONING: AGRICULTURAL
S. LINE N1/2, SW1/4 SEC. 33 N89°54'18"E 2644.90'
C-S1/16 COR. SEC. 33 FOUND 3-1/4" ALUMINUM CAP "NORTHERN ENGINEERING 2018 LS 34995
LEGEND
SECTION CORNER, AS NOTED
SUBJECT PARCEL, BOUNDARY LINE
SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
SITE REFERENCE LINE (NOT PLATTED LOT)
XXX REFERENCE SITE NUMBER & AREA
X,XXX S.F.
FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
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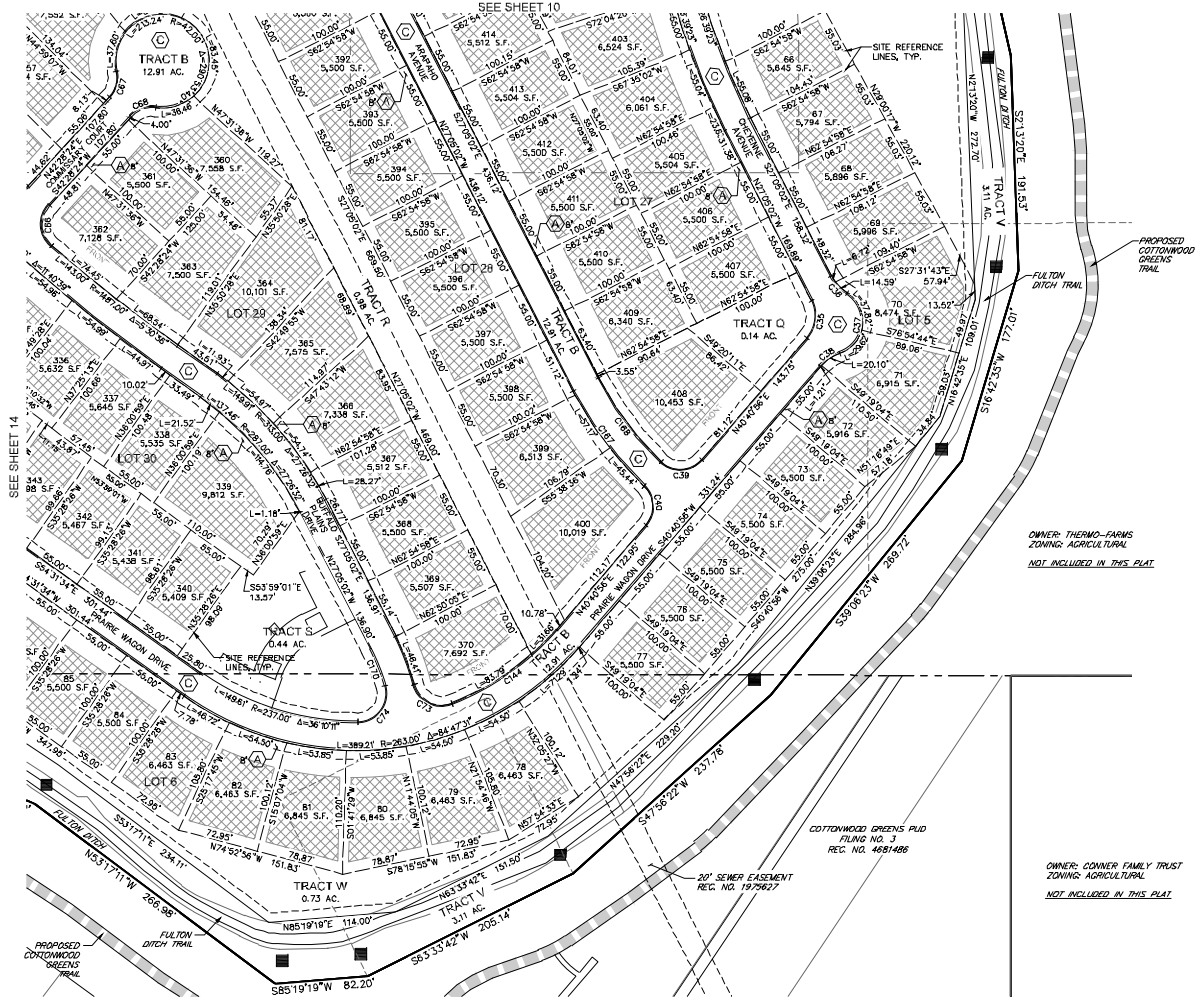
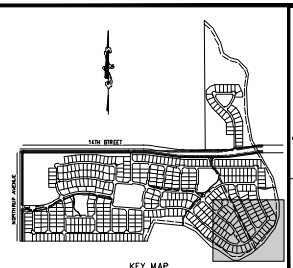
EASEMENT FOR ELECTRIC SERVICE FACILITIES
BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
PROJECT NO.: LUP2020-0031 & PLAN NO.: PPL2020-0004
811 Know what's below. Call before you dig.
ATWELL
DEVELOPER
SUN COMMUNITIES
CLIENT
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 7
DATE 5/15/2020
03/03/2021
04/09/2021
REVISIONS
DR. TN CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 14
CAD FILE: 19001956-PRELIM PLATDWG

EXHIBIT A

WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004





KEY MAP
SCALE: 1" = 800'

SCALE: 1" = 50'

LEGEND

- SECTION CORNER, AS NOTED
- SUBJECT PARCEL BOUNDARY LINE
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SITE REFERENCE LINE (NOT PLATTED LOT)
- FOUND 2" ALUMINUM CAP PLS 25378 AS 20' OFFSET REFERENCE MONUMENT
- XXX X,XXX S.F. REFERENCE SITE NUMBER & AREA
- (A) EASEMENT FOR UTILITY PURPOSES, INCLUDING BUT NOT LIMITED TO GAS, ELECTRIC, TELEPHONE, AND CABLE COMMUNICATIONS SERVICES
- (B) EASEMENT FOR PUBLIC WATER AND SEWER FACILITIES
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- BUILDING ENVELOPES PER THE SETBACKS SHOWN IN THE "WILLOW BEND PUD ZONING REQUIREMENTS TABLE" (SEE COVER SHEET FOR TABLE)
- FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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NOTICE
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CLIENT
SUN COMMUNITIES
WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
PRELIMINARY PLAT
PLAN VIEW 8

SUN

DATE
5/15/2020
03/03/2021
04/08/2021

REVISIONS
A REVISED STREET NAMES PER CITY COMMENTS 3/3/2021 - BJM

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 15

CAD FILE: 19001956-PRELIM PLAT.DWG

EXHIBIT A

WILLOW BEND SUBDIVISION
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
SITUATED IN SECTION 33, TOWNSHIP 2 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF FORT LUPTON, COUNTY OF WELD, STATE OF COLORADO
PROJECT LUP2020-0031 & PLAN NO. PPL2020-0004

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C1	4°58'52"	28.60'	2.49'
C2	19°14'20"	28.60'	9.60'
C3	90°00'00"	25.00'	39.27'
C4	90°00'00"	25.00'	39.27'
C5	13°27'53"	40.00'	9.40'
C6	128°52'32"	30.00'	67.48'
C7	96°22'34"	25.00'	42.05'
C8	7°58'57"	40.00'	5.57'
C9	110°25'57"	25.00'	48.19'
C10	20°16'05"	40.00'	14.15'
C11	136°59'09"	30.00'	71.73'
C12	21°14'44"	40.00'	14.83'
C13	1°21'07"	1010.00'	23.83'
C14	4°22'04"	900.00'	68.61'
C15	90°00'52"	28.60'	44.93'
C16	89°59'08"	28.60'	44.92'
C17	90°00'00"	25.00'	39.27'
C18	90°00'00"	25.00'	39.27'
C19	91°52'27"	25.00'	40.09'
C20	90°00'00"	25.00'	39.27'
C21	90°00'00"	25.00'	39.27'
C22	90°00'00"	25.00'	39.27'
C23	91°49'48"	25.00'	40.07'
C24	1°49'48"	1013.00'	32.36'
C25	83°57'50"	25.00'	36.64'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C26	1°37'59"	1013.00'	28.87'
C27	90°00'00"	25.00'	39.27'
C28	90°00'00"	25.00'	39.27'
C29	89°35'11"	25.00'	39.09'
C30	20°41'29"	40.00'	14.45'
C31	130°58'08"	30.00'	68.58'
C32	20°41'29"	40.00'	14.45'
C33	90°24'49"	25.00'	39.45'
C34	89°35'11"	25.00'	39.09'
C35	67°45'57"	30.00'	35.48'
C36	30°31'08"	40.00'	21.31'
C37	128°48'13"	30.00'	67.44'
C38	30°31'08"	40.00'	21.31'
C39	93°32'14"	25.00'	40.81'
C40	87°15'32"	25.00'	38.07'
C41	90°24'49"	25.00'	39.45'
C42	89°35'11"	25.00'	39.09'
C47	87°00'20"	25.00'	37.96'
C48	90°00'00"	25.00'	39.27'
C49	90°00'01"	25.00'	39.27'
C50	93°51'51"	25.00'	40.96'
C51	84°46'34"	25.00'	36.99'
C52	82°18'38"	25.00'	35.91'
C53	90°00'00"	25.00'	39.27'
C54	90°00'00"	25.00'	39.27'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C55	97°03'54"	25.00'	42.35'
C56	78°21'58"	25.00'	34.19'
C57	96°02'21"	25.00'	41.91'
C58	88°26'50"	25.00'	38.59'
C59	83°36'02"	25.00'	36.47'
C60	90°00'00"	25.00'	39.27'
C61	91°58'09"	25.00'	40.13'
C62	96°12'44"	25.00'	41.98'
C63	88°52'51"	25.00'	38.78'
C64	90°00'00"	25.00'	39.27'
C65	91°29'22"	25.00'	39.92'
C66	91°29'22"	25.00'	39.92'
C67	55°26'50"	25.00'	24.19'
C68	55°26'50"	25.00'	24.19'
C73	96°48'29"	25.00'	42.24'
C74	105°34'14"	25.00'	46.06'
C75	80°57'20"	25.00'	35.32'
C76	86°32'38"	25.00'	37.76'
C77	84°03'32"	25.00'	36.68'
C78	100°24'12"	25.00'	43.81'
C79	90°52'16"	25.00'	39.65'
C80	91°29'22"	25.00'	39.92'
C81	88°36'03"	25.00'	38.65'
C82	89°07'44"	25.00'	38.89'
C83	90°52'16"	25.00'	39.65'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C84	89°07'44"	25.00'	38.89'
C85	93°51'28"	25.00'	40.95'
C86	94°43'05"	25.00'	41.33'
C87	90°00'00"	25.00'	39.27'
C88	91°34'04"	25.00'	39.95'
C89	91°29'22"	25.00'	39.92'
C90	91°29'22"	25.00'	39.92'
C91	88°35'03"	25.00'	38.65'
C92	88°35'03"	25.00'	38.65'
C93	90°04'48"	25.00'	39.30'
C94	23°35'35"	40.00'	16.47'
C95	23°44'04"	40.00'	16.57'
C96	137°15'49"	30.00'	71.87'
C97	23°31'26"	40.00'	16.42'
C98	137°16'56"	30.00'	71.88'
C99	23°18'29"	40.00'	16.28'
C100	90°38'07"	25.00'	39.56'
C101	90°00'00"	25.00'	39.27'
C102	93°00'28"	25.00'	40.58'
C103	86°26'32"	25.00'	37.72'
C104	88°08'57"	25.00'	38.46'
C105	98°07'44"	25.00'	42.82'
C106	88°42'25"	25.00'	38.71'
C107	91°25'22"	25.00'	39.89'
C108	90°00'00"	25.00'	39.27'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C109	90°00'00"	25.00'	39.27'
C110	90°00'00"	25.00'	39.27'
C115	89°39'38"	25.00'	39.12'
C116	90°20'22"	25.00'	39.42'
C117	2°55'09"	365.00'	18.60'
C118	82°24'37"	25.00'	35.96'
C119	90°28'42"	25.00'	39.48'
C120	90°21'53"	25.00'	39.43'
C121	89°38'07"	25.00'	39.11'
C122	90°08'04"	29.50'	46.41'
C123	89°51'56"	29.50'	46.27'
C124	23°46'00"	40.00'	16.59'
C125	137°14'49"	30.00'	71.86'
C126	23°49'35"	40.00'	16.63'
C127	89°39'14"	25.00'	39.12'
C128	90°20'46"	25.00'	39.42'
C129	89°39'14"	25.00'	39.12'
C130	90°20'46"	25.00'	39.42'
C131	89°39'14"	25.00'	39.12'
C132	89°39'14"	25.00'	39.12'
C133	90°20'46"	25.00'	39.42'
C134	90°00'24"	25.00'	39.27'
C135	89°59'36"	25.00'	39.27'
C136	90°00'24"	25.00'	39.27'
C137	89°59'36"	25.00'	39.27'

LINE DATA TABLE		
LINE #	DIRECTION	LENGTH
L1	N82°14'01"E	27.92'
L2	N0°25'38"W	32.34'
L3	S3°50'18"W	9.68'
L4	N3°50'18"E	9.83'
L5	N21°01'41"E	27.10'
L6	S21°01'41"W	28.73'
L12	N0°25'38"W	10.25'
L13	S0°25'38"E	9.71'
L14	S54°31'34"E	43.51'
L15	N54°31'34"W	43.51'
L21	N19°24'49"E	38.88'
L22	S19°24'49"W	50.70'
L23	S19°24'49"W	38.28'
L24	N19°24'49"E	37.86'
L25	S86°09'42"E	13.08'
L26	N86°09'42"W	13.08'
L27	N11°53'32"E	42.55'
L28	S2°55'36"W	46.27'
L29	S2°55'36"W	46.20'
L30	N2°55'36"E	49.63'

