METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

CIVIL CONSTRUCTION

VOLUME 7
UTILITIES

90% SUBMISSION
DATE : 01/22/16

PLAN PACKAGE INDEX / DESCRIPTION	
CIVIL CONSTRUCTION	BID ALTERNATES
VOLUME 1 - EXISTING CONDITIONS & REMOVALS	VOLUME A - NOT USED
VOLUME 2A - CIVIL	VOLUME B - NOT USED
VOLUME 2B - CIVIL	VOLUME C - BID ALTERNATE 3 (LRCI 5) ▲
VOLUME 3A - TRACKWORK	VOLUME D - BID ALTERNATE 4 (LRCI 6) ▲
VOLUME 3B - TRACKWORK	VOLUME E - BID ALTERNATE 5 (LRCI 7) ▲
VOLUME 3C - TRACKWORK DETAILS	VOLUME F - BID ALTERNATE 6 (LRCI 8) ▲
VOLUME 4A - BRIDGES	VOLUME G - BID ALTERNATE 7 (LRCI 4) ▲
VOLUME 4B - BRIDGES	VOLUME H - BID ALTERNATE 8 (LRCI 10) ▲
VOLUME 4C - BRIDGES	VOLUME I - BID ALTERNATE 9 (LRCI 11) ▲
VOLUME 4D - BRIDGES	VOLUME J - BID ALTERNATE 10 (LRCI 12)
VOLUME 4E - BRIDGES	VOLUME K - BID ALTERNATE 11 (LRCI 13)
VOLUME 4F - BRIDGES	VOLUME L - BID ALTERNATE 12 (LRCI 14)
VOLUME 4G - BRIDGES	VOLUME M - BID ALTERNATE 13 (LRCI 26)
VOLUME 5 - TUNNELS	VOLUME N - BID ALTERNATE 14 (LRCI 27)
VOLUME 6 - RETAINING WALLS	VOLUME O - BID ALTERNATE 15 (LRCI 17)
VOLUME 7 - UTILITIES	VOLUME P - BID ALTERNATE 20 (LRCI 32)
VOLUME 8 - DRAINAGE	VOLUME Q - BID ALTERNATE 21 (LRCI 33)
VOLUME 9 - URBAN DESIGN / LANDSCAPE	
VOLUME 10A - TRAFFIC	
VOLUME 10B - LIGHTING *	
VOLUME 11A - STATIONS ▲	
VOLUME 11B - STATIONS	
VOLUME 11C - STATIONS	
VOLUME 11D - STATIONS	
VOLUME 11E - STATIONS	
VOLUME 12 - SYSTEMS	

* TO BE SUBMITTED AT A LATER DATE
▲ SUBMITTED AT 75%, NOT INCLUDED IN 90%

THE PROPOSED SOUTHWEST LRT PROJECT IS NOT FINAL BUT IS STILL UNDER ENVIRONMENTAL REVIEW AND THE PROJECT IS SUBJECT TO CHANGE. THESE PLANS ARE NOT FINAL.

THE COUNCIL, THROUGH THE DEVELOPMENT OF THESE PLANS, DOES NOT INTEND THAT THEY WILL PREJUDICE OR COMPROMISE ANY STATE OR FEDERAL ENVIRONMENTAL REVIEW OR OTHER LEGAL REQUIREMENTS. THESE PLANS DO NOT LIMIT THE PROJECT DESIGN ALTERNATIVES OR MITIGATIVE MEASURES THAT THE COUNCIL MAY UNDERTAKE IF THE PROPOSED SWLRT PROJECT PROCEEDS TO CONSTRUCTION.

THE COUNCIL WILL NOT TAKE FINAL ACTION ON THIS MATTER UNLESS THE COUNCIL PROCEEDS WITH THE PROJECT AFTER THE FTA'S RECORD OF DECISION AND THE COUNCIL'S DETERMINATION OF ADEQUACY.

AECOM

CIVIL CONSTRUCTION

SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV
		VOLUME 7 - UTILITIES			
1	00-GEN-CVR-001	COVER SHEET			
2	00-GEN-IDX-001	VOLUME INDEX OF PLAN SHEETS SHEET 1			
3	00-GEN-IDX-002	VOLUME INDEX OF PLAN SHEETS SHEET 2			
4	W0-GEN-KEY-001	GENERAL KEY MAP SHEET 1			
5	E0-GEN-KEY-002	GENERAL KEY MAP SHEET 2			
6	00-GEN-NTS-001	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 1			
7	00-GEN-NTS-002	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 2			
8	W0-UTL-NTS-001	CONSTRUCTION NOTES			
9	W0-UTL-NTS-002	CONSTRUCTION NOTES			
10	W0-UTL-CNT-001	UTILITY CONTACTS			
11	W0-UTL-LAY-001	UTILITY PLAN SHEET LAYOUT SHEET 1			
12	W0-UTL-LAY-002	UTILITY PLAN SHEET LAYOUT SHEET 2			
13	W0-UTL-LAY-003	UTILITY PLAN SHEET LAYOUT SHEET 3			
14	E0-UTL-LAY-001	UTILITY PLAN SHEET LAYOUT SHEET 4			
15	E0-UTL-LAY-002	UTILITY PLAN SHEET LAYOUT SHEET 5			
16	E0-UTL-LAY-003	UTILITY PLAN SHEET LAYOUT SHEET 6			
17	E0-UTL-LAY-004	UTILITY PLAN SHEET LAYOUT SHEET 7			
18	W1-UTL-PLN-001	SOUTHWEST STATION 1 OF 3 REMOVALS			
19	W1-UTL-PLN-002	SOUTHWEST STATION 2 OF 3 PLAN			
20	W1-UTL-PLN-003	SOUTHWEST STATION 3 OF 3 PROFILES			
21	W1-UTL-PLN-004	PRAIRIE CENTER DR BRIDGE REMOVALS, PLAN, AND PROFILES			
22	W1-UTL-PLN-005	EDEN RD 1 OF 3 REMOVALS			
23	W1-UTL-PLN-006	EDEN RD 2 OF 3 PLAN			
24	W1-UTL-PLN-007	EDEN RD 3 OF 3 PROFILES			
25	W1-UTL-PLN-008	TECHNOLOGY DR / FLYING CLOUD DR 1 OF 3 REMOVALS			
26	W1-UTL-PLN-009	TECHNOLOGY DR / FLYING CLOUD DR 2 OF 3 PLAN			
27	W1-UTL-PLN-010	TECHNOLOGY DR / FLYING CLOUD DR 3 OF 3 PROFILES			
28	W1-UTL-PLN-011	FLYING CLOUD DR 1 OF 5 REMOVALS AND PLAN			
29	W1-UTL-PLN-012	FLYING CLOUD DR 2 OF 5 REMOVALS AND PLAN			
30	W1-UTL-PLN-013	FLYING CLOUD DR 3 OF 5 REMOVALS AND PLAN			
31	W1-UTL-PLN-014	FLYING CLOUD DR 4 OF 5 PROFILES			
32	W1-UTL-PLN-015	FLYING CLOUD DR 5 OF 5 PROFILES			
33	W2-UTL-PLN-001	SAN SEWER AT FLYING CLOUD DR 1 OF 2 REMOVALS AND PLAN			
34	W2-UTL-PLN-002	SAN SEWER AT FLYING CLOUD DR 2 OF 2 PROFILES			
35	W2-UTL-PLN-003	GOLDEN TRIANGLE STATION 1 OF 3 REMOVALS			
36	W2-UTL-PLN-004	GOLDEN TRIANGLE STATION 2 OF 3 PLAN			
37	W2-UTL-PLN-005	GOLDEN TRIANGLE STATION 3 OF 3 PROFILES			
38	W2-UTL-PLN-006	WHITEBOARD 1 OF 2 REMOVALS AND PLAN			
39	W2-UTL-PLN-007	WHITEBOARD 2 OF 2 PROFILES			
40	W2-UTL-PLN-008	TH 212 REMOVALS			
41	W2-UTL-PLN-009	CITY WEST STATION 1 OF 4 REMOVALS			
42	W2-UTL-PLN-010	CITY WEST STATION 2 OF 4 PLAN			
43	W2-UTL-PLN-011	CITY WEST STATION 3 OF 4 PROFILES			
44	W2-UTL-PLN-012	CITY WEST STATION 4 OF 4 PROFILES			
45	W2-UTL-PLN-013	RED CIR DR / YELLOW CIR DR 1 OF 2 REMOVALS AND PLAN			
46	W2-UTL-PLN-014	RED CIR DR / YELLOW CIR DR 2 OF 2 PROFILES			
47	W2-UTL-PLN-015	RED CIR DR / BREN RD REMOVALS, PLAN, AND PROFILES			
48	W3-UTL-PLN-001	OPUS STATION 1 OF 6 REMOVALS			
49	W3-UTL-PLN-002	OPUS STATION 2 OF 6 REMOVALS			
50	W3-UTL-PLN-003	OPUS STATION 3 OF 6 PLAN			
51	W3-UTL-PLN-004	OPUS STATION 4 OF 6 PLAN			
52	W3-UTL-PLN-005	OPUS STATION 5 OF 6 PROFILES			
53	-	NOT USED			
54	W3-UTL-PLN-007	SANITARY SEWER AT TRACK 2 STA 2357+67 REMOVALS, PLAN, AND PROFILES			
55	W3-UTL-PLN-008	OPUS HILL 1 OF 2 REMOVALS AND PLAN			
56	W3-UTL-PLN-009	OPUS HILL 2 OF 2 PROFILES			
57	W3-UTL-PLN-010	SANITARY SEWER AT TRACK 2 STA 2373+31 REMOVALS, PLAN, AND PROFILES			
58	W3-UTL-PLN-011	FELTL RD / SMETANA RD 1 OF 3 REMOVALS			
59	W3-UTL-PLN-012	FELTL RD / SMETANA RD 2 OF 3 PLAN			
60	W3-UTL-PLN-013	FELTL RD / SMETANA RD 3 OF 3 PROFILES			
61	W3-UTL-PLN-014	SHADY OAK STATION 1 OF 6 REMOVALS			
62	W3-UTL-PLN-015	SHADY OAK STATION 2 OF 6 REMOVALS			
63	W3-UTL-PLN-016	SHADY OAK STATION 3 OF 6 PLAN			
64	W3-UTL-PLN-017	SHADY OAK STATION 4 OF 6 PLAN			
65	W3-UTL-PLN-018	SHADY OAK STATION 5 OF 6 PROFILES			
66	-	NOT USED			
67	E1-UTL-PLN-001	11TH AVE S REMOVALS, PLAN, AND PROFILES			
68	E1-UTL-PLN-002	HOPKINS STATION 1 OF 2 REMOVALS AND PLAN			
69	E1-UTL-PLN-003	HOPKINS STATION 2 OF 2 PROFILES			
70	E1-UTL-PLN-004	5TH AVE S 1 OF 2 REMOVALS AND PLAN			
71	E1-UTL-PLN-005	5TH AVE S 2 OF 2 PROFILES			
72	E1-UTL-PLN-006	TH 169 REMOVALS, PLAN, AND PROFILES			
73	E1-UTL-PLN-007	EXCELSIOR BLVD REMOVALS AND PLAN			
74	E1-UTL-PLN-008	TYLER ST REMOVALS, PLAN, AND PROFILES			
75	E1-UTL-PLN-009	BLAKE STATION 1 OF 3 REMOVALS			
76	E1-UTL-PLN-010	BLAKE STATION 2 OF 3 PLAN			
77	E1-UTL-PLN-011	BLAKE STATION 3 OF 3 PROFILES			
78	E1-UTL-PLN-012	EXCELSIOR BLVD / PIERCE AVE REMOVALS AND PLAN			
79	E2-UTL-PLN-001	LOUISIANA STATION PLAN AND PROFILES			
80	E2-UTL-PLN-002	OXFORD ST / EDGEWOOD AVE S REMOVALS, PLAN, AND PROFILES			
81	E2-UTL-PLN-003	BRUNSWICK AVE S REMOVALS, PLAN, AND PROFILES			
82	E2-UTL-PLN-004	WOODDALE STATION 1 OF 3 REMOVALS			
83	E2-UTL-PLN-005	WOODDALE STATION 2 OF 3 PLAN			
84	E2-UTL-PLN-006	WOODDALE STATION 3 OF 3 PROFILES			
85	E2-UTL-PLN-007	BELTLINE STATION 1 OF 3 REMOVALS			
86	E2-UTL-PLN-008	BELTLINE STATION 2 OF 3 PLAN			
87	E2-UTL-PLN-009	BELTLINE STATION 3 OF 3 PROFILES			
88	E3-UTL-PLN-001	WEST LAKE STATION 1 OF 3 REMOVALS			
89	E3-UTL-PLN-002	WEST LAKE STATION 2 OF 3 PLAN AND PROFILES			
90	E3-UTL-PLN-003	WEST LAKE STATION 3 OF 3 PLAN AND PROFILES			
91	E3-UTL-PLN-004	CHOWEN AVE S / ABBOTT AVE S 1 OF 2 REMOVALS			
92	E3-UTL-PLN-005	CHOWEN AVE S / ABBOTT AVE S 2 OF 2 PLAN AND PROFILES			
93	E3-UTL-PLN-006	W 32ND ST REMOVALS AND PLAN			
94	E3-UTL-PLN-007	MARKET PLAZA / EXCELSIOR BLVD REMOVALS AND PLAN			
95	E3-UTL-PLN-008	MARKET PLAZA / W LAKE ST REMOVALS AND PLAN			
96	E3-UTL-PLN-009	DEAN CT REMOVALS, PLAN, AND PROFILES			
97	E3-UTL-PLN-010	MCES FORCEMAIN 1 OF 3 REMOVALS			
98	E3-UTL-PLN-011	MCES FORCEMAIN 2 OF 3 PLAN AND PROFILES			
99	E3-UTL-PLN-012	MCES FORCEMAIN 3 OF 3 TEMPORARY CONVEYANCE			
100	E3-UTL-PLN-013	CEDAR LAKE AVE 1 OF 2 REMOVALS AND PLAN			
101	E3-UTL-PLN-014	CEDAR LAKE AVE 2 OF 2 PROFILES			
102	E3-UTL-PLN-015	CEDAR-ISLES CHANNEL REMOVALS, PLAN, AND PROFILES			
103	E3-UTL-PLN-016	21ST ST STATION 1 OF 2 REMOVALS AND PLAN			
104	E3-UTL-PLN-017	21ST ST STATION 2 OF 2 PROFILES			
105	E4-UTL-PLN-001	PENN STATION 1 OF 3 PLAN			
106	E4-UTL-PLN-002	PENN STATION 2 OF 3 PROFILES			
107	E4-UTL-PLN-003	PENN STATION 3 OF 3 PROFILES			
108	E4-UTL-PLN-004	VAN WHITE STATION 1 OF 6 REMOVALS AND PLAN			
109	E4-UTL-PLN-005	VAN WHITE STATION 2 OF 6 PROFILES			
110	E4-UTL-PLN-006	VAN WHITE STATION 3 OF 6 PLAN AND PROFILES			
111	E4-UTL-PLN-007	VAN WHITE STATION 4 OF 6 PLAN AND PROFILES			
112	E4-UTL-PLN-008	VAN WHITE STATION 5 OF 6 PLAN			
113	E4-UTL-PLN-009	VAN WHITE STATION 6 OF 6 PROFILES			
114	E4-UTL-PLN-010	36" WATER ACCESS LINDEN YARDS PLAN AND PROFILES			
115	E4-UTL-PLN-011	GLENWOOD AVE 1 OF 2 REMOVALS AND PLAN			
116	E4-UTL-PLN-012	GLENWOOD AVE 2 OF 2 PROFILES			
117	E4-UTL-PLN-013	ROYALSTON STATION 1 OF 2 REMOVALS AND PLAN			
118	E4-UTL-PLN-014	ROYALSTON STATION 2 OF 2 PROFILES			
119	E4-UTL-PLN-015	ROYALSTON AVE N / 5TH AVE N REMOVALS AND PLAN			
120	E4-UTL-PLN-016	ROYALSTON AVE N / BORDER AVE REMOVALS AND PLAN			
121	E4-UTL-PLN-017	BORDER AVE / CESAR CHAVEZ AVE REMOVALS AND PLAN			
122	E4-UTL-PLN-018	HOLDEN ST N REMOVALS AND PLAN			
123	E4-UTL-PLN-019	PENN AVE S / MT VIEW AVE PLAN			
124	E4-UTL-PLN-020	VAN WHITE MEMORIAL BLVD REMOVALS AND PLAN			
125	W1-UTL-STU-PLN-001	SOUTHWEST STATION STRUCTURAL PLAN			
126	W0-UTL-STU-DTL-001	SOUTHWEST STATION PILE SUPPORT SHEET 1			
127	W0-UTL-STU-DTL-002	SOUTHWEST STATION PILE SUPPORT SHEET 2			
128	W0-UTL-STU-DTL-003	SOUTHWEST STATION MANHOLE PILE FOUNDATION DETAIL			
129	W0-UTL-STU-DTL-004	SOUTHWEST STATION HYDRANT SUPPORT DETAIL			
	130 THRU 138	NOT USED			
139	E0-UTL-DTL-001	MCES CLEANOUT VAULT			
140	E0-UTL-DTL-002	MCES AIR RELEASE VAULT / VACUUM VAULT			
141	E0-UTL-DTL-003	MCES TEMPORARY CONVEYANCE STAGING PHASE 1 DETAILS			
142	E0-UTL-DTL-004	MCES TEMPORARY CONVEYANCE STAGING PHASE 2 DETAILS			
143	W0-UTL-DTL-001	SANITARY AND WATER DETAILS			
144	W0-UTL-DTL-002	SANITARY AND WATER DETAILS			
145	W0-UTL-DTL-003	SANITARY AND WATER DETAILS			
146	W0-UTL-DTL-004	SANITARY AND WATER DETAILS			
147	W0-UTL-DTL-005	SANITARY AND WATER DETAILS			
148	W0-UTL-DTL-006	SANITARY AND WATER DETAILS			
149	W0-UTL-DTL-007	SANITARY AND WATER DETAILS			
150	W0-UTL-DTL-008	SANITARY AND WATER DETAILS			
151	W0-UTL-DTL-009	SANITARY AND WATER DETAILS			
152	W0-UTL-DTL-010	SANITARY AND WATER DETAILS			
153	W0-UTL-DTL-011	SANITARY AND WATER DETAILS			
154	W0-UTL-DTL-012	SANITARY AND WATER DETAILS			
155	W0-UTL-DTL-013	SANITARY AND WATER DETAILS			
156	W0-UTL-DTL-014	SANITARY AND WATER DETAILS			
157	W0-UTL-DTL-015	SANITARY AND WATER DETAILS			
158	W0-UTL-DTL-016	SANITARY AND WATER DETAILS			
159	W0-UTL-DTL-017	SANITARY AND WATER DETAILS			
160	W0-UTL-DTL-018	SANITARY AND WATER DETAILS			
161	W0-UTL-DTL-019	SANITARY AND WATER DETAILS			
162	W0-UTL-DTL-020	SANITARY AND WATER DETAILS			
163	W1-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL SOUTHWEST STATION			
164	W1-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL PRAIRIE CENTER DR BRIDGE			
165	W1-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL EDEN RD			
166	W1-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL TECHNOLOGY DR / FLYING CLOUD DR			
167	W1-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL FLYING CLOUD DR 1 OF 3			
168	W1-UTL-CORR-006	UTILITIES - STRAY CURRENT CONTROL FLYING CLOUD DR 2 OF 3			
169	W1-UTL-CORR-007	UTILITIES - STRAY CURRENT CONTROL FLYING CLOUD DR 3 OF 3			
170	W2-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL GOLDEN TRIANGLE STATION			
171	W2-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL CITY WEST STATION			
172	W2-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL RED CIRCLE DR / YELLOW CIRCLE DR			
173	W2-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL RED CIRCLE DR / BREN RD			
174	W3-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL OPUS STATION 1 OF 2			
175	W3-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL OPUS STATION 2 OF 2			
176	W3-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL OPUS HILL			
177	W3-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL FELTL RD / SMETANA RD			
178	W3-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL SHADY OAK STATION 1 OF 2			
179	W3-UTL-CORR-006	UTILITIES - STRAY CURRENT CONTROL SHADY OAK STATION 2 OF 2			
180	E1-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL 11TH AVENUE S			
181	E1-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL HOPKINS STATION			
182	E1-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL 5TH AVENUE S			
183	E1-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL TH169			
184	E1-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL EXCELSIOR BLVD			
185	E1-UTL-CORR-006	UTILITIES - STRAY CURRENT CONTROL TYLER STREET			
186	E1-UTL-CORR-007	UTILITIES - STRAY CURRENT CONTROL BLAKE STATION			
187	E1-UTL-CORR-008	UTILITIES - STRAY CURRENT CONTROL EXCELSIOR BLVD / PIERCE AVE			
188	E2-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL LOUISIANA STATION			

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
GENERAL
VOLUME INDEX OF PLAN SHEETS
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-IDX-001

SHEET 2 OF 214

CIVIL CONSTRUCTION						CIVIL CONSTRUCTION						CIVIL CONSTRUCTION					
SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV
VOLUME 7 - UTILITIES (cont'd)																	
189	E2-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL OXFORD ST / EDGEWOOD AVE S															
190	E2-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL BRUNSWICK AVE S															
191	E2-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL WOODDALE STATION															
192	E2-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL BELTLINE STATION															
193	E3-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL WEST LAKE STATION 1 OF 2															
194	E3-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL WEST LAKE STATION 2 OF 2															
195	E3-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL CHOWEN AVE S / ABBOTT AVE															
196	E3-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL CHOWEN AVE S / W LAKE ST															
197	E3-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL MARKET PLAZA / EXCELSIOR BLVD															
198	E3-UTL-CORR-006	UTILITIES - STRAY CURRENT CONTROL DEAN CT															
199	E3-UTL-CORR-007	UTILITIES - STRAY CURRENT CONTROL MCES FORCE MAINS															
200	E3-UTL-CORR-008	UTILITIES - STRAY CURRENT CONTROL CEDAR LAKE AVE															
201	E3-UTL-CORR-009	UTILITIES - STRAY CURRENT CONTROL CEDAR-ISLES CHANNEL															
202	E3-UTL-CORR-010	UTILITIES - STRAY CURRENT CONTROL 21ST ST STATION															
203	E4-UTL-CORR-001	UTILITIES - STRAY CURRENT CONTROL PENN STATION															
204	E4-UTL-CORR-002	UTILITIES - STRAY CURRENT CONTROL VAN WHITE STATION 1 OF 4															
205	E4-UTL-CORR-003	UTILITIES - STRAY CURRENT CONTROL VAN WHITE STATION 2 OF 4															
206	E4-UTL-CORR-004	UTILITIES - STRAY CURRENT CONTROL VAN WHITE STATION 3 OF 4															
207	E4-UTL-CORR-005	UTILITIES - STRAY CURRENT CONTROL VAN WHITE STATION 4 OF 4															
208	E4-UTL-CORR-006	UTILITIES - STRAY CURRENT CONTROL GLENWOOD AVE															
209	E4-UTL-CORR-007	UTILITIES - STRAY CURRENT CONTROL ROYALSTON STATION															
210	E4-UTL-CORR-008	UTILITIES - STRAY CURRENT CONTROL ROYALSTON AVE N / 5TH AVE N															
211	E4-UTL-CORR-009	UTILITIES - STRAY CURRENT CONTROL BORDER AVE / CESAR CHAVEZ AVE															
212	E4-UTL-CORR-010	UTILITIES - STRAY CURRENT CONTROL ROYALSTON AVE N / BORDER AVE															
213	E4-UTL-CORR-011	UTILITIES - STRAY CURRENT CONTROL HOLDEN ST N															
214	E4-UTL-CORR-012	UTILITIES - STRAY CURRENT CONTROL VAN WHITE MEMORIAL BLVD															

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SOUTHWEST Green Line LRT Extension

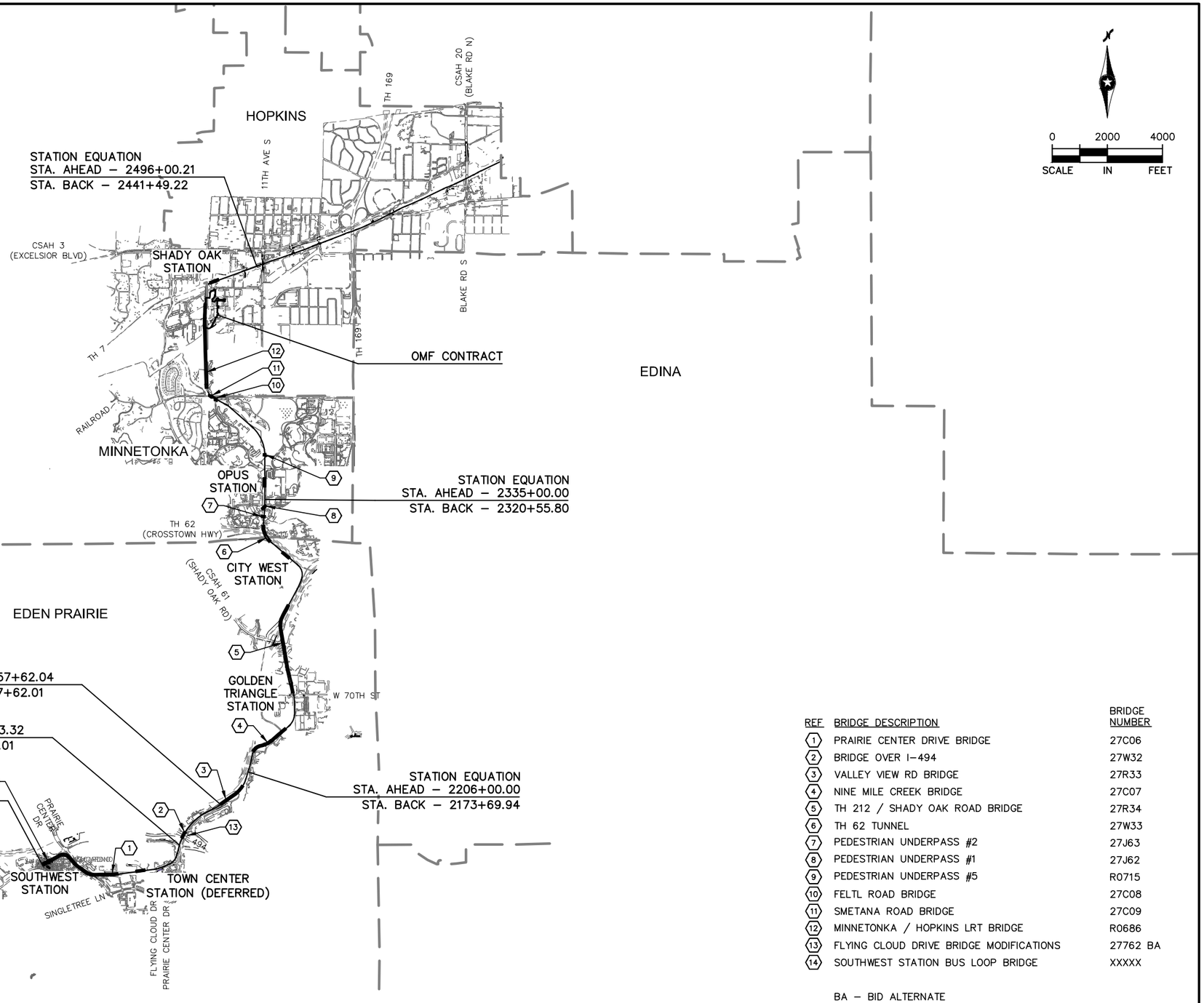
CIVIL - VOLUME 7
GENERAL
VOLUME INDEX OF PLAN SHEETS
SHEET 2

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-IDX-002

SHEET 3 OF 214

Jan, 21 2016 07:05 pm V:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\90% GEN-IDX_VOL_05-07.dwg By: v-kriewamr



REF	BRIDGE DESCRIPTION	BRIDGE NUMBER
1	PRAIRIE CENTER DRIVE BRIDGE	27C06
2	BRIDGE OVER I–494	27W32
3	VALLEY VIEW RD BRIDGE	27R33
4	NINE MILE CREEK BRIDGE	27C07
5	TH 212 / SHADY OAK ROAD BRIDGE	27R34
6	TH 62 TUNNEL	27W33
7	PEDESTRIAN UNDERPASS #2	27J63
8	PEDESTRIAN UNDERPASS #1	27J62
9	PEDESTRIAN UNDERPASS #5	R0715
10	FELTL ROAD BRIDGE	27C08
11	SMETANA ROAD BRIDGE	27C09
12	MINNETONKA / HOPKINS LRT BRIDGE	R0686
13	FLYING CLOUD DRIVE BRIDGE MODIFICATIONS	27762 BA
14	SOUTHWEST STATION BUS LOOP BRIDGE	XXXXX

BA – BID ALTERNATE

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

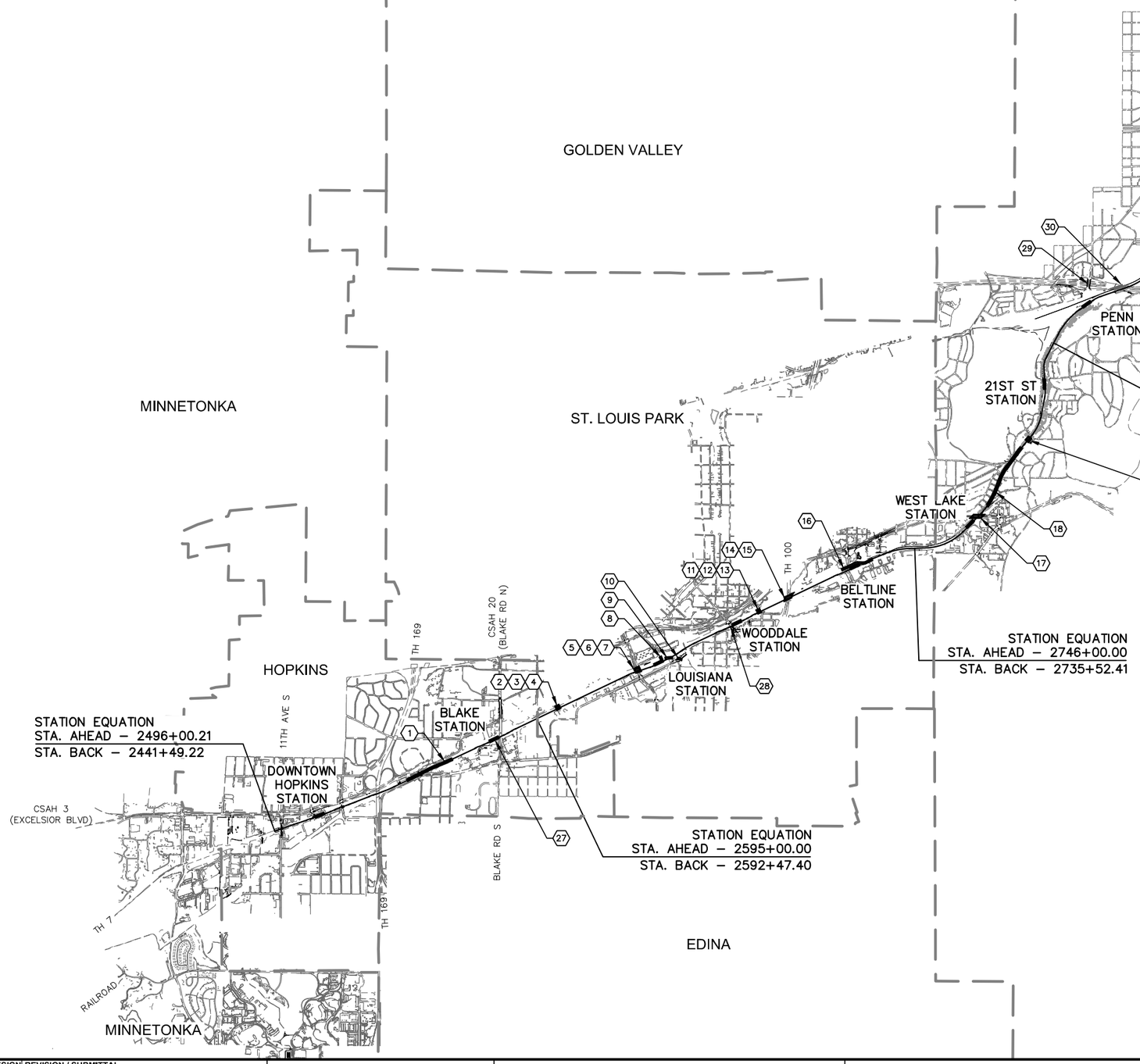
CIVIL - VOLUME 7
GENERAL
KEY MAP
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: W0-GEN-KEY-001

SHEET 4 OF 214

Jan, 16 2016 04:16 pm V:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\W0-GEN-KEY.dwg By: V-KriewaMR



REF	BRIDGE DESCRIPTION	BRIDGE NUMBER
1	EXCELSIOR BLVD BRIDGE	27C10
2	MINNEHAHA CREEK BRIDGE – FREIGHT	R0688
3	MINNEHAHA CREEK BRIDGE – TRAIL	R0687
4	MINNEHAHA CREEK BRIDGE – LRT	R0689
5	LOUISIANA AVE BRIDGE – FREIGHT	27C12
6	LOUISIANA AVE BRIDGE – TRAIL	27C11
7	LOUISIANA AVE BRIDGE – LRT	27C13
8	LOUISIANA STATION UNDERPASS	R0690
9	SOUTHERLY CONNECTOR BRIDGE OVER LRT	R0691
10	SOUTHERLY CONNECTOR BRIDGE OVER OXFORD ST	27C14
11	XENWOOD AVE – FREIGHT	XXXXX BA
12	XENWOOD AVE – TRAIL	XXXXX BA
13	XENWOOD AVE – LRT	XXXXX BA
14	TH 100 BRIDGE RELOCATION – FREIGHT	27W34
15	TH 100 BRIDGE – LRT	27303
16	CEDAR LAKE BRIDGE – TRAIL	R0692
17	WEST LAKE ST BRIDGE MODIFICATIONS	27037
18	KENILWORTH TUNNEL	27C15
19	CEDAR LAKE CHANNEL BRIDGE – FREIGHT	R0694
20	CEDAR LAKE CHANNEL BRIDGE – LRT	R0693
21	CEDAR LAKE CHANNEL BRIDGE – TRAIL	R06xx
22	LUCE LINE BRIDGE – TRAIL	R0696
23	LRT OVER BNSF BRIDGE	R0697
24	GLENWOOD AVE BRIDGE – WEST	27C16
25	GLENWOOD AVE BRIDGE – EAST	27C17
26	LRT BRIDGE OVER 5TH AVE & 7TH ST	27C18
27	BLAKE RD PEDESTRIAN UNDERPASS	27J60
28	WOODDALE AVE PEDESTRIAN UNDERPASS	27J61
29	PENN AVE BRIDGE MODIFICATIONS	27758
30	VAN WHITE BLVD BRIDGE MODIFICATIONS	27B01

BA – BID ALTERNATE

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CIVIL - VOLUME 7
GENERAL
KEY MAP
SHEET 2

DISCIPLINE: GENERAL

SHEET NAME: E0-GEN-KEY-002

SHEET 5 OF 214

SYMBOLS

- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- FLASHER (FREIGHT & PEDESTRIAN)
- CROSSING GATE (FREIGHT & LRT)
- CANTILEVER SIGNAL
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- OCS POLE FOUNDATION
- RAIL LUBRICATOR
- POINT OF INTERSECTION (PI)
- W2–200 — RAILROAD CURVE NUMBER
- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- HANDICAP PARKING STALL
- TACTILE WARNING STRIP
- TPSS BUILDING (TPSS–SW###) – NIC
  TUNNEL SYSTEMS HOUSE (TSY–SW###) – NIC
- SIGNAL / COMMUNICATION HOUSE – NIC
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- STORM SEWER FLARED END SECTION
- STORM SEWER CLEAN–OUT
- STORM SEWER PUMP STATION
- DTXX
  INV XXX.XX — DRAINTILE ID
- XXXX – ST — STORM SEWER STRUCTURE ID
- C / E — BUS SHELTER
- ROADWAY / PEDESTRIAN LIGHT

LINETYPES

- ROADWAY ℄
- TRACK ℄ (LRT)
- TRACK ℄ (FRT)
- RETAINING WALL
- BALLAST CURB
- TUNNEL WALL
- FENCE
- EX ROW
- PROP ROW
- PROP TCE
- PROP PE
- FENCE / RAILING
- ID – ID — FREIGHT INTRUSION DETECTION
- CONCRETE CURB AND GUTTER
- TRAIL (WIDTH VARIES)
- SIDEWALK
- DRIVEWAY
- BRIDGE
- SAWCUT
- DELINEATED WETLAND
- BMP (NWL) WATER EDGE
- PROPOSED FLOODPLAIN MITIGATION AREA
- SILT FENCE
- BALE BARRIER
- STORM SEWER
- CASING PIPE
- PIPE REMOVAL
- STRUCTURE REMOVAL
- FLOATING SILT FENCE
- SUPER DUTY SILT FENCE
- CONSTRUCTION LIMITS
- ROCK WEEPER
- DIVERSION DITCH
- OVERLAND FLOW
- CROSSWALK
- STOP BAR
- MEDIAN NOSE
- EP-EP-18 — WETLAND ID

CONSTRUCTION PACKAGE NOTE

NOTE: THE SWLRT CONSTRUCTION IS BEING IMPLEMENTED THROUGH THREE MAIN CONSTRUCTION PACKAGES; CIVIL, SYSTEMS & TUNNEL FACILITIES (SYS), AND OPERATIONS & MAINTENANCE FACILITY (OMF). CERTAIN SYS AND OMF SYMBOLS ARE SHOWN ON THE CIVIL CONTRACT PLANS FOR INFORMATION ONLY AND CERTAIN FACILITIES ARE NOT PART OF THE CIVIL CONTRACT.

