CITY OF THORNTON, COLORADO

DESIGN PLANS OF PROPOSED

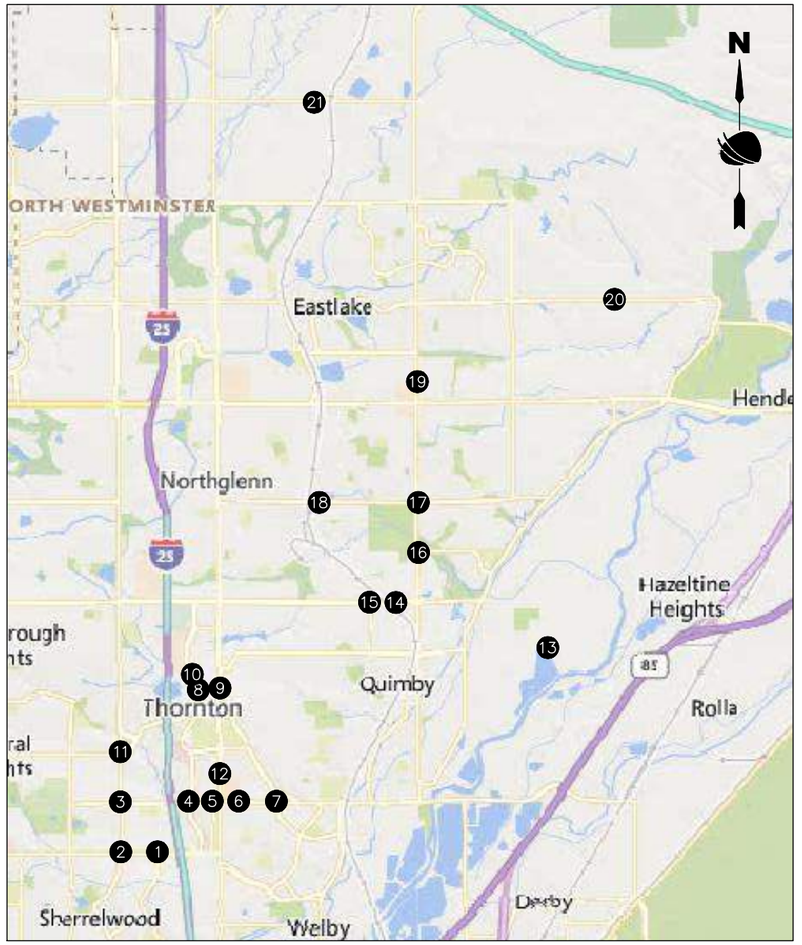
FLASHING YELLOW ARROW SIGNAL MODIFICATIONS

ADAMS COUNTY, COLORADO

PROJECT NO. SHO M286-056

SUB ACCOUNT NO. 25527

INTERSECTION NUMBER	LOCATION/INTERSECTION
1	84TH AVE. & CONIFER RD.
2	84TH AVE. & HURON ST.
3	88TH AVE. & HURON ST.
4	88TH AVE. & GRANT ST.
5	88TH AVE. & PEARL ST.
6	88TH AVE. & CORONA ST.
7	88TH AVE. & POZE BLVD/MCELWAIN BLVD
8	97TH AVE. & GRANT ST.
9	97TH AVE. & WASHINGTON ST.
10	98TH AVE. & GRANT ST.
11	THORNTON PKWY & HURON ST.
12	WASHINGTON ST. & RUSSELL BLVD.
13	100TH AVE. & MCKAY RD.
14	104TH AVE. & FOX RUN PKWY.
15	104TH AVE. & STEELE ST.
16	108TH AVE. & COLORADO BLVD.
17	112TH AVE. & COLORADO BLVD.
18	112TH AVE. & YORK ST.
19	121ST AVE. & COLORADO BLVD.
20	128TH AVE. & QUEBEC ST.
21	144TH AVE. & YORK ST.



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40125
9-15-2025
PROFESSIONAL ENGINEER

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CITY OF THORNTON APPROVALS

MATTHEW KOENIG, PE	PROJECT MANAGER	DATE
MARTA JUNYENT, PE, PTOE	SENIOR CIVIL ENGINEER	DATE
DARRELL E. ALSTON, PE, PTOE	TRAFFIC ENGINEER	DATE

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All seals for this set of drawings are applied to the cover page(s)

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Sheet Revisions

Date	Comments	Initials

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:
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FYA SIGNAL MODIFICATIONS TITLE SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: General
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code

SHO M286-056
25527
Sheet Number 1

Plot Date:7/29/2025 10:11 AM Plotted By: Sarah Hemler
R:\0-PROJECTS\ACTIVE PROJECTS\94900_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\900_COMPUTER DESIGN FILES\902_SHEET FILES\GN-001 TITLE SHEET.DWG

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COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 31, 2019

Revised on April 25, 2025

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE INDICATED BY A MARKED BOX ■, AND WILL BE ATTACHED TO THE PLANS. ALL OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR USE IN CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

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FYA SIGNAL MODIFICATIONS STANDARD PLANS LIST

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: General
Structure Numbers:
Subset Sheets: 2 of 2

Project No.
SHO M286-056
Drawing Number GN-002
Sheet Number 2

Plot Date:7/29/2025 10:11 AM Plotted By: Sarah Hemler
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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

TITLE SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-30-24	4.01 to 4.19	4.01

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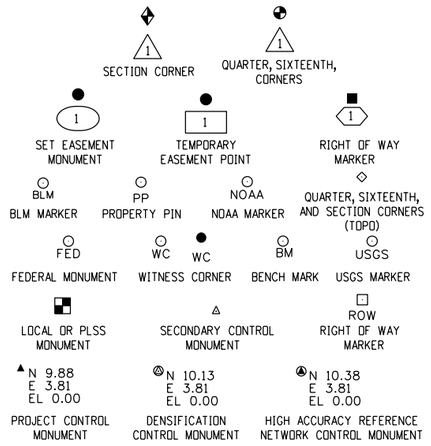
CITY OF THORNTON

PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

SURVEYOR STATEMENT (PROJECT CONTROL DIAGRAM)

I, Chet F. Smith , a professional land surveyor licensed in the State of Colorado, do hereby state to the City of Thornton this Project Control /Land Survey Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 38271



Note: For a complete listing of symbololgy used within this set of plans, please refer to the M-100-1 Standard Symbols of the Colorado Department of Transportation M&S Standards Publication. Existing features are shown as screened weight (gray scale). Proposed or new features are shown as full weight without screening.

General Notes:

1. This Project Control/Land Survey Control Diagram is prepared for the City of Thornton purposes only. It is not a Boundary Survey, Land Survey Plat, or Right Of Way Plan. No determination has been made to determine if the found monuments as shown are in their proper position or if they are at the corners they are intended to monument.

2.Title policy, title commitment, and title research are not part of this survey. therefore easements, rights, and restrictionsof record were not researched and are not shown on this diagram. The verification of the physical evidence with relation to easements, rights of ways, property boundries, and restrictions, as described in the instruments of record, were not included in this control survey.

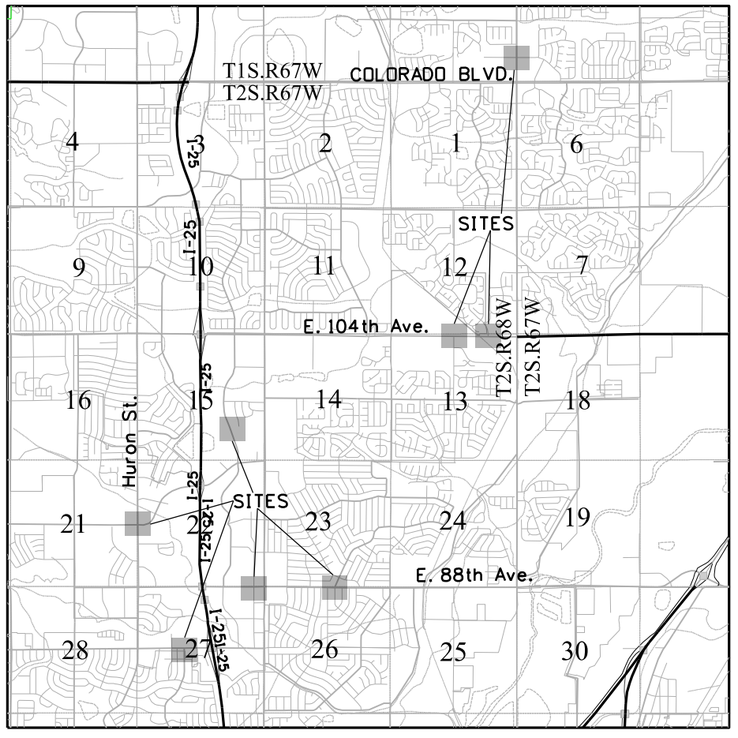
3. This plan set is subject to change and may not be the most current set. It is the user's responsibility to verify with the City of Thornton that this set is the most current. The information contained on the attached drawing is not valid unless this copy bears an original signature of the Professional Land Surveyor hereon named.

4. Refer to the M-629-1 Survey Monuments of the Standard Plans found in the Colorado Department of Transportation M & S Standards for typical survey monument descriptions.

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 certification shown hereon.

E. 104th Ave. @ Fox Run Parkway
E. 104th Ave. @ Steele St.
Sections 12, 13, Township 2 South, Range 68 West
E. 98th Ave. @ Grant St.
Section 15, Township 2 South, Range 68 West
Huron St. @ Thornton Parkway
Sections 21, 22, Township 2 South, Range 68 West
E. 88th Ave. @ Pearl St.
Sections 22, 27, Township 2 South, Range 68 West

E. 121st Ave. @ Colorado Boulevard
Sections 31, Township 1 South, Range 67 West
Sections 36, Township 1 South, Range 68 West
E. 84th Ave. @ Conifer Rd.
Section 27, Township 2 South, Range 68 West
E. 88th Ave. @ Poze Blvd/McElwain Blvd
Sections 23, 26, Township 2 South, Range 68 West
of the 6th Principal Meridian
County of Adams



PROJECT LOCATION MAP

0 mi. ½ mi. 1 mi. 2 mi.

Basis of Bearings: Bearings used in the calculations of coordinates are based on a grid bearing of N 42°08' 21" E from the Control Point 107 to Control Point 103. Control Point 107 is a CDOT Type 5S Monument and Control Point 103 is a CDOT Type 5S Monument, both being described on sheet 4.02 herein. The survey data was obtained from a Global Navigation Satellite System (GNSS) survey based on the following CORS Stations: P041, CTMC, and ZDV1 (NAD 83/2011) datum.

Basis of Elevations: Project elevations are GPS derived, using GEOID 18, based on a NAVD 88 elevation of 5286.43sft on NGS Benchmark "K 411" (Stamped "K 411 1984", Stainless Steel Rod W/O Sleeve).

COORDINATE DATUM: Project coordinates are modified Colorado State Plane North Zone (0501) NAD 83(11) coordinates. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates is 1.0002729936.
The resulting project coordinates are truncated by 1,000,000 in the Northing and and 3,000,000 in the Easting after converting from state plane coordinates to project coordinates.
Project Coordinates Northing US Survey Feet= State Plane Coordinate Northing * 1.0002729936 - 1,000,000.
Project Coordinates Easting US Survey Feet= State Plane Coordinate Easting * 1.0002729936 - 3,000,000.

All lineal units and project coordinates are US Survey Feet, unless otherwise noted.

SHEET NO.
4.01
4.02, 4.03, 4.04-4.18 (even #'s)
4.05 - 4.19 (odd #'s)

INDEX OF SHEETS

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Sheet Revisions		
Date	Description	Initials
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mm/dd/yy	XXXXXXXX	XXX

PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLES

Project Number: 1007907

Project Location: City of Thornton Traffic Intersections

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-27-24	4.01 to 4.19	4.02

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▲ GEODETIC COORDINATES SUMMARY TABLE OF FOUND AND VERIFIED EXISTING CONTROL (ADJUSTED FIELD DATA U.S. FEET)

Point No.	Geodetic Coordinates NAD-83(11) (CORS)		Elip Height (NAVD88)(m)	Ortho Height (sft)	Mapping Angle	Grid Scale Factor	NAD 83(11) Zone 0501		Description
	Latitude(N)	Longitude(W)					SP Northing(sft)	SP Easting(sft)	
ALLEN	39°51'40.26520" N	105°03'10.68812" W	1672.934	5544.34	0°17'20"	0.999979820	1192596.68	3125491.75	HORIZONTAL CONTROL DISK SET IN TOP OF CONCRETE MONUMENT
CP 100	39°51'22.08369" N	104°58'43.57379" W	1596.786	5295.59	0°20'12"	0.999980420	1190870.72	3146331.52	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 100"
CP 101	39°51'23.39099" N	104°58'46.28847" W	1597.791	5298.88	0°20'11"	0.999980376	1191001.75	3146119.04	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 101"
CP 102	39°51'21.69609" N	104°58'45.84028" W	1597.326	5297.35	0°20'11"	0.999980432	1190830.46	3146155.00	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 102"
CP 103	39°52'28.84156" N	104°59'00.94295" W	1622.188	5378.95	0°20'01"	0.999978258	1197617.65	3144937.68	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 103"
CP 104	39°52'29.15277" N	104°58'56.92805" W	1622.564	5380.20	0°20'04"	0.999978248	1197650.96	3145250.50	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 104"
CP 105	39°52'27.19932" N	104°58'58.09114" W	1625.296	5389.16	0°20'03"	0.999978310	1197452.77	3145160.98	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 105"
CP 106	39°51'48.12296" N	104°59'49.25833" W	1606.568	5327.47	0°19'30"	0.999979564	1193475.90	3141194.27	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 106"
CP 107	39°51'49.79589" N	104°59'47.32455" W	1607.194	5329.53	0°19'31"	0.999979510	1193646.03	3141344.10	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 107"
CP 108	39°51'47.59573" N	104°59'47.25494" W	1605.892	5325.26	0°19'31"	0.999979581	1193423.44	3141350.79	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 108"
CP 109	39°53'06.45089" N	104°56'38.95944" W	1572.119	5215.26	0°21'33"	0.999977086	1201490.05	3155983.14	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 109"
CP 110	39°53'06.31214" N	104°56'42.25898" W	1573.868	5220.99	0°21'31"	0.999977090	1201474.39	3155726.03	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 110"
CP 111	39°53'04.72695" N	104°56'41.08934" W	1573.905	5221.11	0°21'32"	0.999977139	1201314.57	3155818.21	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 111"
CP 112	39°53'05.02046" N	104°56'56.89937" W	1579.080	5238.03	0°21'21"	0.999977130	1201336.58	3154585.62	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 112"
CP 113	39°53'04.69673" N	104°56'58.88367" W	1579.410	5239.11	0°21'20"	0.999977140	1201302.86	3154431.15	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 113"
CP 114	39°53'06.66822" N	104°56'57.14187" W	1578.534	5236.24	0°21'21"	0.999977079	1201503.19	3154565.69	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 114"
CP 115	39°50'56.99363" N	104°59'24.03076" W	1588.650	5268.71	0°19'46"	0.999981259	1188313.65	3143191.15	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 115"
CP 116	39°50'57.04414" N	104°59'21.70163" W	1586.967	5263.20	0°19'48"	0.999981257	1188319.80	3143372.77	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 116"
CP 117	39°50'55.27059" N	104°59'23.45117" W	1587.874	5266.16	0°19'47"	0.999981317	1188139.56	3143237.36	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 117"
CP 118	39°51'21.29377" N	104°58'01.74549" W	1576.042	5227.69	0°20'39"	0.999980446	1190810.18	3149593.90	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 118"
CP 119	39°51'22.69748" N	104°58'00.75981" W	1573.693	5219.98	0°20'40"	0.999980399	1190952.67	3149669.92	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 119"
CP 120	39°51'22.71225" N	104°58'03.18941" W	1576.660	5229.71	0°20'39"	0.999980399	1190953.03	3149480.44	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 120"
CP 121	39°54'50.51959" N	104°56'23.04604" W	1577.554	5233.29	0°21'43"	0.999974014	1212027.97	3157157.06	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 121"
CP 124	39°55'00.14312" N	104°56'25.82233" W	1579.364	5239.23	0°21'41"	0.999973742	1213000.36	3156934.60	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 124"
CP125	39°54'59.68832" N	104°56'24.15382" W	1579.147	5238.52	0°21'43"	0.999973755	1212955.16	3157064.89	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 125"
CP 126	39°55'01.81841" N	104°56'24.40300" W	1577.692	5233.75	0°21'42"	0.999973695	1213170.57	3157044.11	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 126"
CTMC	39°43'17.49312" N	105°11'34.33565" W	1819.847	6022.28	0°11'54"	0.999999219	1141556.57	3086394.46	BRASS PUCK IN SECO LEVELER ON STEEL MAST
J 411	39°53'10.44809" N	104°55'36.86927" W	1536.375	5098.21	0°22'13"	0.999976963	1201925.31	3160820.45	FLANGE-ENCASED STAINLESS STEEL ROD W/O SLEEVE
K 411	39°53'05.09987" N	104°57'31.03701" W	1593.871	5286.43	0°20'59"	0.999977127	1201328.23	3151924.53	STAINLESS STEEL ROD W/O SLEEVE
P041	39°56'58.15001" N	105°11'39.31658" W	1729.706	5728.22	0°11'51"	0.999970591	1224593.76	3085718.95	DEEP DRILLED, BRACED PIPE WITH SCIGN MOUNT WELDED TO TOP OF PIPE
RIVERDALE	39°53'06.13689" N	104°55'36.31409" W	1536.936	5100.05	0°22'13"	0.999977095	1201489.36	3160866.55	HORIZONTAL CONTROL DISK SET IN TOP OF CONCRETE MONUMENT
ZDV1	40°11'14.27201" N	105°07'37.95983" W	1541.771	5112.89	0°14'27"	0.999957456	1311294.19	3104151.02	STEEL MAST ON ROOF

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLES

Project Number: 1007907

Project Location: City of Thornton Traffic Intersections

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-27-24	4.01 to 4.19	4.03

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 100	191195.82	147190.45	5295.59	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 100"
CP 101	191326.89	146977.91	5298.88	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 101"
CP 102	191155.55	147013.88	5297.35	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 102"
CP 103	197944.59	145796.22	5378.95	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 103"
CP 104	197977.91	146109.14	5380.20	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 104"
CP 105	197779.67	146019.59	5389.16	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 105"
CP 106	193801.72	142051.80	5327.47	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 106"
CP 107	193971.89	142201.67	5329.53	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 107"
CP 108	193749.24	142208.36	5325.26	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 108"
CP 109	201818.04	156844.71	5215.26	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 109"
CP 110	201802.39	156587.52	5220.99	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 110"
CP 111	201642.52	156679.73	5221.11	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 111"
CP 112	201664.54	155446.81	5238.03	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 112"
CP 113	201630.81	155292.29	5239.11	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 113"
CP 114	201831.19	155426.86	5236.24	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 114"
CP 115	188638.05	144049.22	5268.71	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 115"
CP 116	188644.21	144230.89	5264.20	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 116"
CP 117	188463.92	144095.44	5266.16	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 117"
CP 118	191135.26	150453.72	5227.69	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 118"
CP 119	191277.79	150529.76	5219.98	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 119"
CP 120	191278.15	150340.23	5229.71	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 120"
CP 121	212358.85	158018.94	5233.29	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 121"
CP 124	213331.50	157796.42	5239.23	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 124"
CP 125	213286.29	157926.74	5238.52	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 125"
CP 126	213501.76	157905.96	5233.75	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 126"

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
W. 84th Ave. @ Conifer Rd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-16-24	4.01 to 4.19	4.04

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 115	188638.05	144049.22	5268.71	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 115"
CP 116	188644.21	144230.89	5263.20	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 116"
CP 117	188463.92	144095.44	5266.16	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 117"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
490	188653.57	144310.08	FOUND 1 1/2" ALUMINUM CAP, STAMPED "FLATIRON SURVEY 16406"
491	188659.68	143614.00	FOUND 1 1/2" ALUMINUM CAP, STAMPED "FLATIRON SURVEY 16406"
492	188634.82	143639.32	FOUND NAIL IN CONCRETE
493	188532.00	144100.03	FOUND 1" ALUMINUM NAIL AND TAG IN CONCRETE
494	188385.98	144100.78	FOUND 1" ALUMINUM NAIL AND TAG IN CONCRETE
495	188243.79	144102.31	FOUND 1" ALUMINUM NAIL AND TAG IN CONCRETE
496	188883.35	144310.04	FOUND 1 1/2" ALUMINUM CAP, STAMPED "FLATIRON SURVEY 16406"

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
205	191222.10	142178.50	SE CORNER, S21 T2S, R68W, 6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX, ILLEGIBLE
215	188571.99	142192.12	W 1/4 CORNER S27 T2S, R68W, 6TH P.M. (CALCULATED POSITION BASED ON REFERENCES)

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
W. 84th Ave. @ Conifer Rd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-12-24	4.01 to 4.19	4.05

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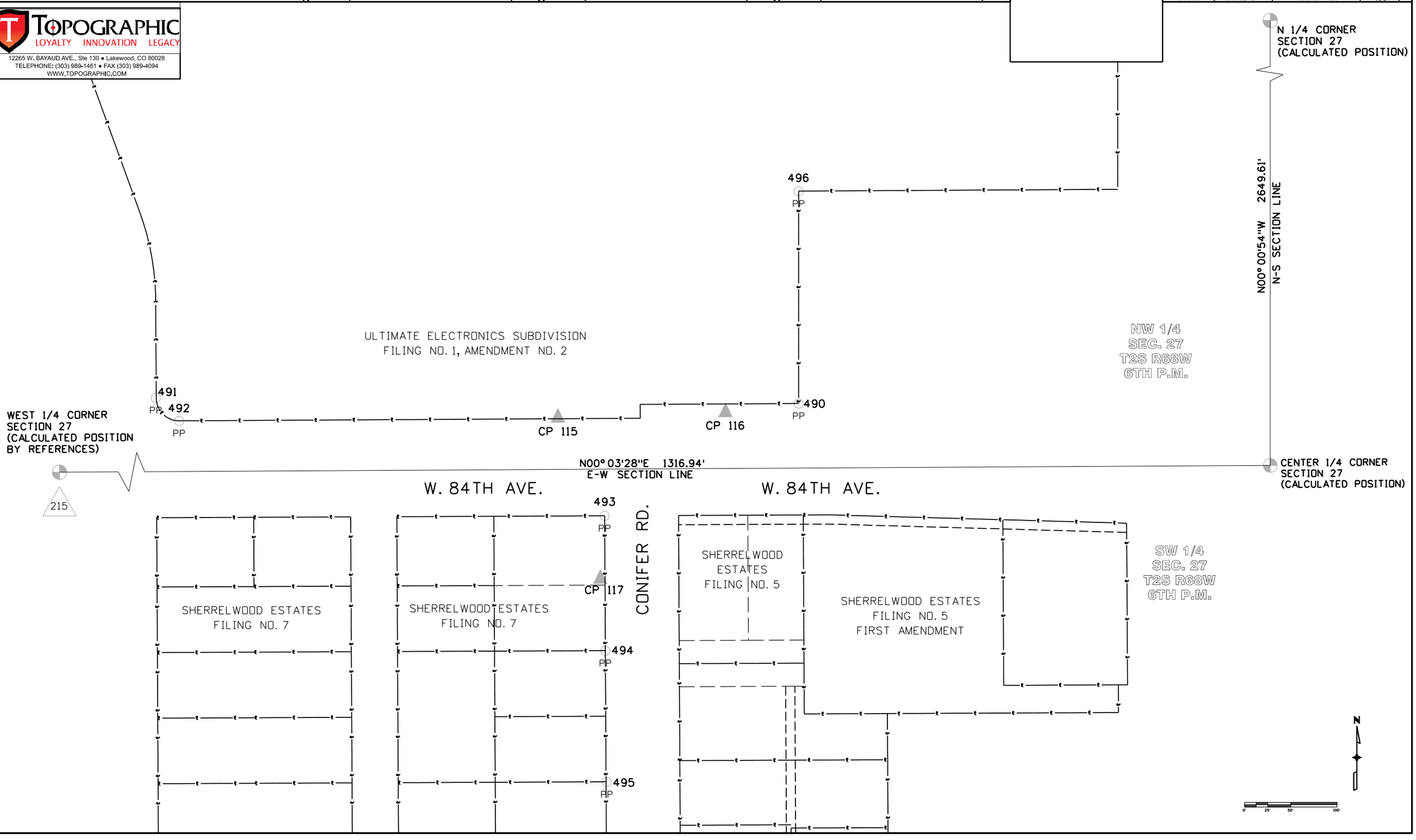

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 88th Ave. @ Pearl St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.06

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 100	191195.82	147190.45	5295.59	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 100"
CP 101	191326.89	146977.91	5298.88	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 101"
CP 102	161155.55	147013.88	5297.35	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 102"

○ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
401	191197.07	147063.60	FOUND 60d NAIL AND FLAGGING
402	190934.43	147069.45	FOUND 1/2" MAG NAIL AND BRASS TAG, STAMPED "LS29414"
403	190784.42	147070.61	FOUND 5/8" REBAR IN ASPHALT
*404	190525.17	147365.50	FOUND 1" MAG NAIL AND TAG, STAMPED "LS 27609"
*405	190680.51	147374.38	FOUND 1" MAG NAIL AND TAG, STAMPED "LS 27609"
406	190781.64	147385.73	FOUND 1" MAG NAIL AND TAG, STAMPED "LS 27609"
407	190786.62	147385.74	FOUND 1" MAG NAIL AND TAG, STAMPED "LS 27609"
408	191197.24	147007.62	FOUND 1/2" YELLOW PLASTIC CAP, STAMPED "VLC PLS 26606"
409	191196.16	146707.76	FOUND 1/2" YELLOW PLASTIC CAP, STAMPED "VLC PLS 26606"
410	191447.85	147007.47	FOUND 1/2" YELLOW PLASTIC CAP, STAMPED "MILLER E&S LS10717"
411	191488.53	147217.59	FOUND 1" YELLOW PLASTIC CAP, STAMPED "KS LS 30110"
412	191487.62	147067.54	FOUND 1" YELLOW PLASTIC CAP, STAMPED "KS LS 30110"
413	191352.38	147067.49	FOUND 1" YELLOW PLASTIC CAP, STAMPED "KS LS 30110"

*NOT GRAPHICALLY SHOWN

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
202	191249.71	147432.52	SE CORNER, S22 T2S, R68W, 6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "SE SECTION 22, LS13155"
203	189925.54	147433.92	N 1/16 CORNER, S23/26 T2S, R68W, 6TH P.M. - FOUND 1 1/2" ALUMINUM CAP, STAMPED IN PART "1/16TH"
204	192566.64	147433.85	SE 1/16 CORNER, S22/23 T2S, R68W, 6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART, "S 1/16 LS 37066 2006"
207	191242.93	150079.13	N 1/4 CORNER S26 T2S, R68W, 6TH P.M. (CALCULATED PPOSITION BASED ON REFRENCES)

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 88th Ave. @ Pearl St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-12-24	4.01 to 4.19	4.07

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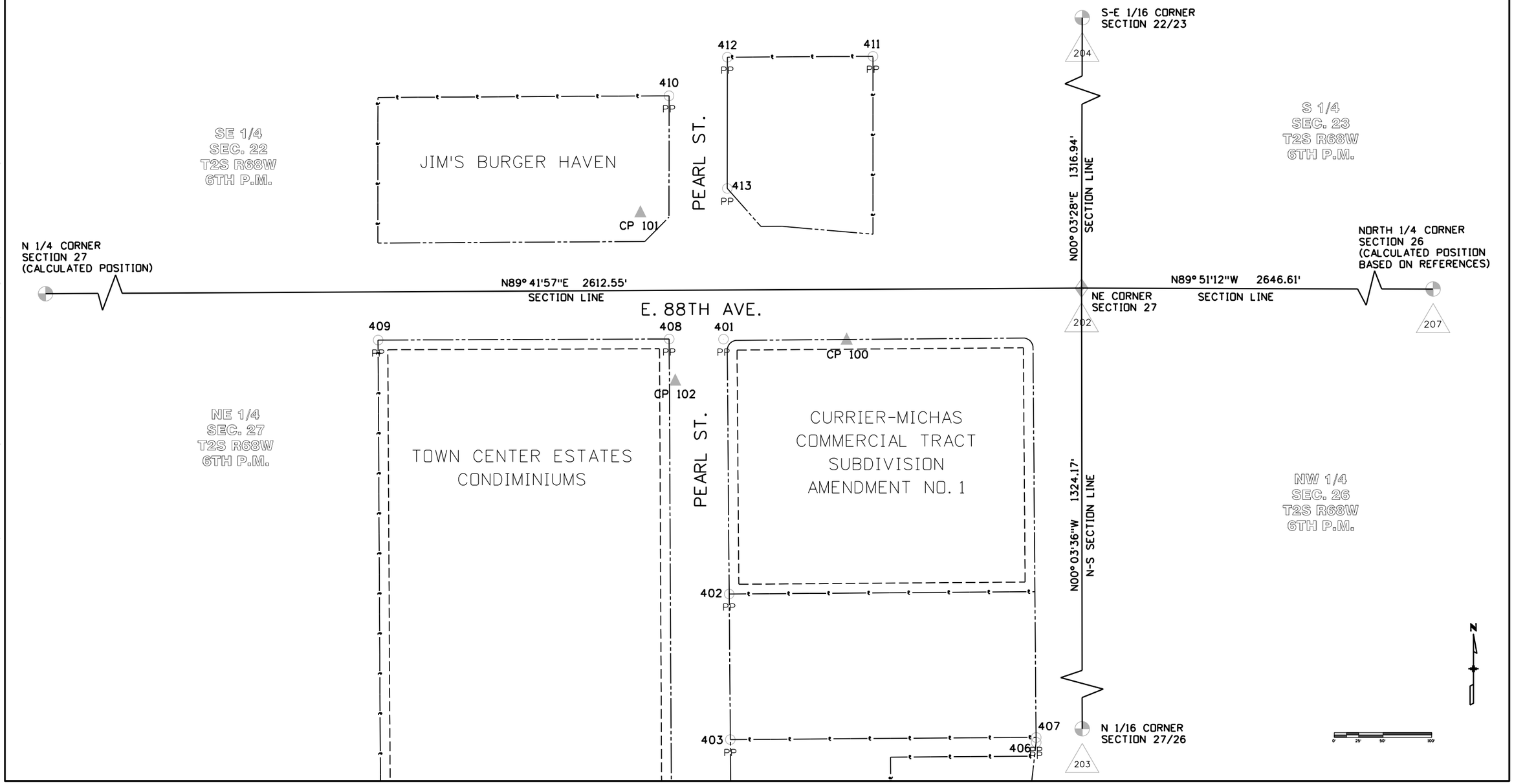

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 88th Ave. @ Poze Blvd./McElwain Blvd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-16-24	4.01 to 4.19	4.08

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 118	191135.26	150453.72	5227.69	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 118"
CP 119	191277.79	150529.76	5219.98	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 119"
CP 120	191278.15	150340.23	5229.71	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 120"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
*421	190776.71	150457.42	FOUND 1 1/2" YELLOW PLASTIC CAP, STAMPED "PLS 12346"
*422	190706.67	150457.41	FOUND 1 1/2" YELLOW PLASTIC CAP, STAMPED "PLS 12346"
*423	190847.06	150378.04	FOUND 5/8" REBAR
424	190987.88	150142.34	FOUND 1" RED PLASTIC CAP, ILLEGIBLE
425	191367.00	150421.37	FOUND CHISELED "X" IN SIDEWALK
448	191201.25	150747.76	FOUND 1" BRASS NAIL AND TAG, STAMPED "MG LLC LS 37890"
453	191200.55	150987.85	FOUND 1" BRASS NAIL AND TAG, STAMPED "MG LLC LS 37890"

*NOT GRAPHICALLY SHOWN

◆ △ ⊕ △ FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
202	191249.71	147432.52	SE CORNER, S22 T2S, R68W, 6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "SE SECTION 22, LS13155"
207	191242.93	150079.13	N 1/4 CORNER S26 T2S, R68W, 6TH P.M. (CALCULATED PPOSITION BASED ON REFRENCES)
208	191236.15	152725.23	NE CORNER S26 T2S, R68W, 6TH P.M., FOUND 3 1/4"ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "SE CORNER S 23 PLS 20155 1988"
209	188599.68	150124.55	CENTER 1/4 CORNER S26 T2S, R68W, 6TH P.M., FOUND 1" REBAR IN RANGE BOX

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 88th Ave. @ Poze Blvd./McElwain Blvd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-12-24	4.01 to 4.19	4.09

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SEC. 23
T2S R68W
6TH P.M.

THORNTON
BLOCK 14

425
PP

POZE BLVD.

THORNTON
BLOCK 29

7

CP 120

CP 119

SE CORNER
SECTION 22

202

N89° 51'12"W 2646.61'
SECTION LINE

N89° 51'12"W 2646.11'
SECTION LINE

NE CORNER
SECTION 26

208

NORTH 1/4 CORNER
SECTION 26
(CALCULATED POSITION
BASED ON REFERENCES)

207

E. 88TH AVE.

E. 88TH AVE.

MCELWAIN BLVD.

CP 118

448
PP

453
PP

NORTHFIELD
FOURTH
FILING

NORTHFIELD
FOURTH
FILING

NORTHFIELD
FOURTH
FILING

424
PP

NE 1/4
SEC. 26
T2S R68W
6TH P.M.

N00° 59'04"W 2643.64'
N-S SECTION LINE

NW 1/4
SEC. 26
T2S R68W
6TH P.M.

209

CENTER 1/4 CORNER
SECTION 26

N

0' 25' 50' 100'

FOR ADVERTISEMENT 9/15/2025

11/12/2024 aaron.tedder 12:53:05 PM P:\SURVEY\RockSol\City of Thornton Traffic Signals\1007901\07901\RDW_Survey\Drawings\Reference_Files\Control_Diagrams\07901_RDW PLAN SHEET 88_POZE.dgn

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections

Huron St. @ Thornton Parkway

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.10

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 106	193801.72	142051.80	5327.47	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 106"
CP 107	193971.89	142201.67	5329.53	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 107"
CP 108	193749.24	142208.36	5325.26	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 108"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
316	193771.87	142207.79	FOUND CONCRETE NAIL WITH TAG, STAMPED "LS 18475"
317	193798.93	142225.99	FOUND 1 1/4" GREEN PLASTIC CAP, STAMPED "PLS 38245"
318	193799.63	142247.35	FOUND 5/8" REBAR
319	193804.37	142327.84	FOUND CONCRETE NAIL WITH TAG, STAMPED "PLS 38245"
320	193804.89	142407.52	FOUND 2" ALUMINUM CAP, STAMPED "CITY OF THORNTON LS 20155"
321	193939.81	142206.31	FOUND 5/8" REBAR, BENT, LOCATED AT BASE
322	194055.98	142205.67	FOUND 1/2" REBAR
*323	194342.31	142099.47	FOUND 1 1/4" ORANGE PLASTIC CAP, STAMPED "PE & LS 9489"
324	194078.25	142101.48	FOUND MAG NAIL WITH TAG, STAMPED "LS 27609"
325	193897.91	142047.68	FOUND 5/8" REBAR, BENT, LOCATED AT BASE
326	193892.00	141891.51	FOUND NAIL WITH TAG, STAMPED "LS 27609"
327	193891.37	141826.00	FOUND 1 1/4" YELLOW PLASTIC CAP, ILLEGIBLE
328	193792.74	142062.48	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "STRATTON PLS 38621"
329	193762.77	142062.71	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "STRATTON PLS 38621"
330	193735.49	142090.38	FOUND CDOT TYPE 5S MONUMENT, STAMPED "PLS 38621"
331	193593.84	142209.21	FOUND 1/2" REBAR
*332	193349.09	142093.60	FOUND CDOT TYPE 5S MONUMENT, STAMPED "PLS 38621"
333	193788.76	141388.17	FOUND CDOT TYPE 5S MONUMENT, STAMPED "PLS 38621"

*NOT GRAPHICALLY SHOWN

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
205	191222.10	142178.50	SE CORNER, S21 T2S, R68W,6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX, ILLEGIBLE
206	196493.84	142138.67	NW 1/4 CORNER, S22 T2S, R68W,6TH P.M. - FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX,STAMPED IN PART "LS 20155 1988"
210	193838.06	139513.26	C 1/4 CORNER, S21 T2S, R68W,6TH P.M. (CALCULATED POINT BASED ON REFERENCES)
211	193853.48	142156.92	W 1/4 CORNER, S22 T2S, R68W,6TH P.M. (CALCULATED POINT BASED ON REFERENCES)
212	193868.40	144801.54	CENTER 1/4 CORNER, S22 T2S, R68W,6TH P.M. (CALCULATED POINT BASED ON REFERENCES)

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City of Thornton

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
Huron St. @ Thornton Parkway

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.11

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NW 1/4 CORNER
SECTION 22
206

NE 1/4
SEC. 21
T2S R68W
6TH P.M.

NW 1/4
SEC. 22
T2S R68W
6TH P.M.

HURON ST.
N00°23'46"E 2640.40'
SECTION LINE

CONOCO CENTER
SUBDIVISION
FILING NO. 1

DIAMOND SHAMROCK
623 SUBDIVISION
FILING NO. 1

322 PP
CP 107
321 PP
324 PP
325 PP
326 PP
327 PP

CENTER 1/4 CORNER
SECTION 21
(CALCULATED BASED ON REFERENCES)
210

N89° 39'56"E 2643.71'
E-W SECTION LINE

W. THORNTON PKWY.

W 1/4 CORNER
SECTION 22
(CALCULATED POSITION BASED ON REFERENCES)
211

N89° 40'36"E 2644.66'
E-W SECTION LINE

CENTER CORNER
SECTION 22
(CALCULATED POSTION BASED ON REFERENCES)
212

333 PP
CP 106
328 PP
329 PP
330 PP
317 PP
318 PP
319 PP
320 PP
316 PP
CP 108
331 PP

SE 1/4
SEC. 21
T2S R68W
6TH P.M.

RENNER CROSSING
FILING NO. 1

HURON ST.
S00° 28'12"E 2631.47'
SECTION LINE

SW 1/4
SEC. 22
T2S R68W
6TH P.M.

SOUTHEAST CORNER
SECTION 21
205

N

0' 25' 50' 100'

FOR ADVERTISEMENT 9/15/2025

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City of Thornton

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 98th Ave. @ Grant St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.12

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 103	197944.59	145796.22	5378.95	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 103"
CP 104	197977.91	146109.14	5380.20	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 104"
CP 105	197779.67	146019.59	5389.16	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 105"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
463	197945.73	145850.83	FOUND HOLE IN CONCRETE WITH REMNANTS OF NAIL
464	198119.31	145828.81	FOUND 3/4" BRASS TAG
465	198147.96	145818.24	FOUND 1" BRASS NAIL AND TAG, STAMPED "LS 24670"
466	198243.85	145905.07	FOUND 1" BRASS NAIL AND TAG, STAMPED "LS 26600"
467	198002.37	146344.53	FOUND CUT TRIANGLE IN CONCRETE
468	198122.04	146337.77	FOUND 5/8" REBAR
469	198220.58	146314.07	FOUND 5/8" REBAR
*470	198417.27	146298.16	FOUND 5/8" REBAR
471	198288.22	146338.51	FOUND CHISELED "X" IN SIDEWALK
472	198292.79	146336.80	FOUND CHISELED "X" IN SIDEWALK
473	198257.51	146350.03	FOUND CHISELED "X" IN SIDEWALK
474	197481.95	145633.28	FOUND 2" ALUMINUM NAIL WITH TAG, STAMPED "PLS 0038706"
475	197483.79	145999.01	FOUND 2" ALUMINUM NAIL WITH TAG, STAMPED "PLS 0038706"
476	197506.28	146055.63	FOUND 2" ALUMINUM NAIL WITH TAG, STAMPED "PLS 0038706"
477	197819.08	145913.65	FOUND 5/8" REBAR
478	197730.95	146356.90	FOUND 1 1/2" YELLOW PLASTIC CAP, ILLEGIBLE
479	197902.66	146509.10	FOUND 1 1/2" GREEN PLASTIC CAP, STAMPED "ALTURA LAND PLS 38081"
480	197820.98	146101.91	FOUND 1 1/2" GREEN PLASTIC CAP, STAMPED "ALTURA LAND PLS 38081"

*NOT GRAPHICALLY SHOWN

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
216	199132.69	147432.51	E 1/4 CORNER S15 T2S, R68W, 6TH P.M., FOUND 2 1/2" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "E 1/4 S15 PLS 37947 2006"
217	199128.44	144777.23	CENTER 1/4 CORNER S15 T2S, R68W, 6TH P.M., FOUND 2 1/2" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "C1/4 SEC15 PLS 22584 1994"

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 98th Ave. @ Grant St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.13

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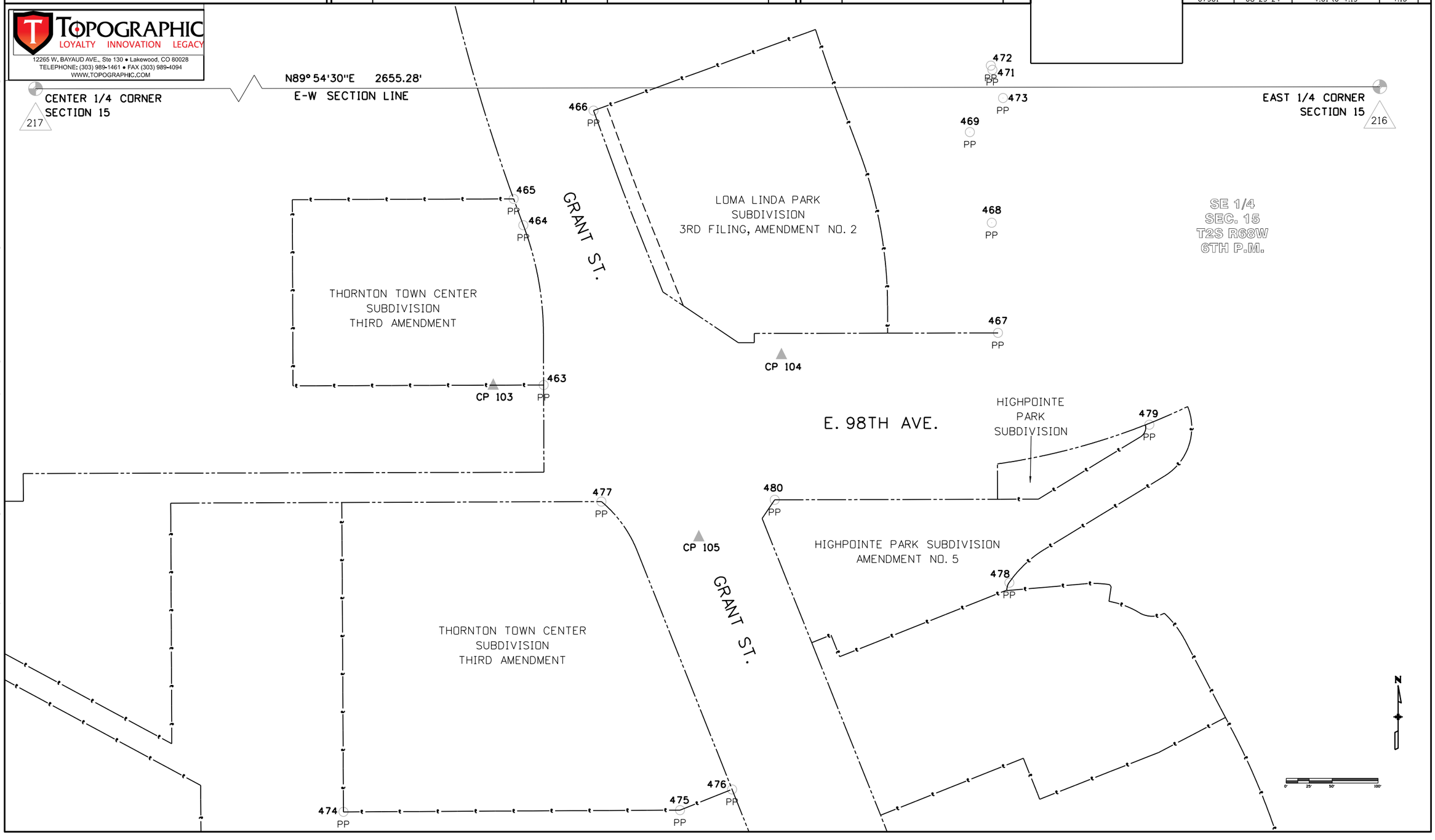

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 104th Ave. @ Steele St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.14

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 112	201664.54	155446.81	5238.03	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 112"
CP 113	201630.81	155292.29	5239.11	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 113"
CP 114	201831.19	155426.86	5236.24	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 114"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
*310	200427.38	155296.62	FOUND #5 REBAR
*312	201654.88	152726.17	FOUND #5 REBAR
*313	201649.08	153615.45	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "KELLY PLS 24667"

*NOT GRAPHICALLY SHOWN

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
226	201748.18	155322.01	S 1/4 CORNER, S12 T2S, R68W, 6TH P.M. - FOUND 3 1/2" ALUMINUM CAP. STAMPED IN PART "S1/4 S12 LS 30830 2000"
228	200427.20	155331.61	N 1/16 C-C CORNER, S13 T2S, R68W, 6TH P.M. - FOUND 3 1/4" ALUMINUM CAP, STAMPED IN PART "N1/16 C-C S13 PLS30098 2015"

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections

E. 104th Ave. @ Steele St.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.15

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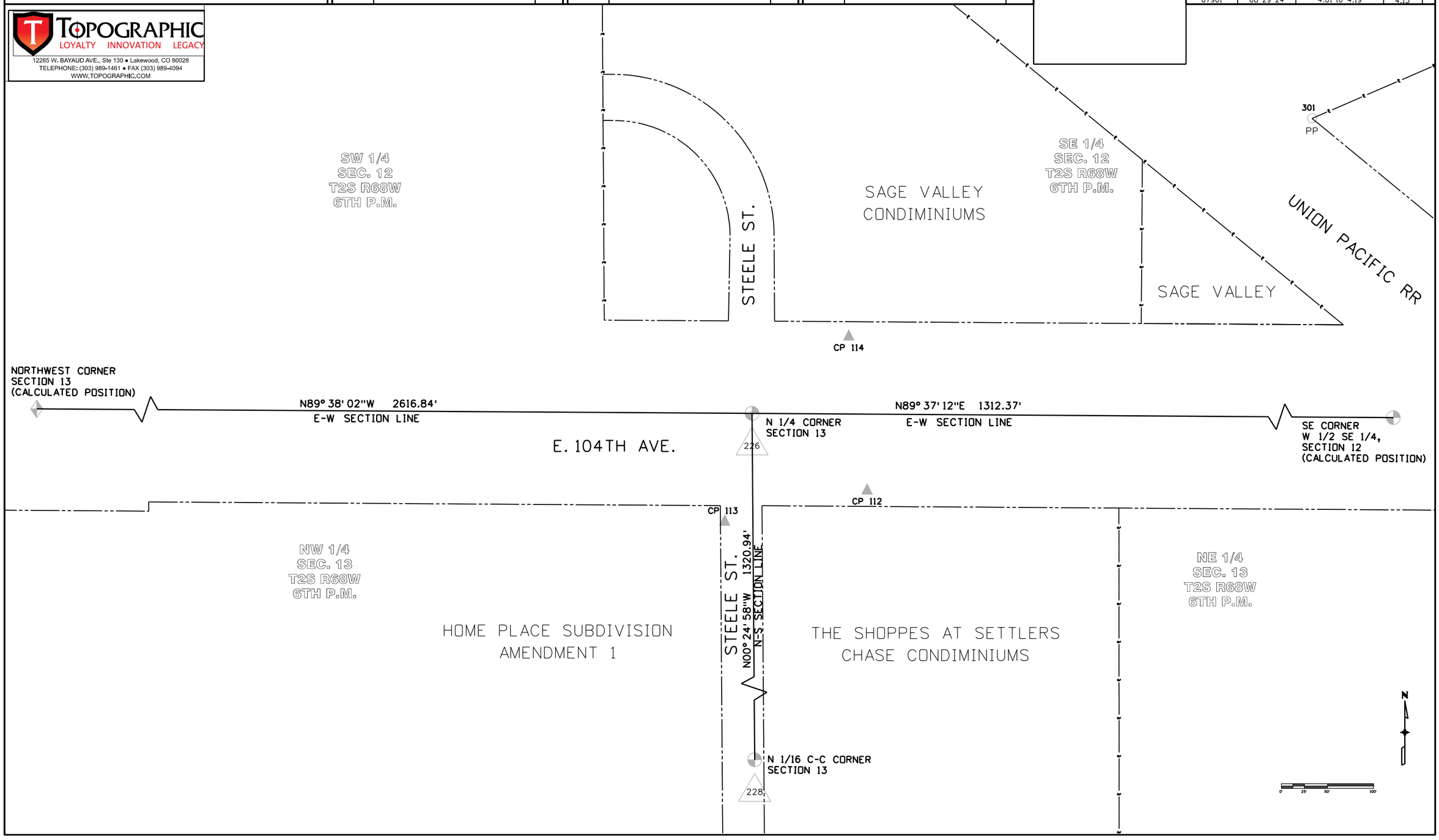

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 104th Ave. @ Fox Run Parkway

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.16

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 109	201818.04	156844.71	5215.26	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 109"
CP 110	201802.39	156587.52	5220.99	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 110"
CP 111	201642.52	156679.73	5221.11	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 111"

⊙ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
301	202067.69	155928.66	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "COSTIN LS 11330"
302	201837.51	156923.79	FOUND 1 1/4" ORANGE PLASTIC CAP, STAMPED "CSAM LLG PLS 32439"
303	201836.80	157021.08	FOUND 1 1/4" YELLOW PLASTIC CAP, ILLEGIBLE
304	202063.80	157022.59	FOUND MAG NAIL WITH TAG IN ASPHALT
305	201634.55	157393.25	FOUND BRASS PLUG, STAMPED "PLS 35430"
306	201636.13	157122.32	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "JEHN ENG. LS 36561"
307	201637.10	156981.37	FOUND 1 1/4" YELLOW PLASTIC CAP, STAMPED "BENCHMARK LS 24949"
308	201522.32	156722.35	FOUND MAG NAIL IN ASPHALT

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
223	201730.79	157944.84	SE CORNER, S12 T2S, R68W, 6TH P.M.(CALCULATED POINT BASED ON REFERENCES)
225	204371.98	157925.54	E 1/4 CORNER, S12 T2S, R68W, 6TH P.M. - FOUND 3" ALUMINUM CAP, ILLEGIBLE
226	201748.18	155322.01	S 1/4 CORNER, S12 T2S, R68W, 6TH P.M. - FOUND 3 1/2" ALUMINUM CAP, STAMPED IN PART "S1/4 S12 LS 30830 2000"

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City of Thornton

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PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 104th Ave. @ Fox Run Parkway

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	08-29-24	4.01 to 4.19	4.17

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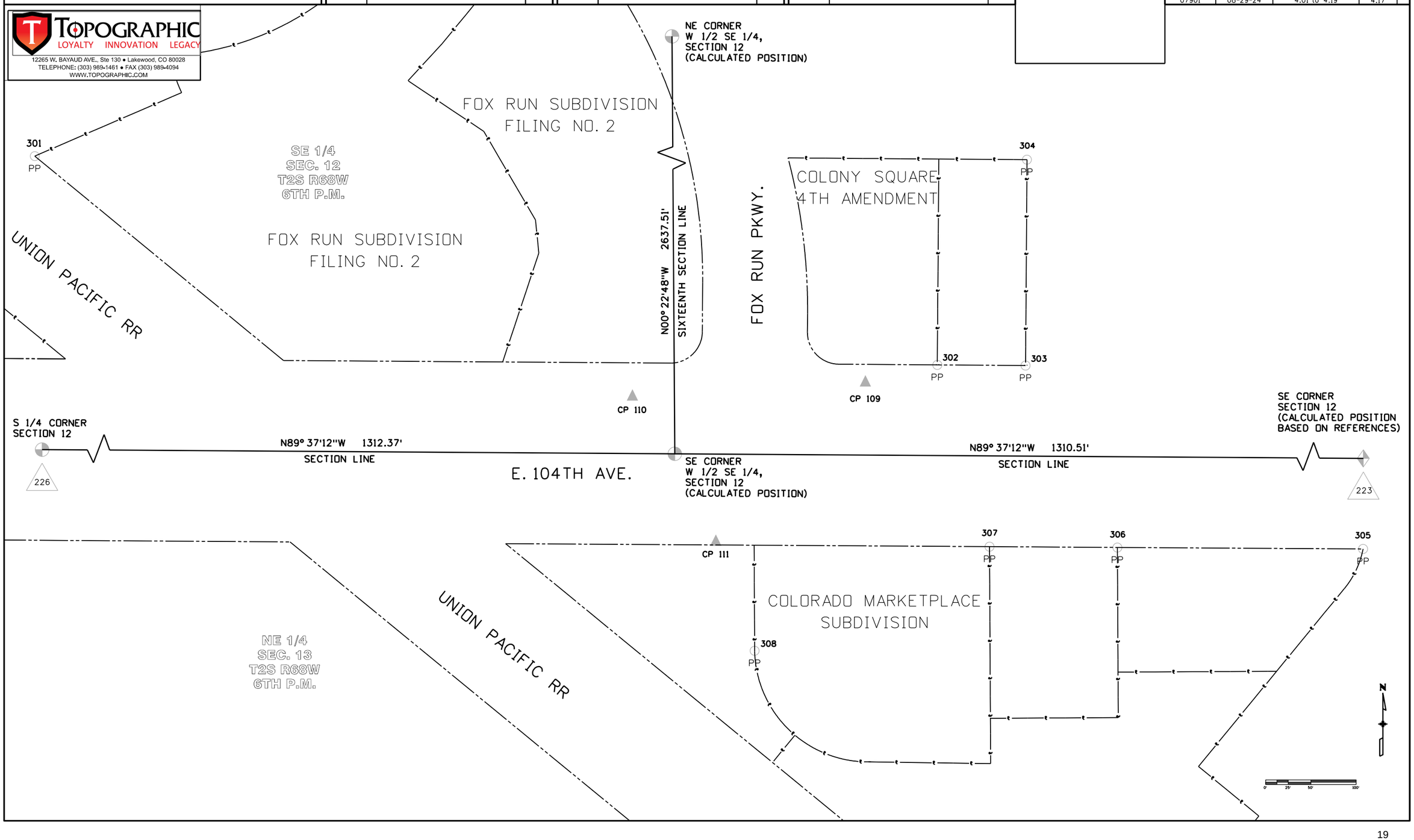

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City of Thornton

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PROJECT CONTROL/LAND SURVEY CONTROL DIAGRAM

MONUMENT COORDINATE TABLE

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 121th Ave. @ Colorado Blvd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-16-24	4.01 to 4.19	4.18

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▲ PRIMARY AND SECONDARY SURVEY CONTROL POINT TABULATION PROJECT SPECIFIC (U.S. FEET):

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
CP 121	212358.85	158018.94	5233.29	SET CDOT TYPE 5S IN CONCRETE SIDEWALK, STAMPED "TOPOGRAPHIC CO. 121"
CP 124	213331.50	157796.42	5239.23	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 124"
CP 125	213286.29	157926.74	5238.52	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 125"
CP 126	213501.76	157905.96	5233.75	SET 2" ALUM. CAP W/#5 REBAR, STAMPED "TOPOGRAPHIC CONTROL POINT 126"

○ PP FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
336	213122.98	157917.57	FOUND CHISLED "X" IN CONCRETE
337	213342.89	157916.00	FOUND CHISLED "X" IN CONCRETE
338	213358.85	157933.33	FOUND 5/8" REBAR
339	213364.81	157944.87	FOUND 1 1/2" ALUMINUM CAP, ILLEGIBLE
340	213443.82	158649.42	FOUND 1 1/2" ALUMINUM CAP, ILLEGIBLE
341	213424.99	157944.41	FOUND CHISLED "X" IN CONCRETE
342	213424.80	157939.45	FOUND CHISLED "X" IN CONCRETE
343	213817.06	157812.94	FOUND 5/8" REBAR
344	213363.04	157116.61	FOUND 3/8" REBAR
*345	213363.36	156780.34	FOUND 1 1/4"YELLOW PLASTIC CAP, STAMPED "BURDICK PELS 9010
346	213364.52	157815.80	FOUND NAIL WITH TAG, STAMPED LS 9010
*348	212816.85	157919.53	FOUND CHISLED "X" IN CONCRETE
*354	213422.92	156495.06	FOUND 1 1/4"YELLOW PLASTIC CAP,ILLEGIBLE
*355	213083.03	157917.75	FOUND CHISLED "X" IN CONCRETE

*NOT GRAPHICALLY SHOWN

◆ △ ◒ △ FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
232	214937.73	157854.91	W 1/4 CORNER, S31 T1S, R67W,6TH P.M. - FOUND 3" ALUMINUM CAP IN RANGE BOX, STAMPED IN PART "W 1/4 S31 L.S. 30117 2001"
233	212296.02	157873.02	SW CORNER, S31 T1S, R68W,6TH P.M. (CALUCULATED POSITION BASED ON REFERENCES)
230	209655.97	157890.72	W 1/4 CORNER, S6 T1S, R68W,6TH P.M. (CALUCULATED POSITION BASED ON REFERENCES)
240	212293.42	155232.30	S 1/4 CORNER, S36 T1S, R68W,6TH P.M. (CALUCULATED POSITION BASED ON REFERENCES)

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City of Thornton

Sheet Revisions		
Date	Description	Initials
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Sheet Revisions		
Date	Description	Initials
mm/dd/yy	XXXXXXXX	XXX

Sheet Revisions		
Date	Description	Initials
mm/dd/yy	XXXXXXXX	XXX

PROJECT/LAND SURVEY CONTROL DIAGRAM

PLAN SHEET

Project Number: 1007901

Project Location: City of Thornton Traffic Intersections
E. 121st Ave. @ Colorado Blvd.