LINE DATA TABLE		
LINE #	DIRECTION	LENGTH
L31	N2°55'36"E	48.48'
L37	S19°03'49"E	7.47'
L38	S89°57'55"W	13.07'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C138	90°00'24"	25.00'	39.27'
C139	89°59'36"	25.00'	39.27'
C140	90°00'24"	25.00'	39.27'
C141	23°37'42"	40.00'	16.50'
C142	137°15'48"	30.00'	71.87'
C143	23°37'42"	40.00'	16.50'
C144	27°54'41"	237.00'	115.46'
C145	5°49'34"	313.00'	31.83'
C146	0°45'51"	1487.00'	19.83'
C147	3°51'20"	513.00'	34.52'
C148	3°51'20"	487.00'	32.77'
C149	5°05'33"	313.00'	27.82'
C150	5°05'33"	287.00'	25.51'
C151	8°39'55"	287.00'	43.40'
C152	10°26'05"	313.00'	57.00'
C153	6°32'14"	737.00'	84.09'
C154	6°02'21"	763.00'	80.42'
C155	11°51'59"	513.00'	106.26'
C156	11°14'33"	539.00'	105.76'
C157	5°05'33"	587.00'	52.17'
C158	5°05'33"	613.00'	54.48'
C159	7°41'24"	737.00'	98.92'
C160	7°41'24"	763.00'	102.41'
C161	21°02'30"	213.00'	78.22'
C162	21°02'30"	187.00'	68.68'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C163	6°46'31"	737.00'	87.15'
C164	7°48'52"	763.00'	104.07'
C165	15°50'20"	313.00'	86.53'
C166	15°26'22"	313.00'	84.34'
C167	19°29'34"	313.00'	106.49'
C168	18°41'48"	287.00'	93.65'
C169	3°11'19"	1487.00'	82.76'
C170	10°48'59"	187.00'	35.30'
C171	12°29'07"	213.00'	46.41'
C172	9°16'57"	487.00'	78.90'
C173	9°42'27"	513.00'	86.92'
C174	1°27'03"	263.00'	6.66'
C175	16°29'13"	313.00'	90.07'
C176	16°29'13"	287.00'	82.59'
C177	2°26'23"	1513.00'	64.43'
C178	2°21'58"	1487.00'	61.41'
C179	11°59'22"	513.00'	107.35'
C180	11°50'43"	487.00'	100.68'
C181	11°57'49"	237.00'	49.49'
C182	12°09'56"	263.00'	55.84'
C183	11°31'49"	487.00'	98.00'
C184	11°31'49"	513.00'	103.24'
C185	8°03'14"	487.00'	68.46'
C186	8°03'14"	513.00'	72.11'
C187	23°13'06"	287.00'	116.30'

CURVE DATA TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C188	3°22'35"	487.00'	28.70'
C189	11°57'08"	513.00'	107.01'
C190	2°59'11"	487.00'	25.38'
C191	2°59'11"	513.00'	26.74'
C192	2°59'11"	713.00'	37.16'
C193	2°59'11"	739.00'	38.52'
C194	11°57'08"	513.00'	107.01'
C195	11°57'08"	487.00'	101.59'
C196	21°02'39"	287.00'	105.41'
C197	18°23'49"	187.00'	60.04'
C198	18°39'52"	213.00'	69.39'
C199	19°14'24"	365.00'	122.57'
C200	89°58'11"	25.00'	39.26'
C201	1°21'07"	1010.00'	23.83'

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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JOHN B. MCLAREN

CLIENT
SUN

WILLOW BEND SUBDIVISION
FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD

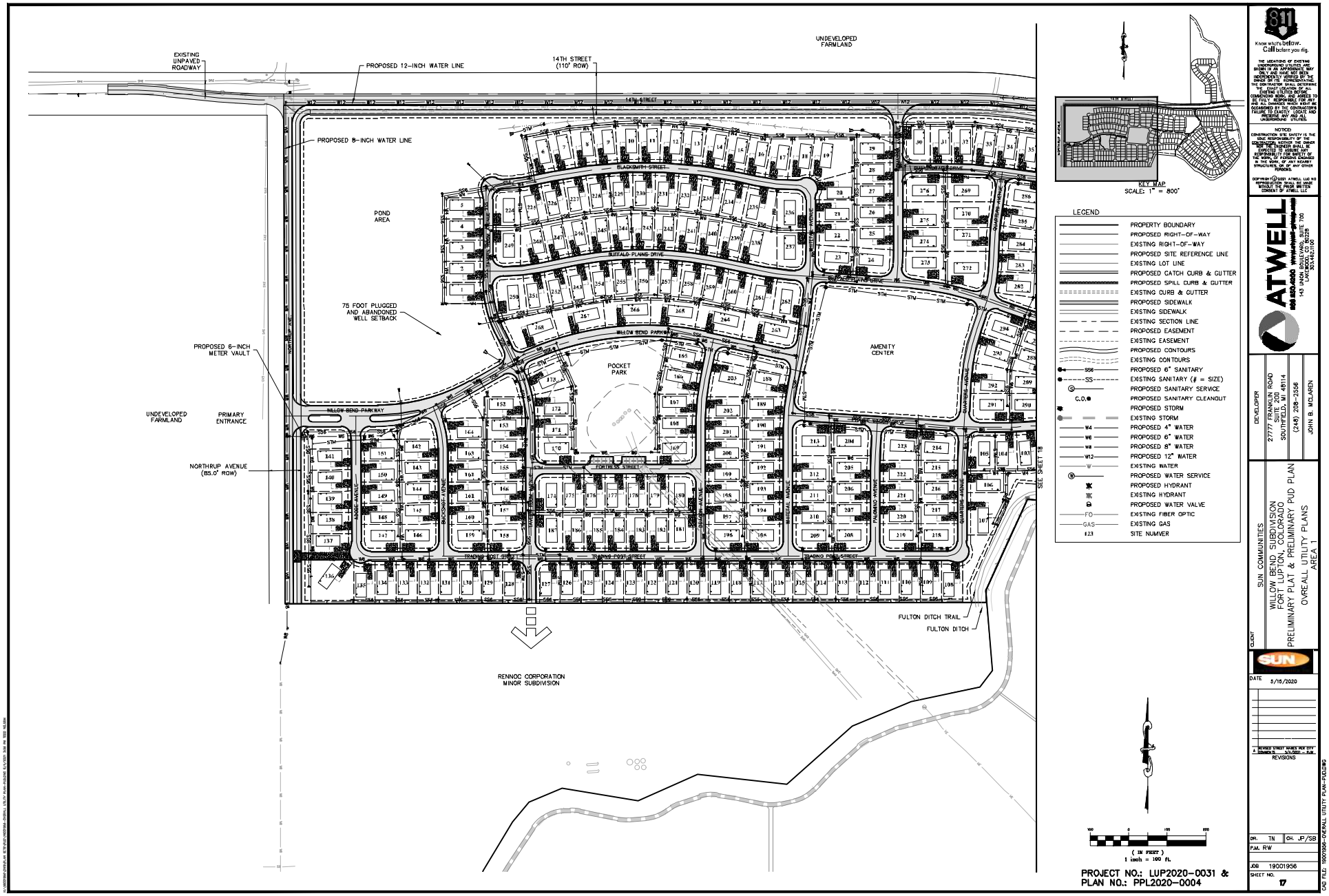
PRELIMINARY PLAT
LINE & CURVE TABLES

DATE
5/15/2020
03/03/2021

REVISIONS

DR. TN | CH. JP/SB
P.M. RW
JOB 19001956
SHEET NO. 19

EXHIBIT A



EXISTING UNPAVED ROADWAY
PROPOSED 12-INCH WATER LINE
14TH STREET (110' ROW)
UNDEVELOPED FARMLAND
PROPOSED 8-INCH WATER LINE
POND AREA
75 FOOT PLUGGED AND ABANDONED WELL SETBACK
PROPOSED 6-INCH METER VAULT
UNDEVELOPED FARMLAND
PRIMARY ENTRANCE
NORTHRUP AVENUE (85.0' ROW)
POCKET PARK
AMENITY CENTER
WILLOW BEND PARKWAY
BLACKSMITH STREET
BUFFALO PLAINS DRIVE
FORTRESS STREET
TRADING POST STREET
FULTON DITCH TRAIL
FULTON DITCH
RENNOC CORPORATION MINOR SUBDIVISION
SEE SHEET 18
KEY MAP
SCALE: 1" = 800'
LEGEND
PROPERTY BOUNDARY
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
PROPOSED SITE REFERENCE LINE
EXISTING LOT LINE
PROPOSED CATCH CURB & GUTTER
PROPOSED SPILL CURB & GUTTER
EXISTING CURB & GUTTER
PROPOSED SIDEWALK
EXISTING SIDEWALK
EXISTING SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
PROPOSED CONTOURS
EXISTING CONTOURS
PROPOSED 6" SANITARY
EXISTING SANITARY (# = SIZE)
PROPOSED SANITARY SERVICE
PROPOSED SANITARY CLEANOUT
PROPOSED STORM
EXISTING STORM
PROPOSED 4" WATER
PROPOSED 6" WATER
PROPOSED 8" WATER
PROPOSED 12" WATER
EXISTING WATER
PROPOSED WATER SERVICE
PROPOSED HYDRANT
EXISTING HYDRANT
PROPOSED WATER VALVE
EXISTING FIBER OPTIC
EXISTING GAS
SITE NUMVER
(IN FEET)
1 inch = 100 ft.
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
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FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
OVREALL UTILITY PLANS
AREA 1
SUN
DATE 5/15/2020
REVISIONS
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P.M. RW
JOB 19001956
SHEET NO. 17

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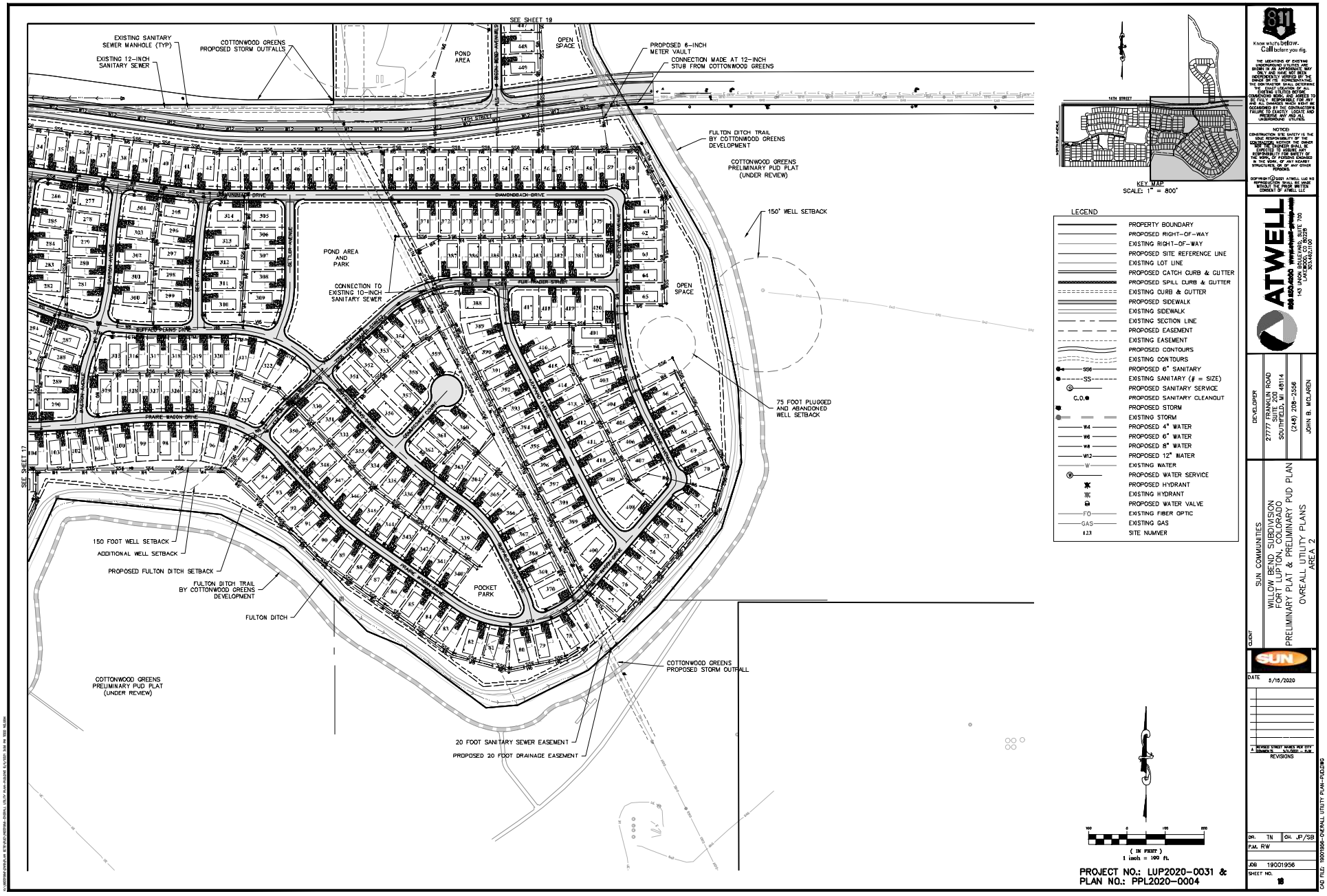