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SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
GENERAL
NOTES, ABBREVIATIONS, AND SYMBOLS
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-NTS-001

SHEET 6 OF 214

ABBREVIATIONS

3-2 (EG)	SIGNAL HEAD NUMBER (PHASE 3, NO. 2)
AD	ALGEBRAIC DIFFERENCE
AVE	AVENUE
AWF	ADVANCE WARNING FLASHER
BA	BID ALTERNATE
BGN	BEGIN
BP	BEGINNING POINT
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BLVD	BOULEVARD
BMP	BEST MANAGEMENT PRACTICE
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
C&G	CURB AND GUTTER
℄	CENTERLINE
CB	CATCH BASIN
CE	CLEARANCE ENVELOPE
CIR	CIRCLE
CO	DRAINTILE CLEANOUT STRUCTURE
CP	CANADIAN PACIFIC
CPRAIL	CANADIAN PACIFIC RAILWAY
CS	CURVE TO SPIRAL
CSAH	COUNTY STATE AID HIGHWAY
D&U	DRAINAGE AND UTILITY
DF	DIRECT FIXATION
DR	DRIVE
DT	DRAINTILE
DTL	DETAIL
DWY	DRIVEWAY
E	EAST
Ea	ACTUAL SUPERELEVATION (INCHES)
EB	EAST BOUND
EL or ELEV	ELEVATION
EP	ENDING POINT
ESMT	EASEMENT
Eu	UNBALANCED SUPERELEVATION (INCHES)
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EVP	EMERGENCY VEHICLE PRE-EMPTION
EX	EXISTING
FES	FLARED END SECTION
FYA	FLASHING YELLOW ARROW
GR RD	GROUND ROD
GRN	GREEN INDICATION
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
INL	BRIDGE DRAIN INLET
INS GR	INSULATED GROUND
IP	INPLACE
LED	LIGHT EMITTING DIODE
LH	LEFT HAND
LN	LANE
LRCI	LOCALLY REQUESTED CAPITAL INVESTMENT
LRT	LIGHT RAIL TRANSIT
LRV	LIGHT RAIL VEHICLE
LT	LEFT
LUM	LUMINAIRE
L_c	CURVE LENGTH (FEET)
L_s	SPIRAL LENGTH (FEET)
MIN	MINIMUM
MPH	MILES PER HOUR
MPLS	CITY OF MINNEAPOLIS
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD
N	NORTH
NB	NORTH BOUND
NIC	NOT IN CONTRACT
NO	NUMBER
NWL	NORMAL WATER LINE
OCS	OUTLET CONTROL SYSTEM
OCS	OVERHEAD CONTACT SYSTEM
OMF	OPERATIONS AND MAINTENANCE FACILITY
OH	OVERHEAD
P1-1 (EG)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB2-1 (EG)	PUSHBUTTON (PHASE 2, NO. 1)
PC	POINT OF CURVE
PE	PERMANENT EASEMENT
PED	PEDESTRIAN
PITO	POINT OF INTERSECTION OF TURNOUT
PKWY	PARKWAY
POB	POINT OF BEGINNING
POE	POINT OF ENDING
POT	POINT ON TANGENT
PROP	PROPOSED
PS	POINT OF SWITCH
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS (FEET)
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RL	RAIL LUBRICATOR
r	RATE OF CHANGE VERTICAL CURVE
RH	RIGHT HAND
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SB	SOUTH BOUND
SC	SPIRAL TO CURVE
SIG-COMM	SIGNAL COMMUNICATION
SOP	SOURCE OF POWER
ST	STREET
ST	SPIRAL TO TANGENT
ST	STORM MANHOLE STRUCTURE
STA	STATION
TCE	TEMPORARY CONSTRUCTION EASEMENT
TH	TRUNK HIGHWAY
THRU	THROUGH
TOR	TOP OF RAIL
TPSS	TRACTION POWER SUBSTATION
TRK	TRACK
TS	TANGENT TO SPIRAL
TYP	TYPICAL
UG	UNDERGROUND
V	DESIGN VELOCITY (MPH)
VC	VERTICAL CURVE
VDE	VEHICLE DYNAMIC ENVELOPE
W	WEST
WB	WEST BOUND
WLK	WALK INDICATION

TRAIL INDEX

ABBREVIATED NAME	FULL NAME / LOCATION
TRAIL 1	UNDER RED CIRCLE DR, LRT, AND YELLOW CIRCLE DR
TRAIL 2	FROM TRAIL 1 TO GREEN CIRCLE DR
TRAIL 3	OPUS STATION ACCESS FROM BREN RD E
TRAIL 4	FROM BREN RD W TO TRAIL 5
TRAIL 5	FROM OPUS STATION TO GREEN CIRCLE DR
TRAIL 6	FROM TRAIL 5 TO SMETANA RD
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/FROM SHADY OAK STATION TO 11TH AVE
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL LRT TRAIL/BETWEEN EXCELSIOR AND KENILWORTH TRAIL CONNECTION
MIDTOWN GREENWAY	MIDTOWN GREENWAY/EAST OF KENILWORTH TRAIL CONNECTION
TRAIL A	KENILWORTH TRAIL (SECONDARY)/BETWEEN CEDAR-ISLES CHANNEL AND 21ST STREET STATION
TRAIL B	KENILWORTH TRAIL (SECONDARY)/BETWEEN 21ST STREET STATION AND PENN STATION
TRAIL B	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE LRT REGIONAL TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION TO CEDAR LAKE LRT REGIONAL TRAIL
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/PENN STATION TO TH 394
TRAIL E	KENILWORTH TRAIL (SECONDARY)/EAST OF W LAKE ST
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF CEDAR LAKE PKWY
TRAIL G	NOT USED
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RD)
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/AT-GRADE CROSSING AT PENN STATION
TRAIL J	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL M	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RD)
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOOK DRIVE
TRAIL O	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO W LAKE STREET
TRAIL P	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO LOUISIANA AVE
TRAIL Q	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TH 7 SERVICE ROAD
TRAIL R	20' CONNECTOR TRAIL FROM VAN WHITE STATION TO CEDAR LAKE TRAIL
TRAIL S	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO BELTLINE BLVD
TRAIL T	8' CONNECTOR TRAIL FROM VAN WHITE STATION TO VAN WHITE MEMORIAL BLVD
TRAIL U	10' TRAIL PARALLEL TO CEDAR LAKE PKWY
LUCE LINE TRAIL	LUCE LINE REGIONAL TRAIL/ON BRIDGE OVER LIGHT RAIL
TRAIL V	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL W	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL X	NOT USED
TRAIL Y	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
TRAIL Z	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
TRAIL AA	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL BB	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL CC	10' CONNECTOR TRAIL FROM KENILWORTH TRAIL (MAIN) TO PENN STATION

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GENERAL
NOTES, ABBREVIATIONS, AND SYMBOLS
SHEET 2

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-NTS-002

SHEET 7 OF 214

Jan, 16 2016 04:18 pm v:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\CIV-GEN-NTS.dwg By: V-KriewaMR

GENERAL NOTES

1. REFER TO OTHER PLAN VOLUMES FOR GEOMETRICS, DIMENSIONS, PAVEMENT SECTIONS, DETAILS, STRIPING AND OTHER SITE FEATURES.
2. PERFORM ALL UTILITY WORK IN ACCORDANCE WITH STATE AND CITY REQUIREMENTS.
3. TESTING AND INSPECTIONS: ALL PLUMBING INSTALLATIONS, INCLUDING SEWER SERVICES, MUST BE TESTED AND INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINNESOTA PLUMBING CODE (MINNESOTA RULES CHAPTER 4715). COORDINATE TESTING AND INSPECTION WITH THE STATE HEALTH DEPARTMENT AND THE CITY PUBLIC WORKS DEPARTMENT. NO DRAINAGE OR PLUMBING WORK MAY BE COVERED PRIOR TO COMPLETING THE REQUIRED TESTS AND INSPECTIONS. THE CONTRACTOR SHALL RECORD LOCATIONS OF ALL SERVICE LEADS BEFORE BACKFILLING.
4. PERFORM TRENCH EXCAVATIONS FOR ALL UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF O.S.H.A. 29 CFR, PART 1926. SUBPART P, EXCAVATIONS (WWW.OSHA.GOV).
5. COORDINATE BUILDING UTILITY CONNECTION WITH THE PROPERTY OWNER PRIOR TO CONSTRUCTION. VERIFY SEWER SERVICE LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.
6. SUPPORT ALL IN-PLACE UTILITIES DURING EXCAVATION AND CONSTRUCTION OF THE PROPOSED UTILITY. INCIDENTAL TO PROPOSED UTILITY WORK.
7. ADJUST/RECONSTRUCT ALL EXISTING AND PROPOSED MAINTENANCE MANHOLE CASTINGS AND STRUCTURES, CATCH BASIN CASTINGS AND STRUCTURES, CLEANOUT COVERS, VALVE BOXES, CURB STOPS, AND SIMILAR ITEMS TO ELEVATION 1/4" BELOW FINISHED GRADE. INCIDENTAL TO PROPOSED UTILITY WORK.
8. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE.
9. ABANDONING EXISTING SEWER SERVICE OR MAKING NEW CONNECTIONS TO CITY SEWER MUST BE DONE TO CITY STANDARDS BY A LICENSED HOUSE DRAIN CONTRACTOR UNDER A PERMIT FROM PUBLIC WORKS SEWER SECTION.
10. CONTRACTOR MUST RESTORE OR REPAIR DAMAGED UTILITIES TO CONDITION EQUAL TO OR BETTER THAN PRE-CONSTRUCTION CONDITION AND AS REQUIRED BY OWNER.
11. COORDINATE AND SEQUENCE WATER MAIN AND SEWER CONSTRUCTION WITH OTHER PROPOSED CONSTRUCTION.
12. COORDINATE WITH COUNCIL AUTHORIZED REPRESENTATIVE (CAR) AND UTILITY OWNER FOR OPERATION OF VALVES AND HYDRANTS.
13. MECHANICAL THRUST RESTRAINT SHALL BE USED FOR ALL WATER MAIN PIPE RESTRAINT. ADDITIONALLY, INSTALL CONCRETE THRUST BLOCKING AS SPECIFIED AND DETAILED.
14. PIPE, CASING AND FITTING QUANTITIES AND SIZES SHOWN ARE BASED ON AS-BUILT INFORMATION AND MAY REQUIRE FIELD ADJUSTMENTS.
15. ADJUST HYDRANT LOCATIONS AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS. COORDINATE WITH CAR.
16. SEE CORROSION CONTROL PLANS FOR CATHODIC PROTECTION MEASURES.
17. ALL SECTION JOINTS OF STEEL CASING PIPE SHALL BE FULL PENETRATION WELDED. WELDS AT SECTION JOINTS SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT.
18. ALL PIPE JOINTS WITHIN CASING SHALL BE RESTRAINED WITH MECHANICAL RESTRAINT AT EACH JOINT.
19. ALL HYDRANT LEADS SHALL BE 6" DUCTILE IRON PIPE. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS IN THE HYDRANT LEAD. ADDITIONALLY, INSTALL CONCRETE THRUST BLOCKING AS SPECIFIED AND DETAILED.
20. SHORING, SHEETING, BRACING, TRENCH BOXING AND OTHER EXCAVATION PROTECTION MEASURES USED IN THE COURSE OF WORK FOR THE REMOVAL OR INSTALLATION OF ANY UTILITY OR USED TO SUPPORT, PROTECT OR MAINTAIN SURFACE AND SUBSURFACE STRUCTURES AND UTILITIES SHALL BE DESIGNED, FURNISHED, INSTALLED AND REMOVED AT THE CONTRACTOR'S EXPENSE. COSTS SHALL BE INCIDENTAL TO UTILITY INSTALLATION WORK.
21. THE UTILITIES PLANS DEPICT PROPOSED RELOCATIONS FOR SANITARY SEWER AND WATER MAIN AND EXISTING SANITARY SEWER AND WATER MAIN THAT ARE TO REMAIN IN PLACE AND IN SERVICE. PRIVATE UTILITIES NOT REMOVED BY THE PROJECT ARE SHOWN WHERE THEY CURRENTLY EXIST. REFER TO EXISTING CONDITIONS PLANS FOR UTILITY LOCATION QUALITY LEVEL. COORDINATE WITH PRIVATE UTILITY OWNERS SO THAT PRIVATE UTILITY OWNERS MAY SCHEDULE AND CONDUCT THEIR REMOVALS AND RELOCATIONS WITHIN THE SCHEDULE AND CONSTRUCTION OF THE PROJECT.
22. ALL WATER MAINS TO BE INSTALLED ACCORDING TO CITY STANDARD SPECIFICATIONS, THE PROJECT MANUAL AND PLANS.
23. ALL EXISTING WATER SERVICES NOT BEING REUSED MUST BE REMOVED IN THEIR ENTIRETY PER CITY STANDARD SPECIFICATIONS.
24. PROVIDE MINIMUM COVER FOR WATER MAIN AS REQUIRED BY CITY STANDARD SPECIFICATIONS UNLESS NOTED OTHERWISE.
25. VERIFY LOCATION AND ELEVATION OF EXISTING AND PROPOSED UTILITIES PRIOR TO WORK.
26. PROTECT AND SUPPORT UNDERGROUND FACILITIES DURING CONSTRUCTION OPERATIONS.
27. EXCAVATION, BACKFILLING AND COMPACTING REQUIRED FOR REMOVAL OF ITEMS INDICATED TO BE REMOVED SHALL BE CLASSED AS INCIDENTAL TO THE REMOVAL WORK.
28. REMOVAL OF ANY EXISTING CONCRETE THRUST BLOCKING AND EXISTING MECHANICAL RESTRAINTS SHALL BE CLASSED AS INCIDENTAL TO REMOVE WATER MAIN OR REMOVE SANITARY FORCEMAIN WORK.
29. EXCAVATION, BACKFILLING, COMPACTING AND BEDDING REQUIRED FOR INSTALLATION OF PROPOSED WATER MAIN PIPING AND APPURTENANCES AND PROPOSED SEWER PIPING, MANHOLES AND APPURTENANCES SHALL BE CLASSED AS INCIDENTAL TO THE PROPOSED WORK.
30. CONTRACTOR SHALL PROVIDE A MINIMUM 10 DAY NOTICE TO THE CAR PRIOR TO SHUTDOWN OF ANY WATER MAIN OR WATER SERVICE. SHUTDOWNS AND START-UPS OF WATER MAIN AND WATER SERVICES ARE SUBJECT TO APPROVAL BY CITY. ALL VALVE OPERATION SHALL BE DONE BY CITY AND IS SUBJECT TO PERSONNEL AVAILABILITY. CONTRACTOR SHALL SCHEDULE SHUTDOWNS TO MINIMIZE SERVICE DISRUPTION. SHUTDOWNS MAY NEED TO OCCUR ON WEEKENDS AND/ OR DURING NON-BUSINESS HOURS. COORDINATE SCHEDULE WITH CAR.
31. CONTRACTOR SHALL MAINTAIN, ON HAND, A STOCK OF WATER MAIN AND SEWER PIPE AND FITTINGS AT ALL PLAN SIZES THAT THE CONTRACTOR DEEMS ADEQUATE TO ACCOMMODATE UNFORESEEN OBSTACLES TO CONSTRUCTION. DELAY DUE TO LACK OF MATERIALS IS SOLELY THE CONTRACTOR'S RESPONSIBILITY.
32. ALL CONSTRUCTED UTILITIES MUST BE APPROVED BY THE CAR, RECONNECTED TO EXISTING UTILITIES, AND MADE OPERATIONAL PRIOR TO CEASING UTILITY CONSTRUCTION OPERATIONS FOR TIME PERIODS GREATER THAN 1 WEEK. CONTRACTOR IS RESPONSIBLE FOR DESIGNING, FURNISHING AND INSTALLING, AND REMOVING ANY TEMPORARY VALVES, PIPE, RESTRAINT, AND OTHER MATERIAL AND EQUIPMENT REQUIRED TO MAKE CONNECTION BETWEEN NEWLY CONSTRUCTED UTILITIES AND EXISTING UTILITIES WHEN CONSTRUCTION IS HALTED PRIOR TO COMPLETION OF ALL PROPOSED WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH TEMPORARY WORK COMPLETED FOR THE CONVENIENCE OF THE CONTRACTOR. ALL TEMPORARY VALVES, PIPE, RESTRAINT, AND OTHER MATERIAL AND EQUIPMENT SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE OF MINNESOTA, REVIEWED BY THE COUNCIL PRIOR TO INSTALLATION, AND MEET PROJECT SPECIFICATIONS. REMOVAL OF TEMPORARY FACILITIES AND SUBSEQUENT CONSTRUCTION AT PLAN ALIGNMENT MAY REQUIRE RETESTING OF ALL OR PORTIONS OF PREVIOUSLY CONSTRUCTED AND TESTED NEW UTILITIES.
33. PROVIDE A SEWER BYPASS IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR ALL GRAVITY AND FORCEMAIN SANITARY SEWERS IMPACTED BY THE PROJECT.
34. DRAINAGE SHOWN IN THIS VOLUME IS FOR INFORMATION ONLY. SEE VOLUME 8 – DRAINAGE FOR DRAINAGE DESIGN.
35. PROTECT IN-PLACE ALL PUBLIC AND PRIVATE UTILITIES NOT INDICATED FOR REMOVAL. PROTECT IN-PLACE ALL PUBLIC AND PRIVATE UTILITIES THAT ARE INDICATED FOR REMOVAL UNTIL THEY HAVE BEEN DEACTIVATED AND TAKEN OUT OF SERVICE. COORDINATE WITH THE CAR AND UTILITY OWNER. PROTECTION OF IN-PLACE UTILITIES IS INCIDENTAL TO PROPOSED UTILITY WORK.
36. FURNISH & INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS IN WATER SERVICE LEADS GREATER THAN 2" IN DIAMETER.
37. INSULATE WATER MAIN AND SANITARY SEWER WHERE INDICATED AND ADDITIONALLY AS REQUIRED BY THE PROJECT MANUAL.
38. ALL WATER MAIN CROSSING PROPOSED LRT AND FREIGHT TRACK SHALL BE CASED.
39. UTILITIES AND UTILITY STRUCTURES INDICATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OF IN THEIR ENTIRETY REGARDLESS OF TYPE, MATERIAL, SIZE, OR DEPTH. REMOVALS SHALL INCLUDE PIPE AND STRUCTURE APPURTENANCES SUCH AS BENDS, ELBOWS, TIES, FITTINGS, CASTING FRAMES, GRATES, LIDS, STEPS, ETC. BACKFILLING, AND COMPACTING REQUIRED FOR REMOVAL OF ITEMS INDICATED SHALL BE CLASSED AS INCIDENTAL TO REMOVAL WORK.
40. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WATER MAIN WORK WITH THE CAR AND THE CITY.
41. CONTINUOUS SYSTEM WIDE WATER SERVICE AND WATER SYSTEM PRESSURES MUST BE MAINTAINED. CONTRACTOR MUST SCHEDULE ALL WATER SHUTDOWNS (SCHEDULE TO INCLUDE START, DURATION, AND END OF SHUTDOWN) WITH CAR AND THE CITY. MAINTENANCE OF SYSTEM WIDE WATER SERVICE AND WATER MAIN OPERATING PRESSURES MAY NOT ALLOW SHUT DOWN OF MORE THAN ONE WATER MAIN AT A TIME. AUTHORIZATION FOR COINCIDENT SHUTDOWNS OF MULTIPLE WATER MAINS MUST BE OBTAINED FROM THE CAR AND THE CITY. THE CONTRACTOR SHALL COORDINATE WITH THE CAR AND CITY TO SCHEDULE THE SHUTDOWNS TO MINIMIZE DISRUPTION. THE SCHEDULE SHALL BE APPROVED BY THE CAR AND CITY PRIOR TO COMMENCING WORK. APPROVAL OF THE SHUTDOWN SCHEDULE, INCLUDING SHUTDOWN DURATION, IS SUBJECT TO (BUT NOT LIMITED TO) PERSONNEL AVAILABILITY, SEASONAL WATER DEMANDS, WATER MAIN SIZE, WATER MAIN LOCATION, PROJECT SCHEDULE AND PHASING, AND WATER CUSTOMER SCHEDULES AND REQUIREMENTS. ADDITIONAL VALVING BEYOND THAT SHOWN IN THE PLANS MAY BE NECESSARY FOR THE SHUTDOWN PROCEDURES.
42. WATER MAIN APPURTENANCES AND COORDINATES FOR MAIN LINE WATER MAIN ARE INDICATED ON WATER MAIN PROFILES.
43. NEW CASTINGS, FRAMES, LIDS, GRATES, AND ADJUSTING MANHOLE RINGS SHALL BE FURNISHED & INSTALLED FOR ALL NEW, RECONSTRUCTED, AND ADJUSTED MANHOLES AND CATCH BASINS. EXISTING CASTINGS, FRAMES, LIDS, GRATES, AND ADJUSTING MATERIALS THAT ARE REPLACED SHALL BE REMOVED AND DISPOSED.
44. ALL WATER MAIN FITTINGS SHALL BE DUCTILE IRON.
45. ALL TREES NOT INDICATED FOR REMOVAL ARE TO REMAIN AND SHALL BE PROTECTED DURING CONSTRUCTION ACTIVITIES. SEE LANDSCAPE DETAILS FOR TREE PROTECTION REQUIREMENTS.
46. AIR VENTS AND/OR BLOW-OFFS MAY BE NECESSARY FOR TESTING NEW WATER MAIN INSTALLATIONS. LOCATION OF AIR VENTS AND BLOW-OFFS WILL BE FIELD COORDINATED BY THE CAR AND CITY INSPECTOR. CONSTRUCTION OF AIR VENTS AND BLOW-OFFS IS INCIDENTAL TO WATER MAIN CONSTRUCTION.
47. ADDING BENDS AND FITTINGS TO PROPOSED WATER MAIN WILL REQUIRE ADDITIONAL MECHANICAL RESTRAINT AND MAY REQUIRE RESTRAINT LENGTHS THAT EXCEED THOSE SHOWN IN THE PLANS AND PROFILES. COORDINATE WITH CAR PRIOR TO ADDING BENDS AND FITTINGS.
48. ALL BENDS AND FITTINGS SHALL BE INSTALLED WITH MECHANICAL RESTRAINT AT THE BEND OR FITTING.
49. DO NOT REMOVE UTILITIES UNTIL GIVEN PERMISSION BY UTILITY OWNER. BEFORE STARTING REMOVALS, VERIFY THAT UTILITY HAS BEEN DEACTIVATED. COORDINATE REMOVALS WITH PROPOSED CONSTRUCTION.
50. SYMBOLS USED TO DENOTE STRUCTURES ARE NOT TO SCALE AND DO NOT DEPICT ACTUAL SIZE. REMOVE STRUCTURES IDENTIFIED FOR REMOVAL IN THEIR ENTIRETY.

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CONSTRUCTION NOTES

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-NTS - 001

SHEET 8 OF 214

Jan, 18 2016 11:58 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-NTS.dwg By: V-YoungbJR

LEGEND

PROPOSED UTILITY LINE TYPES

- WATER MAIN
- SANITARY SEWER
- SANITARY SEWER FORCE MAIN
- COM-UG — FIBER OPTIC COMMUNICATION

PROPOSED UTILITY SYMBOLS

- WATER MANHOLE
- WATER VALVE
- WATER HYDRANT
- SANITARY SEWER MANHOLE

SANITARY AND WATER PLAN CONSTRUCTION NOTES

1. CONNECT TO EXISTING WATER MAIN. VERIFY EXISTING WATER MAIN SIZE AND LOCATION. PROVIDE AND INSTALL FITTINGS AS NECESSARY TO MAKE CONNECTION, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED – SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING.
2. SEE TYPICAL PIPE CASING DETAIL.
3. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
4. GATE VALVE AND VALVE BOX PER CITY OF HOPKINS STANDARD DETAIL W–4.
5. SEE STATION PLUMBING PLANS AND DETAILS FOR WATER METER, ENCLOSURE, AND ENCLOSURE PAD.
6. 6"GATE VALVE, VALVE BOX, HYDRANT, AND DIP LEAD PER CITY OF HOPKINS STANDARD DETAIL W–2. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
7. STATION WATER SERVICE. INSTALL PER TYPICAL WATER SERVICE TRACK CROSSING FOR 2"COPPER SERVICE OR SMALLER DETAIL. COORDINATE WITH STATION MECHANICAL PLANS FOR SIZE AND LOCATION. SEE STATION MECHANICAL PLANS FOR CONTINUATION AND DETAIL. COORDINATE WITH COUNCIL AUTHORIZED REPRESENTATIVE FOR LOCATION OF CURB STOP.
8. CONNECT TO EXISTING SANITARY FORCE MAIN. VERIFY EXISTING SANITARY FORCE MAIN SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED – SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING.
9. PROVIDE A SANITARY FORCE MAIN TEMPORARY CONVEYANCE PLAN FOR REVIEW BY THE CITY AND COUNCIL AUTHORIZED REPRESENTATIVE AT LEAST 10 BUSINESS DAYS PRIOR TO BEGINNING SANITARY FORCE MAIN WORK. INCLUDE AN EMERGENCY RESPONSE PLAN TO BE FOLLOWED IN THE EVENT OF A FAILURE OF THE TEMPORARY CONVEYANCE SYSTEM. BOTH THE TEMPORARY CONVEYANCE PLAN AND THE EMERGENCY RESPONSE PLAN MUST BE APPROVED BY THE CITY AND THE COUNCIL AUTHORIZED REPRESENTATIVE PRIOR TO PROCEEDING WITH THE TEMPORARY CONVEYANCE SYSTEM. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE MULTIPLE TEMPORARY CONVEYANCE PLANS SUBJECT TO (BUT NOT LIMITED TO) SANITARY FORCE MAIN SIZE AND LOCATION, PROJECT SCHEDULE AND PHASING, AND SEWER CUSTOMER SCHEDULES AND REQUIREMENTS.
10. BUTTERFLY VALVE AND VALVE BOX PER CITY OF HOPKINS STANDARD DETAIL W–5.
11. CONSTRUCT MANHOLE OVER EXISTING SEWER.
12. CONNECT TO EXISTING WATER SERVICE. VERIFY EXISTING WATER SERVICE SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING, (ISOLATING COUPLING WHERE REQUIRED – SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING. CONSTRUCT WATER SERVICES 4"AND LARGER WITH MECHANICAL JOINT DIP. PROVIDE MECHANICAL THRUST RESTRAINT FOR ALL JOINTS. INSTALL WITH A CAP AND OUTLET OF SUFFICIENT SIZE TO ALLOW FOR FLUSHING AND TESTING OF THE SERVICE LINE. ALL SERVICES WILL BE SUBJECT TO THE SAME TESTING AS WATER MAIN. AFTER SUCCESSFUL COMPLETION OF TESTING, REMOVE CAP AND CONNECT TO EXISTING SERVICE PIPE. CONNECTION TO EXISTING PIPE WILL BE VISUALLY INSPECTED UNDER CITY OPERATING PRESSURE PRIOR TO BURYING. COORDINATE TESTING WITH CITY AND COUNCIL AUTHORIZED REPRESENTATIVE.
13. GATE VALVE AND VALVE BOX PER CITY OF ST. LOUIS PARK STANDARD DETAIL W–3.
14. 6"GATE VALVE, VALVE BOX, HYDRANT, AND DIP LEAD PER CITY OF ST. LOUIS PARK STANDARD DETAIL W–2. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
15. RECONSTRUCT MANHOLE TO MATCH PROPOSED GRADE.
16. 72"TRIPLE DOG WATER VALVE MANHOLE.
17. 6"GATE VALVE, VALVE BOX, HYDRANT, AND DIP LEAD PER CITY OF MINNEAPOLIS STANDARD PLATE WATR–1000A–R2. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
18. RECONSTRUCT MANHOLE PER DETAIL XXXXX. ROTATE ACCESS OUT OF CURB AND GUTTER.
19. NOT USED.
20. BUTTERFLY VALVE AND VALVE BOX PER CITY OF MINNETONKA STANDARD PLATES 520 AND 540. INSTALL VALVE WITH ENOUGH STRAIGHT DIP BEYOND THE VALVE AND BEFORE OTHER FITTINGS, PIPE MATERIAL CHANGES, ETC. TO ALLOW FULL OPERATION OF VALVE.
21. GATE VALVE AND VALVE BOX PER CITY OF MINNETONKA STANDARD PLATE 540.
22. 6"GATE VALVE, VALVE BOX, HYDRANT, AND DIP LEAD PER CITY OF MINNETONKA STANDARD PLATE 500. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
23. EXTEND CASING FLUSH TO INSIDE WALL OF MANHOLE. PROVIDE AND INSTALL WATER–TIGHT FLEXIBLE BOOT–TYPE MANHOLE CONNECTION AT CASING.
24. RECONSTRUCT SEWER SERVICE PER RECONNECTION OF HOUSE SERVICES DETAIL. COORDINATE WITH PROPERTY OWNER TO MINIMIZE INTERRUPTION OF SERVICE. COORDINATE WITH LOCATION AND ELEVATION OF PUBLIC AND PRIVATE UTILITIES AND PROPOSED RELOCATION OF PUBLIC AND PRIVATE UTILITIES.
25. 6"GATE VALVE, VALVE BOX, HYDRANT, AND DIP LEAD PER CITY OF EDEN PRAIRIE TYPICAL HYDRANT DETAIL W–3. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
26. GATE VALVE AND VALVE BOX PER CITY OF EDEN PRAIRIE SPECIFICATIONS.
27. HDPE PIPE TO DUCTILE IRON PIPE TRANSITION. PROVIDE AND INSTALL FITTINGS AND ADAPTORS TO COMPLETE A MECHANICALLY RESTRAINED AND FUSED TRANSITION BETWEEN PIPE MATERIALS AND PIPE DIAMETERS.
28. BUTTERFLY VALVE AND MANHOLE PER CITY OF EDEN PRAIRIE SPECIFICATIONS AND CITY OF EDEN PRAIRIE STANDARD DETAIL W–5. INSTALL VALVE WITH ENOUGH STRAIGHT DIP BEYOND THE VALVE AND BEFORE OTHER FITTINGS, PIPE MATERIAL CHANGES, ETC. TO ALLOW FULL OPERATION OF VALVE.
29. EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS WITHIN THE LOCATION AND DISTANCE INDICATED.
30. ISOLATION JOINT MANHOLE. SEE DETAIL XXX.