Project Code:	Last Mod. Date	Subset	Sheet No.
07901	09-13-24	4.01 to 4.19	4.19

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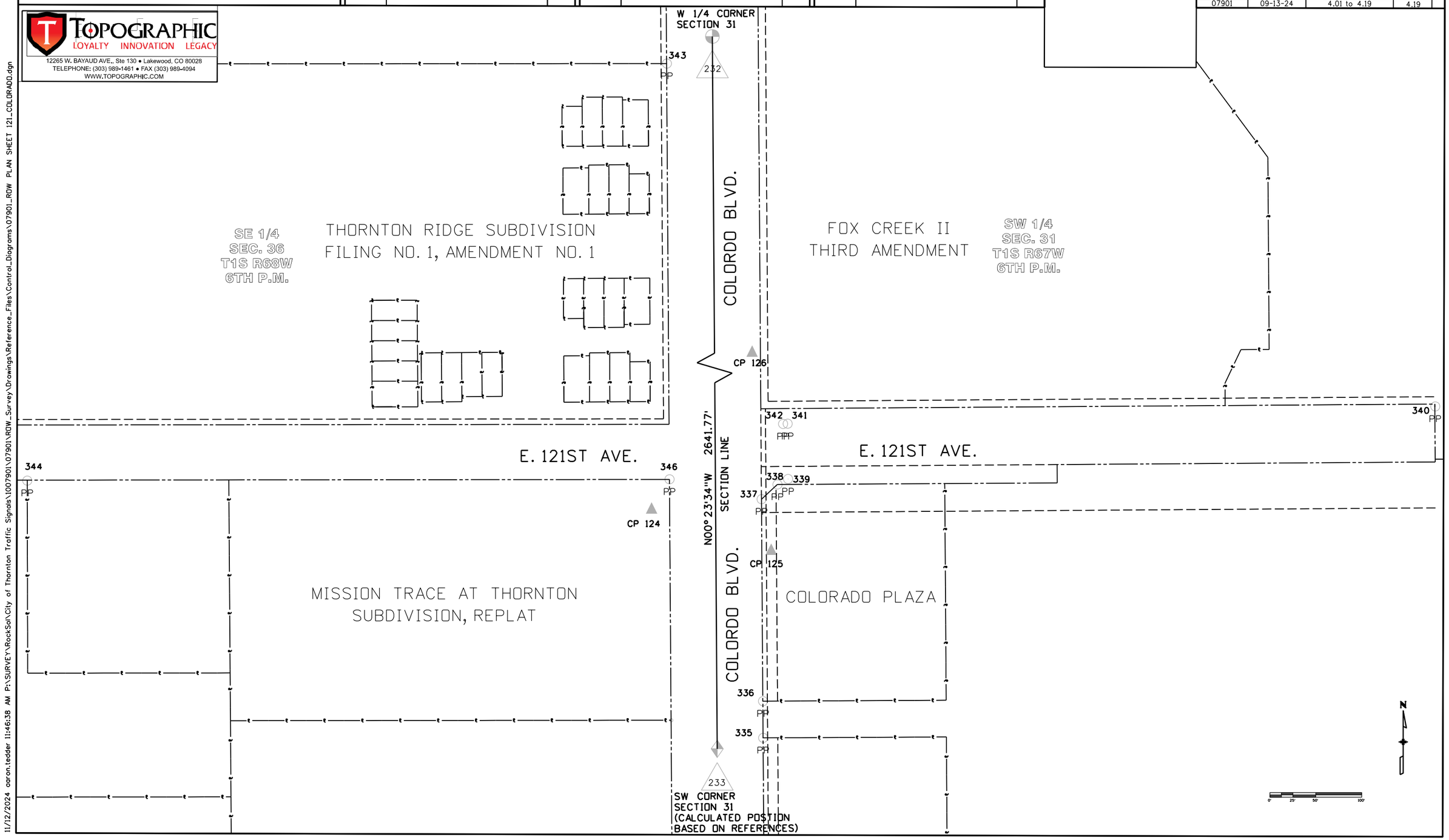

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11/12/2024 aaron.tedder 11:46:38 AM P:\SURVEY\RockSol\City of Thornton Traffic Signals\1007901\07901\RDW_Survey\Drawings\Reference_Files\Control_Diagrams\07901_ROW PLAN SHEET 121_COLORADO.dgn

GENERAL CONSTRUCTION NOTES

1. The contractor shall be solely and completely responsible for conditions at and adjacent to the job site;including, safety of persons and property during the performance of work. This requirement shall apply continuously and not be limited to normal working hours. The City construction review of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures in, on,or near the construction site.

2. The type, size, location, and number of all known underground utilities are approximate when shown on the drawings. It shall be the responsibility of the contractor to verify the existence and location of all underground utilities along the route of the work. Location of existing utilities shall be verified by contractor prior to date of construction. For information contact: Colorado 811 (CO811) – 1–800–922–1987. It is the Contractor's responsibility to field verify size and horizontal and vertical locations of existing facilities prior to construction and notify the City of any discrepancies.

3. Materials and workmanship shall conform to the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements, the plans, and the project special provisions. Work shall be subject to inspection and approval by authorized City of Thornton personnel.

4. All trenches shall be adequately supported and the safety of workers provided for as required by the most recent Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction." These regulations are described in Subpart P, Part 1926 of the Code of Federal Regulations. Sheeting and shoring shall be utilized where necessary to prevent any excessive widening or sloughing of the trench which may be detrimental to human safety, to the pipe being placed, to trees, or to any existing structure where excavations are made under severe water conditions. The contractor may be required to use an approved piling instead of sheeting and shoring.

5. The Contractor shall furnish the engineer the "as constructed" locations of facilities installed and, this in turn, shall be submitted to the City of Thornton on as–built mylar drawings and electronic files prepared by the Engineer.

6. The Contractor shall be responsible for cleaning nearby public streets of mud or debris due to construction activity initiated by said contractor on a daily basis or as otherwise directed by authorized City personnel.

7. Prior to the beginning of work, a preconstruction conference shall be held between the City, the Contractor who is scheduled to perform the work, the designated on–site field representative, the consulting engineer or landscape professional, and any other entities involved in the construction.

8. Development phasing of any project must be shown on the construction plans and made a part of the application procedure. No phasing shall be permitted unless this requirement has been adhered to.

9. The Contractor shall obtain a Traffic Control Permit from the City of Thornton Traffic Division and a construction permit from the City of Thornton Engineering Services division. Construction Permits can be applied for online free of charge by using the "CIP Projects" link at https: //permits.thorntonco.gov/. Contact Claire Dreesen at 720–977–6247 for additional information.

10. No work shall begin until the installing Contractor is in possession of an approved set of plans, project special provisions, and the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements, and all necessary permits for the Improvements has been issued by the City. Development Engineering's approval shall be for general conformity to the utility specifications and shall not constitute blanket approval of all dimensions, quantities and details of the material or equipment shown. Nor shall such approval relieve the Contractor, consulting engineer, or landscape architect of their responsibility for errors contained in the drawings. A copy of the approved plans and all permits shall be onsite at all times.

11. The Contractor shall furnish reasonable aid and assistance required by Development Engineering for the proper examination of the materials and work. Work shall be performed in accordance with accepted workmanship practices and the project specifications. Any work not accepted by Development Engineering shall be redone until compliance with these standards is achieved. Instructions given by Development Engineering relating to quality of materials and workmanship must be obeyed at once by the Contractor. Development Engineering shall not supervise set out work, or give line and grade stakes.

12. The materials used in projects shall be new and subject to the inspection and approval of the Coordinator at all times. The Coordinator has the right to perform any testing deemed necessary to ensure compliance of the material with these standards. No material shall be used before being inspected and approved by the Coordinator. Failure or neglect on the part of the Coordinator to condemn or reject inferior materials or work shall not be construed to imply their acceptance should their inferiority become evident at any time prior to final acceptance of the work. Coordinators have the authority to reject defective or inferior materials and/or defective workmanship and to suspend work until such time as the Contractor shall correct the discrepancies in question.

13. Whenever defective materials and work are rejected, the Contractor shall promptly remove such defective materials and construction from the job site and replace all defective portions to the satisfaction of Development Engineering. In the event the Contractor fails to remove rejected items from the job site within a reasonable length of time, Development Engineering may arrange for such removal at the expense of the Contractor.

14. Inspection shall not relieve the Contractor from any obligation to perform the work strictly in accordance with the plans and specifications or any modifications thereof. Work not so constructed shall be removed and corrected by the Contractor at his sole expense, whenever so ordered by Development Engineering, without reference to any previous error or oversight in inspection.

15. Except in cases of emergency, maintenance, or protection of work already completed, no work shall be allowed between the hours of 7 p.m. and 7 a.m.; nor on Saturday, Sunday, or legal holidays unless approved by the Project Manager. Work at signalized intersections or on arterial roadways which impedes normal traffic flow shall only be allowed from 8: 30am to 3: 30pm unless otherwise restricted per an approved traffic control permit.

16. The work shall be surveyed and staked under the supervision of a licensed Land Surveyor in accordance with the approved plans.

17. If irrigation ditches are involved, an approval block for the ditch company shall be provided.

18. If a foundation underdrain system is installed in the public right–of–way, the following statement shall be included in the as–built drawings:

    "The foundation underdrain system is the responsibility of the Contractor or its assigns. The City is not responsible for the maintenance or repair of said system."

19. Compaction of all trenches must be attained and compaction test results submitted to the engineer and the City of Thornton prior to final acceptance.

20. All work, including correction work, shall be inspected by a City Representative who shall have the authority to halt construction when standard construction practices are not being adhered to.

21. The Contractor shall regularly patrol the public lands adjacent to the development to remove construction debris and keep the site clean and safe.

22. Natural vegetation shall be retained and protected wherever possible. Exposure of soil to erosion by removal or disturbance of vegetation shall be limited to the area required for immediate construction operation and for the shortest practical period of time.

23. Topsoil shall be stockpiled to the extent practicable on the site for use on areas to be revegetated. Any and all stockpiles shall be located and and proper measures taken to control erosion and sediment movement.

24. At all times, the property shall be maintained and/or watered to prevent wind–caused erosion. Earthwork operations shall be discontinued when dust significantly impacts adjacent property. If earthwork is complete or discontinued and dust from the site continues to create problems, the Contractor shall immediately institute mitigative measures and shall correct damage to adjacent property.

25. Permanent slopes shall not exceed 4: 1 (H: V) in areas to be seeded or sodded. Retaining walls shall be reviewed and approved by separate application to the Development Engineering Division.

26. This erosion and sediment control plan has been submitted to the City of Thornton and is in general conformance with the City's erosion control standards. Additional erosion and sediment control measure may be required of the owner and his or her agents due to unforeseen erosion problem or if the proposed erosion control measures do not function as intended. The requirements of this erosion control plan and the obligation of the landowner shall run with the land until such time as the erosion control plan is properly completed, officially modified, or voided.

27. During construction, care must be taken to avoid any ground water, storm water, construction debris, soil, or any other foreign materials from entering any active City of Thornton sewer. The use of the sanitary sewer system for the purposes of dewatering is strictly prohibited.

28. All construction activities dewatering must comply with the State of Colorado permitting process for "Stormwater Discharges Associated With Construction Activity." For information, please contact Colorado Department of Health, Water Quality Control Division.

29. After any overlay of an existing roadway, where City utilities are present, the Contractor shall open all manholes and valve boxes following the paving operation to ensure that manhole and valves were not paved over nor filled with asphalt.

30. When an existing asphalt street is cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented by the City of Thornton's Construction Coordinator' before any cuts are made. Patching shall be done in conformance with the project specifications. The finished patch shall blend smoothly into the existing surface. All large patches shall be paved with an asphalt lay–down machine. In streets where more than one cut is made, an overlay of the entire street width, including the patched areas, may be required. The determination of need for a complete overlay shall be made by the Development Engineering Manager.

31. If existing asphalt is damaged during construction activities, the damaged area shall be saw cut and removed. Saw cuts shall be a clean straight vertical line parallel or perpendicular to the flow of traffic. Removal of damaged asphalt will not be paid for separately but shall be included in the cost of Hot Mix Asphalt (Patching).

32. All damaged existing curb, gutter, and sidewalk shall be repaired prior to acceptance of completed improvements.

33. All curb returns within public right–of–way shall be constructed with sidewalk ramps in accordance with the project specifications. All sidewalk ramps shall include a truncated dome detectable warning pattern as shown on the detail sheets.

34. The contractor shall provide, erect and maintain proper traffic control devices until the site is open to traffic. The Contractor shall submit a traffic control plan to the City of Thornton for approval prior to construction.

35. Repair of any damage to existing improvements or landscaping is the responsibility of the contractor.

36. Any concrete and/or sidewalk that is cut and/or potholed the entire panel shall be replaced.

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12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS GENERAL NOTES

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Notes
Structure Numbers:
Subset Sheets: 1 of 3

Project No.
SHO M286–056
Drawing Number NT–001
Sheet Number 22

TRAFFIC SIGNAL NOTES

1. Conduit, Pole, Pull Boxes and Controller locations are approximate. Exact locations shall be marked by the Contractor and approved in the field by the City.
2. All existing utility locations are approximate. The Contractor shall field verify the exact location of all utilities before commencing work and agrees to be fully responsible for any damages which may occur by the Contractor's failure to exactly locate and preserve any and all underground utilities.
3. Except as modified in the plans, all work shall be in accordance with the City of Thornton's Standards and Specifications for the Design and Construction of Public and Private Improvements. The Contractor shall contact the Project Manager a minimum of 48 hours and a maximum of 96 hours prior to starting traffic signal construction.
4. The Contractor shall submit a traffic control plan for construction to the City with the permit application. A public right of way work permit will not be issued without an approved traffic control permit for traffic control during construction.
5. Upon completion of work, the Contractor shall submit record drawings, corrected plans and any additional data required by the City showing in detail all construction changes.
6. All signal heads shall be polycarbonate type and black in color. Overhead signal indications shall have backplates. Backplates shall be louvered with 2–inch yellow retroreflective border tape that outlines the outside edge of each backplate.
7. All signal indications and luminaires shall be approved LED type.
8. Cabinet foundations shall be concrete.
9. All signal heads shall be wired separately from the signal head to hand hole above grade at base of signal pole with no overhead splices.
10. All new signal heads and all reset signal heads shall be positioned in the center of the lane.
11. Internally illuminated street name signs shall be approved LED type and mounted on the mast arm at a minimum of two (2) feet from the signal pole.
12. When the project is complete, two (2) keys for each controller cabinet and Police Panel shall be delivered to the Development Engineering Manager. The Instruction Manual for the controller shall be left inside the controller cabinet.
13. All salvaged signal equipment shall be delivered to the Infrastructure Maintenance Center, 12450 N. Washington Street.
14. If an existing traffic signal must be turned off, two (2) weeks minimum notice shall be given the City and arrangements made at the expense of the Contractor for police officers to direct traffic in the intersection.
15. All pedestrian push buttons shall be APS push buttons.
16. Pedestrian pedestal pole locations shown on the plans are approximate and shall be field verified by the Contractor. Locations shall meet the latest ADA standards, button extension arms are permissible where existing conditions require them.

SIGNING NOTES

1. All traffic control signing shall conform to Section 704 of these Standards and Specifications, the plans, and the project special provisions.
2. When sign poles are to be installed in an area that will be surrounded by concrete, an eight (8) inch diameter sleeve shall be installed to provide a space to install the sign pole base.
3. Mounting order of signs on sign pole from top to bottom: Dead End plaques, Street Name signs, other Dead End plaques and Street Name signs shall be mounted using bolts only. All other signs shall be installed with a bolt, washer and nut for the top hole and a drive rivet for the bottom hole.
4. All signs shall be fabricated using 3M Diamond Grade retro–reflective sheeting, or approved equal. All signs shall have a 3M #1160 protective clear overlay (graffiti protection), or approved equal, applied to the face of the sign.
5. All Stop signs and Street Name signs shall be install as per Detail 700–12.
6. All salvaged signs shall be delivered to the Infrastructure Maintenance Center, 12450 N. Washington Street.

PAVEMENT MARKING NOTES

1. All pavement markings shall be field marked and shall be approved in the field by the Project Manager before installation of pavement marking materials.
2. All material shall be installed as per the manufacturer's recommendations and City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements.
3. Paint shall not be used for permanent markings.
4. New pavement markings shall be thermoplastic.

EROSION AND SEDIMENT CONTROL NOTES

1. Control Measures shall be installed before any earth disturbing activities commence.
2. The Contractor shall notify the Thornton coordinator once all initial control measures have been installed for an initial inspection at least Forty Eight (48) hours prior to the inspection. Construction activity cannot begin until a passing initial inspection has occurred.
3. Stormwater discharges from construction activities shall not cause, have the reasonable potential to cause, or measurably contribute to exceed any water quality standard.
4. Construction shall be phased in a manner to limit earth disturbing activities (i.e. the entire project site should not be disturbed if construction will only be occurring in one particular section).
5. Sediment caused by accelerated soil erosion shall be removed from runoff water before it leaves the construction site.
6. Bulk storage structures for petroleum products and any other chemicals shall have secondary containment or equivalent protection to contain all spills and prevent any spilled material from entering the MS4 or State waters.
7. A copy of the SWMP and Erosion and Sediment Control (ESC) Plans must be available at all times on the construction site unless otherwise approved by CDPHE or Thornton.
8. The SWMP and EC plan shall be continuously updated to reflect new or revised Control Measures (CM) due to changes in design, construction, operation, or maintenance of the construction site. Updates must be made within 72–hours following the change in Control Measures.
9. The Contractor shall inspect the construction site (including all Control Measures, storage containers, and construction equipment) at a minimum of every 7 calendar days or every 14 calendar days. If on the 14 day frequency a 24–hour post storm inspection must be conducted after a precipitation event or snow melt. Inspections shall continue until an Inactivation Notice is filed with CDPHE.
10. The Contractor shall keep a record of all inspections on site and available for review by CDPHE or City staff. Inspection reports must identify any incidents of non–compliance with the terms and conditions of the Permit.
11. Control Measures requiring maintenance or adjustment shall be repaired immediately after observation of the failing Control Measure.
12. Silt fence patching: patching is only allowed on the top half of the fence. Not more than two (2) patches per section of fence. Silt fence with holes or deterioration on the lower half of the fence must be replaced. Repair typically involves replacing the silt fence to maintain the CMs effectiveness to drain slowly and function as originally designed.
13. For all instances of noncompliance based on environmental hazards and chemical spills and releases, all needed information must be provided orally to CDPHE spill reporting line (24–hour number for environmental hazards and chemical spills and releases: 1–877–518–5608) within 24–hours from the time the Contractor becomes aware of the circumstances.
14. Straw bales shall not be used for primary erosion or sediment control (i.e. straw bales may be used for reinforcement behind another BMP such as silt fence).
15. Control measures referred to as "Cutback Curb" are not allowed. The cutback curb may become ineffective and may also compromise the integrity of the curb and in most cases does not provide any water quality benefit for filtering out sediment.
16. Inlet Protection and Vegetative Buffer Control Measures shall not be used as standalone CMs. These methods must be utilized with at least one additional CM.
17. Control Measures intended for sheet flow sediment runoff shall be placed parallel to the slope.
18. All Control Measures shall be cleaned when sediment levels accumulate to half the design of the CM unless otherwise specified.
19. A Vehicle Tracking Control (VTC) shall be placed at all entrances/exits from the site as well as any egress from exposed dirt to paved areas to prevent track–out onto streets. If track–out does occur, the Contractor shall immediately sweep the street of debris. Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.
20. For residential projects, back of curb protection is required along all interior lots.
21. All sediment collected in Control Measures shall be removed upon initial acceptance.
22. Wind Erosion and Dust Control Measures must be utilized to minimize airborne particulate dust. Control Measures may include minimizing disturbed areas, watering, and/or providing temporary stabilization.
23. Permanent erosion control measures for slopes, channels, ditches, or any disturbed land area shall be completed within 14 calendar days after final grading or the final earth disturbance has been completed. When it is not possible to permanently stabilize a disturbed area after an earth disturbance has been completed or where significant earth disturbance activity ceases, temporary soil erosion control measures shall be implemented within 14 calendar days. Temporary erosion control measures shall be maintained until permanent soil erosion measures are implemented.
24. Final stabilization has been achieved when all earth disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre–disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
25. All temporary Control Measures shall be removed from the site upon submitting the Inactivation Notice.
26. All site wastes (including trash and building materials) must be properly managed to prevent potential pollution discharges to the MS4 or State waters.
27. Street repair operations such as rotor milling, slurry seal and chip seal. The minimum CMs required are; inlet protection, curb socks and street sweeping. This list is not intended to be all–inclusive, but is intended to identify the general notes identified by the City to be included as part of the ESC plans/SWMP for compliance with the City's stormwater management requirements for construction activities.

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12450 WASHINGTON ST.
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FYA SIGNAL MODIFICATIONS GENERAL NOTES

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Notes
Structure Numbers:
Subset Sheets: 2 of 3

Project No. SHO M286–056
Drawing Number NT–002
Sheet Number 23

HAZARDOUS MATERIALS NOTES

1. Contaminated materials may be encountered on the project, in particular at 84th Avenue and Conifer Road and 88th Avenue and Pearl Street intersections. The Contractor is responsible for testing soil and groundwater to determine if hazardous material are present, which shall be included in the cost of the work. If it is determined hazardous materials are present, the Force Account for Environmental Health & Safety Management shall be used for waste materials to handled and transported to a permitted treatment, storage and disposal (TSD) facility in compliance with Specification 250 (Environmental Health & Safety Management).
2. Workers shall be alert during excavations for any visual or olfactory signs of contamination. If odor or contaminated soil and/or groundwater is encountered, work will stop immediately, and the procedures outlined in the CDOT Specification 250 (Environmental Health & Safety Management) shall be followed.
3. In the event that suspected asbestos containing material (ACM) is encountered, including with buried materials, the Contractor will follow CDOT Specification 250.07 – Asbestos–Containing Material Management, as well as CDOT regulated Asbestos–Contaminated Soil Management Standard Operating Procedure. Additionally, depending on the tyoe of ACM, this material must also be abated in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations.
4. Prior to removal of any pole/pad–mounted transformers, coordination with the appropriate utility owner is required. The utility company will be responsible for the handling and disposal of any transformers exhibiting PCBs presence, if any, in accordance with local, state, and federal regulations.

PALEONTOLOGICAL & ARCHEOLOGY NOTES

1. If any paleontological or archeological resources are uncovered during the project construction all work shall be stopped and the following shall be notified immediately for further direction and/or for a site visit.
   Paleo: Nicole Peavey 303–757–9632 nicole.peavey@state.co.us
   Arch: Greg Wolff 303–757–9158 greg.wolff@state.co.us
2. Should archeological deposits be encountered during any phase of the project, please contact CDOT Senior Archeologist, Greg Wolff, immediately in order to reassess the potential for the project to affect archeological resources and/or to evaluate the deposits.

AIR QUALITY NOTES

1. The Contractor shall determine if an Air Pollution Emission Notice (APEN) is required to be submitted to the Colorado Department of Public Health and Environment's (CDPHE) Air Pollution Control Division (APCD) for this project. The Contractor shall be responsible for filing the APEN and obtaining said permit, if required. The Contractor shall comply with all conditions of the APEN, and any permits issued by APCD for this project. The Contractor shall control fugitive dust through implementation of Sections 107.24, 209, and 250 of CDOT's Standard Specifications for Road and Bridge Construction, and applicable CDPHE requirements. The following best management practices shall be implemented during construction:
   - Maintain engines and exhaust systems on construction equipment and vehicles in good working order. Prohibit tampering with equipment to increase horsepower or disabling emission control devices. Equipment is subject to inspection by the project manager to ensure maintenance is conducted regularly.
   - Prohibit unnecessary idling of construction equipment and vehicles.
   - Locate staging areas and stationary construction equipment/diesel engines as far as possible from residences and other sensitive receptors.
   - Cover, wet, compact, or use chemical stabilization to control dust from disturbed areas and excavated materials during construction. Minimize disturbed areas, particularly during dry weather conditions, and use wind barriers as appropriate.
   - Control soil/sediment at points of ingress/egress and use vacuum street sweepers to remove soil tracked onto adjacent roadways.
2. All unpaved roads and other disturbed surface areas on site must be watered as necessary to prevent off–property transport of visible fugitive particulate emissions.
3. Vehicle speed on all unpaved roads and disturbed areas shall not exceed a maximum of 30 mph. Speed limit signs shall be posted.
4. No earthwork activities shall be performed when the wind speed exceeds 30 miles per hour.
5. All disturbed surface areas shall be revegetated within one year and according to the information submitted by the applicant with the permit application.
6. Gravel entryways shall be utilized to prevent mud and dirt carryout onto paved surfaces. Any mud and dirt carryout onto paved surfaces shall be cleaned up daily.

NOISE NOTES

1. The Contractor is required ro review and understand all local agency noise ordinances.
2. The following measures shall be taken to the extent practicable to avoid, minimize and mitigate temporary adverse noise impacts from construction activities:
   - Use alternative construction methods and/or equipment that produce less noise, including electrically powered equipment.
   - Reschedule construction operations to occur during daytime hours.
   - Keep noisy activities and stationary equipment as far from sensitive receptors as possible.

MIGRATORY BIRDS NOTES

1. Migratory Birds may nest on structures and/or vegetation within the project area. The Contractor shall conduct all work in a manner that does not result in the taking of migratory bird protected by the Migratory Bird Treaty Act (MBTA). If work on structures or vegetation removal will occur during the primary breeding season, April 1 to August 31, CDOT's Revision of Section 240 Project Special Revision shall be followed, including pre–construction nest surveys and removal of inactive nests (no eggs or young) from structures while under construction. No work shall occur within 50 feet of an active nest, at any time, unless the Contractor receives written approval from the Project Engineer.

PRAIRIE DOG NOTES

1. The prairie dog colony located at the southwest corner of 98th Avenue and Grant Street shall not be disturbed and no equipment shall be parked in this area.

PUBLIC ACCESS NOTES

1. Access shall be maintained for bikes and pedestrians along existing routes, or a temporary detour route shall be provided. Full sidewalk closures without a detour are not permitted.

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FYA SIGNAL MODIFICATIONS GENERAL NOTES

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Notes
Structure Numbers:
Subset Sheets: 3 of 3

Project No.

SHO M286–056
Drawing Number NT–003
Sheet Number 24

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.
			202-00010	Removal of Tree	EACH	1				1	
			202-00195	Removal of Median Cover	SY	13				13	
			202-00206	Removal of Concrete Curb Ramp	SY	18				18	
			202-00828	Removal of Traffic Signal Equipment	LS	1				1	
			203-01597	Potholing	HOUR	80				80	
			207-00700	Topsoil (Onsite)	CY	49				49	
			208-00002	Erosion Log Type 1 (12 Inch)	LF	200				200	
			208-00035	Aggregate Bag	LF	400				400	
			208-00046	Pre-Fabricated Concrete Washout Structure (Type I)	EACH	2				2	
			208-00103	Removal and Disposal of Sediment (Labor)	HOUR	10				10	
			208-00105	Removal and Disposal of Sediment (Equipment)	HOUR	10				10	
			208-00106	Sweeping (Sediment Removal)	HOUR	20				20	
			208-00107	Removal of Trash	HOUR	10				10	
			210-00479	Reset Radio Communication Antenna	EACH	2				2	
			210-00760	Reset Luminaire	EACH	4				4	
			210-00814	Reset Illuminated Sign	EACH	12				12	
			210-00815	Reset Sign Panel	EACH	7				7	
			210-00867	Reset Fire Preemption Unit	EACH	5				5	
			210-00890	Reset Intersection Detection System (Camera)	EACH	5				5	
			212-00700	Organic Fertilizer	LBS	18				18	

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.
			212-00701	Compost (Mechanically Applied)	CY	4				4	
			212-00704	Mycorrhizae	LBS	3				3	
			212-00708	Seeding (Native) Broadcast	ACRE	0.1				0.1	
			212-01200	Landscape Restoration	LS	1				1	
			214-00240	Deciduous Tree (4 Inch Caliper)	EACH	1				1	
			216-00201	Soil Retention Blanket (Straw/Coconut)(Biodegradable Class 1)	SY	291				291	
			240-00000	Wildlife Biologist	HOUR	16				16	
			240-00010	Removal of Nests	HOUR	16				16	
			403-00720	Hot Mix Asphalt (Patching)(Asphalt)	TON	2				2	
			503-00018	Drilled Shaft (18-Inch)	LF	24				24	
			503-00036	Drilled Shaft (36 Inch)	LF	90				90	
			503-00054	Drilled Shaft (54 Inch)	LF	84				84	
			608-00000	Concrete Sidewalk	SY	4				4	
			608-00010	Concrete Curb Ramp	SY	13				13	
			610-00030	Median Cover Material (Concrete)	SF	120				120	
			613-00206	2 Inch Electrical Conduit (Bored)	LF	105				105	
			613-00306	3 Inch Electrical Conduit (Bored)	LF	210				210	
			613-01200	2 Inch Electrical Conduit (Plastic)	LF	200				200	
			613-01300	3 Inch Electrical Conduit (Plastic)	LF	268				268	
			613-07023	Pull Box (24"x36"24")	EACH	3				3	

'FOR ADVERTISEMENT 9/15/2025

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RockSol Consulting Group, Inc.
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Thornton, CO 80241
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Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS
SUMMARY OF APPROX. QUANTITIES

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SAQ
Structure Numbers:
Subset Sheets: 1 of 2

Project No.
SHO M286-056
Drawing Number SAQ-001
Sheet Number 25

Plot Date:7/29/2025 10:12 AM Plotted By: Sarah Hemler
R:\0-PROJECTS\ACTIVE PROJECTS\94001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\900_COMPUTER DESIGN FILES\902_SHEET FILES\SAQ-001 SUMMARY OF APPROX QUANTITIES.DWG

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.
			613-10000	Wiring	LS	1				1	
			613-20200	LED Luminaire	EACH	5				5	
			613-80109	Meter Power Pedestal	EACH	2				2	
			614-00011	Sign Panel (Class 1)	SF	563				563	
			614-10159	Modify Signal Head Backplate	EACH	127				127	
			614-70118	Pedestrian Signal Face (18)	EACH	20				20	
			614-70336	Traffic Signal Face (12-12-12)	EACH	40				40	
			614-70448	Traffic Signal Face (12-12-12-12)	EACH	149				149	
			614-70450	Traffic Signal Face Programmable (12-12-12-12)	EACH	1				1	
			614-72860	Pedestrian Push Button	EACH	18				18	
			614-72863	Pedestrian Push Button Post Assembly - 4 Foot	EACH	1				1	
			614-81150	Traffic Signal Light Pole Steel (1-50 Foot Mast Arm)(Install Only)	EACH	5				5	
			614-81160	Traffic Signal Light Pole Steel (1-60 Foot Mast Arm)(Install Only)	EACH	1				1	
			614-81170	Traffic Signal Light Pole Steel (1-70 Foot Mast Arm)(Install Only)	EACH	1				1	
			614-81175	Traffic Signal Light Pole Steel (1-75 Foot Mast Arm)(Install Only)	EACH	3				3	
			614-84100	Traffic Signal Pedestal Pole Aluminum - 10 Foot	EACH	3				3	
			614-84115	Traffic Signal Pedestal Pole Aluminum - 15 Foot	EACH	4				4	
			620-00020	Sanitary Facility	EACH	1				1	
			625-00000	Construction Surveying	LS	1				1	
			626-00000	Mobilization	LS	1				1	

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.
			630-00003	Uniformed Traffic Control	HOUR	88				88	
			630-00007	Traffic Control Inspection	DAY	28				28	
			630-00012	Traffic Control Management	DAY	73				73	
			630-80340	Pedestrian Barricade (ADA)	LF	40				40	
			630-80341	Construction Traffic Sign (Panel Size A)	EACH	28				28	
			630-80350	Vertical Panel	EACH	25				25	
			630-80355	Portable Message Sign Panel	EACH	2				2	
			630-80356	Advanced Warning Sequencing Arrow Panel (A Type)	EACH	2				2	
			630-80360	Drum Channelizing Device	EACH	25				25	
			630-80380	Traffic Cone	EACH	50				50	
			700-70009	F/A Minor Contract Revisions	FA	1				1	
			700-70082	F/A Furnish and Install Electrical Sevrice	FA	1				1	
			700-70380	F/A Erosion Conrol	FA	1				1	
			700-70589	F/A Environmental Health & Safety Management	FA	1				1	

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

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FYA SIGNAL MODIFICATIONS SUMMARY OF APPROX. QUANTITIES

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SAQ
Structure Numbers:
Subset Sheets: 2 of 2

Project No. SHO M286-056
Drawing Number SAQ-002
Sheet Number 26

TABULATION OF TRAFFIC SIGNAL ITEMS

	Reset Radio Communication Antenna (210-00479)	Reset Luminaire (210-00760)	Reset Illuminated Sign (210-00814)	Reset Sign Panel (210-00815)	Reset Fire Preemption Unit (210-00867)	Reset Intersection Detection System (Camera) (210-00890)	Drilled Shaft (18-Inch) (503-00018)	Drilled Shaft (36-Inch) (503-00036)	Drilled Shaft (54-Inch) (503-00054)	Concrete Sidewalk (608-00000)	Concrete Curb Ramp (608-00010)	Median Cover Material (Concrete) (610-00030)	2 Inch Electrical Conduit (Bored) (613-00206)	3 Inch Electrical Conduit (Bored) (613-00306)	2 Inch Electrical Conduit (Plastic) (613-01200)	3 Inch Electrical Conduit (Plastic) (613-01300)	Type 4 Pull Box (24x36x24) (613-07023)	LED Luminaire (613-20200)	Meter Power Pedestal (613-80109)	Sign Panel (Class I) (614-00011)	Modify Signal Head Backplate (614-10159)	Pedestrian Signal Face (18) (614-70118)	Traffic Signal Face (12-12-12) (614-70336)	Traffic Signal Face (12-12-12-12) (614-70448)	Traffic Signal Face Programmable (12-12-12-12) (614-70450)	Pedestrian Push Button (614-72860)	Pedestrian Push Button Assembly - 4 Foot (614-72863)	Traffic Signal Light Pole Steel (1-50 Foot Mast Arm) (Install Only) (614-81150)	Traffic Signal Light Pole Steel (1-60 Foot Mast Arm) (Install Only) (614-81160)	Traffic Signal Light Pole Steel (1-70 Foot Mast Arm) (Install Only) (614-81170)	Traffic Signal Light Pole Steel (1-75 Foot Mast Arm) (Install Only) (614-81175)	Traffic Signal Pedestal Pole Aluminum - 10 Foot (614-84100)	Traffic Signal Pedestal Pole Aluminum - 15 Foot (614-84115)
	EACH	EACH	EACH	EACH	EACH	EACH	LF	LF	LF	SY	SY	SF	LF	LF	LF	LF	EACH	EACH	EACH	SF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
84th Ave. & Conifer Rd.	1		1		1		4	15							14	31		1	1	30	4	2	3	8		2		1				1	
84th Ave. & Huron St.																				30	10			8									
88th Ave. & Huron St.																				30	9			8									
88th Ave. & Grant St.																				30	7			8									
88th Ave. & Pearl St.		1	1			1	4	15							18	48				22.5	5	2	4	5	1	2		1				1	
88th Ave. & Corona St.			2																	30	4		2	8									
88th Ave. & Poze Blvd./McElwain Blvd.			1				4	15			6				14	21				15	3	2	5	4		2		1					1
97th Ave. & Grant St.																				30	8			8									
97th Ave. & Washington St.																				30	8			8									
98th Ave. & Grant St.		1	1	1		1		15			7	120			17	17	1			30	6	2	3	8		2		1					
Thornton Pkwy. & Huron St.			2	2	1	1		30					105	210	41	60	2	2		30	4	4	6	8		4		1	1				2
Washington St. & Russell Blvd.																				30	6			8									
100th Ave. & McKay Blvd.																				7.5	3			2									
104th Ave. & Fox Run Pkwy.			2	2	2		8		42						61	50		2	1	30	2	4	6	8		4	1				2	1	
104th Ave. & Steele St.	1	2	2	2	1	2	4		42	4					35	41				30	3	4	7	8		2			1	1		1
108th Ave. & Colorado Blvd.																				30	6			8									
112th Ave. & Colorado Blvd.																				30	8		2	8									
112th Ave. & York St.																				15	7			4									
121st Ave. & Colorado Blvd.																				22.5	7		2	6									
128th Ave. & Quebec St.																				30	8			8									
144th Ave. & York St.																				30	9			8									
TOTALS	2	4	12	7	5	5	24	90	84	4	13	120	105	210	200	268	3	5	2	563	127	20	40	149	1	18	1	5	1	1	3	3	4

TABULATION OF REMOVAL OF TRAFFIC SIGNAL EQUIPMENT

		84th Ave. & Conifer Rd.	84th Ave. & Huron St.	88th Ave. & Huron St.	88th Ave. & Grant St.	88th Ave. & Pearl St.	88th Ave. & Corona St.	88th Ave. & Poze/McElwain Blvd.	97th Ave. & Grant St.	97th Ave. & Washington St.	98th Ave. & Grant St.	Thornton Pkwy. & Huron St.	Washington St. & Russell Blvd.	100th Ave. & McKay Blvd.	104th Ave. & Fox Run Pkwy.	104th Ave. & Steele St.	108th Ave. & Colorado Blvd.	112th Ave. & Colorado Blvd.	112th Ave. & York St.	121st Ave. & Colorado Blvd.	128th Ave. & Quebec St.	144th Ave. & York St.	TOTAL
Remove Traffic Signal Head	EACH	4	8	8	8	5	4	3	8	8	3	3	8	2	4	4	4	8	4	4	8	8	116
Remove Traffic Signal Pole & Mast Arm with Existing Signals	EACH	1				1		1			1	2			2	2							10
Remove Pull Box	EACH										1	2											3

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FYA SIGNAL MODIFICATIONS TABULATIONS

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Tabs
Structure Numbers:
Subset Sheets: 1 of 1

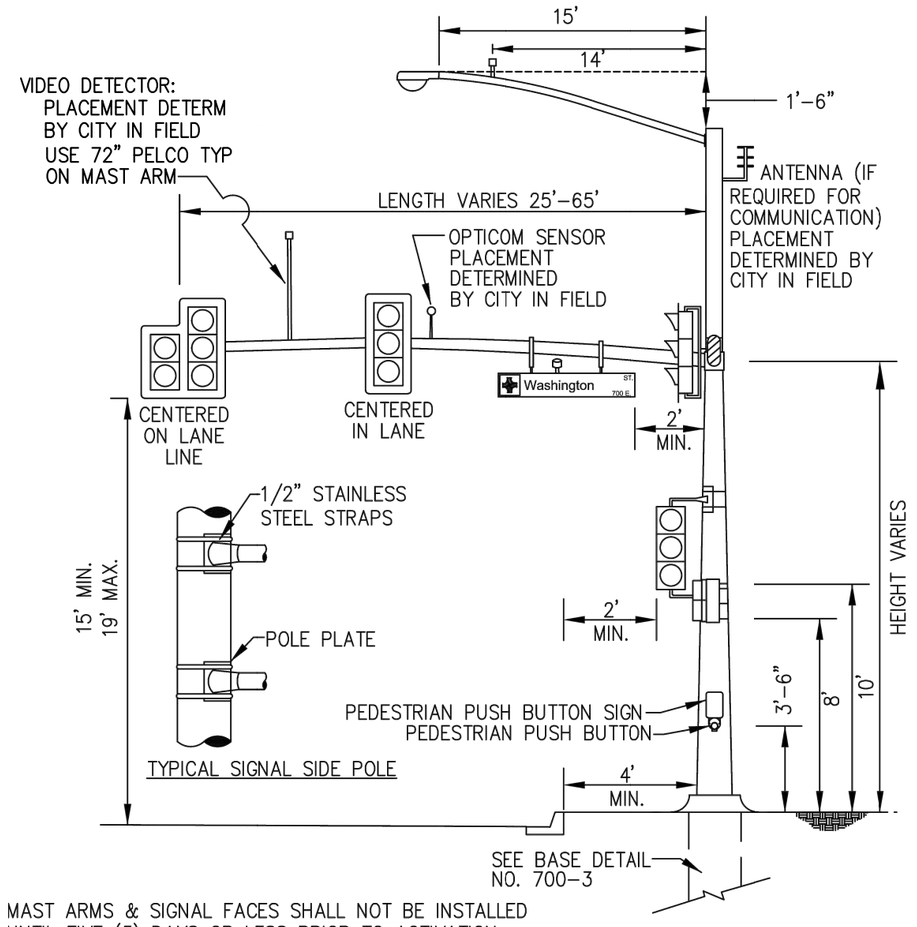
Project No. SHO M286-056
Drawing Number TAB-001
Sheet Number 27

'FOR ADVERTISEMENT 9/15/2025

Know what's below. Call before you dig.

LUMINAIRE EXTENSION, ARM & WIRING TO BE INSTALLED BY CONTRACTOR

LUMINAIRE LIGHT, HOUSING, BULB, ETC., TO BE INSTALLED BY XCEL OR UNITED POWER



MAST ARMS & SIGNAL FACES SHALL NOT BE INSTALLED UNTIL FIVE (5) DAYS OR LESS PRIOR TO ACTIVATION UNLESS APPROVED BY THE TRAFFIC ENGINEER.

N.T.S.

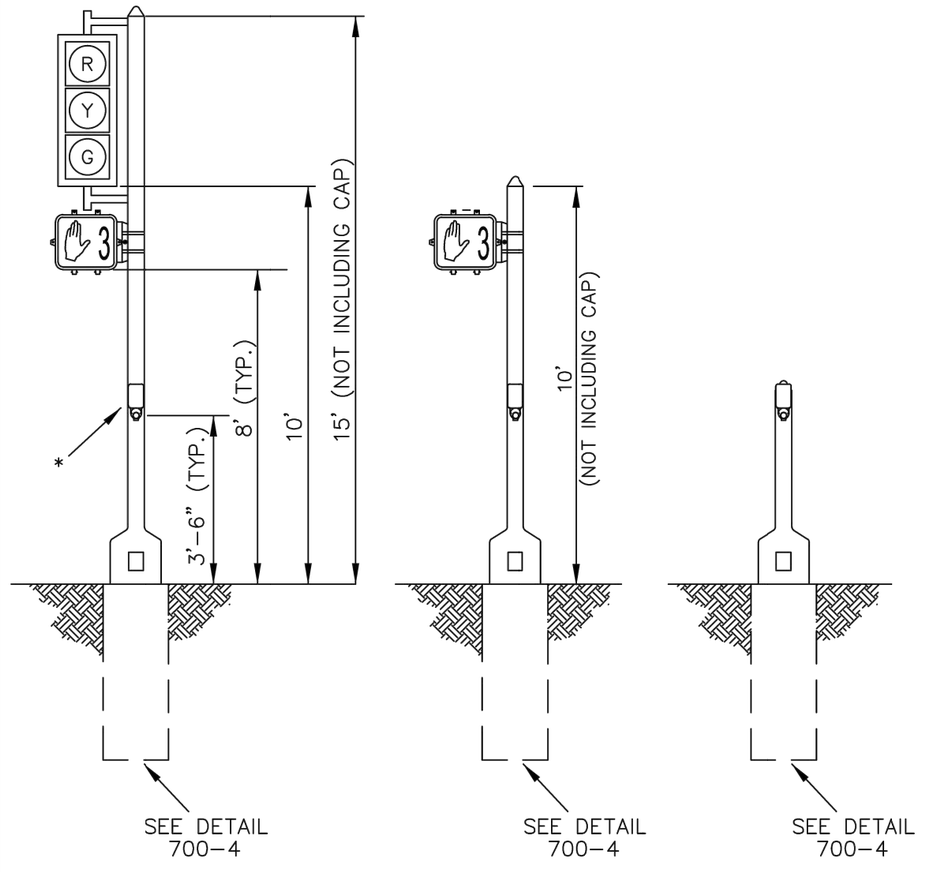
CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL SIGNAL INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010
DRAWING NO. 700-1

* PEDESTRIAN PUSH BUTTON (TYPICAL)
(PUSH BUTTON AND SIGN TO
BE ORIENTED AS DIRECTED
BY THE TRAFFIC ENGINEER)

ALL PEDESTRIAN POLES ARE TO BE MOCHA BROWN IN COLOR



N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL PEDESTRIAN POLE INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010
DRAWING NO. 700-2

Know what's **below.** **Call** before you dig.

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Plot Date: 7/29/2025 Plotted By: Sarah Hemler
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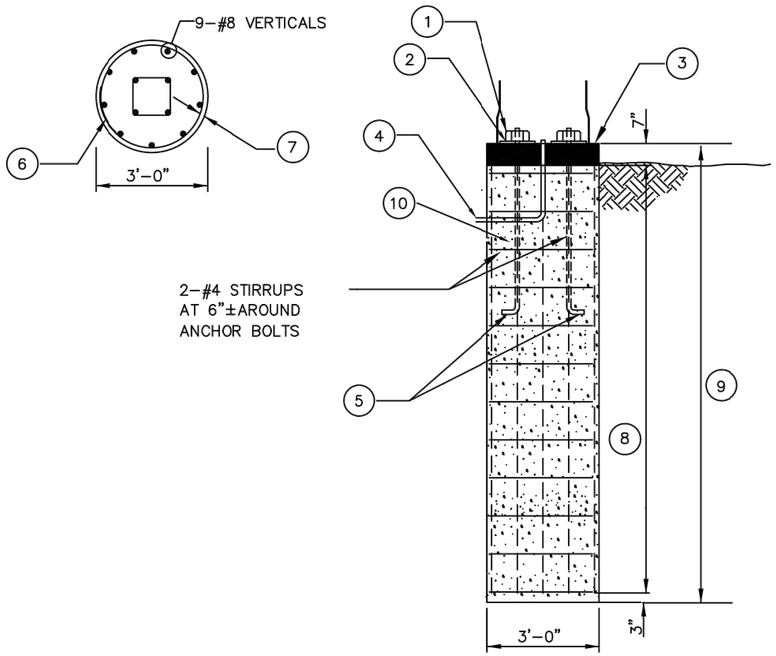
FYA SIGNAL MODIFICATIONS DETAILS

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 1 of 4

Project No./Code
SHO M286-056
Drawing Number DET-001
Sheet Number 28



FOOTING NOTES

1. HEX NUTS
2. SQUARE NUTS
3. 4"–7" MIN. NON–SHRINKABLE GROUT OVER ROUGH FOUNDATION
4. RIGID CONDUIT (24" MIN. DEPTH, 30" MIN. DEPTH UNDER ROADWAY) CONDUIT STUB FROM PULL BOX TO POLE SHALL BE ONE 3" DIA. AND ONE 2" DIA.
5. INSTALL ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE PRINT (FURNISHED WITH ORDER)
6. MINIMUM OVERLAP 12"
7. 1–1/2" CLEARANCE FOR HOOPS
8. 15 – #4 HOOPS AT +/– 12" FOR 15' FTG.
   12 – #4 HOOPS AT +/– 12" FOR 12' FTG.
9. USE 15' FOOTING FOR POLES WITH MAST ARMS 45' IN LENGTH OR LONGER. USE 12' FOOTING FOR POLES WITH MAST ARMS LESS THAN 45' IN LENGTH.
10. ALL INSTALLATIONS TO BE PROPERLY GROUNDED.