SEE SHEET 19
EXISTING SANITARY SEWER MANHOLE (TYP)
EXISTING 12-INCH SANITARY SEWER
COTTONWOOD GREENS PROPOSED STORM OUTFALLS
POND AREA
OPEN SPACE
PROPOSED 6-INCH METER VAULT
CONNECTION MADE AT 12-INCH STUB FROM COTTONWOOD GREENS
FULTON DITCH TRAIL BY COTTONWOOD GREENS DEVELOPMENT
COTTONWOOD GREENS PRELIMINARY PUD PLAT (UNDER REVIEW)
150' WELL SETBACK
POND AREA AND PARK
CONNECTION TO EXISTING 10-INCH SANITARY SEWER
OPEN SPACE
75 FOOT PLUGGED AND ABANDONED WELL SETBACK
SEE SHEET 17
150 FOOT WELL SETBACK
ADDITIONAL WELL SETBACK
PROPOSED FULTON DITCH SETBACK
FULTON DITCH TRAIL BY COTTONWOOD GREENS DEVELOPMENT
FULTON DITCH
POCKET PARK
COTTONWOOD GREENS PROPOSED STORM OUTFALL
COTTONWOOD GREENS PRELIMINARY PUD PLAT (UNDER REVIEW)
20 FOOT SANITARY SEWER EASEMENT
PROPOSED 20 FOOT DRAINAGE EASEMENT
KEY MAP
SCALE: 1" = 800'
LEGEND
PROPERTY BOUNDARY
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
PROPOSED SITE REFERENCE LINE
EXISTING LOT LINE
PROPOSED CATCH CURB & GUTTER
PROPOSED SPILL CURB & GUTTER
EXISTING CURB & GUTTER
PROPOSED SIDEWALK
EXISTING SIDEWALK
EXISTING SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
PROPOSED CONTOURS
EXISTING CONTOURS
PROPOSED 6" SANITARY
EXISTING SANITARY (# = SIZE)
PROPOSED SANITARY SERVICE
PROPOSED SANITARY CLEANOUT
PROPOSED STORM
EXISTING STORM
PROPOSED 4" WATER
PROPOSED 6" WATER
PROPOSED 8" WATER
PROPOSED 12" WATER
EXISTING WATER
PROPOSED WATER SERVICE
PROPOSED HYDRANT
EXISTING HYDRANT
PROPOSED WATER VALVE
EXISTING FIBER OPTIC
EXISTING GAS
SITE NUMVER
(IN FEET)
1 inch = 100 ft.
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
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FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
OVREALL UTILITY PLANS
AREA 2
SUN
DATE 5/15/2020
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JOB 19001956
SHEET NO. 18

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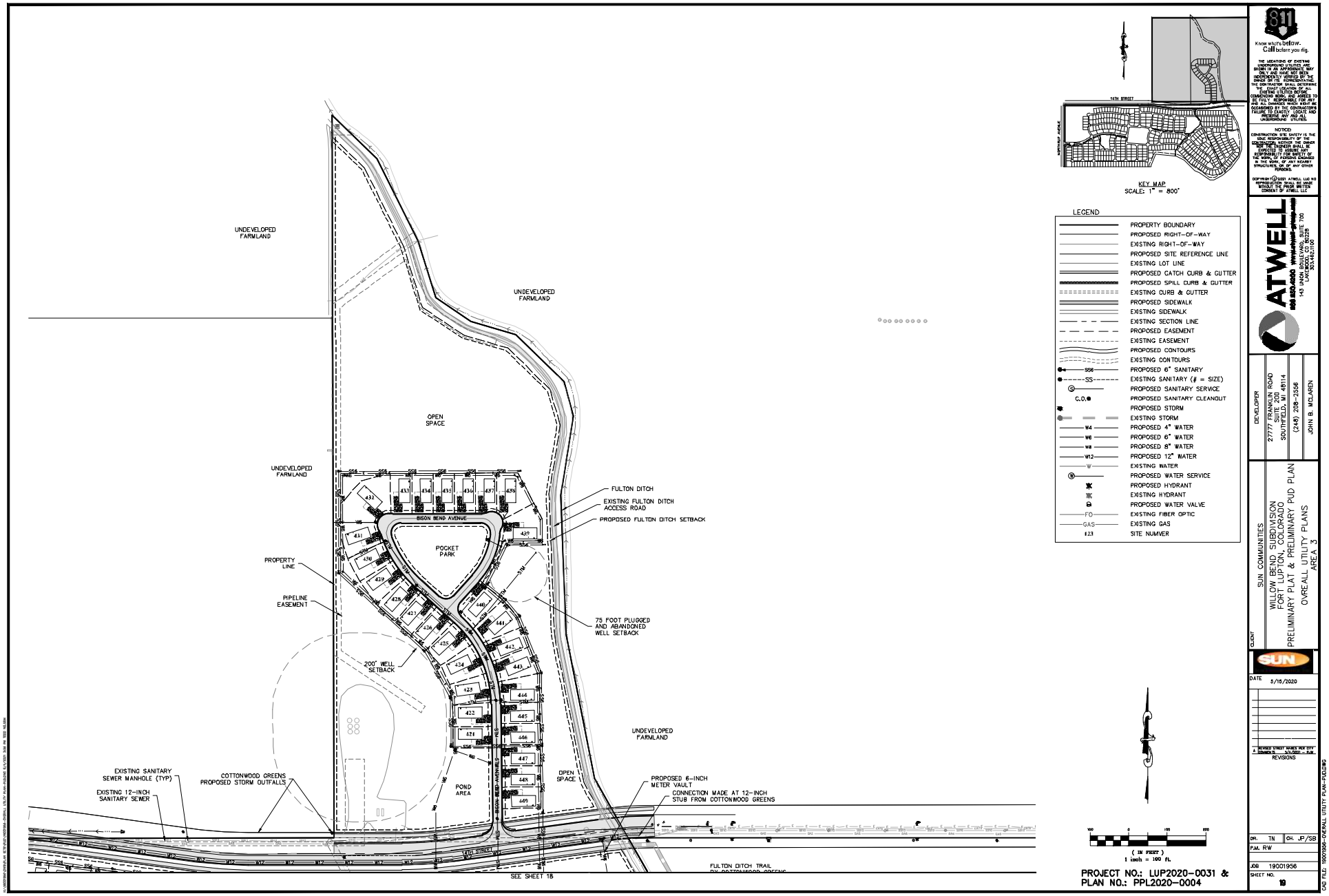

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UTILITIES. THE CONTRACTOR IS REQUIRED TO NOTIFY THE UTILITY COMPANIES OR THEIR REPRESENTATIVES AT LEAST 48 HOURS BEFORE EXCAVATING ANY OF THEIR FACILITIES.

EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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PRELIMINARY PLAT & PRELIMINARY PUD PLAN
OVREALL UTILITY PLANS
AREA 3

SUN

DATE 5/15/2020

A REVISED STREET NAMES PER CITY COMMENTS 10/1/2021 - RJW
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SHEET NO. 19

CAD FILE: 19001956-OVERALL UTILITY PLAN-PRELIM

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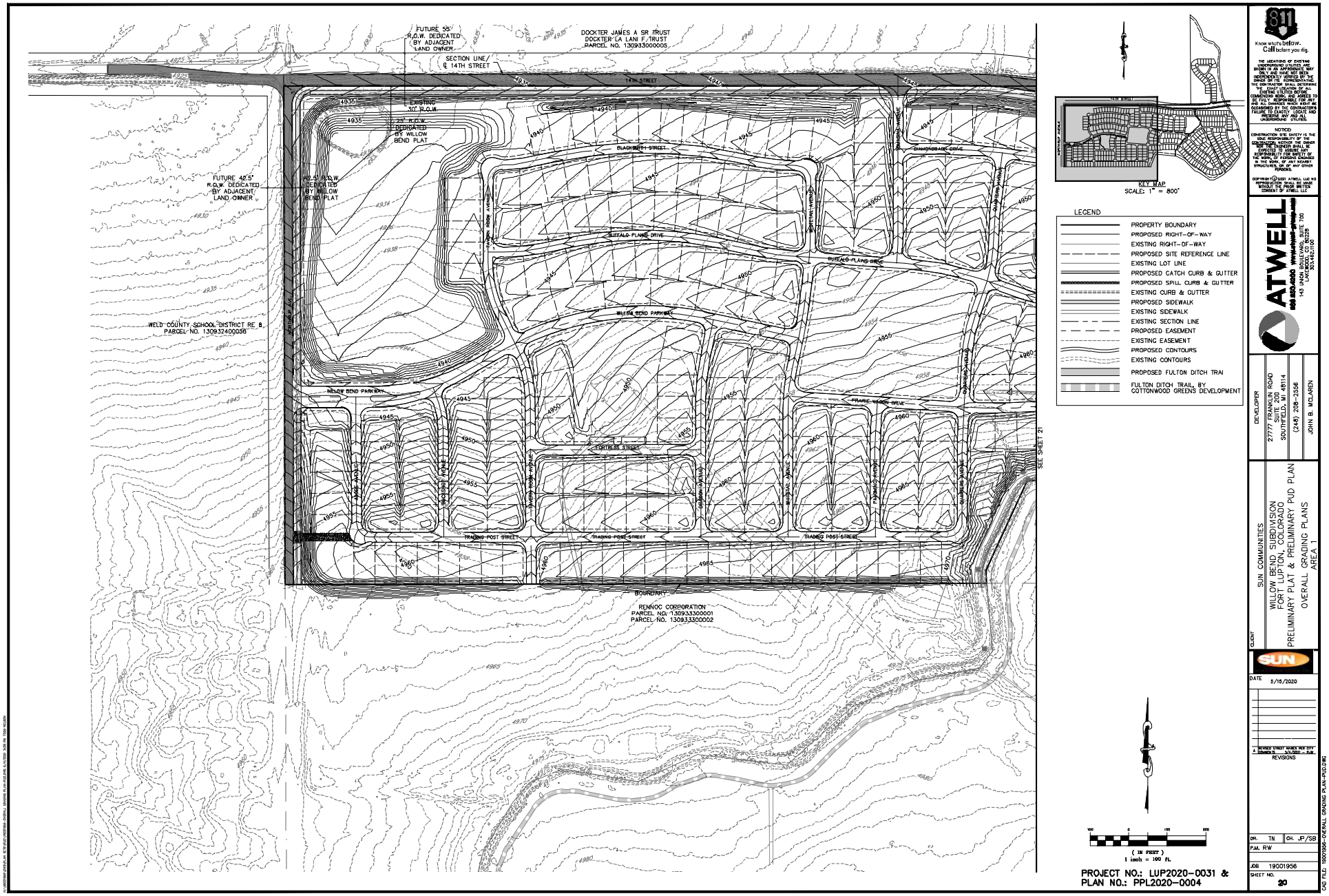
FUTURE 55' R.O.W. DEDICATED BY ADJACENT LAND OWNER
SECTION LINE / ℄ 14TH STREET
DOCKTER JAMES A SR TRUST
DOCKTER LA LANI F. TRUST
PARCEL NO. 1309333000005
14TH STREET
EXISTING 30' R.O.W.
25' R.O.W. DEDICATED BY WILLOW BEND PLAT
FUTURE 42.5' R.O.W. DEDICATED BY ADJACENT LAND OWNER
42.5' R.O.W. DEDICATED BY WILLOW BEND PLAT
WELD COUNTY SCHOOL DISTRICT RE 8
PARCEL NO. 1309324000056
BLACKSMITH STREET
DIAMONDBACK DRIVE
BUFFALO PLAINS DRIVE
WILLOW BEND PARKWAY
PRAIRIE WIND DRIVE
FORTIES STREET
TRADING POST STREET
RENNOC CORPORATION
PARCEL NO. 1309333000001
PARCEL NO. 1309333000002
BOUNDARY
SEE SHEET 21
KEY MAP
SCALE: 1" = 800'
LEGEND
PROPERTY BOUNDARY
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
PROPOSED SITE REFERENCE LINE
EXISTING LOT LINE
PROPOSED CATCH CURB & GUTTER
PROPOSED SPILL CURB & GUTTER
EXISTING CURB & GUTTER
PROPOSED SIDEWALK
EXISTING SIDEWALK
EXISTING SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
PROPOSED CONTOURS
EXISTING CONTOURS
PROPOSED FULTON DITCH TRAI
FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
(IN FEET)
1 inch = 100 ft.
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
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FORT LUPTON, COLORADO
PRELIMINARY PLAT & PRELIMINARY PUD PLAN
OVERALL GRADING PLANS
AREA 1
SUN
DATE
5/15/2020
REVISIONS
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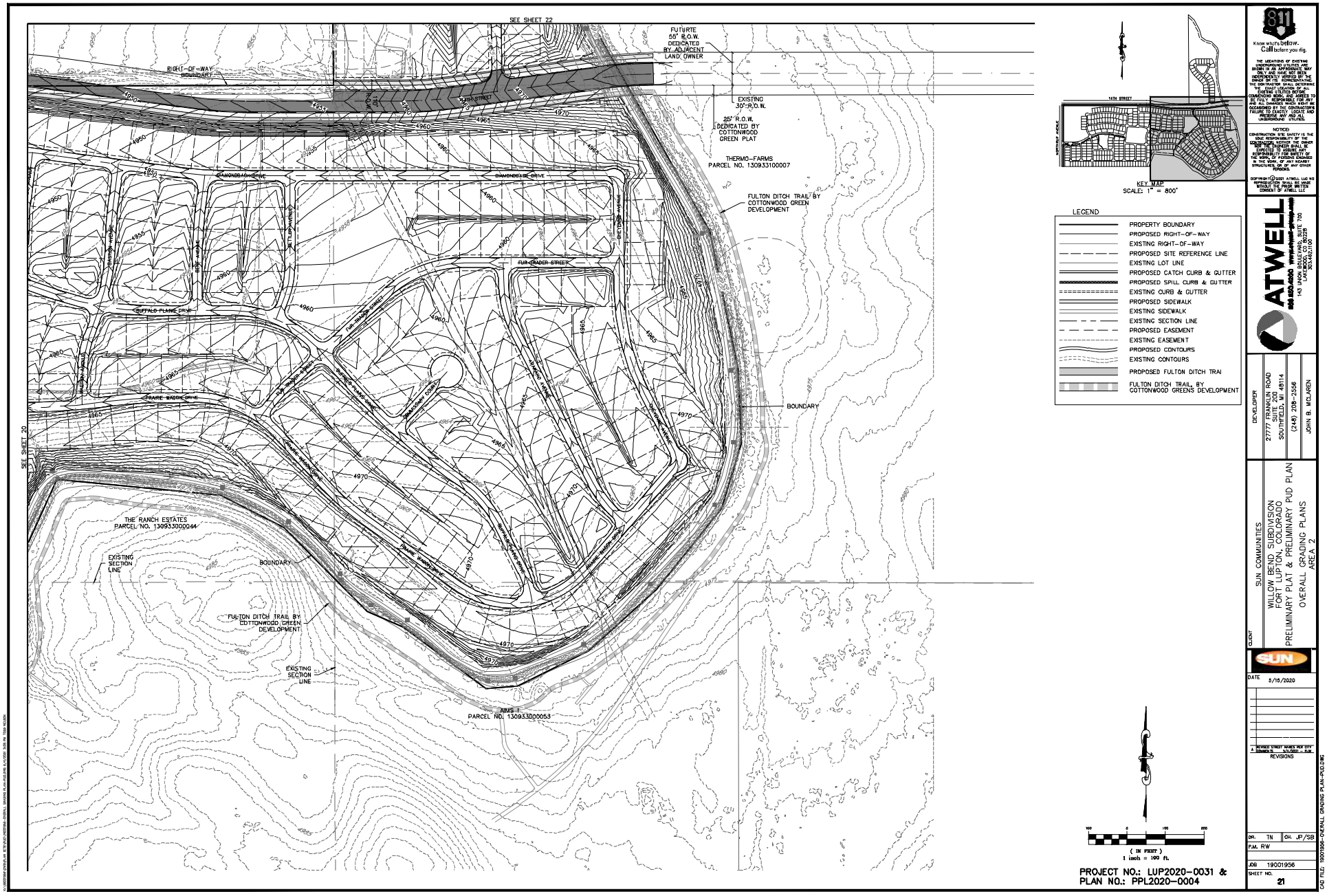
SHEET NO. 20
CAD FILE: 19001956-OVERALL GRADING PLAN-PUD.DWG