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CONSTRUCTION NOTES

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-NTS - 002

SHEET 9 OF 214

Jan, 18 2016 11:58 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-NTS.dwg By: V-YoungbJR

UTILITY CONTACTS

UTILITY: ARVIG COMMUNICATIONS SYSTEMS
CONTACT: PATRICK LYNCH
PHONE: (320) 256-0271
MOBILE: (320) 492-8763
ADDRESS: 224 MAIN STREET EAST
MELROSE, MINNESOTA 56352

UTILITY: AT & T
CONTACT: JERRY STREETER
PHONE: (612) 344-3327
MOBILE: (612) 248-8674
ADDRESS: 420 3RD AVE. S., 9TH FLOOR
MINNEAPOLIS, MINNESOTA 55415

UTILITY: CENTERPOINT ENERGY
CONTACT: DEAN NICHOLAS
PHONE: (612) 321-5561
MOBILE:
CONTACT: RYAN URICH
PHONE: (612) 321-5054
MOBILE:
ADDRESS: 700 WEST LINDEN AVENUE
MINNEAPOLIS, MINNESOTA 55403

UTILITY: CENTURYLINK
CONTACT: BRANDON ELVERUM
PHONE: (651) 250-3996
MOBILE:
ADDRESS: 390 COMMERCE DRIVE, ROOM #104
WOODBURY, MINNSOTA 55125

UTILITY: CENTURYLINK
CONTACT: KATHY HOGGARTH
PHONE: (651) 312-5306
MOBILE:
ADDRESS: 425 MONROE ST.
ANOKA, MINNESOTA 55303

UTILITY: CENTURYLINK - LITECORE/KMC
CONTACT: KYLE TOSTENSON
PHONE: (318) 417-2768
MOBILE:
ADDRESS: 100 CENTURYLINK DRIVE
MONROE, LA 71203

UTILITY: CITY OF EDEN PRAIRIE
CONTACT: ROBERT ELLIS
PHONE: (952) 949-8310
MOBILE:
ADDRESS: CITY CENTER
8080 MITCHELL ROAD
EDEN PRAIRIE, MINNESOTA 55344

UTILITY: CITY OF HOPKINS
CONTACT: NATE STANLEY
PHONE: (952) 548-6356
MOBILE: (952) 292-6872
ADDRESS: 1010 1ST ST. S.
HOPKINS, MINNESOTA 55343

UTILITY: CITY OF MINNEAPOLIS SEWER
CONTACT: KELLY MORIARITY
PHONE: (612) 673-3617
MOBILE:
ADDRESS: CITY OF LAKES BUILDING
309 2ND AVENUE SOUTH - ROOM 330
MINNEAPOLIS, MN 55401-2268

UTILITY: CITY OF MINNEAPOLIS TRAFFIC
CONTACT: ALLAN KLUGMAN
PHONE: (612) 673-2743
MOBILE: (612) 655-6292
ADDRESS: 300 BORDER AVENUE NORTH
MINNEAPOLIS, MN 55405

UTILITY: CITY OF MINNEAPOLIS WATER
CONTACT: MARIE ASGIAN
PHONE: (612) 673-5682
MOBILE:
ADDRESS: ROOM MAIN, WATER - EAST YARD
935 5TH AVENUE SE
MINNEAPOLIS, MN 55414

UTILITY: CITY OF MINNETONKA
CONTACT: WILL MANCHESTER
PHONE: (952) 939-8232
MOBILE:
ADDRESS: MINNETONKA CITY HALL
14600 MINNETONKA BLVD.
MINNETONKA, MINNESOTA 55345

UTILITY: CITY OF ST. LOUIS PARK
CONTACT: JACK SULLIVAN
PHONE: (952) 924-2691
MOBILE:
ADDRESS: ENGINEERING DEPARTMENT
CITY HALL
5005 MINNETONKA BLVD
ST. LOUIS PARK, MINNESOTA 55416

UTILITY: COMCAST CABLE
CONTACT: TOM NIEDZIELSKI
PHONE: (651) 493-5407
MOBILE: (612) 490-7750
ADDRESS: 2621 FAIRVIEW AVE. NORTH
ROSEVILLE, MINNESOTA 55113

UTILITY: EDCO PRODUCTS
CONTACT: RUSS CLARNO
PHONE: (952) 945-2650
MOBILE:
ADDRESS: 8700 EXCELSIOR BLVD.
HOPKINS, MINNESOTA 55343

UTILITY: ENVENTIS
CONTACT: JONI MCGABE
PHONE: (507) 387-1770
MOBILE: (507) 317-1411
ADDRESS: 2730 3RD AVENUE
PO BOX 3288
MANKATO, MN 56002-3288

UTILITY: HENNEPIN COUNTY
CONTACT: KRISTY MORTER
PHONE: (612) 596-0384
MOBILE:
ADDRESS: HENNEPIN COUNTY
TRANSPORTATION DEPARTMENT, DESIGN DIVISION
1600 PRAIRIE DRIVE
MEDINA, MN 55340

UTILITY: HERC
CONTACT: ANDREW LEITH
PHONE: (612) 348-8993
MOBILE:
ADDRESS: HENNEPIN COUNTY DEPARTMENT OF
ENVIRONMENTAL SERVICES
SOLID WASTE & ENERGY DIVISION
701 FOURTH AVENUE SOUTH, SUITE 700
MINNEAPOLIS, MN 55415-1842

UTILITY: HOPKINS PUBLIC SCHOOLS
CONTACT: JOHN WETTER
PHONE: (952) 988-5373
MOBILE:
ADDRESS: EDUCATIONAL TECHNOLOGY, MEDIA &
INFORMATION SERVICES
HOPKINS DISTRICT 270
1001 HIGHWAY 7
HOPKINS, MINNESOTA 55305

UTILITY: LEVEL 3 COMMUNICATIONS
CONTACT: BRAD MORSETH
PHONE:
MOBILE: (612) 805-9479
ADDRESS: 715 N. 2ND ST.
MINNEAPOLIS, MINNESOTA 55401

UTILITY: METROPOLITAN COUNCIL, ENVIRONMENTAL SERVICES
CONTACT: ADAM GORDON
PHONE: (651) 602-4508
MOBILE:
ADDRESS: 3565 KENNEBEC DRIVE
EAGAN, MINNESOTA 55122

UTILITY: METRO TRANSIT
CONTACT: BOJAN MISIC
PHONE: (612) 373-3874
MOBILE: (619) 549-7620
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: MNDOT
CONTACT: MIKE VOGEL
PHONE: (612) 373-3911
MOBILE:
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: ROGERS COMMUNICATIONS
CONTACT: RICHARD AUSTRIA
PHONE: (647) 747-2976
MOBILE: (647) 241-6534
ADDRESS: EAST BUILDING 2ND FLOOR
BRAMPTON, ONTARIO L6T 0C1

UTILITY: SBA COMMUNICATIONS CORPORATION
CONTACT: SUSAN HART
PHONE: (919) 803-3427 X 105
MOBILE: (919) 625-2286
ADDRESS: SBA COMMUNICATIONS CORPORATION
5640 DILLARD DRIVE
SUITE 101
CARY, NC 27518

UTILITY: SPRINT COMMUNICATIONS COMPANY, LP
CONTACT: DAN HILLIARD
PHONE: (651) 772-6714
MOBILE: (612) 414-2089
ADDRESS: 849 EARL STREET
ST. PAUL, MINNESOTA 55106

UTILITY: ST. LOUIS PARK PUBLIC SCHOOLS - ISD #283
CONTACT: TOM MARBLE
PHONE: (952) 928-6152
MOBILE:
ADDRESS: ST. LOUIS PARK PUBLIC SCHOOLS - ISD #283
6425 WEST 33RD STREET
ST. LOUIS PARK, MINNESOTA 55426

UTILITY: SUPER-VALU
CONTACT: JEFF BELTRAND
PHONE: (952) 238-3256
MOBILE: (612) 812-4363
ADDRESS: 300 2ND AVE. S.
HOPKINS, MINNESOTA 55343

UTILITY: TDS TELECOM
CONTACT: MICHAEL RITCHIE
PHONE: (608) 664-4461
MOBILE:
ADDRESS: 525 JUNCTION ROAD
MADISON, WISCONSIN 53717

UTILITY: TELECOM TRANSPORT MANAGEMENT, INC.
CONTACT: DAVE SMITH
PHONE: (612) 309-8422
MOBILE:
ADDRESS: 6844 WASHINGTON AVE.
EDEN PRAIRIE, MN 55344

UTILITY: TW TELECOM, INCORPORATED
CONTACT: BOB STRONG
PHONE: (952) 351-2353
MOBILE: (612) 805-6827
ADDRESS: 5480 FELTL ROAD
MINNETONKA, MINNESOTA 55343-7982

UTILITY: VERIZON COMMUNICATIONS
CONTACT: STEPHEN BONCZKOWSKI
PHONE: (630) 395-6161
MOBILE: (630) 327-6959
ADDRESS: 501 63RD ST.
DOWNERS GROVE, ILLINOIS 60516

UTILITY: WINDSTREAM
CONTACT: ERIC BECKER
PHONE:
MOBILE: (612) 790-4110
ADDRESS: 2996 CENTRE POINT DR.
ROSEVILLE, MINNESOTA 55113

UTILITY: XCEL ENERGY - TRANSMISSION
CONTACT: BRUCE ZEMKE
PHONE: (612) 330-7815
MOBILE: (651) 214-2620
ADDRESS: 414 NICOLLET MALL, (MP 8)
MINNEAPOLIS, MINNESOTA 55401

UTILITY: XCEL ENERGY - DISTRIBUTION
CONTACT: ALAN URBAN
PHONE: (952) 829-4538
MOBILE:
ADDRESS: 5309 WEST 70TH STREET
EDINA, MINNESOTA 55439

UTILITY: XO COMMUNICATIONS
CONTACT: ED PARKER
PHONE: (602) 324-6488
MOBILE:
ADDRESS: 3930 E. WATKINS SUITE 200
PHOENIX, ARIZONA 85034

UTILITY: ZAYO FIBER SOLUTIONS
CONTACT: MIKE DAHLE
PHONE: (763) 545-9998
MOBILE: (952) 857-9383
ADDRESS: 5005 CHESHIRE PARKWAY NORTH
SUITE ONE
PLYMOUTH, MN 55441

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METROPOLITAN COUNCIL

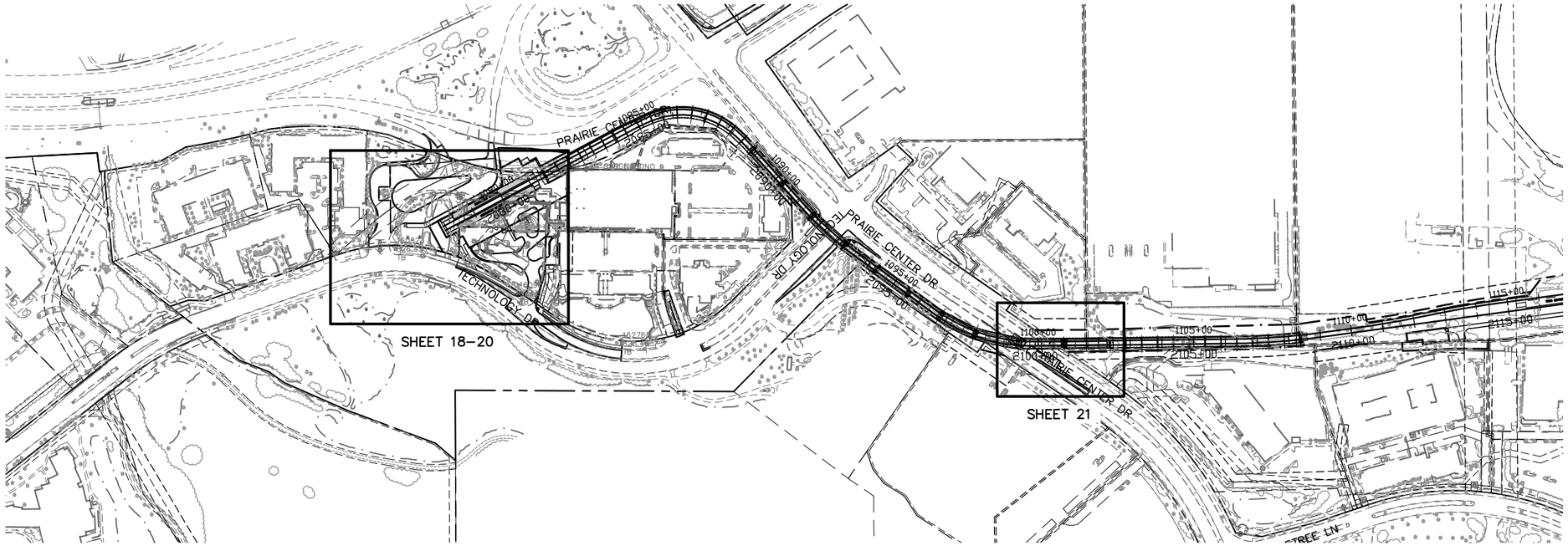
SOUTHWEST Green Line LRT Extension

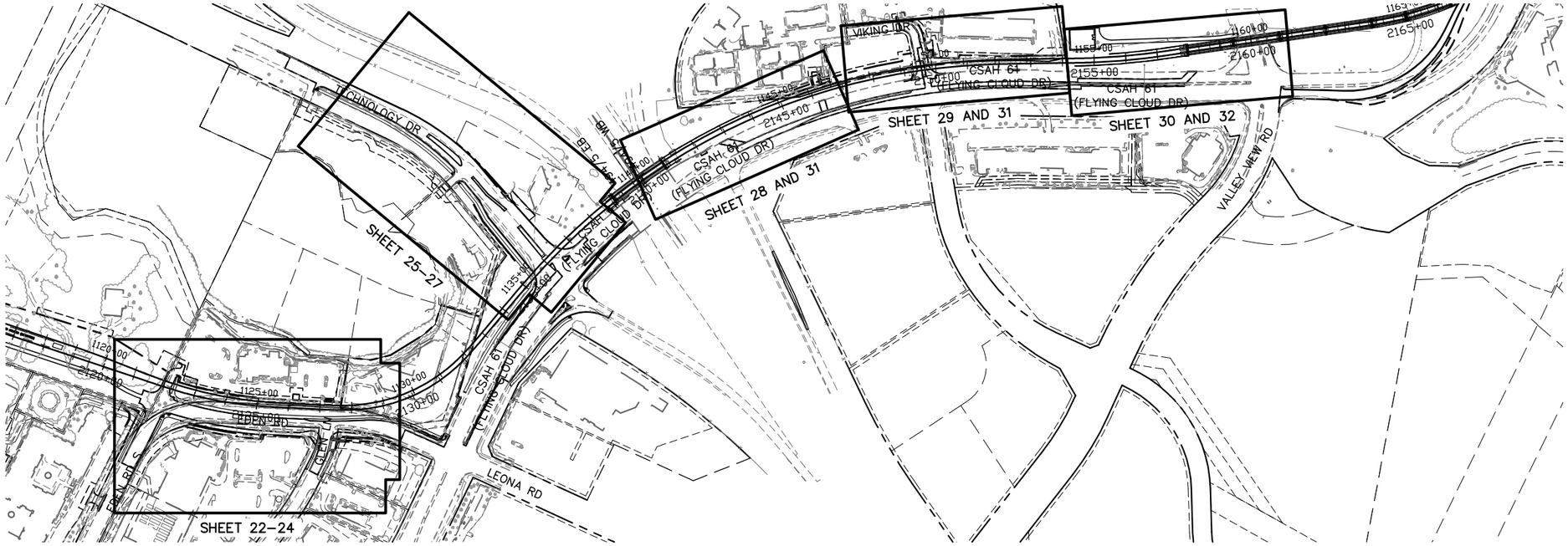
CIVIL - VOLUME 7
UTILITIES
UTILITY CONTACTS

DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-CNT - 001

SHEET 10 OF 214

Jan, 18 2016 11:58 am v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-CNT.dwg By: V-YoungbJR





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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 1

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-LAY - 001

SHEET 11 OF 214

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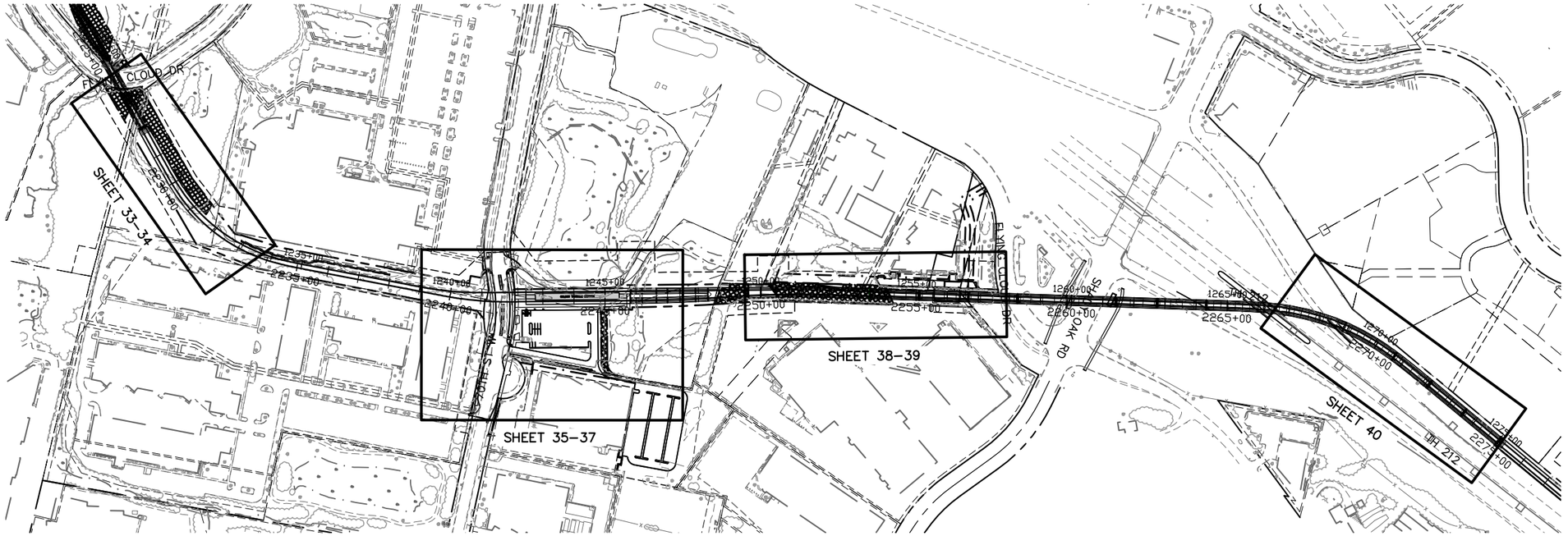

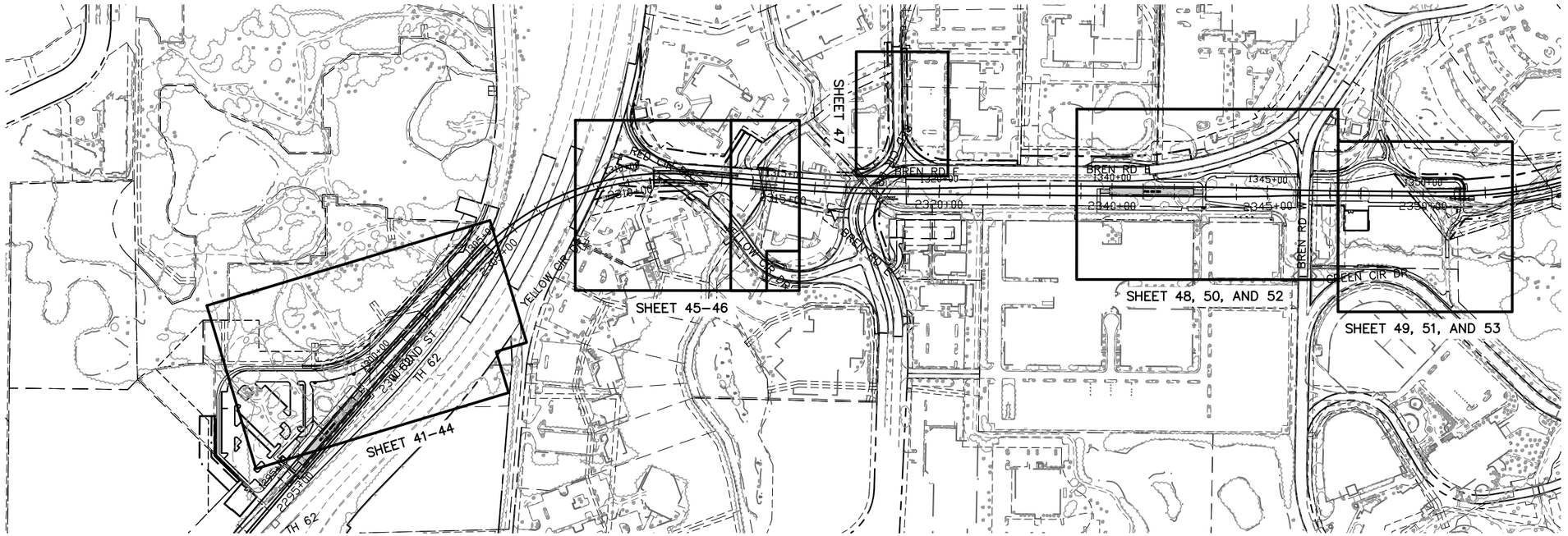

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 2

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-LAY - 002

SHEET 12 OF 214

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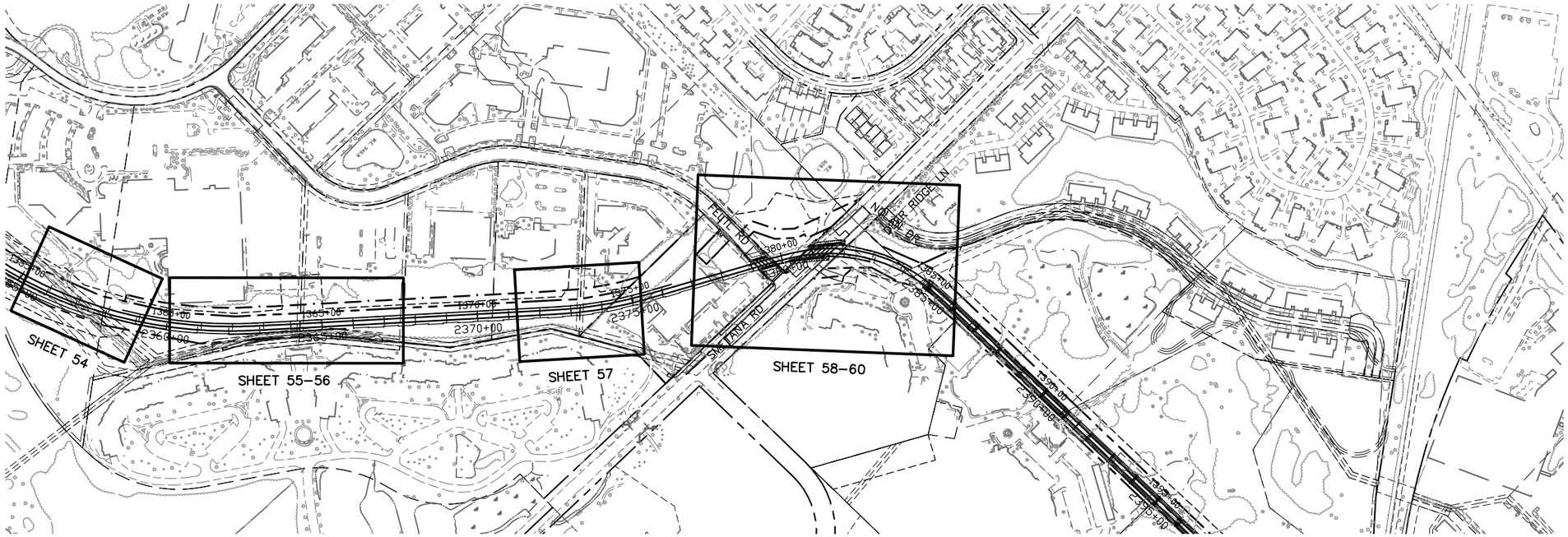

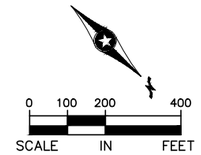

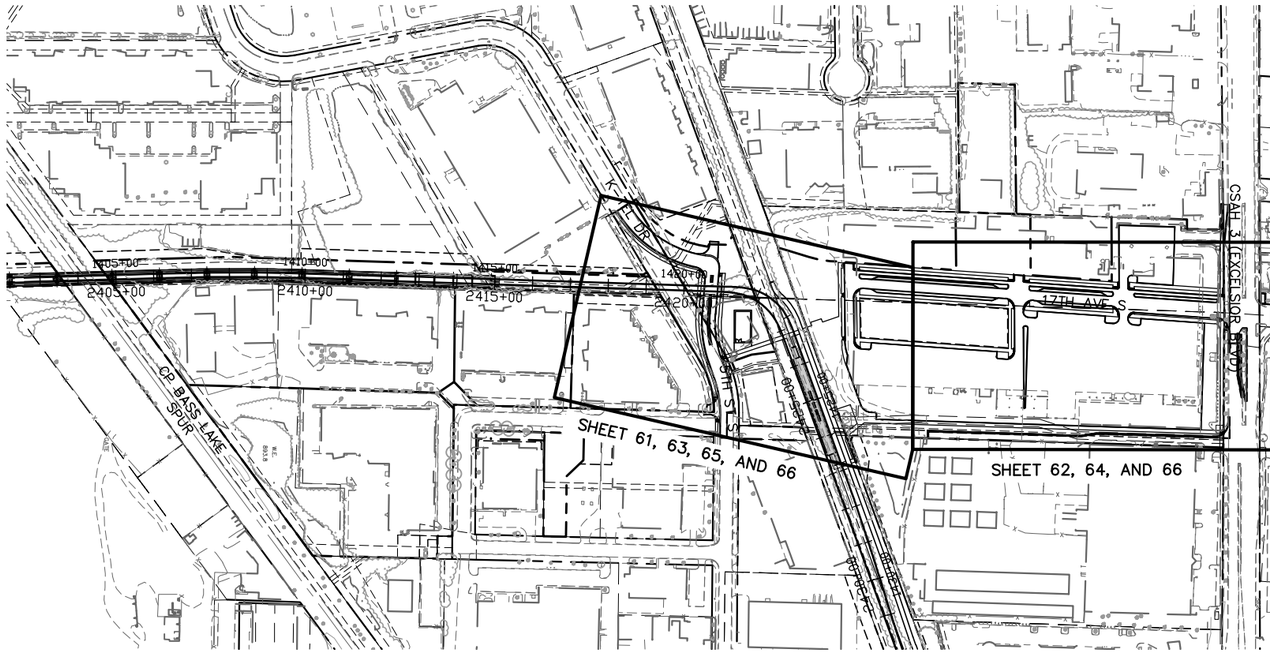

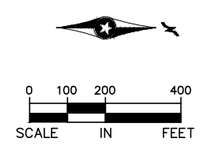

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 3

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-LAY - 003

SHEET 13 OF 214

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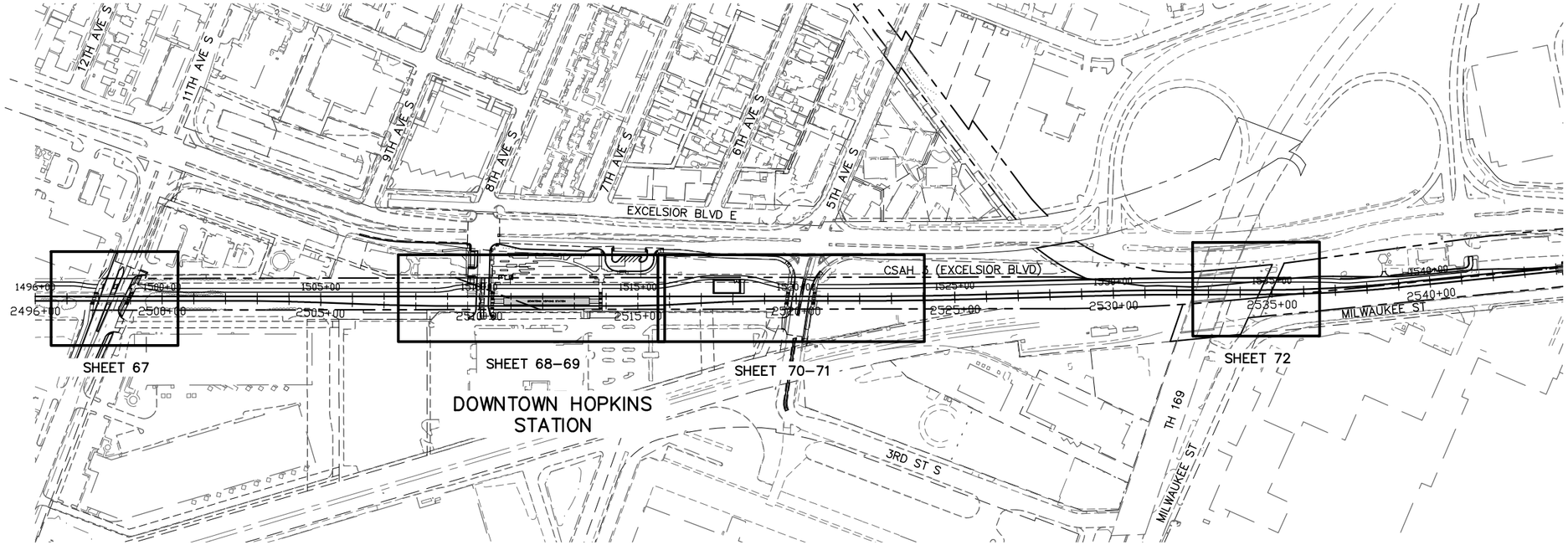

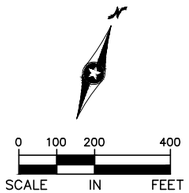

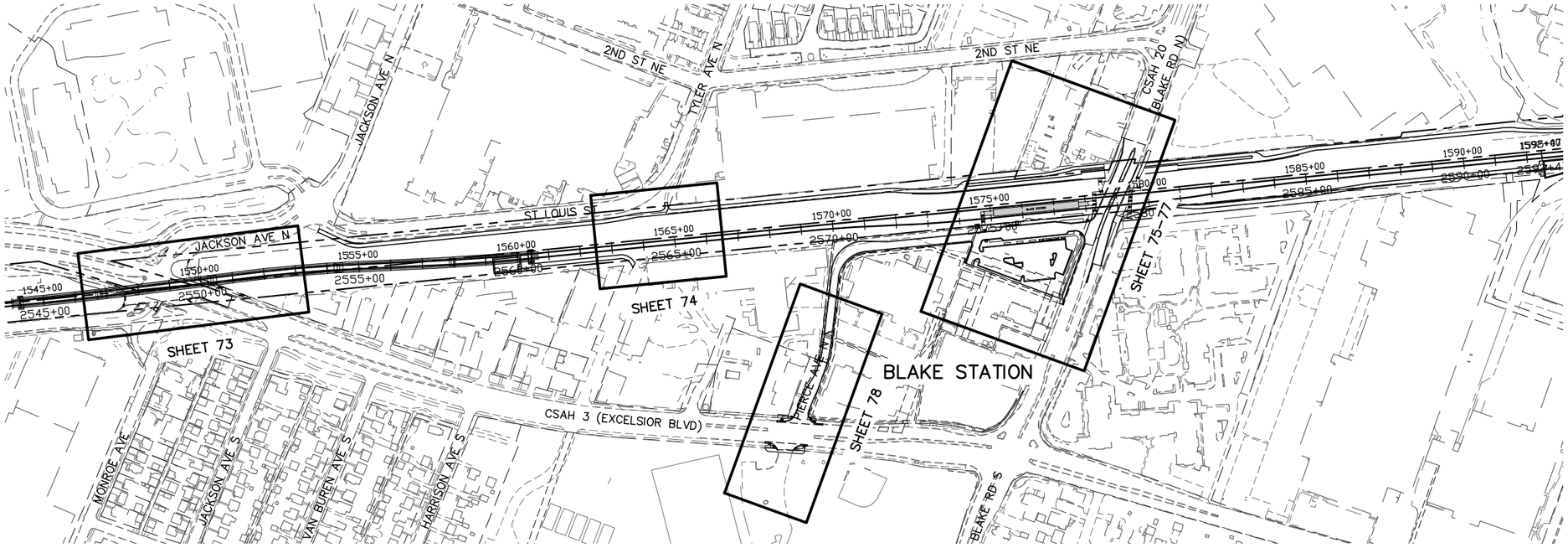

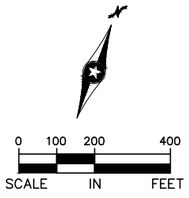

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METROPOLITAN COUNCIL

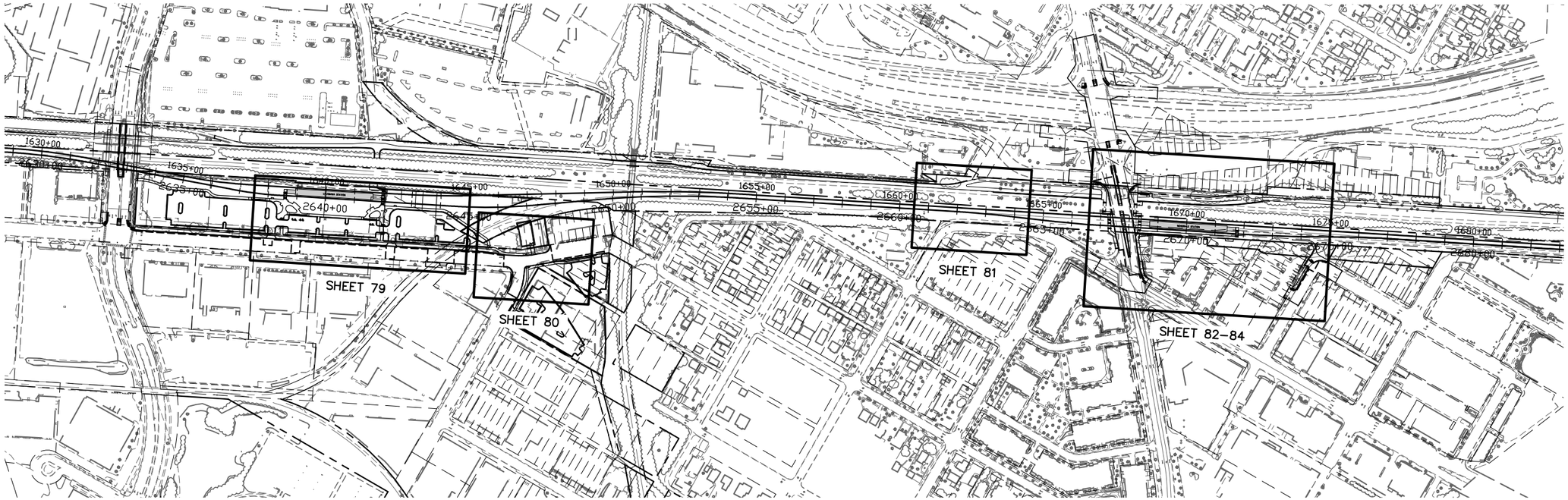
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 4