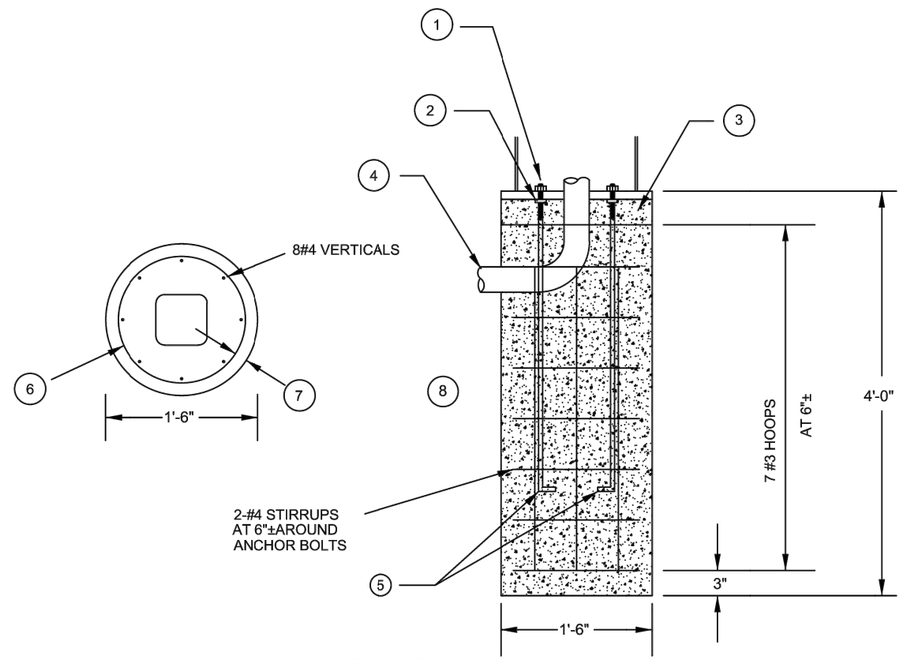
CAISSON DESIGNS REQUIRE THAT THE CAISSON BE FOUNDED IN COMPACT SAND, CLAY, OR SANDY CLAY. IF BY VISUAL INSPECTION OF THE HOLE OTHER MATERIAL IS PRESENT, THE CAISSON DESIGN SHALL BE MODIFIED AS DETERMINED BY THE RESPONSIBLE PARTY'S ENGINEER.

N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL TRAFFIC SIGNAL POLE FOOTING INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010
DRAWING NO. 700–3



FOOTING NOTES

1. HEX NUTS
2. SQUARE NUTS
3. 4" - 7" MIN. NON-SHRINKABLE GROUT OVER ROUGH FOUNDATION
4. RIGID CONDUIT (24" MIN. DEPTH, 30" MIN. DEPTH UNDER ROADWAY) CONDUIT STUB FROM PULL BOX TO POLE SHALL BE 3" DIA.
5. INSTALL ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE PRINT (FURNISHED WITH ORDER)
6. MINIMUM OVERLAP 12"
7. 1-1/2" CLEARANCE FOR HOOPS
8. ALL INSTALLATIONS TO BE PROPERLY GROUNDED.

CAISSON DESIGNS REQUIRE THAT THE CAISSON BE FOUNDED IN COMPACT SAND, CLAY, OR SANDY CLAY. IF BY VISUAL INSPECTION OF THE HOLE OTHER MATERIAL IS PRESENT, THE CAISSON DESIGN SHALL BE MODIFIED AS DETERMINED BY THE RESPONSIBLE PARTY'S ENGINEER.

N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL PEDESTRIAN POLE FOOTING INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010
DRAWING NO. 700–4

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Plot Date: 7/29/2025 Plotted By: Sarah Hemler
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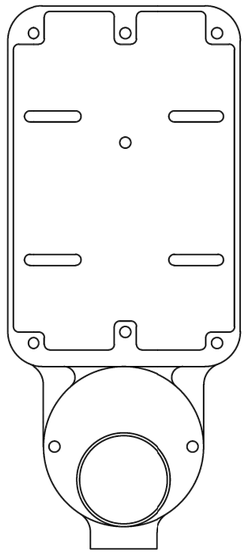
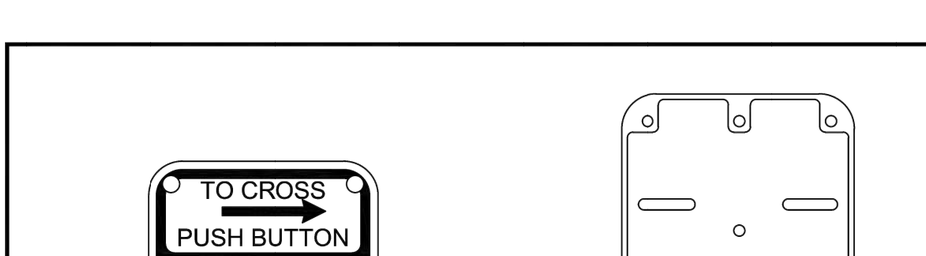
Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: DETAILS
Structure Numbers:
Subset Sheets: 2 of 4

Project No./Code
SHO M286–056
Drawing Number DET–002
Sheet Number 29

PUSH BUTTON SIGN PLATE
(5" x 7-3/4")



APS PUSH BUTTON



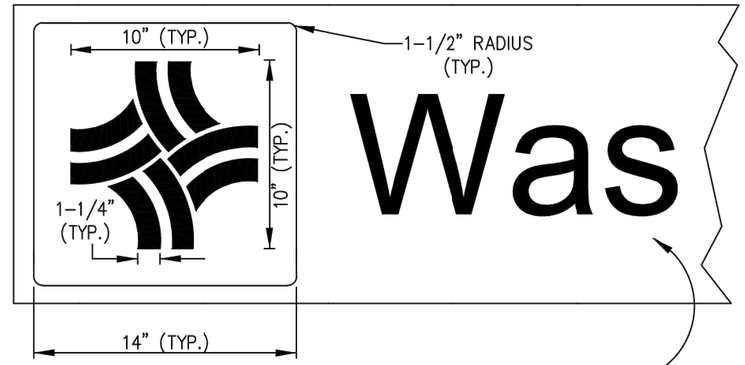
ALL PEDESTRIAN
SIGNAL HEADS
(COUNTDOWN TYPE)

N.T.S.

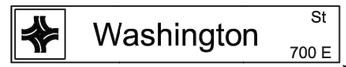
	CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS PEDESTRIAN TRAFFIC SIGNAL, SIGN AND PUSH BUTTON	ISSUED: SEPT 2012 REVISED: DRAWING NO. 700-24

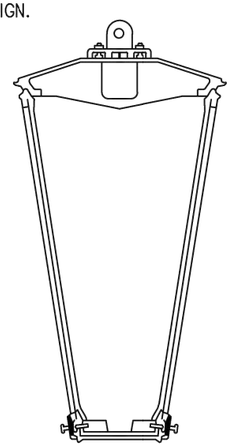
TYPICAL LAYOUT

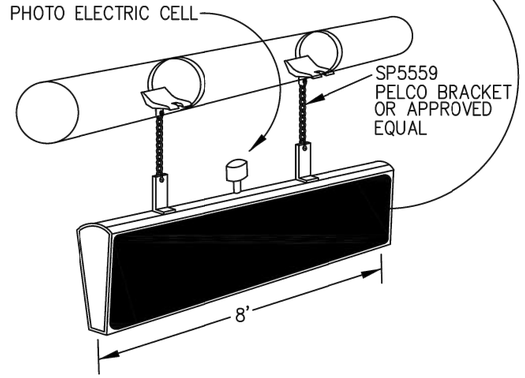
COLORS:
LOGO = PANTONE 300 INTENSE BLUE
LOGO BACKGROUND = WHITE
SIGN FIELD = PANTONE 3435c EMERALD GREEN
STREET NAME LETTERING = WHITE
HOUSING COLOR = PER DRAWING NO. 700-5



TEXT SIZE FOR STREET NAME TO AS LARGE AS POSSIBLE AND
AND STILL MAINTAIN A +/- 1" BORDER AROUND SIGN.







N.T.S.

	CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS TYPICAL ILLUMINATED STREET SIGN INSTALLATION	ISSUED: FEBRUARY 2003 REVISED: APRIL 2010 DRAWING NO. 700-10

Know what's below. Call before you dig. 811

FOR ADVERTISEMENT 9/15/2025

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Print Date: 7/29/2025
File Name: DET-001 DETAILS.DWG
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12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

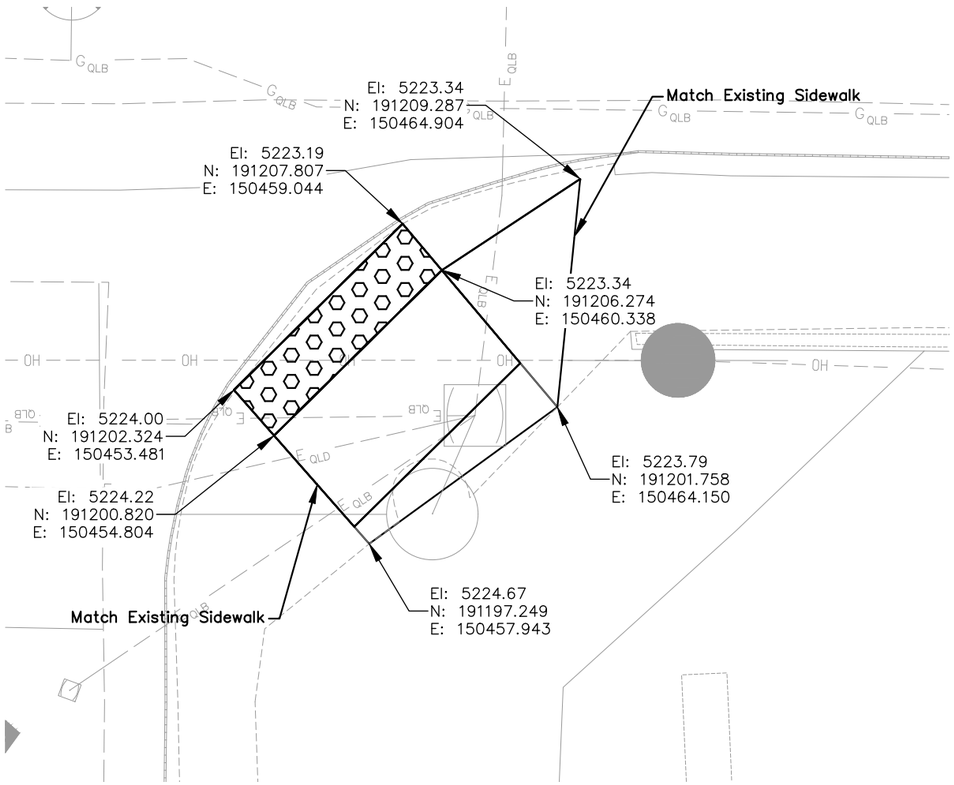
As Constructed
No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS DETAILS

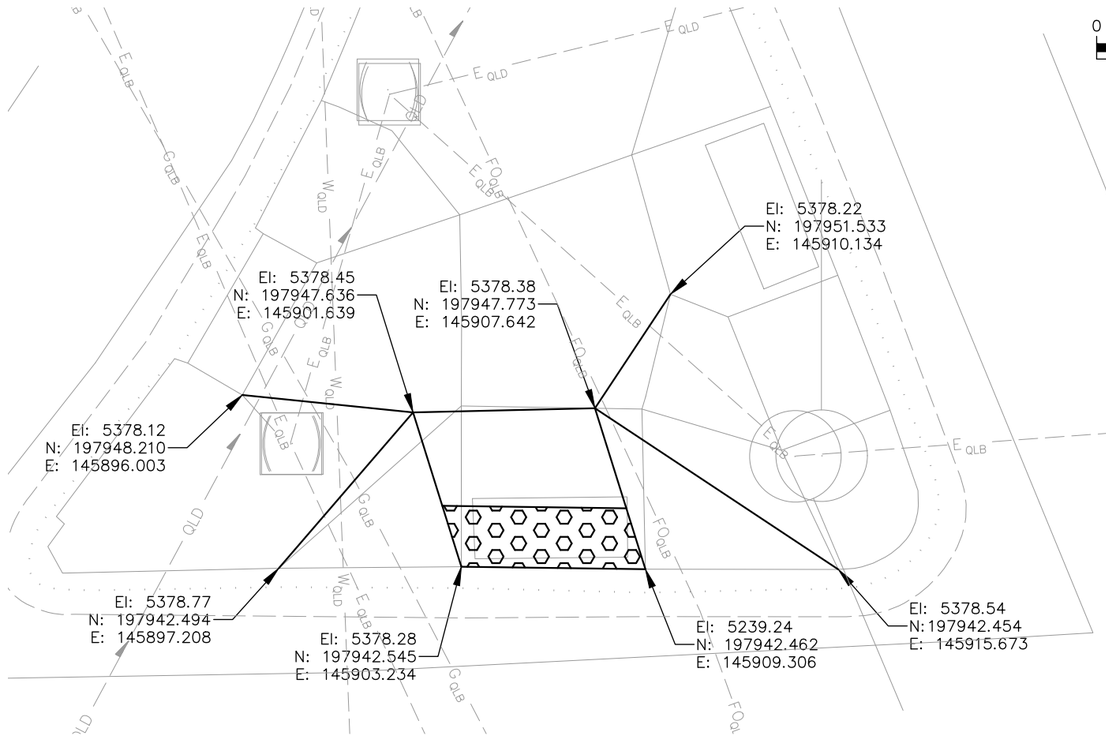
Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: DETAILS
Structure Numbers:
Subset Sheets: 3 of 4

Project No./Code
SHO M286-056
Drawing Number DET-003
Sheet Number 30

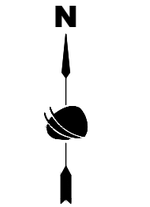
Plot Date: 7/29/2025 Plotted By: Sarah Hemler
R:\G-PROJECTS\ACTIVE PROJECTS\8400I_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\DET-001 DETAILS.DWG



Curb Ramp Type 2
88th Ave. & Poze Blvd./McElwain Blvd.



Curb Ramp Type 1
98th Ave. & Grant St. NW Corner



FOR ADVERTISEMENT 9/15/2025

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Plot Date: 7/29/2025 Plotted By: Sarah Hemler
R:\O-PROJECTS\ACTIVE PROJECTS\94001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\900_COMPUTER DESIGN FILES\802_SHEET FILES\DET-001 DETAILS.DWG

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Print Date: 7/29/2025
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Horiz. Scale: N/A Vert. Scale: N/A

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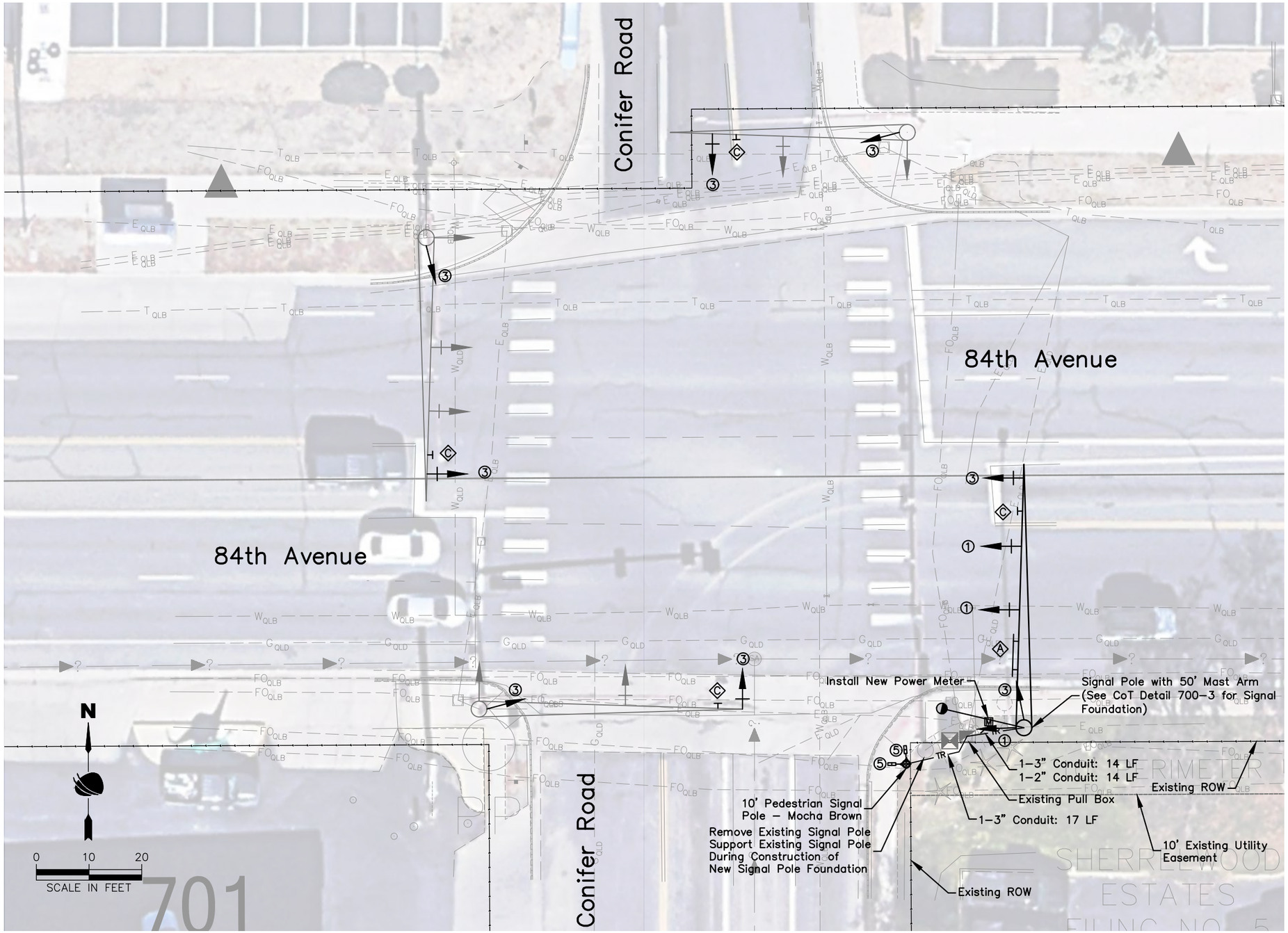
FYA SIGNAL MODIFICATIONS DETAILS

Designer: D. Schuler
Detailer: K. Kosmiski
Sheet Subset: Details
Structure Numbers:
Subset Sheets: 4 of 4

Project No./Code
SHO M286-056
Drawing Number DET-004
Sheet Number 31



SIGNAL EQUIPMENT LEGEND

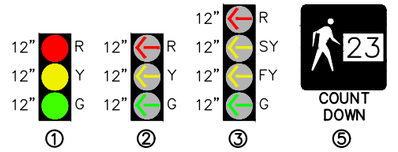
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

Ⓐ Conifer Rd 200 W — ILLUMINATED STREET SIGN-CONIFER RD (RESET)

LEFT TURN YIELD ON FLASHING YELLOW ARROW — R10-27a 30"x36" Ⓒ

NOTE:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. Reset existing fire preemption and radio from existing pole to new mast arm.
3. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
4. Contractor shall intercept existing power feed to Conifer Rd. cabinet and route through new electrical meter providing a metered power source to the existing cabinet.
5. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

811 Know what's below. Call before you dig.

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:
Revised:
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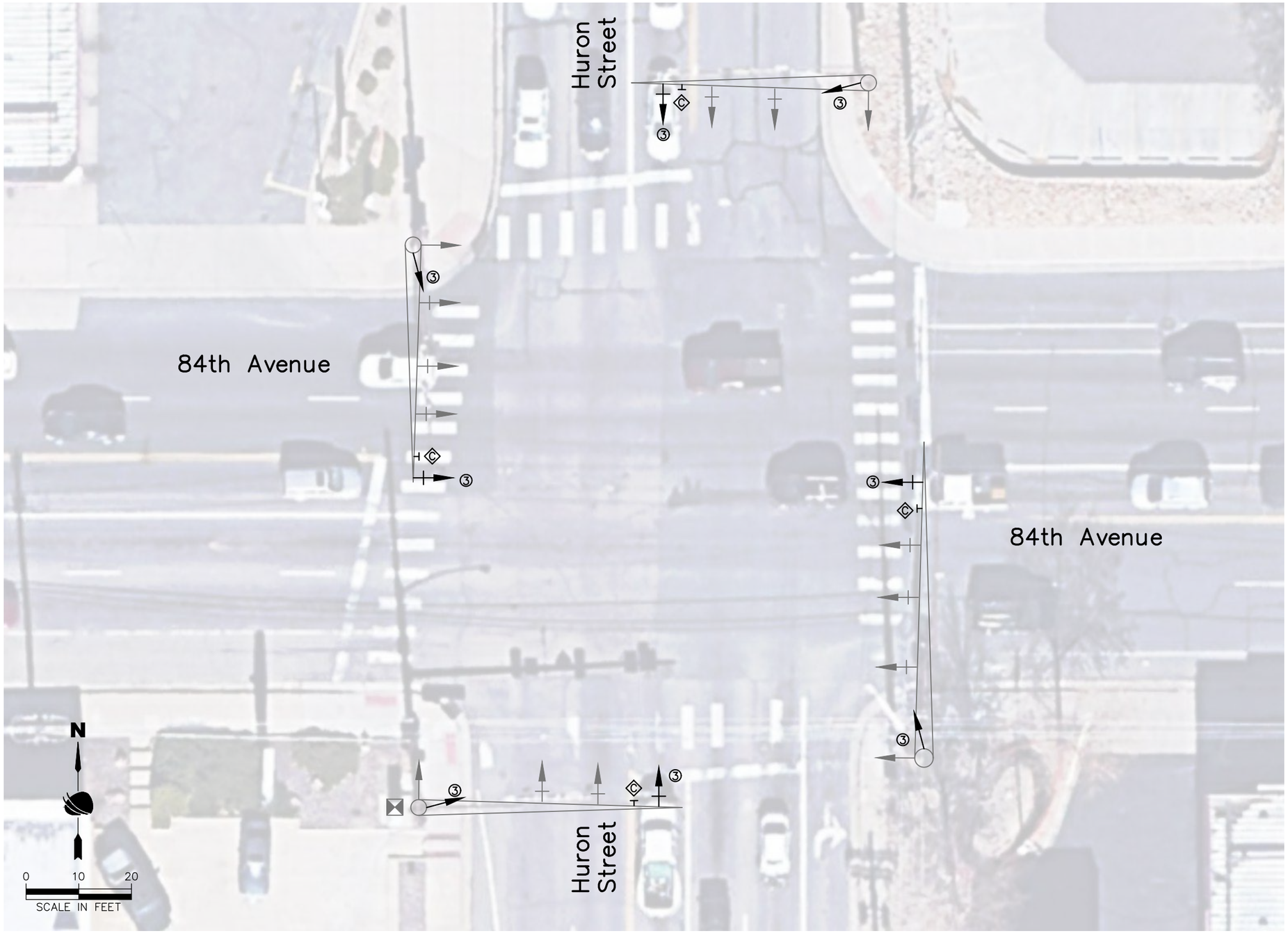
FYA SIGNAL MODIFICATIONS 84TH AVE. & CONIFER RD. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 1 of 21

Project No. SHO M286-056
Drawing Number PLAN-001
Sheet Number 32

Plot Date=7/29/2025 10:13 AM Plotted By: Sarah Hemler
R:\G-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\PLAN-001 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

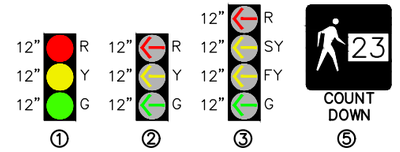
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

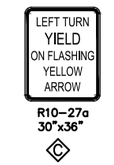
EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND



NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

Know what's below. Call before you dig.

FOR ADVERTISEMENT 9/15/2025

Plot Date: 7/29/2025 10:13 AM Plotted By: Sarah Hemler
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12450 WASHINGTON ST.
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Revised:
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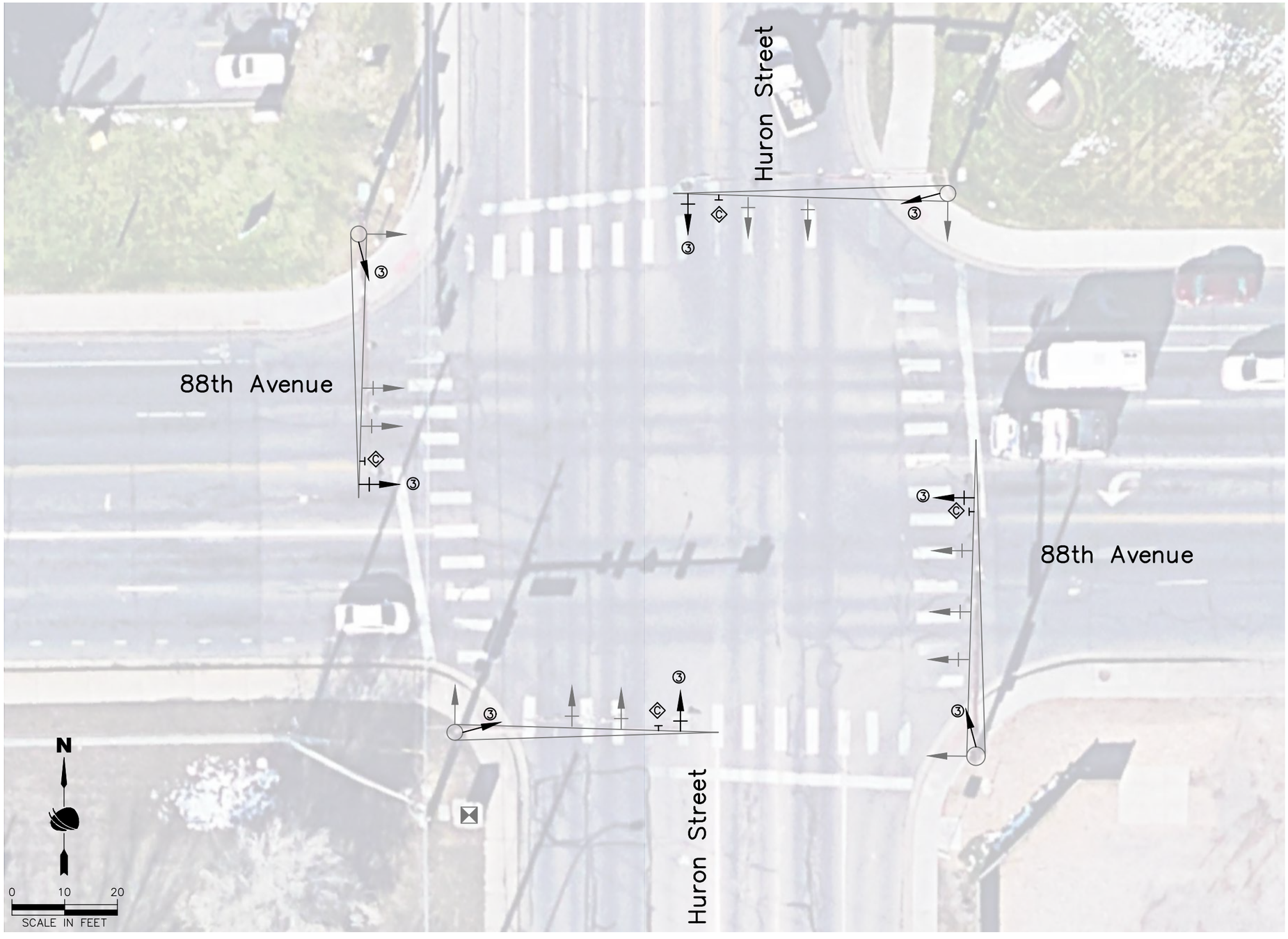
FYA SIGNAL MODIFICATIONS 84TH AVE. & HURON ST. PLAN SHEET

Designer:	D. Schuler	Structure Numbers	
Detailer:	S. Hemler		
Sheet Subset:	Plan	Subset Sheets:	2 of 21

Project No.

SHO M286-056
Drawing Number PLAN-002
Sheet Number 33



SIGNAL EQUIPMENT LEGEND

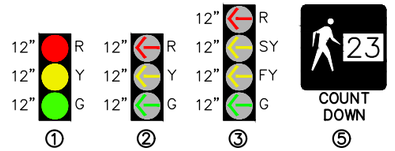
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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Plot Date: 7/29/2025 10:13 AM Plotted By: Sarah Hemler
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12450 WASHINGTON ST.
THORNTON, CO 80241

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No Revisions:
Revised:
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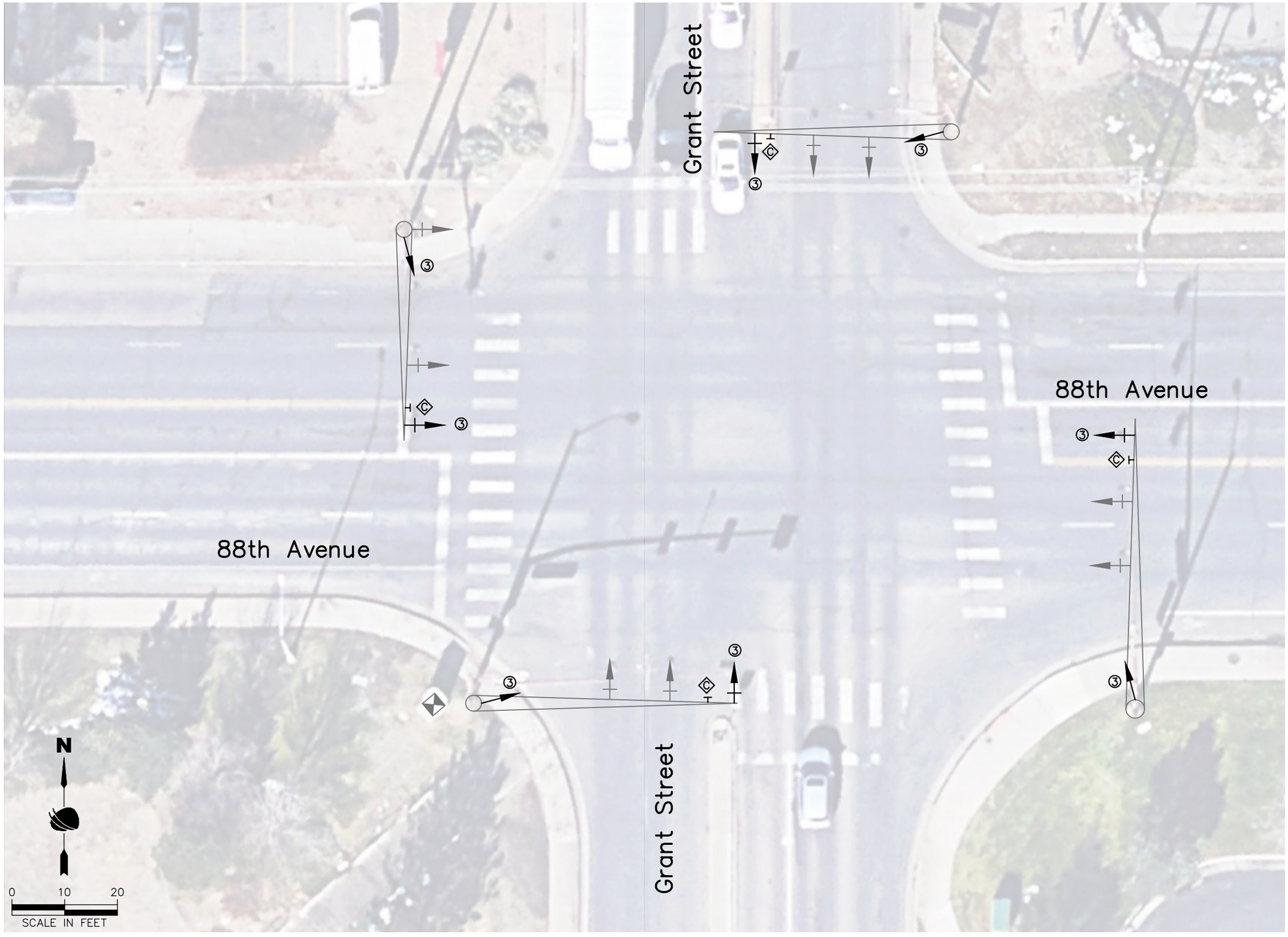
FYA SIGNAL MODIFICATIONS 88TH AVE. & HURON ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 3 of 21

Project No.

SHO M286-056
Drawing Number PLAN-003
Sheet Number 34



SIGNAL EQUIPMENT LEGEND

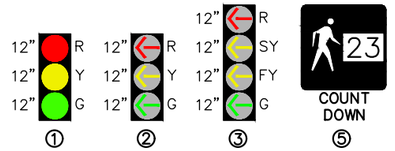
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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No Revisions:
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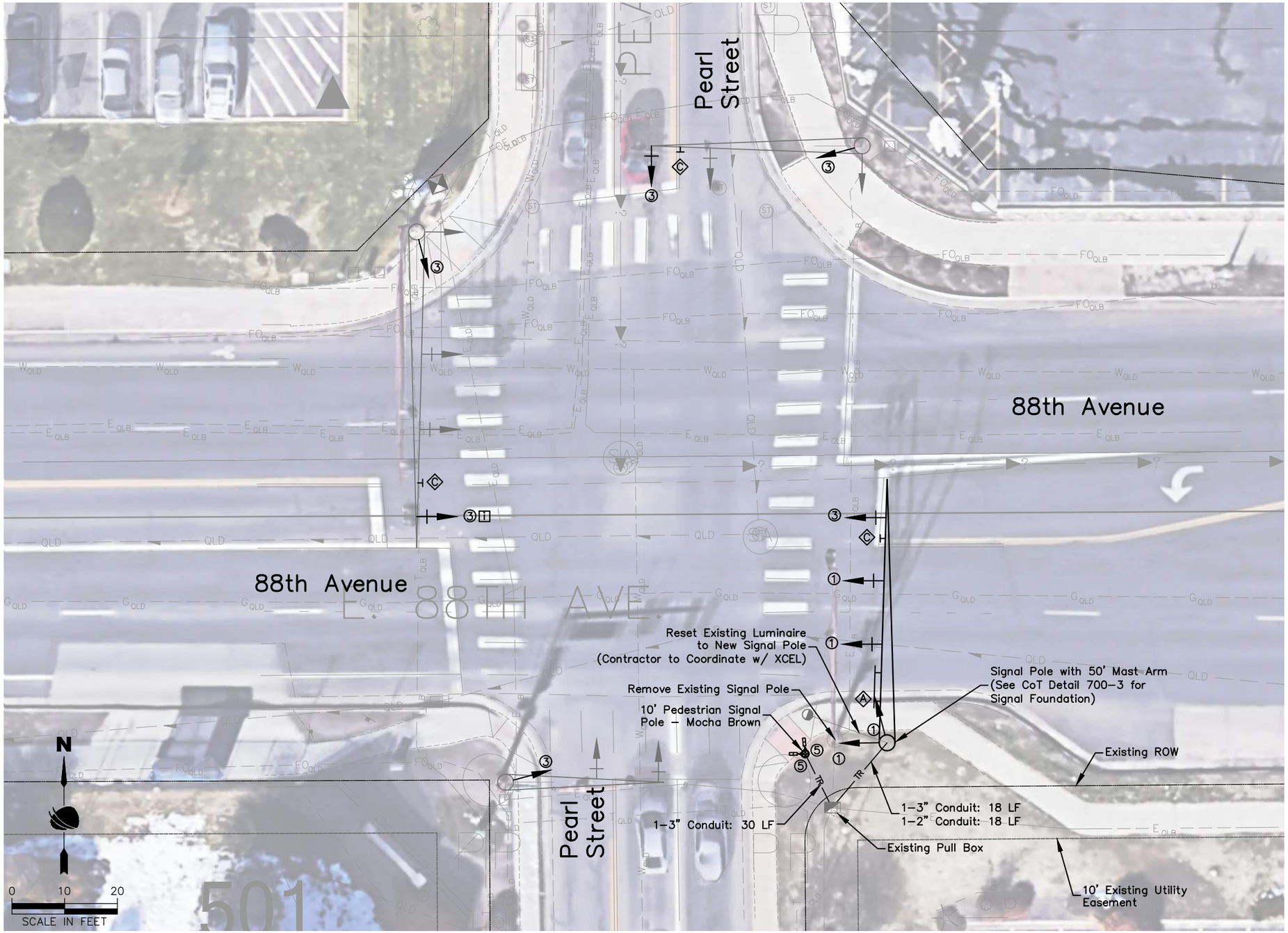
FYA SIGNAL MODIFICATIONS 88TH AVE. & GRANT ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 4 of 21

Project No. SHO M286-056
Drawing Number PLAN-004
Sheet Number 35



SIGNAL EQUIPMENT LEGEND

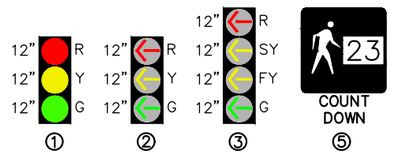
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

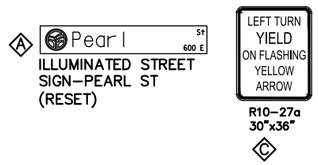
EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND



NOTE:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. Reset existing camera from existing pole to new signal pole.
4. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

[1] Programmable signal head that shall not be viewable from WB Washington

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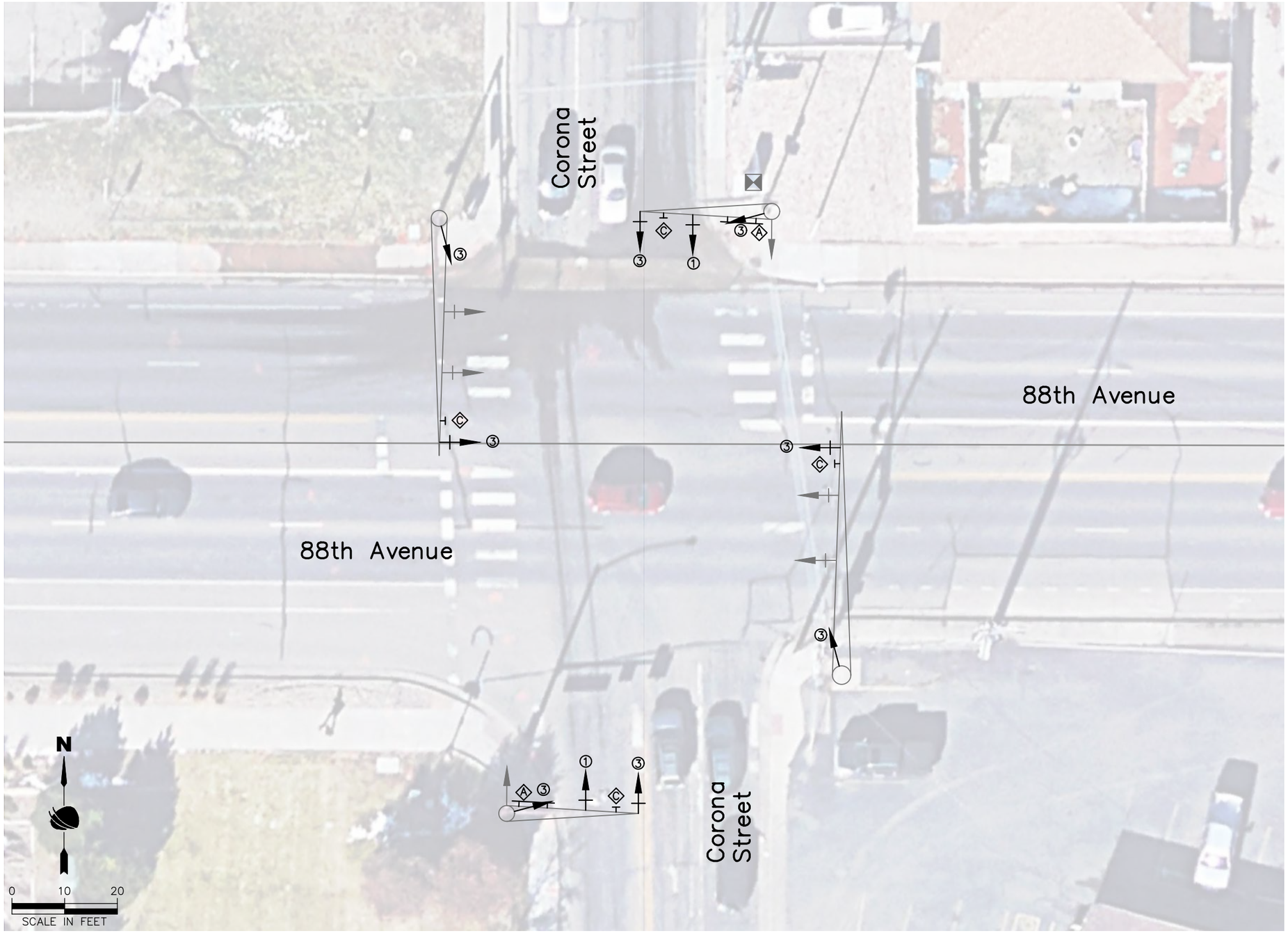
FYA SIGNAL MODIFICATIONS 88TH AVE. & PEARL ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 5 of 21

Project No. SHO M286-056
Drawing Number PLAN-005
Sheet Number 36



SIGNAL EQUIPMENT LEGEND

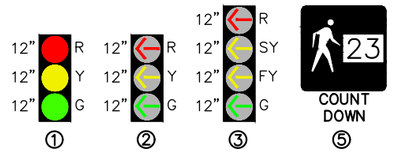
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

Ⓐ 88th Ave 8800 N
ILLUMINATED STREET SIGN–88TH AVE (RESET)

LEFT TURN YIELD ON FLASHING YELLOW ARROW
R10–27a
30"x36"
Ⓒ

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2–inch yellow retroreflective border.

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Plot Date:7/29/2025 10:13 AM Plotted By: Sarah Hemler
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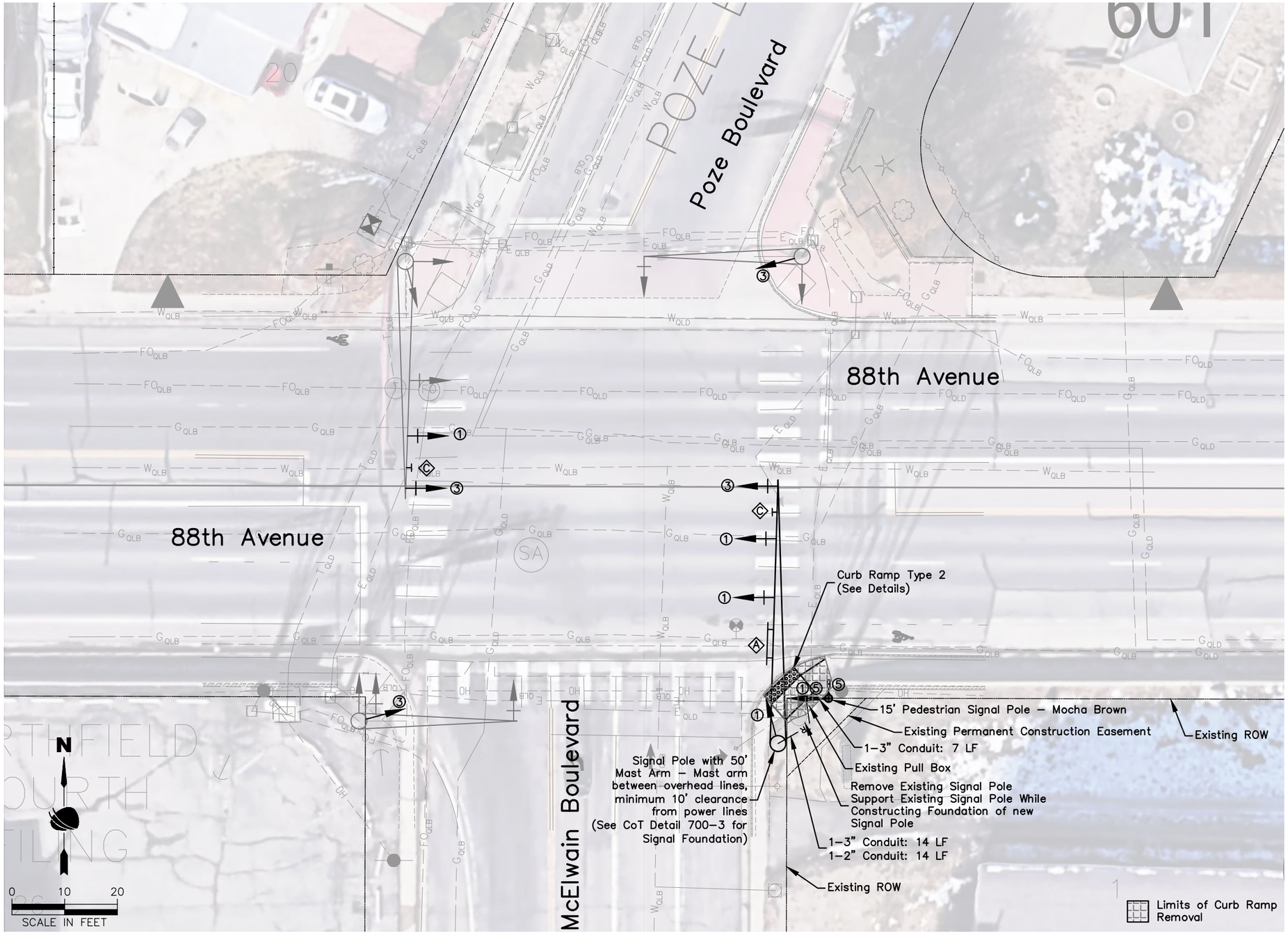
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS 88TH AVE. & CORONA ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 6 of 21

Project No.
SHO M286–056
Drawing Number PLAN–006
Sheet Number 37



SIGNAL EQUIPMENT LEGEND

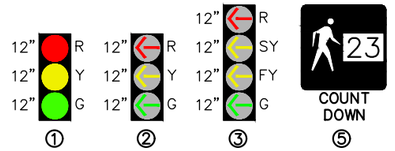
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

Ⓐ McElwain BLVD 1600 E
ILLUMINATED STREET SIGN–MCELWAIN BLVD (RESET)

LEFT TURN YIELD ON FLASHING YELLOW ARROW
R10–27a
30"x36"
Ⓒ

NOTES:

1. Coordinate with City of Thornton for interim signal operation and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. All existing overhead signals shall have their back plates modified to have a 2–inch yellow retroreflective border.
4. If existing asphalt is damaged during construction activities, asphalt will be replaced under the Hot Mix Asphalt (Patching) item, estimated quantity 1 ton. See General Construction Note 31.

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Fax: (303) 962-9350

Sheet Revisions

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS 88TH AVE. & POZE/MCELWAIN BLVD. PLAN SHEET

Designer:	D. Schuler	Structure Numbers	
Detailer:	S. Hemler		
Sheet Subset:	Plan	Subset Sheets:	7 of 21

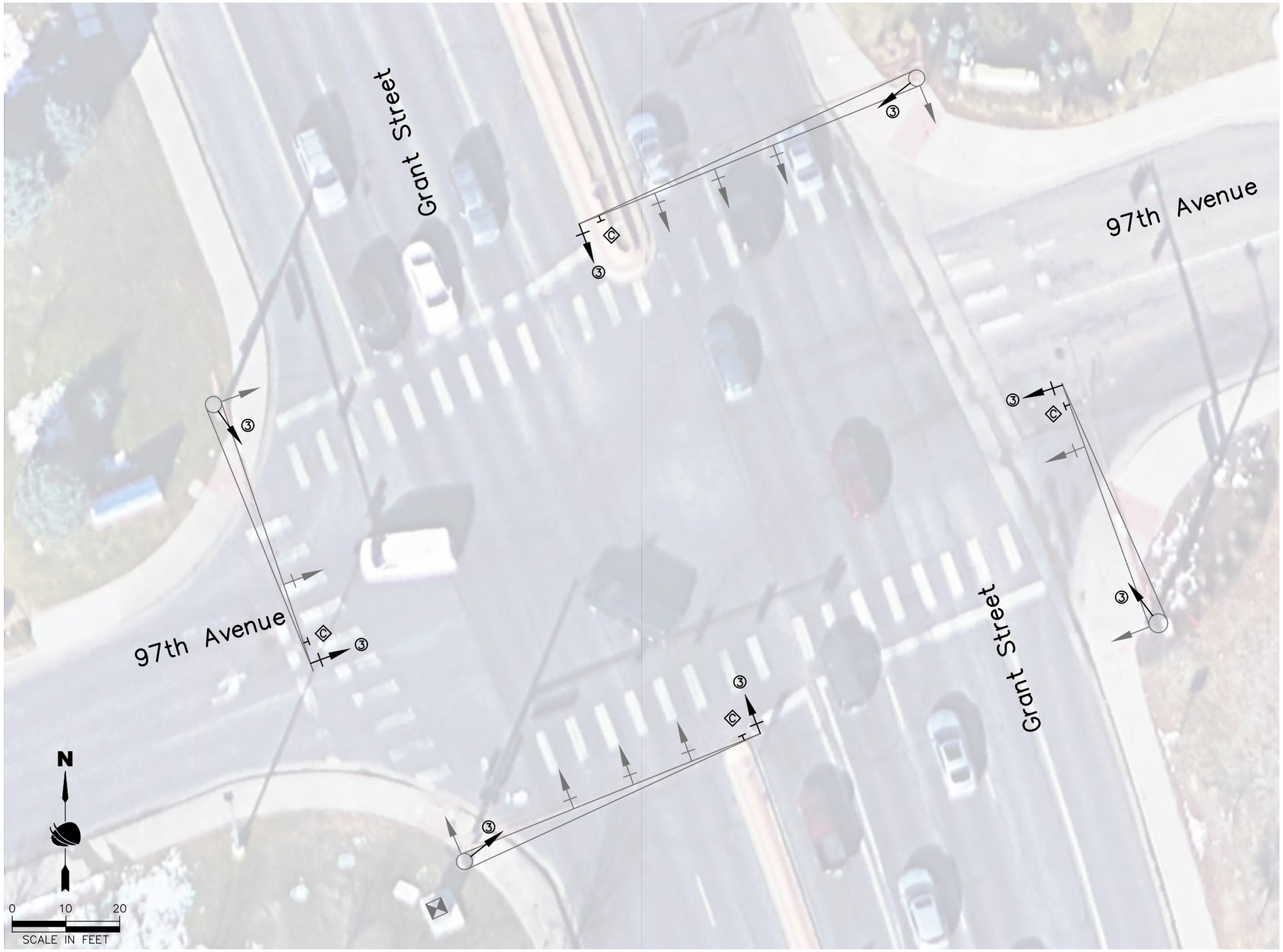
Project No.