EXHIBIT A



SEE SHEET 22
SEE SHEET 20
FUTURTE 55' R.O.W. DEDICATED BY ADJACENT LAND OWNER
RIGHT-OF-WAY BOUNDARY
EXISTING 30' R.O.W.
25' R.O.W. DEDICATED BY COTTONWOOD GREEN PLAT
THERMO-FARMS PARCEL NO. 130933100007
FULTON DITCH TRAIL BY COTTONWOOD GREEN DEVELOPMENT
DIAMONDBACK DRIVE
FUR TRADER STREET
BUFFALO PLAINS DRIVE
PRAIRIE WAGON DRIVE
BOUNDARY
THE RANCH ESTATES PARCEL NO. 130933000044
EXISTING SECTION LINE
FULTON DITCH TRAIL BY COTTONWOOD GREEN DEVELOPMENT
AIMS I PARCEL NO. 130933000053
KEY MAP
SCALE: 1" = 800'
LEGEND
PROPERTY BOUNDARY
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
PROPOSED SITE REFERENCE LINE
EXISTING LOT LINE
PROPOSED CATCH CURB & GUTTER
PROPOSED SPILL CURB & GUTTER
EXISTING CURB & GUTTER
PROPOSED SIDEWALK
EXISTING SIDEWALK
EXISTING SECTION LINE
PROPOSED EASEMENT
EXISTING EASEMENT
PROPOSED CONTOURS
EXISTING CONTOURS
PROPOSED FULTON DITCH TRAI
FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT
(IN FEET)
1 inch = 100 ft.
PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004
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OVERALL GRADING PLANS
AREA 2
SUN
DATE 5/15/2020
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P.M. RW
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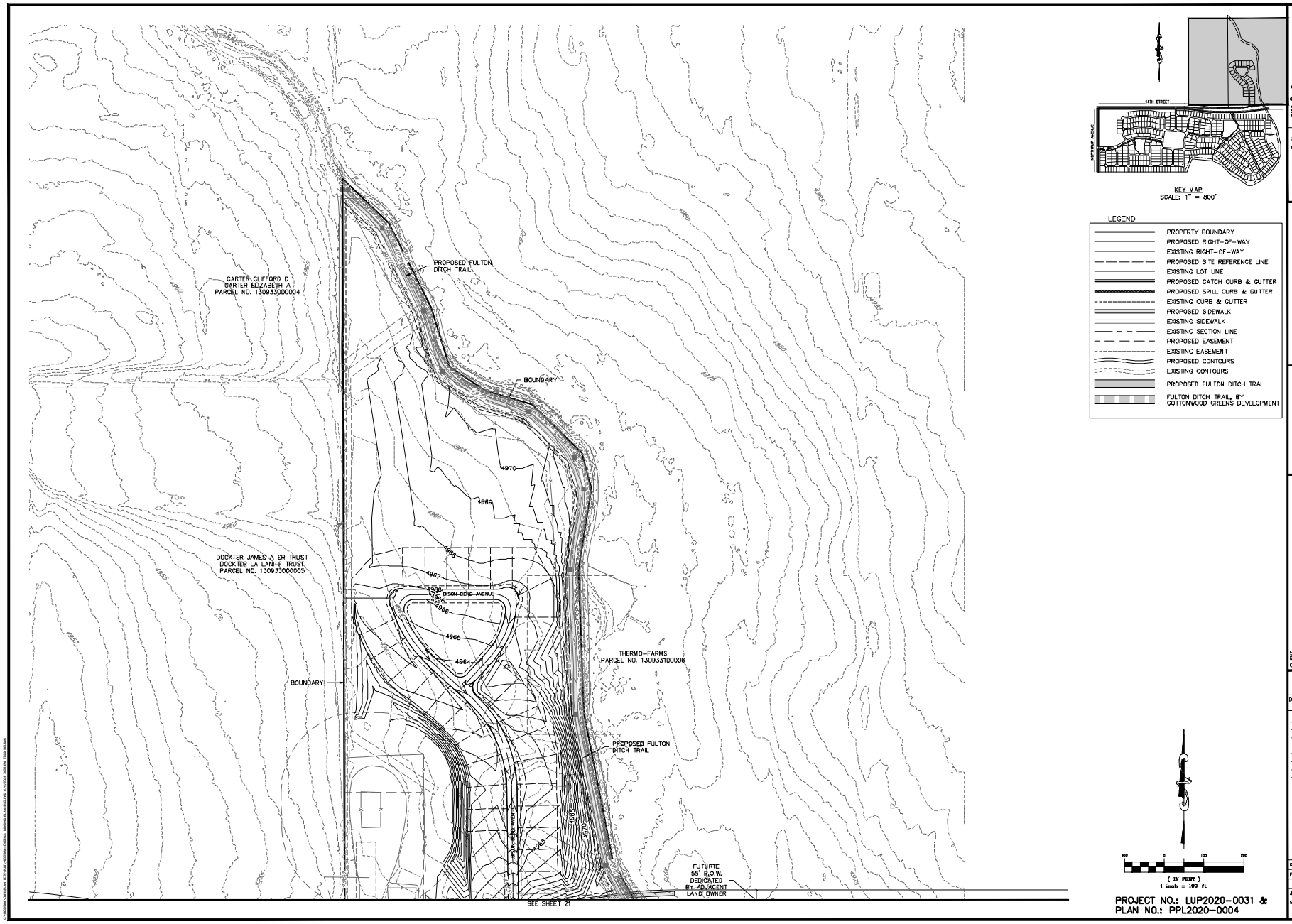
SHEET NO. 21

EXHIBIT A



KEY MAP
SCALE: 1" = 800'

LEGEND

- PROPERTY BOUNDARY
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED SITE REFERENCE LINE
- EXISTING LOT LINE
- PROPOSED CATCH CURB & GUTTER
- PROPOSED SPILL CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- EXISTING SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED FULTON DITCH TRAI
- FULTON DITCH TRAIL, BY COTTONWOOD GREENS DEVELOPMENT

(IN FEET)
1 inch = 100 ft.

PROJECT NO.: LUP2020-0031 &
PLAN NO.: PPL2020-0004

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OVERALL GRADING PLANS
AREA 3

SUN

DATE 5/15/2020

REVISIONS
1 REVISED STREET NAMES PER CITY & COMMENTS 3/1/2021 - SJM

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P.M. RW
JOB 19001956
SHEET NO. 22

CAD FILE: 19001956-OVERALL GRADING PLAN-PUD.DWG

EXHIBIT B

Willow Bend

Engineer's Estimate of Probable Cost for Public Improvements

Fort Lupton, Colorado

Summary

Prepared For: Sun Communities
Prepared By: Atwell, LLC
Date : 5/4/2021

Description		Cost
Phase 1	$	149,049.24
Phase 2	$	-
Phase 3	$	-
Phase 4	$	1,542,682.50
SS Replacement	$	237,930.00
Fulton Ditch Trail	$	99,832.75
Sub-Total:	$	2,029,494.49

Notes:

Willow Bend

Engineer's Estimate of Probable Cost for Public Improvements

Phase 1

Project: Willow Bend
Prepared By: Atwell, LLC
Prepared For: Sun Communities
Date: May 4, 2021

Item		Quantity	Unit		Unit Cost		Cost Per Item	Comments
SURFACE IMPROVEMENTS								
Hot Mix Asphalt (6" HMA over 6" ABC)		1,604	SY	$	46.35	$	74,329.95	
10' Concrete Sidewalk		408	LF	$	46.35	$	18,910.80	
6" Vertical Curb and Gutter (2' pan)		514	LF	$	22.66	$	11,647.24	
Handicap Pedestrian Ramp		2	EA	$	1,854.00	$	3,708.00	
	Subtotal					**$**	**108,595.99**	
SIGNAGE AND LIGHTING								
Street Name Sign		2	EA	$	515.00	$	1,030.00	
	Subtotal	-				**$**	**1,030.00**	
WATER IMPROVEMENTS:								
8" PVC Water Main (includes fittings)		600	LF	$	41.20	$	24,720.00	
8" Gate Valve		3	EA	$	1,982.75	$	5,948.25	
2" Blow-off		1	EA	$	4,120.00	$	4,120.00	
Water Vault and Meter		1	EA	$	4,635.00	$	4,635.00	
	Subtotal					**$**	**39,423.25**	
					Phase Total	$	149,049.24	

Willow Bend

Engineer's Estimate of Probable Cost for Public Improvements

Phase 4

Project: Willow Bend
Prepared By: Atwell, LLC
Prepared For: Sun Communities
Date: May 4, 2021

Item	Quantity	Unit	Unit Cost	Cost Per Item	Comments
SURFACE IMPROVEMENTS					
Hot Mix Asphalt (6" HMA over 6" ABC)	16,206	SY	$ 46.35	$ 751,142.95	
10' Concrete Sidewalk	4,774	LF	$ 46.35	$ 221,274.90	
6" Vertical Curb and Gutter (2' pan)	4,880	LF	$ 22.66	$ 110,580.80	
Handicap Pedestrian Ramp	6	EA	$ 1,854.00	$ 11,124.00	
Subtotal				**$ 1,094,122.65**	
SIGNAGE AND LIGHTING					
Street Name Sign	4	EA	$ 515.00	$ 2,060.00	
Crosswalk Signage and Striping	1	EA	$ 4,120.00	$ 4,120.00	
Subtotal	-			**$ 6,180.00**	
WATER IMPROVEMENTS:					
8" PVC Water Main (includes fittings)	882	LF	$ 41.20	$ 36,338.40	
12" PVC Water Main (includes fittings)	3,485	LF	$ 56.65	$ 197,425.25	**Along property line**
12" PVC Water Main (includes fittings)	1,401	LF	$ 56.65	$ 79,366.65	**Connection to line in County Road 31**
12" Gate Valve	9	EA	$ 3,090.00	$ 27,810.00	
8" Gate Valve	1	EA	$ 1,982.75	$ 1,982.75	
2" Blow-off	1	EA	$ 4,120.00	$ 4,120.00	
Fire Hydrant Assembly, 6" DIP and 6" G.V.	1	EA	$ 5,150.00	$ 5,150.00	
Water Vault and Meter	1	EA	$ 4,635.00	$ 4,635.00	
Subtotal				**$ 356,828.05**	
DRAINAGE AND STORMWATER IMPROVEMENTS:					
Box Culvert (4' X 12')	125	LF	$ 412.00	$ 51,500.00	
Subtotal				**$ 51,500.00**	
GAS IMPROVEMENTS					
Gas Line Relocation	1,653	LF	$ 20.60	$ 34,051.80	
			Phase Total	$ 1,542,682.50	

Willow Bend

Engineer's Estimate of Probable Cost for Public Improvements

Sanitary Sewer Replacement

Project: Willow Bend
Prepared By: Atwell, LLC
Prepared For: Sun Communities
Date: May 4, 2021

Item	Quantity	Unit	Unit Cost	Cost Per Item	Comments
SANITARY SEWER IMPROVEMENTS:					
12" PVC Sanitary Sewer Main	3,400	LF	$ 46.35	$ 157,590.00	
Connect to Existing Sanitary Sewer Main	2	EA	$ 5,150.00	$ 10,300.00	
4' Sanitary Sewer Manholes	16	EA	$ 4,377.50	$ 70,040.00	
Subtotal				**$ 237,930.00**	
			Phase Total	$ 237,930.00	