DISCIPLINE: UTILITIES

SHEET NAME: E0-UTL-LAY - 001

SHEET 14 OF 214



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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

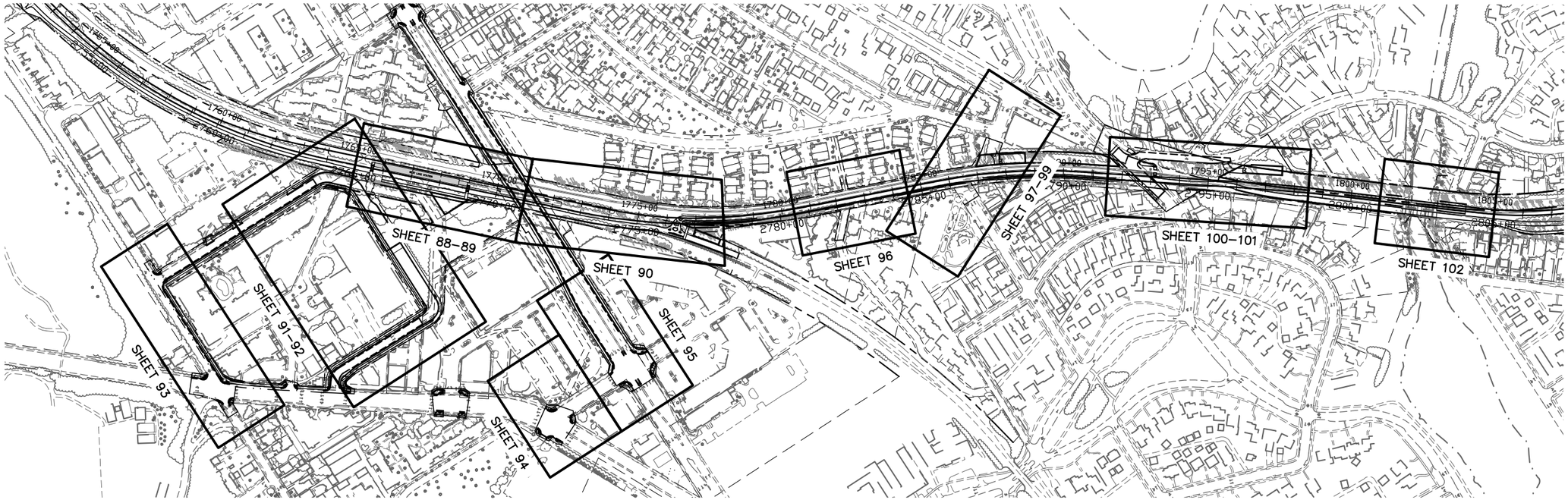
CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 5

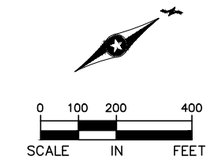
DISCIPLINE: UTILITIES

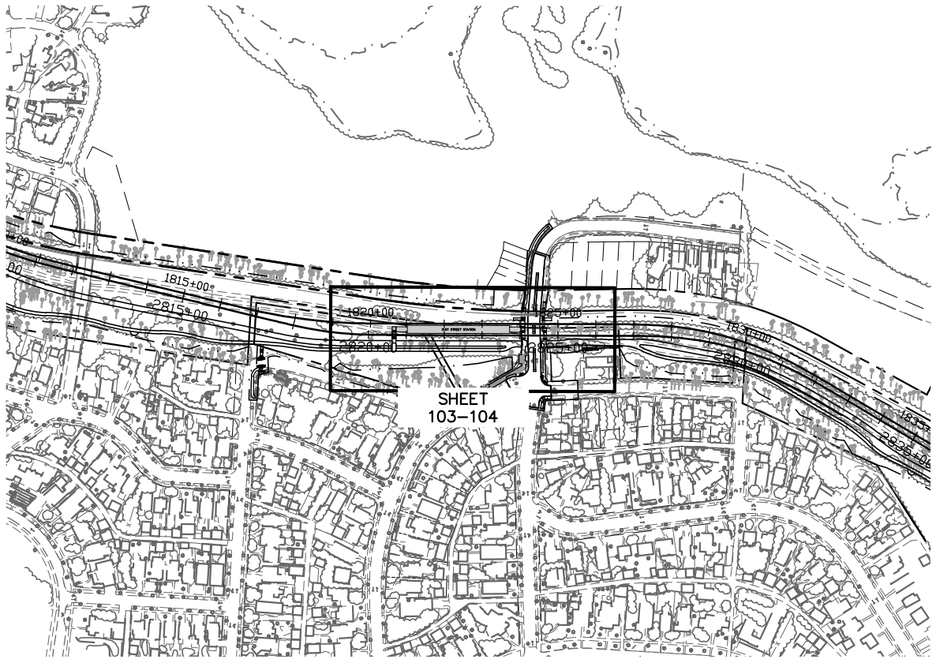
SHEET NAME: E0-UTL-LAY - 002

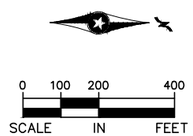
SHEET 15 OF 214

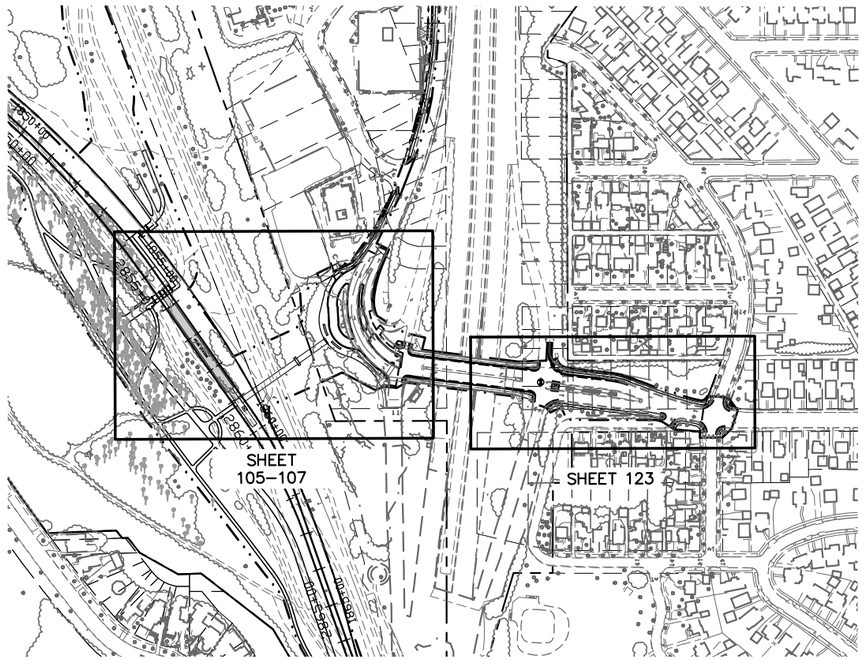
Jan, 18 2016 12:12 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-LAY.dwg By: V-YoungbJR

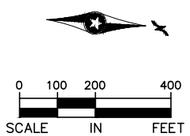












NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

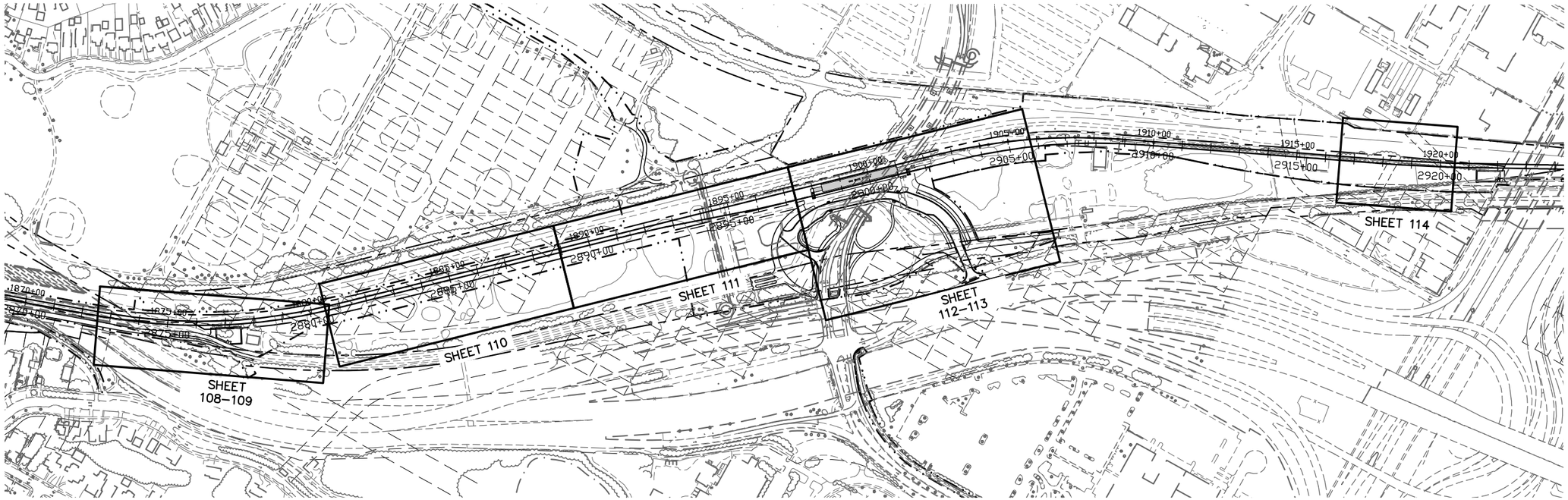
CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 6

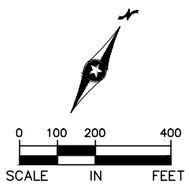
DISCIPLINE: UTILITIES

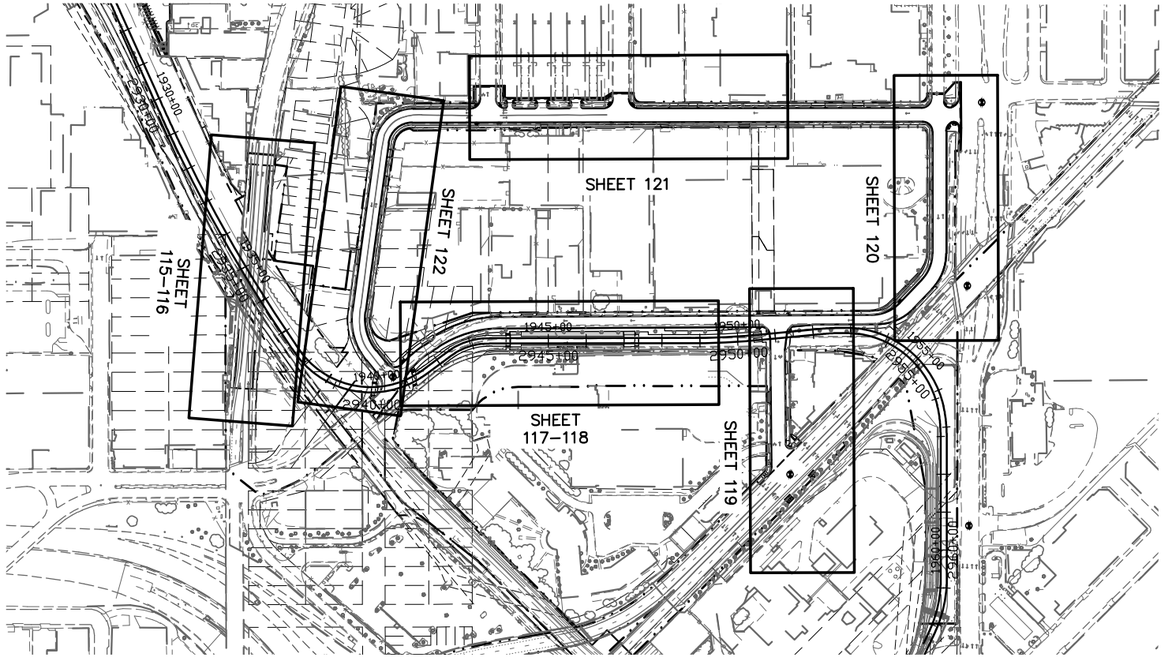
SHEET NAME: E0-UTL-LAY - 003

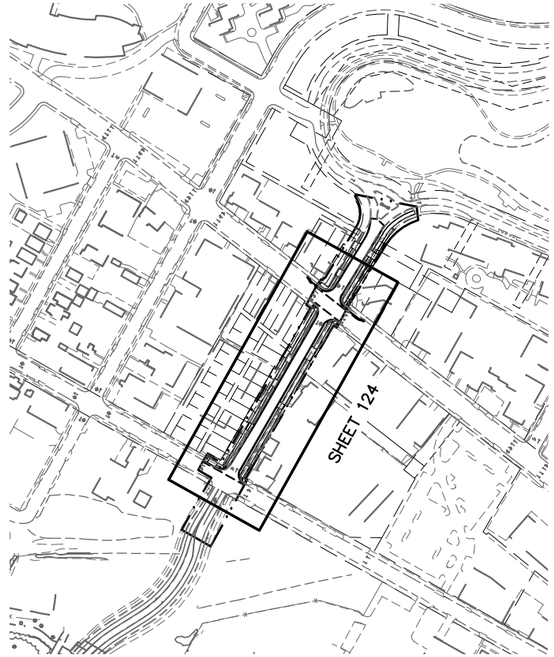
SHEET 16 OF 214

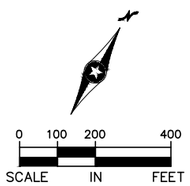
Jan, 18 2016 12:16 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-LAY.dwg By: V-YoungbJR











NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

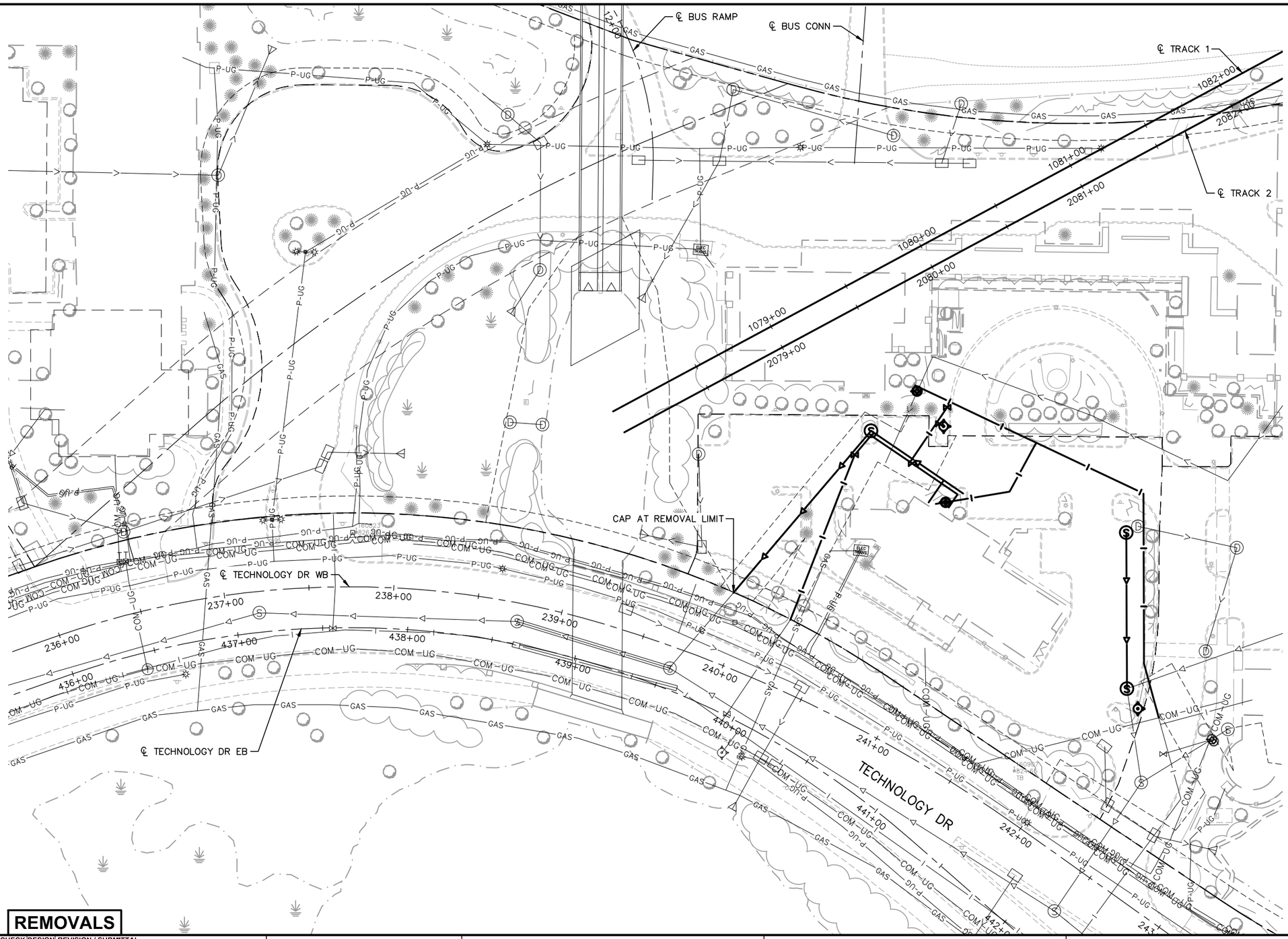
CIVIL - VOLUME 7
UTILITIES
UTILITY PLAN SHEET LAYOUT
SHEET 7

DISCIPLINE: UTILITIES

SHEET NAME: E0-UTL-LAY - 004

SHEET 17 OF 214

Jan, 18 2016 12:19 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-LAY.dwg By: V-YoungbJR



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.
* EXISTING SITE STRUCTURES AND UTILITIES ARE SUPPORTED ON PILES AND GRADE BEAMS. REMOVE ALL ENCOUNTERED PILES, GRADE BEAMS, AND ASSOCIATED STRUCTURAL COMPONENTS TO A MINIMUM OF 5 FEET BELOW PROPOSED SITE SUBGRADE. WHERE THE LOCATION OF EXISTING PILES, GRADE BEAMS, AND ASSOCIATED STRUCTURAL COMPONENTS IS COINCIDENT WITH PROPOSED UTILITY WORK, REMOVE THE EXISTING PILES, GRADE BEAMS, AND STRUCTURAL COMPONENTS ASSOCIATED TO A MINIMUM OF 5 FEET BELOW PROPOSED PIPE SUBGRADE.

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

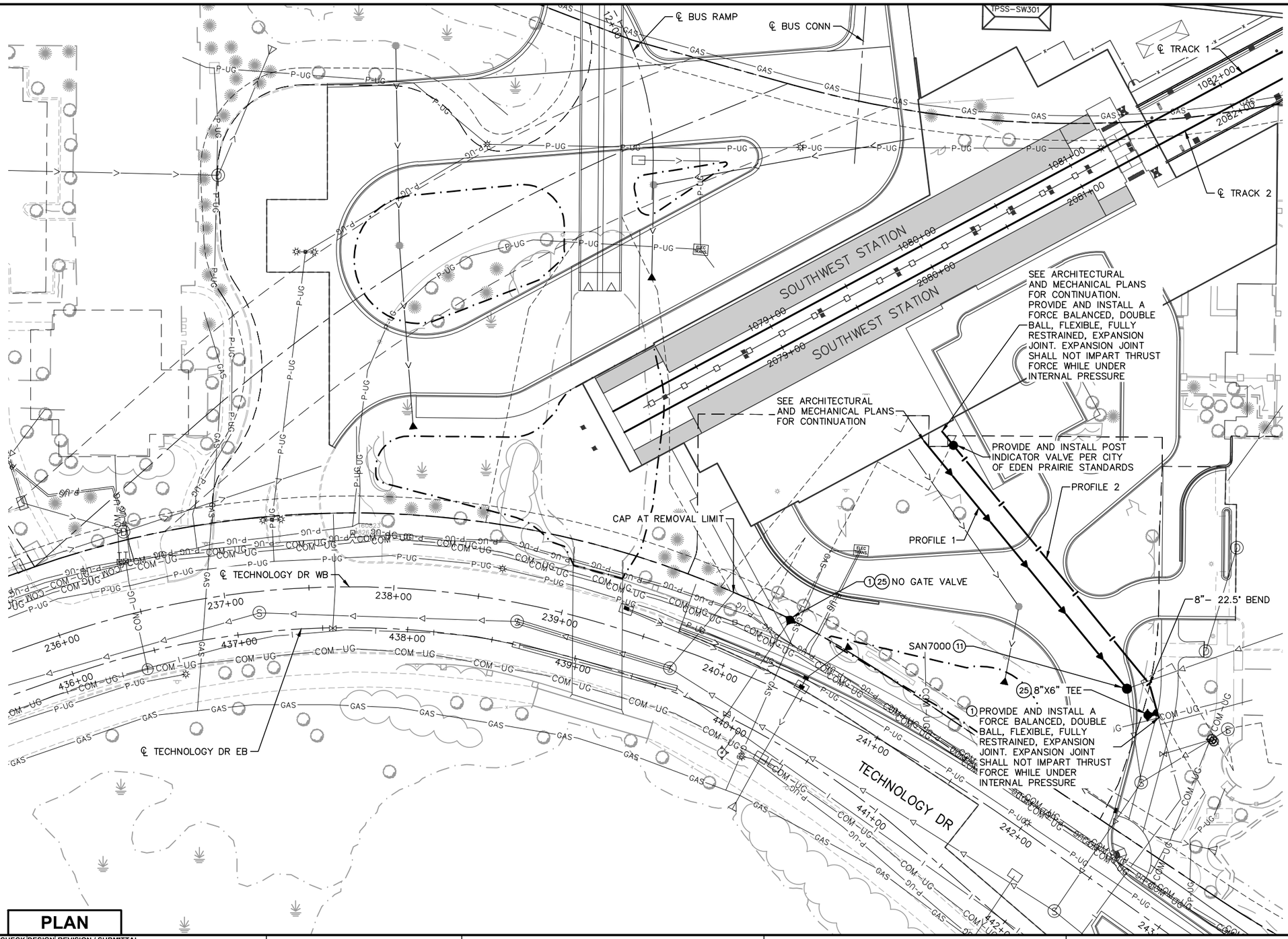
CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 001

SHEET 18 OF 214

Jan, 18 2016 09:11 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR



PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.
* EXISTING SITE STRUCTURES AND UTILITIES ARE SUPPORTED ON PILES AND GRADE BEAMS. REMOVE ALL ENCOUNTERED PILES, GRADE BEAMS, AND ASSOCIATED STRUCTURAL COMPONENTS TO A MINIMUM OF 5 FEET BELOW PROPOSED SITE SUBGRADE. WHERE THE LOCATION OF EXISTING PILES, GRADE BEAMS, AND ASSOCIATED STRUCTURAL COMPONENTS IS COINCIDENT WITH PROPOSED UTILITY WORK, REMOVE THE EXISTING PILES, GRADE BEAMS, AND STRUCTURAL COMPONENTS ASSOCIATED TO A MINIMUM OF 5 FEET BELOW PROPOSED PIPE SUBGRADE.
* REFER TO STRUCTURAL PLAN AND DETAIL SHEETS:
  W1-UTL-STU-PLN-001
  W0-UTL-STU-DTL-001
  W0-UTL-STU-DTL-002
  W0-UTL-STU-DTL-003
  W0-UTL-STU-DTL-004
  FOR UTILITY PIPE SUPPORT.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION 2 OF 3
PLAN

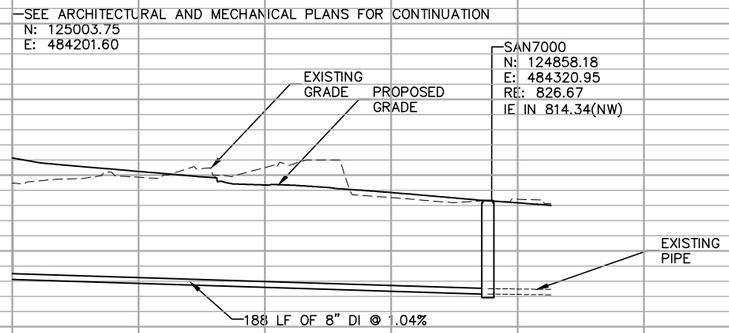
DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 002

SHEET 19 OF 214

Jan, 18 2016 09:11 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

PROFILE 1



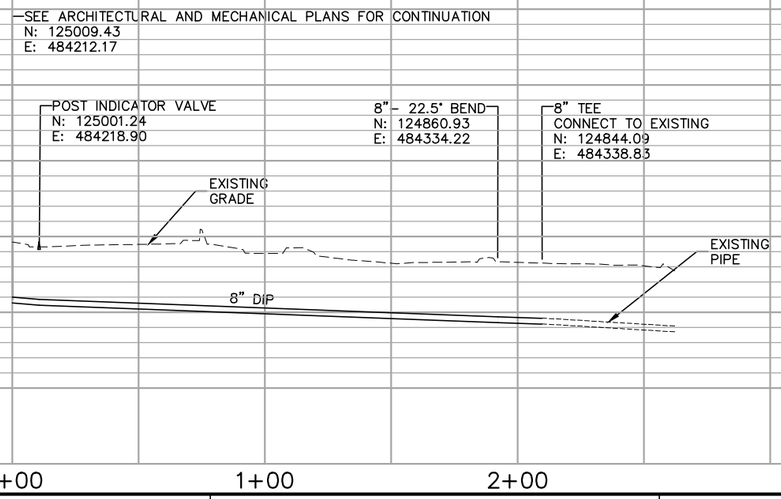
PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

0 5 10 20 VERTICAL

0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 2



PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION 3 OF 3
PROFILES

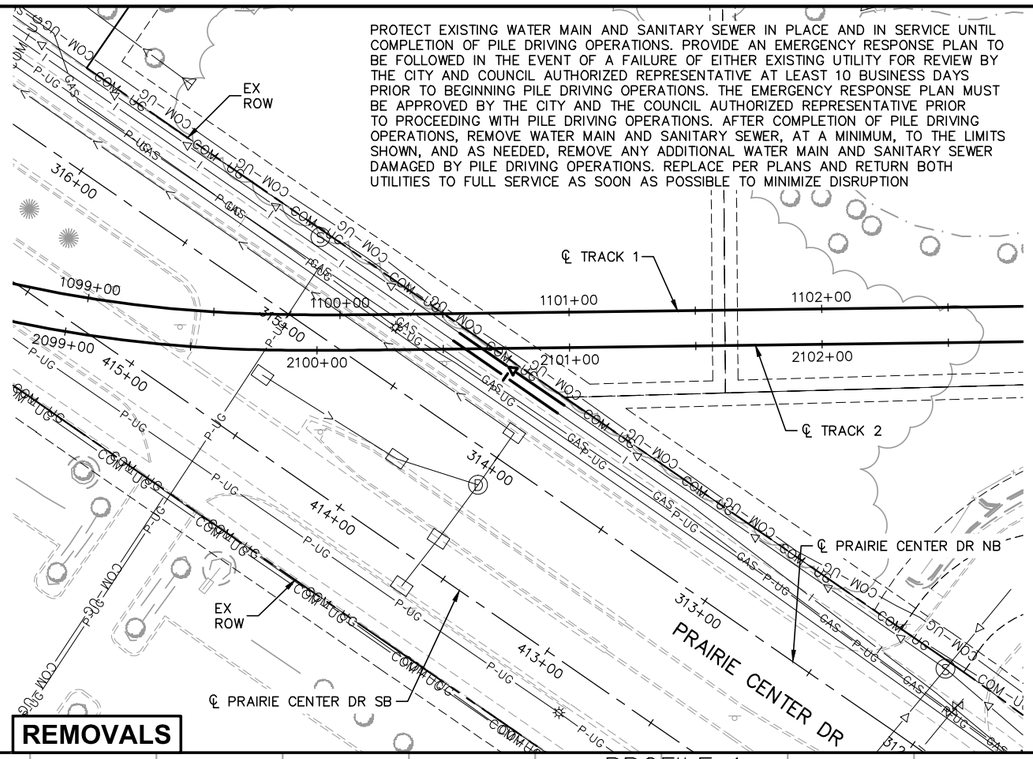
DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 003

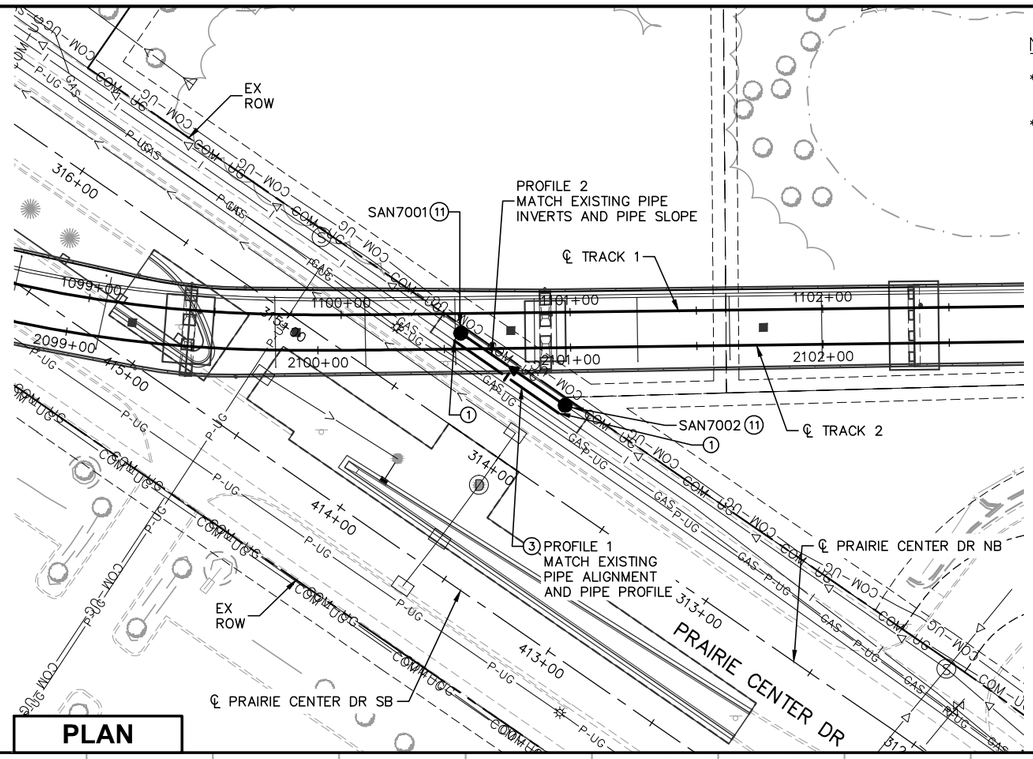
SHEET 20 OF 214

Jan, 18 2016 09:12 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-Youngb.JR

PROTECT EXISTING WATER MAIN AND SANITARY SEWER IN PLACE AND IN SERVICE UNTIL COMPLETION OF PILE DRIVING OPERATIONS. PROVIDE AN EMERGENCY RESPONSE PLAN TO BE FOLLOWED IN THE EVENT OF A FAILURE OF EITHER EXISTING UTILITY FOR REVIEW BY THE CITY AND COUNCIL AUTHORIZED REPRESENTATIVE AT LEAST 10 BUSINESS DAYS PRIOR TO BEGINNING PILE DRIVING OPERATIONS. THE EMERGENCY RESPONSE PLAN MUST BE APPROVED BY THE CITY AND THE COUNCIL AUTHORIZED REPRESENTATIVE PRIOR TO PROCEEDING WITH PILE DRIVING OPERATIONS. AFTER COMPLETION OF PILE DRIVING OPERATIONS, REMOVE WATER MAIN AND SANITARY SEWER, AT A MINIMUM, TO THE LIMITS SHOWN, AND AS NEEDED, REMOVE ANY ADDITIONAL WATER MAIN AND SANITARY SEWER DAMAGED BY PILE DRIVING OPERATIONS. REPLACE PER PLANS AND RETURN BOTH UTILITIES TO FULL SERVICE AS SOON AS POSSIBLE TO MINIMIZE DISRUPTION



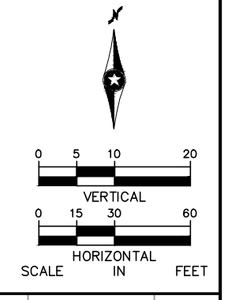
REMOVALS



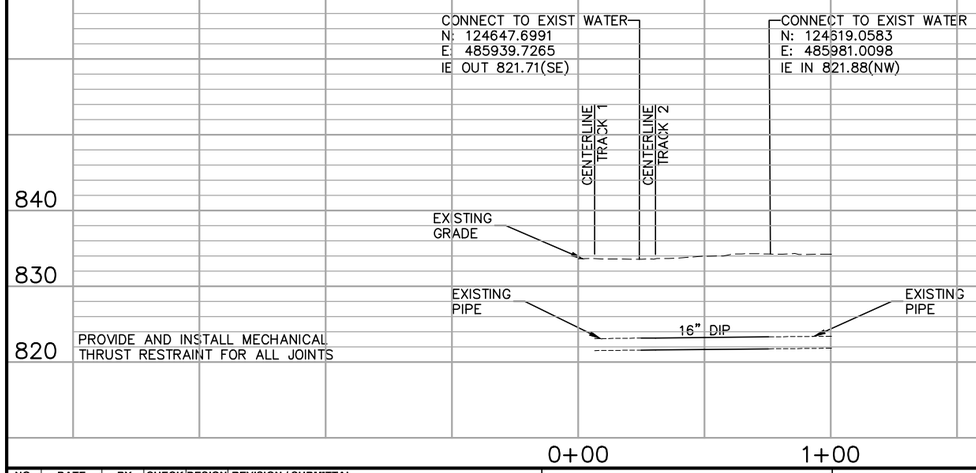
PLAN

NOTES:

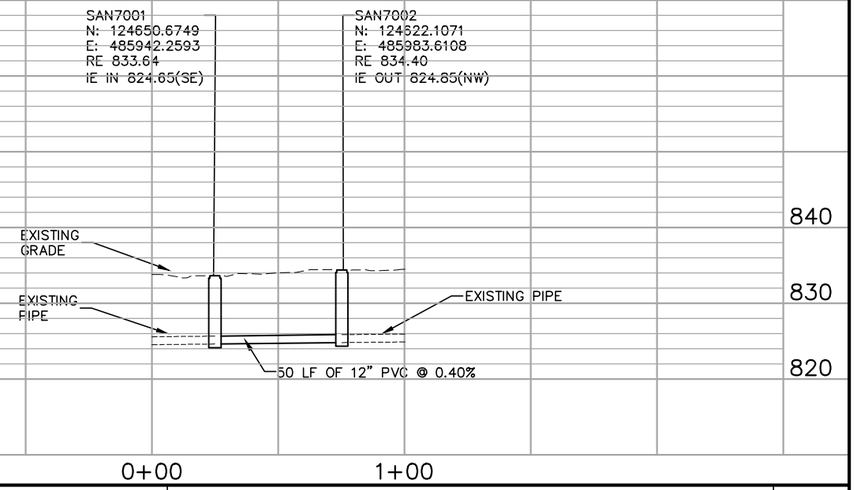
* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



PROFILE 1



PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
PRAIRIE CENTER DR BRIDGE
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 004

SHEET 21 OF 214

Jan, 18 2016 09:13 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ TRACK 1
℄ TRACK 2
℄ EDEN RD
℄ EDEN RD S
℄ GLEN LN
EDEN RD
EDEN RD S
GLEN LN
EX ROW

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

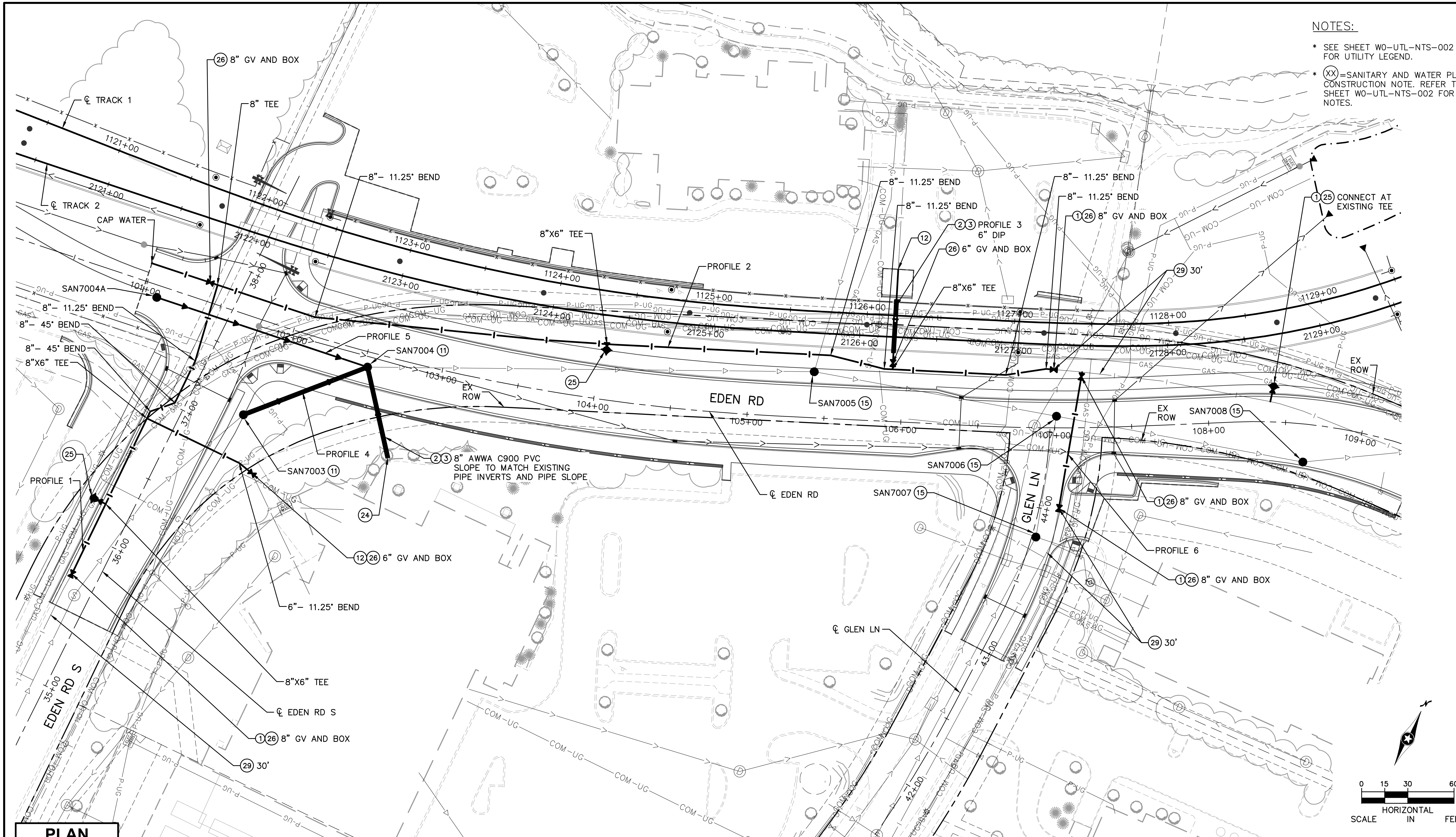
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
EDEN RD 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES
SHEET NAME: W1-UTL-PLN - 005

SHEET 22 OF 214

Jan, 18 2016 09:14 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR



NOTES:
* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.
℄ TRACK 1
℄ TRACK 2
CAP WATER
(26) 8" GV AND BOX
8" TEE
8"- 11.25° BEND
8"X6" TEE
PROFILE 2
PROFILE 3
PROFILE 4
PROFILE 5
PROFILE 1
PROFILE 6
(2)(3) PROFILE 3 6" DIP
(26) 6" GV AND BOX
(1)(26) 8" GV AND BOX
(1)(25) CONNECT AT EXISTING TEE
(29) 30'
SAN7004A
SAN7004 (11)
SAN7003 (11)
SAN7005 (15)
SAN7006 (15)
SAN7007 (15)
SAN7008 (15)
8"- 45° BEND
(2)(3) 8" AWWA C900 PVC SLOPE TO MATCH EXISTING PIPE INVERTS AND PIPE SLOPE
(12)(26) 6" GV AND BOX
6"- 11.25° BEND
℄ EDEN RD S
℄ EDEN RD
℄ GLEN LN
EDEN RD
EDEN RD S
GLEN LN
EX ROW
(24)
(25)
(12)
0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

90% SUBMISSION 01/22/16

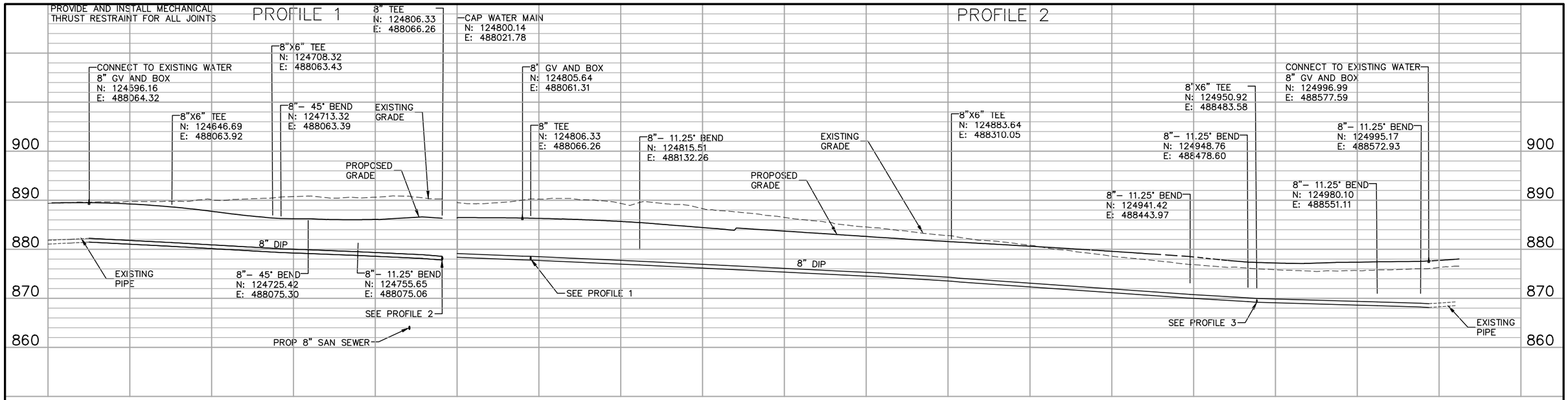
CIVIL - VOLUME 7
UTILITIES
EDEN RD 2 OF 3
PLAN

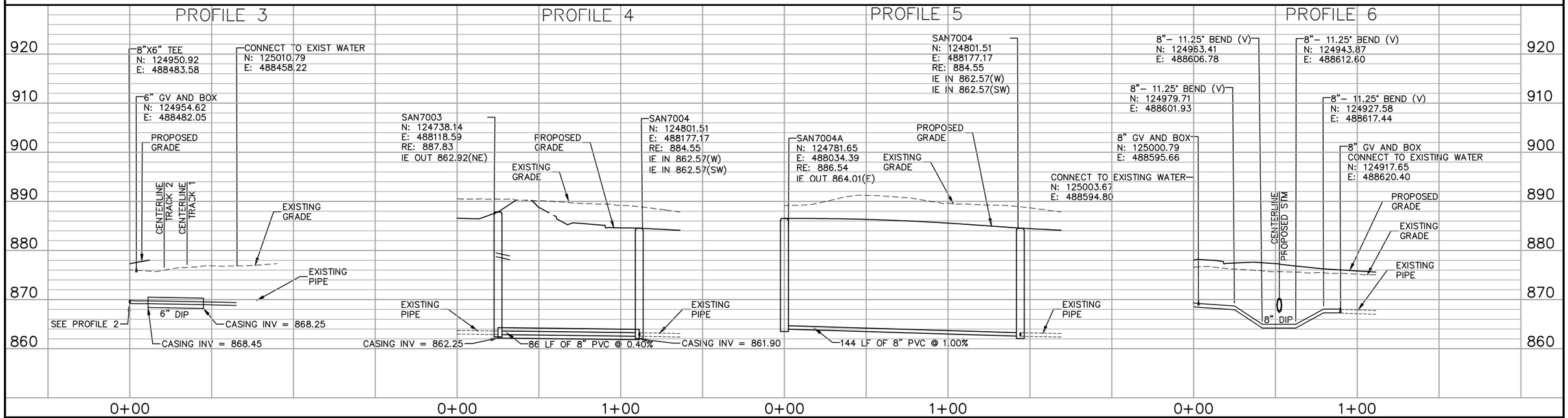
DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 006

SHEET 23 OF 214

Jan, 18 2016 09:15 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
EDEN RD 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 007

SHEET 24 OF 214

Jan, 18 2016 09:15 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) =SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ TECHNOLOGY DR WB

℄ TECHNOLOGY DR EB

TECHNOLOGY DR

CSAH 61 (FLYING CLOUD DR)

℄ TRACK 2

℄ FLYING CLOUD DR NB

℄ FLYING CLOUD DR SB

EX ROW

℄ TRACK 1

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
TECHNOLOGY DR / FLYING CLOUD DR 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 008

SHEET 25 OF 214

Jan, 18 2016 09:16 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

(1)16"– 11.25° BEND

PROFILE 2

16"– 11.25° BEND

AIR RELIEF MANHOLE PER CITY OF EDEN PRAIRIE SPECIFICATIONS AND STANDARD DETAIL W-4

(1)(25) CONNECT AT EXISTING TEE

℄ TECHNOLOGY DR WB

℄ TECHNOLOGY DR EB

TECHNOLOGY DR

CSAH 61 (FLYING CLOUD DR)

(28) 16" BFV AND MH

(1)(28) 12" BFV AND MH

℄ TRACK 2

PROFILE 1

16"– 45° BEND

(29) 40'

16" TEE
16"X12" REDUCER
16"– 11.25° BEND

(2)(3) 16" DIP

(1)(28) 16" BFV AND MH

℄ FLYING CLOUD DR NB

℄ FLYING CLOUD DR SB

(2)(3)(24) AWWA C900 PVC MATCH EXISTING SERVICE SIZE AND SLOPE

EX ROW

℄ TRACK 1

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
TECHNOLOGY DR / FLYING CLOUD DR 2 OF 3
PLAN

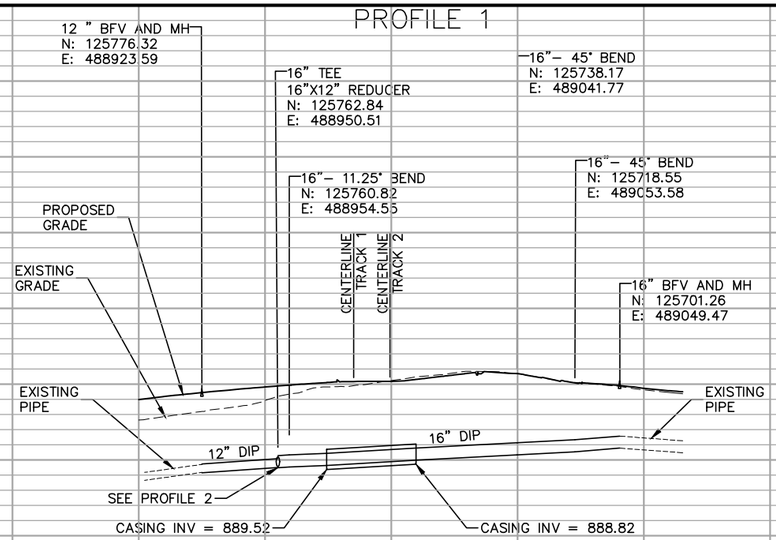
DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 009

SHEET 26 OF 214

Jan, 18 2016 09:16 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

PROFILE 1



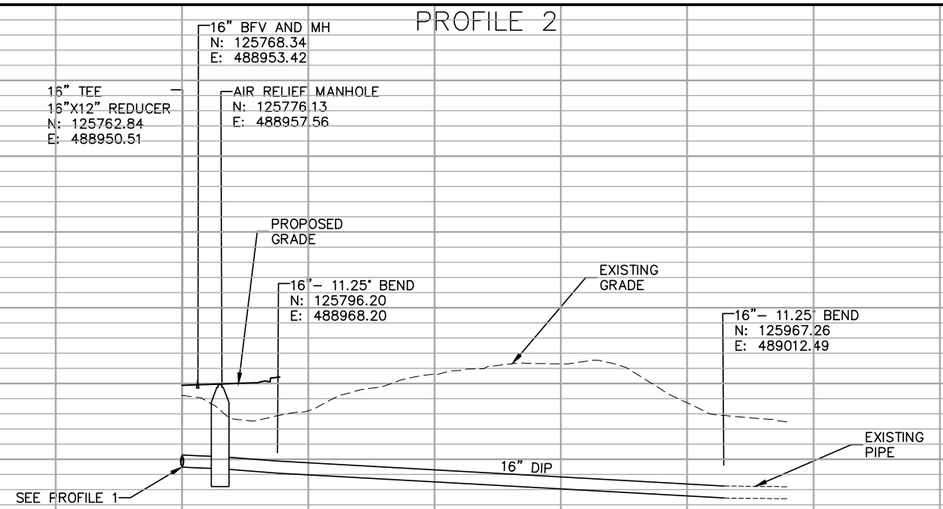
PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

0 5 10 20 VERTICAL

0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 2



PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
TECHNOLOGY DR / FLYING CLOUD DR 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 010

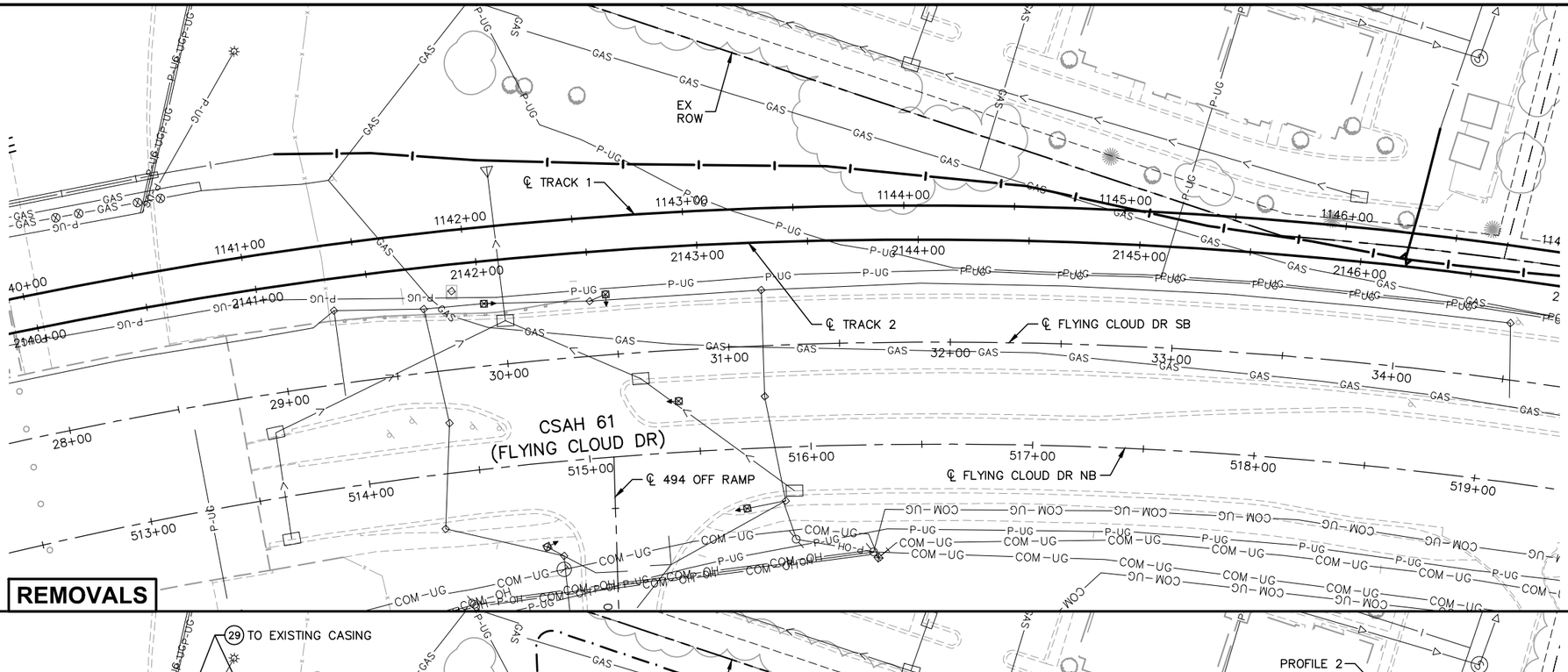
SHEET 27 OF 214

Jan, 18 2016 09:17 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

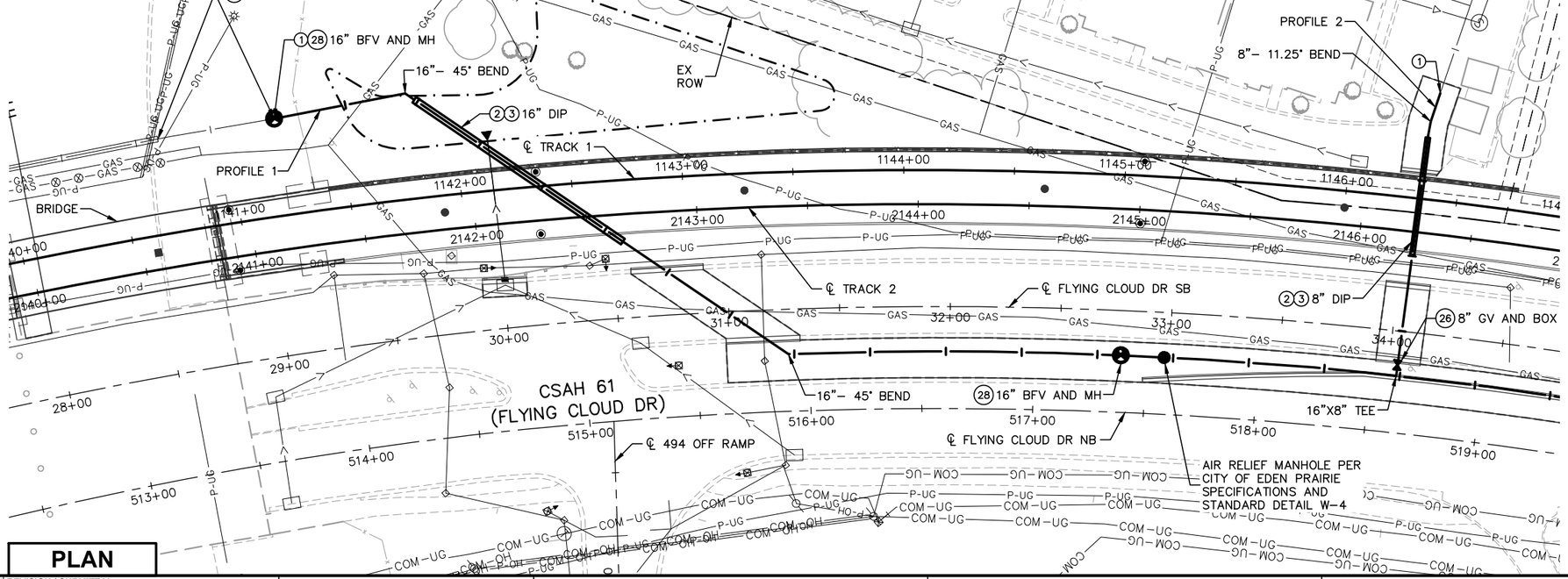
NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS



PLAN



0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
FLYING CLOUD DR 1 OF 5
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 011

SHEET 28 OF 214

Jan, 18 2016 09:18 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS

PLAN

(1) PROVIDE AND INSTALL POST INDICATOR VALVE PER CITY OF EDEN PRAIRIE STANDARDS

SAN7009 (11)

SAN7009A (11)

SAN7009B (11)

(29) 30'

(1)(26) 8" GV AND BOX

(25) 8"X6" TEE

(2)(3) PROFILE 3 8" DIP

PROFILE 4

PROFILE 1

(2)(3) 16" DIP 25' CASING CENTERED ON CB

16"X8" CROSS

16"– 11.25° BEND

℄ VIKING DR

℄ TRACK 1

℄ TRACK 2

℄ FLYING CLOUD DR SB

℄ FLYING CLOUD DR NB

CSAH 61 (FLYING CLOUD DR)

EX ROW

VIKING DR

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
FLYING CLOUD DR 2 OF 5
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

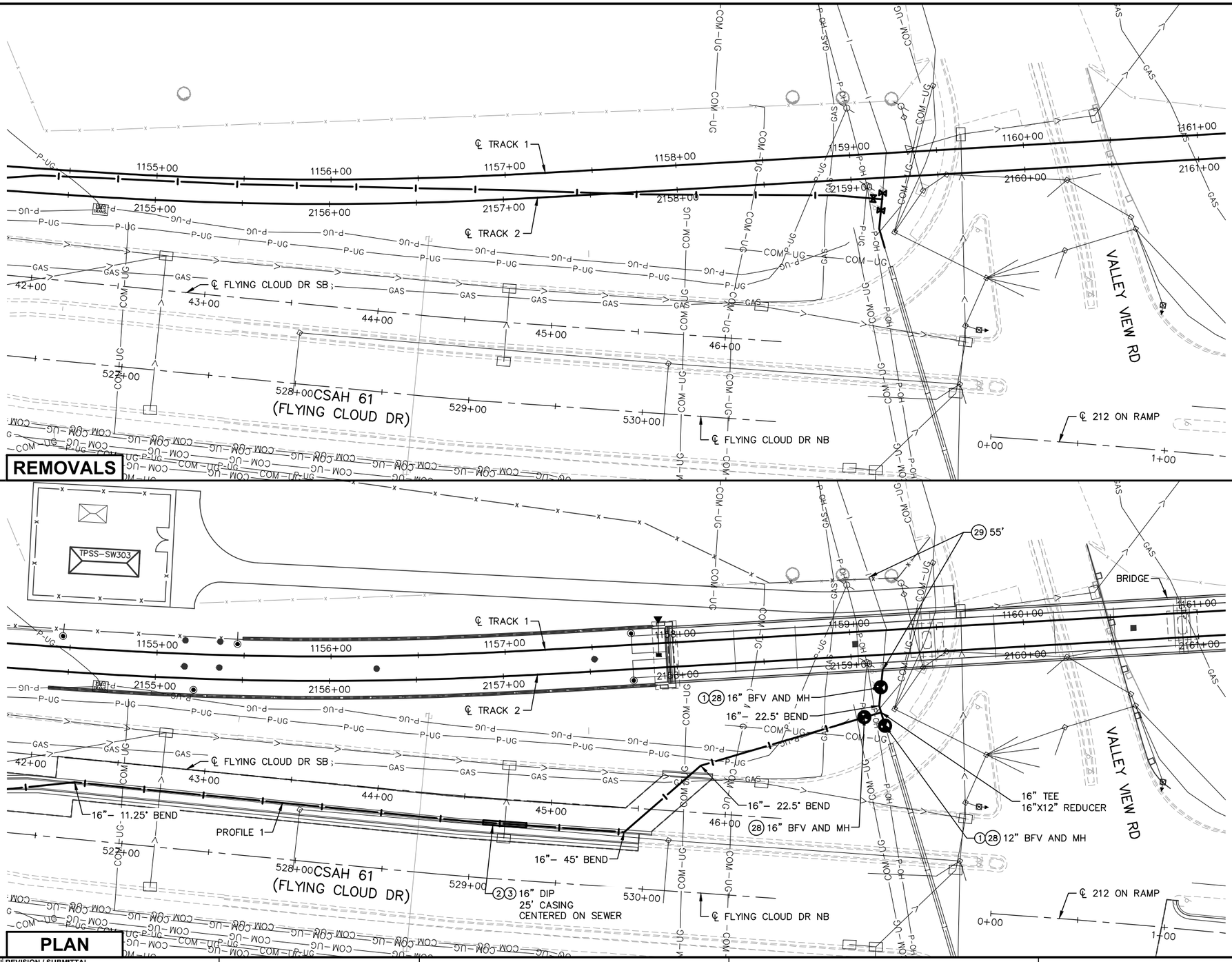
SHEET NAME: W1-UTL-PLN - 012

SHEET 29 OF 214

Jan, 18 2016 09:19 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
FLYING CLOUD DR 3 OF 5
REMOVALS AND PLAN

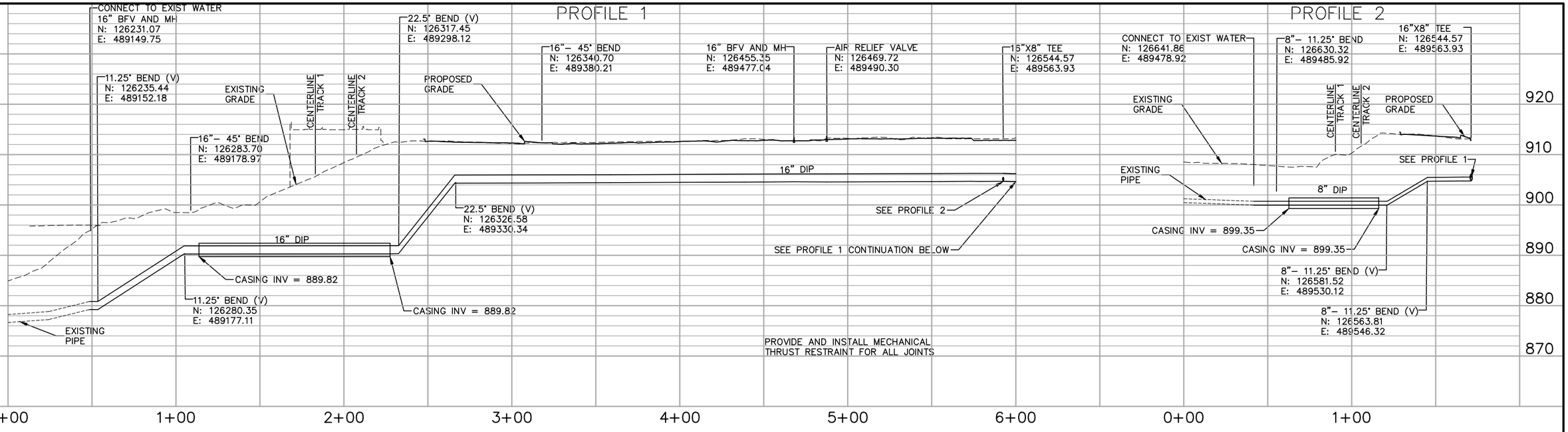
DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 013

SHEET 30 OF 214

Jan, 18 2016 09:21 am v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-Youngb.JR

PROFILE 1

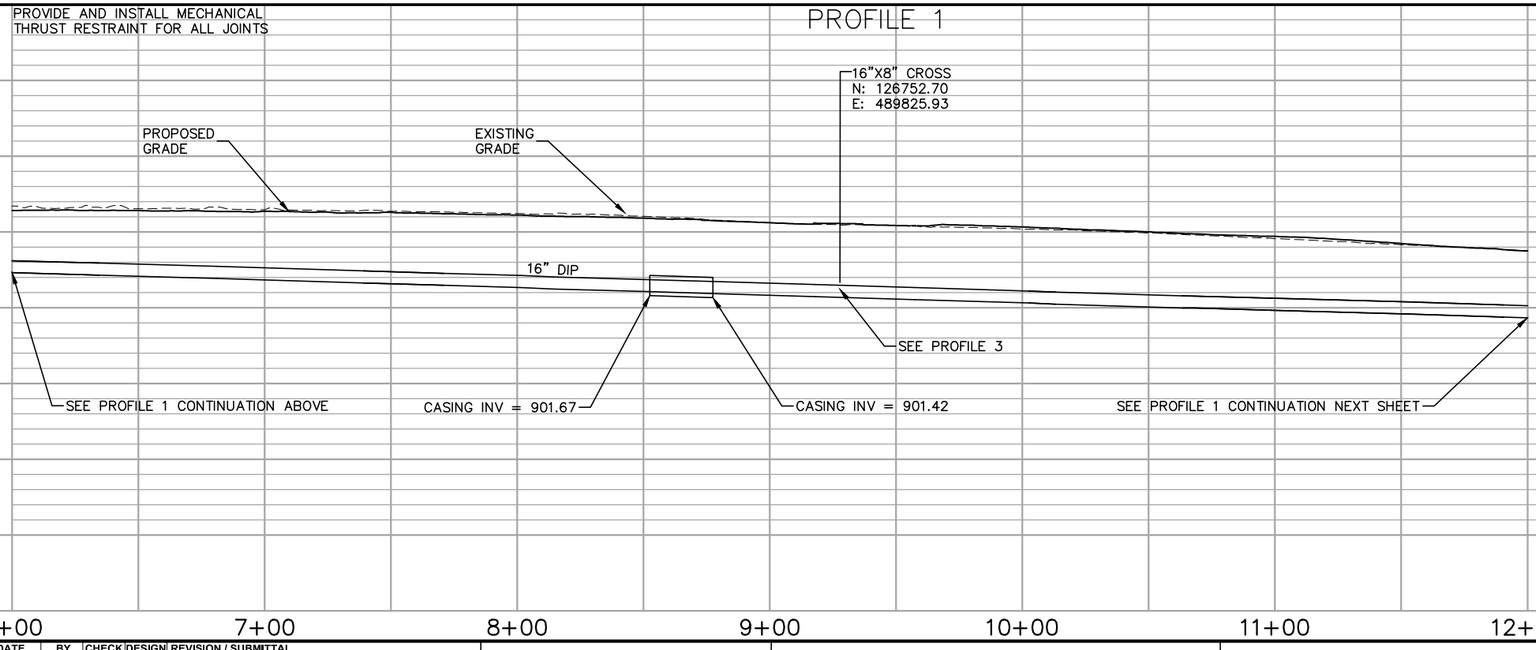


PROFILE 2

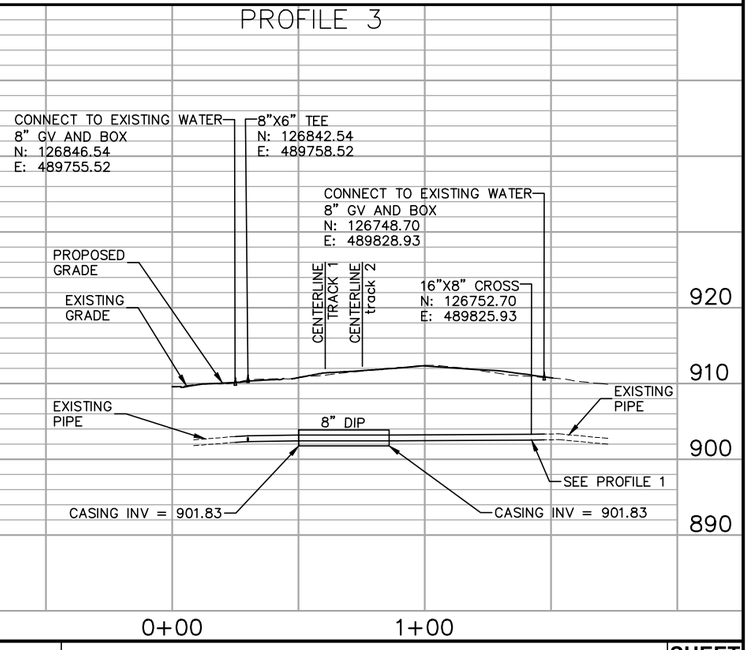
0 5 10 20
VERTICAL

0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 1



PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
FLYING CLOUD DR 4 OF 5
PROFILES