SHO M286–056

Drawing Number PLAN–007

Sheet Number 38

Plot Date:7/29/2025 10:14 AM Plotted By: Sarah Hemler
R:\Q–PROJECTS\ACTIVE PROJECTS\64001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\900_COMPUTER DESIGN FILES\902_SHEET FILES\PLAN–001 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

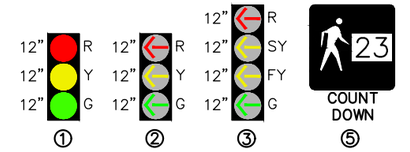
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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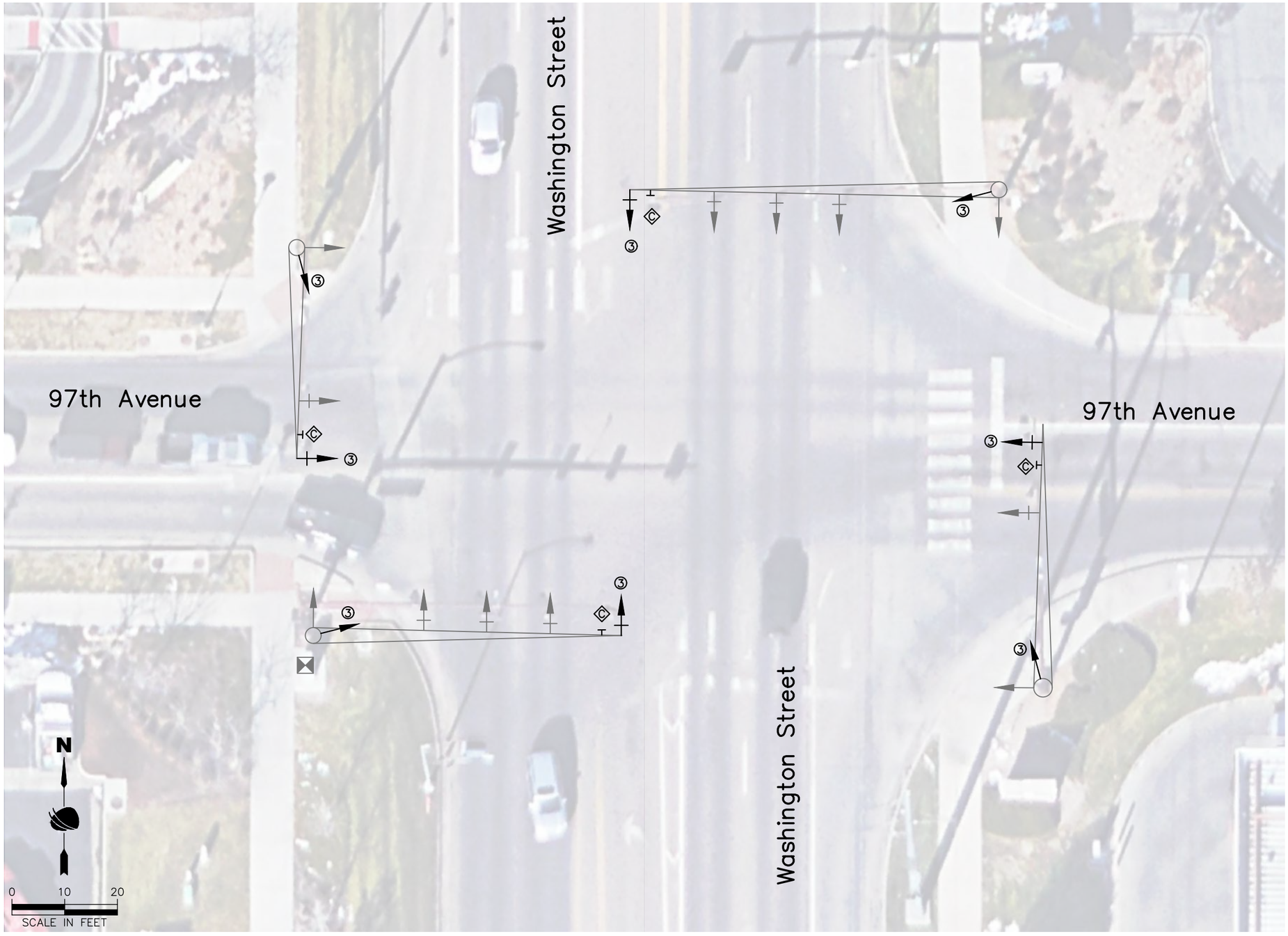
Revised:
Void:

FYA SIGNAL MODIFICATIONS
97 AVE. & GRANT ST.
PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 8 of 21

Project No.
SHO M286-056
Drawing Number PLAN-008
Sheet Number 39

Plot Date:7/29/2025 10:14 AM Plotted By: Sarah Hemler
R:\G-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\PLAN-001 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

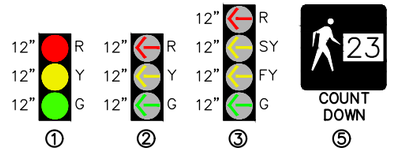
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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12450 WASHINGTON ST.
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As Constructed

No Revisions:
Revised:
Void:

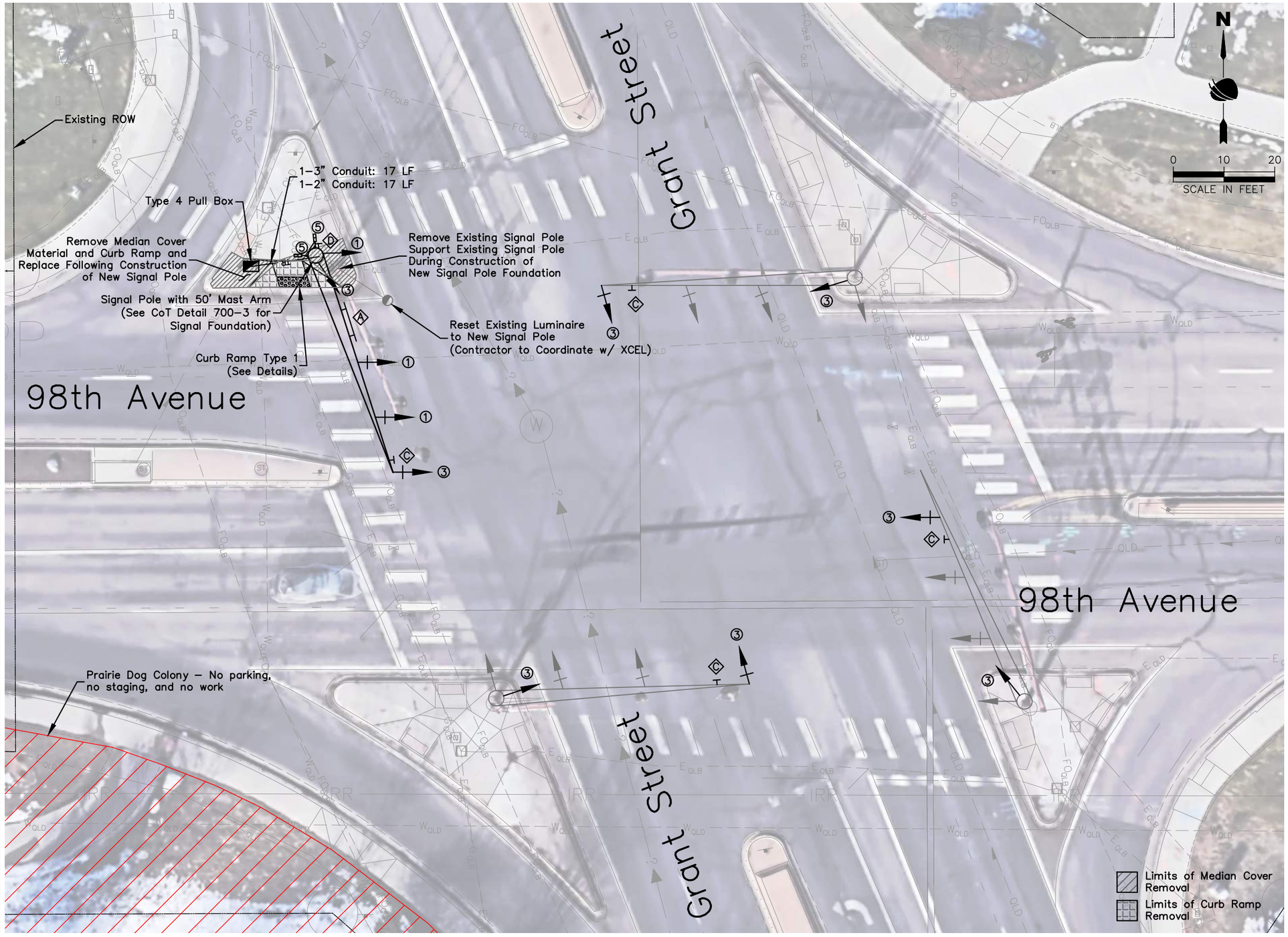
FYA SIGNAL MODIFICATIONS 97TH AVE. & WASHINGTON ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 9 of 21

Project No. SHO M286-056

Drawing Number PLAN-009

Sheet Number 40



SIGNAL EQUIPMENT LEGEND

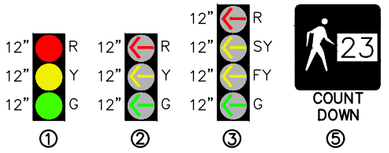
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

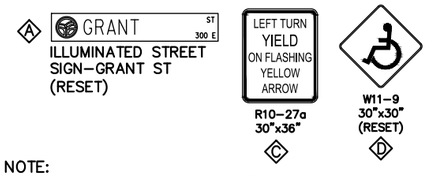
EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND



NOTE:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. Reset camera from existing mast arm to proposed signal pole.
4. All existing overhead signals shall have their back plates modified to have a 2–inch yellow retroreflective border.
5. If existing asphalt is damaged during construction activities, asphalt will be replaced under the Hot Mix Asphalt (Patching) item, estimated quantity 1 ton. See General Construction Note 31.

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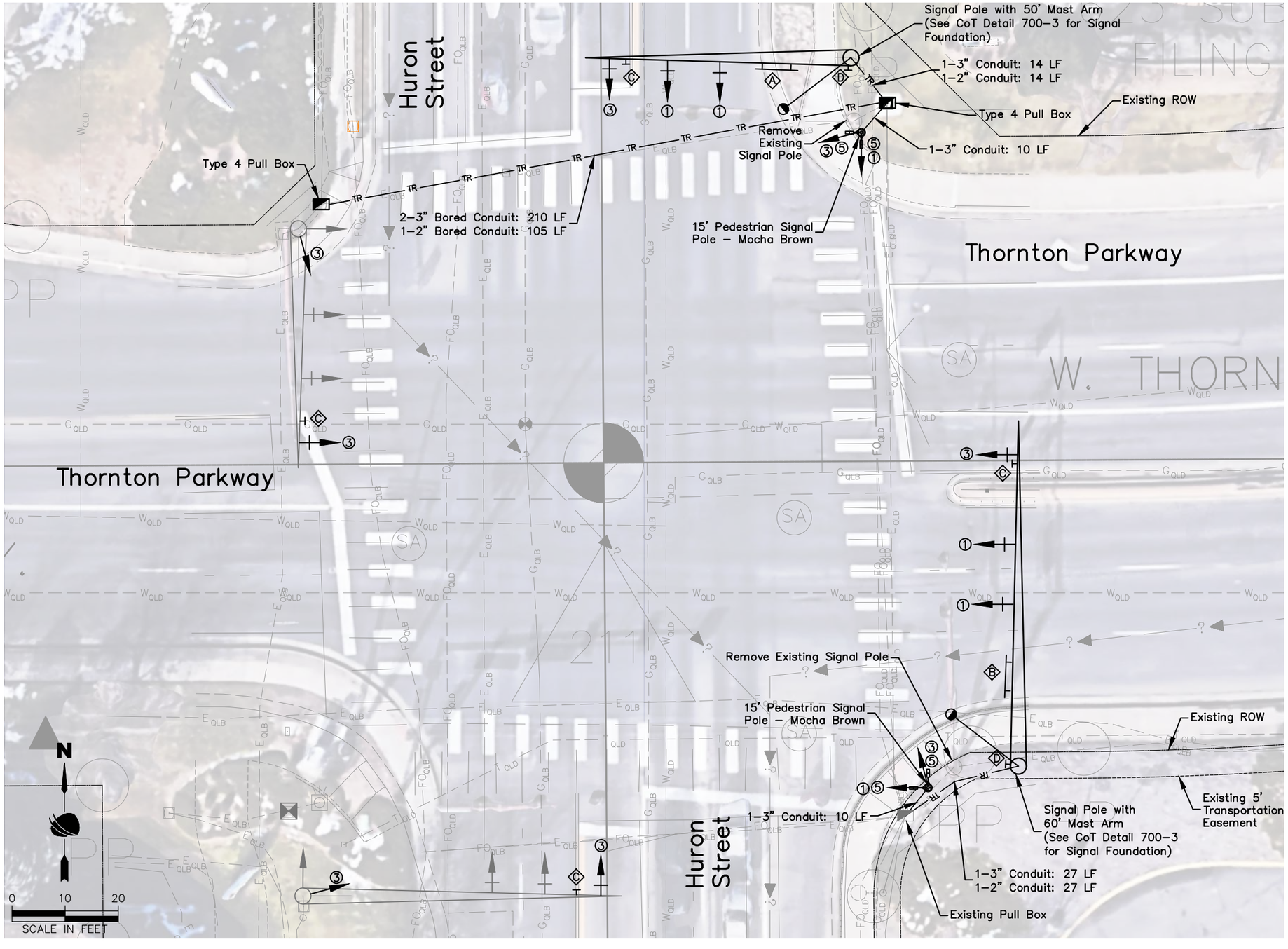
Void:

FYA SIGNAL MODIFICATIONS 98TH AVE. & GRANT ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 10 of 21

Project No. SHO M286–056
Drawing Number PLAN–010
Sheet Number 41



SIGNAL EQUIPMENT LEGEND

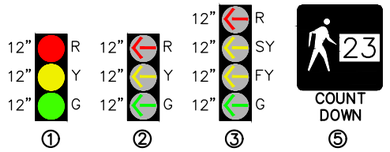
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

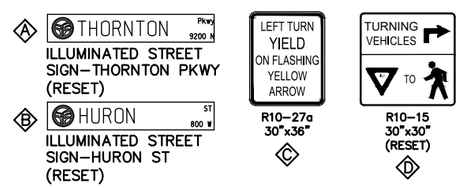
EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND



NOTE:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. Reset existing camera and fire preemption from existing mast arm to new signal pole.
4. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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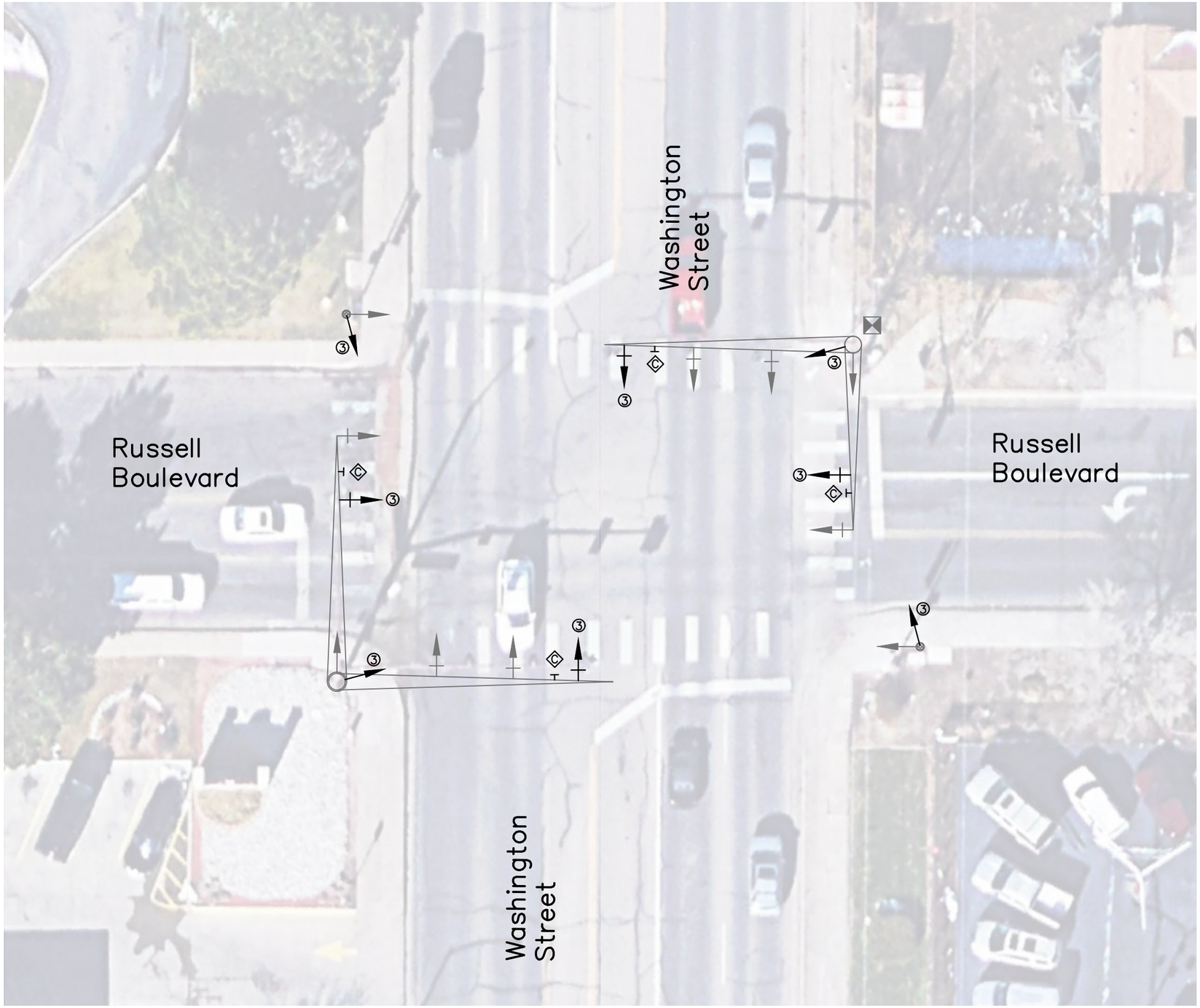
FYA SIGNAL MODIFICATIONS THORNTON PKWY. & HURON ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 11 of 21

Project No.
SHO M286-056
Drawing Number PLAN-011
Sheet Number 42

Plot Date:7/29/2025 10:15 AM Plotted By: Sarah Hemler
R:\G-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\PLAN-001 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

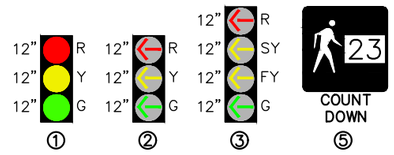
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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FYA SIGNAL MODIFICATIONS WASHINGTON ST. & RUSSELL BLVD. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 12 of 21

Project No.
SHO M286-056
Drawing Number PLAN-012
Sheet Number 43

Plot Date:7/29/2025 10:15 AM Plotted By: Sarah Hemler
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SIGNAL EQUIPMENT LEGEND

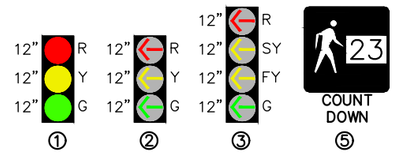
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

N

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Plot Date:7/29/2025 10:15 AM Plotted By: Sarah Hemler
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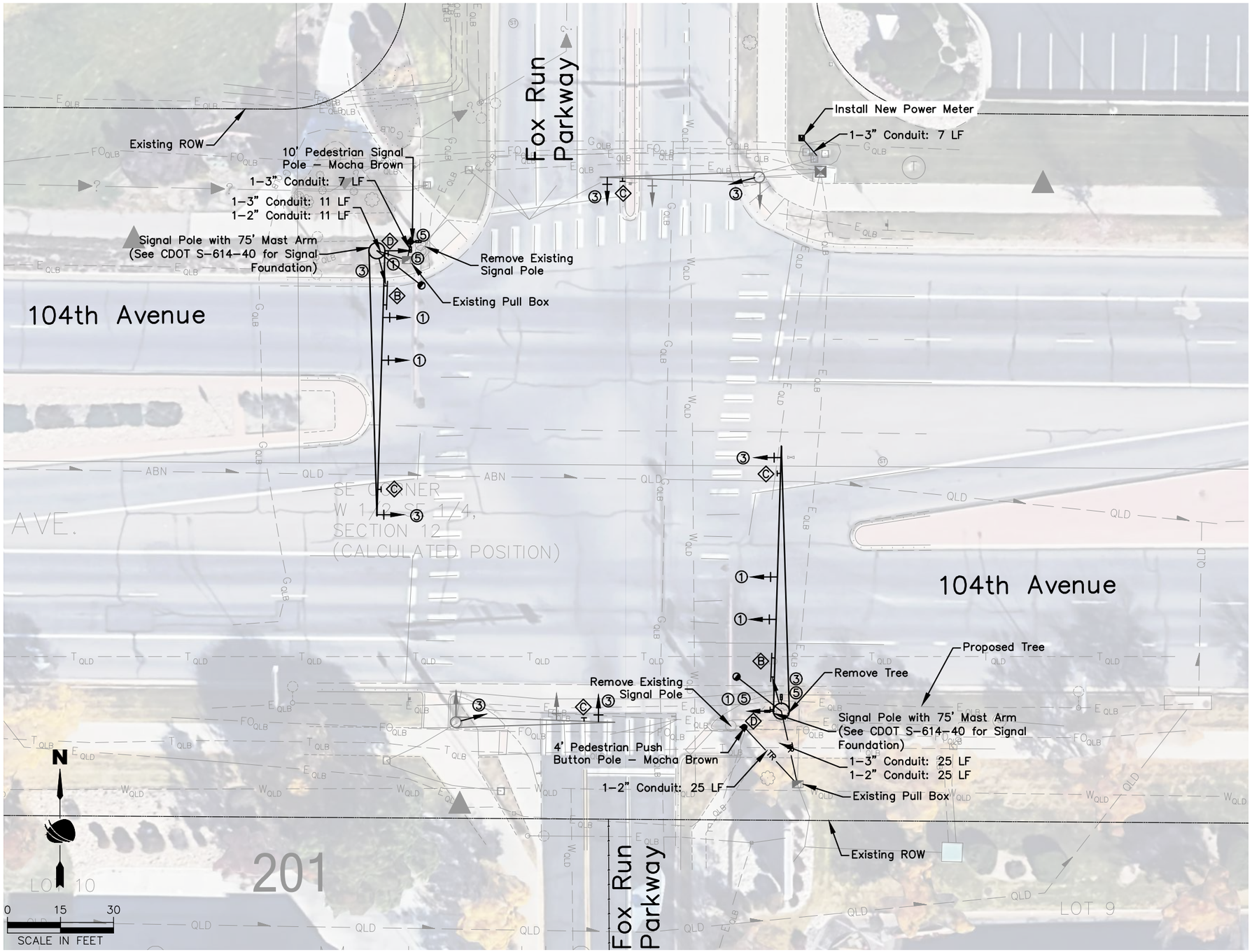
FYA SIGNAL MODIFICATIONS 100TH AVE. & MCKAY BLVD. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 13 of 21

Project No.
SHO M286-056
Drawing Number PLAN-013
Sheet Number 44



SIGNAL EQUIPMENT LEGEND

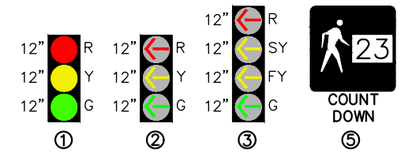
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



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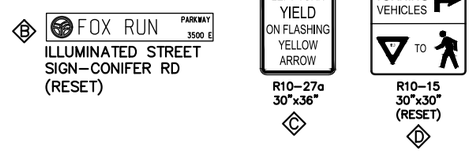

NOTES:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. Reset existing fire preemption from existing mast arm to new signal pole.
4. 250W equivalent LED luminaire to be installed on the northwest signal pole, 400W equivalent LED luminaire to be installed on the southeast signal pole.
5. All existing overhead signals shall have their back plates modified to have a 2–inch yellow retroreflective border.

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FYA SIGNAL MODIFICATIONS 104TH AVE. & FOX RUN PKWY. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 14 of 21

Project No. SHO M286–056
Drawing Number PLAN–014
Sheet Number 45

Plot Date:7/29/2025 10:15 AM Plotted By: Sarah Hemler
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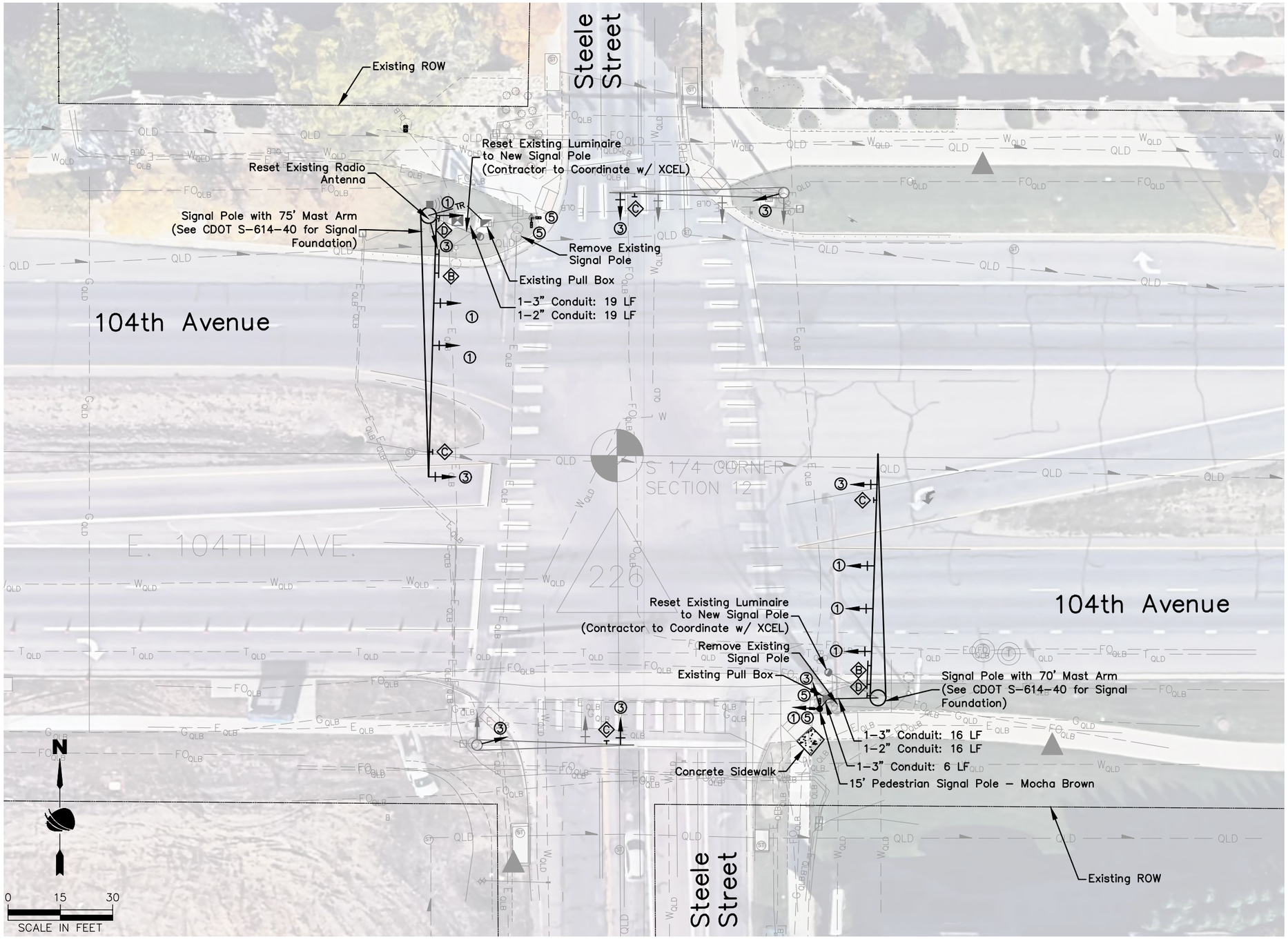


SIGNAL EQUIPMENT LEGEND

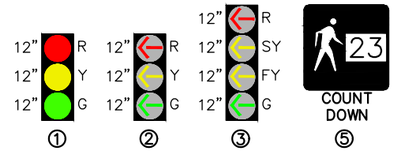
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

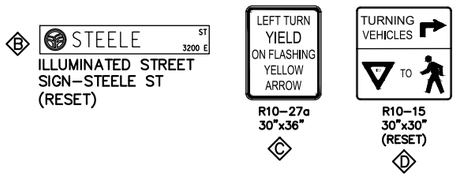
EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND



NOTES:

1. Coordinate with City of Thornton for interim signal operations and switchover to new signals.
2. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
3. Reset existing cameras, radio, and fire preemption from existing mast arm to new signal pole.
4. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

Know what's below. Call before you dig.

'FOR ADVERTISEMENT 9/15/2025

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Print Date: 7/29/2025
File Name: PLAN-012 PLAN SHEET.DWG
Horiz. Scale: As Noted Vert. Scale: N/A

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12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

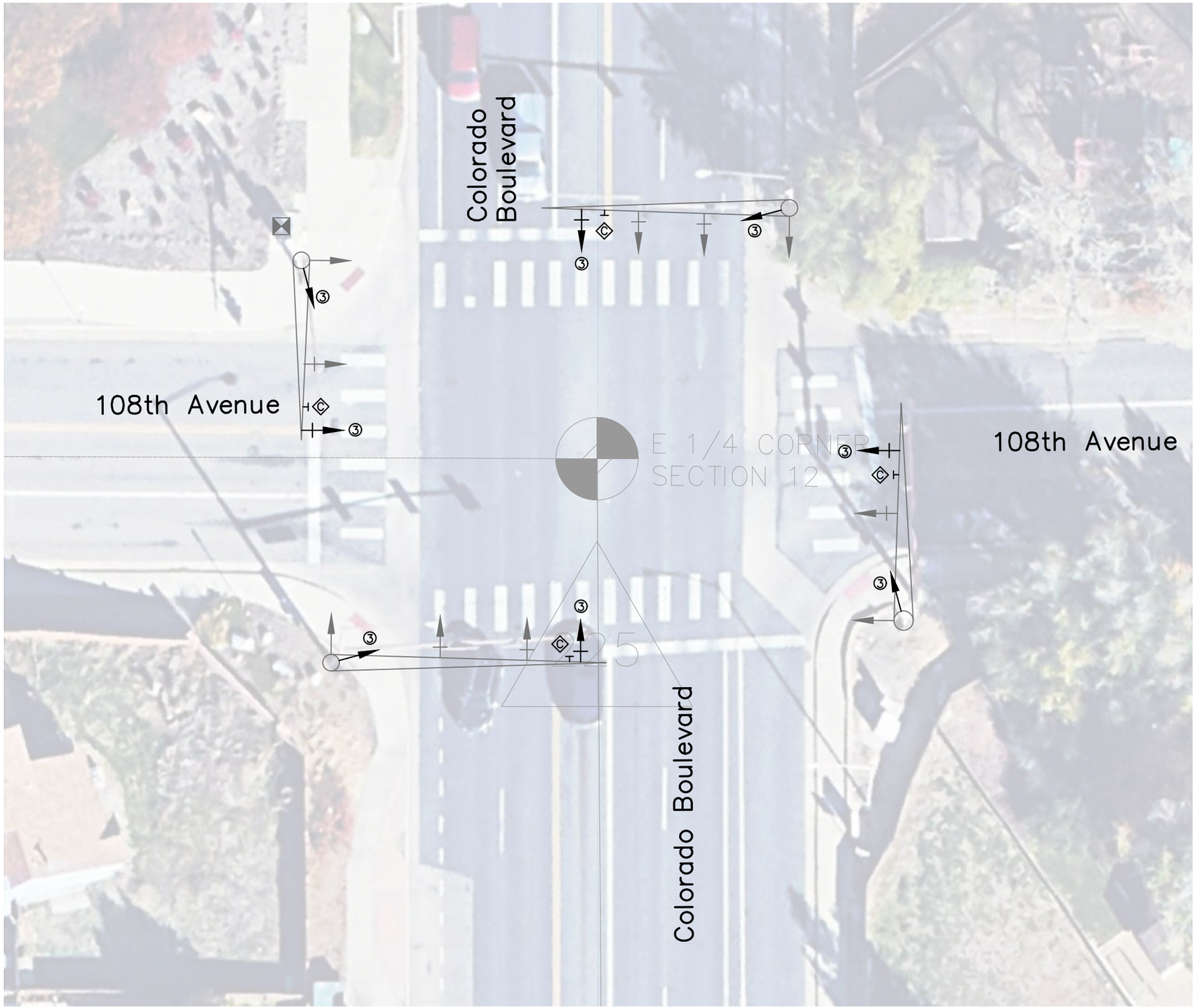
No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS 104TH AVE. STEELE ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 15 of 21

Project No. SHO M286-056
Drawing Number PLAN-015
Sheet Number 46

Plot Date: 7/29/2025 10:15 AM Plotted By: Sarah Hemler
R:\G-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\PLAN-012 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

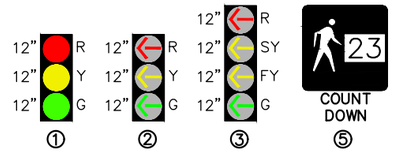
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

Know what's below. Call before you dig.

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Plot Date: 7/29/2025, 10:15 AM Plotted By: Sarah Hemler
R:\JO-PROJECTS\ACTIVE PROJECTS\34001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\600_COMPUTER DESIGN FILES\602_SHEET FILES\PLAN-012 PLAN SHEET.DWG

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Sheet Revisions

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:

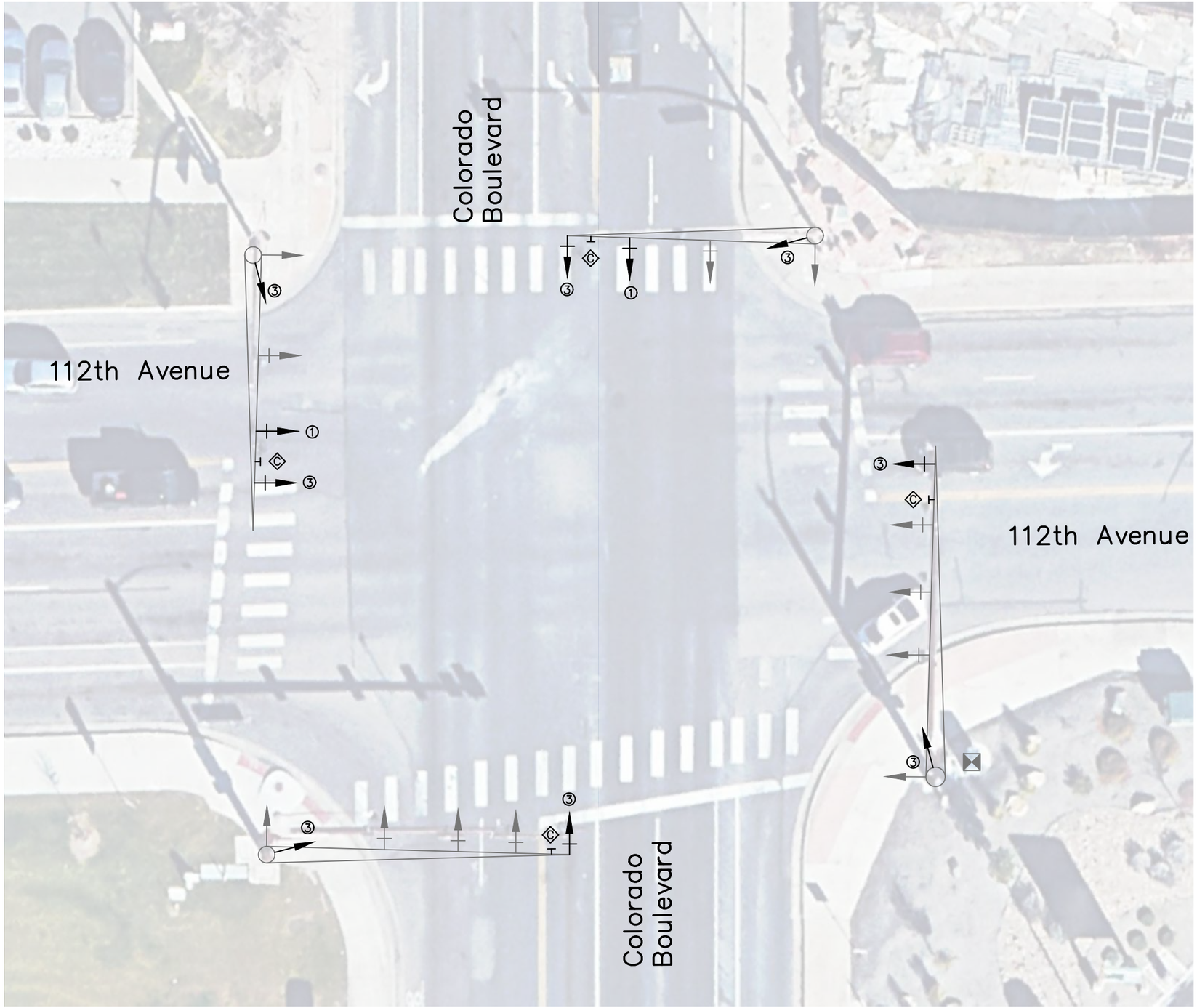
Revised:

Void:

FYA SIGNAL MODIFICATIONS
108TH AVE. & COLORADO BLVD.
PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 16 of 21

Project No.
SHO M286-056
Drawing Number PLAN-016
Sheet Number 47



SIGNAL EQUIPMENT LEGEND

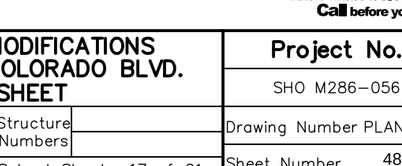
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTES:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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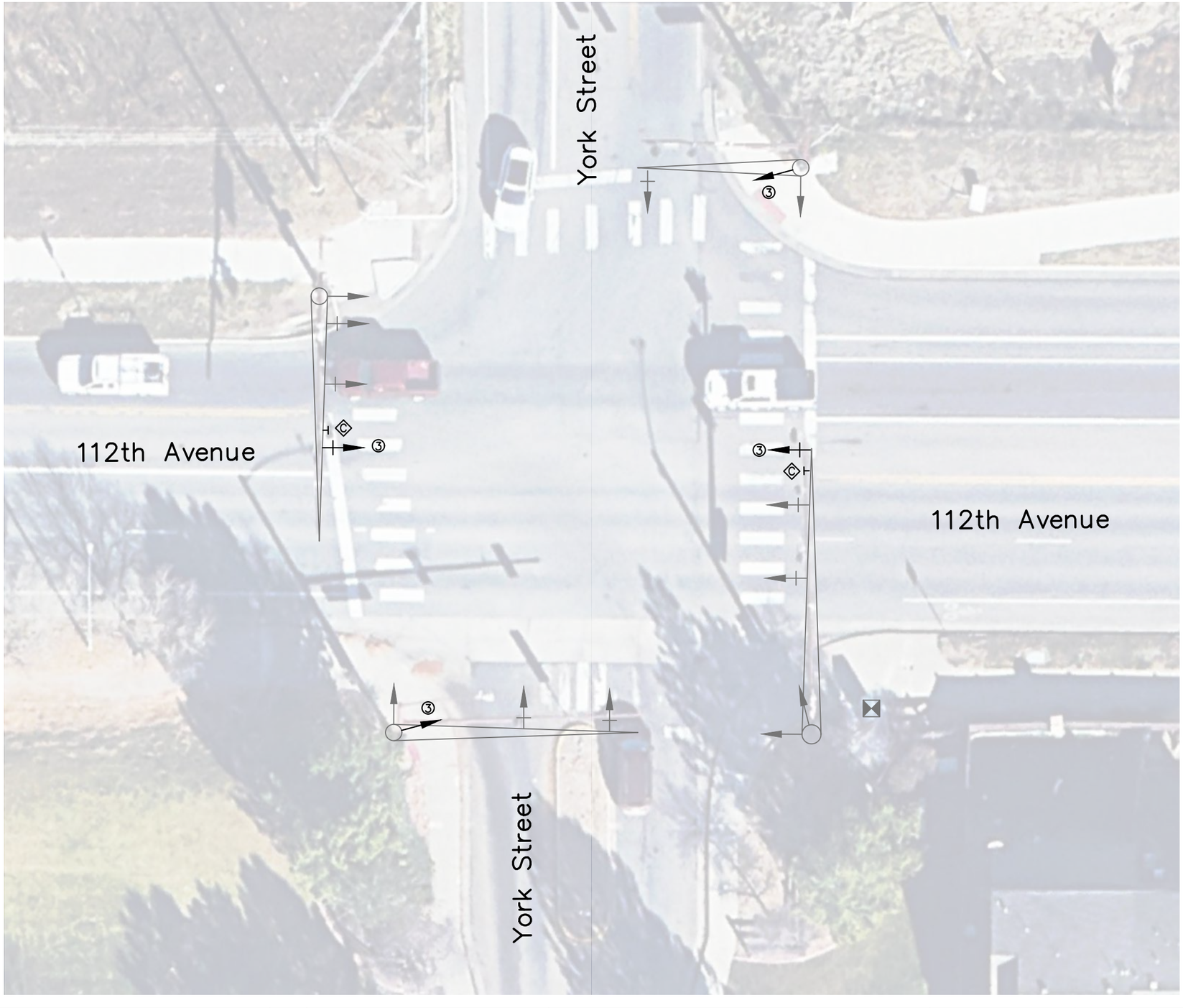
FYA SIGNAL MODIFICATIONS 112TH AVE. & COLORADO BLVD. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 17 of 21

Project No.
SHO M286-056
Drawing Number PLAN-017
Sheet Number 48

Plot Date: 7/29/2025 10:16 AM Plotted By: Sarah Hemler
R:\0-PROJECTS\ACTIVE PROJECTS\8400_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\PLAN-012 PLAN SHEET.DWG



SIGNAL EQUIPMENT LEGEND

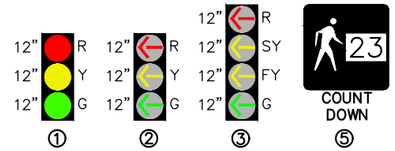
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

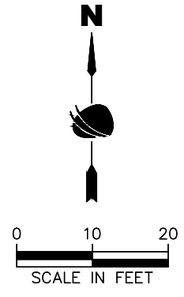
SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.



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12450 WASHINGTON ST.
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As Constructed

No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS 112TH AVE. & YORK ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 18 of 21

Project No. SHO M286-056
Drawing Number PLAN-018
Sheet Number 49

FOR ADVERTISEMENT 9/15/2025

Plot Date: 7/29/2025 10:16 AM Plotted By: Sarah Hemler
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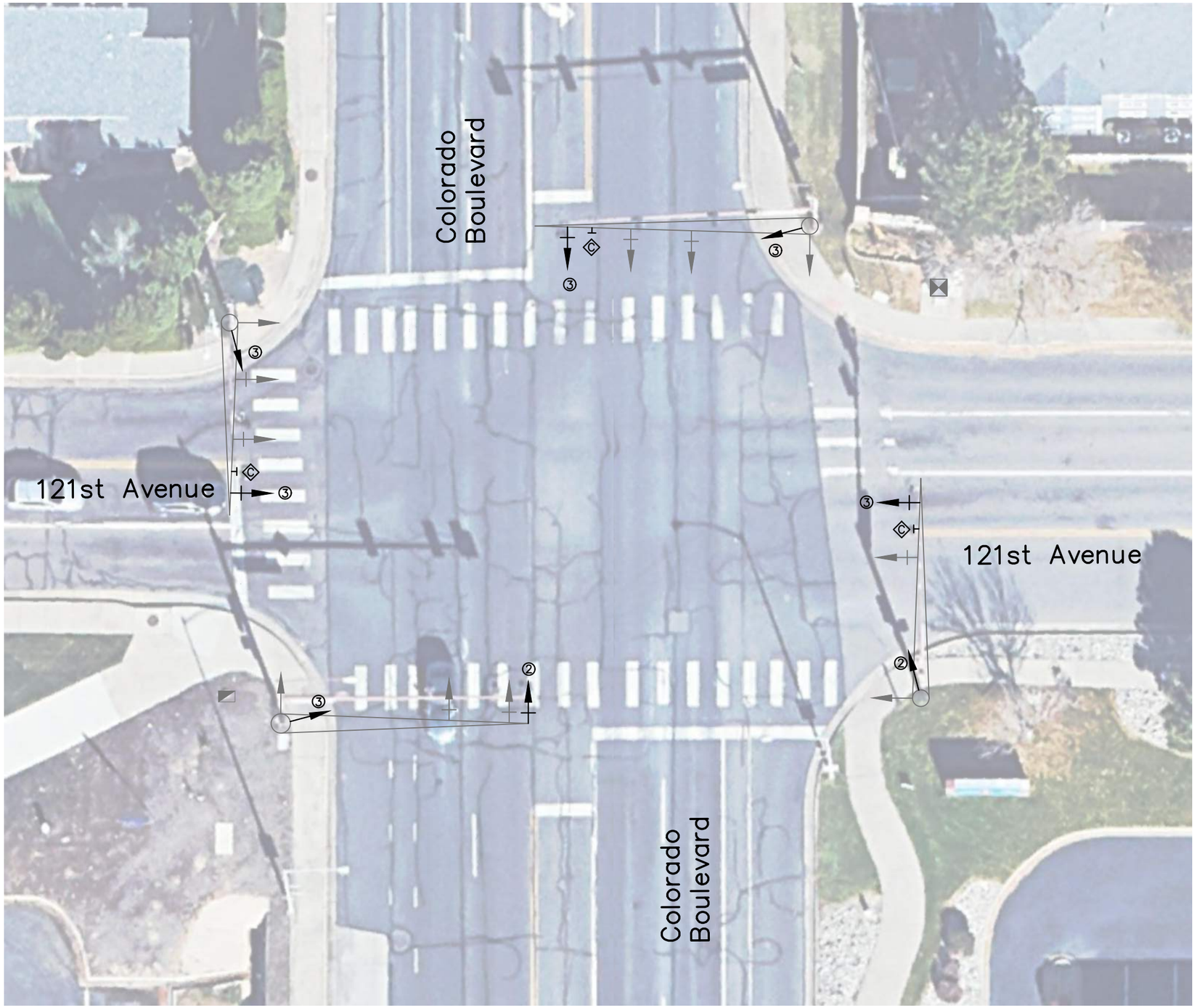


SIGNAL EQUIPMENT LEGEND

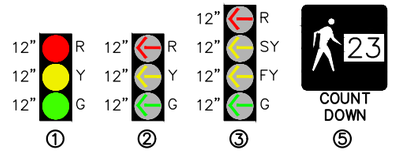
PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

LEFT TURN YIELD ON FLASHING YELLOW ARROW

R10-27a
30"x36"

Ⓒ

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

N

0 10 20

SCALE IN FEET

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No Revisions:

Revised:

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FYA SIGNAL MODIFICATIONS 121ST AVE. & COLORADO BLVD. PLAN SHEET

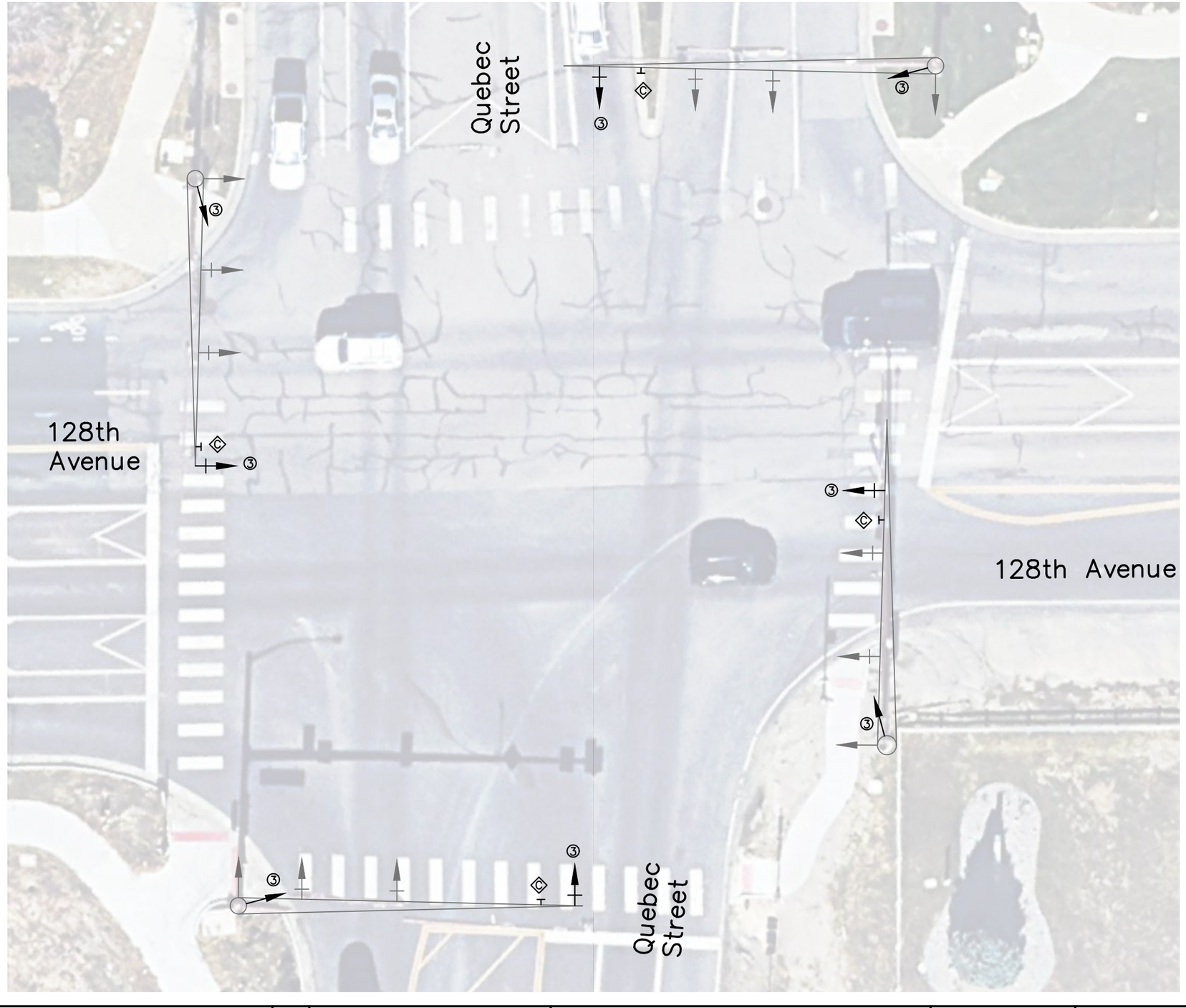
Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 19 of 21

Project No.

SHO M286-056

Drawing Number PLAN-019

Sheet Number 50



SIGNAL EQUIPMENT LEGEND

PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
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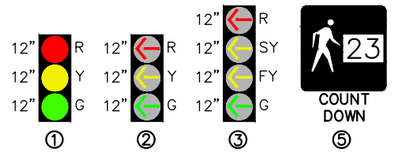
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

- CONTROLLER CABINET
- PULL BOX (24"x36"x18")
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

1. All proposed signal heads to be placed such that they are centered on approach lane. Remove any existing signal heads and signage that conflict with proposed modifications.
2. All existing overhead signals shall have their back plates modified to have a 2-inch yellow retroreflective border.