Willow Bend

Engineer's Estimate of Probable Cost for Public Improvements

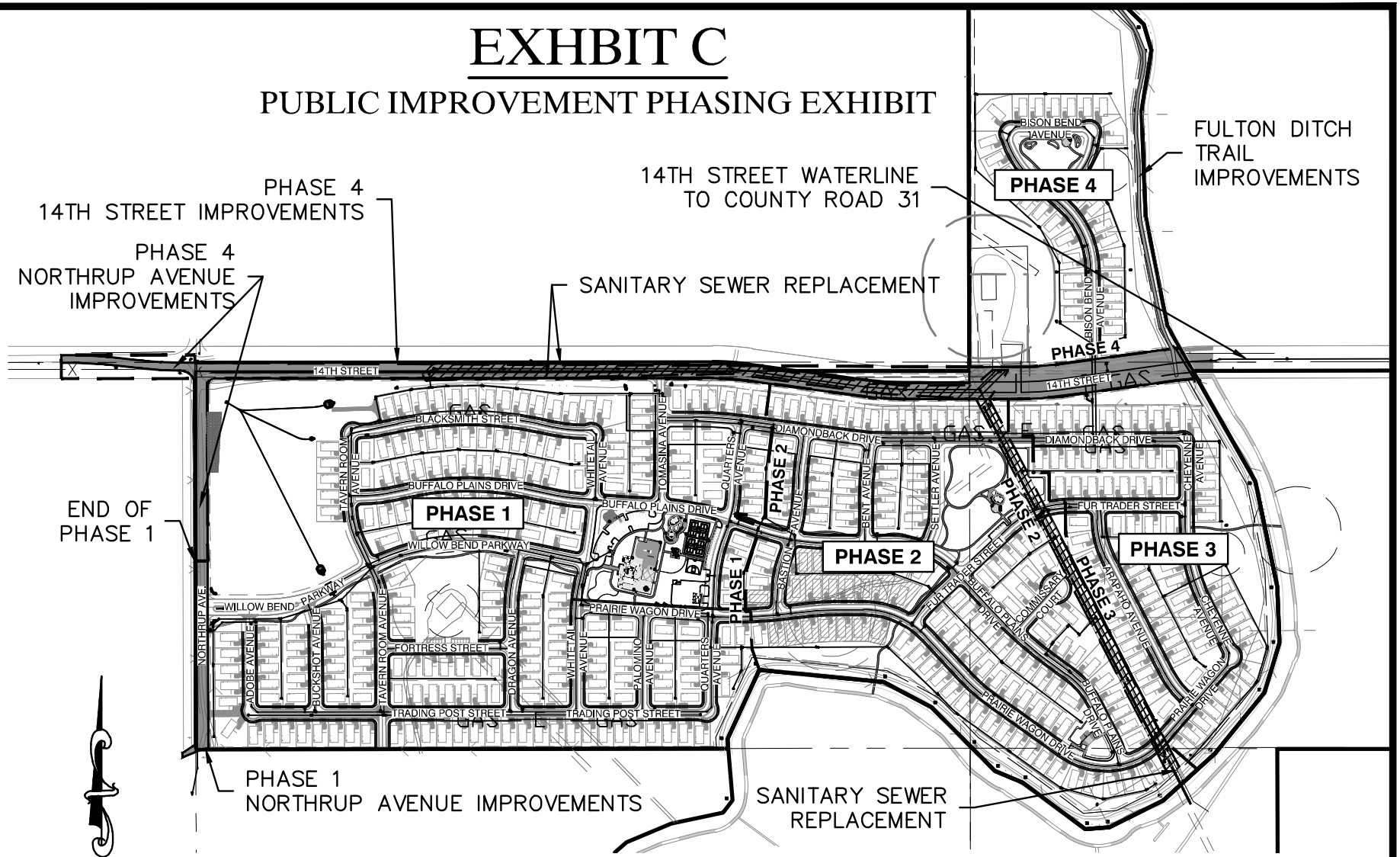
Fulton Ditch Trail

Project: Willow Bend
Prepared By: Atwell, LLC
Prepared For: Sun Communities
Date: May 4, 2021

Item	Quantity	Unit	Unit Cost	Cost Per Item	Comments
SURFACE IMPROVEMENTS					
10' wide Fulton Ditch Trail	2,065	LF	$ 46.35	$ 95,712.75	
Subtotal				**$ 95,712.75**	
SIGNAGE AND LIGHTING					
Crosswalk Signage and Striping	1	EA	$ 4,120.00	$ 4,120.00	
Subtotal				**$ 4,120.00**	
			Phase Total	$ 99,832.75	

EXHBIT C

PUBLIC IMPROVEMENT PHASING EXHIBIT



0 500 1000

(IN FEET)
1 inch = 500 ft.

PROJECT NO.: 19001956
DATE: 05/04/2021

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100
CONTACT: RICK WEED
RWEED@ATWELL-GROUP.COM

EXHIBIT D

Landscape Plan

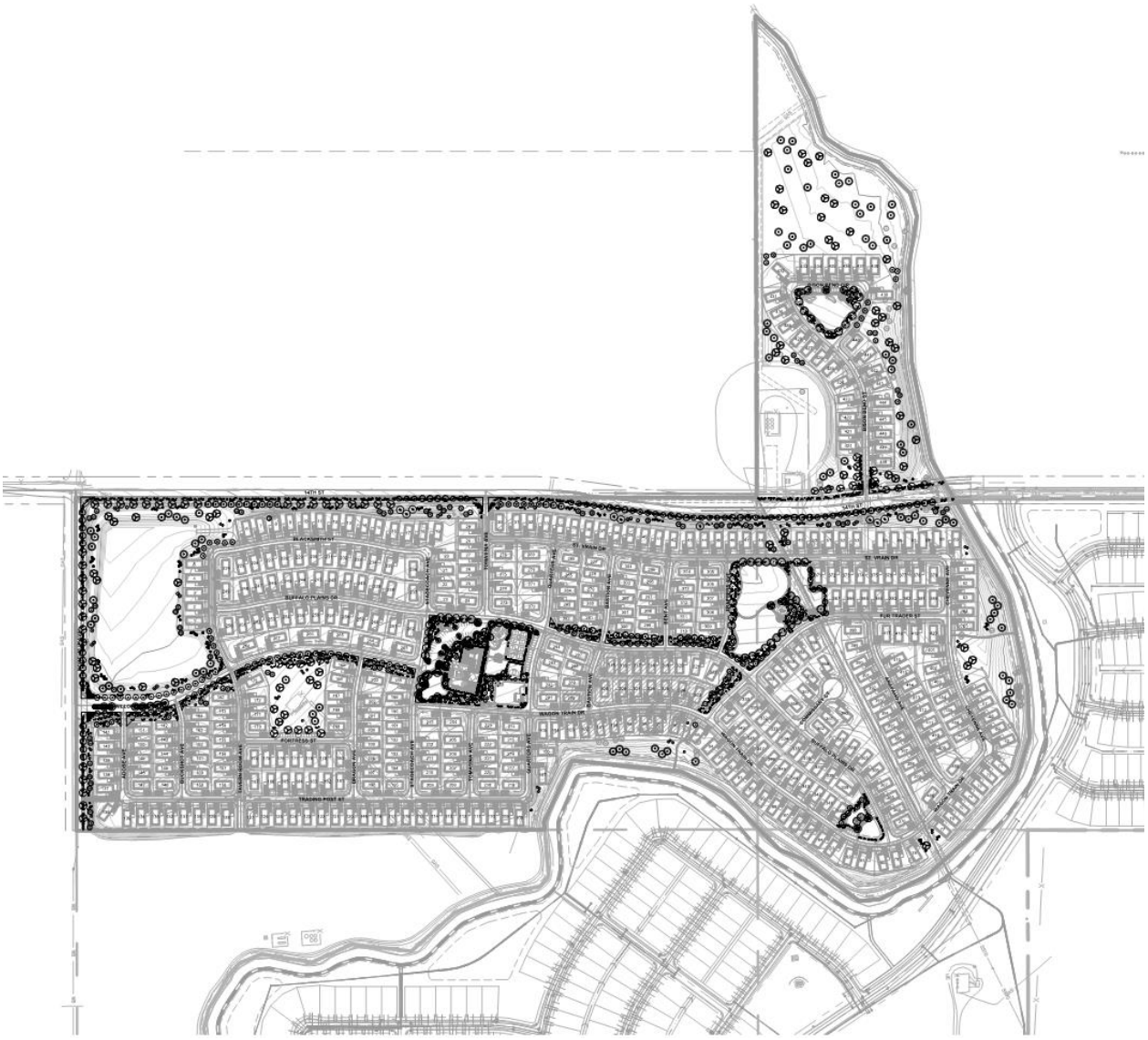


EXHIBIT E

Estimate of Costs

HARDSCAPE					
ITEM	DESCRIPTION	QTY.	UNIT	COST	TOTAL
1	6" x 4" Extruded Concrete Header	567	l.f.	$ 3.00	$ 1,701.00
2	6" x 18" Reinforced Concrete Header	273	l.f.	$ 10.00	$ 2,730.00
3	Dog Park Fencing w/ Gates	918	l.f.	$ 36.00	$ 33,048.00
4	Pool Fence (tubular steel)	442	l.f.	$ 25.00	$ 11,050.00
5	Pool/Fence Gate	4	ea.	$ 750.00	$ 3,000.00
6	6' Ht. Privacy Fence	4,061	l.f.	$ 43.00	$ 174,623.00
7	4' Ht. 3-Rail Fence	4,925	l.f.	$ 25.00	$ 123,125.00
8	2' Sq. x 4' Ht. 3-Rail Fence Column	16	ea.	$ 1,500.00	$ 24,000.00
9	2' Sq. x 6' Ht. Privacy Fence Column	47	ea.	$ 2,500.00	$ 117,500.00
10	Sport Court Fence	545	l.f.	$ 20.00	$ 10,900.00
11	Maintenance Yard Vehicular Gate	2	ea.	$ 4,000.00	$ 8,000.00
12	Median Monument	1	ea.	$ 20,000.00	$ 20,000.00
13	Corner Monument 'A'	1	ea.	$ 10,000.00	$ 10,000.00
14	Corner Monument 'B'	1	ea.	$ 5,000.00	$ 5,000.00
15	Concrete Flatwork (4" thick)	39,243	s.f.	$ 3.75	$ 147,161.25
16	Stabilized DG Trail	4,933	s.f.	$ 0.90	$ 4,439.70
17	Artificial Turf	1,398	s.f.	$ 10.00	$ 13,980.00
18	Engineered Wood Fiber (12" Deep)	5,904	s.f.	$ 3.00	$ 17,712.00
19	Bench	8	ea.	$ 1,690.00	$ 13,520.00
20	Pickleball Bench	8	ea.	$ 1,000.00	$ 8,000.00
21	Trash Receptacle	12	ea.	$ 1,650.00	$ 19,800.00
22	Firepit	1	ea.	$ 5,000.00	$ 5,000.00
23	Charcoal BBQ Grill	4	ea.	$ 1,000.00	$ 4,000.00
24	Custom Gas BBQ Counter	1	ea.	$ 10,000.00	$ 10,000.00
25	Pool Outdoor Shower	1	ea.	$ 3,000.00	$ 3,000.00
	Ramada - 15' Sq.	3	ea.	$ 15,000.00	$ 45,000.00
26	Ramada - 20' Sq.	1	ea.	$ 20,000.00	$ 20,000.00
27	Pet Waste Station	2	ea.	$ 500.00	$ 1,000.00
28	Basketball Court	1	ea.	$ 25,000.00	$ 25,000.00
29	Pickleball Court	4	ea.	$ 20,000.00	$ 80,000.00
			SUBTOTAL:		$ 962,289.95

LANDSCAPE*					
ITEM	DESCRIPTION	QTY.	UNIT	COST	TOTAL
28	24" Box Trees (nursery)	502	ea.	$ 250.00	$ 125,500.00
29	15 Gal. Trees (nursery)	111	ea.	$ 125.00	$ 13,875.00
30	5 Gal. Shrubs (nursery)	6,048	ea.	$ 25.00	$ 151,200.00
31	1 Gal. Shrubs (nursery)	463	ea.	$ 12.00	$ 5,556.00
32	Turf - Sod	84,799	s.f.	$ 0.60	$ 50,879.40
33	Fine Grading	355,959	s.f.	$ 0.06	$ 21,357.54
34	Steel Edging	3,056	l.f.	$ 2.00	$ 6,112.00
35	Rock Mulch (2" depth)	6,179	s.f.	$ 0.35	$ 2,162.65
36	Hydroseed	1,095,197	s.f.	$ 0.10	$ 109,519.70
37	Cobble	264,981	s.f.	$ 0.75	$ 198,735.75
			SUBTOTAL:		$ 684,898.04

IRRIGATION					
ITEM	DESCRIPTION	QTY.	UNIT	COST	TOTAL
1	PPS Booster Pump	1	ea.	$43,500.00	$ 43,500.00
2	Power Drop for Booster Pump & Controller	1	ea.	$5,000.00	$ 5,000.00
3	Baseline controller -2 wire	1	ea.	$12,500.00	$ 12,500.00
4	Hose Hydrants (every 2 lots)	229	ea.	$350.00	$ 80,150.00
	2" gate valve	14	ea.	$202.50	$ 2,835.00
	2.5" gate valves	25	ea.	$226.81	$ 5,670.25
5	Drip Irrigation	181,501	s.f.	$ 1.80	$ 326,701.80
6	Turf Irrigation	84,799	s.f.	$ 1.25	$ 105,998.75
7	Native Irrigation	476,154	s.f.	$ 0.85	$ 404,730.90
8	Drip Tree/Shrub rings -native	539	ea.	$75.00	$ 40,425.00
			SUBTOTAL:		$ 1,027,511.70

TOTAL:	$ 2,674,699.69
10% CONTINGENCY:	$ 267,469.97
GRAND TOTAL:	$ 2,942,169.66

CITY OF FORT LUPTON
CITY COUNCIL

Zo Stieber, Mayor

Shannon Rhoda, Ward 1
Chris Ceretto, Ward 2
Michael Sanchez, Ward 3

David Crespin, Ward 1
Tommy Holton, Ward 2
Bruce Fitzgerald, Ward 3

AM 2021-112

APPROVE THE PURCHASE FROM AVA CLOUD CAMERA FOR NEW SECURITY CAMERAS FOR CITY HALL AND THE POLICE DEPARTMENT NOT TO EXCEED $46,268.63 ALLOCATED FROM IT DEPARTMENT BUDGET AND GENERAL FUND

I. **Agenda Date:** Council Meeting – July 6, 2021

II. **Attachments:** a. AVA Cloud Camera Estimate

III. **Summary Statement:**

The current security cameras installed at City Hall and the Police Department are becoming obsolete and are no longer under warranty. The current security cameras also present security concerns. Because of these factors, staff is recommending upgrading the security cameras located at City Hall and the Police Department.