DISCIPLINE: UTILITIES

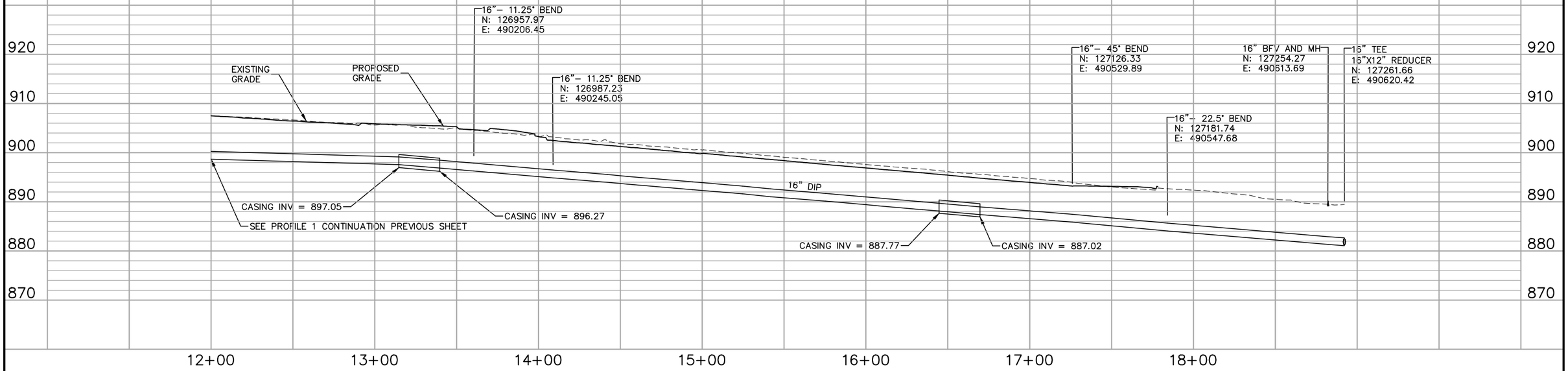
SHEET NAME: W1-UTL-PLN - 014

SHEET 31 OF 214

Jan, 18 2016 09:21 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-Youngb.JR

PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

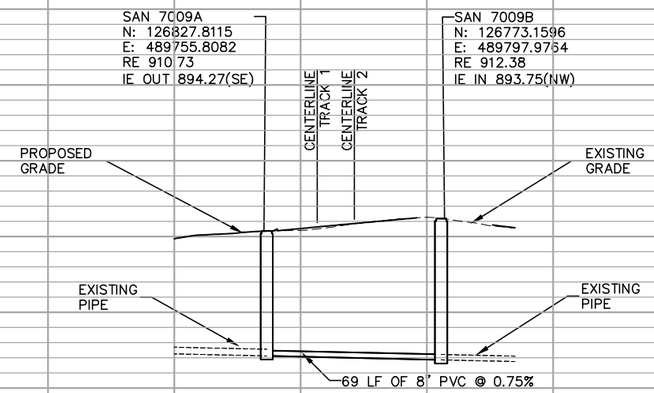
PROFILE 1



VERTICAL 0 5 10 20

HORIZONTAL SCALE IN FEET 0 15 30 60

PROFILE 4



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
FLYING CLOUD DR 5 OF 5
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W1-UTL-PLN - 015

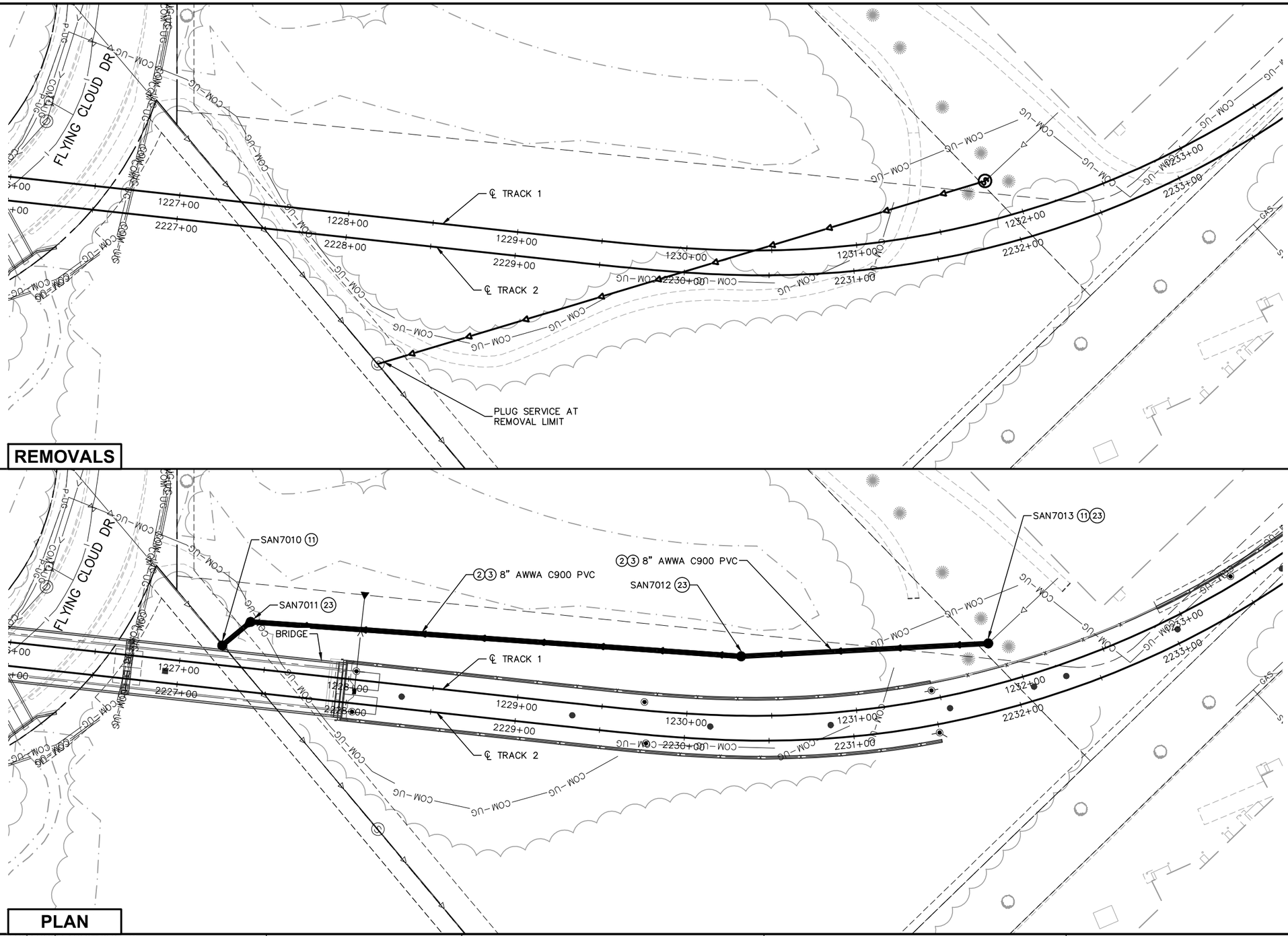
SHEET 32 OF 214

Jan, 18 2016 09:21 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W1-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS



PLAN

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

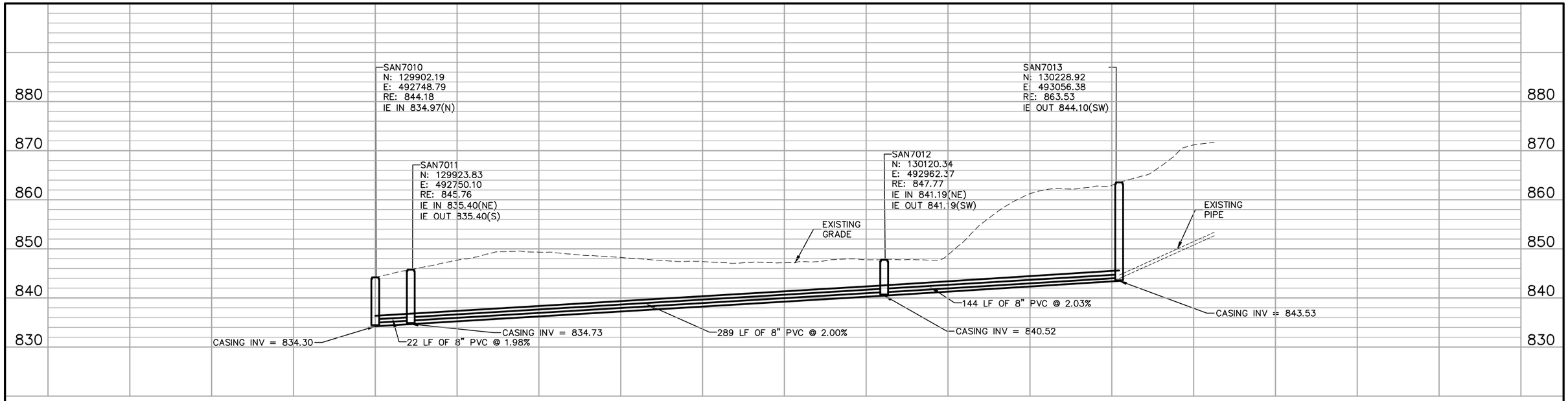
CIVIL - VOLUME 7
UTILITIES
SAN SEWER AT FLYING CLOUD DR 1 OF 2
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 001

SHEET 33 OF 214

Jan, 18 2016 07:56 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR



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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SAN SEWER AT FLYING CLOUD DR 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 002

SHEET 34 OF 214

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ LIBERTY DWY W

℄ TRACK 1

℄ TRACK 2

℄ 70TH ST W

70TH ST W

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION 01/22/16

CIVIL - VOLUME 7
UTILITIES
GOLDEN TRIANGLE STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 003

SHEET 35 OF 214

Jan, 18 2016 07:57 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

8"– 11.25° BEND
8"– 22.5° BEND
8"– 45° BEND
(2)(3) 8" DIP
(29) 30'
(1)(26) 8" GV AND BOX
℄ LIBERTY DWY W
℄ TRACK 1
℄ TRACK 2
GOLDEN TRIANGLE STATION
LAND BRIDGE
8"X6" TEE
(25)
(26) 8" GV AND BOX
PROFILE 2
8"X6" REDUCER
2 – 6"– 45° BENDS
(7)
(5)
TAP SERVICE AT MAIN PER CITY OF EDEN PRARIE STANDARDS
℄ 70TH ST W
8" TEE
8"– 11.25° BEND
PROFILE 1
8"X6" TEE
(25)
SAN7014
PROFILE 3
SAN7015
SAN7016 (11)
(3)(26) 8" TEE
8" GV AND BOX
45'– 8" DIP
CAP AT LIMITS
58'– 8" PVC @ 0.5%
CAP AT LIMITS
50'– 8" PVC @ 2.5%
(1)(26) 8" GV AND BOX
(29) 30'
(3)(26) 8"X6" TEE
6" GV AND BOX
37'– 6" DIP

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

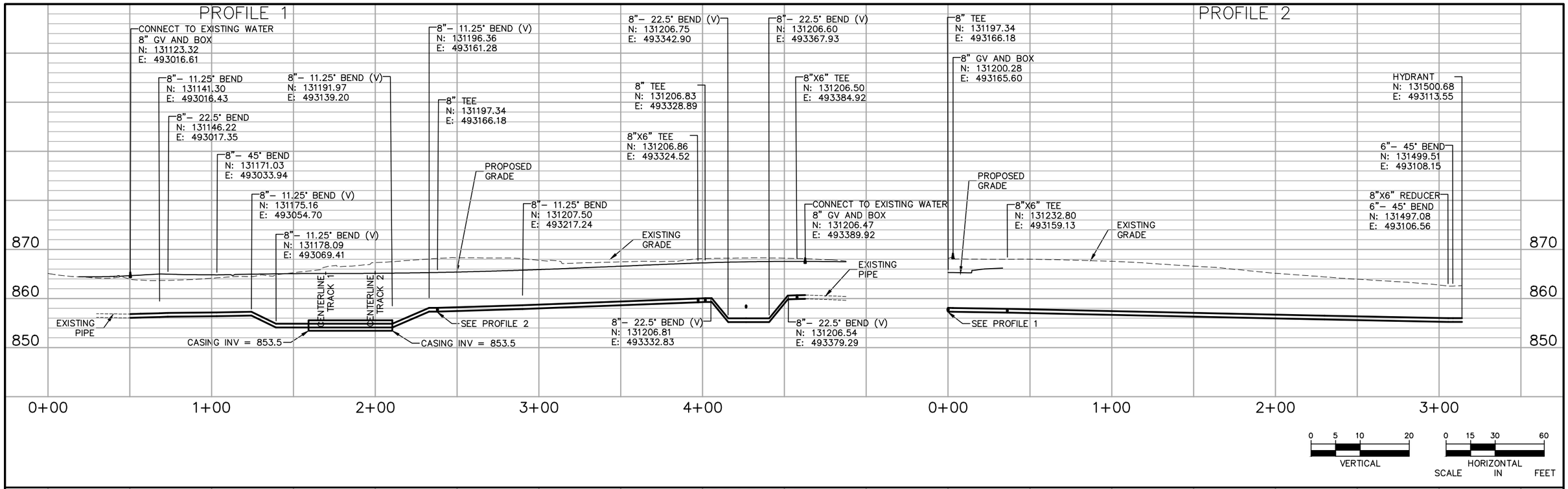
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

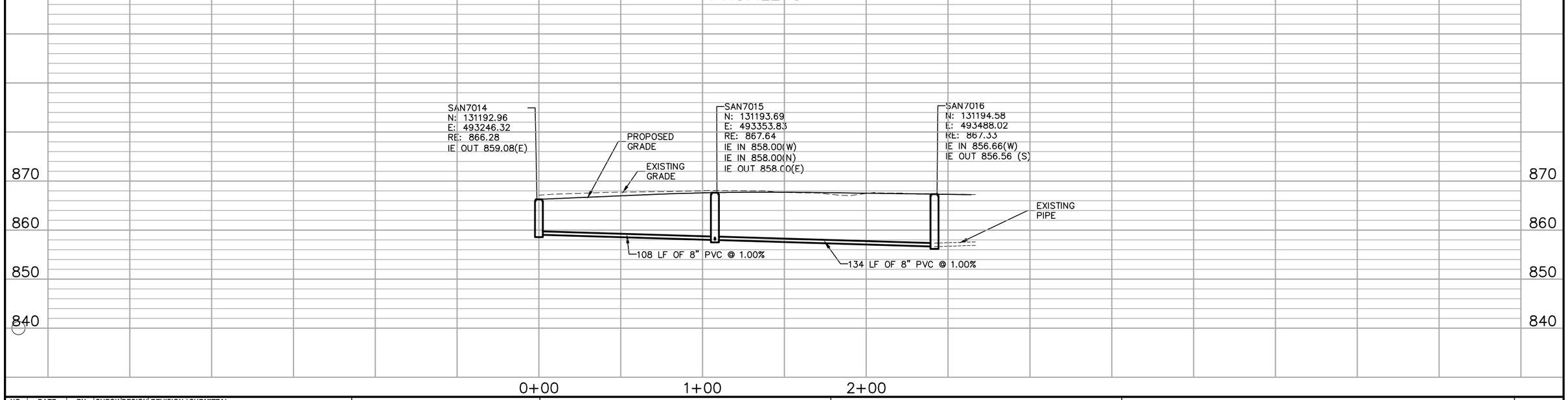
CIVIL - VOLUME 7
UTILITIES
GOLDEN TRIANGLE STATION 2 OF 3
PLAN

DISCIPLINE: UTILITIES
SHEET NAME: W2-UTL-PLN - 004

SHEET 36 OF 214

Jan, 18 2016 07:57 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR





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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

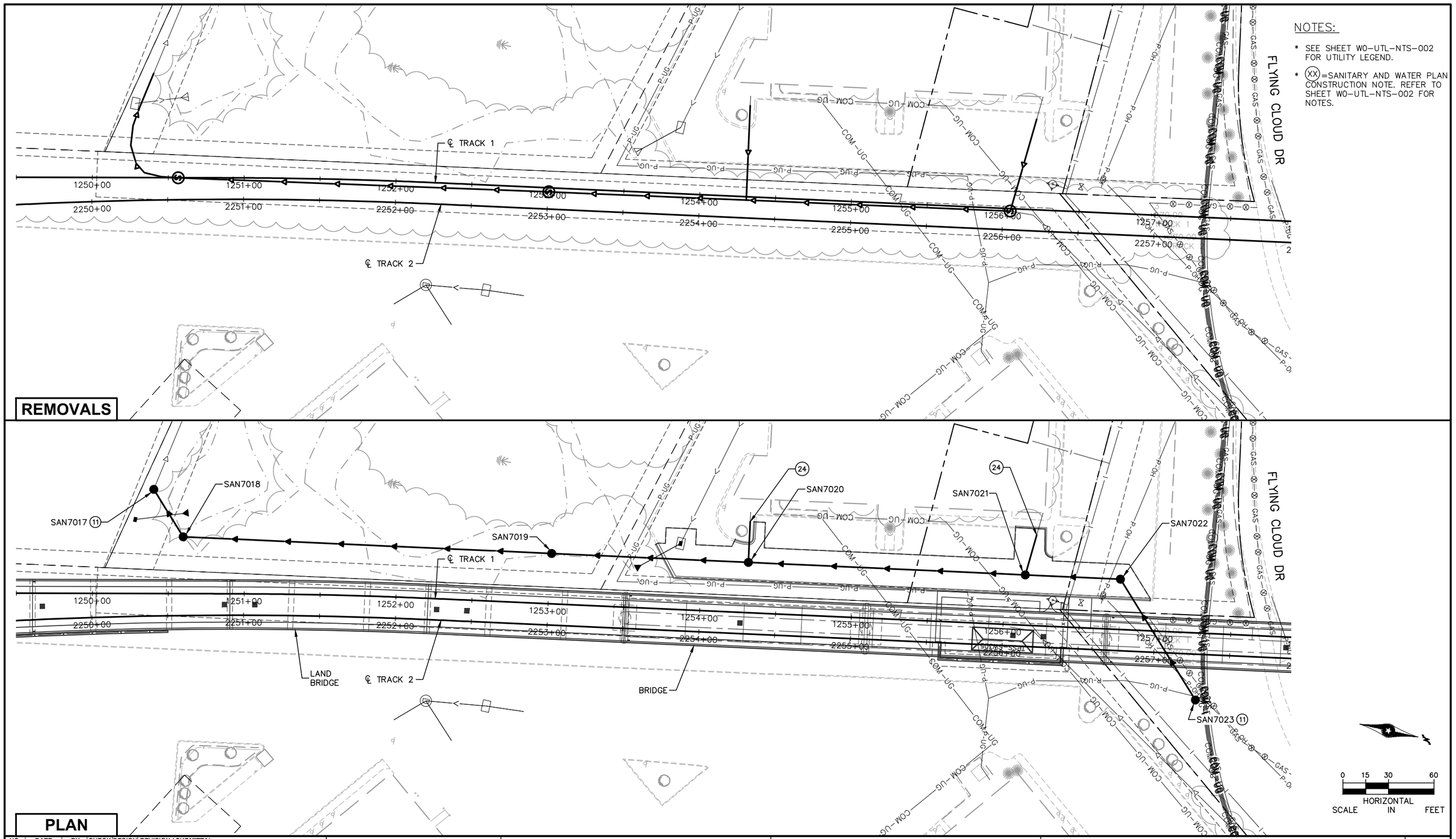
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
GOLDEN TRIANGLE STATION 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 005

SHEET 37 OF 214



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION 01/22/16

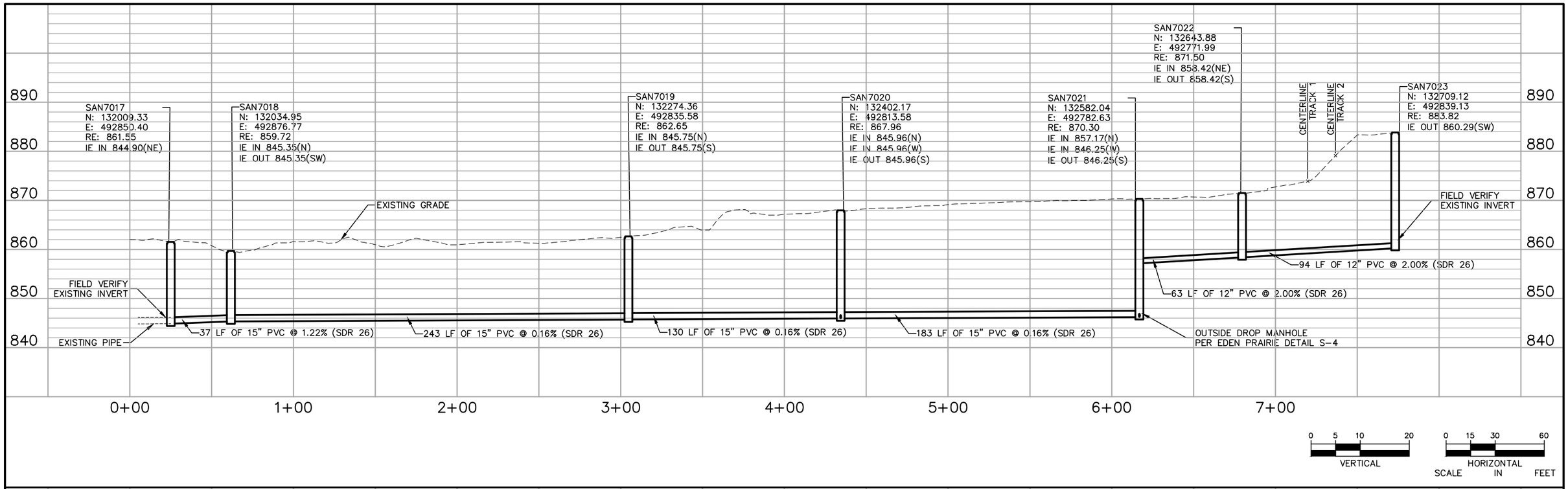
CIVIL - VOLUME 7
UTILITIES
WHITEBOARD 1 OF 2
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 006

SHEET 38 OF 214

Jan, 18 2016 07:59 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR



Jan, 18 2016 07:59 am v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

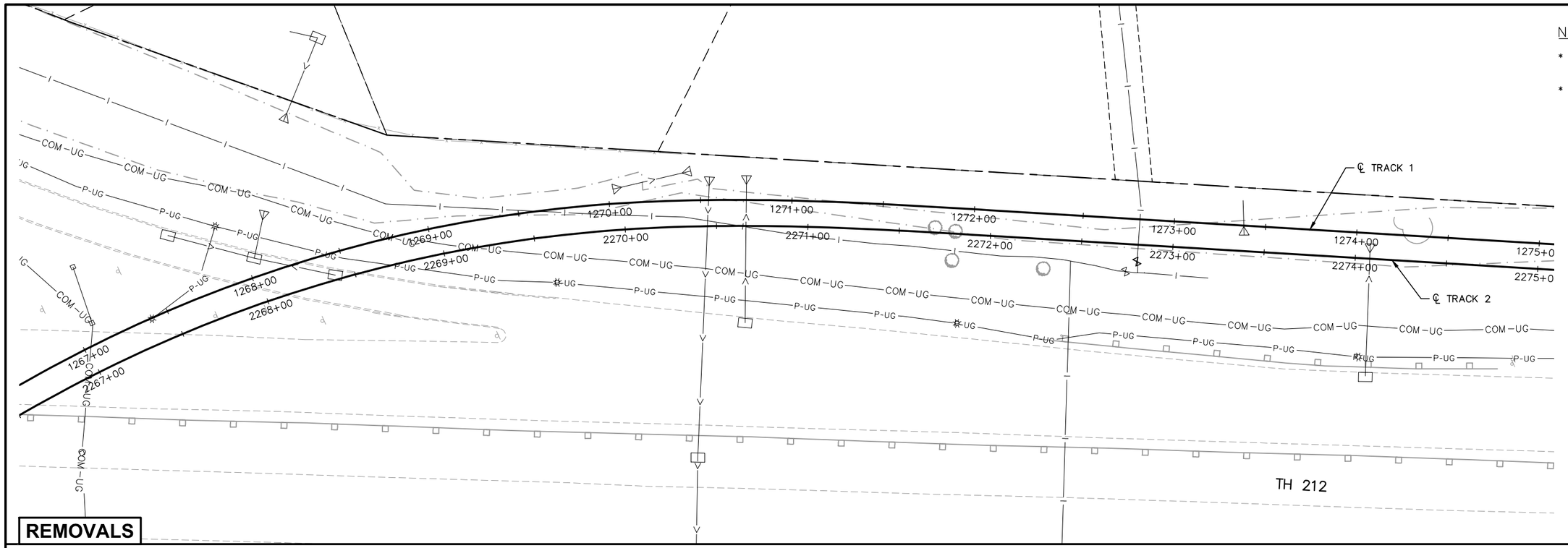
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
WHITEBOARD 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 007

SHEET 39 OF 214



NOTES:

* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

Jan, 18 2016 08:00 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2–UTL–PLN.dwg By: V–YoungbJR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

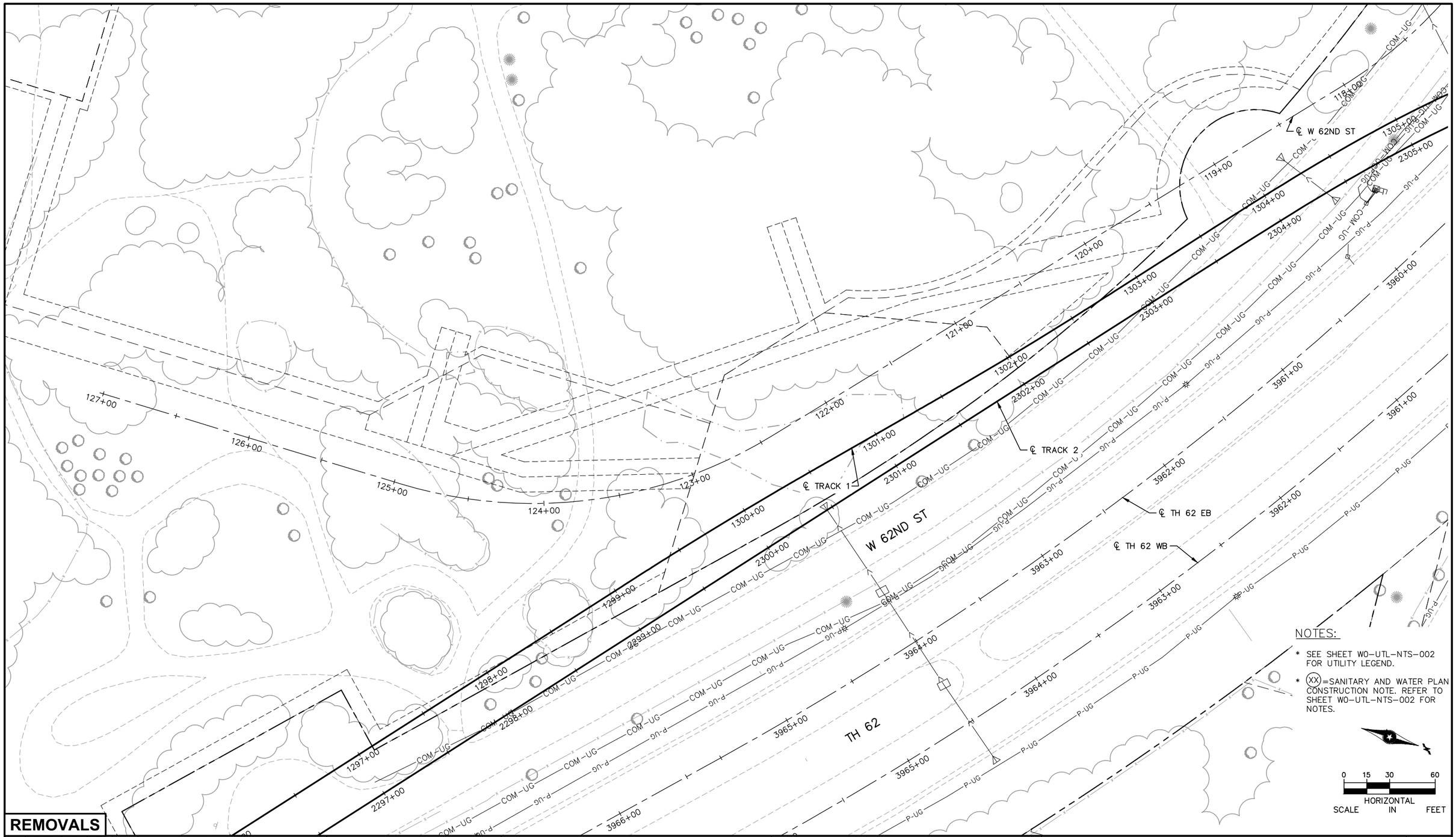
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
TH 212
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 008

SHEET 40 OF 214



REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

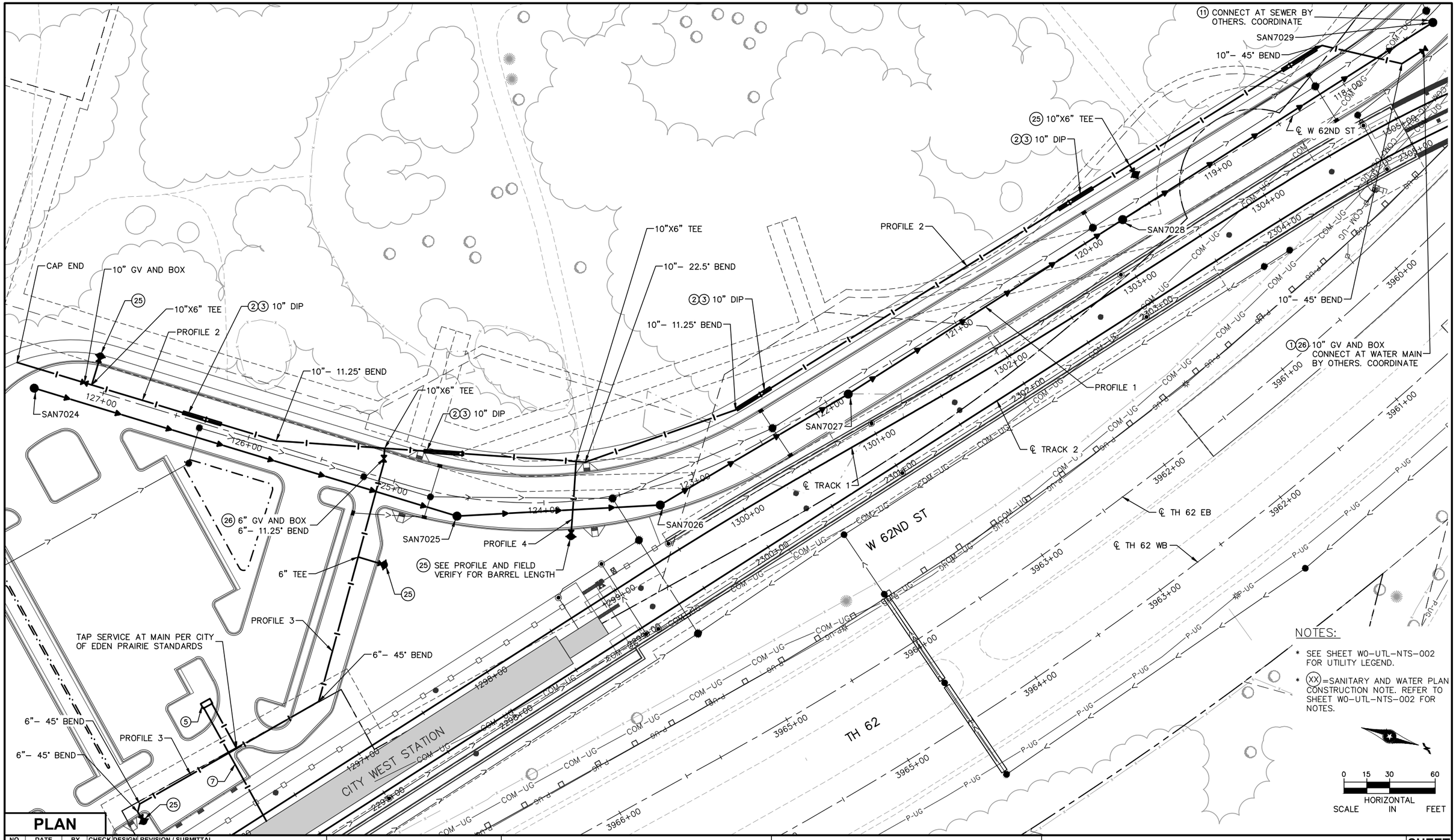
CIVIL - VOLUME 7
UTILITIES
CITY WEST STATION 1 OF 4
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 009