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· FOR ADVERTISEMENT 9/15/2025

Plot Date: 7/29/2025 10:16 AM Plotted By: Sarah Hemler
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File Name: PLAN-012 PLAN SHEET.DWG
Horiz. Scale: As Noted Vert. Scale: N/A

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Sheet Revisions

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As Constructed

No Revisions:
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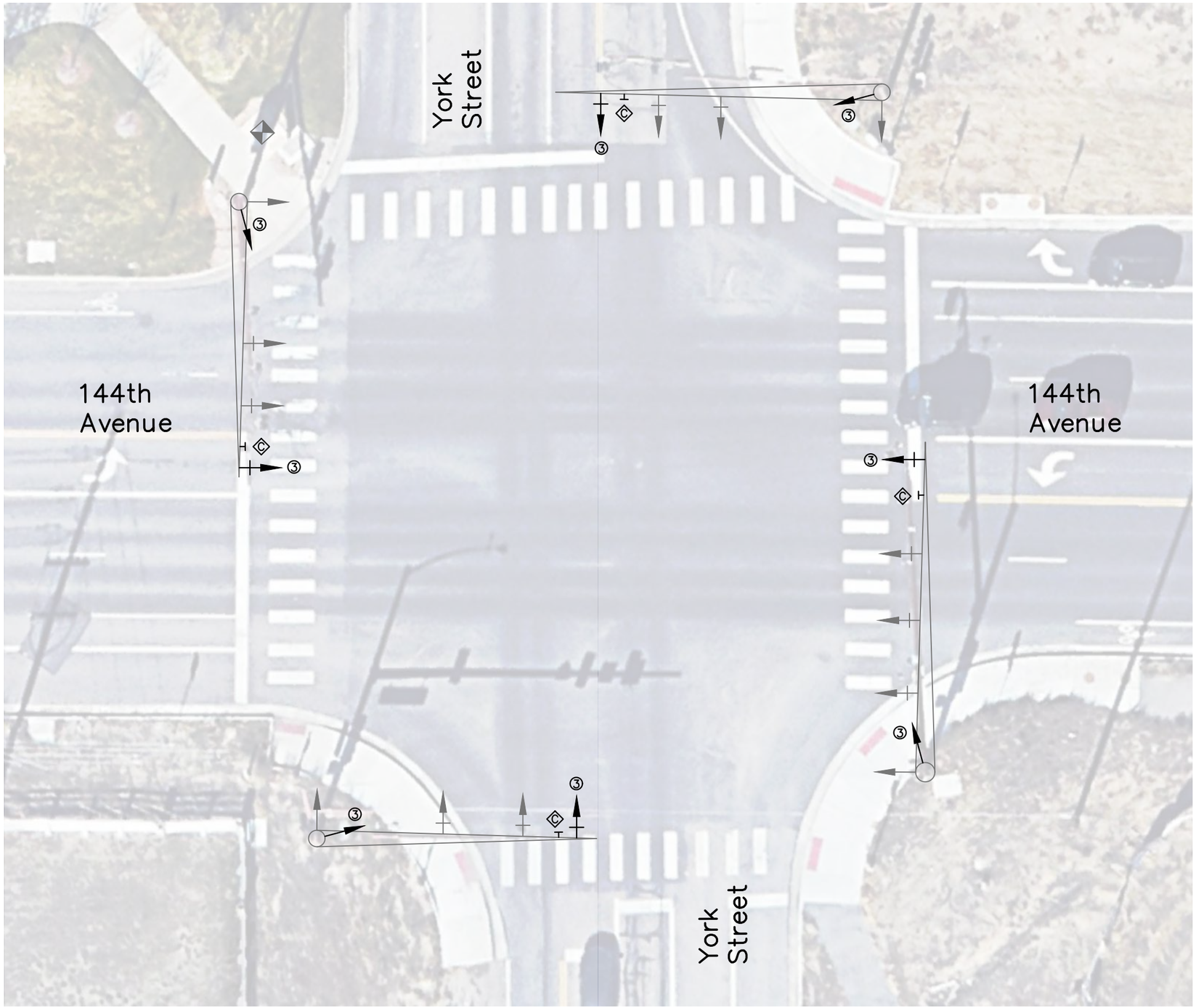
FYA SIGNAL MODIFICATIONS 128TH AVE. & QUEBEC ST. PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 20 of 21

Project No.

SHO M286-056
Drawing Number PLAN-020
Sheet Number 51



SIGNAL EQUIPMENT LEGEND

PROPOSED

- PEDESTRIAN PUSH BUTTON AND SIGN
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- TR — UNDERGROUND CONDUIT
- MAST ARM MOUNTED SIGN
- PULL BOX (24"x36"x18")
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PEDESTAL POLE
- LUMINAIRE

EXISTING

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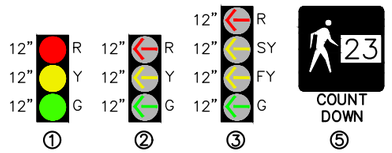
- SIGNAL FACE WITH BACKPLATE
- SIGNAL FACE WITHOUT BACKPLATE
- POLE AND MAST ARM
- LUMINAIRE
- RADIO ANTENNA

SIGNAL HEAD LEGEND



SIGN LEGEND

NOTE:

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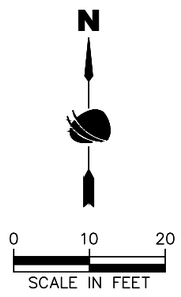

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File Name: PLAN-012 PLAN SHEET.DWG
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Sheet Revisions

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12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:

Revised:

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FYA SIGNAL MODIFICATIONS PLAN SHEET PLAN SHEET

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: Plan
Structure Numbers:
Subset Sheets: 21 of 21

Project No.

SHO M286-056

Drawing Number PLAN-021

Sheet Number 52

POWER, LIGHTING, & TELECOM

- J-BOX
- MOTOR
- CEILING RECEPTACLE
- FLOOR RECEPTACLE
- DUPLEX RECEPTACLE
- FOUR-PLEX RECEPTACLE
- SPLIT DUPLEX RECEPTACLE WITH ONE-HALF CONTROLLED LOAD
- 4-PLEX WITH ONE NON-CONTROLLED LOAD DUPLEX AND ONE CONTROLLED LOAD DUPLEX
- BLANK FACE GFCI PROTECTION DEVICE
- GFI 4-PLEX WITH ONE GFI DUPLEX AND ONE GFI PROTECTED STANDARD DUPLEX
- GFI 4-PLEX WITH ONE NON-CONTROLLED LOAD GFI DUPLEX AND ONE CONTROLLED LOAD GFI DUPLEX
- SPECIAL NEMA RECEPTACLE
- HEAVY DUTY DISCONNECT SWITCH
- MOTOR STARTER
- HEAVY DUTY STARTER-DISCONNECT
- VFD MOTOR STARTER
- VFD HEAVY DUTY STARTER-DISCONNECT
- TRANSFORMER
- SURGE SUPPRESSION DEVICE
- METER
- THERMAL OVERLOAD SW
- BRANCH CIRCUIT PANEL
- TELEPHONE OUTLET
- TELE-DATA OUTLET
- DATA OUTLET
- TELEPHONE OUTLET FLOOR
- TELE-DATA OUTLET FLOOR
- TV OUTLET
- EMERGENCY BATTERY LIGHT
- WALL MOUNTED EXIT SIGN
- CEILING MOUNT EXIT SIGN
- CLG MNT EX/EM LT COMBO
- SURFACE WALL LUMINAIRE
- SURFACE CEILING LUMINAIRE
- KEYLESS LAMP HOLDER
- RECESSED DOWNLIGHT
- RECESSED WALL WASHER
- LUMINAIRE STRIP
- SURFACE OR WALL LUMINAIRE
- RECESSED LUMINAIRE
- RECESSED LUMINAIRE 1x4
- TRACK LIGHTING
- PARKING LOT POLE LIGHT
- PEDESTRIAN POLE LUMINAIRE
- FLOOD LUMINAIRE
- SWITCH
- 3-WAY SWITCH
- OCCUPANCY SENSOR SWITCH
- OCC. SENSOR DIMMER SWITCH
- LOW VOLTAGE SWITCH
- TIMER SWITCH
- DIMMER SWITCH
- PHOTOCELL
- OCCUPANCY SENSOR
- OCC. SEN. POWER PACK
- ROOM CONTROLLER
- TIME CLOCK
- CLOCK-WALL MOUNT
- CLOCK/SPEAKER IN COMBINATION BACK-BOX
- SPEAKER-WALL MOUNT
- SPEAKER HORN-WALL MOUNT
- SPEAKER-RECESSED CEILING (HARD CEILING)
- SPEAKER-RECESSED CEILING (LAYIN GRID CEILING)
- SPEAKER-SURFACE OR

GENERAL

- SECTION BUBBLE
  - * SECTION LETTER
  - # REFERENCE DWG NUMBER
- REFERENCE BUBBLE
  - * SECTION NUMBER
  - # REFERENCE NUMBER
- REVISION NUMBER
- EQUIPMENT TAG
- DRAWING NOTE
- FLAG NOTE
- BREAKLINE
- MATCHLINE
- WIREMOLD
- OVERHEAD PRIMARY ELECTRIC
- OVERHEAD SECONDARY ELECTRIC
- UNDERGROUND PRIMARY ELECTRIC
- UNDERGROUND SECONDARY ELECTRIC
- UNDERGROUND BRANCH ELECTRIC
- OVERHEAD BRANCH ELECTRIC
- UNDERGROUND COMMUNICATION
- BOLD LINEWEIGHT AND/OR "N" INDICATES NEW DEVICE OR EQUIPMENT
- BOLD LINEWEIGHT AND/OR "R" INDICATES DEVICE OR EQUIPMENT TO BE REPLACED
- LIGHT LINEWEIGHT AND/OR "E" INDICATES EXISTING DEVICE TO REMAIN
- DASHED LINETYPE AND/OR "D" INDICATES DEVICE TO BE REMOVED / DEMOLISHED

ELECTRONIC SAFETY & SECURITY

- MAGNETIC DOOR HOLD
- SMOKE DETECTOR
- THERMAL DETECTOR
- DUCT SMOKE DETECTOR
- MANUAL PULL STATION
- COMBO SPEAKER/STROBE
- CEILING ALARM STROBE LIGHT
- WALL ALARM STROBE LIGHT
- ALARM SPEAKER OR HORN
- REMOTE INDICATOR LIGHT
- FLOW SWITCH
- TAMPER SWITCH
- CONTROL MODULE
- MONITOR MODULE
- BEAM DETECTION TRANSMITTER
- BEAM DETECTION RECEIVER
- CARBON MONOXIDE DETECTOR
- REMOTE TEST SWITCH
- AIPHONE MONITOR STATION
- AIPHONE INTERCOM STATION
- ELECTRIC DOOR HARDWARE
- GLASS BREAK DETECTOR
- CAMERA
- MOTION SENSOR
- CARD READER
- DOOR POSITION SWITCH
- DOOR STRIKE
- SECURITY CONTROL KEYPAD

DEFINITIONS

AC	INDICATES ABOVE COUNTER, COORDINATE EXACT HEIGHT
ACS	ACCESS CONTROL SYSTEM
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CAPACITY
ANN	FIRE ALARM ANNUNCIATOR PANEL
AV	AUDIOVISUAL
BC	INDICATES BELOW COUNTER, COORDINATE EXACT HEIGHT
CT	CURRENT TRANSFORMER
D	INDICATES EXISTING DEVICE TO BE REMOVED
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
DLZ#	DAYLIGHT ZONE AREA
E	INDICATES EXISTING DEVICE TO REMAIN AS IS
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL / ELECTRONIC
EOL	END-OF-LINE
EMT	ELECTRICAL METALLIC TUBING (THINWALL CONDUIT)
(EX)	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METALLIC CONDUIT
GC	GENERAL CONTRACTOR
GFI	INDICATES GROUND FAULT CIRCUIT INTERRUPT DEVICE
HDMI	HIGH-DEFINITION MULTIMEDIA INTERFACE
HVAC	HEATING, VENTILATION AIR CONDITIONING
IDF	INTERMEDIATE DISTRIBUTION FACILITY
Isc	SHORT CIRCUIT CURRENT
ISP	INSIDE PLANT
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LFC	LIQUIDTIGHT FLEXIBLE CONDUIT
MCA	MINIMUM CIRCUIT AMPS
MCCB	MOLDED-CASE CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FACILITY
MOCP	MAXIMUM OVERCURRENT PROTECTION
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEC	NATIONAL ELECTRICAL CODE NFPA 70
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OAD	OVERALL DROP
OSP	OUTSIDE PLANT
OCPD	OVERCURRENT PROTECTIVE DEVICE
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PVC	POLYVINYL CHLORIDE CONDUIT
R	INDICATES EXISTING DEVICE TO BE REPLACED
RL	INDICATES EXISTING DEVICE TO BE RELOCATED TO POSITION SHOWN
RNC	RIGID NONMETALLIC CONDUIT
RSC	RIGID STEEL CONDUIT
RZC	RECEPTACLE ZONE CONTROLLER
SDS	SECURITY DETECTION SYSTEM
SLC	SIGNALING LOOP CIRCUIT
SPD	INDICATES SURGE SUPRESSION DEVICE
SSC	ELECTRONIC SECURITY SYSTEMS CONTRACTOR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TELECOMMUNICATIONS CABLING CONTRACTOR
TGB	TELECOMMUNICATIONS GROUNDING BUS BAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
USB	UNIVERSAL SERIAL BUS
VFD	INDICATES VARIABLE FREQUENCY MOTOR DRIVE
VSS	VIDEO SURVEILLANCE SYSTEM
WAN	WIDE AREA NETWORK
WP	INDICATES WEATHERPROOF EQUIPMENT/DEVICE

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Sheet Revisions

	Date	Comments	Initials
1	5.15.25	CONSTRUCTION DOCS	DA
2			
3			
4			

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No Revisions:
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FYA SIGNAL MODIFICATIONS
ELECTRICAL LEGEND
84TH & CONIFER

Designer:	AEI	Structure Numbers	
Detailer:	DJA		
Sheet Subset:	E	Subset Sheets:	1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 58 E00

PROJECT GENERAL NOTES

REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INSTALLATION REQUIREMENTS.

THE ELECTRICAL INSTALLATION SHALL BE IN COMPLIANCE WITH THE FOLLOWING: NATIONAL ELECTRICAL CODE (NEC) LOCAL ENFORCED EDITION.

CIRCUITING ROUTING SHOWN IS DIAGRAMMATIC. CIRCUIT DESIGNATIONS ARE INDICATED AND SHALL BE STRICTLY FOLLOWED. ALL CIRCUITING SHALL BE COPPER CONDUCTORS IN CONDUIT (3/4" MINIMUM). CONTRACTOR SHALL PROVIDE ALL WIRE, CONDUIT, JUNCTION/PULL BOXES, AND SUPPORTS ETC. FOR A COMPLETE ELECTRICAL SYSTEM.

ALL NEW (120V OR 277V SINGLE PHASE) BRANCH CIRCUIT WIRING SHALL ORIGINATE AT SINGLE POLE BREAKERS AND SHALL BE INSTALLED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR. THE NEUTRAL CONDUCTOR SHALL HAVE A TRACER STRIPE (THE STRIPE COLOR SHALL MATCH THE COLOR OF THE PHASE CONDUCTOR).

ALL DISTRIBUTION AND BRANCH CIRCUIT FEEDERS SHALL BE PROVIDED WITH AN INSULATED, GREEN GROUND WIRE.

ANY SURFACE MOUNTED CONDUIT MOUNTED TO FINISHED SURFACES OR LOCATED IN FINISHED SPACES SHALL BE PAINTED TO MATCH THE SURFACE ON WHICH IT IS MOUNTED.

CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS FOR ALL EXISTING EQUIPMENT, CONDUIT (RIGID AND FLEX), AS WELL AS CABLE LOCATED ABOVE THE CEILING. SUPPORT FROM STRUCTURE AS REQUIRED BY NEC.

INSULATION COLOR: ALL INSULATED CONDUCTORS (SERVICE ENTRANCE, FEEDER, AND BRANCH CIRCUIT) SHALL HAVE FULL COLORED INSULATION, COLORS AS SPECIFIED IN SECTION 26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS, FOR THE ENTIRE LENGTH OF THE CONDUCTOR. NEUTRAL CONDUCTORS INSTALLED, IN COMPLIANCE WITH THE NEC-LATEST EDITION FOR EACH SINGLE POLE BREAKER, SHALL HAVE A TRACER STRIPE TO MATCH THE CORRESPONDING PHASE CONDUCTOR COLOR.

USE OF AC, NM, ENT, OR OTHER MANUFACTURED PRE-WIRED SYSTEMS CABLE IS PROHIBITED.

FOR STEEL CONDUIT LARGER THAN 1/2-INCH SIZE, PROVIDE STEEL INSULATED TYPE BUSHINGS, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT GROUNDING SYSTEM. GROUNDING BUSHINGS SHALL BE LOCKING TYPE AND SHALL BE PROVIDED WITH A FEED-THROUGH COMPRESSION LUG FOR SECURING THE GROUND CABLES. PROVIDE LISTED WATERPROOF FITTINGS FOR ALL CONDUIT IN WET LOCATIONS, SUCH AS EXPOSED TO WEATHER.

GROUNDING BUSHINGS SHALL BE STEEL AND INSTALLED AT BOTH ENDS OF THE CONDUIT ON ALL FEEDERS, AS WELL AS ALL TRANSFORMER, MOTOR, MOTOR CONTROLLER, KITCHEN, AND TVSS EQUIPMENT BRANCH CIRCUITS.

LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE PROVIDED IN SUFFICIENT LENGTHS FOR MAKEUP OF MOTORS, TRANSFORMERS, OR EQUIPMENT, AND/OR RACEWAY CONNECTIONS WHERE ISOLATION OF SOUND AND VIBRATION TRANSMISSION IS REQUIRED.

BOXES SHALL BE PRESSED STEEL, GALVANIZED OR CADMIUM-PLATED (4-INCH X 2 1/8" DEEP MINIMUM SQUARE FOR ALL WALL LOCATIONS, 4 11/16-INCH X 2 1/8" DEEP MINIMUM SQUARE FOR ALL ABOVE CEILING LOCATIONS). SURFACE-MOUNTED DEVICE BOXES MOUNTED BELOW 8 FEET AFF SHALL BE (BELL) CAST-TYPE BOXES WITH THREADED KNOCK-OUTS (PROVIDE WITH KNOCK-OUTS ONLY AS REQUIRED BY CONDUIT ENTERING/LEAVING).

DEVICE COVERPLATES: PROVIDE IDENTIFICATION OF CIRCUITS AT ALL INDIVIDUAL WALL SWITCHES, RECEPTACLES, AND CONTROL DEVICE STATIONS. IDENTIFY CIRCUITS WITH PREPRINTED LABEL ON THE FRONT SIDE OF THE COVERPLATE AS WELL AS IDENTIFY CIRCUITS WITH PERMANENT INK MARKER ON THE BACKSIDE OF THE COVERPLATE.

ALL PANELS WITH CIRCUITS INDICATED TO BE MODIFIED IN THESE DOCUMENTS SHALL BE PROVIDED WITH AN UPDATED, TYPED, PANEL DIRECTORY. INCLUDE CONTRACTOR'S CONTACT INFORMATION AND CLOSE-OUT DATE OF THE PROJECT.

EQUIPMENT IDENTIFICATION LABELS: ENGRAVED PLASTIC LAMINATE. INSTALL ON EACH UNIT OF EQUIPMENT, INCLUDING CENTRAL OR MASTER UNIT OF EACH SYSTEM. APPLY LABELS FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF EQUIPMENT USING MECHANICAL FASTENERS:

DISTRIBUTION AND CONTROL EQUIPMENT
- IDENTIFY EQUIPMENT AS WELL AS LOADS SERVED
- 1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
- [illegible] LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
- [illegible] YPE
- [illegible] UIT & WIRE SIZE)
- 1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

INDIVIDUAL CIRCUIT BREAKERS AND SWITCHES IN PANELBOARDS AND SWITCHBOARDS:
- 1/8 INCH LETTERING TO IDENTIFY CIRCUIT AND LOAD SERVED, INCLUDING LOCATION.
- 1/8 INCH LETTERING TO IDENTIFY FEEDER INFORMATION

PANELBOARDS, SWITCHBOARDS, ELECTRICAL CABINETS, INDIVIDUAL CIRCUIT BREAKERS, DISCONNECT SWITCHES, AND MOTOR STARTERS:
- 1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
- 1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
- 1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
- 1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

SITE PLAN GENERAL NOTES

ALL WIRING SHALL BE IN COMPLIANCE WITH THE NEC LATEST EDITION: ALL MULTI-WIRE BRANCH CIRCUITS (120V OR 277V SINGLE PHASE CIRCUITS) IDENTIFIED IN THE PANEL SCHEDULES ORIGINATING FROM SINGLE POLE BREAKER SHALL BE INSTALLED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR. THE NEUTRAL CONDUCTOR SHALL HAVE A TRACER STRIPE (THE STRIPE COLOR SHALL MATCH THE COLOR OF THE PHASE CONDUCTOR).

REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL INSTALLATION, CONDUIT DEPTHS, AND SPECIFICATION REQUIREMENTS. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE TO THE MOST CURRENT LOCAL CODES AND THE NEC LATEST EDITION.

ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC WITH PVC COATED GRC ELBOWS AND RISERS TO 4 FEET ABOVE GRADE AND 1 INCH MINIMUM DIAMETER, UNLESS NOTED OTHERWISE.

ALL UNDERGROUND COMMUNICATION, ELECTRICAL FEEDER, AND BRANCH CIRCUITS SHALL BE INSTALLED A MINIMUM OF 30 INCHES BELOW GRADE WITH BURIED ELECTRICAL WARNING TAPE INSTALLED DIRECTLY ABOVE BETWEEN 6 AND 12 INCHES BELOW GRADE. CONTRACTOR SHALL PROVIDE PULL BOXES AS REQUIRED TO MINIMIZE THE NUMBER OF BENDS TO MEET CODE.

UNDERGROUND CONDUIT IS INDICATED BY DASHED LINES, UBE, USE, UPE, OR UC.

ROUTE ALL UNDERGROUND CONDUITS A MINIMUM OF 5' FROM TREE DRIP LINES AND AVOID ROUTING UNDERGROUND CONDUITS WITHIN OR CROSSING DRAINAGE SWALES OR DETENTION AREAS/PONDS.

ALL NEW CIRCUITS SHALL HAVE GROUNDING CONDUCTORS IN ALL FEEDERS AND BRANCH CIRCUITS.

FOR ALL WEATHERPROOF RECEPTACLE COVERS PROVIDE CAST ALUMINUM, WHILE-IN-USE WEATHERPROOF TYPE COVERS, HUBBELL-MG58XX SERIES OR EQUAL.

ALL EXTERIOR RECEPTACLES SHALL BE GFI PROTECTED DEVICES AND HAVE WEATHERPROOF COVERS.

ELECTRICAL SPECIFICATIONS

GENERAL

FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON DRAWINGS AND/OR LISTED BELOW AND ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT INFERRED FOR A COMPLETE INSTALLATION, INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND READY FOR OPERATION.

STANDARDS FOR MATERIALS

ALL MATERIALS SHALL BE NEW, LISTED, LABELED, AND CONFORM WITH THE CURRENT APPLICABLE INDUSTRY STANDARDS. WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS ELECTRICAL AND MECHANICAL OPERATION. DEFECTIVE OR DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL ACCEPTANCE IN A MANNER MEETING APPROVAL OF THE OWNER/ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO OWNER.

THE LATEST EDITIONS OF THE FOLLOWING STANDARDS ARE MINIMUM REQUIREMENTS.
- UNDERWRITERS' LABORATORIES, INC. (UL)
- NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
- AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- ELECTRICAL TESTING LABORATORIES (ETL)
- INDEPENDENT TESTING LABORATORIES (ITL)
- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA)
- NATIONAL ELECTRICAL CODE (NEC)

THE TERMS "LISTED AND LABELED": AS DEFINED IN THE "NATIONAL ELECTRICAL CODE," ARTICLE 100.

LISTING AND LABELING AGENCY QUALIFICATIONS: A "NATIONALLY RECOGNIZED TESTING LABORATORY" (NRTL) AS DEFINED IN OSHA REGULATION 1910.7.

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL COMPLY WITH LATEST RULES, CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: OSHA, NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

DRAWINGS

DRAWINGS INDICATE GENERAL ARRANGEMENT OF CIRCUITS, LOCATIONS OF EQUIPMENT, PANELBOARDS AND OTHER WORK. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER, AND WHAT IS CALLED FOR BY ONE SHALL BE BINDING AS IF CALLED FOR BY BOTH. DATA PRESENTED ON DRAWINGS IS AS ACCURATE AS PLANNING CAN DETERMINE, BUT ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC. TO SUIT FIELD CONDITIONS IS DIRECTED.

JOB CONDITIONS

REVIEW THE EXISTING CONDITIONS OF THE PROJECT SITE AND ADJUST ALL WORK TO CONFORM TO THE EXISTING CONDITIONS.

RECORD DOCUMENTS

MAINTAIN ONE SET OF PROJECT RECORD DRAWINGS INDICATING INSTALLED CONDITIONS FOR: MAJOR RACEWAY SYSTEMS, SIZE AND LOCATION; LOCATIONS OF CONTROL DEVICES; DISTRIBUTION AND BRANCH ELECTRICAL CIRCUITRY; AND FUSE AND CIRCUIT BREAKER SIZE AND ARRANGEMENTS. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT PROJECT FEATURES. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

OPERATIONAL CHECK

CHECK CLEANLINESS OF ALL INTERIORS AND ALL PARTS. REMOVE ANY EXCESS PACKING, SHIPPING BOLTS, ETC.

TIGHTEN ALL POINTS OF CONNECTION.

VERIFY PROPER OPERATING CONDITIONS OF ALL EQUIPMENT MECHANICALLY AND ELECTRICALLY.

AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL, RUBBISH, AND OTHER DEBRIS FROM AND ABOUT THE WORK, AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIALS, AND SHALL LEAVE THE WORK "BROOM CLEAN," UNLESS OTHERWISE SPECIFIED, AND READY FOR OCCUPANCY BY THE OWNER. SUCH CLEANUP SHALL INCLUDE, AS APPLICABLE AND WITHOUT LIMITATION, THE FOLLOWING:

REMOVAL OF ALL MARKS, STAINS, FINGERPRINTS, AND OTHER SOIL OR DIRT FROM ANY AND ALL PAINTED OR DECORATED SURFACES.

CLEANING AND POLISHING OF ALL HARDWARE, INCLUDING REMOVAL OF ALL STAINS, DUST, DIRT, PAINT, ETC.

RESTORED TO THEIR ORIGINAL CONDITION OF THOSE PORTIONS OF THE SITE WHICH WERE NOT DESIGNATED FOR ALTERATION BY THE CONTRACT DOCUMENTS BUT WHICH HAVE BEEN AFFECTED BY THE CONTRACTOR'S OPERATIONS.

REMOVAL OF ALL TEMPORARY CONSTRUCTION OR PROTECTION AND REMOVAL FROM THE PREMISES OF ALL ITEMS OF ANY NATURE WHATSOEVER WHICH WERE INSTALLED OR USED FOR TEMPORARY PURPOSES DURING THE CONSTRUCTION.

IF THE CONTRACTOR FAILS TO PROPERLY CLEAN UP, THE OWNER MAY DO SO AND THE COST THEREOF SHALL BE CHARGED TO THE CONTRACTOR.

GUARANTEE

LEAVE ENTIRE ELECTRICAL SYSTEM INSTALLED UNDER THIS DIVISION IN PROPER WORKING ORDER. REPLACE, WITHOUT ADDITIONAL CHARGE, ANY WORK MATERIALS OR EQUIPMENT PROVIDED UNDER THIS DIVISION WHICH DEVELOPS DEFECTS WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE. GUARANTEE ALL MATERIALS AND EQUIPMENT AGAINST DEFECTS IN COMPOSITION, DESIGN OR WORKMANSHIP.

BASIC ELECTRICAL MATERIALS AND METHODS

RACEWAYS

EMT: ELECTRICAL METALLIC TUBING; ANSI C80.3, ZINC-COATED STEEL, WITH SET-SCREW COMPRESSION FITTINGS.

RMC: RIGID METAL CONDUIT; GALVANIZED RIGID STEEL; ANSI C80.1.

RNC: RIGID NONMETALLIC CONDUIT; NEMA TC 2, SCHEDULE 40 PVC (SCHEDULE 80 PVC WHERE INDICATED ON THE DRAWINGS), WITH NEMA TC3 FITTINGS.

LFMC: LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT, ZINC-COATED STEEL WITH SUNLIGHT-RESISTANT AND MINERAL-OIL-RESISTANT PLASTIC JACKET, UL 514C.

RIGID METALLIC CONDUIT (RMC): RMC SHALL BE HEAVY WALL, HOT DIPPED GALVANIZED STEEL INSIDE AND OUT WITH THREADED ENDS. PLASTIC-COATED RIGID STEEL CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT HAVING A 0.030" MINIMUM THICK FACTORY-BONDED PVC JACKET, USING PRE-JACKETED COUPLINGS.

RACEWAY FITTINGS: SPECIFICALLY DESIGNED FOR RACEWAY TYPE WITH WHICH USED.

RACEWAY APPLICATION FOR INDOOR INSTALLATIONS:
- EXPOSED: EMT.
- CONCEALED IN WALLS OR CEILINGS: EMT.
- CONNECTIONS TO VIBRATING EQUIPMENT: LFMC
- BOXES AND ENCLOSURES: NEMA 1, UNLESS OTHERWISE INDICATED.

RACEWAY APPLICATIONS FOR OUTDOOR INSTALLATIONS:
- BOXES AND ENCLOSURES: NEMA 250, TYPE 3R OR TYPE 4, UNLESS OTHERWISE INDICATED.
- USE RNC FOR HORIZONTAL RUNS WITH RMC RISERS AND ELBOWS FOR ALL BELOW GRADE INSTALLATIONS.

UNDERGROUND FEEDERS AND BRANCH CIRCUITS: INSULATED SINGLE CONDUCTORS IN RACEWAY.

INSTALL CONTINUOUS UNDERGROUND PLASTIC WARNING TAPE DURING TRENCH BACKFILLING, FOR EXTERIOR UNDERGROUND POWER, CONTROL, SIGNAL, AND COMMUNICATION LINES LOCATED DIRECTLY ABOVE POWER AND COMMUNICATION LINES. LOCATE 6 TO 8 INCHES (150 TO 200 MM) BELOW FINISHED GRADE. IF WIDTH OF MULTIPLE LINES INSTALLED IN A COMMON TRENCH OR CONCRETE ENVELOPE DOES NOT EXCEED 16 INCHES (400 MM), OVERALL, USE A SINGLE LINE MARKER.

WIRES, CABLES, AND CONNECTIONS

CONDUCTORS, NO. 10 AWG AND SMALLER: SOLID OR STRANDED COPPER.

CONDUCTORS, LARGER THAN NO. 10 AWG: STRANDED COPPER.

INSULATION: THERMOPLASTIC, RATED 600 V, 75 DEG C MINIMUM, TYPE THW, THHN-THWN, OR USE DEPENDING ON APPLICATION..

WIRE CONNECTORS AND SPLICES: UNITS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS SUITABLE FOR SERVICE INDICATED.

MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.

OUTLET, JUNCTION AND PULL BOXES

FLUSH WITH GRADE ENCLOSURES AND PULL BOXES SHALL BE QUAZITE® AS MANUFACTURED BY STRONGWELL OR APPROVED EQUAL. THE PULL/SPLICE BOX SHALL BE CONSTRUCTED OF POLYMER CONCRETE CONSISTING OF SAND AND AGGREGATE BOUND TOGETHER WITH A POLYMER RESIN. INTERNAL REINFORCEMENT MAY BE PROVIDED BY MEANS OF STEEL, FIBERGLASS, OR A COMBINATION OF THE TWO. BOXES AND COVERS SHALL BE CONCRETE GRAY, AND SUSTAIN A MINIMUM VERTICAL TEST LOAD OF 22,568# OVER A 10" SQUARE. BOXES SHALL BE STACKABLE FOR EXTRA DEPTH.

FLUSH WITH GRADE PULL BOXES: PROVIDE JUNCTION/PULL BOXES WHEREVER UNDERGROUND CONDUIT RUNS EXCEED 500 FEET OR WHERE REQUIRED TO COMPLY WITH THE MAXIMUM NUMBER/RADIUS OF BENDS PER THE NEC. JUNCTION/PULL BOXES SHALL BE SIZED ACCORDING TO NEC-LATEST EDITION, AND HAVE LOCKABLE SCREW-ON COVERS. ALL JUNCTION BOXES SHALL BE ACCESSIBLE.

OUTDOOR/DAMP LOCATION BOXES: CAST TYPE BOXES SHALL BE FERROUS ALLOY AND HAVE GASKETED CAST COVERS AND INSIDE THREADED HUBS WITH ADAPTERS AS NECESSARY. CAST-METAL BOXES SHALL COMPLY WITH NEMA 3R.

INDOOR DRY LOCATION BOXES: BOXES SHALL BE PRESSED STEEL, GALVANIZED OR CADMIUM-PLATED (4-INCH x 2 1/8" DEEP MINIMUM SQUARE FOR ALL WALL LOCATIONS, 4 11/16-INCH x 2 1/8" DEEP MINIMUM SQUARE FOR ALL ABOVE CEILING LOCATIONS), WITH GALVANIZED COVER. KNOCKOUT TYPE SHALL BE USED WITH KNOCKOUTS REMOVED ONLY WHERE NECESSARY TO ACCOMMODATE THE CONDUIT ENTERING. PROVIDE A GROUNDING TERMINAL IN EACH BOX CONTAINING A GREEN EQUIPMENT GROUND CONDUCTOR, OR SERVING MOTORS, LIGHTING FIXTURES, OR RECEPTACLES. GROUNDING TERMINAL SHALL BE GREEN-COLORED WASHER-IN-HEAD MACHINE SCREW OR GROUNDING BUSHING.

COVER AND DEVICE PLATES: PROVIDE HIGH IMPACT NYLON FOR DEVICES IN FINISHED AREAS, AND GALVANIZED STEEL ON SURFACE-MOUNTED DEVICES IN UNFINISHED AREAS. SURFACE OUTLET COVERPLATES SHALL HAVE BEVELED EDGES.

WIRING DEVICES

STRAIGHT-BLADE AND LOCKING RECEPTACLES: GENERAL-DUTY GRADE, 20-AMPERE, NYLON, COMPLY WITH NEMA WD 6.

GFCI RECEPTACLES: FEED-THROUGH TYPE, WITH INTEGRAL NEMA WD 6 CONFIGURATION 5-20R DUPLEX RECEPTACLE ARRANGED TO PROTECT CONNECTED DOWNSTREAM RECEPTACLES ON SAME CIRCUIT.

SNAP SWITCHES: GENERAL-DUTY, NYLON, QUIET TYPE. SWITCH SHALL BE RATED AT 20 A, 120/277-VAC.

WALL PLATES: SINGLE AND COMBINATION TYPES MATCH CORRESPONDING WIRING DEVICES. NYLON, COLOR TO MATCH WIRING DEVICES, COLOR TO BE SELECTED BY ARCHITECT. METAL PLATE-SECURING SCREW WITH HEAD COLOR TO MATCH PLATE FINISH.

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Sheet Revisions		
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FYA SIGNAL MODIFICATIONS
ELECTRICAL SPECIFICATIONS
84TH & CONIFER

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers:
Subset Sheets: 1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 501

SUPPORTING DEVICES

MATERIAL: COLD-FORMED STEEL, WITH CORROSION-RESISTANT COATING.

METAL ITEMS FOR USE OUTDOORS OR IN DAMP LOCATIONS: HOT-DIP GALVANIZED STEEL.

SLOTTED-STEEL CHANNEL: FLANGE EDGES TURNED TOWARD WEB, AND 9/16-INCH- DIAMETER SLOTTED HOLES AT A MAXIMUM OF 2 INCHES O.C., IN WEBS. STRENGTH RATING TO SUIT STRUCTURAL LOADING.

SLOTTED CHANNEL FITTINGS AND ACCESSORIES: RECOMMENDED BY THE MANUFACTURER FOR USE WITH THE TYPE AND SIZE OF CHANNEL WITH WHICH USED.

EXPANSION ANCHORS: CARBON-STEEL WEDGE OR SLEEVE TYPE.

TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE.

ELECTRICAL IDENTIFICATION

IDENTIFICATION DEVICE COLORS: USE THOSE PRESCRIBED BY ANSI A13.1, NFPA 70, AND THESE SPECIFICATIONS.

COLORED ADHESIVE MARKING TAPE FOR RACEWAYS, WIRES, AND CABLES: SELF-ADHESIVE VINYL TAPE, NOT LESS THAN 1 INCH WIDE BY 3 MILS THICK.

TAPE MARKERS FOR CONDUCTORS: VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND TYPE WITH PREPRINTED NUMBERS AND LETTERS. SECONDARY SERVICE, FEEDER, AND BRANCH-CIRCUIT CONDUCTORS: COLOR-CODE THROUGHOUT THE SECONDARY ELECTRICAL SYSTEM.

TAG AND LABEL ALL CIRCUITS: IDENTIFY SOURCE AND CIRCUIT NUMBERS IN EACH CABINET, PULL-BOX, JUNCTION BOX, AND OUTLET BOX. PROVIDE TYPED ADHESIVE LABELS ON THE FACEPLATES OF RECEPTACLES AND SWITCHES. COLOR-CODING SHALL BE USED FOR VOLTAGE AND PHASE IDENTIFICATION.

PROVIDE TYPED ADHESIVE LABELS ON THE FACEPLATES OF RECEPTACLES AND SWITCHES. LOCATE LABEL ON THE FRONT SIDE OF THE COVERPLATE AS WELL AS IDENTIFY CIRCUITS WITH PERMANENT INK ON THE BACKSIDE OF THE COVERPLATE.

ALL CONDUCTORS SHALL HAVE FACTORY APPLIED COLORED INSULATION THE ENTIRE LENGTH OF ALL CONDUCTORS.

COLOR-CODE 208/120-VOLT SYSTEM AS FOLLOWS:
PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
GROUND: GREEN

COLOR-CODE 480/277-VOLT SYSTEM AS FOLLOWS:
PHASE A: BROWN
PHASE B: ORANGE
PHASE C: YELLOW
NEUTRAL: WHITE WITH A COLORED STRIPE OR GRAY
GROUND: GREEN

EQUIPMENT IDENTIFICATION LABELS: ENGRAVED PLASTIC LAMINATE. INSTALL ON EACH UNIT OF EQUIPMENT, INCLUDING CENTRAL OR MASTER UNIT OF EACH SYSTEM. APPLY LABELS FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF EQUIPMENT USING MECHANICAL FASTENERS:

DISTRIBUTION AND CONTROL EQUIPMENT
IDENTIFY EQUIPMENT AS WELL AS LOADS SERVED
1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
1/8 INCH LETTERING TO IDENTIFY FUSE RATING/TYPE
1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

INDIVIDUAL CIRCUIT BREAKERS AND SWITCHES IN PANELBOARDS AND SWITCHBOARDS:
1/8 INCH LETTERING TO IDENTIFY CIRCUIT AND LOAD SERVED, INCLUDING LOCATION.
1/8 INCH LETTERING TO IDENTIFY FEEDER INFORMATION

PANELBOARDS, SWITCHBOARDS, ELECTRICAL CABINETS, INDIVIDUAL CIRCUIT BREAKERS, DISCONNECT SWITCHES, AND MOTOR STARTERS:
1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

PROVIDE UPDATED TYPED PANEL DIRECTORIES FOR NEW OR MODIFIED PANELS. ALL SPARE CIRCUIT BREAKERS SHALL BE SWITCHED OFF.

PANELBOARD GENERAL

ENCLOSURES: FLUSH- AND SURFACE-MOUNTED CABINETS. NEMA PB 1, TYPE 1, TO MEET ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.

FRONT: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD HINGED DOOR WITHIN HINGED TRIM COVER AND SECURED TO BOX WITH SCREWS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS; FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.

FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH OVER CORROSION-RESISTANT TREATMENT OR PRIMER COAT.

DIRECTORY CARD: WITH TRANSPARENT PROTECTIVE COVER, MOUNTED INSIDE METAL FRAME, INSIDE PANELBOARD DOOR. (PANEL SCHEDULES SHALL BE TYPED AND INCLUDE DEVICE TYPE AND ROOM(S) SERVED).

BUS: ALUMINUM.

MAIN AND NEUTRAL LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL.

EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUND CONDUCTORS; BONDED TO BOX.

FUTURE DEVICES: MOUNTING BRACKETS, BUS CONNECTIONS, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.

FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.

BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.

MOLDED-CASE CIRCUIT BREAKER: NEMA AB 1, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.
THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS.

ELECTRICAL EQUIPMENT INSTALLATION

MATERIALS AND COMPONENTS: INSTALL LEVEL, PLUMB, AND PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED.

EQUIPMENT: INSTALL TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE WITH OTHER INSTALLATIONS.

CONDUIT CONNECTIONS TO TRANSFORMERS SHALL BE MADE WITH LIQUID-TIGHT FLEXIBLE METAL CONDUIT, NOT LESS THAN 18 INCHES OR MORE THAN 36 INCHES IN LENGTH. BONDING BUSHINGS SHALL BE INSTALLED AT BOTH ENDS OF ALL TRANSFORMER PRIMARY AND SECONDARY FEEDERS.

SEPARATELY DERIVED SYSTEMS: MAKE GROUNDING CONNECTIONS TO GROUNDING ELECTRODES AND BONDING CONNECTIONS TO METALLIC PIPING AS INDICATED AND TO COMPLY WITH NFPA 70.

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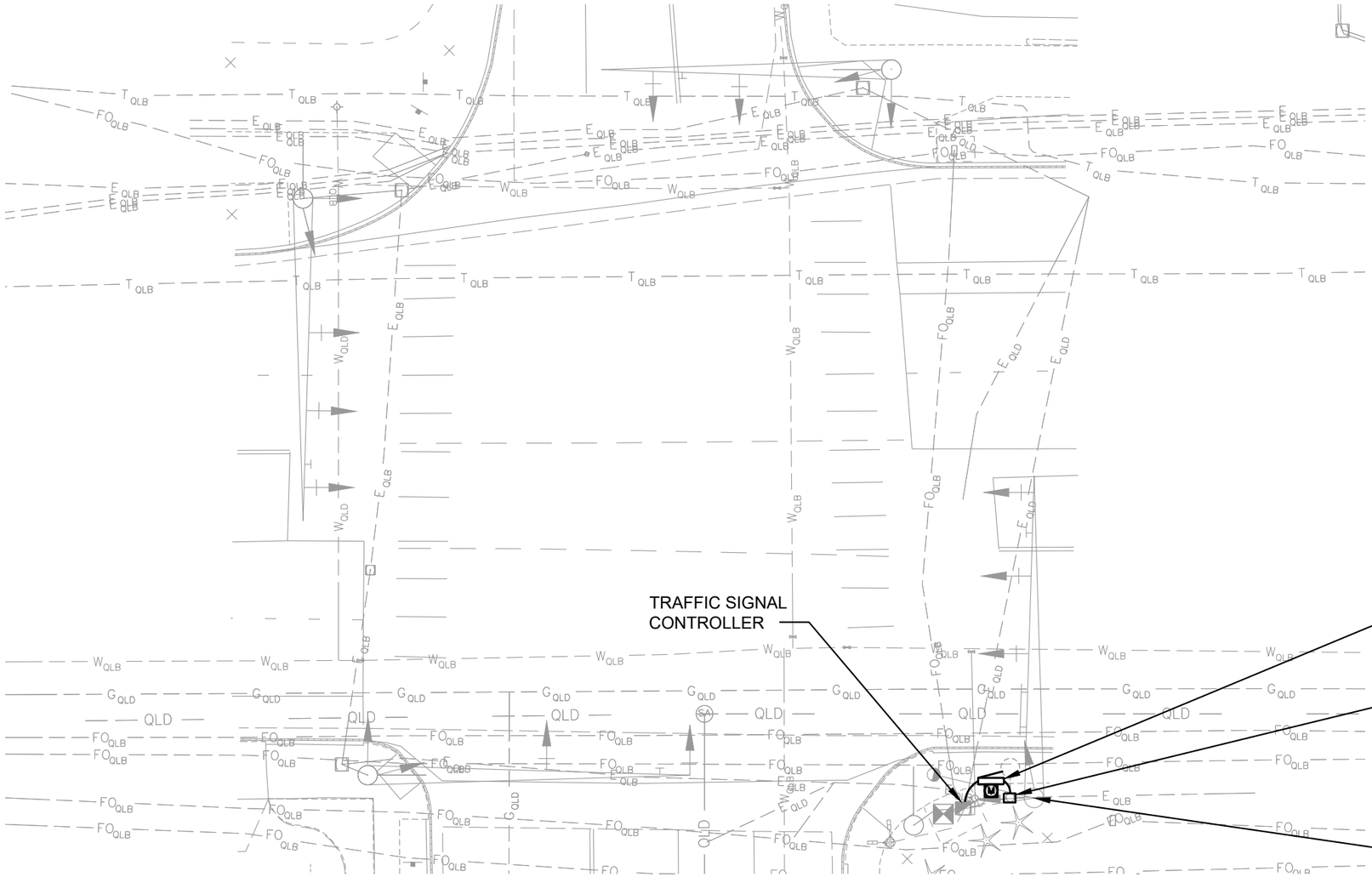
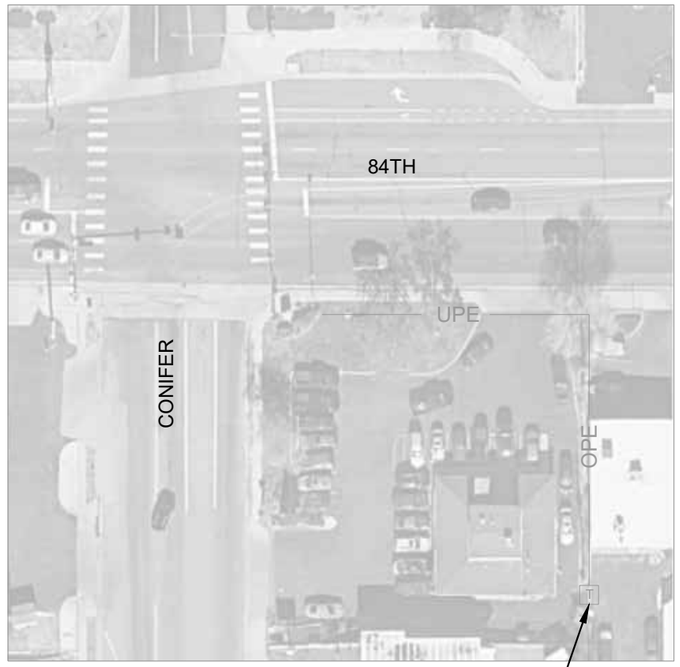
Sheet Revisions		
Date	Comments	Initials
5.15.25	CONSTRUCTION DOCS	DA

CITY OF THORNTON

TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed	FYA SIGNAL MODIFICATIONS ELECTRICAL SPECIFICATIONS 84TH & CONIFER			Project No.
No Revisions:				SHO M286-056
Revised:	Designer: AEI	Structure Numbers		Drawing Number
	Detailer: DJA			
Void:	Sheet Subset: E	Subset Sheets: 1 of 6		Sheet Number 55 E02





MILBANK METERED
PEDESTAL OR EQUIVALENT

TRANSFORMER

INTERCEPT EXISTING XCEL
SERVICE ENTRANCE
FEEDER AND ROUTE NEW
SERVICE ENTRANCE
FEEDER TO NEW METERED
PEDESTAL

TYPE A LUMINAIRE TYP. OF
1 ONE AT SOUTH EAST
TRAFFIC SIGNAL POLE

TYPICAL ELECTRICAL TRAFFIC SIGNAL SITE PLAN

1
E03

SCALE: 1"=20'

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FYA SIGNAL MODIFICATIONS
ELECTRICAL SITE PLAN
84TH & CONIFER

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers:
Subset Sheets: 1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 5 E03

Short Circuit Summary

Point-to-Point * Feeder Summary

Description	Phase	Length	Isc Avail	# Runs	C	V(L-L)	Isc @ Device
100 KVA XCEL TRANS			43400				**43400**
NEW POWER PED	1	264	43400	1	7493	240	**3158**

FEEDER SCHEDULE

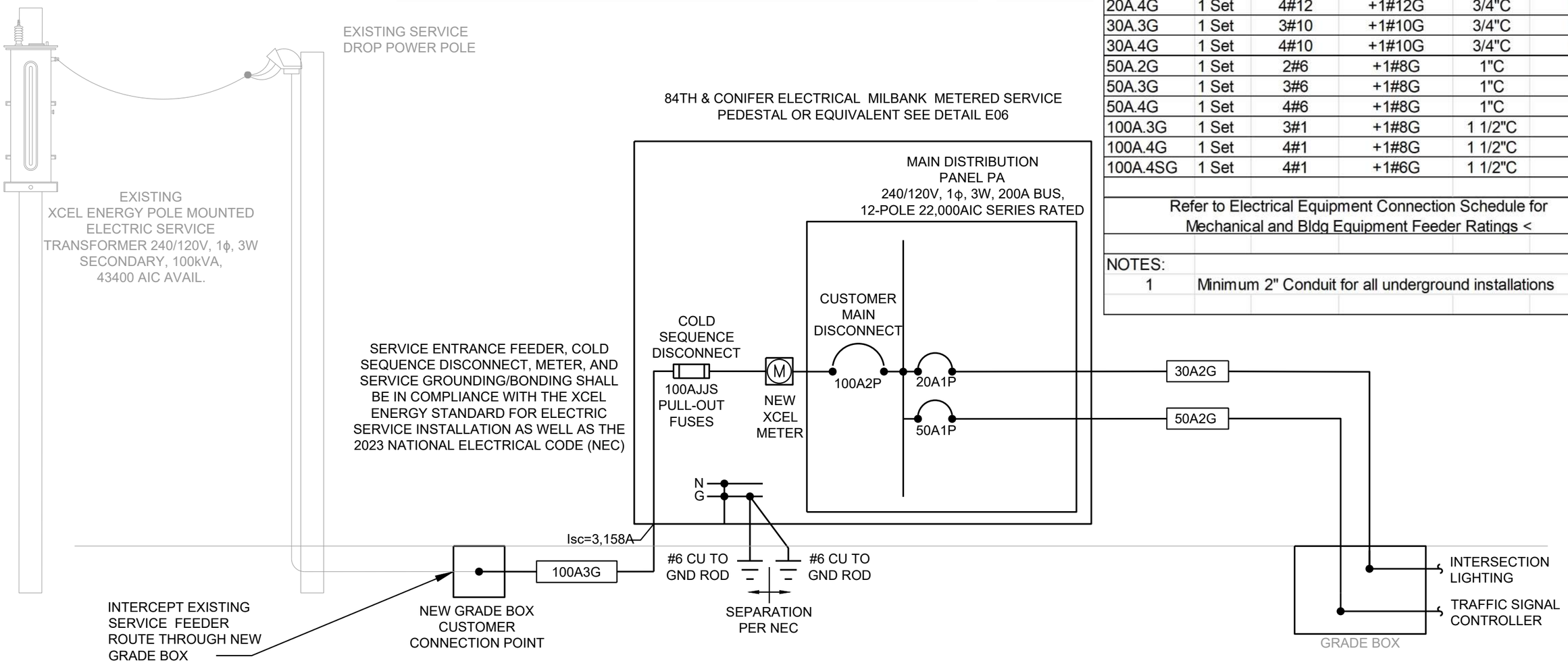
ALL WIRE SHALL BE COPPER UNLESS NOTED OTHERWISE

Feeder Key	# of Runs	Wire Size	Ground	Conduit	Notes
20A.3G	1 Set	3#12	+1#12G	3/4"C	1
20A.4G	1 Set	4#12	+1#12G	3/4"C	1
30A.3G	1 Set	3#10	+1#10G	3/4"C	1
30A.4G	1 Set	4#10	+1#10G	3/4"C	1
50A.2G	1 Set	2#6	+1#8G	1"C	
50A.3G	1 Set	3#6	+1#8G	1"C	
50A.4G	1 Set	4#6	+1#8G	1"C	
100A.3G	1 Set	3#1	+1#8G	1 1/2"C	
100A.4G	1 Set	4#1	+1#8G	1 1/2"C	
100A.4SG	1 Set	4#1	+1#6G	1 1/2"C	

Refer to Electrical Equipment Connection Schedule for Mechanical and Bldg Equipment Feeder Ratings <

NOTES:

1 Minimum 2" Conduit for all underground installations



TYPICAL ELECTRICAL TRAFFIC SIGNAL ONE-LINE DIAGRAM

1 / E04

SCALE: N/A

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FYA SIGNAL MODIFICATIONS
ONE LINE DIAGRAM
84TH & CONIFER

Designer:	AEI	Structure Numbers	
Detailer:	DJA		
Sheet Subset:	E	Subset Sheets: 1 of 6	

Project No. SHO M286-056

Drawing Number

Sheet Number 5 E04

Name:	**PA (NEW)**		Mnt	Method:	**PEDESTAL**	
Volt:	**240/120**		Bus	Rating:	**200**	
Ph:	**1**		Main	Breaker	**100**	
Wire:	**3**		AIC	Rating:	**22,000**	

	Code	Description	Load	Bkr	P	Ph	Ph	P	Bkr	Load	Description	Code	
			VA			A	B			VA			
1	6	Traffic Signal	4800	50	1	*		1	20	500	INTERSECTION LTG	1	2
3		Space Only		-			*		-		Space Only		4
5		Space Only		-		*			-		Space Only		6
7		Space Only		-			*		-		Space Only		8
9		Space Only		-		*			-		Space Only		10
11		Space Only		-			*		-		Space Only		12

Shading indicates existing circuit / breaker - No Change >><< Unshaded indicates new circuit / breaker