IV. **Submitted by:** Travis Aksamitowski, IT Director

V. **Finance Reviewed** Finance Director

VI. **Approved for Presentation:** City Administrator

VII. **Attorney Reviewed** Approved Pending Approval

VIII. **Certification of Council Approval:** City Clerk Date

IX. Detail of Issue/Request:

The security cameras that are currently installed at City Hall and the Police Department have become obsolete and are no longer under warranty. The current cameras present security concerns, as they may be more susceptible to hackers. Because of these factors, staff is recommending upgrading the security cameras located at City Hall and the Police Department.

X. Legal/Political Considerations:

Not applicable.

XI. Alternatives/Options:

1. *Approve the Purchase.*
2. *Do not approve the Purchase.*

XII. Financial Considerations:

The IT Department has $30,000 available in its general fund budget.

The general fund has $20,000 budgeted and unexpended in miscellaneous equipment less than $5,000. $16,268.63 can be reallocated to pay for this purchase.

XIII. Staff Recommendation:

Staff recommends approving the purchase of AVA Cloud Cameras.

CITY OF FORT LUPTON

AVA Cloud Camera Estimate









GREELEY LOCK & KEY™ | LOCKTECH™

813 13th Street | Greeley, CO 80631
970-353-7880
GreeleyLockAndKey.com

135 W 4th Street | Loveland, CO 80537
970-593-3020
NoCoSecurity.com



AWARE

- Map view with Smart Presence™
- Playback timeline with Smart Presence™
- Video view with Spotlight anomaly detection
- Smart Search™ by event, object, similarity
- People and vehicle counting
- Rules, events, alarms
- Ava Aware mobile app (Android, iOS)
- Access control integrations

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Actionable intelligence made easy

Agile, scalable, secure, and easy to use, Ava Aware is a powerful video management system equipped with integrated machine learning capabilities accessible in the cloud or on-premises. Aware analyzes all the video feeds from all your cameras all the time and in real-time. It identifies objects and events and sends instant notifications and alarms based on rules and unusual activity detection to help your team focus on what really matters.

System

16-200 cameras per server
Unlimited cameras per site
Unlimited servers per site

Device support

Automatic device discovery
Third-party IP cameras & encoders
H.264 & H.265 video compression
MJPEG video compression
JPEG2000 video compression

Streaming

Dynamic stream selection

Search

Search by similarity
Search by physical characteristics
Search by event
Search by image
Search across all video
Playback timeline with embedded thumbnails
Smart Presence™

Pervasive video analytics

Unusual event detection
People counting
Vehicle counting
Forensic investigation
Intrusion detection
Real-time notifications and alerts
Spotlight

Security and privacy protection

HTTPS camera connectivity
SRTP support
AES video encryption
Digital watermarking against tampering
RTSP over TLS

Client

Intuitive and powerful interface
HTML5 web client
Saved views
Interactive maps
Active directory import
Multi-camera export
Configurable recording schedule

Other features

Email event notification
Rule triggers
Self-learning video analytics event configuration
Ava Machine Learning server
Analytics configuration

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COMPACT DOME

Fixed lens compact dome with IR

Built-in AI video and audio analytics and on-device storage

Versatile, lightweight, and fit for discreet indoor installations

Factory-installed certificates backed by a trusted platform module (TPM)

High resolution (5MP) and extreme low light performance (f/1.3)

Designed and developed in Norway and the UK

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Image sensor
5MP (4:3)

Image sensor size format
1/2.7”

Lens
Focal length: 3.2mm
Aperture: ƒ/1.3
Fixed focus

IR night vision
Automatic night mode
IR range: 10m
850 nm IR LED

Minimum illumination in color mode
0.10lux

Field of view
102° Horizontal
71° Vertical

Maximum resolution & Frame rate
2688x1944@30fps

Dynamic range
Multi-exposure line-based HDR

Video compression
H.265, H.264, Motion JPEG

Audio
Microphone
Audio classification

Security
Trusted Platform Module (TPM 2.0)
Factory-installed certificates
No default passwords
Mandatory access authentication
HTTPS/TLS encryption

Network protocols
IPv4, HTTPS, TLS, DNS, mDNS, DNS-SD, NTP, RTSP, RTP, RTCP, ICMP, DHCP, ARP
Streaming: RTP/UDP, RTP/RTSP/HTTPS/TCP

Power source
PoE 802.3af
USB-C, installation only

Power consumption
Typical: 5W
Max: 8W

Storage
2x MicroSD, SDXC UHS-I

Connection
802.3ab 10/100/1000 Gigabit Ethernet
USB-C for preview and setup

Installation aid
Mount template
Screws and wall plugs included
1/4-20 UNC standardized camera mount thread

Adjustment range
Pan, Tilt, Roll

Temperature
Operating: 0°C to +40°C
Storage: -40°C to +60°C

Physical characteristics
Dimensions: 107x107x64mm
Weight: 280g

EMC
EN 55032, EN 61000-3-2/-3, EN 61000-6-4,
IEC 61000-4-2/-3/-4/-5/-6/-8,
CISPR 32, AS/NZS CISPR 32,
FCC Part 15B, ICES-003 Issue 6

Safety
IEC62368-1, UL62368-1, IEC62471

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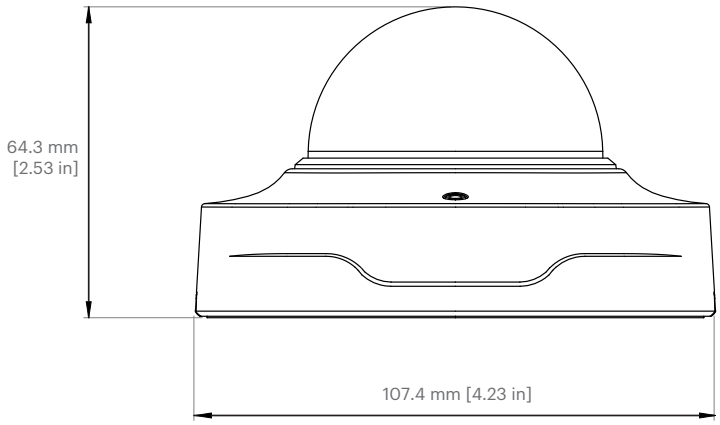
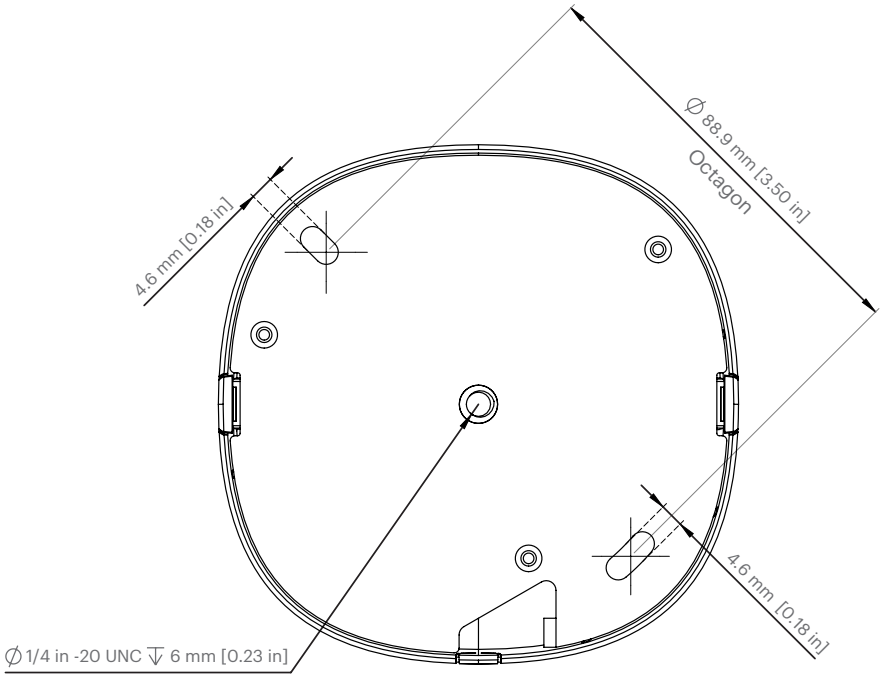
Technical drawings

Side view



Bottom view



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DOME

Fixed IR Dome camera with motorized zoom and focus

Built-in AI video and audio analytics and on-device storage

Versatile, robust and sleek, fit for both the hardest outdoor and discreet indoor setups

Factory-installed certificates backed by a trusted platform module (TPM)

Dynamic resolution up to 8MP (4K)

Designed and developed in Norway and the UK

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Image sensor
8MP (4K)

Image sensor size format
1/1.8”

Lens
Focal length: 3.6-10mm
Aperture: *f*/1.5-*f*/2.8
Remote zoom and focus
P-iris

Night vision
Automatic night mode
IR-cut filter
850 nm IR LED

Field of view
100°-45° Horizontal
53°-25° Vertical

Maximum resolution & Frame rate
3840x2160@30fps

Dynamic range
Multi-exposure line-based HDR

Video compression
H.265, H.264, Motion JPEG

Audio
Microphone array (4x microphones)
AI audio event classification
Audio source localization

Security
Factory-installed certificates, no default passwords, mandatory access authentication, HTTPS/TLS encryption

Network protocols
IPv4, HTTPS, TLS, DNS, mDNS, DNS-SD, NTP, RTSP, RTP, RTCP, ICMP, DHCP, ARP
Streaming: RTP/UDP, RTP/RTSP/HTTPS/TCP

Power source
PoE+ (802.3at Type 2)
For installation only: USB-C (1.5A mode)

Power consumption
Typical: 5 W
Max without heater: 12.95 W
Max with heater: 23 W

Storage
MicroSD, SDXC UHS-I

Connection
802.3ab 10/100/1000 Gigabit Ethernet
USB-C for preview and setup

Installation aid
Electronic leveler. Flexible bracket, mounts to standard back boxes.
Refer to technical drawing.

Impact resistance
IK10 (IEC/EN 62262)

Water protection
IP66 (IEC/EN 60529)

Temperature
Operating: -25C to +50C
Storage: -40C to +60C
Heater: 9.6W

Physical characteristics
Dimensions: 152x152x96mm
Weight: 1.2 kg
Body: Aluminum
Adjustment range: Pan, Tilt, Azimuth

EMC
EN 55032, EN 61000-3-2/-3, EN 55024, EN 55035, EN 61000-6-1/-3, EN61000-6-2/-4, FCC Part 15B, ICES-003 Issue 6

Safety
IEC60950-1, IEC62368-1, IEC60950-22, UL/CSA60950-1, UL/CSA 62368-1, UL E164374, NOM-019, IEC62471(IR LED)

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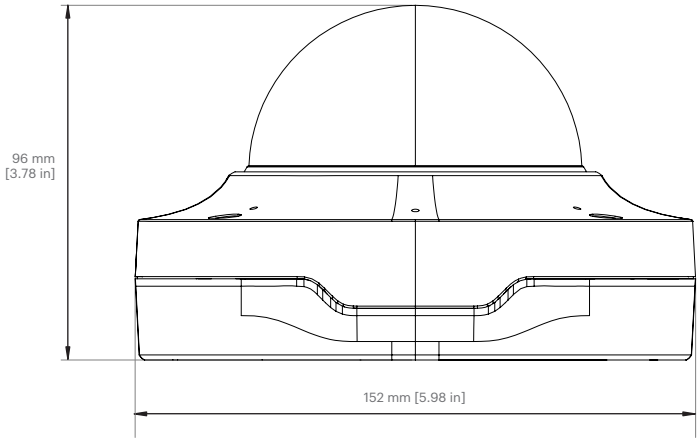
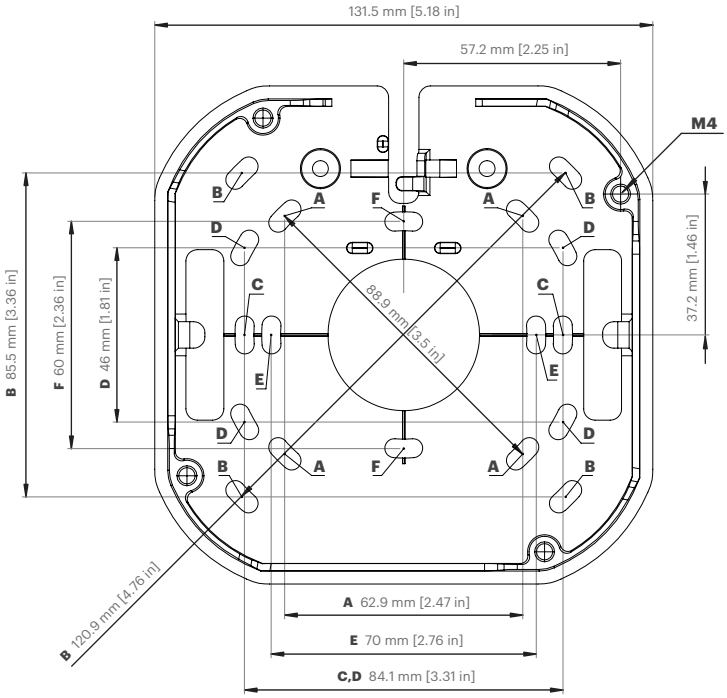
Technical drawings