SHEET 41 OF 214

Jan, 18 2016 08:00 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR



PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

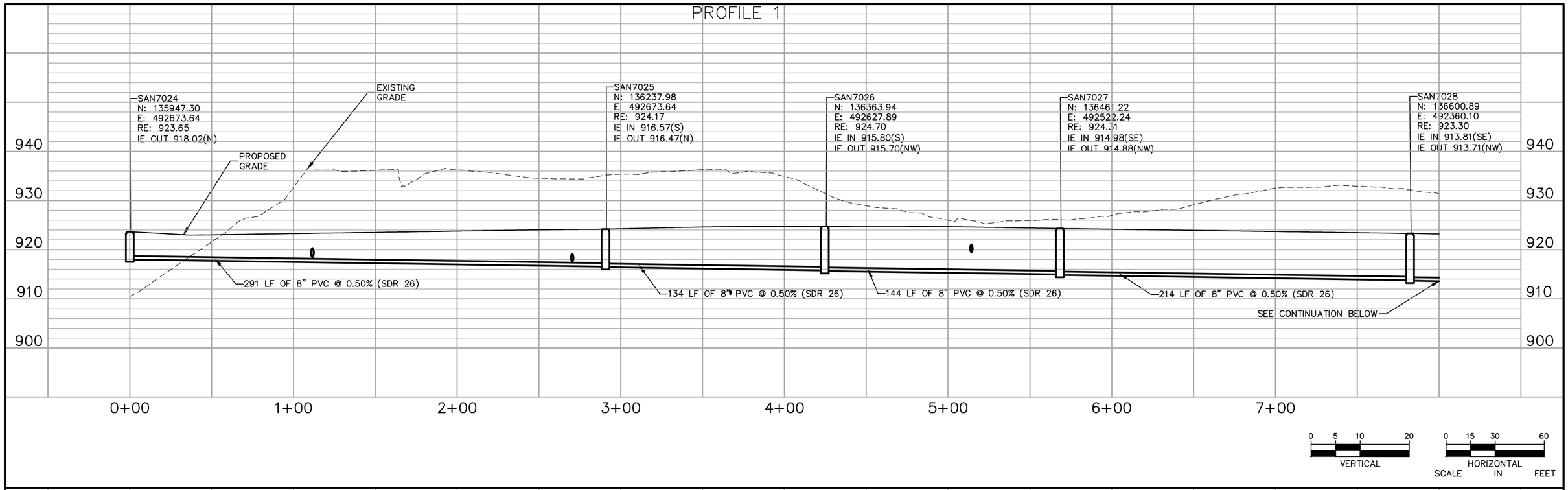
CIVIL - VOLUME 7
UTILITIES
CITY WEST STATION 2 OF 4
PLAN

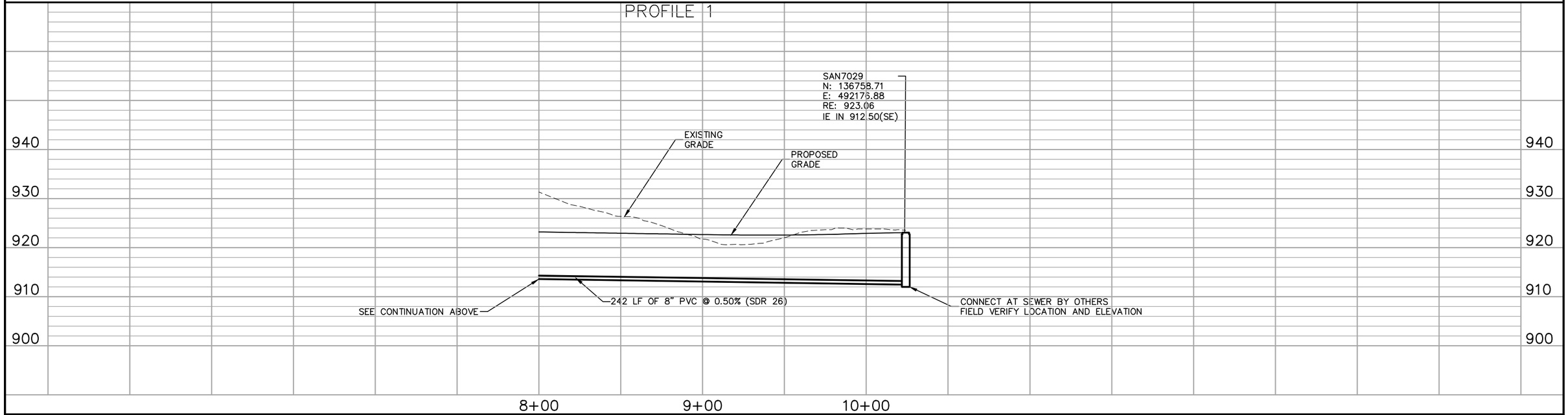
DISCIPLINE: **UTILITIES**

SHEET NAME: **W2-UTL-PLN - 010**

SHEET **42** OF **214**

Jan, 18 2016 08:01 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

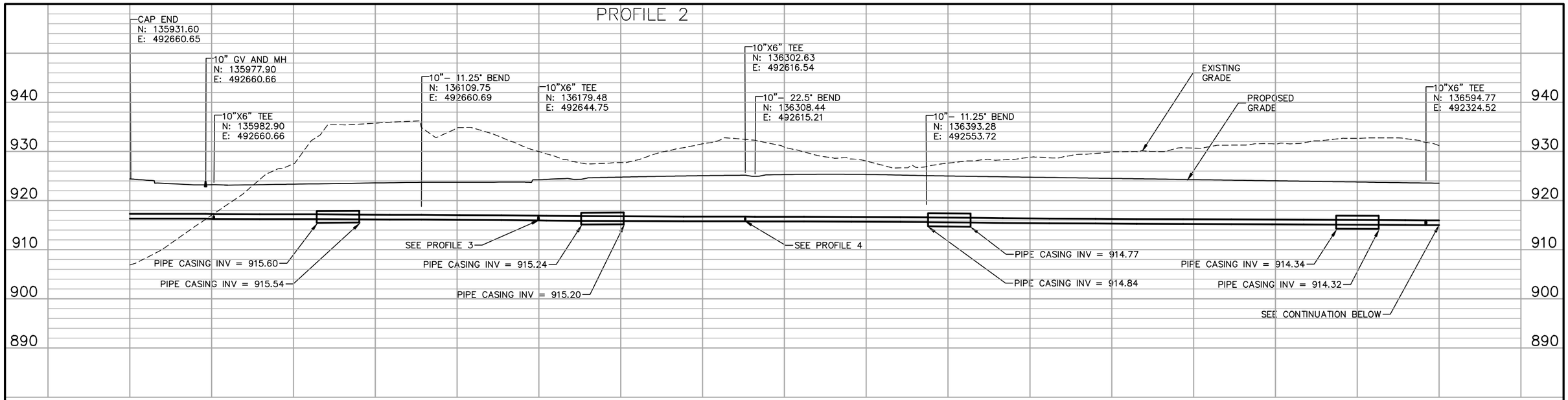
CIVIL - VOLUME 7
UTILITIES
CITY WEST STATION 3 OF 4
PROFILES

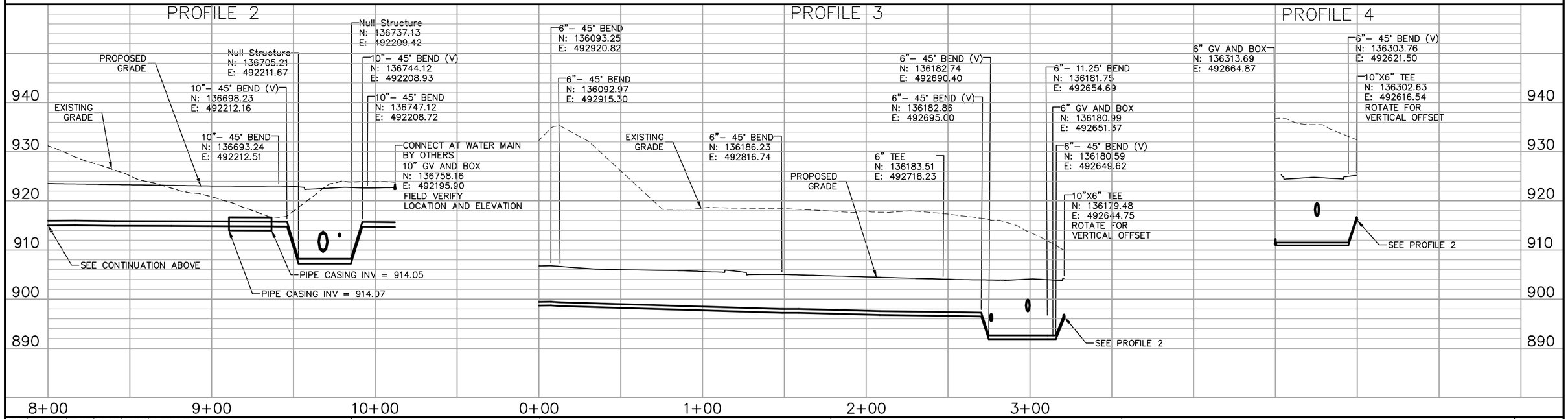
DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 011

SHEET 43 OF 214

Jan, 18 2016 08:01 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CITY WEST STATION 4 OF 4
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 012

SHEET 44 OF 214

Jan. 18 2016 08:01 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR

℄ RED CIR DR TO YELLOW CIR DR

SAN7030A
IE IN 898.00 (E)
IE OUT 897.90 (NW)

SEE TH 62 TUNNEL
FIRE FLOW LIFT
STATION DETAIL

℄ RED CIR DR

PROFILE 1

SAN7031

SAN7030

23'– 12" DIP @ 2%
INV @ LIFT STATION = 897.44

RED CIR DR

SEE TH 62 TUNNEL PLANS
FOR CONTINUATION

TUNNEL

℄ TRACK 1

℄ TRACK 2

℄ YELLOW CIR DR

YELLOW CIR DR

(22) 8"X6" REDUCER

(22) 12"X6" TEE
6"– 45° BEND

12"– 45° BEND

8"– 11.25° BEND

8"– 11.25° BEND

PROFILE 4

SAN7032

(1)(20) 12" BFV AND BOX

SAN7036 (11)

12"– 45° BEND

(22) 12"X6" TEE

12"– 45° BEND

PROFILE 5

(24)

SAN7039

(29) 50'

SAN7035 (23)

PROFILE 3

(2)(3) 8" AWWA C900 PVC

(2)(3) 12" AWWA C900 PVC

12"X8" TEE

(27) LOCATE AT 5' OUTSIDE CASING

(2) 14" HDPE PIPE

(27) LOCATE AT 5' OUTSIDE CASING

12"– 22.5° BEND

(22) 12"X6" TEE

PROFILE 5

SAN7037 (11)

SAN7038

SAN7034 (23)

PROFILE 2

SAN7033 (11)

12"– 45° BEND
12"– 11.25° BEND

12"X6" TEE

(1)(20) 12" BFV AND BOX

(22) PROVIDE FITTINGS AS NEEDED TO PROVIDE MINIMUM PIPE COVER AND MINIMUM 18" VERTICAL CLEARANCE, OUTSIDE OF PIPE TO OUTSIDE OF PIPE, WHERE HYDRANT LEAD CROSSES STORM AND SANITARY SEWERS

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) =SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
RED CIR DR / YELLOW CIR DR 1 OF 2
REMOVALS AND PLAN

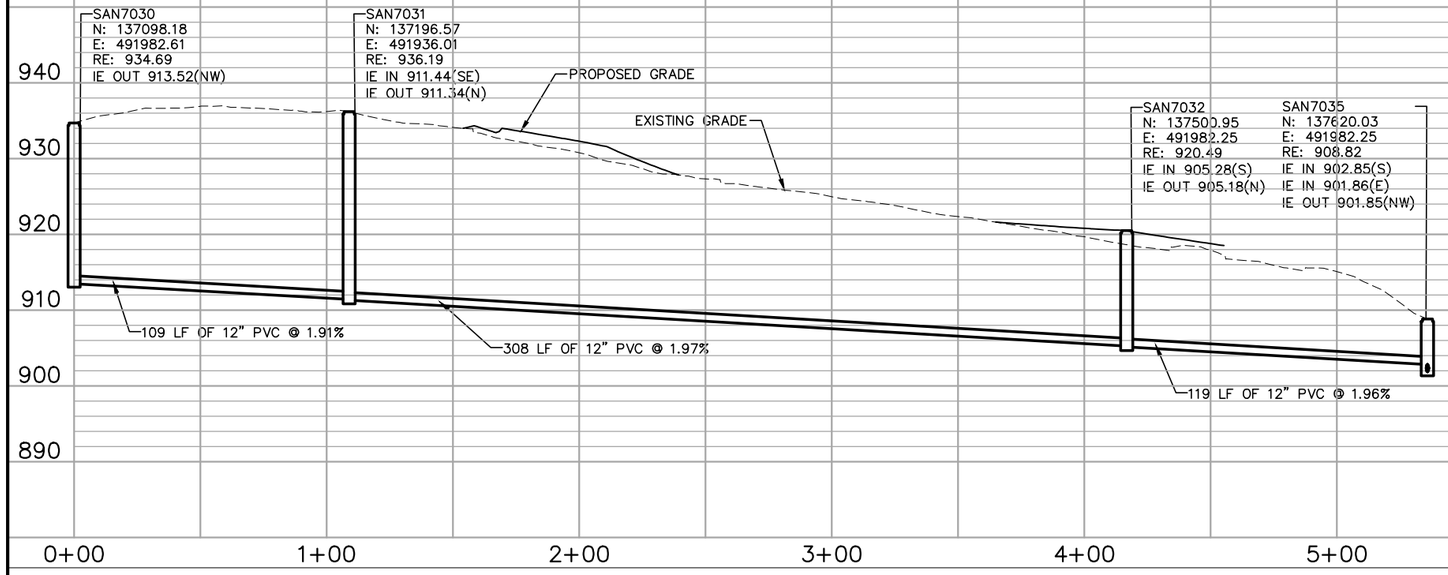
DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 013

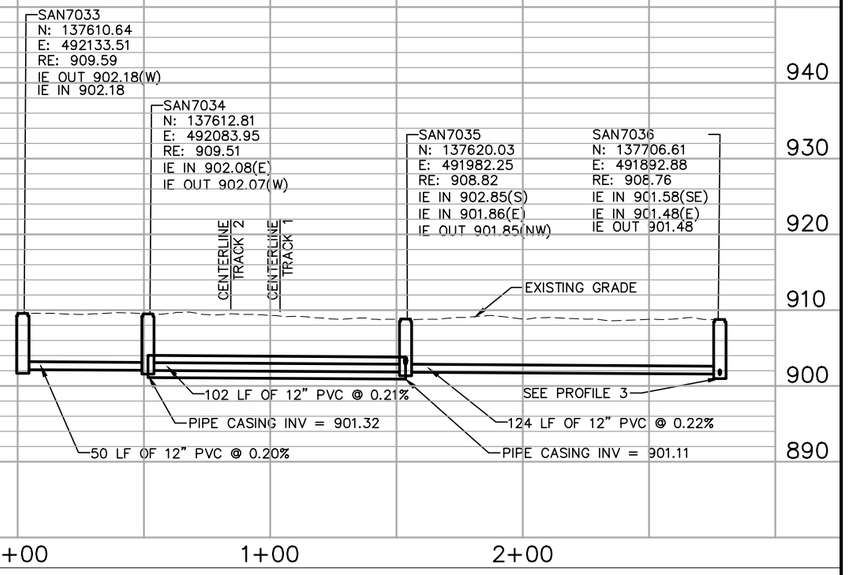
SHEET 45 OF 214

Jan, 18 2016 08:02 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR

PROFILE 1



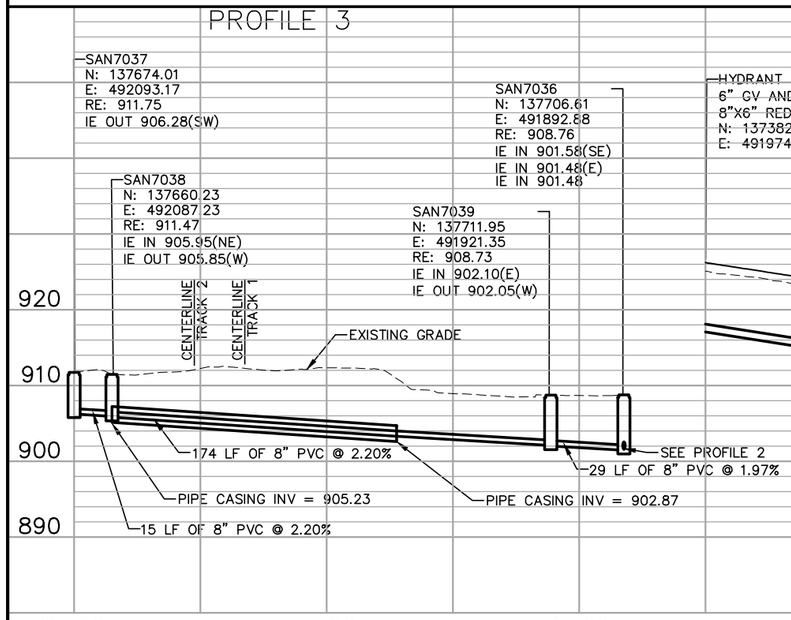
PROFILE 2



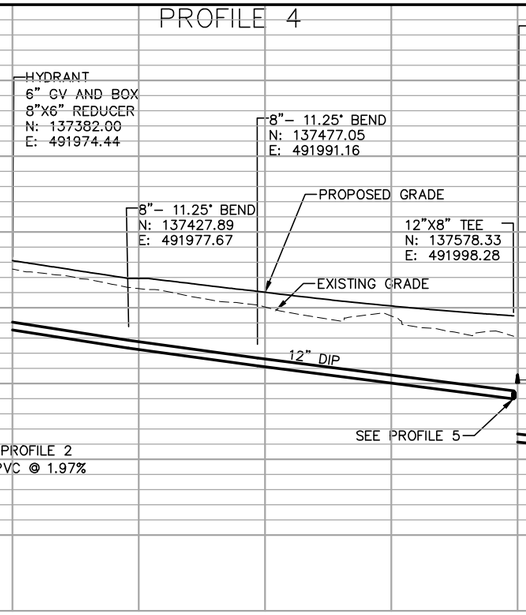
VERTICAL SCALE IN FEET: 0 5 10 20

HORIZONTAL SCALE IN FEET: 0 15 30 60

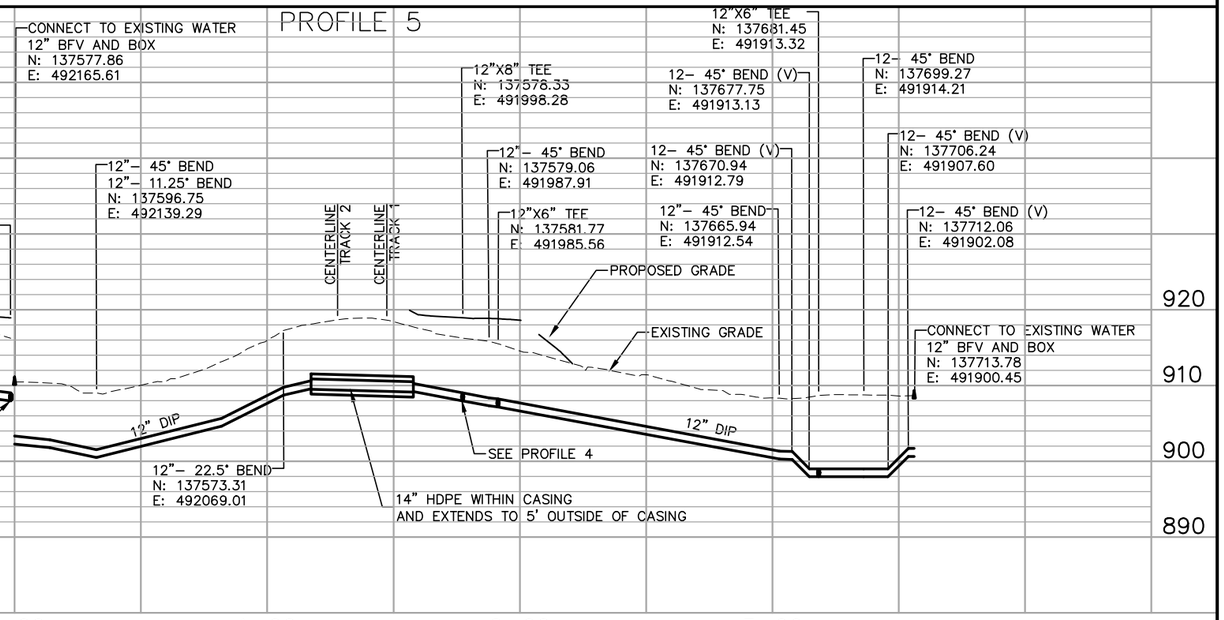
PROFILE 3



PROFILE 4



PROFILE 5



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

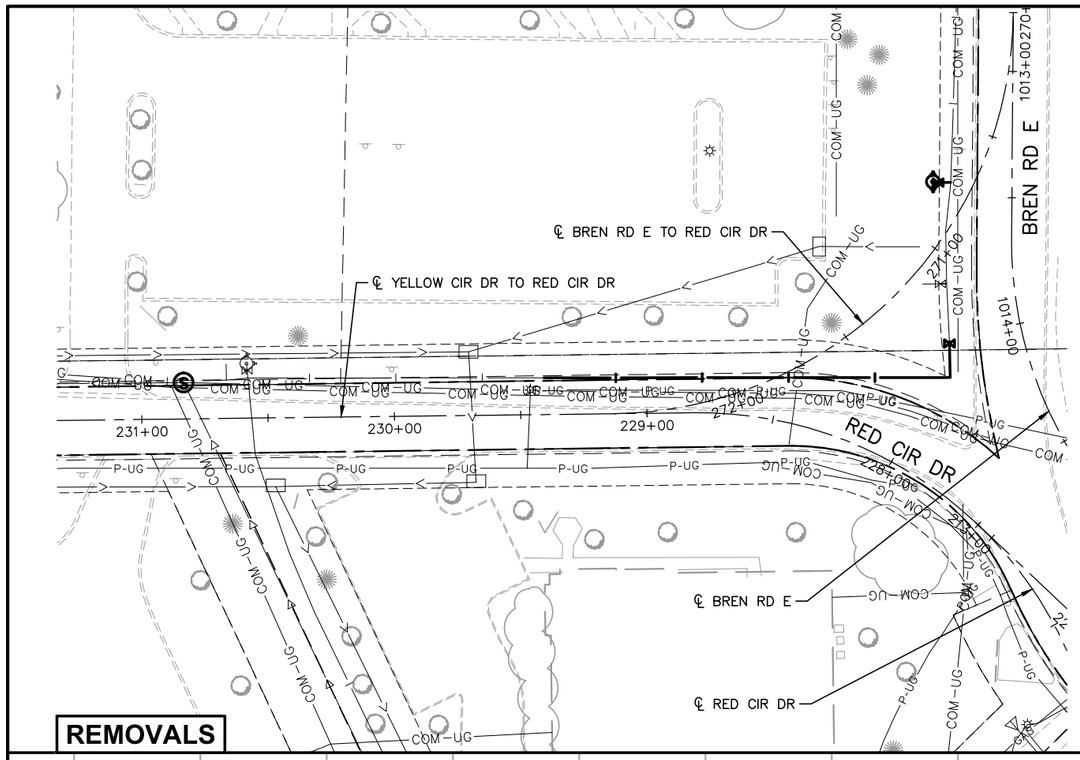
CIVIL - VOLUME 7
UTILITIES
RED CIR DR / YELLOW CIR DR 2 OF 2 PROFILES

DISCIPLINE: UTILITIES

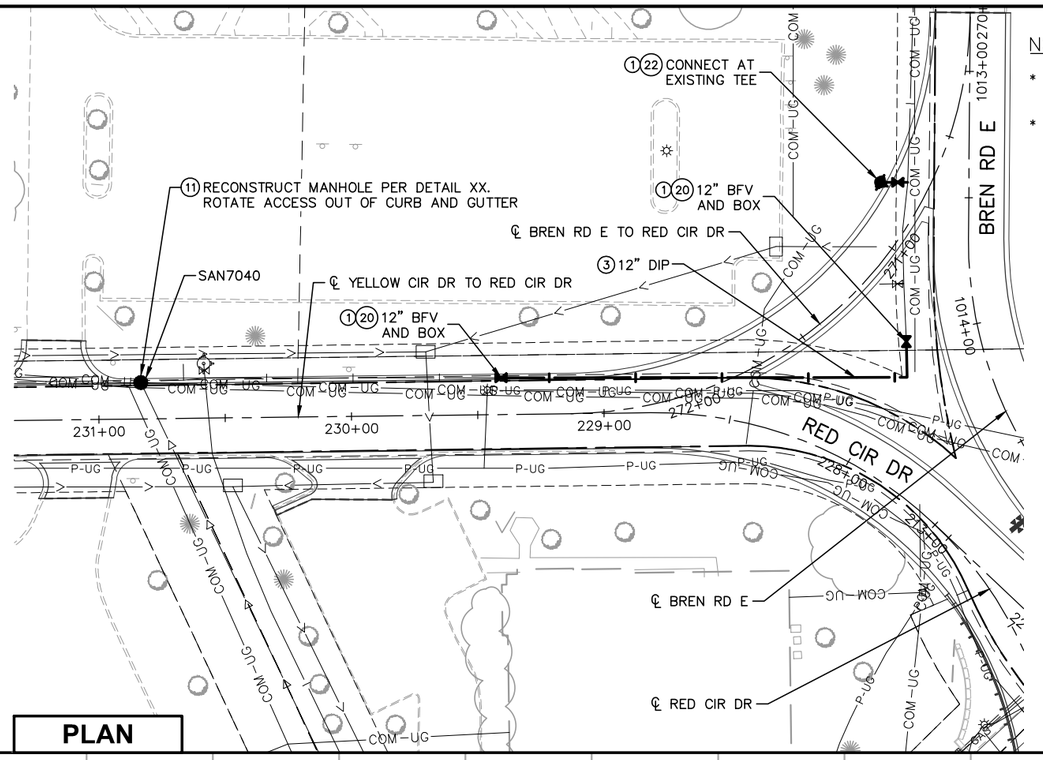
SHEET NAME: W2-UTL-PLN - 014

SHEET 46 OF 214

Jan, 18 2016 08:03 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR



REMOVALS

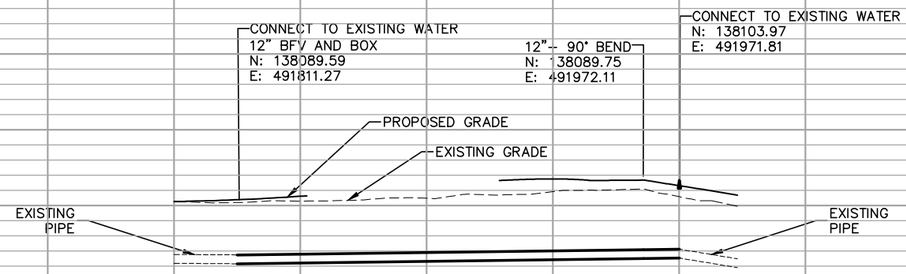


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
RED CIR DR / BREN RD
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W2-UTL-PLN - 015

SHEET 47 OF 214

Jan, 18 2016 08:04 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

BREN RD E

℄ BREN RD E

℄ BREN RD W

℄ BREN RD LT TURN

BREN RD W

℄ TRACK 1

℄ TRACK 2

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

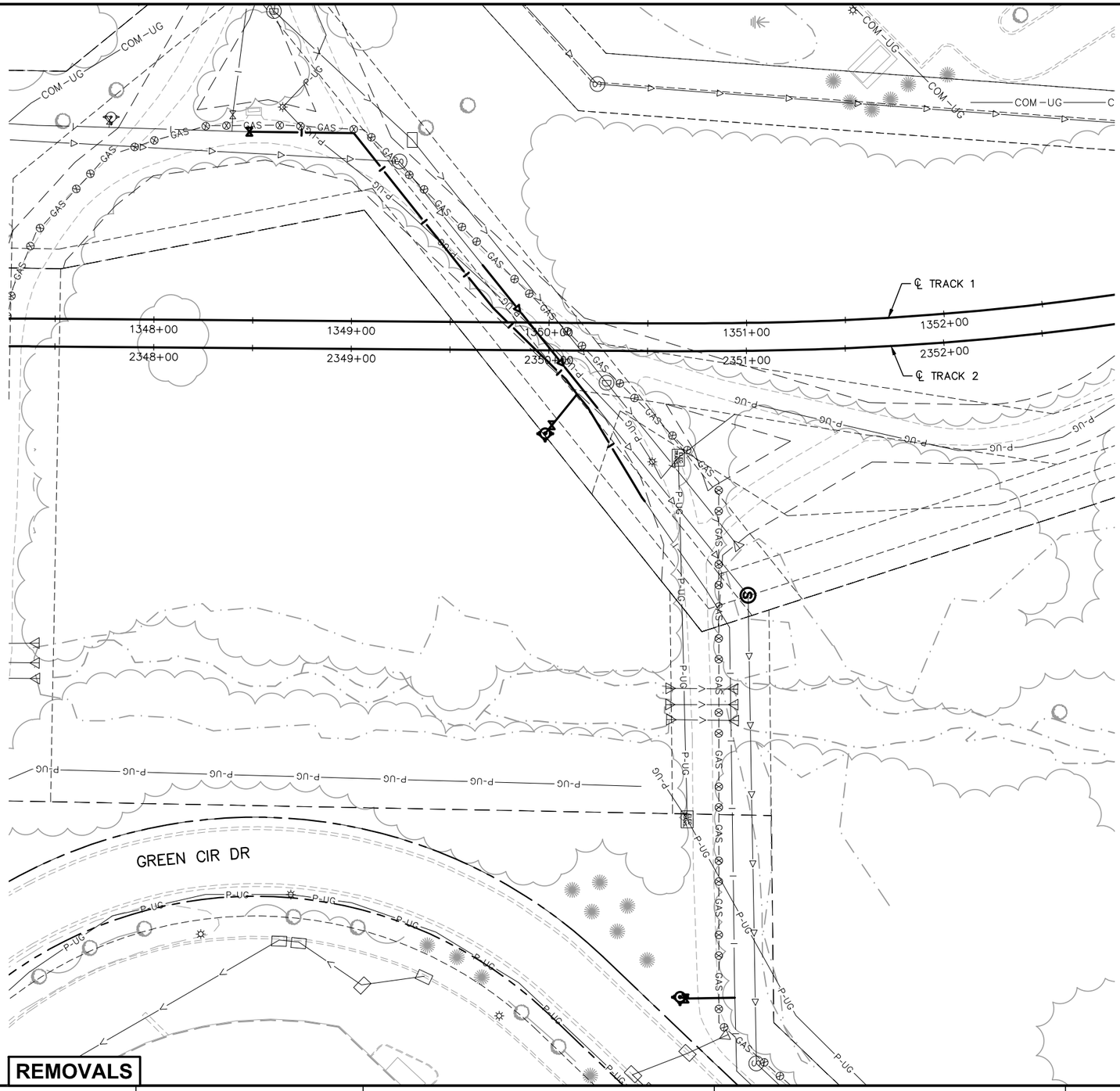
CIVIL - VOLUME 7
UTILITIES
OPUS STATION 1 OF 6
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 001

SHEET 48 OF 214

Jan, 18 2016 10:27 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
OPUS STATION 2 OF 6
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 002

SHEET 49 OF 214

Jan, 18 2016 10:27 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

(15) SAN7041
(1)(22) CONNECT AT EXISTING TEE
℄ BREN RD W
℄ BREN RD LT TURN
(15) SAN7042
(1)(22) CONNECT AT EXISTING TEE
℄ BREN RD E
(1)(20) 10" BFV AND BOX
BREN RD E
PROP ROW
(27) LOCATE AT 5' OUTSIDE CASING
(2) 12" HDPE PIPE
℄ TRACK 1
℄ TRACK 2
(27) LOCATE AT 5' OUTSIDE CASING
OPUS STATION
PROFILE 1
(5)
(7) TAP SERVICE AT MAIN PER CITY OF MINNETONKA STANDARDS
(29) 40'
(1)(20) 10" BFV AND BOX
10"– 90° BEND
10"– 11.25° BEND
BREN RD W

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

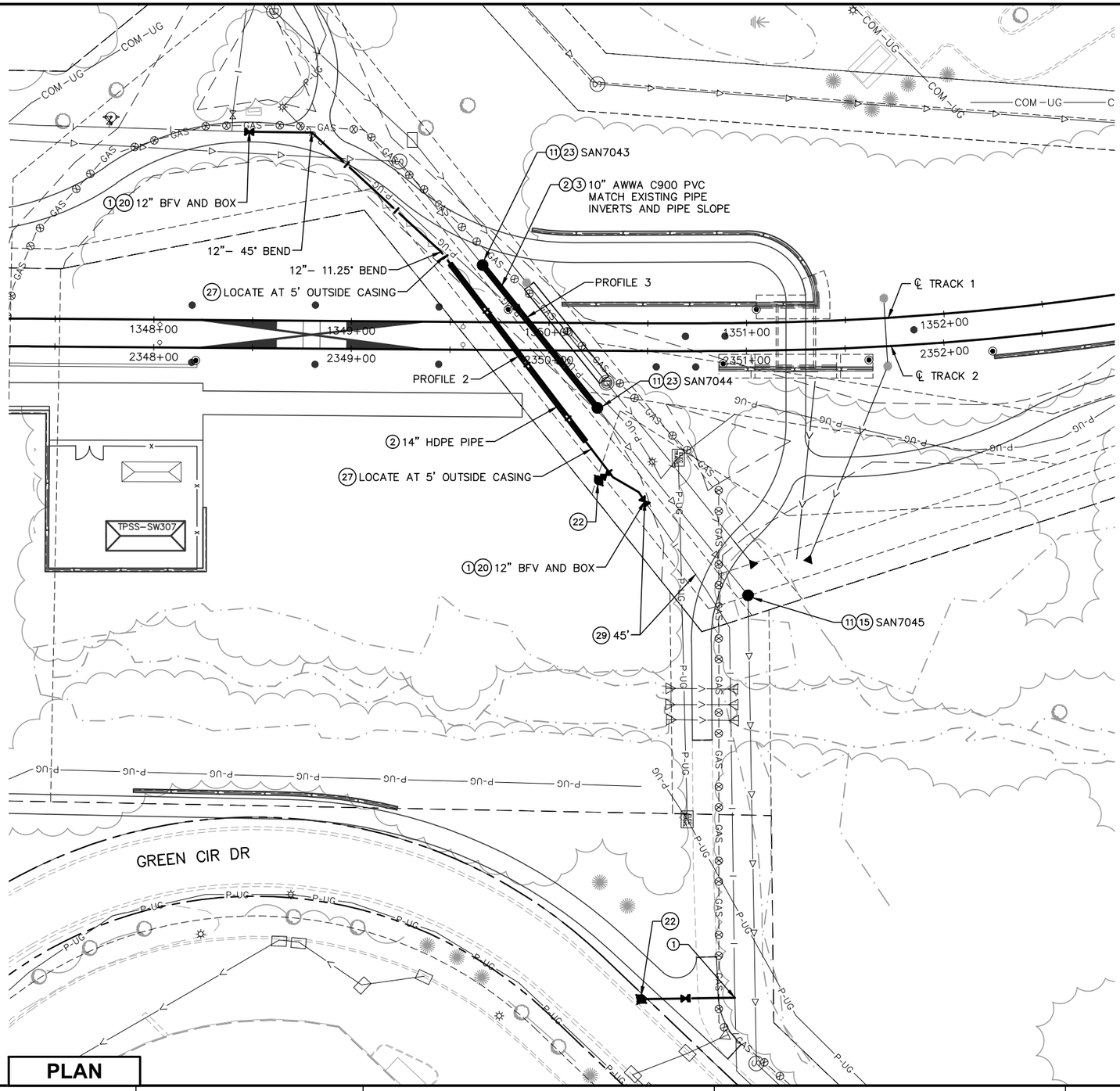
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
OPUS STATION 3 OF 6
PLAN