Code	Description	Load VA	Dem		Load Summary		
1	Lighting	**500**	125%	Per	Phase		
2	Rec up to 10,000		100%	Ph A	**5300**	VA	
	Rec over 10,000		50%	Ph B		VA	
3	Motor		100%				
	Largest Motor		125%				
4	Heater		100%	Connected		**5300**	VA
5	Kitchen		100%	Code Demand		**5425**	VA
6	Miscellaneous	**4800**	100%				
7	Sub Panel		100%	Code Demand		**22.60**	Amps

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FYA SIGNAL MODIFICATIONS
ELECTRICAL SCHEDULES
84TH & CONIFER

Designer:	AEI	Structure Numbers	
Detailer:	DJA		
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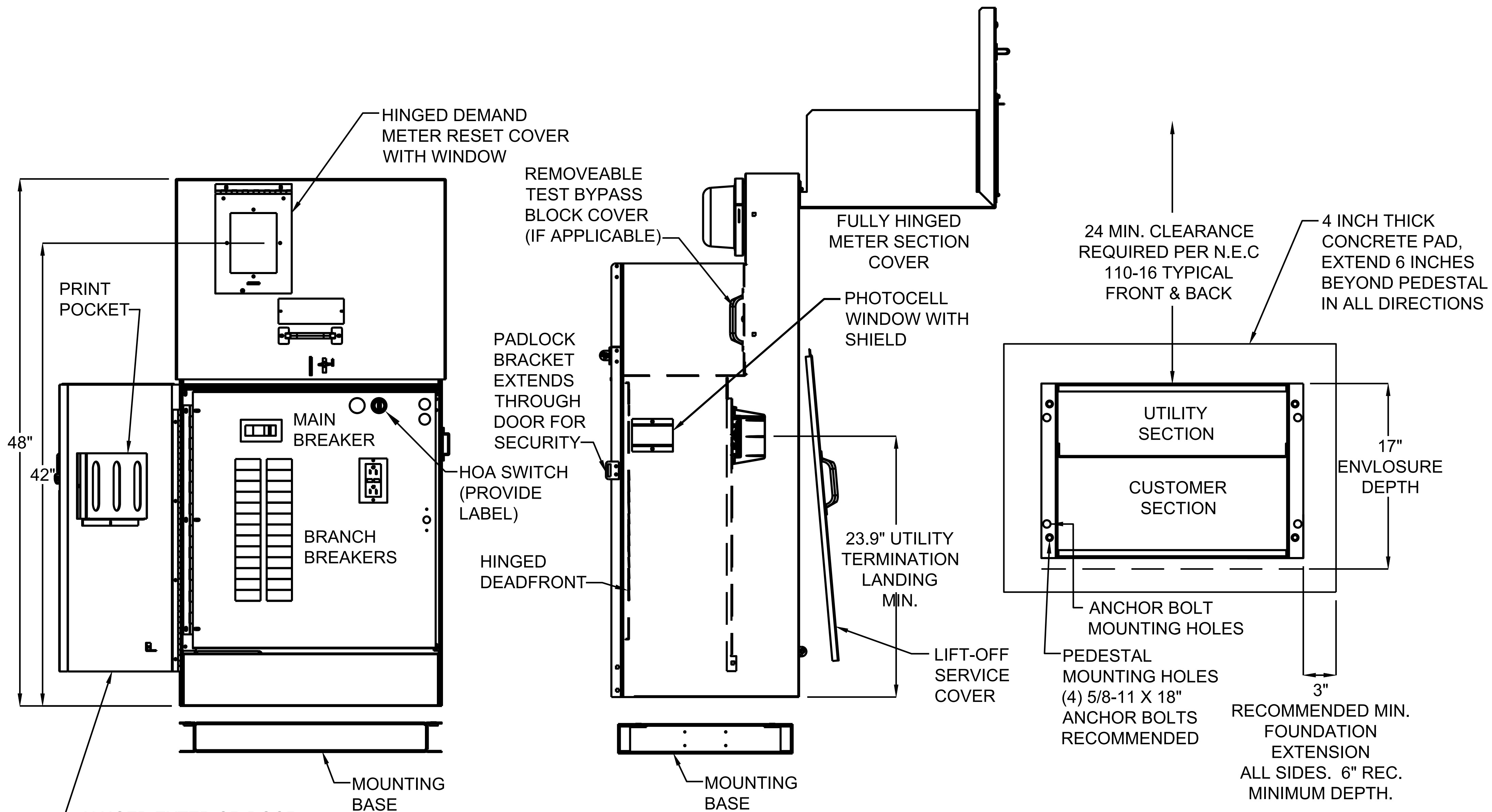
Project No.	
SHO M286-056	
Drawing Number	
Sheet Number	E05



COMMERCIAL PEDESTAL BY MILBANK U5949 SERIES OR EQUAL WITH NO PHOTOCELL OR SERVICE RECEPTACLE: 100A2P COLD SEQUENCE MAIN, 150A XCEL ENERGY COLD SEQUENCE METER, 200A COPPER BUS, 100A2P MAIN BRKR, 240/120V, 1ϕ, 3-WIRE, 22KAIC MINIMUM

COMMERCIAL METERED PEDESTAL DETAIL

1
E06

SCALE: N/A

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ELECTRICAL DETAILS
84TH & CONIFER

Designer:	AEI	Structure Numbers	
Detailer:	DJA		
Sheet Subset:	E	Subset Sheets:	1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 59 E06

POWER, LIGHTING, & TELECOM

- J-BOX
- MOTOR
- CEILING RECEPTACLE
- FLOOR RECEPTACLE
- DUPLEX RECEPTACLE
- FOUR-PLEX RECEPTACLE
- SPLIT DUPLEX RECEPTACLE WITH ONE-HALF CONTROLLED LOAD
- 4-PLEX WITH ONE NON-CONTROLLED LOAD DUPLEX AND ONE CONTROLLED LOAD DUPLEX
- BLANK FACE GFCI PROTECTION DEVICE
- GFI 4-PLEX WITH ONE GFI DUPLEX AND ONE GFI PROTECTED STANDARD DUPLEX
- GFI 4-PLEX WITH ONE NON-CONTROLLED LOAD GFI DUPLEX AND ONE CONTROLLED LOAD GFI DUPLEX
- SPECIAL NEMA RECEPTACLE
- HEAVY DUTY DISCONNECT SWITCH
- MOTOR STARTER
- HEAVY DUTY STARTER-DISCONNECT
- VFD MOTOR STARTER
- VFD HEAVY DUTY STARTER-DISCONNECT
- TRANSFORMER
- SPD SURGE SUPPRESSION DEVICE
- METER
- THERMAL OVERLOAD SW
- BRANCH CIRCUIT PANEL
- TELEPHONE OUTLET
- TELE-DATA OUTLET
- DATA OUTLET
- TELEPHONE OUTLET FLOOR
- TELE-DATA OUTLET FLOOR
- TV OUTLET
- EMERGENCY BATTERY LIGHT
- WALL MOUNTED EXIT SIGN
- CEILING MOUNT EXIT SIGN
- CLG MNT EX/EM LT COMBO
- SURFACE WALL LUMINAIRE
- SURFACE CEILING LUMINAIRE
- KEYLESS LAMP HOLDER
- RECESSED DOWNLIGHT
- RECESSED WALL WASHER
- LUMINAIRE STRIP
- SURFACE OR WALL LUMINAIRE
- RECESSED LUMINAIRE
- RECESSED LUMINAIRE 1x4
- TRACK LIGHTING
- PARKING LOT POLE LIGHT
- PEDESTRIAN POLE LUMINAIRE
- FLOOD LUMINAIRE
- SWITCH
- 3-WAY SWITCH
- OCCUPANCY SENSOR SWITCH
- OCC. SENSOR DIMMER SWITCH
- LOW VOLTAGE SWITCH
- TIMER SWITCH
- DIMMER SWITCH
- PHOTOCELL
- OCCUPANCY SENSOR
- OCC. SEN. POWER PACK
- ROOM CONTROLLER
- TIME CLOCK
- CLOCK-WALL MOUNT
- CLOCK/SPEAKER IN COMBINATION BACK-BOX
- SPEAKER-WALL MOUNT
- PUSH BUTTON STATION

GENERAL

- SECTION BUBBLE
  - • SECTION LETTER
  - # REFERENCE DWG NUMBER
- REFERENCE BUBBLE
  - • SECTION NUMBER
  - # REFERENCE NUMBER
- REVISION NUMBER
- EQUIPMENT TAG
- DRAWING NOTE
- FLAG NOTE
- BREAKLINE
- MATCHLINE
- WIREMOLD
- OVERHEAD PRIMARY ELECTRIC
- OVERHEAD SECONDARY ELECTRIC
- UNDERGROUND PRIMARY ELECTRIC
- UNDERGROUND SECONDARY ELECTRIC
- UNDERGROUND BRANCH ELECTRIC
- OVERHEAD BRANCH ELECTRIC
- UNDERGROUND COMMUNICATION
- BOLD LINEWEIGHT AND/OR "N" INDICATES NEW DEVICE OR EQUIPMENT
- BOLD LINEWEIGHT AND/OR "R" INDICATES DEVICE OR EQUIPMENT TO BE REPLACED
- LIGHT LINEWEIGHT AND/OR "E" INDICATES EXISTING DEVICE TO REMAIN
- DASHED LINETYPE AND/OR "D" INDICATES DEVICE TO BE REMOVED / DEMOLISHED

ELECTRONIC SAFETY & SECURITY

- MAGNETIC DOOR HOLD
- SMOKE DETECTOR
- THERMAL DETECTOR
- DUCT SMOKE DETECTOR
- MANUAL PULL STATION
- COMBO SPEAKER/STROBE
- CEILING ALARM STROBE LIGHT
- WALL ALARM STROBE LIGHT
- ALARM SPEAKER OR HORN
- REMOTE INDICATOR LIGHT
- FLOW SWITCH
- TAMPER SWITCH
- CONTROL MODULE
- MONITOR MODULE
- BEAM DETECTION TRANSMITTER
- BEAM DETECTION RECEIVER
- CARBON MONOXIDE DETECTOR
- REMOTE TEST SWITCH
- AIPHONE MONITOR STATION
- AIPHONE INTERCOM STATION
- ELECTRIC DOOR HARDWARE
- GLASS BREAK DETECTOR
- CAMERA
- MOTION SENSOR
- CARD READER
- DOOR POSITION SWITCH
- DOOR STRIKE
- SECURITY CONTROL KEYPAD

DEFINITIONS

AC	INDICATES ABOVE COUNTER, COORDINATE EXACT HEIGHT
ACS	ACCESS CONTROL SYSTEM
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CAPACITY
ANN	FIRE ALARM ANNUNCIATOR PANEL
AV	AUDIOVISUAL
BC	INDICATES BELOW COUNTER, COORDINATE EXACT HEIGHT
CT	CURRENT TRANSFORMER
D	INDICATES EXISTING DEVICE TO BE REMOVED
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
DLZ#	DAYLIGHT ZONE AREA
E	INDICATES EXISTING DEVICE TO REMAIN AS IS
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL / ELECTRONIC
EOL	END-OF-LINE
EMT	ELECTRICAL METALLIC TUBING (THINWALL CONDUIT)
(EX)	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METALLIC CONDUIT
GC	GENERAL CONTRACTOR
GFI	INDICATES GROUND FAULT CIRCUIT INTERRUPT DEVICE
HDMI	HIGH-DEFINITION MULTIMEDIA INTERFACE
HVAC	HEATING, VENTILATION AIR CONDITIONING
IDF	INTERMEDIATE DISTRIBUTION FACILITY
Isc	SHORT CIRCUIT CURRENT
ISP	INSIDE PLANT
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LFC	LIQUIDTIGHT FLEXIBLE CONDUIT
MCA	MINIMUM CIRCUIT AMPS
MCCB	MOLDED-CASE CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FACILITY
MOCP	MAXIMUM OVERCURRENT PROTECTION
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEC	NATIONAL ELECTRICAL CODE NFPA 70
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OAD	OVERALL DROP
OSP	OUTSIDE PLANT
OCPD	OVERCURRENT PROTECTIVE DEVICE
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PVC	POLYVINYL CHLORIDE CONDUIT
R	INDICATES EXISTING DEVICE TO BE REPLACED
RL	INDICATES EXISTING DEVICE TO BE RELOCATED TO POSITION SHOWN
RNC	RIGID NONMETALLIC CONDUIT
RSC	RIGID STEEL CONDUIT
RZC	RECEPTACLE ZONE CONTROLLER
SDS	SECURITY DETECTION SYSTEM
SLC	SIGNALING LOOP CIRCUIT
SPD	INDICATES SURGE SUPRESSION DEVICE
SSC	ELECTRONIC SECURITY SYSTEMS CONTRACTOR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TELECOMMUNICATIONS CABLING CONTRACTOR
TGB	TELECOMMUNICATIONS GROUNDING BUS BAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
USB	UNIVERSAL SERIAL BUS
VFD	INDICATES VARIABLE FREQUENCY MOTOR DRIVE
VSS	VIDEO SURVEILLANCE SYSTEM
WAN	WIDE AREA NETWORK
WP	INDICATES WEATHERPROOF EQUIPMENT/DEVICE

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No Revisions:				SHO M286-056
Revised:	Designer: AEI	Structure Numbers		Drawing Number
	Detailer: DJA			
Void:	Sheet Subset: E	Subset Sheets: 1 of 6		Sheet Number 60 E00

PROJECT GENERAL NOTES

REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INSTALLATION REQUIREMENTS.

THE ELECTRICAL INSTALLATION SHALL BE IN COMPLIANCE WITH THE FOLLOWING: NATIONAL ELECTRICAL CODE (NEC) LOCAL ENFORCED EDITION.

CIRCUITING ROUTING SHOWN IS DIAGRAMMATIC. CIRCUIT DESIGNATIONS ARE INDICATED AND SHALL BE STRICTLY FOLLOWED. ALL CIRCUITING SHALL BE COPPER CONDUCTORS IN CONDUIT (3/4" MINIMUM). CONTRACTOR SHALL PROVIDE ALL WIRE, CONDUIT, JUNCTION/PULL BOXES, AND SUPPORTS ETC. FOR A COMPLETE ELECTRICAL SYSTEM.

ALL NEW (120V OR 277V SINGLE PHASE) BRANCH CIRCUIT WIRING SHALL ORIGINATE AT SINGLE POLE BREAKERS AND SHALL BE INSTALLED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR. THE NEUTRAL CONDUCTOR SHALL HAVE A TRACER STRIPE (THE STRIPE COLOR SHALL MATCH THE COLOR OF THE PHASE CONDUCTOR).

ALL DISTRIBUTION AND BRANCH CIRCUIT FEEDERS SHALL BE PROVIDED WITH AN INSULATED, GREEN GROUND WIRE.

ANY SURFACE MOUNTED CONDUIT MOUNTED TO FINISHED SURFACES OR LOCATED IN FINISHED SPACES SHALL BE PAINTED TO MATCH THE SURFACE ON WHICH IT IS MOUNTED.

CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS FOR ALL EXISTING EQUIPMENT, CONDUIT (RIGID AND FLEX), AS WELL AS CABLE LOCATED ABOVE THE CEILING. SUPPORT FROM STRUCTURE AS REQUIRED BY NEC.

INSULATION COLOR: ALL INSULATED CONDUCTORS (SERVICE ENTRANCE, FEEDER, AND BRANCH CIRCUIT) SHALL HAVE FULL COLORED INSULATION, COLORS AS SPECIFIED IN SECTION 26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS, FOR THE ENTIRE LENGTH OF THE CONDUCTOR. NEUTRAL CONDUCTORS INSTALLED, IN COMPLIANCE WITH THE NEC-LATEST EDITION FOR EACH SINGLE POLE BREAKER, SHALL HAVE A TRACER STRIPE TO MATCH THE CORRESPONDING PHASE CONDUCTOR COLOR.

USE OF AC, NM, ENT, OR OTHER MANUFACTURED PRE-WIRED SYSTEMS CABLE IS PROHIBITED.

FOR STEEL CONDUIT LARGER THAN 1/2-INCH SIZE, PROVIDE STEEL INSULATED TYPE BUSHINGS, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT GROUNDING SYSTEM. GROUNDING BUSHINGS SHALL BE LOCKING TYPE AND SHALL BE PROVIDED WITH A FEED-THROUGH COMPRESSION LUG FOR SECURING THE GROUND CABLES. PROVIDE LISTED WATERPROOF FITTINGS FOR ALL CONDUIT IN WET LOCATIONS, SUCH AS EXPOSED TO WEATHER.

GROUNDING BUSHINGS SHALL BE STEEL AND INSTALLED AT BOTH ENDS OF THE CONDUIT ON ALL FEEDERS, AS WELL AS ALL TRANSFORMER, MOTOR, MOTOR CONTROLLER, KITCHEN, AND TVSS EQUIPMENT BRANCH CIRCUITS.

LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE PROVIDED IN SUFFICIENT LENGTHS FOR MAKEUP OF MOTORS, TRANSFORMERS, OR EQUIPMENT, AND/OR RACEWAY CONNECTIONS WHERE ISOLATION OF SOUND AND VIBRATION TRANSMISSION IS REQUIRED.

BOXES SHALL BE PRESSED STEEL, GALVANIZED OR CADMIUM-PLATED (4-INCH X 2 1/8" DEEP MINIMUM SQUARE FOR ALL WALL LOCATIONS, 4 11/16-INCH X 2 1/8" DEEP MINIMUM SQUARE FOR ALL ABOVE CEILING LOCATIONS). SURFACE-MOUNTED DEVICE BOXES MOUNTED BELOW 8 FEET AFF SHALL BE (BELL) CAST-TYPE BOXES WITH THREADED KNOCK-OUTS (PROVIDE WITH KNOCK-OUTS ONLY AS REQUIRED BY CONDUIT ENTERING/LEAVING).

DEVICE COVERPLATES: PROVIDE IDENTIFICATION OF CIRCUITS AT ALL INDIVIDUAL WALL SWITCHES, RECEPTACLES, AND CONTROL DEVICE STATIONS. IDENTIFY CIRCUITS WITH PREPRINTED LABEL ON THE FRONT SIDE OF THE COVERPLATE AS WELL AS IDENTIFY CIRCUITS WITH PERMANENT INK MARKER ON THE BACKSIDE OF THE COVERPLATE.

ALL PANELS WITH CIRCUITS INDICATED TO BE MODIFIED IN THESE DOCUMENTS SHALL BE PROVIDED WITH AN UPDATED, TYPED, PANEL DIRECTORY. INCLUDE CONTRACTOR'S CONTACT INFORMATION AND CLOSE-OUT DATE OF THE PROJECT.

EQUIPMENT IDENTIFICATION LABELS: ENGRAVED PLASTIC LAMINATE. INSTALL ON EACH UNIT OF EQUIPMENT, INCLUDING CENTRAL OR MASTER UNIT OF EACH ... LABELS FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF ... ASTENERS:

- ...UIPMENT
- ...L AS LOADS SERVED
- ...IPMENT DESIGNATION
- ...TIFY VOLTAGE & FAULT CURRENT RATING
- ...TIFY FUSE RATING/TYPE
- ...TIFY FEEDER (CONDUIT & WIRE SIZE)
- 1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

INDIVIDUAL CIRCUIT BREAKERS AND SWITCHES IN PANELBOARDS AND SWITCHBOARDS:
- 1/8 INCH LETTERING TO IDENTIFY CIRCUIT AND LOAD SERVED, INCLUDING LOCATION.
- 1/8 INCH LETTERING TO IDENTIFY FEEDER INFORMATION

PANELBOARDS, SWITCHBOARDS, ELECTRICAL CABINETS, INDIVIDUAL CIRCUIT BREAKERS, DISCONNECT SWITCHES, AND MOTOR STARTERS:
- 1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
- 1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
- 1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
- 1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

SITE PLAN GENERAL NOTES

ALL WIRING SHALL BE IN COMPLIANCE WITH THE NEC LATEST EDITION: ALL MULTI-WIRE BRANCH CIRCUITS (120V OR 277V SINGLE PHASE CIRCUITS) IDENTIFIED IN THE PANEL SCHEDULES ORIGINATING FROM SINGLE POLE BREAKER SHALL BE INSTALLED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR. THE NEUTRAL CONDUCTOR SHALL HAVE A TRACER STRIPE (THE STRIPE COLOR SHALL MATCH THE COLOR OF THE PHASE CONDUCTOR).

REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL INSTALLATION, CONDUIT DEPTHS, AND SPECIFICATION REQUIREMENTS. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE TO THE MOST CURRENT LOCAL CODES AND THE NEC LATEST EDITION.

ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC WITH PVC COATED GRC ELBOWS AND RISERS TO 4 FEET ABOVE GRADE AND 1 INCH MINIMUM DIAMETER, UNLESS NOTED OTHERWISE.

ALL UNDERGROUND COMMUNICATION, ELECTRICAL FEEDER, AND BRANCH CIRCUITS SHALL BE INSTALLED A MINIMUM OF 30 INCHES BELOW GRADE WITH BURIED ELECTRICAL WARNING TAPE INSTALLED DIRECTLY ABOVE BETWEEN 6 AND 12 INCHES BELOW GRADE. CONTRACTOR SHALL PROVIDE PULL BOXES AS REQUIRED TO MINIMIZE THE NUMBER OF BENDS TO MEET CODE.

UNDERGROUND CONDUIT IS INDICATED BY DASHED LINES, UBE, USE, UPE, OR UC.

ROUTE ALL UNDERGROUND CONDUITS A MINIMUM OF 5' FROM TREE DRIP LINES AND AVOID ROUTING UNDERGROUND CONDUITS WITHIN OR CROSSING DRAINAGE SWALES OR DETENTION AREAS/PONDS.

ALL NEW CIRCUITS SHALL HAVE GROUNDING CONDUCTORS IN ALL FEEDERS AND BRANCH CIRCUITS.

FOR ALL WEATHERPROOF RECEPTACLE COVERS PROVIDE CAST ALUMINUM, WHILE-IN-USE WEATHERPROOF TYPE COVERS, HUBBELL-MG58XX SERIES OR EQUAL.

ALL EXTERIOR RECEPTACLES SHALL BE GFI PROTECTED DEVICES AND HAVE WEATHERPROOF COVERS.

ELECTRICAL SPECIFICATIONS

GENERAL

FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON DRAWINGS AND/OR LISTED BELOW AND ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT INFERRED FOR A COMPLETE INSTALLATION, INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND READY FOR OPERATION.

STANDARDS FOR MATERIALS

ALL MATERIALS SHALL BE NEW, LISTED, LABELED, AND CONFORM WITH THE CURRENT APPLICABLE INDUSTRY STANDARDS. WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS ELECTRICAL AND MECHANICAL OPERATION. DEFECTIVE OR DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL ACCEPTANCE IN A MANNER MEETING APPROVAL OF THE OWNER/ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO OWNER.

THE LATEST EDITIONS OF THE FOLLOWING STANDARDS ARE MINIMUM REQUIREMENTS.
- UNDERWRITERS' LABORATORIES, INC. (UL)
- NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
- AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- ELECTRICAL TESTING LABORATORIES (ETL)
- INDEPENDENT TESTING LABORATORIES (ITL)
- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA)
- NATIONAL ELECTRICAL CODE (NEC)

THE TERMS "LISTED AND LABELED": AS DEFINED IN THE "NATIONAL ELECTRICAL CODE," ARTICLE 100.

LISTING AND LABELING AGENCY QUALIFICATIONS: A "NATIONALLY RECOGNIZED TESTING LABORATORY" (NRTL) AS DEFINED IN OSHA REGULATION 1910.7.

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL COMPLY WITH LATEST RULES, CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: OSHA, NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

DRAWINGS

DRAWINGS INDICATE GENERAL ARRANGEMENT OF CIRCUITS, LOCATIONS OF EQUIPMENT, PANELBOARDS AND OTHER WORK. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER, AND WHAT IS CALLED FOR BY ONE SHALL BE BINDING AS IF CALLED FOR BY BOTH. DATA PRESENTED ON DRAWINGS IS AS ACCURATE AS PLANNING CAN DETERMINE, BUT ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC. TO SUIT FIELD CONDITIONS IS DIRECTED.

JOB CONDITIONS

REVIEW THE EXISTING CONDITIONS OF THE PROJECT SITE AND ADJUST ALL WORK TO CONFORM TO THE EXISTING CONDITIONS.

RECORD DOCUMENTS

MAINTAIN ONE SET OF PROJECT RECORD DRAWINGS INDICATING INSTALLED CONDITIONS FOR: MAJOR RACEWAY SYSTEMS, SIZE AND LOCATION; LOCATIONS OF CONTROL DEVICES; DISTRIBUTION AND BRANCH ELECTRICAL CIRCUITRY; AND FUSE AND CIRCUIT BREAKER SIZE AND ARRANGEMENTS. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT PROJECT FEATURES. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

OPERATIONAL CHECK

CHECK CLEANLINESS OF ALL INTERIORS AND ALL PARTS. REMOVE ANY EXCESS PACKING, SHIPPING BOLTS, ETC.

TIGHTEN ALL POINTS OF CONNECTION.

VERIFY PROPER OPERATING CONDITIONS OF ALL EQUIPMENT MECHANICALLY AND ELECTRICALLY.

AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL, RUBBISH, AND OTHER DEBRIS FROM AND ABOUT THE WORK, AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIALS, AND SHALL LEAVE THE WORK "BROOM CLEAN," UNLESS OTHERWISE SPECIFIED, AND READY FOR OCCUPANCY BY THE OWNER. SUCH CLEANUP SHALL INCLUDE, AS APPLICABLE AND WITHOUT LIMITATION, THE FOLLOWING:

REMOVAL OF ALL MARKS, STAINS, FINGERPRINTS, AND OTHER SOIL OR DIRT FROM ANY AND ALL PAINTED OR DECORATED SURFACES.

CLEANING AND POLISHING OF ALL HARDWARE, INCLUDING REMOVAL OF ALL STAINS, DUST, DIRT, PAINT, ETC.

RESTORED TO THEIR ORIGINAL CONDITION OF THOSE PORTIONS OF THE SITE WHICH WERE NOT DESIGNATED FOR ALTERATION BY THE CONTRACT DOCUMENTS BUT WHICH HAVE BEEN AFFECTED BY THE CONTRACTOR'S OPERATIONS.

REMOVAL OF ALL TEMPORARY CONSTRUCTION OR PROTECTION AND REMOVAL FROM THE PREMISES OF ALL ITEMS OF ANY NATURE WHATSOEVER WHICH WERE INSTALLED OR USED FOR TEMPORARY PURPOSES DURING THE CONSTRUCTION.

IF THE CONTRACTOR FAILS TO PROPERLY CLEAN UP, THE OWNER MAY DO SO AND THE COST THEREOF SHALL BE CHARGED TO THE CONTRACTOR.

GUARANTEE

LEAVE ENTIRE ELECTRICAL SYSTEM INSTALLED UNDER THIS DIVISION IN PROPER WORKING ORDER. REPLACE, WITHOUT ADDITIONAL CHARGE, ANY WORK MATERIALS OR EQUIPMENT PROVIDED UNDER THIS DIVISION WHICH DEVELOPS DEFECTS WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE. GUARANTEE ALL MATERIALS AND EQUIPMENT AGAINST DEFECTS IN COMPOSITION, DESIGN OR WORKMANSHIP.

BASIC ELECTRICAL MATERIALS AND METHODS

RACEWAYS

EMT: ELECTRICAL METALLIC TUBING; ANSI C80.3, ZINC-COATED STEEL, WITH SET-SCREW COMPRESSION FITTINGS.

RMC: RIGID METAL CONDUIT; GALVANIZED RIGID STEEL; ANSI C80.1.

RNC: RIGID NONMETALLIC CONDUIT; NEMA TC 2, SCHEDULE 40 PVC (SCHEDULE 80 PVC WHERE INDICATED ON THE DRAWINGS), WITH NEMA TC3 FITTINGS.

LFMC: LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT, ZINC-COATED STEEL WITH SUNLIGHT-RESISTANT AND MINERAL-OIL-RESISTANT PLASTIC JACKET, UL 514C.

RIGID METALLIC CONDUIT (RMC): RMC SHALL BE HEAVY WALL, HOT DIPPED GALVANIZED STEEL INSIDE AND OUT WITH THREADED ENDS. PLASTIC-COATED RIGID STEEL CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT HAVING A 0.030" MINIMUM THICK FACTORY-BONDED PVC JACKET, USING PRE-JACKETED COUPLINGS.

RACEWAY FITTINGS: SPECIFICALLY DESIGNED FOR RACEWAY TYPE WITH WHICH USED.

RACEWAY APPLICATION FOR INDOOR INSTALLATIONS:
- EXPOSED: EMT.
- CONCEALED IN WALLS OR CEILINGS: EMT.
- CONNECTIONS TO VIBRATING EQUIPMENT: LFMC
- BOXES AND ENCLOSURES: NEMA 1, UNLESS OTHERWISE INDICATED.

RACEWAY APPLICATIONS FOR OUTDOOR INSTALLATIONS:
- BOXES AND ENCLOSURES: NEMA 250, TYPE 3R OR TYPE 4, UNLESS OTHERWISE INDICATED.
- USE RNC FOR HORIZONTAL RUNS WITH RMC RISERS AND ELBOWS FOR ALL BELOW GRADE INSTALLATIONS.

UNDERGROUND FEEDERS AND BRANCH CIRCUITS: INSULATED SINGLE CONDUCTORS IN RACEWAY.

INSTALL CONTINUOUS UNDERGROUND PLASTIC WARNING TAPE DURING TRENCH BACKFILLING, FOR EXTERIOR UNDERGROUND POWER, CONTROL, SIGNAL, AND COMMUNICATION LINES LOCATED DIRECTLY ABOVE POWER AND COMMUNICATION LINES. LOCATE 6 TO 8 INCHES (150 TO 200 MM) BELOW FINISHED GRADE. IF WIDTH OF MULTIPLE LINES INSTALLED IN A COMMON TRENCH OR CONCRETE ENVELOPE DOES NOT EXCEED 16 INCHES (400 MM), OVERALL, USE A SINGLE LINE MARKER.

WIRES, CABLES, AND CONNECTIONS

CONDUCTORS, NO. 10 AWG AND SMALLER: SOLID OR STRANDED COPPER.

CONDUCTORS, LARGER THAN NO. 10 AWG: STRANDED COPPER.

INSULATION: THERMOPLASTIC, RATED 600 V, 75 DEG C MINIMUM, TYPE THW, THHN-THWN, OR USE DEPENDING ON APPLICATION..

WIRE CONNECTORS AND SPLICES: UNITS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS SUITABLE FOR SERVICE INDICATED.

MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.

OUTLET, JUNCTION AND PULL BOXES

FLUSH WITH GRADE ENCLOSURES AND PULL BOXES SHALL BE QUAZITE® AS MANUFACTURED BY STRONGWELL OR APPROVED EQUAL. THE PULL/SPLICE BOX SHALL BE CONSTRUCTED OF POLYMER CONCRETE CONSISTING OF SAND AND AGGREGATE BOUND TOGETHER WITH A POLYMER RESIN. INTERNAL REINFORCEMENT MAY BE PROVIDED BY MEANS OF STEEL, FIBERGLASS, OR A COMBINATION OF THE TWO. BOXES AND COVERS SHALL BE CONCRETE GRAY, AND SUSTAIN A MINIMUM VERTICAL TEST LOAD OF 22,568# OVER A 10" SQUARE. BOXES SHALL BE STACKABLE FOR EXTRA DEPTH.

FLUSH WITH GRADE PULL BOXES: PROVIDE JUNCTION/PULL BOXES WHEREVER UNDERGROUND CONDUIT RUNS EXCEED 500 FEET OR WHERE REQUIRED TO COMPLY WITH THE MAXIMUM NUMBER/RADIUS OF BENDS PER THE NEC. JUNCTION/PULL BOXES SHALL BE SIZED ACCORDING TO NEC-LATEST EDITION, AND HAVE LOCKABLE SCREW-ON COVERS. ALL JUNCTION BOXES SHALL BE ACCESSIBLE.

OUTDOOR/DAMP LOCATION BOXES: CAST TYPE BOXES SHALL BE FERROUS ALLOY AND HAVE GASKETED CAST COVERS AND INSIDE THREADED HUBS WITH ADAPTERS AS NECESSARY. CAST-METAL BOXES SHALL COMPLY WITH NEMA 3R.

INDOOR DRY LOCATION BOXES: BOXES SHALL BE PRESSED STEEL, GALVANIZED OR CADMIUM-PLATED (4-INCH x 2 1/8" DEEP MINIMUM SQUARE FOR ALL WALL LOCATIONS, 4 11/16-INCH x 2 1/8" DEEP MINIMUM SQUARE FOR ALL ABOVE CEILING LOCATIONS), WITH GALVANIZED COVER. KNOCKOUT TYPE SHALL BE USED WITH KNOCKOUTS REMOVED ONLY WHERE NECESSARY TO ACCOMMODATE THE CONDUIT ENTERING. PROVIDE A GROUNDING TERMINAL IN EACH BOX CONTAINING A GREEN EQUIPMENT GROUND CONDUCTOR, OR SERVING MOTORS, LIGHTING FIXTURES, OR RECEPTACLES. GROUNDING TERMINAL SHALL BE GREEN-COLORED WASHER-IN-HEAD MACHINE SCREW OR GROUNDING BUSHING.

COVER AND DEVICE PLATES: PROVIDE HIGH IMPACT NYLON FOR DEVICES IN FINISHED AREAS, AND GALVANIZED STEEL ON SURFACE-MOUNTED DEVICES IN UNFINISHED AREAS. SURFACE OUTLET COVERPLATES SHALL HAVE BEVELED EDGES.

WIRING DEVICES

STRAIGHT-BLADE AND LOCKING RECEPTACLES: GENERAL-DUTY GRADE, 20-AMPERE, NYLON, COMPLY WITH NEMA WD 6.

GFCI RECEPTACLES: FEED-THROUGH TYPE, WITH INTEGRAL NEMA WD 6 CONFIGURATION 5-20R DUPLEX RECEPTACLE ARRANGED TO PROTECT CONNECTED DOWNSTREAM RECEPTACLES ON SAME CIRCUIT.

SNAP SWITCHES: GENERAL-DUTY, NYLON, QUIET TYPE. SWITCH SHALL BE RATED AT 20 A, 120/277-VAC.

WALL PLATES: SINGLE AND COMBINATION TYPES MATCH CORRESPONDING WIRING DEVICES. NYLON, COLOR TO MATCH WIRING DEVICES, COLOR TO BE SELECTED BY ARCHITECT. METAL PLATE-SECURING SCREW WITH HEAD COLOR TO MATCH PLATE FINISH.

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PROFESSIONAL ENGINEER

Print Date: 05/20/2025
File Name: FYA SIGNAL MODIFICATION
Horiz. Scale: N/A   Vert. Scale: N/A

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Sheet Revisions

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THORNTON, CO 80241

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FYA SIGNAL MODIFICATIONS
ELECTRICAL SPECIFICATIONS
104TH & FOXRUN

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers
Subset Sheets: 1 of 6

Project No. SHO M286-056
Drawing Number
Sheet Number 61 E01

SUPPORTING DEVICES

MATERIAL: COLD-FORMED STEEL, WITH CORROSION-RESISTANT COATING.

METAL ITEMS FOR USE OUTDOORS OR IN DAMP LOCATIONS: HOT-DIP GALVANIZED STEEL.

SLOTTED-STEEL CHANNEL: FLANGE EDGES TURNED TOWARD WEB, AND 9/16-INCH- DIAMETER SLOTTED HOLES AT A MAXIMUM OF 2 INCHES O.C., IN WEBS. STRENGTH RATING TO SUIT STRUCTURAL LOADING.

SLOTTED CHANNEL FITTINGS AND ACCESSORIES: RECOMMENDED BY THE MANUFACTURER FOR USE WITH THE TYPE AND SIZE OF CHANNEL WITH WHICH USED.

EXPANSION ANCHORS: CARBON-STEEL WEDGE OR SLEEVE TYPE.

TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE.

ELECTRICAL IDENTIFICATION

IDENTIFICATION DEVICE COLORS: USE THOSE PRESCRIBED BY ANSI A13.1, NFPA 70, AND THESE SPECIFICATIONS.

COLORED ADHESIVE MARKING TAPE FOR RACEWAYS, WIRES, AND CABLES: SELF-ADHESIVE VINYL TAPE, NOT LESS THAN 1 INCH WIDE BY 3 MILS THICK.

TAPE MARKERS FOR CONDUCTORS: VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND TYPE WITH PREPRINTED NUMBERS AND LETTERS. SECONDARY SERVICE, FEEDER, AND BRANCH-CIRCUIT CONDUCTORS: COLOR-CODE THROUGHOUT THE SECONDARY ELECTRICAL SYSTEM.

TAG AND LABEL ALL CIRCUITS: IDENTIFY SOURCE AND CIRCUIT NUMBERS IN EACH CABINET, PULL-BOX, JUNCTION BOX, AND OUTLET BOX. PROVIDE TYPED ADHESIVE LABELS ON THE FACEPLATES OF RECEPTACLES AND SWITCHES. COLOR-CODING SHALL BE USED FOR VOLTAGE AND PHASE IDENTIFICATION.

PROVIDE TYPED ADHESIVE LABELS ON THE FACEPLATES OF RECEPTACLES AND SWITCHES. LOCATE LABEL ON THE FRONT SIDE OF THE COVERPLATE AS WELL AS IDENTIFY CIRCUITS WITH PERMANENT INK ON THE BACKSIDE OF THE COVERPLATE.

ALL CONDUCTORS SHALL HAVE FACTORY APPLIED COLORED INSULATION THE ENTIRE LENGTH OF ALL CONDUCTORS.

COLOR-CODE 208/120-VOLT SYSTEM AS FOLLOWS:
PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
GROUND: GREEN

COLOR-CODE 480/277-VOLT SYSTEM AS FOLLOWS:
PHASE A: BROWN
PHASE B: ORANGE
PHASE C: YELLOW
NEUTRAL: WHITE WITH A COLORED STRIPE OR GRAY
GROUND: GREEN

EQUIPMENT IDENTIFICATION LABELS: ENGRAVED PLASTIC LAMINATE. INSTALL ON EACH UNIT OF EQUIPMENT, INCLUDING CENTRAL OR MASTER UNIT OF EACH SYSTEM. APPLY LABELS FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF EQUIPMENT USING MECHANICAL FASTENERS:

DISTRIBUTION AND CONTROL EQUIPMENT
IDENTIFY EQUIPMENT AS WELL AS LOADS SERVED
1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
1/8 INCH LETTERING TO IDENTIFY FUSE RATING/TYPE
1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

INDIVIDUAL CIRCUIT BREAKERS AND SWITCHES IN PANELBOARDS AND SWITCHBOARDS:
1/8 INCH LETTERING TO IDENTIFY CIRCUIT AND LOAD SERVED, INCLUDING LOCATION.
1/8 INCH LETTERING TO IDENTIFY FEEDER INFORMATION

PANELBOARDS, SWITCHBOARDS, ELECTRICAL CABINETS, INDIVIDUAL CIRCUIT BREAKERS, DISCONNECT SWITCHES, AND MOTOR STARTERS:
1/4 INCH LETTERING FOR EQUIPMENT DESIGNATION
1/8 INCH LETTERING TO IDENTIFY VOLTAGE & FAULT CURRENT RATING
1/8 INCH LETTERING TO IDENTIFY FEEDER (CONDUIT & WIRE SIZE)
1/8 INCH LETTERING TO IDENTIFY FEEDER SOURCE

PROVIDE UPDATED TYPED PANEL DIRECTORIES FOR NEW OR MODIFIED PANELS. ALL SPARE CIRCUIT BREAKERS SHALL BE SWITCHED OFF.

PANELBOARD GENERAL

ENCLOSURES: FLUSH- AND SURFACE-MOUNTED CABINETS. NEMA PB 1, TYPE 1, TO MEET ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.

FRONT: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD HINGED DOOR WITHIN HINGED TRIM COVER AND SECURED TO BOX WITH SCREWS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS; FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.

FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH OVER CORROSION-RESISTANT TREATMENT OR PRIMER COAT.

DIRECTORY CARD: WITH TRANSPARENT PROTECTIVE COVER, MOUNTED INSIDE METAL FRAME, INSIDE PANELBOARD DOOR. (PANEL SCHEDULES SHALL BE TYPED AND INCLUDE DEVICE TYPE AND ROOM(S) SERVED).

BUS: ALUMINUM.

MAIN AND NEUTRAL LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL.

EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUND CONDUCTORS; BONDED TO BOX.

FUTURE DEVICES: MOUNTING BRACKETS, BUS CONNECTIONS, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.

FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.

BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.

MOLDED-CASE CIRCUIT BREAKER: NEMA AB 1, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.
THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS.

ELECTRICAL EQUIPMENT INSTALLATION

MATERIALS AND COMPONENTS: INSTALL LEVEL, PLUMB, AND PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED.

EQUIPMENT: INSTALL TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE WITH OTHER INSTALLATIONS.

CONDUIT CONNECTIONS TO TRANSFORMERS SHALL BE MADE WITH LIQUID-TIGHT FLEXIBLE METAL CONDUIT, NOT LESS THAN 18 INCHES OR MORE THAN 36 INCHES IN LENGTH. BONDING BUSHINGS SHALL BE INSTALLED AT BOTH ENDS OF ALL TRANSFORMER PRIMARY AND SECONDARY FEEDERS.

SEPARATELY DERIVED SYSTEMS: MAKE GROUNDING CONNECTIONS TO GROUNDING ELECTRODES AND BONDING CONNECTIONS TO METALLIC PIPING AS INDICATED AND TO COMPLY WITH NFPA 70.

FOR ADVERTISEMENT 9/15/2025

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07/30/2025
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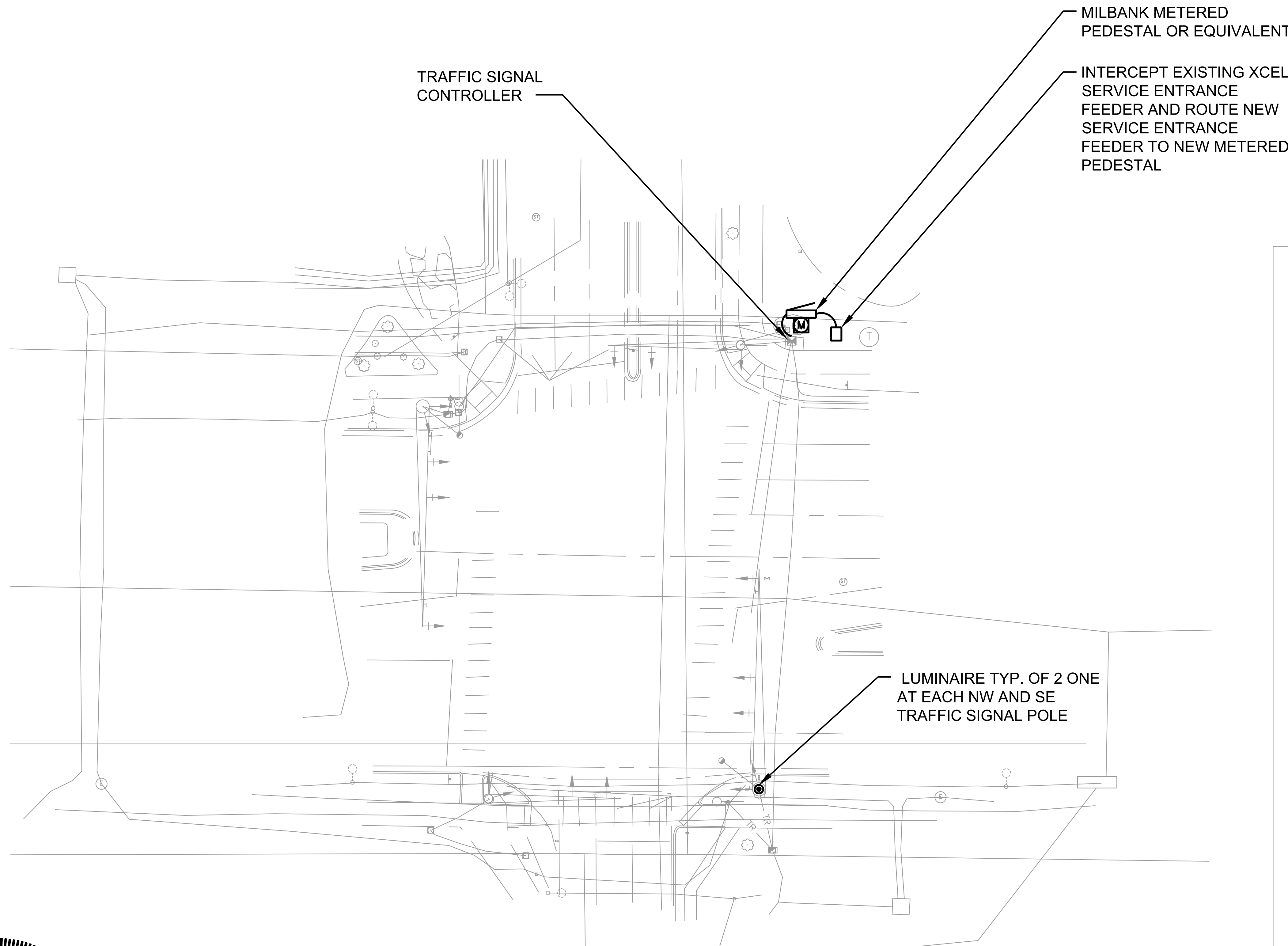
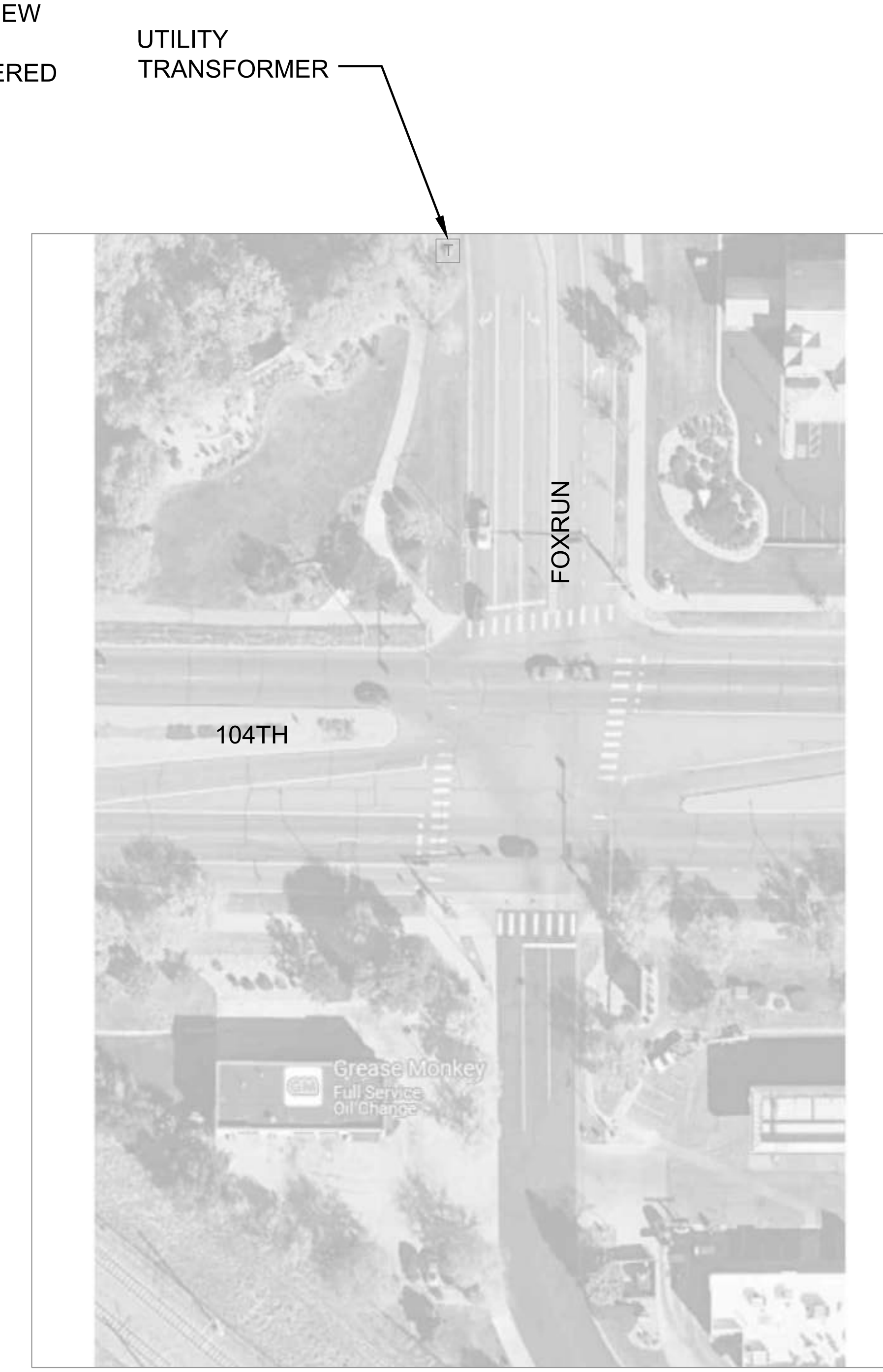
FYA SIGNAL MODIFICATIONS
ELECTRICAL SPECIFICATIONS
104TH & FOXRUN

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers
Subset Sheets: 1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 62 E02





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TYPICAL ELECTRICAL TRAFFIC SIGNAL SITE PLAN

SCALE: 1"=30'

1
E03

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FYA SIGNAL MODIFICATIONS
ELECTRICAL SITE PLAN
104TH & FOXRUN

Designer:	AEI	Structure Numbers	
Detailer:	DJA		
Sheet Subset:	E	Subset Sheets:	1 of 6

Project No.	
SHO M286-056	
Drawing Number	
Sheet Number	63 E03

Short Circuit Summary

Point-to-Point * Feeder Summary

Description	Phase	Length	Isc Avail	# Runs	C	V(L-L)	Isc @ Device
100 KVA XCEL TRANS			10900				**10900**
NEW POWER PED	1	276	10900	1	7493	240	**2508**

FEEDER SCHEDULE

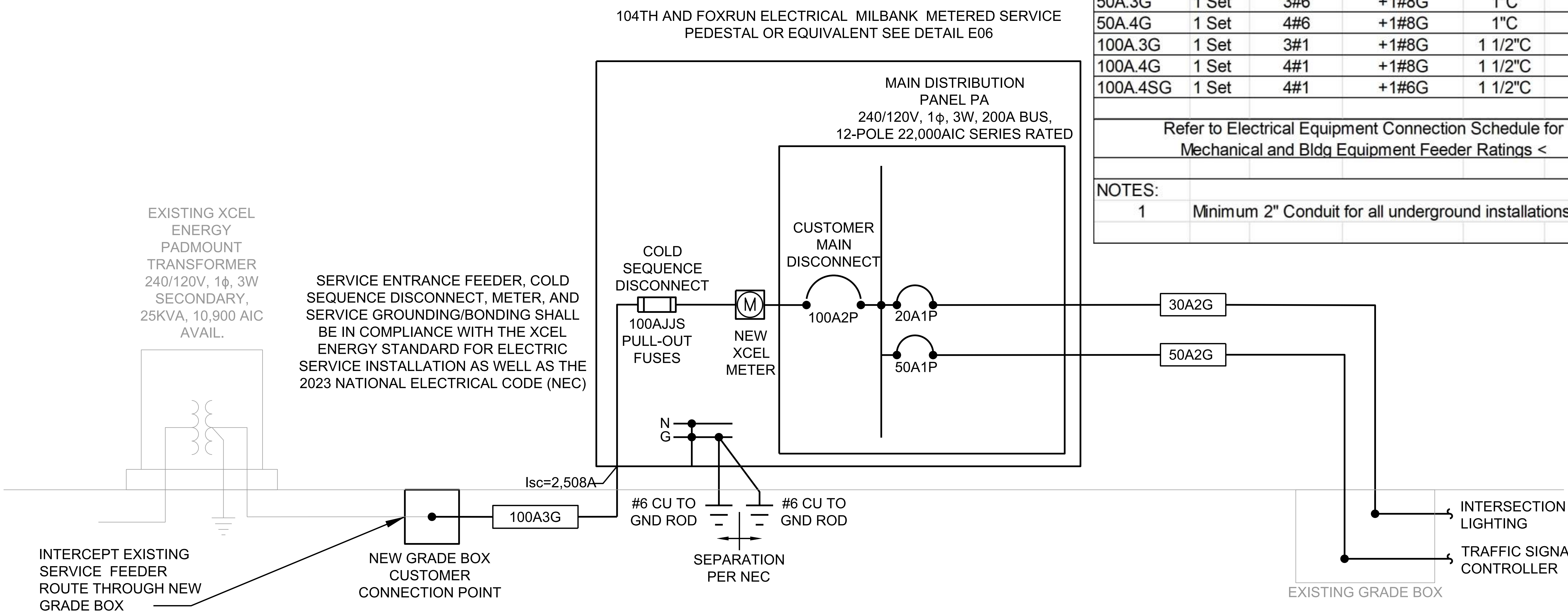
ALL WIRE SHALL BE COPPER UNLESS NOTED OTHERWISE