Dome, side view



Scale 1:2

Mounting bracket, top view



Scale 1:2

	Designation	Dimension (mm)	Dimension (inch)
A	Octagon	62.9 x 62.9 (88.9 diagonal)	2.47 x 2.47 (3.50 diagonal)
B	4” Square Box	85.5 x 85.5 (120.9 diagonal)	3.36 x 3.36 (4.76 diagonal)
C	Single Gang	84.1	3.31
D	Double Gang	84.1 x 46	3.31 x 1.81
E	EU Ceiling Box	70	2.76
F	EU Outlet Box	60	2.36

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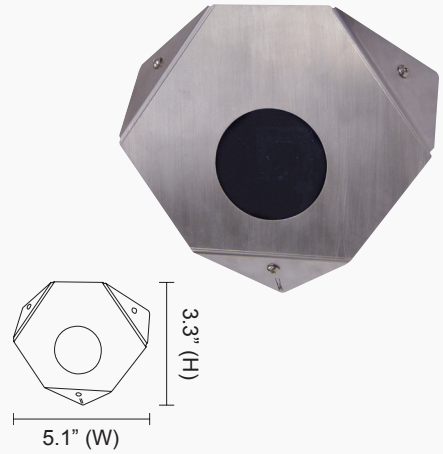
speco technologies®

2MP Intensifier IP® Corner Mount IP Camera

O2i607CM

2.9mm fixed lens, stainless steel housing

IP INT PoE



Features

- See color in low light without IR LEDs
- Supports up to 1080p @ 30fps
- Built-in standard PoE (IEEE 802.3af)
- No problems caused by objects that reflect or absorb IR light sources
- With presets for different scenarios
- Attached cable (8 ft.) connects camera unit to main unit for flexible placement
- Perfect for use in elevators
- Vandal Resistant
- 2-way audio communication
- Sensor input and relay output
- Micro SD card slot (card not included)
- Conformant with ONVIF Profile S
- 5 year warranty*

Camera Specifications

Image Sensor	Progressive scan 1/2.8" CMOS, 2MP
Maximum Resolution	1920 x 1080
Minimum Illumination	F1.4, Color: 0.2 lux (Max Intensify)
White Balance	ATW/AWB
Compensation	WDR
Intensify	Selectable (max 8x) / Off
Electronic Shutter Speed	1/30 - 1/10000 sec
DNR	2D/3D

Video Specifications

Main Resolution	1920x1080 / 1280x720 @ 30fps
Compression	H.264 (HP/MP/BP), MJPEG
Bitrate Control	VBR, CBR
Multiple Streaming	3 streams

Audio Specifications

Mono Input	G.711
Mono Output	G.711

External Terminal Specifications

Ethernet	10/100 Mbps
Alarm	1 sensor input, 1 relay output (terminal block)Audio
	1 mic in, 1 line out (terminal block)
Power	Terminal block

Network Specifications

Protocols	IPv4, TCP, UDP, RTP, RTSP, HTTP, HTTPS, SMTP, FTP, DHCP, UPnP, DNS
DDNS support	Speco DDNS (free of charge)

Network Specifications (continued)

Security	User ID & Password protection, IP address filtering, digest authentication
User Access	Max. 8 simultaneous users. Actual number of users may vary depending on bandwidth

System Specifications

PoE	Standard (IEEE 802.3af)
Analytics	Motion detection, tampering, sensor input
Alarm Triggers	Analytics
Alarm Events	FTP upload, email upload, micro SD card recording, relay output
Image Settings	Privacy mask

Client Specifications

Web Browser Support	Windows (Internet Explorer 8 and up)
PC Application	SecureGuard® VMS
Mobile	SecureGuard® Mobile (iPhone® and Android™)

Operating & Unit Specifications

Power Supply	PoE, 12VDC (power supply not included)
Power Consumption	4W
Operating Temperature	14° F – 122° F
Operating Humidity	0% - 90% RH
Main Unit Dimensions	2.59" (W) x 1.24" (H) x 4.21" (D)
Main Unit Weight	5 oz.
Camera Unit Dimensions	5.1" (W) x 3.3" (H)
Camera Unit Weight	1.5 lbs.
Certifications	FCC, RoHS

NDAA COMPLIANT

Optional Accessories



POEINJ
12.95W
PoE Injector



PSW5
12VDC
Power Supply

*Effective on all new purchases as of 2/1/17. Visit www.specotech.com for latest ONVIF support. ONVIF is a trademark of Onvif, Inc. Apple and the Apple logo are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc. Android, Google Play and the Google Play logo are trademarks of Google Inc. Speco Technologies is constantly developing and improving products. We reserve the right to modify product design and specifications without notice and without incurring any obligation. Spec Rev. 2/26/21

LOUROE ELECTRONICS®
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PH: (818)994-6498 / FAX: (818)994-6458
techsupport@louroe.com / www.louroe.com

DV-ML

MICROPHONES

TECHNICAL DATA SHEET

DESCRIPTION

Louroe Model D-V-ML is an omni-directional, mic level low impedance, electret condenser microphone. It can pick up normal sounds approximately 15' away if mounted to a wall, or within a 30' circle if ceiling mounted. The microphone pre-amp is mounted to the back of a single gang 16 Ga stainless face plate. It is designed for correctional facilities or areas where vandalism is a concern. Microphone opening is a hooded audio port for providing protection to the microphone element. The unit comes with with pre-made 20' cable with stereo plug for direct connect to the audio input of the IP camera. The DV-ML fits into a standard single gang electrical box (not supplied).

MODEL DV-ML MICROPHONE



APPLICATION

The Model DV-ML Microphones can be used in situations such as:

- Convenience Stores
- Fast Food Restaurants
- Booking Rooms
- Interrogation Rooms
- Day Care Centers
- Sleep Disorder Centers
- Therapy Labs
- Cashier Booths
- Gas Stations
- Anywhere CCTV Cameras Are Installed

FEATURES

- Easy connection to an IP camera
- Microphone can pick up normal sounds 15' away
- Fits in a standard single gang electrical box for flush or surface mounting
- May be located up to 20' from IP Camera or pre-amp.

IMPORTANT NOTICE

When this equipment is used as part of an audio monitoring system, the law requires that the public be given notice of AUDIO MONITORING ON THE PREMISES. A decal notice is included with each microphone shipped.

Federal Law References:
Federal Regulations, US Code, Title 18. Crime and Criminal Procedure, Sec 2510.

MANUFACTURED IN THE USA

SPECIFICATIONS

Sensitivity	-45 dB/pa
Frequency response	50 Hz to 8 kHz
Output Impedance	1kΩ
Current drain	0.8mA
Supply voltage	1.8Vdc to 4.5Vdc
Microphone faceplate	16 Ga Stainless steel
Dimensions	2 3/4" W x 4 1/2" H
Weight	8 oz
Weight	1 lb

5GHz WES3HTG Series

Gigabit Point-to-Point & Point-to-Multipoint
Wireless Ethernet System PoE / Non PoE

Product Description

The WES3HTG Wireless Ethernet System is a high throughput gigabit wireless transmission system that operates in the license-free, 5GHz band providing an Ethernet channel of up to 1.3Gbps aggregate.

The WES3HTG firmware is configurable for product type, enabling one common unit to be configured as a client, single-point host or multipoint host.

The system is IEEE802.11ac compliant and will support up to 1.3 Gbps throughput due to MIMO technology (Multiple In Multiple Out). WES3HTG provides high throughput connectivity for backhaul applications as well as a wide range of Ethernet devices such as megapixel/HD IP cameras, DVRs and web servers. It uses secure encryption to prevent unauthorized access to the system. WES3HTG is IEEE802.3af compliant and can also be used with a power injection module for applications where PoE is not available. The WES3HTG units are wall or pole-mountable with the included hardware.



Product Features

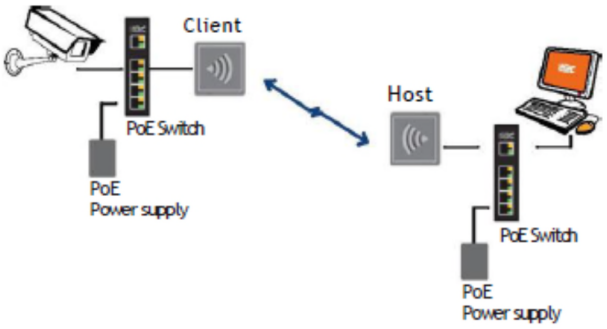
- Configurable for client / singlepoint host / multipoint host
- IEEE802.11ac compliant
- Transmission Power Control
- Up to 30dBm output power
- Secure transmission: WPA2 – AES or TKIP encryption
- Antenna alignment & site signal survey tools
- Distance adjustment for long range transmission
- Range of antenna options
- Passive midspan compliant PoE support
- IP66 protection class

Typical System Configuration

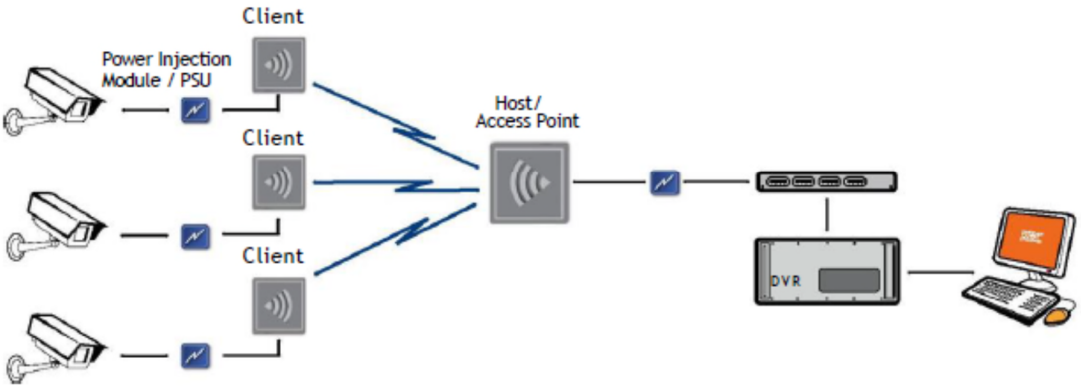
Point-to-Point using 48Vdc Passive PoE



Point-to-Point using 48Vdc IEEE802.3af PoE



Point-to-Multipoint using 48Vdc Passive PoE



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Specifications

Standards

IEEE Standards	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BASE-T, IEEE 802.3x Full Duplex IEEE 802.11a 5GHz, IEEE 802.11h ETSI DFS & TPC IEEE 802.11n MIMO

Radio

Frequency	
USA & Canada (FCC) U-NII3	5180 ~ 5240MHz, 5745 ~ 5825 MHz
Europe	5500 ~ 5700 MHz
Frequency Operation	Auto-select User static selectable Dynamic Frequency Selection (ETSI DFS)
Power Output	30dBm max [1] Transmit Power Control (ETSI TPC)
Channel Bandwidth Spectrum	Selectable 20, 40 or 80MHz

Antenna Options

5dBi	Omni-directional
9dBi	Directional integrated patch Dual polarization Beamwidth: Azimuth:Horizontal 65˚, vert 65˚ Elevation: Horizontal 33˚, vert 33˚
17dBi	Directional integrated patch Dual polarization Beamwidth: Azimuth:Horizontal 30˚, vert 33˚ Elevation: Horizontal 17˚, vert 17˚

System

Data throughput [2]	HT40	HT80
	300Mbps	650Mbps
Latency	<10ms	
Encryption	TKIP / AES encryption up to 128 bit	

Power Method

PoE version	IEEE 802.3af (PD) / Included PIM
PoE cable spec	100m on 24AWG Cat5/5e/6/6e/7

Mechanical (unit)

Casing	IP66 protection
Dimensions (L x W x D)	292mm x 146mm x 89mm /11.5" x 5.75" x 3.5"
Weight (17dBi unit)	0.82kg / 1.8lb
Installation	Wall-mount or pole-mount

Environmental

Operating Temperature	-40˚~ +74˚C / -40˚~ +165˚F
Storage Temperature	-40˚~ +90˚C / -40˚~ +194˚F
Operating Humidity	5 to 95% non-condensing
Mean Time Between Failure (MTBF)	> 1,500,000 Hours

Connectors

10/100/1000Mbps Electrical	1 x RJ45

Approvals

FCC Part 15 Subpart C	Class B
CE	Class B
EN 55024 (IEC61000-4-2,3,4,5,6,8,11)	Electromagnetic Immunity
EN 55022 (CISPR 22)	Electromagnetic Interference (Conduction & Radiation)
EN 60 950: 1992+A1: 1993+A2: 1995+A4: 1996+A1: 1997	Low Voltage Directive
EN 300 328-2	
EN 300 826	
EN 301 489-17	
EN 301 893	
R&TT Directive (1999/5/EC)	

Part Numbers

Model #	Antenna	Power plug & Firmware (Region)	Single radio unit	Point-to-point Kit *Available in North America only*
WES3HTG-AX-CA	Integrated 17 dBi directional	US	✓	
WES3HTG-AX-BA	Integrated 9 dBi directional	US	✓	
WES3HTG-AX-AA	External 5 dBi Omni-directional	US	✓	
WES3HTG-KT	Integrated 17 dBi directional	US		Consists of (2) WES3HTG-AX-CA
WES3HTG-KT-P8	Integrated 17 dBi directional	US		Consists of (2) WES3HTG-AX-CA & (1) ESUGS8-B and DRP240-48
WES3HTG-KT-P8T	Integrated 17 dBi directional	US		Consists of (2) WES3HTG-AX-CA & (1) ESUGS8-B and SDR240-48
WES3HTG-AX-CB	Integrated 17 dBi directional	UK & EMEA	✓	
WES3HTG-AX-BB	Integrated 9 dBi directional	UK & EMEA	✓	
WES3HTG-AX-AB	External 5 dBi Omni-directional	UK & EMEA	✓	
WES3HTG-AX-CC	Integrated 17 dBi directional	Euro & EMEA	✓	
WES3HTG-AX-BC	Integrated 9 dBi directional	Euro & EMEA	✓	
WES3HTG-AX-AC	External 5 dBi Omni-directional	Euro & EMEA	✓	
WES3HTG-AX-CE	Integrated 17 dBi directional	Australian	✓	
WES3HTG-AX-BE	Integrated 9 dBi directional	Australian	✓	
WES3HTG-AX-AE	External 5 dBi Omni-directional	Australian	✓	

Included Power Injection Module (PIM)

Mechanical

Physical	Plastic housing
Dimensions (LxWxH)	84 x 47 x 54mm /3.31 x 1.85 x 2.13"
Interface	2 x RJ45 connectors

Environmental

Operating Temperature	-40˚~ +74˚C (-40˚~ +158˚F)

Power

Input	100 ~ 240Vac
Output	48Vdc, 500mA
Consumption	12W (max)
Power-over-Ethernet (PoE)	Passive PoE "mid-span" compliant
Indicator	LED (green)

1. *Territory specific.*
2. *Assumes ideal RF environment with max signal rates & within receive sensitivity specification. Max values - limited by 10/100 port.*

Due to ongoing technological improvements, product specifications are subject to change without notice. KBC is not liable for any errors, omissions or changes of any description of the goods contained herein. This information is for the sole purpose of identifying the products and KBC makes no warranty that the products conform to any description contained herein. Do not rely solely on any representations, statements, or assertions concerning these Products contained herein.

NetWay4EWPX
4-port PoE+ Hardened Switch


NetWay4EWPX

Description

Altronix NetWay4EWPX Outdoor PoE+ Hardened Switch provides a 1Gb SFP port and four (4) PoE+ (30W) ports or up to two (2) Hi-PoE (60W) ports. Cameras/edge devices may be located up to 100m from the unit. Embedded LINQ Technology allows you to monitor, control, and report power and diagnostics from anywhere.

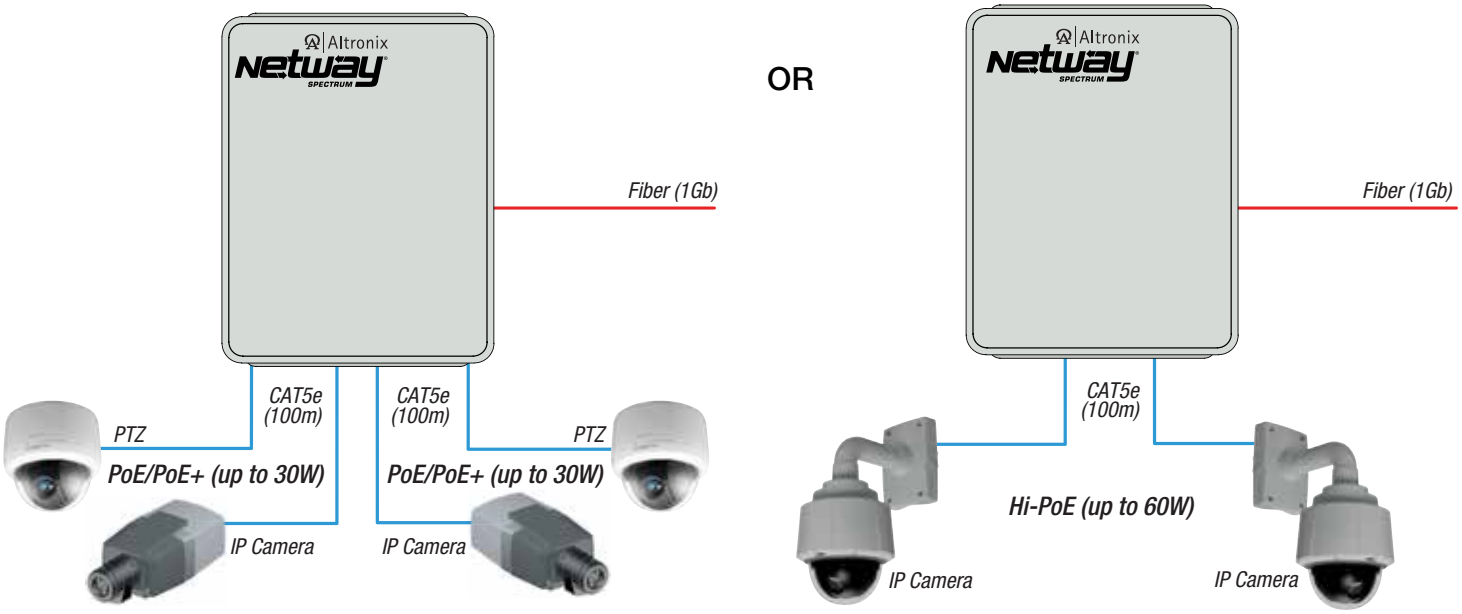
Key Features

- Four (4) PoE/PoE+ (up to 30W) ports or two (2) Hi-PoE (60W) ports.
- IEEE 802.3af (15W) and IEEE 802.3at (30W) compliant.
- 120W total power.
- One (1) Gigabit SFP port.
- NEMA4/4X, IP66 Rated enclosure for outdoor use.
- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- PoE activity LED indicators.
- UL Listed in the U.S. and Canada.
- CE Approved.
- Lifetime Warranty / Made in the U.S.A.

Similar products:

- NetWay4EWP - Outdoor 4-port PoE+ Hardened Switch in NEMA 4/4X, IP66-11 enclosure.
- NetWay4EWPN - Outdoor 4-port PoE+ Hardened Switch only in NEMA 4/4X, IP66-11 enclosure.
- NetWay4EX - Indoor 4-port PoE+ Hardened Switch.
- NetWay4EPL - 4-port PoE+ Hardened Switch on Backplane.
- NetWay4EB - 4-port PoE+ Switch board only.

Typical Applications



NetWay4EWPX
4-port PoE+ Hardened Switch

Specifications

Input

Voltage	115VAC, 60Hz, 2.5A or 230VAC, 50/60Hz, 1.3A.
Fusing	5A/250V.

Power Output

Maximum Power	Four (4) PoE+ (30W) ports or two (2) Hi-PoE (60W) ports. IEEE 802.3af (15W) and IEEE 802.3at (30W) compliant. 120W total power. Integral surge protection.
Fiber Port:	One (1) Gigabit SFP port.

Back-up Battery (not included)

Capacity	4AH / 12VDC (4 within enclosure).
Type	Sealed lead acid or gel type.
Failover	Upon AC loss, instantaneous.

Indicators (LED)

Individual **PoE On** LEDs for each port.
Individual **IP Link status, 10/100Base-T/active** LEDs for each port.
ALOS LED indicates fiber connection for SFP port.
Heartbeat LED indicates proper operation of the unit.

LINQ Technology:

Remote network management allows for camera/device reset and monitoring.
Provides local and/or remote access to critical information via LAN/WAN.
Email and Windows Dashboard Alert notifications report real-time diagnostics.
Event log tracks history.

Agency Listings

UL/cUL	UL60950-1 (Information Technology Equipment). UL60950-22 (Information Technology Equipment to be installed Outdoors).
CE	European Conformity.

Physical and Environmental

Enclosure Dimensions (H x W x D approx.):
17.53" x 15.3" x 6.67" (445.3mm x 388.6mm x 169.4mm).
NEMA 4/4X, IP66-11 Rated enclosure for outdoor use.
Accommodates four (4) 12VDC/4AH batteries (48V of backup).

Product Weight / Shipping (approx.)

Product Weight:	15 lb. (6.8 kg).
Shipping Weight:	17.5 lb. (7.9 kg).

Temperature

Operating:	60W: -40ºC to 75ºC (-40ºF to 167ºF). 75W: -40ºC to 70ºC (-40ºF to 158ºF). 100W: -40ºC to 55ºC (-40ºF to 131ºF). 120W: -40ºC to 45ºC (-40ºF to 113ºF).
Storage:	-40ºC to 85ºC (-40ºF to 185ºF).
Relative Humidity:	85% +/-5%
BTU/Hr. (approx.):	61 BTU/Hr.
Operating Altitude:	-304.8 to 2,000m.

Accessories



NetWaySP1A - Ethernet over Fiber Media Converter/Repeater

For Applications requiring an additional SFP (Fiber) Port

NetWaySP1A PoE powered media converter/repeater converts 10/100/1000 Mbps to Fiber (1000Base-X/SX/LX).



P1MM and P1SM10 - SFP Modules

Altronix P1MM and P1SM10 are hot-pluggable SFP fiber transceiver modules and are readily usable with all Altronix Spectrum fiber optic equipment for 1G transmission rates. The P1MM is to be used with Multi-Mode Fiber for distances up to 550m. The P1SM10 is to be used with Single-Mode Fiber for distances up to 10Km.



PMK2 Pole Mount Kit (order separately)

PMK2 pole mount kit is designed to simplify installation of outdoor units. It accommodates 2"- 8"(diameter) poles.

Altronix Corporation | 140 58th St | Brooklyn, NY 11220 USA
phone: +1 718.567.8181 | fax: +1 718.567.9056 | email: info@altronix.com | www.altronix.com

GREELEY LOCK & KEY™

New Location

Hillside Shopping Center
2533 11th Avenue | Greeley, CO 80631

970-353-7880 | GreeleyLockAndKey.com

ESTIMATE

DATE	ESTIMATE #	ACCOUNT #
6/9/2021	0000009939	0004573

The customer agrees that this is a good faith estimate, based on the information available at the time the estimate was created. Actual invoice amount may be different at the completion of the listed work, due to unforeseen factors such as additional work, broken hardware, additional keys, etc

City of Fort Lupton
203 South Harrison Ave
Fort Lupton CO 80621

P.O. NUMBER	TERMS	DISPATCH #	SALES PERSON
	NET 30		0005

QUANITY	DESCRIPTION	UNIT PRICE	AMOUNT
1.00	Appliance 1000 with 24TB net storage and dual 1Gb Base-T network connection. Support for up to 75 cameras, 4 hard drives, Nvidia Quatro RTX 4000 GPU, with Ava Aware VMS, standard support, 3 years warranty and power cables included.	6,835.00	6,835.00
1.00	Mounting rack for A1000 with rail bracket andready rails, including one C13-C14 power cable.	636.35	636.35
14.00	AVA White 5MP 4K Compact Dome	404.55	5,663.70
16.00	Ava Aware Cloud camera - Dome white -5 Megapixel resolution	474.00	7,584.00
2.00	INTENSIFIER IP VANDAL CORNER MOUNT CAMER	783.20	1,566.40
2.00	Verifact A Ceiling Mount Mic	215.36	430.72
36.00	3 Year Subscription to Ava Aware real Time Video Analytics	251.51	9,054.36
16.00	Mounting arm for Ava Dome and 360 cameras. White.	66.75	1,068.00
16.00	Pendant mounting cap for Ava Dome and 360 cameras. White.	44.50	712.00
1.00	Point-to-Point & Point-to-Multipoint Wireless Ethernet Transmission 5GHz, PoE & Non PoE	779.64	779.64
2.00	Mounting Bracket Assembly Kit For Kbc Wes3 And Wes	85.44	170.88
1.00	4PORT POE+ SW 1G SFP NEMA4 LG	1,110.72	1,110.72
2.00	Cat5e 350mhz White 1000ft Plenum	273.43	546.86
1.00	Miscellaneous Materials	250.00	250.00
1.00	Installation of 36 IP Cameras at the police station and Town Hall	9,860.00	9,860.00

TOTAL $46,268.63

JOB LOCATION:
City of Fort Lupton/City Hall
130 South McKnley Ave
Ft Lupton CO 80621

(X) _____

This estimate subject to terms and conditions of a signed agreement

Upcoming Events

July 4, 2021	Independence Day Celebration, Fort Lupton Recreation Center, 203 S. Harrison Ave. Noon-7:00 pm, Fireworks at Dark
July 9, 2021	City Wide Yard Sale
July 10, 2021	City Wide Yard Sale
July 13, 2021	Town Hall Meeting, 130 S. McKinley Ave. 6:30 p.m.
July 20, 2021	City Council Meeting, 130 S. McKinley Ave. 7:00 p.m.
July 27, 2021	Town Hall Meeting, 130 S. McKinley Ave. 6:30 p.m.
August 3, 2021	National Night Out
August 20, 2021	Jacobs Golf Tournament, Coyote Creek Golf Course