Feeder Key	# of Runs	Wire Size	Ground	Conduit	Notes
20A.3G	1 Set	3#12	+1#12G	3/4"C	1
20A.4G	1 Set	4#12	+1#12G	3/4"C	1
30A.3G	1 Set	3#10	+1#10G	3/4"C	1
30A.4G	1 Set	4#10	+1#10G	3/4"C	1
50A.2G	1 Set	2#6	+1#8G	1"C	
50A.3G	1 Set	3#6	+1#8G	1"C	
50A.4G	1 Set	4#6	+1#8G	1"C	
100A.3G	1 Set	3#1	+1#8G	1 1/2"C	
100A.4G	1 Set	4#1	+1#8G	1 1/2"C	
100A.4SG	1 Set	4#1	+1#6G	1 1/2"C	

Refer to Electrical Equipment Connection Schedule for Mechanical and Bldg Equipment Feeder Ratings <

NOTES:

1 Minimum 2" Conduit for all underground installations



TYPICAL ELECTRICAL TRAFFIC SIGNAL ONE-LINE DIAGRAM

1
E04

SCALE: N/A

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FYA SIGNAL MODIFICATIONS
ONE LINE DIAGRAM
104TH & FOXRUN

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers
Subset Sheets: 1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 64 E04

Name:	PA (NEW)		Mnt Method:	PEDESTAL
Volt:	240/120		Bus Rating:	200
Ph:	1		Main Breaker	100
Wire:	3		AIC Rating:	22,000

	Code	Description	Load VA	Bkr	P	Ph A	Ph B	P	Bkr	Load VA	Description	Code	
1	6	Traffic Signal	4800	50	1	*		1	20	500	INTERSECTION LTG	1	2
3		Space Only		-			*		-		Space Only		4
5		Space Only		-		*			-		Space Only		6
7		Space Only		-			*		-		Space Only		8
9		Space Only		-		*			-		Space Only		10
11		Space Only		-			*		-		Space Only		12

Shading indicates existing circuit / breaker - No Change >><< Unshaded indicates new circuit / breaker

Code	Description	Load VA	Dem
1	Lighting	**500**	125%
2	Rec up to 10,000		100%
	Rec over 10,000		50%
3	Motor		100%
	Largest Motor		125%
4	Heater		100%
5	Kitchen		100%
6	Miscellaneous	**4800**	100%
7	Sub Panel		100%

Load Summary

Per Phase		
Ph A	**5300**	VA
Ph B		VA
Connected	**5300**	VA
Code Demand	**5425**	VA
Code Demand	**22.60**	Amps

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PROFESSIONAL ENGINEER
07/30/2025

ackerman engineering, inc.
3000 Youngfield St, Suite 264
Wheat Ridge, Colorado 80215
303-278-7297 / aeiconsulting.com

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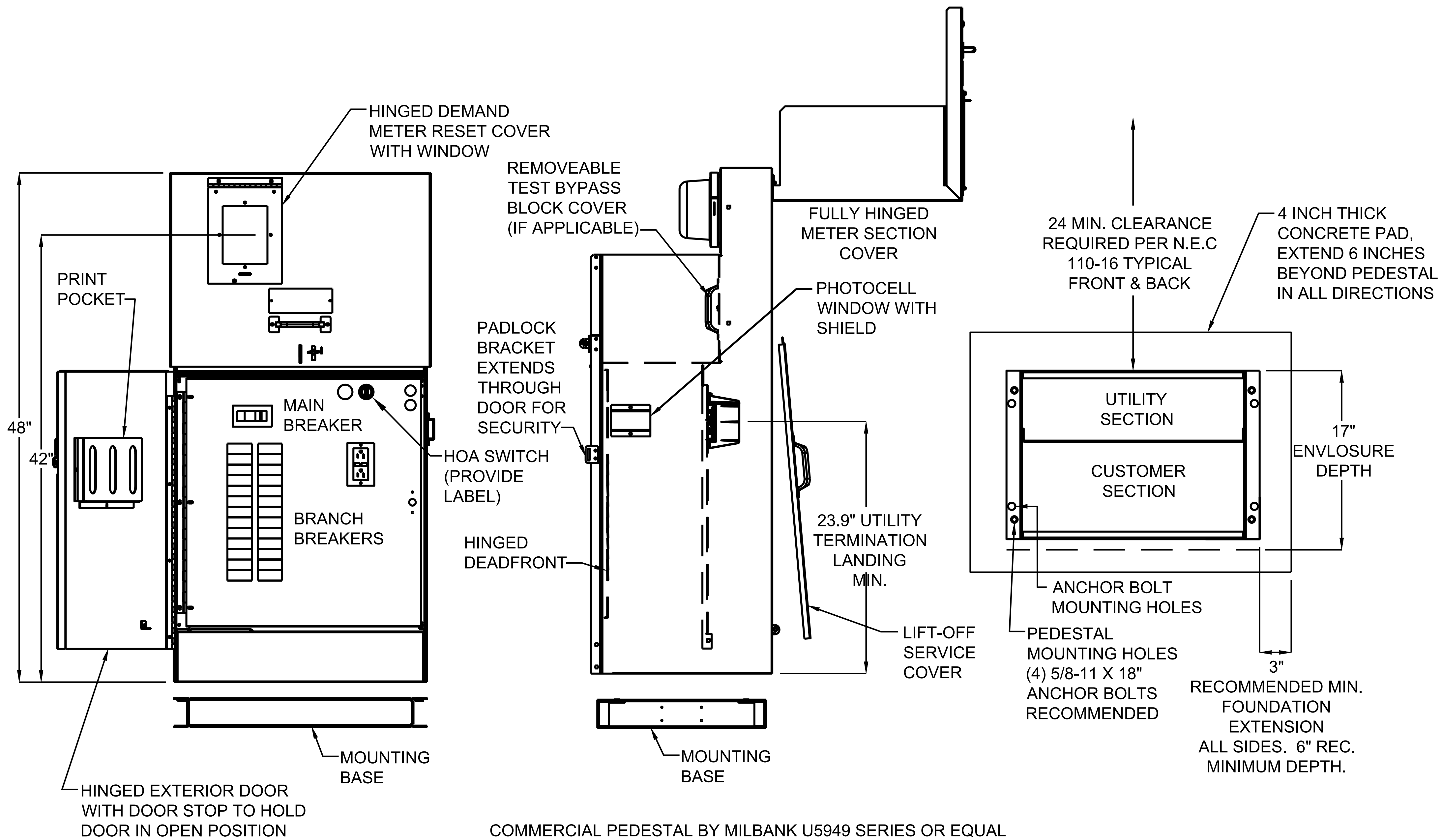
FYA SIGNAL MODIFICATIONS
ELECTRICAL SCHEDULES
104TH & FOXRUN

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers
Subset Sheets: 1 of 6

Project No.
SHO M286-056
Drawing Number
Sheet Number 65 E05



COMMERCIAL PEDESTAL BY MILBANK U5949 SERIES OR EQUAL WITH NO PHOTOCELL OR SERVICE RECEPTACLE: 100A2P COLD SEQUENCE MAIN, 150A XCEL ENERGY COLD SEQUENCE METER, 200A COPPER BUS, 100A2P MAIN BRKR, 240/120V, 1ϕ, 3-WIRE, 22KAIC MINIMUM

COMMERCIAL METERED PEDESTAL DETAIL

1 / E06

SCALE: N/A

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FYA SIGNAL MODIFICATIONS
ELECTRICAL DETAILS
104TH & FOXRUN

Designer: AEI
Detailer: DJA
Sheet Subset: E
Structure Numbers
Subset Sheets: 1 of 6

Project No.: SHO M286-056
Drawing Number
Sheet Number: 66 E06

STORMWATER MANAGEMENT PLAN (SWMP) LESS THAN 1 ACRE OF DISTURBANCE

1. Site Description

The Contractor shall comply with all CDOT contractual requirements, and all requirements associated with the CDPS-SCP on this project. The SWMP Administrator for Construction shall update the SWMP to reflect current project site conditions.

A. Project Site Location:

Location or address of construction office:

The Project is located in Thornton, Adams County, Colorado. There are eight intersections requiring a new signal poles at the following intersections:

- 84th & Conifer Rd (Southeast corner)
- 88th & Pearl St (Southeast corner)
- 88th & Poze Blvd (Southeast corner)
- 98th & Grant St (all corners)
- Huron St & Thornton Pkwy (all corners)
- 104th & Fox Run Pkwy (Northwest and Southeast corners)
- 104th & Steele St (Northwest and Southeast corners)

B. Project Site Description:

The City of Thornton has received federal funding to modify and improve 21 intersections from Protected Permissive Left Turn (PPLT) operations to Flashing Yellow Arrow (FYA) Left Turn operations. Flashing Yellow Arrow signals are safer because they provide drivers with a clear indication to yield to oncoming traffic and pedestrians, reducing confusion and the risk of accidents. Eight of the intersections will require traffic signal pole replacements to accommodate FYA signal head. Other improvements include the replacement of curb ramps to ensure ADA compliance, and landscape restoration. The other remaining locations will have the PPLT signals replaced with the FYA signals, and do no require any land disturbance. All intersections are within the city limits of Thornton, Colorado.

C. Proposed Schedule for Sequence for Major Construction Activities:

Stabilize all areas that are not paved or landscaped through establishment of vegetation cover.

1. Install initial control measures
2. Remove existing traffic signal pole/install replacement
3. Replace sidewalks if disturbed and install ADA compliant ramps
4. Final stabilization

D. Acres of Disturbance:

1. Total area of construction site (LOC (PERMITTED AREA)): 0.81 acres
2. Total area of proposed disturbance (LDA): 0.10 acres
3. Total area of seeding: 0.06 acres
4. Total area of pre-project impervious surface: 0.13 sq. ft.
5. Total area of final impervious surface: 0.14 sq. ft.

E. Existing Soil Data:

- **84th & Conifer Rd**: Soil at this location is classified as loam. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group D. Drainage Class is well drained.
- **88th & Pearl St**: Soil is classified as loam and non-saline. Hydrologic Soil Group C. Drainage Class is well drained.
- **88th & Poze Blvd**: Soil is classified as loam. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group D. Drainage Class is well drained.
- **98th & Grant St**: Soil at this location is classified as loam. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group C. Drainage Class is well drained.
- **Huron St & Thornton Pkwy**: Soil at this location is classified as loam. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group C. Drainage Class is well drained. The southwest corner has soils of both Hydrologic Soil Group C and Hydrologic Soil Group D.
- **104th & Fox Run Pkwy Northwest corner:** Soil at this location is a combination loam and clay. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group C and Hydrologic Soil Group D. Drainage Class is well drained.
- **104th & Fox Run Pkwy Southeast corner:** Soil is classified as loam and non-saline. Hydrologic Soil Group C. Drainage Class is well drained.
- **104th & Steele St:** Soil at this location is classified as loam. The soils have saline contents ranging from non-saline to very slightly saline. Hydrologic Soil Group D. Drainage Class is well drained.

Data Source(s): Web Soil Survey – Natural Resources Conservation Service - USDA

F. Existing Vegetation, Including Percent of Vegetative Cover:

During design, the SWMP Administrator for Design in consultation with the Engineer will determine if the SWMP Administrator for Design or the SWMP Administrator for Construction will conduct the Vegetation Transects. If the site is disturbed, an Adequate Reference Site(s) may be utilized, refer to the CDPS-SCP.

Pre-Construction Date of survey: Percent Existing Vegetative Cover:

Description of existing vegetation:

Method for determining percent vegetative cover:

Include a map or table showing transect locations, photos documenting pre-Construction vegetative cover, and methodology used to determine existing vegetative cover to SWMP Tab 17:

Post-Construction Date of survey: _____ Percent Vegetative Cover: _____

Description of vegetation:

The method used to determine pre-construction percent cover shall be used to determine post construction percent cover.

Include map or table showing transect locations, photos documenting post-Construction vegetative cover, and methodology used to determine existing vegetative cover to SWMP Tab 17:

2. Stormwater Management Controls for First Construction Activities

The Contractor shall perform the following

A. Potential Pollutants Sources:

Refer to Potential Pollutant Sources in SWMP Section 4A. The SWMP Administrator for Construction shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

B. Offsite Drainage (Run on Water):

Place Control Measures to address run-on water in accordance with subsection 208.03.

C. Construction Dewatering:

Obtain a CDPS Dewatering Permit from CDPHE if conditions of their Low Risk Guidance for Discharges of Uncontaminated Groundwater to Land are not met; see subsections 107.02 and 107.25.

Refer to CDPHE Low Risk Discharge Guidance Document of Uncontaminated Groundwater to Land. https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf

D. Vehicle Tracking Control:

Control Measures shall be implemented in accordance with subsection 208.04.

E. Perimeter Control:

Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. With subsection Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other Control Measures as approved.

3. Qualified Stormwater Managers:

A. SWMP Administrator for Design:

CDOT Certified Individual responsible for developing SWMP Plan Sheets and SWMP Site Maps during the design phase.

Name/Title	Contact Information	Certification #
Lauren Gentile	gentile@rocksol.com	33D95D1A

B. SWMP Administrator for Construction: (As defined in Section 208) The Contractor shall designate a SWMP Administrator for Construction upon accepting co-permittee of the permit. The SWMP Administrator for Construction shall become the operator for the SWMP and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance with subsection 208.03, the SWMP shall remain the property of CDOT. The SWMP Administrator for Construction shall be responsible for implementing, maintaining, and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP Administrator for Construction shall address all aspects of the project's SWMP. (Update the information below

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FYA SIGNAL MODIFICATIONS SWMP NARRATIVE

Designer: L. Gentile
Detailer: H. Pugh
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 1 of 13

Project No. SHO M286-056

Drawing Number SWMP-001

Sheet Number 67

for each new SWMP Administrator for Construction) (A copy of current TECS Certification must be included in the SWMP).

Name/Title	Contact Information (phone & email)	Certification #	Certification Expiration Date	Start Date

C. Permanent Stabilization Subject Matter Expert: This qualified individual will be either a Regional Environmental Staff member, or an Independent Contractor Controller (Independent Assurance Program). This expert is a project team leader responsible for ensuring project adherence to requirements of the 207 and 212 Project Special Provisions as follows and will be available for questions regarding permanent stabilization requirements.

1. Review the Topsoil Management Plan and the Permanent Stabilization Site Maps.
2. Attend the Environmental Pre-Construction Conference.
3. Coordinate the Site Pre-Vegetation Conference.
4. Review and recommend approval of products.
5. Attend the Partial Landscape Completion Walkthrough.
6. Attend the Final Landscape Completion Walkthrough.

Name/Title	Contact Information [phone & email]

4. During Construction

Responsibilities of the SWMP Administrator for Construction: Considered a "living document", the SWMP is continuously reviewed and modified throughout the construction phases. During construction, the SWMP Administrator for Construction shall have full responsibility to maintain and update the SWMP in accordance with subsection 208.03(c).

During construction, indicate how items that were not addressed during design are being handled in construction. If items are covered in other sections of the SWMP, indicate below what section the discussion takes place.

A. Materials Handling and Spill Prevention and Response Plan: Prior to commencing Construction Activities Associated with Water Quality, the Contractor shall submit a Spill Response Plan. Materials handling and Spill Response Plan shall be in accordance with subsection 208.06.

B. Other CDPS Permits or Guidance Documents: List applicable CDPS permits or guidance documents associated with the permitted site and activities.

C. Stockpile Management: Shall be done in accordance with subsections 107.25 and 208.07.

D. Concrete Washout: Concrete and masonry washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

E. Saw Cutting: Shall be done in accordance with subsections 107.25, 208.02, 208.04, 208.05.

F. Street Sweeping: Shall be done in accordance with subsection 208.04.

5. Control Measure Maintenance

Maintenance shall be in accordance with subsection 208.04(f).

6. Temporary, Permanent Stabilization and Long-Term Stormwater Management

The Contractor shall comply with all temporary stabilization and permanent stabilization requirements in accordance with subsection 208.04(e).

A. Seeding Plan:

The following seed mix(es) and rates are for hand broadcast seeding method as shown on the Permanent Stabilization Site Maps shall be used:

Common Name	Botanical Name	Lb. PLS per acre
Buffalo Grass	Buchloe dactyloides	37
Blue Grama	Bouteloua gracilis	8
	Total	**45**

B. Seeding Application Method:

The following seeding methods shall be used for all areas shown on the Permanent Stabilization Site Maps. Soil compaction shall be minimized for areas where permanent/landscape stabilization will be achieved through vegetative cover.

Pay Item	Seeding Method (subsection 212.05)	Acre
212-00708	Seeding (Native) Broadcast	**0.06**
	Total	**0.06**

C. Mulching Application:

Apply a minimum of 2 tons/ac of certified weed free hay or 2 1/2 tons/ac of certified weed free straw per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

Prior to winter shutdown or the summer seeding window closure: Uncompleted slopes shall be mulched with 2 tons of mulching (weed free) per acre, mechanically crimped into the topsoil in combination with an organic mulch tackifier in accordance with Sections 208 and 213.

D. Special Requirements:

1. Soil amendments, seedbed preparation, and permanent stabilization mulching shall be accomplished within four working days of placing the topsoil on the de-compacted civil subgrades. If placed topsoil is not mulched with permanent stabilization mulch within four working days, the Contractor shall complete temporary stabilization methods in accordance with subsection 208.04(e) at no additional cost to the Department.
2. Complete permanent stabilization mulching within 24 hours of hydraulic application of native seed.
3. The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer for approval showing how implementation of SWMP Permanent Stabilization Plans will minimize damage to seeded areas.

E. Soil Amendment Requirements: Minimum amendment material requirements for all disturbances to receive seeding.

0.06 Total Acres of Seeding (Native) Broadcast (Pay Item 212-00708)

Pay Item	Description	Amount/ Acre	Units	Total For This Method
212-00700	Organic Fertilizer	300	Pounds	**18**
212-00701	Compost (Mechanically Applied)	65	CY	**3.9**
212-00704	Mycorrhizae	40	Pounds	**2.4**

A minimum 4 cubic yards (6 cubic yards for City maintained landscapes and all metropolitan district parks) per 1,000 sf of a Class I or II compost shall be distributed across the soil surface of all landscape areas in a uniform 1⅓" (6 cubic yards = 2 inch layer) and incorporated into the top 8 inches of soil with a rototiller capable of tilling to 8 inches in depth. Shrub beds shall be amended throughout the entire bed prior to planting, not just the planting hole.

Native grass seeding: broadcast 1500 lbs/Ac Biosol Forte Mix 7-2-3, or approved equal, before seeding.

F. Soil Retention Covering:

On slopes and ditches requiring a blanket or turf reinforcement mat (TRM), the blanket/TRM shall be placed in lieu of mulch and mulch tackifier and placed after seeding. See SWMP Site Map for blanket/TRM locations.

G. Permanent Stabilization Application Under Structures:

Under structures, shade patterns should be considered and the use of Median Cover Material (Stone) or other

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FYA SIGNAL MODIFICATIONS SWMP NARRATIVE

Designer: L. Gentile
Detailer: H. Pugh
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 2 of 13

Project No. SHO M286-056
Drawing Number SWMP-002
Sheet Number 68

stabilized options with an approved Project Special Provision should be used. See SWMP Site Map for locations.

H. Reseeding Operations/Corrective Stabilization:

Prior to stormwater construction work partial acceptance.

1. All seeded areas shall be reviewed by the SWMP Administrator for Construction and or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.
2. The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas, at no additional cost to the project.

7. Prior to Project Final Acceptance

A. When directed by the Engineer, removal and disposal of temporary control measures shall be included in the cost of work.

B. At the end of the project, all ditch checks shall consist of either temporary erosion logs (sediment control logs) (or equivalent) or permanent riprap.

C. All storm drains shall be cleaned prior to the Final Acceptance of the project. If required, include work in 202-04002 Clean Culvert. [**Check with Region Water Quality staff to see if Clean Culvert PSP is needed and what Pay Item to use.**]

D. Refer to subsection 208.10 for Items to be completed prior to requesting partial acceptance of water quality work.

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FYA SIGNAL MODIFICATIONS
SWMP NARRATIVE

Designer:	L. Gentile	Structure Numbers	
Detailer:	H. Pugh		
Sheet Subset:	SWMP	Subset Sheets:	3 of 13

Project No.
SHO M286-056
Drawing Number SWMP-003
Sheet Number 69

8. Narratives

Control Measure Matrixes During Construction:

1. Control measure narratives have been included for the CDOT Standard Specifications and Standard Plan M-208 and M-216 along with any non-standard control measures approved during the design process. If a Non-Standard Control Measure not included in the SWMP is proposed and approved by the Engineer, the SWMP Administrator for Construction shall: Place an "X" in the column "M-208 Standard or 'X' for Non-Standard" and complete a Non-Standard Control Measure Specification and Narrative. The Narrative shall include drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements of the control measure. The appropriate "X" shall also be added to the implementation phase(s).

2. The SWMP Administrator for Construction shall place an "X" in the column "In Use On Site" when the control measure has been installed.

3. A "B" in the "Initial Activities" column indicates that the control measure shall be installed **before** construction activities associated with water quality commence. Locations and quantities will be discussed during the Environmental Pre-Construction Conference with the Regional Water Pollution Control Manager.

Structural Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to the following:

Application, Control measure	Narrative	M- 208 Standard or "X" For Non-Standard	In Use on Site	Initial Activities	Interim Activities	Permanent Stabilization
Protection of Existing Trees/Landscaping Fence (plastic)	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of sensitive habitat, mature trees and/or existing landscaping prior to start of construction activities associated with water quality.			**B**	**X**	
Check Dam/Ditch Check Erosion log (sediment control log), silt berm, silt dike, rock check dam	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in the ditch. For existing ditches, place prior to start of construction activities associated with water quality.	M-208				
Storm Drain Inlet Protection in Paved Roadways (Type 1, 2 and 3 as shown on M-208-1, sheet 5 of 11)	Manufactured storm drain inlet protection placed prior to construction activities associated with water quality as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	M-208		**B or X**	**X**	**X**
Storm Drain Inlet Protection in Native Seed Areas (M-604 Standard Inlets Type C and D)	Erosion logs (sediment control logs) or aggregate bags placed around the inlet grate to prevent sediment from entering the inlet. Place prior to construction activities associated with water quality to protect existing inlets or immediately upon completion of new inlets.	M-208		**B or X**		
Culvert Inlet/Outlet Protection Erosion logs (sediment control logs), aggregate bags	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to the start of construction activities associated with water quality.	M-208				
Type C, Type D And Type 13 Protection Erosion logs (sediment control logs), aggregate bags, erosion bales	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to the start of construction activities associated with water quality.	M-208		**B or X**	**X**	**X**
*Stockpile Protection Temporary berm, erosion logs (sediment control logs), aggregate bags**	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the workday. Place prior to start of stockpiling, increase control as the stockpile increases size.	M-208			**X**	
*Toe of Fill Protection Erosion logs (sediment control logs), temporary berm, silt fence, topsoil windrow**	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208				
Perimeter Control Erosion logs (sediment control logs), silt fence, temporary berms	Placed prior to construction activities associated with water quality commencing to address potential run-on water from off site, and to divert around disturbed areas.	M-208		**B**	**X**	
Concrete Washout In-ground or fabricated	Construction control, used for waste management of concrete/masonry and concrete/masonry equipment cleaning. Place prior to the start of concrete and masonry activities.	M-208				
Vehicle Tracking Pad	Vehicle tracking pads shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the LOC. Place prior to the start of construction activities associated with water quality.	M-208				
Dewatering (Contractor is responsible for obtaining a permit from the Colorado Department of Health and Environment.)	Shall be done in such a manner to prevent potential pollutants from entering State waters.					
Other						

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Non-Structural Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:
Erosion control devices are used to limit the amount of soil loss on site. Sediment control devices are designed to capture sediment on the project site. Construction controls are control measures related to construction access and staging. Control Measure locations are indicated on the SWMP Site Map.

Application, Control measure	Narrative	M- 208 Standard Or "X" for Non-Standard	In Use on Site	Initial Activities	Interim Activities	Permanent Stabilization
Vegetative Buffer Strip	Finishing component for filtering sediment-laden runoff from disturbance area. Area within CDOT ROW or temporary easement to be identified on SWMP prior to construction activities associated with water quality starting. Upgradient control measures must be installed immediately adjacent to vegetative buffers.			X	X	X
Grading Applications (Landform)	Existing or created landforms may be used as a control measure if they prevent sediment from entering or leaving the disturbance area. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. Area to be identified on SWMP prior to construction activities associated with water quality starting.	M-208		X	X	
Topsoil Management Stockpile/Salvage Stockpile	Prior to any site disturbance work commencing, existing topsoil shall be scraped to a depth six inches or as specified, and placed in stockpiles or windrows. Upon completion of final grading, topsoil shall be evenly distributed over embankment to a depth of six inches or as specified.	M-208		X	X	X
Surface Roughening / Grading Techniques	Daily stabilization of disturbance and to minimize wind erosion.				X	
Seeding (Temporary)	Temporary stabilization used for over wintering of disturbance or used to control erosion for areas scheduled for future construction.					
Bonded Fiber Matrix or Mulching (Hydraulic)	Not to be used in areas of concentrated flows, i.e. ditch lines. To be for either Temporary or Permanent Stabilization placed as a surface cover for erosion control. May be used as surface cover when work is temporarily halted and as approved by the Engineer for stockpiles.				X	
Straw or Hay Mulch/Mulch Tackifier	Temporary or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as Temporary Stabilization as a surface cover when work is temporarily halted and as approved by the Engineer				X	X
Spray-On Mulch Blanket (Not to be used in areas of concentrated flows, i.e. ditch lines.)	Temporary or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as temporary surface cover when work is temporarily halted and as approved by the Engineer				X	X
Seeding Permanent (Native Perennial)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.					X
Soil Retention Blanket (SRB)	Temporary or Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.	M-216			X	X
Turf Reinforcement Mat (TRM)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas. Placed in channels or on slopes for erosion control, channel liner and seed establishment.	M-216				X
Sweeping	Source control, used to remove sediment tracked onto paved surfaces and to prevent sediment from leaving the LOC. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.			X	X	X
Other						

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File Name: SWMP-001 SWMP NARRATIVE.DWG
Horiz. Scale: N/A Vert. Scale: N/A

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Fax: (303) 962-9350

Sheet Revisions

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CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
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FYA SIGNAL MODIFICATIONS SWMP NARRATIVE

Designer: L. Gentile
Detailer: H. Pugh
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 5 of 13

Project No.
SHO M286-056
Drawing Number SWMP-005
Sheet Number 71

9. Tabulation of Stormwater Quantities

A. Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other control measure maintenance shall be included in the cost of the control measure.

PSP Spec.	Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	*Total Quantity
	207-00700	Topsoil (Onsite)	CY			49	49
	208-00002	Erosion Log Type 1 (12 inch)	LF	100	100		200
	208-00035	Aggregate Bag	LF	200	200		400
	208-00046	Pre-fabricated Concrete Washout Structure (Type 1)	Each		2		2
	208-00103	Removal and Disposal of Sediment (Labor)	Hour		10		10
	208-00105	Removal and Disposal of Sediment (Equipment)	Hour		10		10
	208-00106	Sweeping (Sediment Removal)	Hour		20		20
	208-00107	Removal of Trash	Hour		10		10
	212-00700	Organic Fertilizer	Pounds				18
	212-00701	Compost (Mechanically Applied)-	CY				4
	212-00704	Mycorrhizae	Pounds				3
	212-00708	Seeding (Native) Broadcast	Acre			0.1	0.1
X	212-01200	Landscape Restoration	Lump Sum			1	1
	216-00201	Soil Retention Blanket (Straw/Coconut) (Biodegradable Class 1)	SY			291	291

*It is anticipated that additional control measures and control measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsections 208.03 and 208.04. **Quantities for all control measures shown above are estimated and have been increased for unforeseen conditions and normal control measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.
**Pay Item 208-00071 is included for anticipated maintenance of vehicle tracking pads based on the service life of the control measure in the field. The use of the material shall be directed and approved by the Engineer.

10. Biological Impacts and Dewatering

A. Environmental Impacts:

1. Wetland Impacts: No
2. Stream Impacts: No
3. Threatened and Endangered Species: Black-tailed prairie dogs present at 98th and Grant St southwest corner. No impacts anticipated, as they are located outside of project limits. No impacts anticipated at any other locations.

B. Dewatering:

(Not covered under the CDPHE guidance document Low Risk Discharge Guidance Discharges of Uncontaminated Groundwater to Land):
https://drive.google.com/open?id=17ck1ZJojHSacJ_wxp2FfUr4rAxNgVWZv

1. Dewatering: Refer to other environmental permits in accordance with subsection 107.02 and the permits contained in Tab 16 of the SWMP.
2. If groundwater does not meet water quality standards for receiving water a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

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Designer: L. Gentile
Detailer: H. Pugh
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 6 of 13

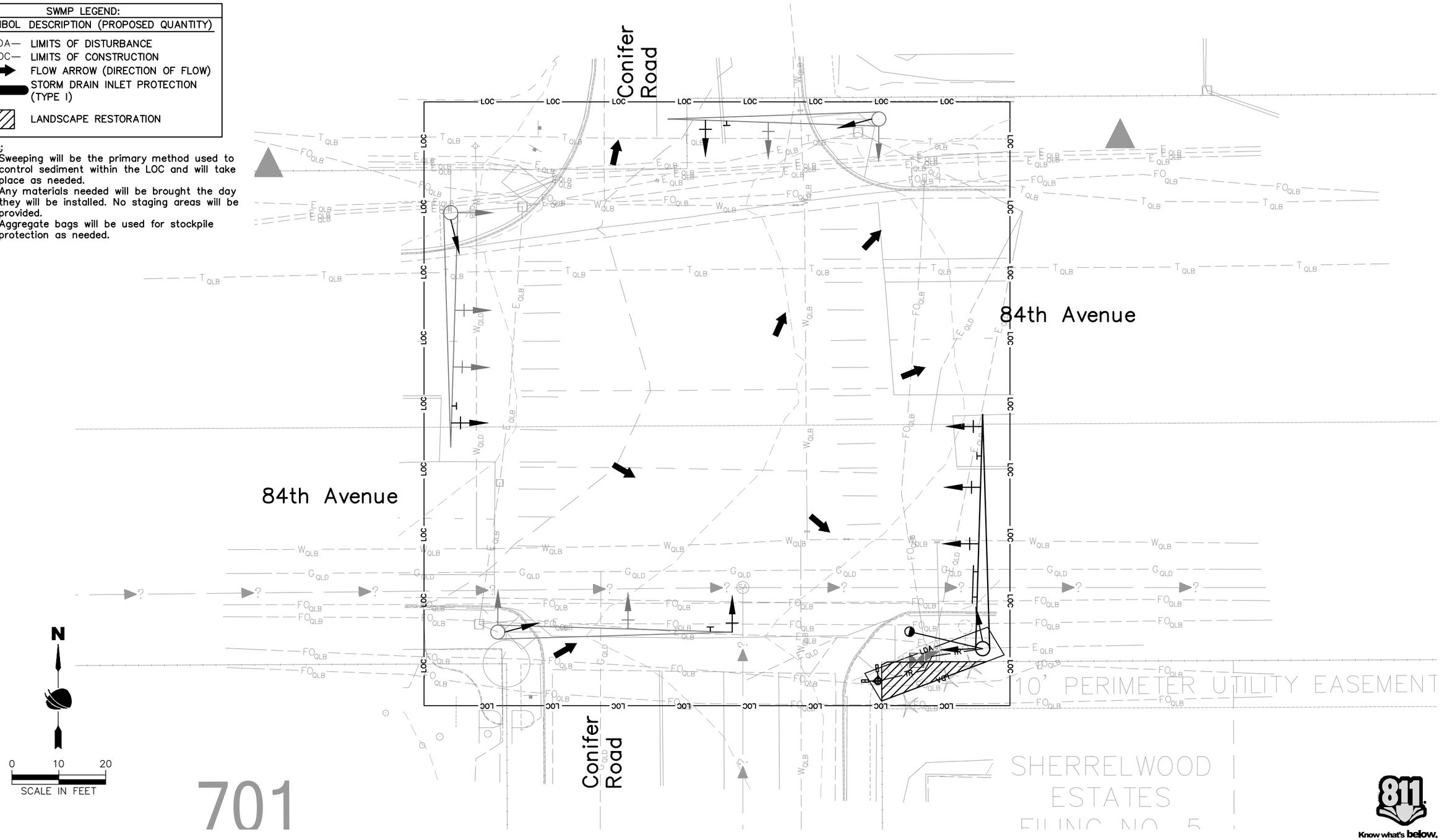
Project No. SHO M286-056
Drawing Number SWMP-006
Sheet Number 72

Plot Date:7/29/2025 10:17 AM Plotted By: Sarah Hamker
R:\G-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\SWMP-001 SWMP NARRATIVE.DWG

SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
	FLOW ARROW (DIRECTION OF FLOW)
	STORM DRAIN INLET PROTECTION (TYPE I)
	LANDSCAPE RESTORATION

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.



701

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Designer:	D. Schuler	Structure Numbers	
Detailer:	S. Hemler		
Sheet Subset:	SWMP	Subset Sheets:	7 of 13

Project No.

SHO M286-056

Drawing Number SWMP-007

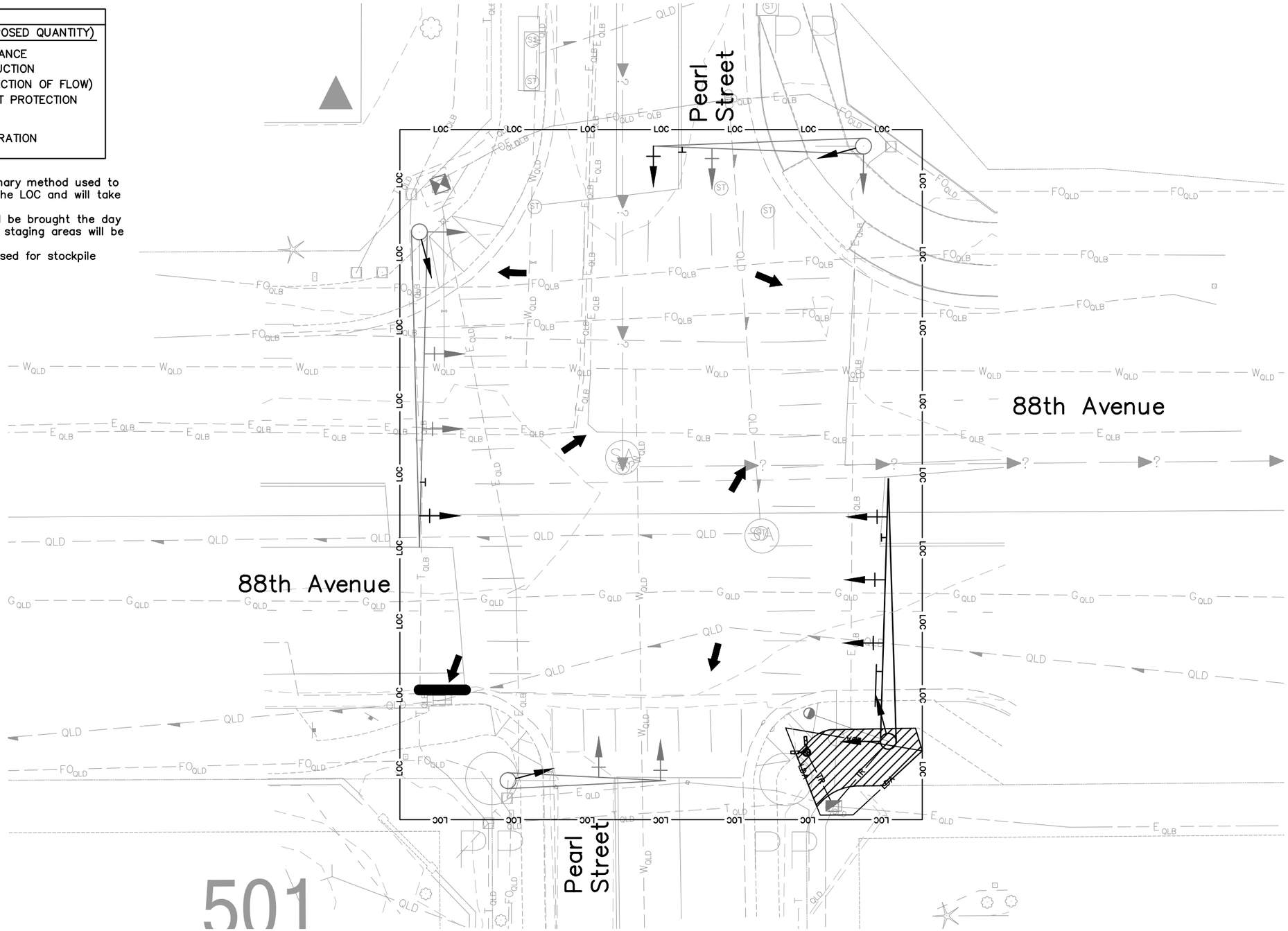
Sheet Number 73

Plot Date:7/29/2025 10:18 AM Plotted By: Sarah Hemler
R:\2-PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\SWMP-001 SWMP PLANS.DWG

SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
	FLOW ARROW (DIRECTION OF FLOW)
	STORM DRAIN INLET PROTECTION (TYPE I)
	LANDSCAPE RESTORATION

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.



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SCALE IN FEET

501

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SWMP PLANS

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 8 of 13

Project No.
SHO M286-056
Drawing Number SWMP-008
Sheet Number 74

Plot Date: 7/29/2025 10:18 AM Plotted By: Sarah Hemler
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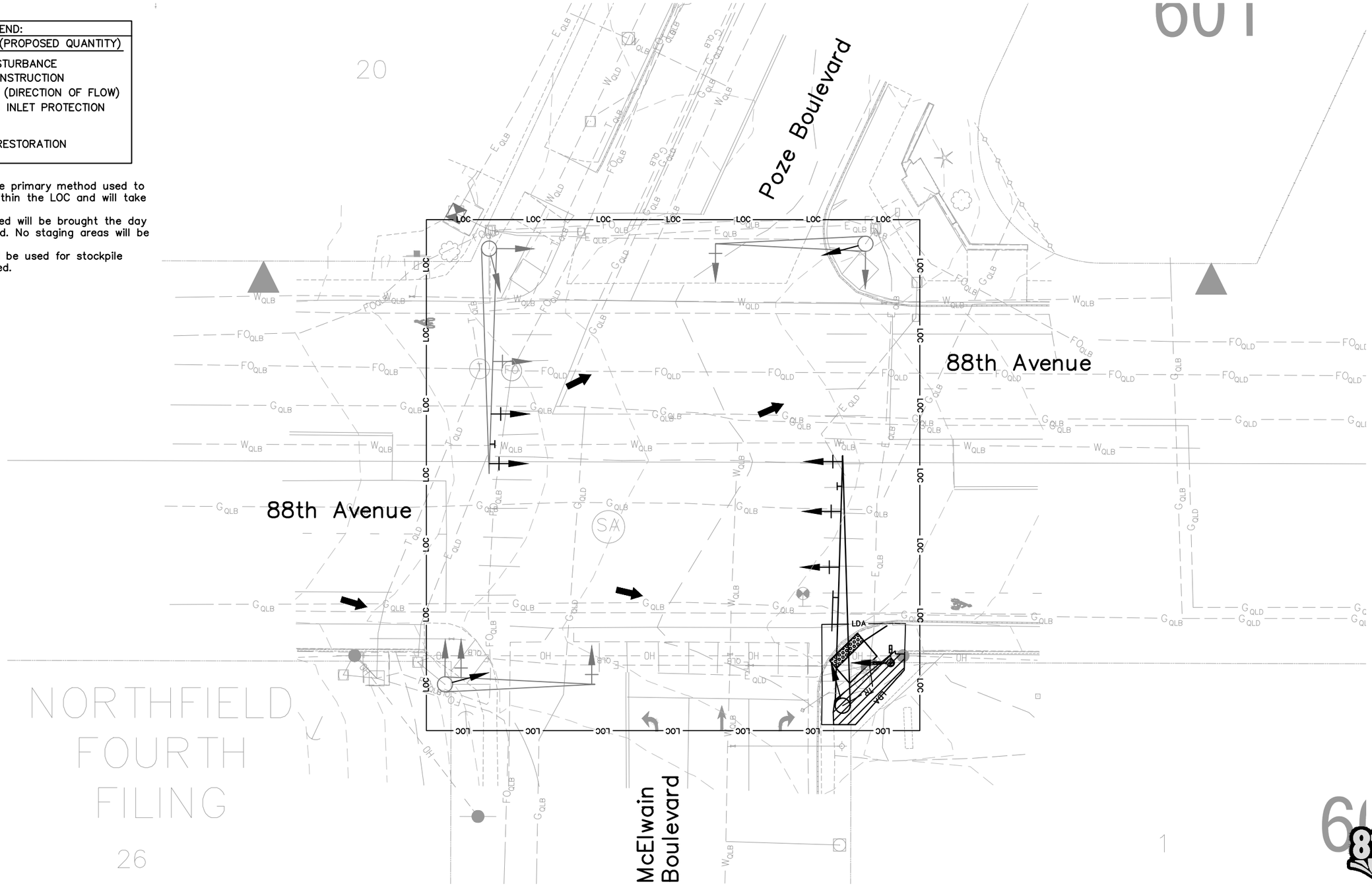
SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
➡	FLOW ARROW (DIRECTION OF FLOW)
▬	STORM DRAIN INLET PROTECTION (TYPE I)
▨	LANDSCAPE RESTORATION

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.



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Designer:	D. Schuler	Structure Numbers	
Detailer:	S. Hemler		
Sheet Subset:	SWMP	Subset Sheets:	9 of 13

Project No.
SHO M286-056
Drawing Number SWMP-009
Sheet Number 75

Plot Date: 7/29/2025 10:18 AM Plotted By: Sarah Hemler
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SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
	FLOW ARROW (DIRECTION OF FLOW)
	STORM DRAIN INLET PROTECTION (TYPE I)
	LANDSCAPE RESTORATION
	Prairie Dog Area

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.
4. No parking, staging, or work shall be allowed in the prairie dog area.

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Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 10 of 13

Project No. SHO M286-056

Drawing Number SWMP-010

Sheet Number 76

Plot Date:7/29/2025 10:18 AM Plotted By: Sarah Hemler
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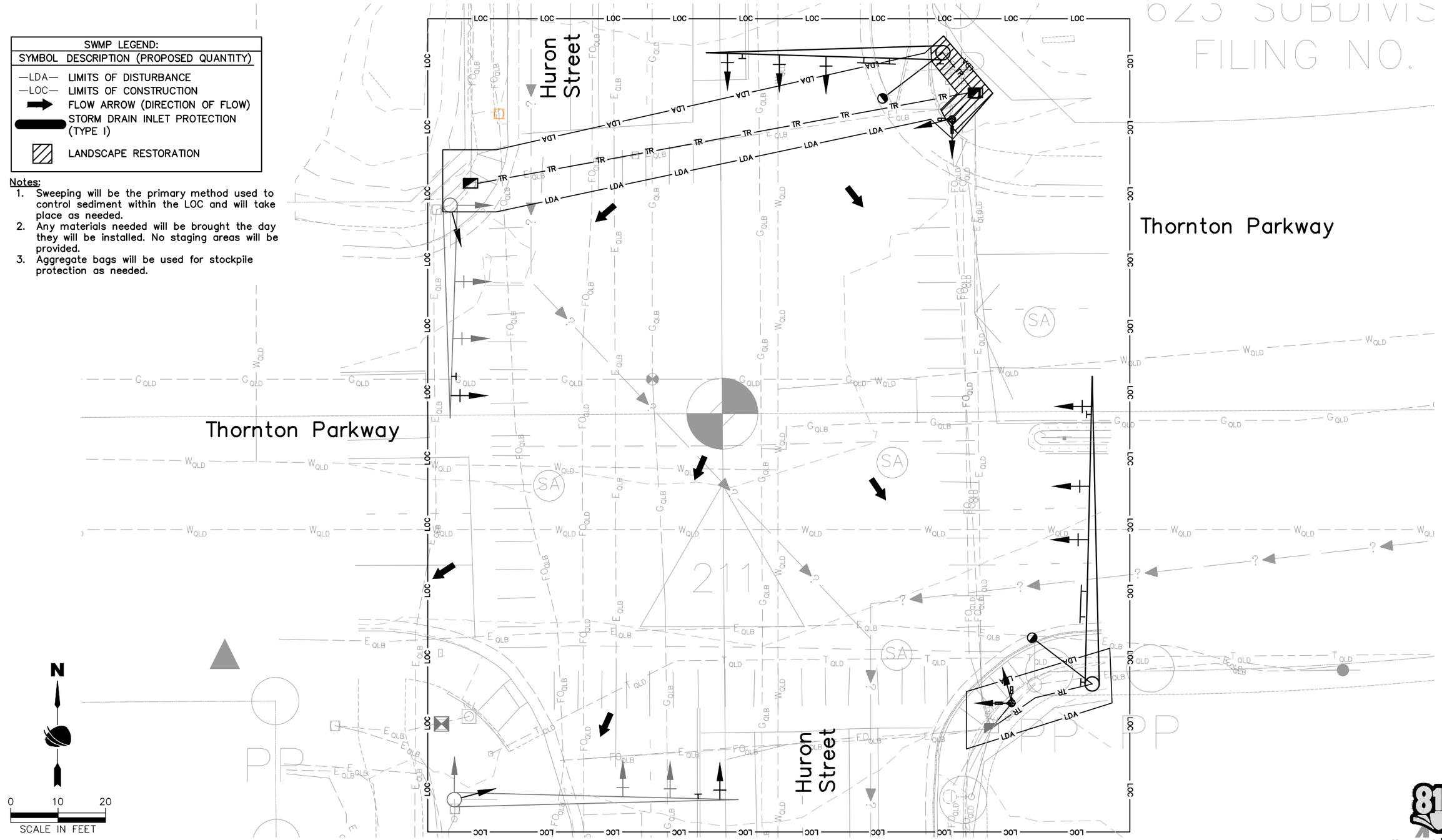
SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
	FLOW ARROW (DIRECTION OF FLOW)
	STORM DRAIN INLET PROTECTION (TYPE I)
	LANDSCAPE RESTORATION

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.



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Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 11 of 13

Project No. SHO M286-056

Drawing Number SWMP-011

Sheet Number 77

Plot Date: 7/29/2025 10:18 AM Plotted By: Sarah Hemler
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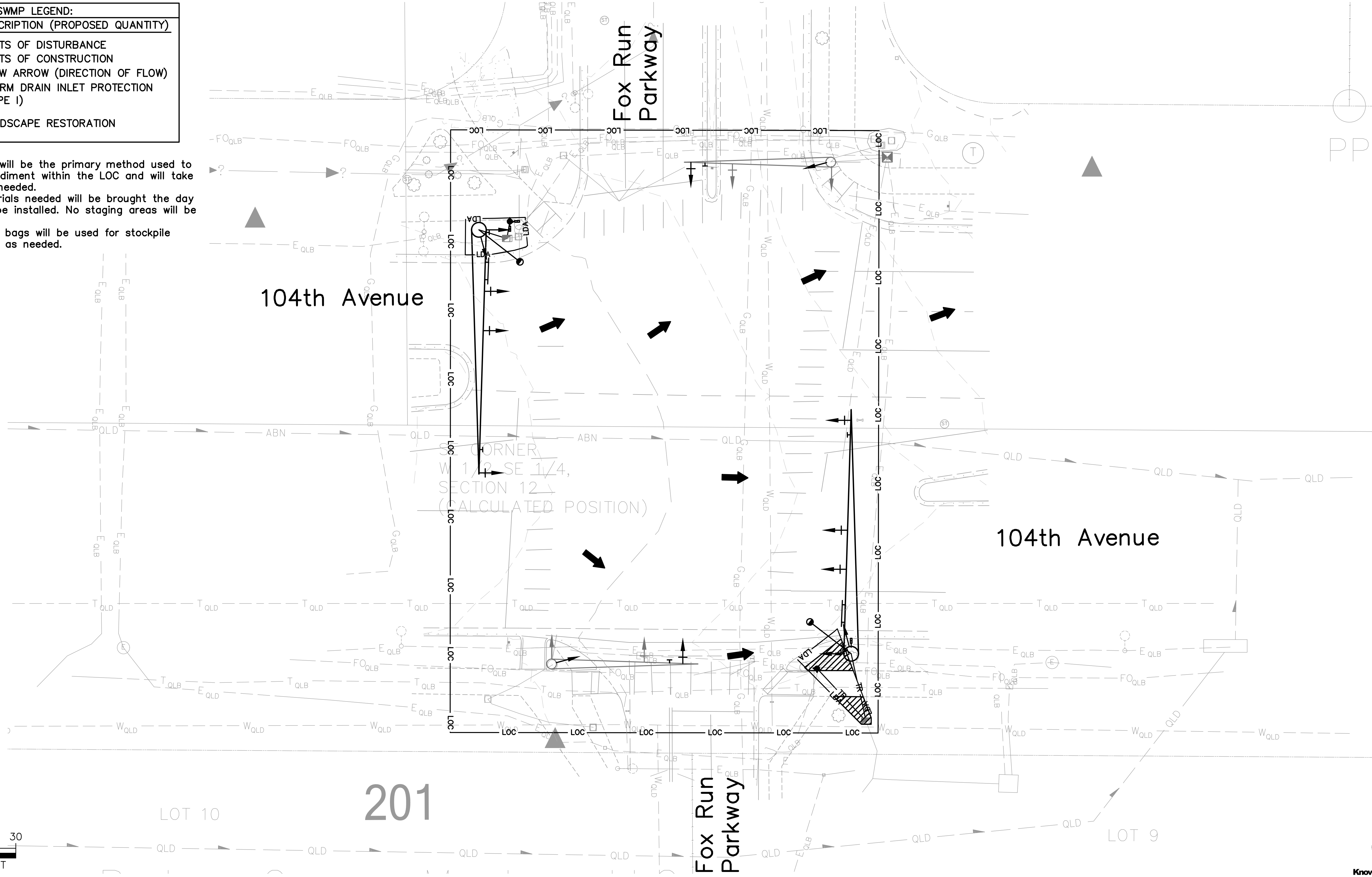
SWMP LEGEND:

SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
(arrow)	FLOW ARROW (DIRECTION OF FLOW)
(bar)	STORM DRAIN INLET PROTECTION (TYPE I)
(hatch)	LANDSCAPE RESTORATION

Notes:
1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.



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SWMP PLANS

Designer: D. Schuler
Detailer: S. Hemler
Sheet Subset: SWMP
Structure Numbers
Subset Sheets: 12 of 13

Project No.
SHO M286-056
Drawing Number SWMP-012
Sheet Number 78

Plot Date:7/29/2025 10:18 AM Plotted By: Sarah Hemler
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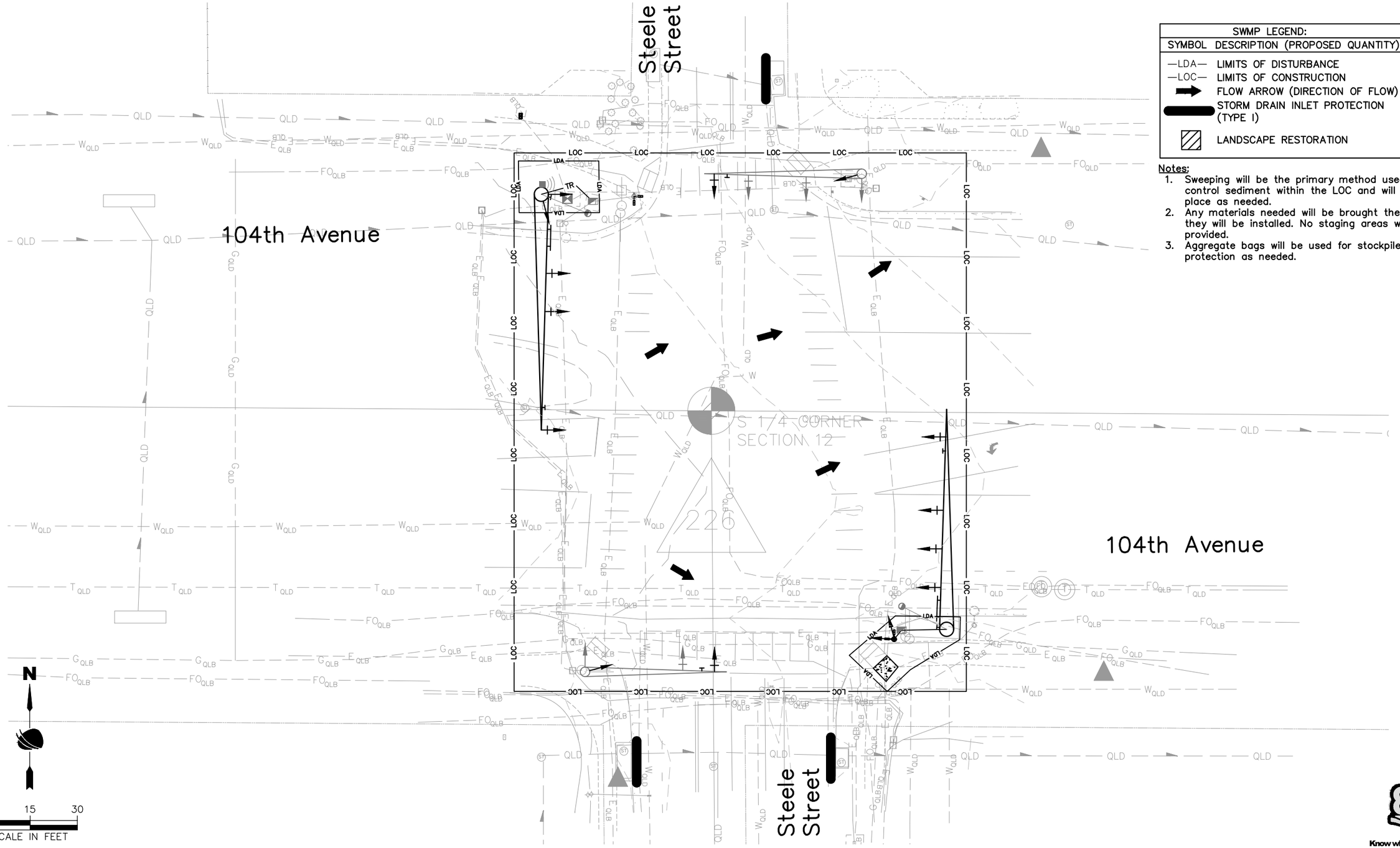

SWMP LEGEND:	
SYMBOL	DESCRIPTION (PROPOSED QUANTITY)
—LDA—	LIMITS OF DISTURBANCE
—LOC—	LIMITS OF CONSTRUCTION
	FLOW ARROW (DIRECTION OF FLOW)
	STORM DRAIN INLET PROTECTION (TYPE I)
	LANDSCAPE RESTORATION

Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.

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Designer:	D. Schuler	Structure Numbers	
Detailer:	S. Hemler		
Sheet Subset:	SWMP	Subset Sheets: 13 of 13	

Project No.

SHO M286-056

Drawing Number SWMP-013

Sheet Number 79

Plot Date:7/29/2025 10:18 AM Plotted By: Sarah Hemler
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UTILITY RECORDS CONTACT LIST

COMPANY	UTILITY TYPE	CONTACT NAME	EMAIL	PHONE	811 ENG. TICKET RESULTS
Adams 12 5-Star Schools	Fiber	Hallie Rogers	hallie.rogers@adams12.org	Not Available	Records Received
Cardinal Broadband	CATV & Tele	Not Available	Not Available	303-285-5357	Clear - No Conflict
City of Northglenn	Water & Sewer	Jason Hensel	jhensel@northglenn.org	303-450-4050	Records Received
City of Thornton	Water	Travis McCarty	Not Available	Not Available	Records Received
City of Thornton	Sewer	Justin Richardson	Not Available	720-977-6554	Records Received
City of Thornton	Storm	Joe Romero	Not Available	720-977-6392	Records Received
City of Thornton	Irrigation	Matt Schutter	Not Available	303-255-7824	Records Received
Comcast	CATV & Fiber	Terry Herring	Terry_Herring@cable.comcast.com	720-951-3571	Records Received
Crown Castle	Fiber	Not Available	Not Available	1-855-933-4237	Clear - No Conflict
Highpointe Park Metro District	Street Lighting, Electric, Irrigation	Not Available	Not Available	Not Available	Clear - No Conflict
Intrepid Fiber Networks	Fiber	Not Available	Not Available	720-727-9224	Clear - No Conflict
Lumen (CenturyLink)	Fiber & Telco	Luke Thompson	Luke.Thompson@lumen.com	720-888-1220	Records Received
Magellan Midstream Partners LP	LP Pipeline	Not Available	Not Available	918-574-7098	Clear - No Conflict
MCI (Verizon)	Fiber	Lane Grady	lane.grady@verizon.com	303-827-9756	Records Received
North Washington Street Water & Sanitation District	Water & Sewer	Adam Misztal	Not Available	303-594-7562	Clear - No Conflict
Suncor Energy	Oil Pipeline	Not Available	Not Available	720-383-5310	Clear - No Conflict
Unite Private Networks	Fiber	Kevin Shucard	kevin.shucard@upnfiber.com	719-313-6826	Clear - No Conflict
United Power	Electric	Kasey Pfeil	kpfeil@UnitedPower.com	303-637-1227	Clear - No Conflict
Xcel Energy	Electric & Gas	Builders Call Line	BCLCO@xcelenergy.com	1-800-628-2121	Records Received
Zayo Bandwidth	Fiber	Eric Boe	eric.boe@zayo.com	303-481-6121	Records Received

UTILITY LEGEND

QUALITY LEVEL B

- E_{QLB} EXISTING ELECTRIC
- FO_{QLB} EXISTING FIBER OPTIC
- G_{QLB} EXISTING GAS MAIN
- TV_{QLB} EXISTING TELEVISION
- T_{QLB} EXISTING TELEPHONE
- W_{QLB} EXISTING WATER

QUALITY LEVEL D

- E_{QLD} EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- G_{QLD} EXISTING GAS MAIN
- IR? IR EXISTING IRRIGATION
- T_{QLD} EXISTING TELEPHONE
- W_{QLD} EXISTING WATER
- EXISTING STORM
- EXISTING SANITARY

SYMBOLOGY

- ELECTRIC PULL BOX
- FIBER PULL BOX
- TELEPHONE PEDESTAL
- POWER POLE
- VALVE GATE

SUBSURFACE UTILITY GENERAL NOTES

1. Utility data depicted on the following sheets is prepared in accordance with ASCE 38–22 and C.R.S. 9–1.5 for a subsurface utility engineering required project.
2. Quality level B designation has been completed by Kinetic Energy Services, LLC on 9/24/2024.
3. Storm and sanitary sewer mains and laterals, where shown, meet ASCE quality level D. Service lines are not located.
4. It is the Contractor's responsibility to field verify horizontal and vertical locations of all utilities prior to commencing construction. The Contractor must call the Utility Notification Center of Colorado at least 2 business days prior to any excavation to request the exact field locations of utilities.
5. The Contractor shall be responsible for protecting all utilities during construction and for coordinating with the appropriate utility company for any utility crossing required. Repair of damaged utilities shall be at the Contractor's expense, including but not limited to unknown underground utilities.
6. The Contractor shall coordinate with Adams 12 5–Star Schools, Thornton, and Xcel Energy for all associated relocation needs. The Contractor shall provide survey stake(s) for the proposed caisson locations with caisson diameter and depth specified.
7. Where signal caisson locations are within the required gas line clearances, a gas company representative shall be on–site.
8. The Contractor shall allow Utility Owners to use its lane closures and staging areas within the contracted duration of construction.
9. Quality Level A designation for test holes has been completed by Kinetic Energy Services, LLC between 2/19/2025 and 2/25/2025.
10. Contractor shall pothole and locate all City of Thornton owned utilities (water, sewer, storm, fiber, electric, etc.) within a 10–ft radius of any proposed caisson greater than 48–inches in depth and 24–inches in diameter.
11. Contractor shall locate any existing utilities (including depths) which may conflict with the proposed construction. Contractor shall provide crossing depths from existing grade, and distances between crossings and existing utilities to the City prior to any traffic signal conduit installation.

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Ph: (303) 962-9300
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FYA SIGNAL MODIFICATIONS
UTILITY NOTES AND CONTACTS

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Util Notes
Structure Numbers:
Subset Sheets: 1 of 2

Project No.
SHO M286–056
Drawing Number UTGN–001
Sheet Number

Plot Date:9/16/2025 8:56 AM Plotted By: Sarah Hemler
R:\2–PROJECTS\ACTIVE PROJECTS\84001_CITY OF THORNTON FLASHING YELLOW ARROW SIGNAL MODIFICATIONS\800_COMPUTER DESIGN FILES\802_SHEET FILES\UTGN–001 UTILITY NOTES AND CONTACTS.DWG

UTILITY CONFLICT MATRIX

Utility Type	Utility Owner	Sheet #	Util ID #	Conflict Location		Utility Data						Conflict Desription	Conflict Resolution	
				Begin		Test Hole No.	Size and/or Material	Northing	Easting	Surface Elevation	Measure Down	Conflict Desription	Recommended Action or Resolution	Notes
				Intersection	Corner									
Electric	Xcel	UTIL-001	XCEL	84th Ave. & Conifer Rd.	SE	1	2 wires, no conduit	188534.55	144201.687	5263.0	35"	Wires confirmed at proposed signal pole caisson location	Coordinate relocation with Xcel	
Unkown	Unknown	UTIL-002	-	88th Ave. & Pearl St.	SE	2	3" black metal pipe			5296.70	39"	Unknown utility at proposed signal caisson location	Move signal caisson to new location - testhole 2.2	
Unkown	Unknown	UTIL-002	-	88th Ave. & Pearl St.	SE	2.1	1/2" black wire			5296.70	31"			
-	-	UTIL-002	-	88th Ave. & Pearl St.	SE	2.2	-			5296.70	-	-	-	Clear of utilities to 8' depth, coordinate with Xcel to reset existing luminare to new signal
-	-	UTIL-003	-	88th Ave. & McElwain Blvd./Poze Blvd.	SE	3	-	191193.346	150456.132	5225.60	-	-	-	Clear of utilities to 8' depth
Fiber Optic	City of Thornton	UTIL-005	COT	Thornton Pkwy. & Huron St.	NE	4	-	193929.099	142203.358	5329.60	-	-	-	Fiber Line not found to 8' depth
Fiber Optic	City of Thornton	UTIL-005	COT	Thornton Pkwy. & Huron St.	NE	5	-	193915.269	142205.62	5328.80	-	-	-	Fiber Line not found to 8' depth
Electric	XCEL	UTIL-005	XCEL	Thornton Pkwy. & Huron St.	SE	6	3" red conduit	193797.187	142234.465	5327.70	51"	Conduit confimred at proposed signal caisson location	Coordinate with Xcel to relocate conduit	Coordinate with Xcel to reset existing luminare to new signal pole
Fiber Optic/Electric	City of Thornton	UTIL-005	COT	Thornton Pkwy. & Huron St.	SE	7	2-4" plastic pipes	193792.481	142219.158	5327.10	20"/22"	Conduit confimred at proposed signal caisson location	Coordinate with City of Thornton to relocate	
-	-	UTIL-006	-	104th Ave. & Fox Run Pkwy.	NW	8	-	201799.45	156656.421	5221.00	-	-	-	Clear of utilities to 8' depth
Irrigation	Unknown	UTIL-006	-	104th Ave. & Fox Run Pkwy.	NW	9	3/4" Rubber Tubing	201800.964	156665.618	5220.60	8"	Irrigation system found at pedestrian signal pole caisson	Coordinate removal or relocation of with City of Thornton	
Electric and Fiber	Xcel & Zayo	UTIL-006	XCEL & ZAYO	104th Ave. & Fox Run Pkwy.	SE	10	2" Orange Conduit	201664.075	156760.511	5219.20	34"/43"	Conduit found at proposed pedestrian pedestal pole caisson	Coordinate relocation with Xcel and Zayo	
Electric	Xcel	UTIL-006	XCEL	104th Ave. & Fox Run Pkwy.	SE	11	Black wires with tracer	201669.124	156765.974	5218.50	34"	Wires confirmed at proposed signal pole caisson location	Coordinate relocation with Xcel	
Electric	Xcel	UTIL-007	XCEL	104th Ave. & Steele St.	NW	12	Black wire	201809.437	155267.131	5239.90	34"	Wires confirmed at proposed signal pole caisson location	Coordinate relocation with Xcel	Coordinate with Xcel to reset existing luminare to new signal pole
Unknown	Unknown	UTIL-007	-	104th Ave. & Steele St.	NW	13	4" grey conduit	201807.014	155267.558	5240.00	26"	-	-	
Irrigation and Electric	Unknown	UTIL-007	-	104th Ave. & Steele St.	SE	14	3" white plastic pipe	201664.932	155379.351	5239.10	18"	Irrigation system found at pedestrian signal pole caisson location	Moved pedestrain signal pole to new location	
Electric	City of Thornton	UTIL-007	COT	104th Ave. & Steele St.	SE	15	Black wires	201677.922	155397.755	5238.50	48"	Wires confirmed at proposed signal pole caisson location	Coordinate with Xcel to relocate wires	Coordinate with Xcel to reset existing luminare to new signal pole
Fiber Optic	Adams 12 5-Star Schools	UTIL-007	CTL	104th Ave. & Steele St.	SE	16	2-2" orange conduit	201678.107	155400.893	5238.50	26"/48"	-	-	Gas line not located, coordinate with Adams 12 to relocate lines during construction
-	-	UTIL-007	-	104th Ave. & Steele St.	SE	17	-	201673.857	155396.806	5238.80	-	-	-	Gas line not found to 8' depth
Electric	XCEL	UTIL-004	XCEL	98th Ave. & Grant St.	NW	18	2-3" conduit, black and grey	197947.171	145912.97	5378.40	16"/19"	Electrical conduit confimed at proposed signal pole caisson location	Coordinate with Xcel for electrical relocation	Coordinate with Xcel to reset existing luminare to new signal pole

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RockSol Consulting Group, Inc.
12076 Grant Street
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Ph: (303) 962-9300
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Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

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FYA SIGNAL MODIFICATIONS UTILITY CONFLICT MATRIX

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Util Notes
Structure Numbers:
Subset Sheets: 1 of 2

Project No. SHO M286-056
Drawing Number UTGN-002
Sheet Number 81

Plot Date:9/5/2025 9:49 AM Plotted By: Sarah Hemler
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TEST HOLE TABLE (QUALITY LEVEL A)

TH #	UTILITY OWNER	UTILITY TYPE	SIZE (IN)	UTILITY MATERIAL	DEPTH TO TOP (IN)	DEPTH TO BOP (IN)	GROUND ELEV (FT)	TOP ELEV (FT)	BOP ELEV (FT)	DATE PERFORMED	COMMENTS
1	XCEL	ELECTRICAL	2 WIRES	YELLOW & BLACK WIRE	35.0	35.5	5263.0	5260.1	5260.0	2/19/2025	
2	UNKNOWN	UNKNOWN	3"	BLACK STEEL	39.0	42.0	5296.7	5293.5	5293.2	2/19/2025	
2.1	UNKNOWN	UNKNOWN	1/2"	WIRE	30.0	31.0	5296.7	5223.1	5223.0	2/19/2025	
2.2							5296.7			2/19/2025	CLEAR OF UTILITIES TO 8'
3							5225.6			2/20/2025	CLEAR OF UTILITIES TO 8'
4	CITY OF THORNTON	FIBER					5329.6	5327.7	5327.7	2/21/2025	FIBER LINE NOT FOUND TO 8'
5	CITY OF THORNTON	FIBER					5328.8	5327.1	5327.1	2/21/2025 2/25/2025	FIBER LINE NOT FOUND TO 8'
6	XCEL	ELECTRIC	3"	RED PVC	51.0	54.0	5327.7	5216.7	5216.5	2/20/2025	
7	CITY OF THORNTON	FIBER/ELECTRIC	2–4"	GRAY PVC	16 18	20 22	5327.1	5325.8 5325.6	5325.4 5325.3	2/20/2025	
8							5221.0			2/21/2025	CLEAR OF UTILITIES TO 8'
9	UNKNOWN	IRRIGATION	3/4"	RUBBER TUBING	8.0	9.0	5220.6	5217.9	5217.8	2/21/2025	
10	XCEL ADAMS 12 SCHOOL DISTRICT	ELECTRIC FIBER	WIRES 2"	BLACK WIRE ORANGE PVC	34 43	36 44	5219.2	5216.3 5215.6	5216.2 5215.5	2/24/2025	
11	XCEL	ELECTRIC	3 WIRES	BLACK WIRE	34.0	36.0	5218.5	5237.2	5237.0	2/24/2025	
12	XCEL	ELECTRIC	3 WIRES	BLACK WIRE	34.0	35.0	5239.9	5236.3	5236.2	2/24/2025	
13	UNKNOWN	UNKNOWN	4"	GRAY PVC	26.0	30.0	5240.0	5236.4	5236.0	2/24/2025	
14	UNKNOWN	IRRIGATION AND ELECTRIC	3"	PVC	18.0	21.0	5239.1	5237.0	5236.7	2/24/2025	
15	CITY OF THORNTON	ELECTRIC	WIRES	BLACK WIRE	48.0	49.0	5238.5	5234.8	5234.7	2/24/2025	
16	ADAMS 12 SCHOOL DISTRICT	FIBER	2"	ORANGE PVC	26 48	28 50	5238.5	5236.3 5234.5	5236.2 5234.3	2/24/2025	
17	XCEL	GAS					5238.8			2/25/2025	GAS NOT FOUND TO 8'
18	XCEL	ELECTRIC	3"	PLASTIC CONDUIT	16 19	19 22	5378.4	5377.1 5376.8	5376.8 5376.6	2/25/2025	

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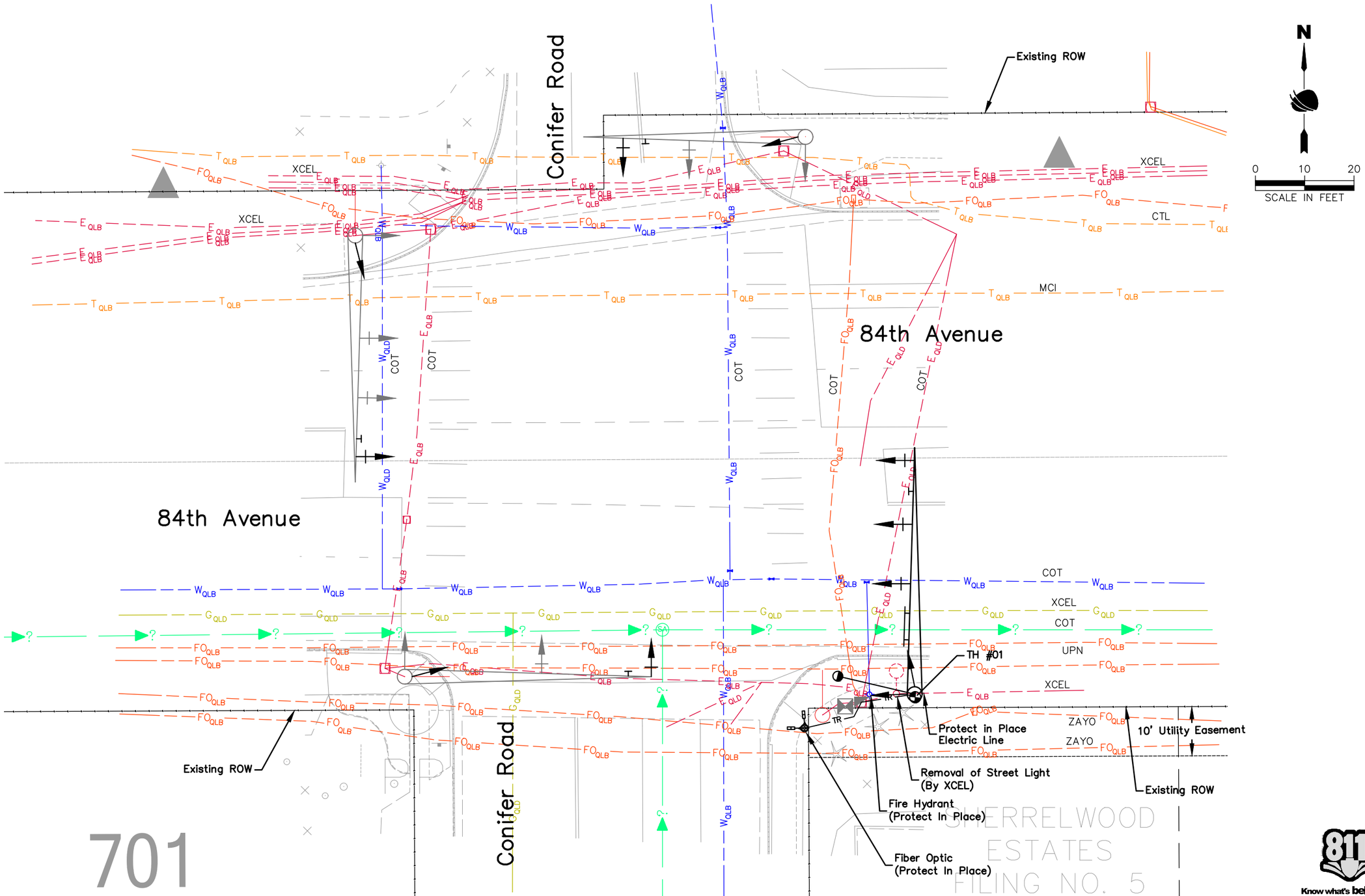
FYA SIGNAL MODIFICATIONS
TEST HOLE TABLE

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Util Notes
Structure Numbers:
Subset Sheets: 2 of 2

Project No.
SHO M286-056
Drawing Number UTGN-002
Sheet Number 82



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FYA SIGNAL MODIFICATIONS 84TH AVE. & CONIFER RD. UTILITY PLAN SHEET

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 1 of 7

Project No.
SHO M286-056
Drawing Number UTIL-001
Sheet Number 83

Plot Date=9/5/2025 9:49 AM Plotted By: Sarah Hemler
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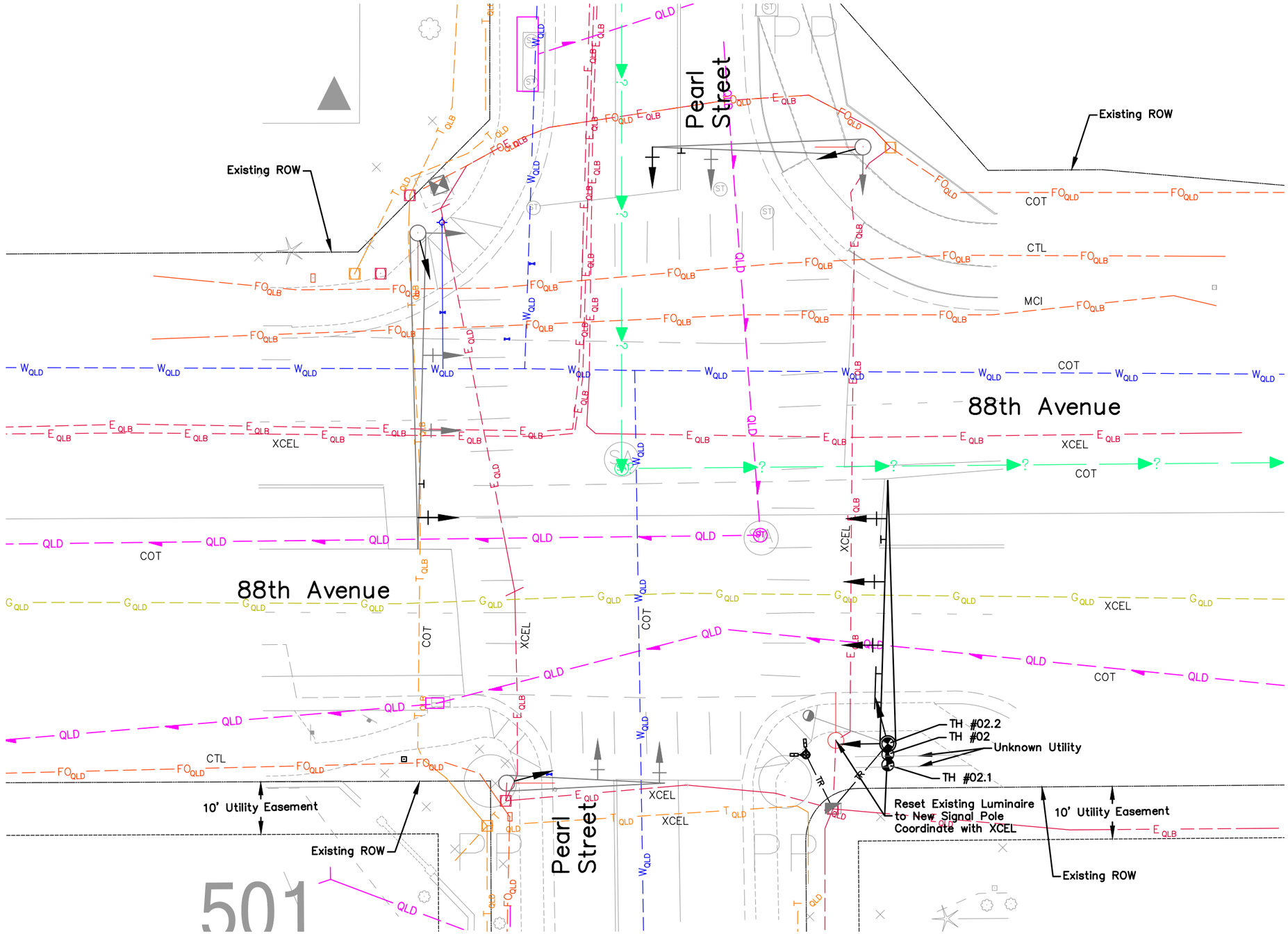

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FYA SIGNAL MODIFICATIONS 88TH AVE. & PEARL ST. UTILITY PLANS

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 2 of 7

Project No. SHO M286-056

Drawing Number UTIL-002

Sheet Number 84

Plot Date:9/5/2025 9:49 AM Plotted By: Sarah Hemler
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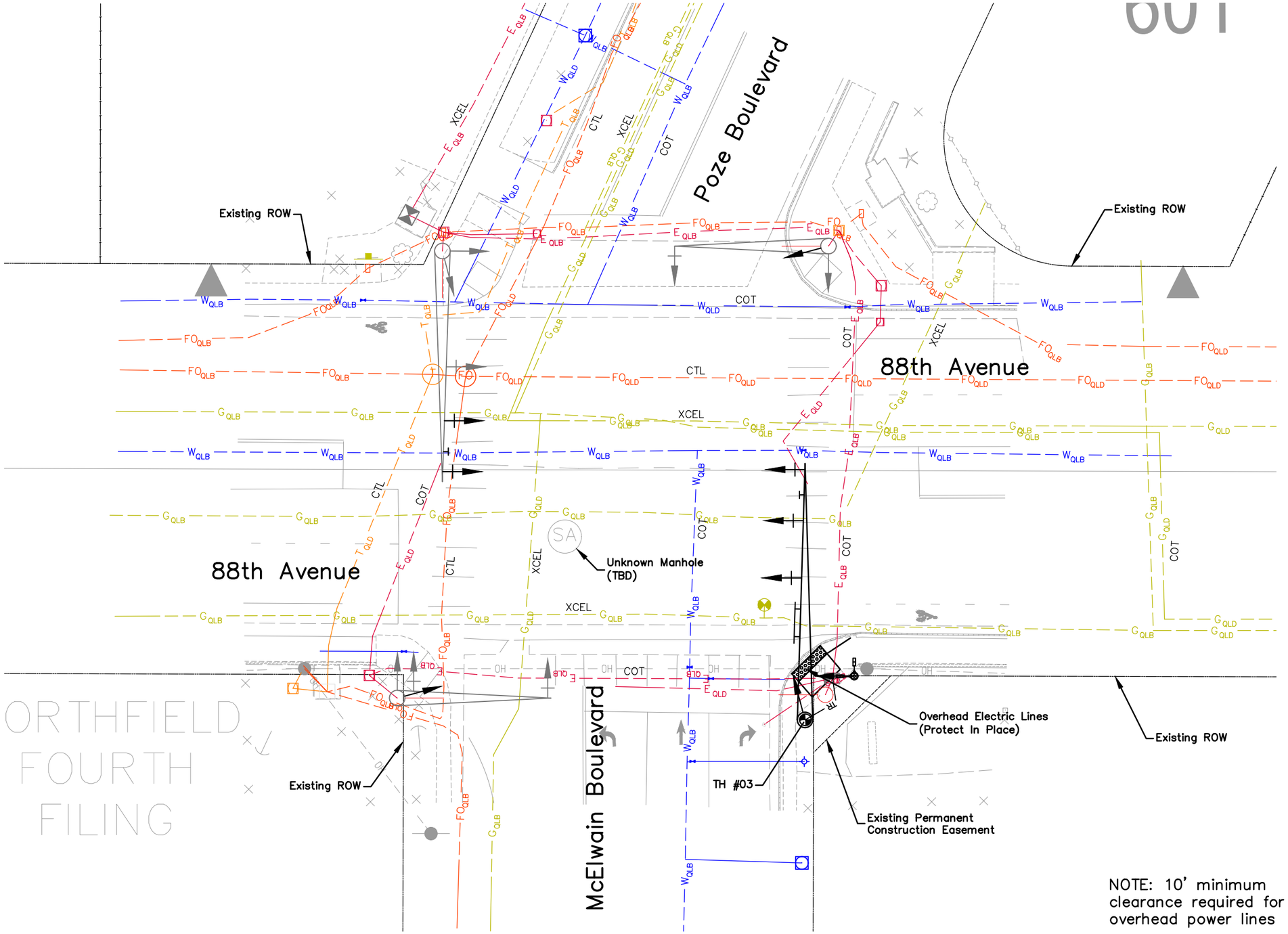

NOTE: 10' minimum clearance required for overhead power lines

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FYA SIGNAL MODIFICATIONS 88TH AVE, & MCELWAIN/POZE BLVD. UTILITY PLAN SHEET

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 3 of 7

Project No.

SHO M286-056
Drawing Number UTIL-003
Sheet Number 85

Plot Date=9/5/2025 9:49 AM Plotted By: Sarah Hemler
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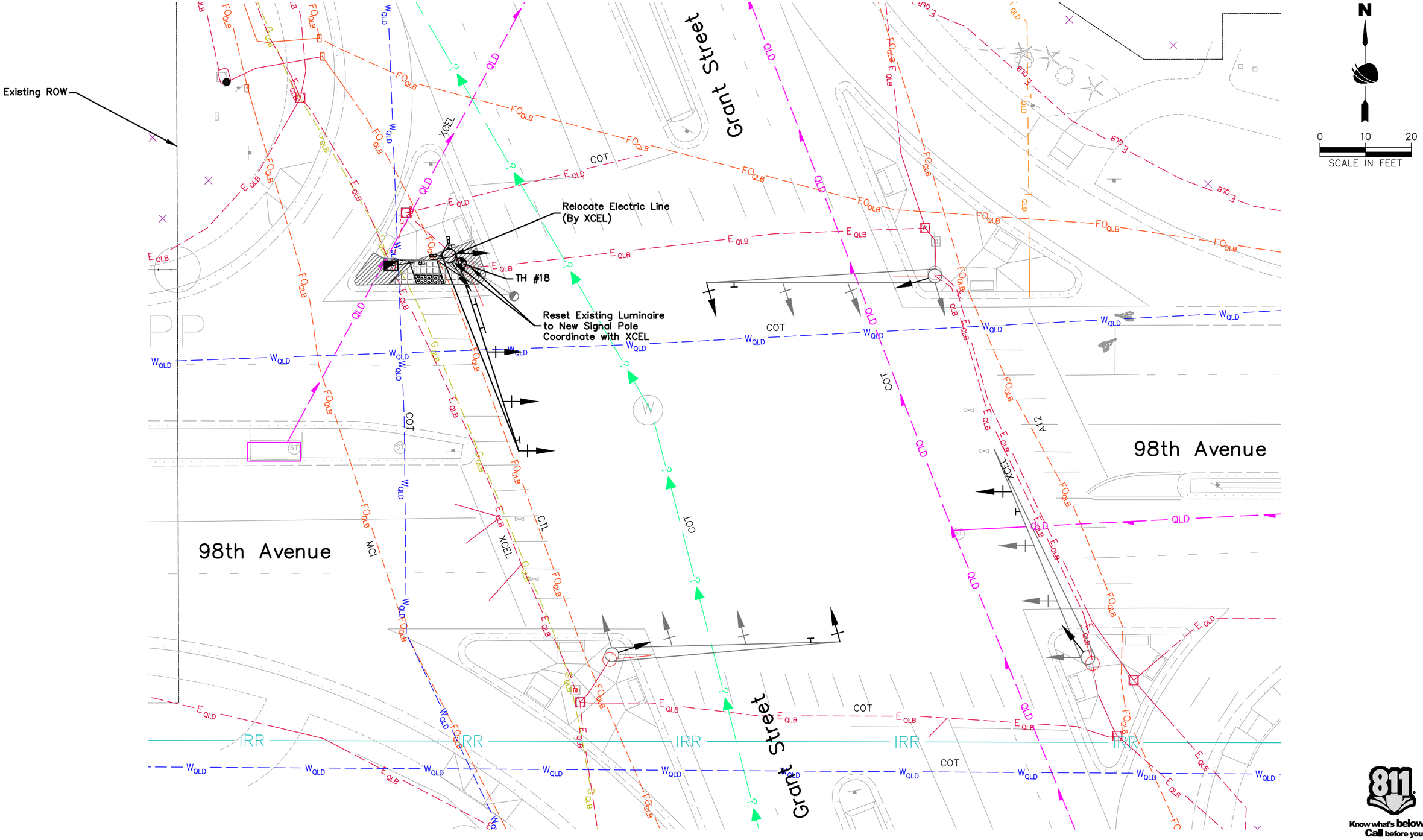

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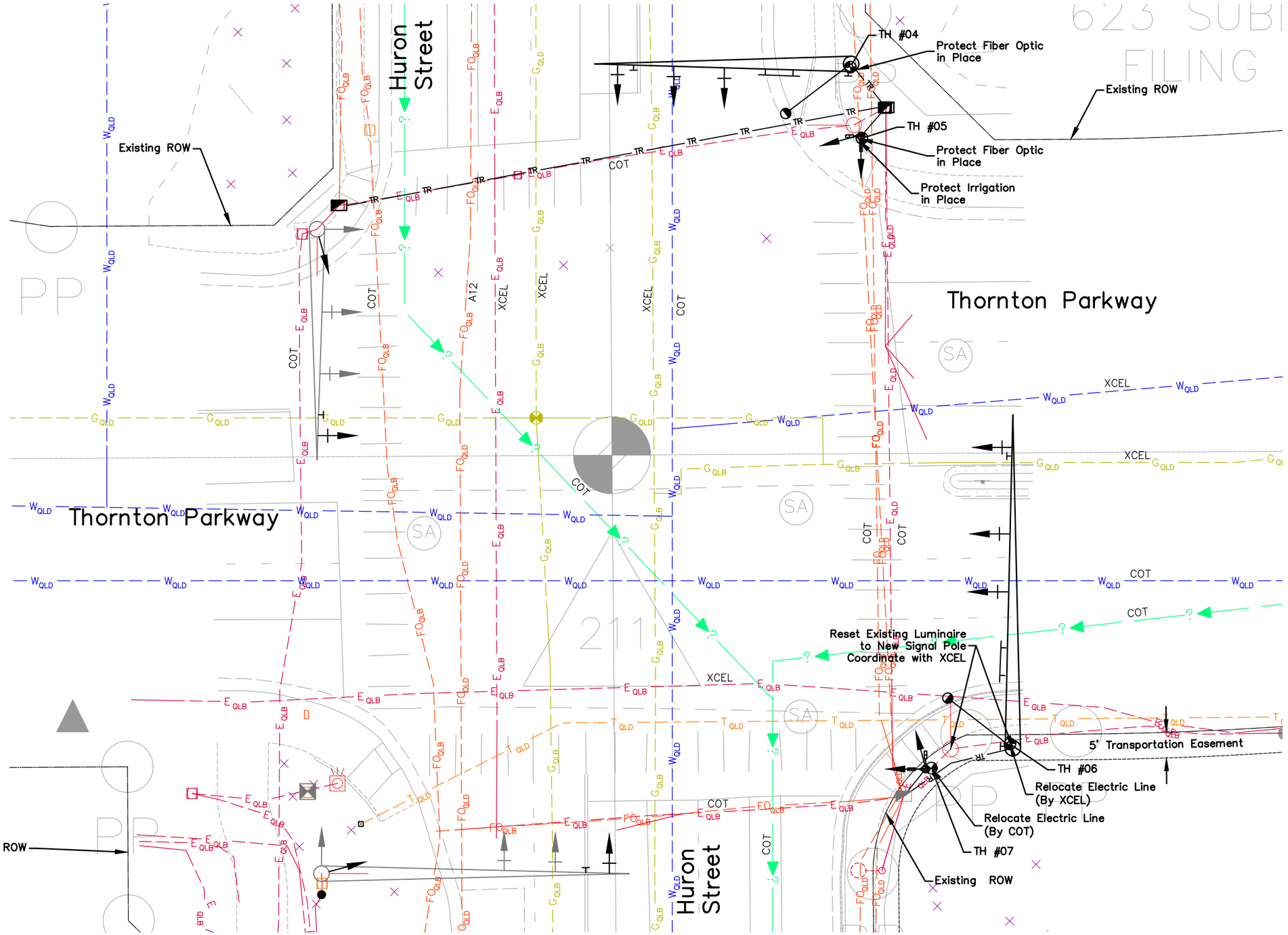
FYA SIGNAL MODIFICATIONS 98TH AVE. & GRANT ST. UTILITY PLAN SHEET

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 4 of 7

Project No.

SHO M286-056
Drawing Number UTIL-004
Sheet Number 86



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No Revisions:

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FYA SIGNAL MODIFICATIONS THORNTON PKWY. & HURON ST.

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 5 of 7

Project No.

SHO M286-056

Drawing Number UTIL-005

Sheet Number 87

Plot Date=9/5/2025 9:49 AM Plotted By: Sarah Hemler
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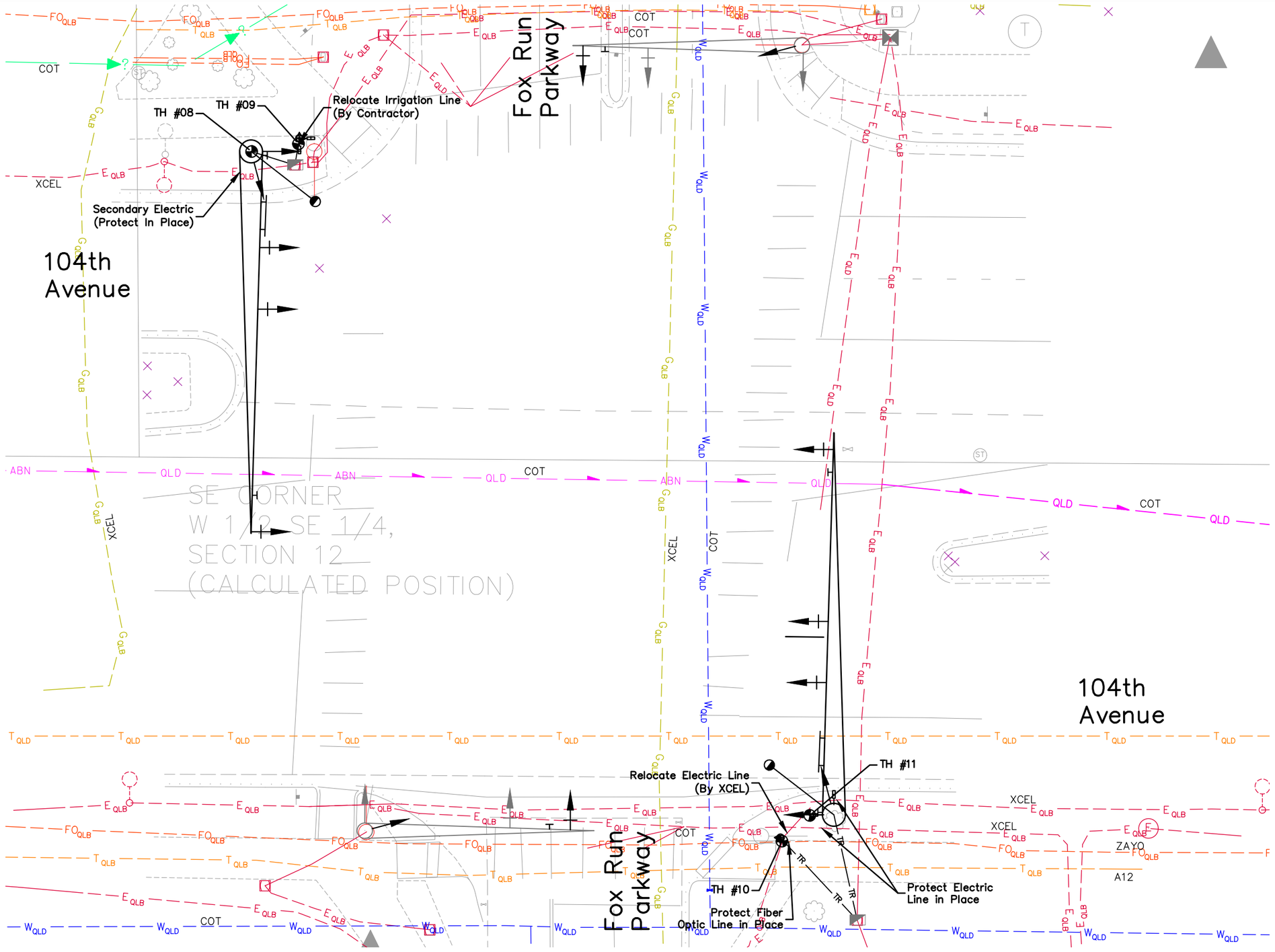

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FYA SIGNAL MODIFICATIONS 104TH AVE. & FOX RUN PKWY. UTILITY PLAN SHEET

Designer: N. Clouse
Detailer: K. Kosmiski
Sheet Subset: Utilities
Structure Numbers:
Subset Sheets: 6 of 7

Project No.

SHO M286-056
Drawing Number UTIL-006
Sheet Number 88

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Plot Date: 9/5/2025 9:50 AM Plotted By: Sarah Hemler
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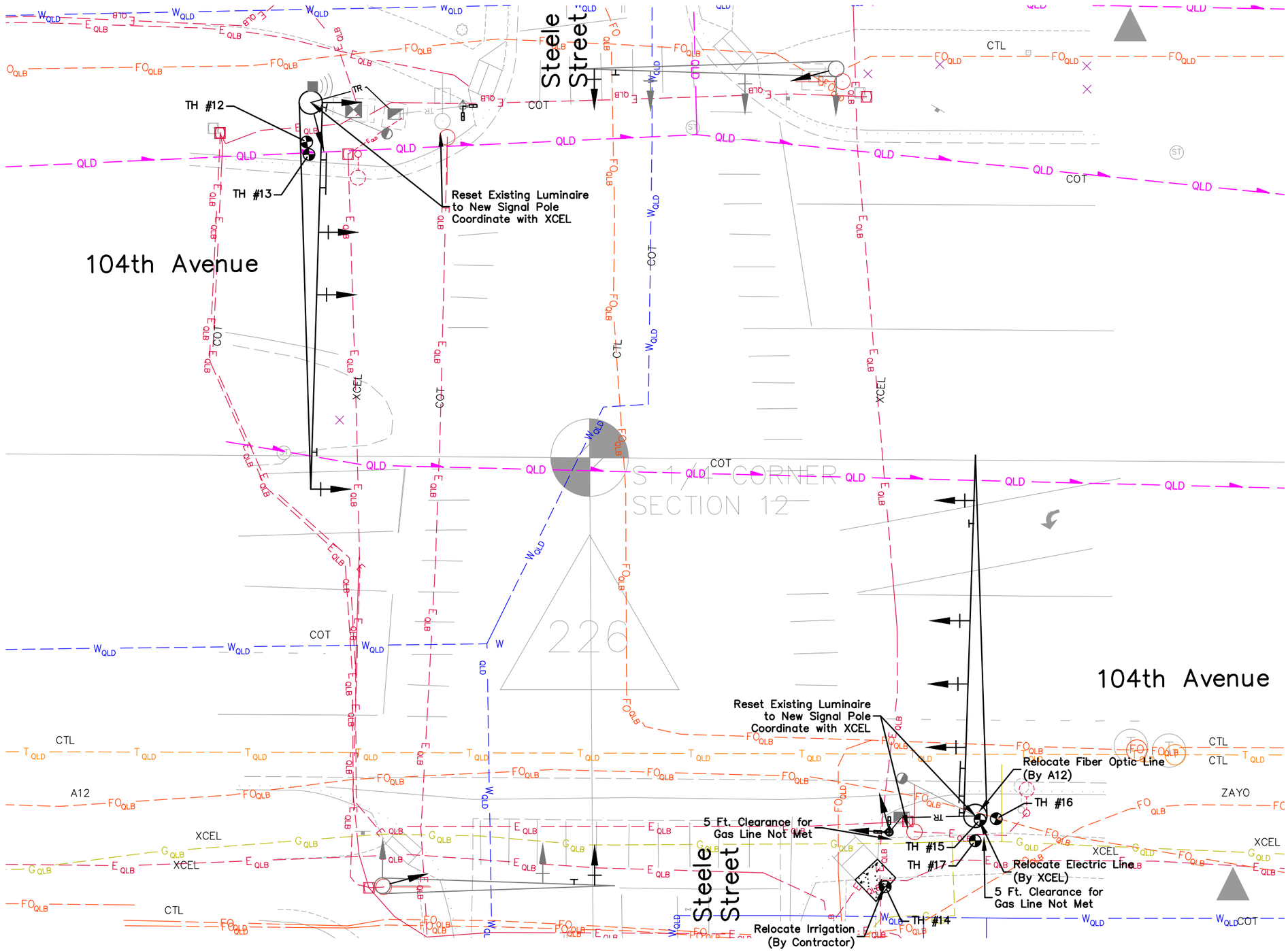

Relocation Notes:
The Contractor shall coordinate with Adams 12 forces to complete relocation of existing fiber optic line on the SE corner.

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CITY OF THORNTON
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12450 WASHINGTON ST.
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FYA SIGNAL MODIFICATIONS 104TH AVE. & STEELE ST. UTILITY PLAN SHEET

Designer:	N. Clouse	Structure Numbers	
Detailer:	K. Kosmiski		
Sheet Subset:	Utilities	Subset Sheets:	7 of 7

Project No.
SHO M286-056
Drawing Number UTIL-007
Sheet Number

Plot Date:9/11/2025 9:52 AM Plotted By: Sarah Hamler
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TABULATION OF TEMPORARY TRAFFIC CONTROL SIGNING

SIGN	DESCRIPTION	DIMENSION	PANEL SIZE EACH
			A
W20-1	ROAD WORK AHEAD	36" X 36"	5
G20-2	END ROAD WORK	36" X 18"	5
W20-5L	LEFT LANE CLOSED	36" X 36"	2
W20-5R	RIGHT LANE CLOSED	36" X 36"	2
W4-2R	RIGHT LANE MERGE	36" X 36"	2
W4-2L	LEFT LANE MERGE	36" X 36"	2
R8-3	NO PARKING	30" X 30"	2
M4-9a	BIKE/PEDESTRIAN DETOUR	30" X 24"	4
R9-9	SIDEWALK CLOSED	24" X 12"	4
TOTALS			28

TABULATION OF TRAFFIC CONTROL DEVICES

ITEM	DESCRIPTION	UNIT	QUANTITY
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR	88
630-00007	TRAFFIC CONTROL INSPECTION	DAY	28
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	73
630-80340	PEDESTRIAN BARRICADE (ADA)	LF	40
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	28
630-80350	VERTICAL PANEL	EACH	25
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	2
630-80356	ADVANCED WARNING SEQUENCING ARROW PANEL (A TYPE)	EACH	2
630-80360	DRUM CHANNELIZING DEVICE	EACH	25
630-80380	TRAFFIC CONE	EACH	50

TEMPORARY TRAFFIC CONTROL GENERAL NOTES:

The Contractor shall prepare and submit a Method for Handling Traffic (MHT) prior to starting. The MHT shall be submitted to the City of Thornton Project Engineer for review and approval no less than five business days prior to starting construction.

The MHT shall conform to the requirements of Part 6 of the Manual on Uniform Control Devices (MUTCD), 2009 Edition, and the Colorado Department of Transportation M & S Standard Plans, Latest Edition (S–630–1 and S–630–2).

Project Requirements include:

1. No work shall be allowed at signalized intersections or on arterial roadways which impedes normal traffic flow from 5:00am to 8:30am, and 3:30pm to 7:00pm, except during emergencies or with prior approval of the Development Engineering Manager. Failure to complete work within the traffic control permit may result in a "stop work" order.
2. Standard working hours are from 7:00am to 7:00pm Monday through Friday.
3. There shall be no work performed on weekends or holidays except by approval of the City of Thornton Project Manager.
4. It is the Contractor's responsibility to provide a safe traveled way for vehicular and pedestrian traffic through the construction zone and within the clear zone of the excavated area.
5. Unless otherwise approved by the Engineer, the Contractor's Equipment shall follow normal and legal traffic movements. The Contractor's ingress and egress of the work area shall be accomplished with as little disruption to traffic as possible. Traffic control devices shall removed by picking up the devices in a reverse sequence to that used for installation. This may require moving backwards through the work zone, but is limited to within the lane or shoulder closures. When located behind or at other locations shown on approved traffic control plans, equipment may operate in a direction opposite to adjacent traffic.
6. The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time, unless approved by the Engineer.
7. All travel lanes shall be a minimum of 10' wide.
8. The Contractor shall maintain traffic flow and allow access to homes, businesses, and side streets at all times. The Contractor shall provide temporary ramping and flaggers when necessary.
9. The Contractor should coordinate any temporary closures to homes or businesses with the owners.
10. The Contractor shall close any lanes when overhead work on mast arms is to take place.
11. Where sidewalk closures are required due to island and curb ramp replacements a pedestrian detours shall be in place for the duration of the closure

The construction sequence described below is a potential sequence available for the Contractor's use. It is a general concept and is provided for information only. Not all construction details have been addressed. The Contractor is in no way obliged to employ the methods or sequences of construction outlined. Any variation in phasing must be approved before construction begins.

All temporary construction signs and traffic control devices shall be placed according to an approved MHT before beginning construction.

Temporary traffic control quantities allow for up to two locations to be worked on concurrently.

Signal Head Swaps

- Coordinate with City of Thornton staff for programing and wiring cabinet and controller on same day that signal work is to occur

Mast Arm Replacements

- Excavate and pour caisson for new signal pole location. Where support is required for the existing mast arm during this process, traffic control is to remain in place until the caisson has met curing requirements.
- Stage and wire the new mast arm for overhead installation
- Lift and install mast arm overhead
- Coordinate with City of Thornton staff for wiring and programing of cabinet and controller
- Remove existing traffic signal equipment
- Complete curb ramp and concrete work at locations where required

'FOR ADVERTISEMENT 9/15/2025

All seals for this set of drawings are applied to the cover page(s)

Print Date: 7/29/2025
File Name: TTC-001 TEMPORARY TRAFFIC CONTROL.DWG
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Sheet Revisions

Date	Comments	Initials

CITY OF THORNTON
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:
Revised:
Void:

FYA SIGNAL MODIFICATIONS TEMPORARY TRAFFIC CONTROL

Designer: J. Lancaster
Detailer: S. Hemler
Sheet Subset: TTC
Structure Numbers:
Subset Sheets: 1 of 1

Project No./Code

SHO M286-056
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