DISCIPLINE: UTILITIES
SHEET NAME: W3-UTL-PLN - 003

SHEET 50 OF 214

Jan, 18 2016 10:28 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
OPUS STATION 4 OF 6
PLAN

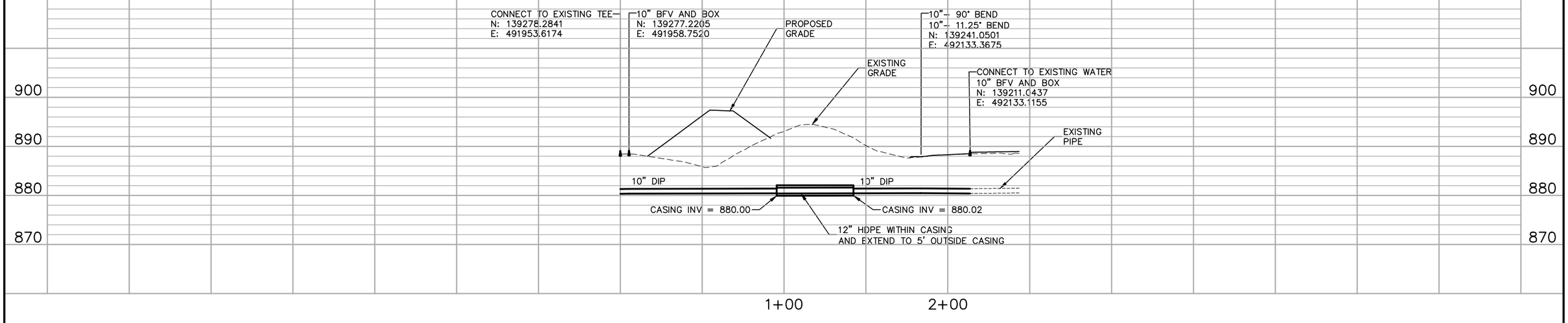
DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 004

SHEET 51 OF 214

Jan, 18 2016 10:29 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

PROFILE 1

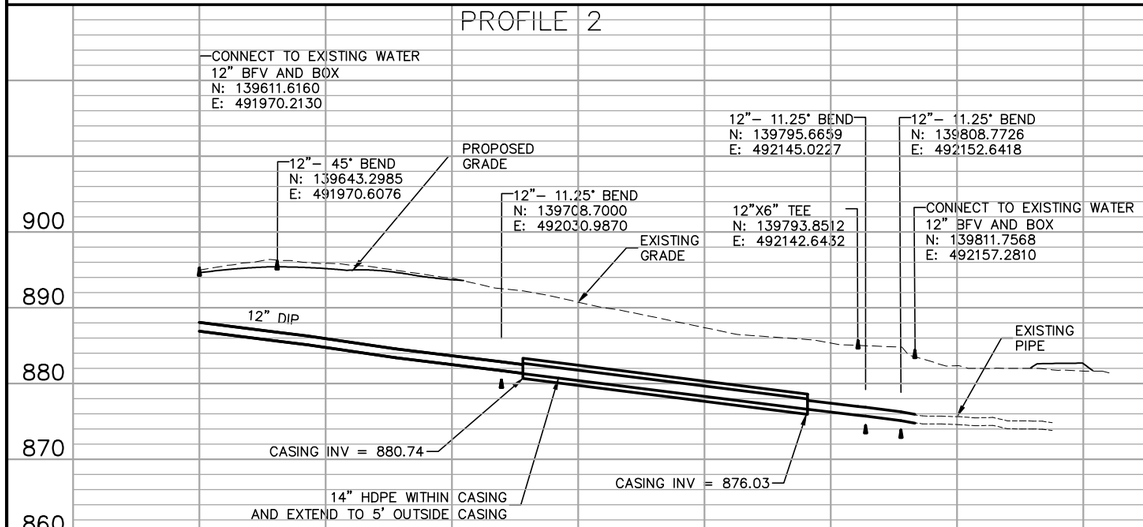


0 5 10 20 VERTICAL

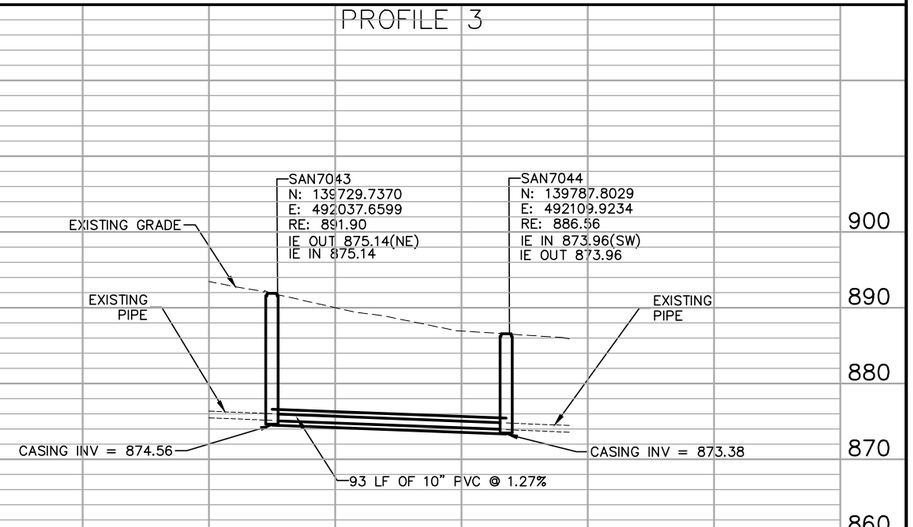
0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 2



PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

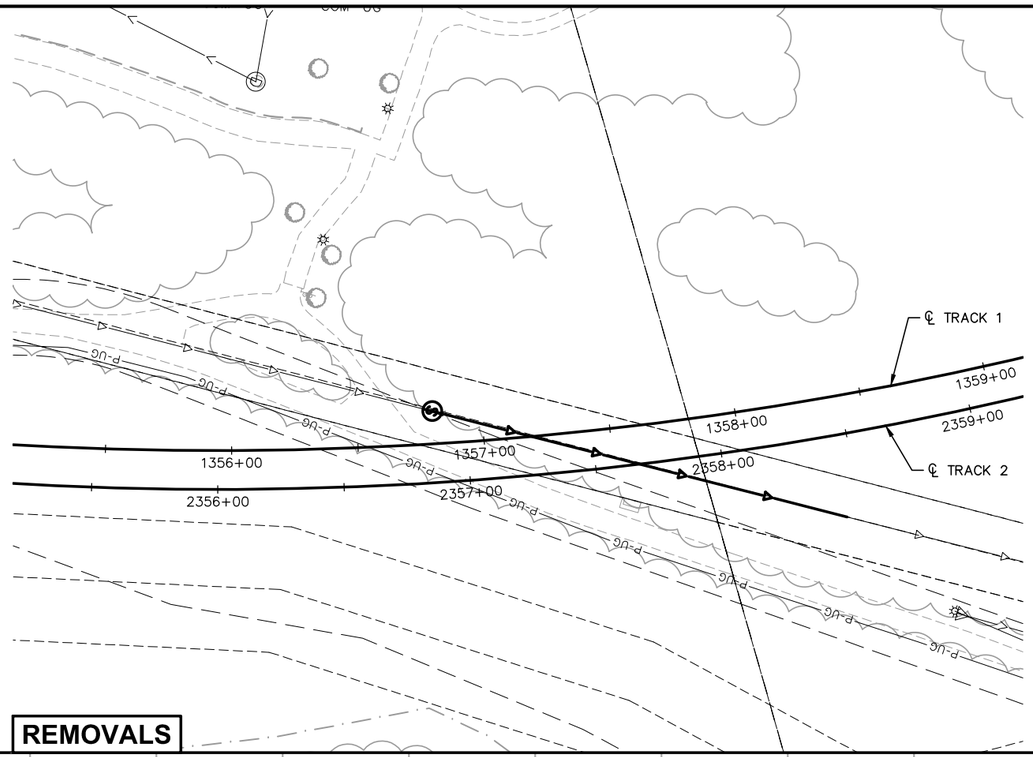
CIVIL - VOLUME 7
UTILITIES
OPUS STATION 5 OF 6
PROFILES

DISCIPLINE: UTILITIES

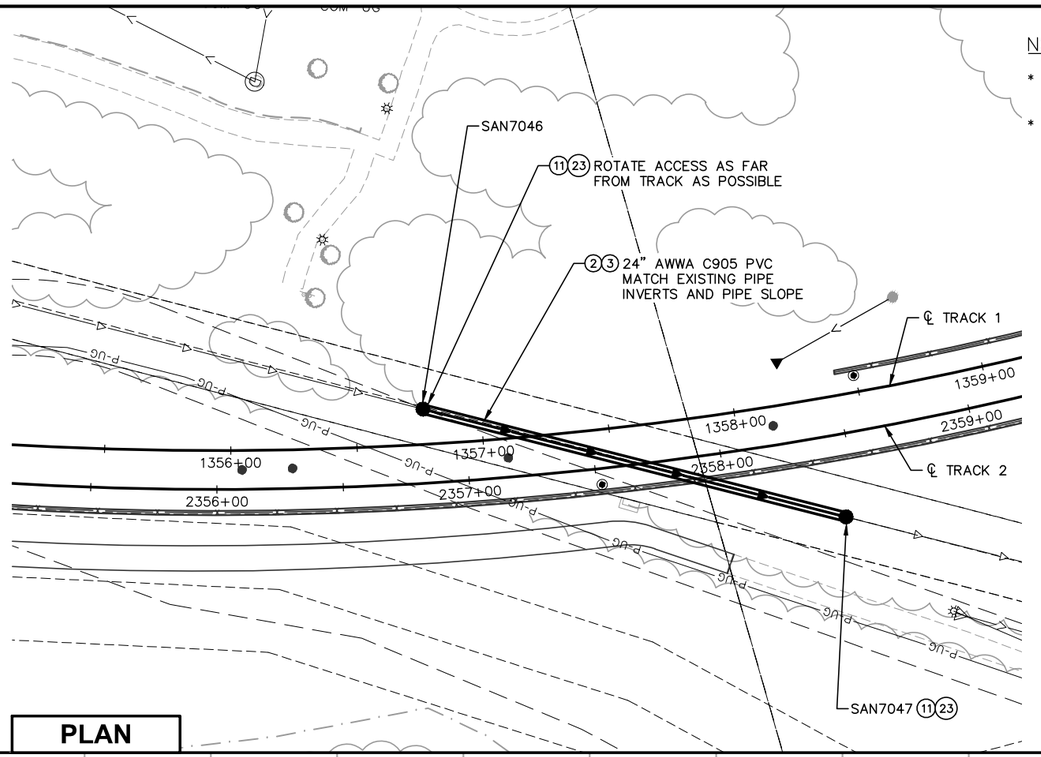
SHEET NAME: W3-UTL-PLN - 005

SHEET 52 OF 214

Jan, 18 2016 10:29 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR



REMOVALS

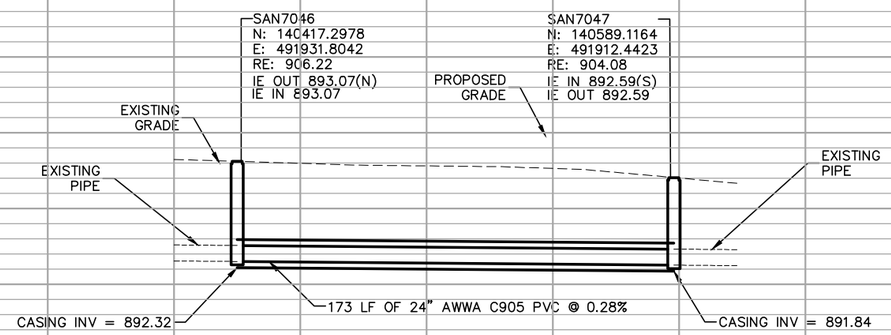


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY SEWER AT TRACK 2 STA 2357+67
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

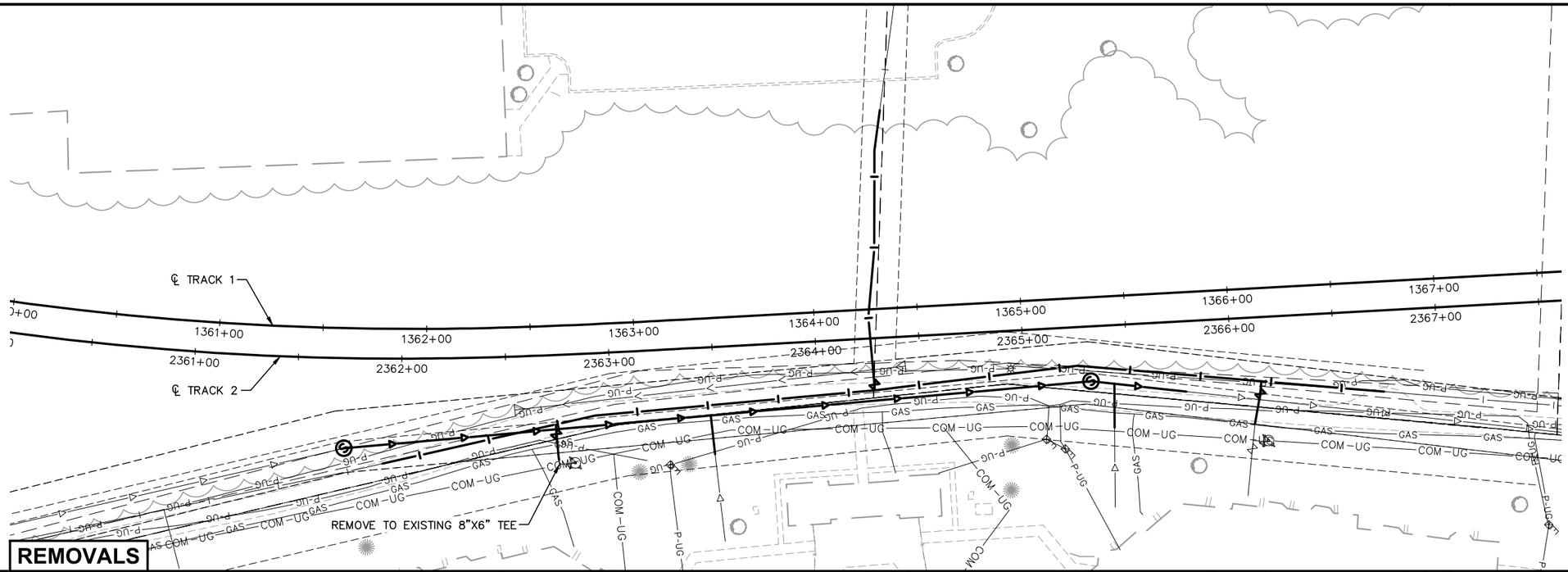
SHEET NAME: W3-UTL-PLN - 007

SHEET 54 OF 214

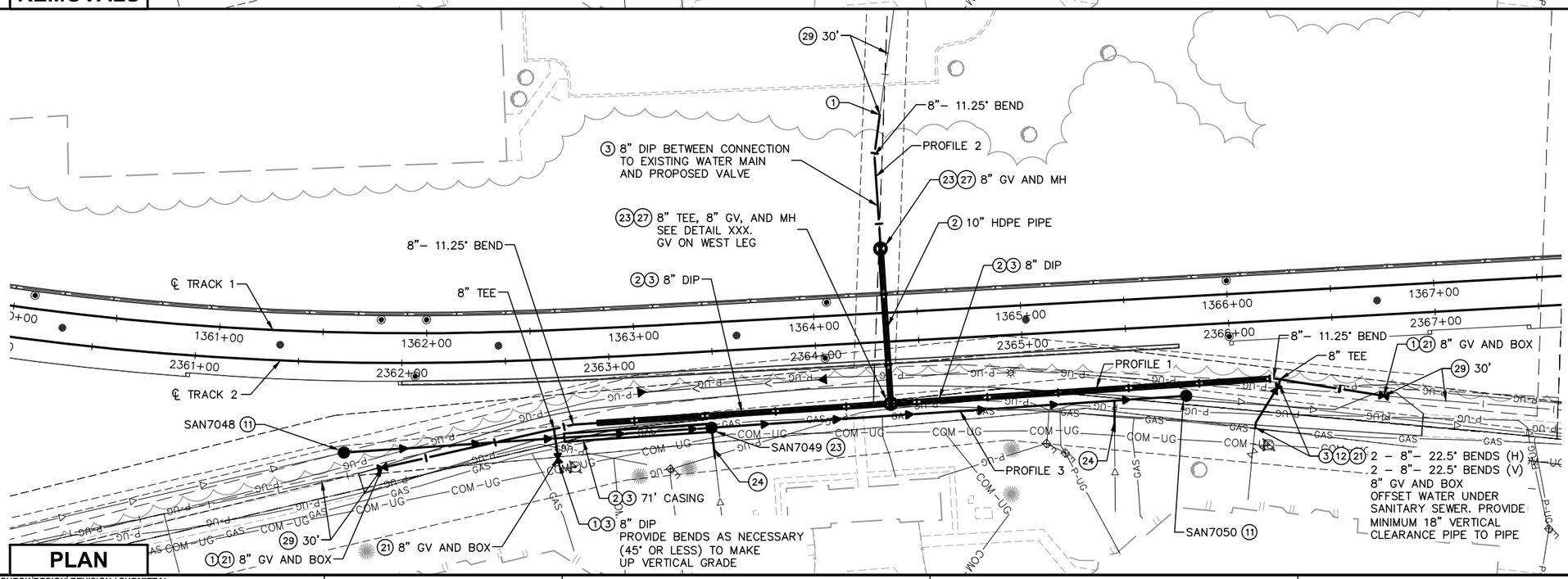
Jan, 18 2016 10:31 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



REMOVALS



PLAN

HORIZONTAL SCALE IN FEET: 0 15 30 60

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
OPUS HILL 1 OF 2
REMOVALS AND PLAN

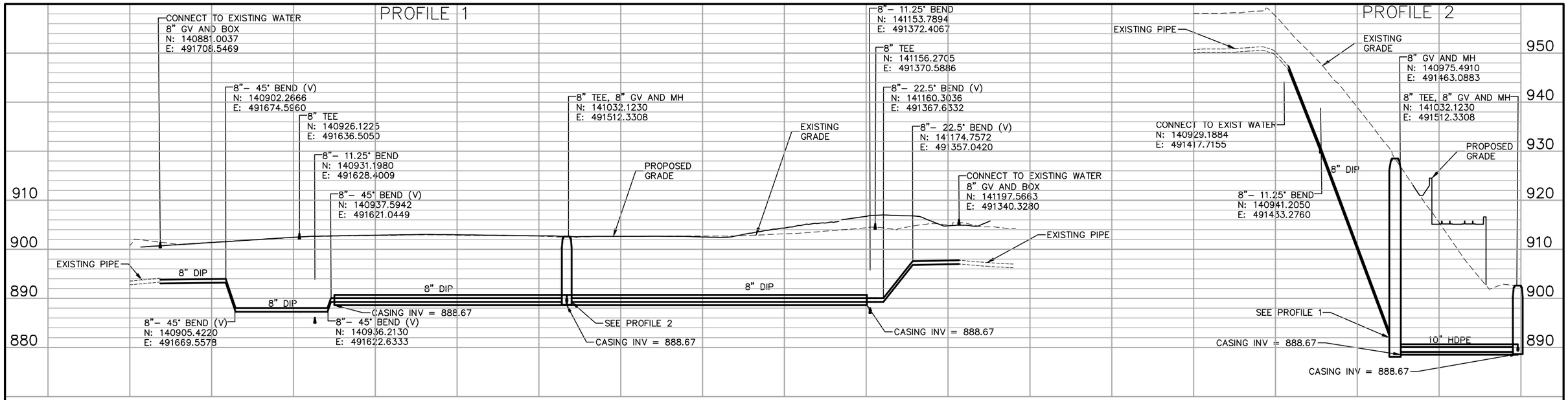
DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 008

SHEET 55 OF 214

Jan, 18 2016 10:32 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

PROFILE 1



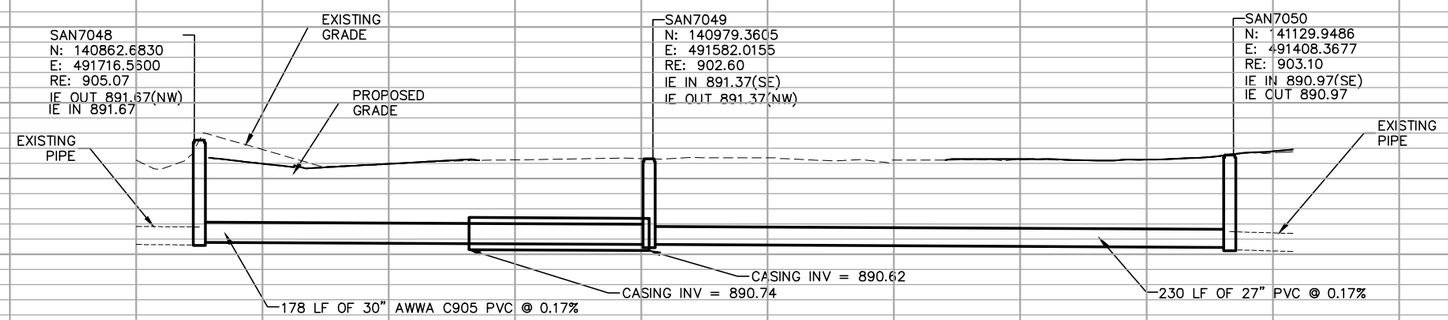
PROFILE 2

0 5 10 20 VERTICAL

0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

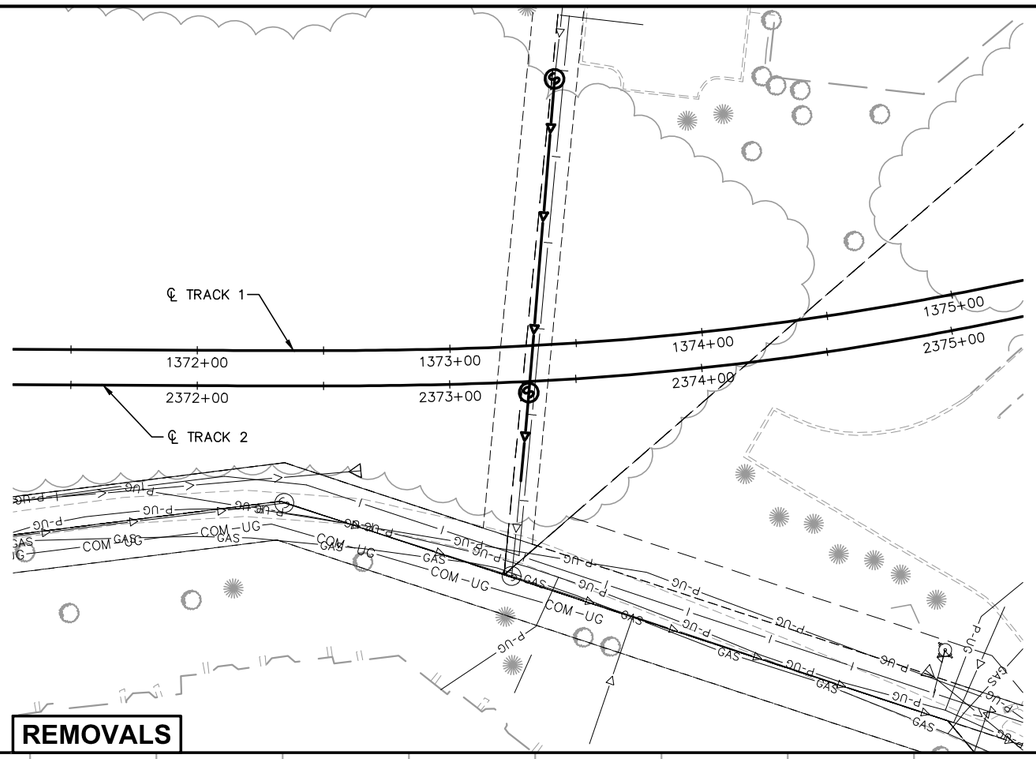
CIVIL - VOLUME 7
UTILITIES
OPUS HILL 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

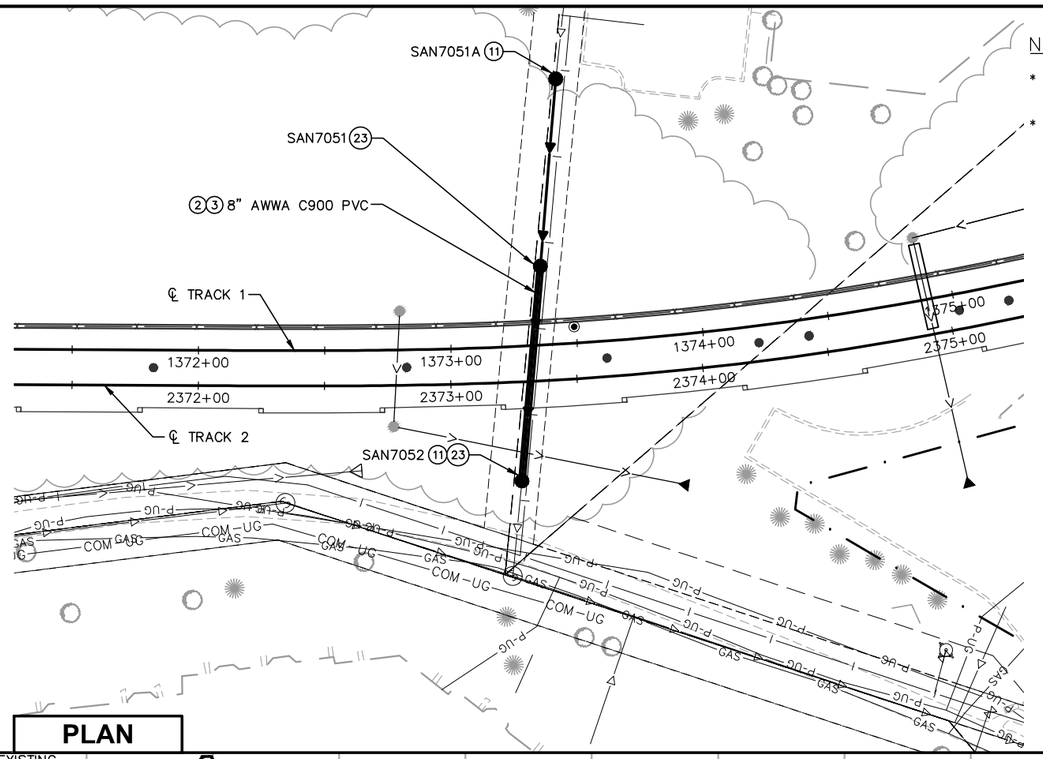
SHEET NAME: W3-UTL-PLN - 009

SHEET 56 OF 214

Jan, 18 2016 10:32 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR



REMOVALS

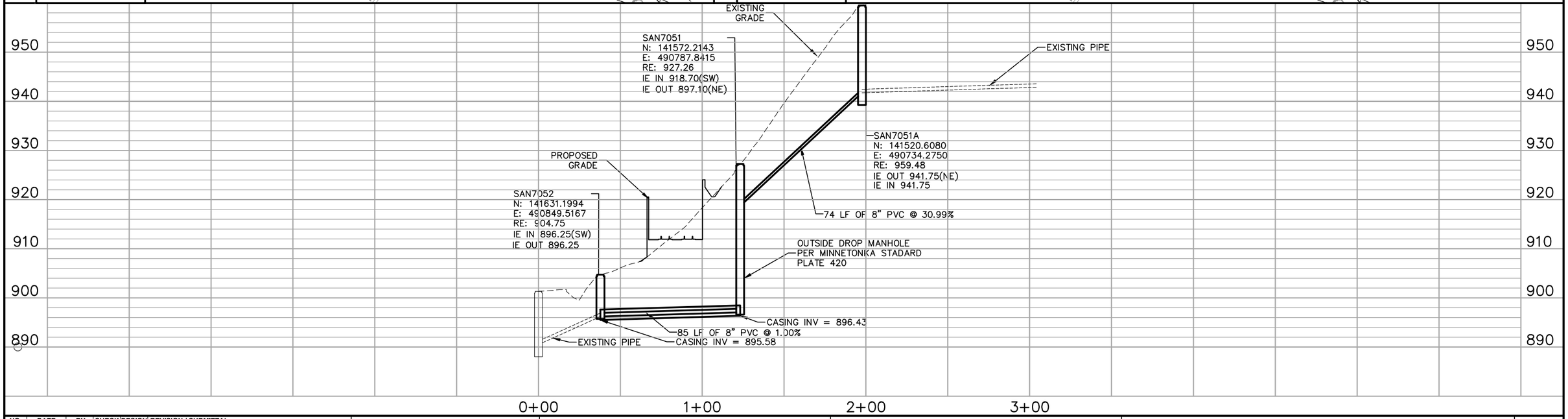


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY SEWER AT TRACK 2 STA 2373+31
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 010

SHEET 57 OF 214

Jan, 18 2016 10:34 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ FELTL RD

FELTL RD

LIVE SANITARY SERVICE. LOCATION AND CONTINUATION UNKNOWN. FIELD VERIFY LOCATION AND MAINTAIN SERVICE

DEER RIDGE LN

NOLAN DR

℄ TRACK 1

℄ TRACK 2

℄ SMETANA RD

SMETANA RD

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

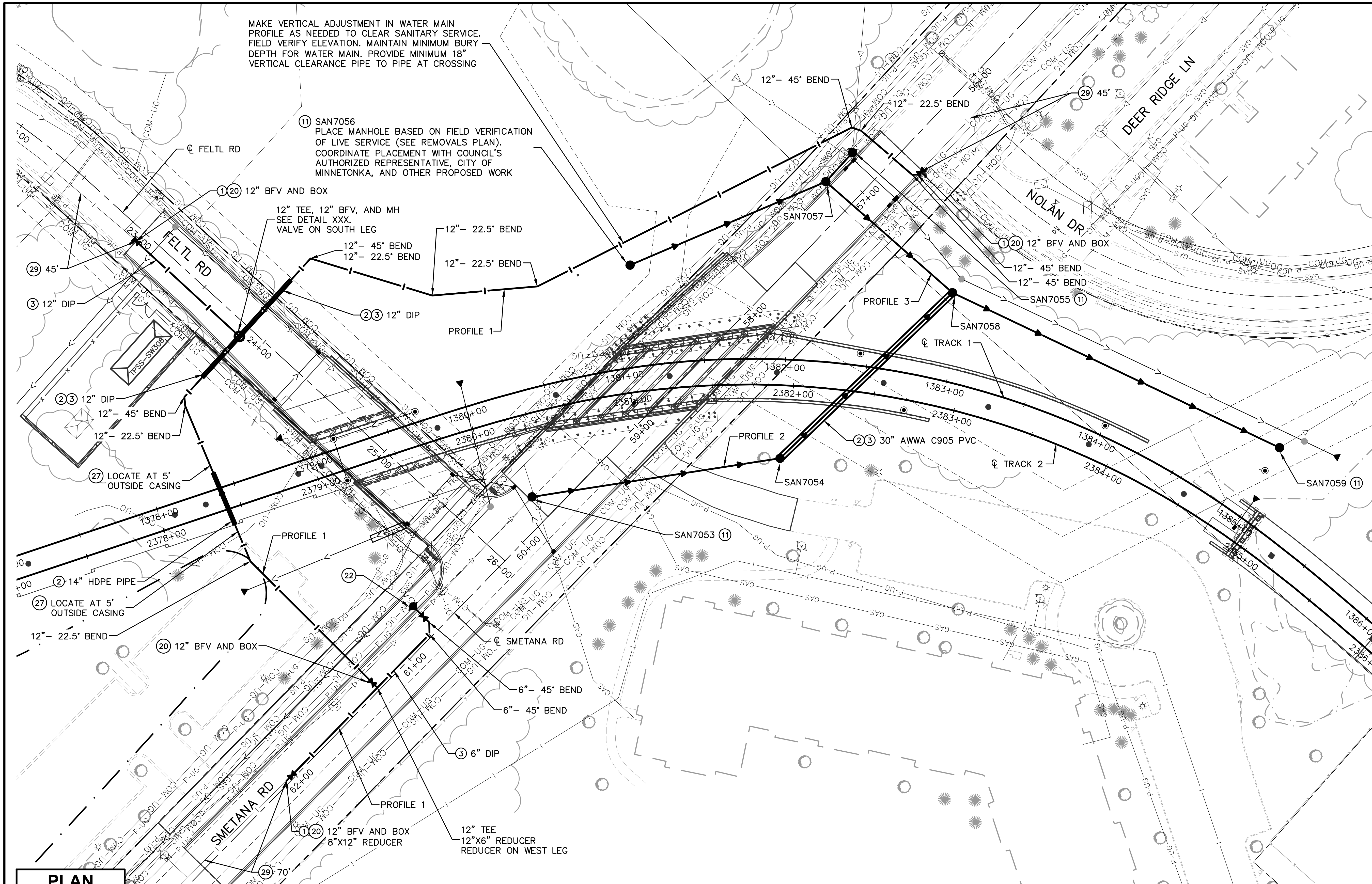
CIVIL - VOLUME 7
UTILITIES
FELTL RD / SMETANA RD 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 011

SHEET 58 OF 214

Jan, 18 2016 10:34 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-Youngb.JR



MAKE VERTICAL ADJUSTMENT IN WATER MAIN PROFILE AS NEEDED TO CLEAR SANITARY SERVICE. FIELD VERIFY ELEVATION. MAINTAIN MINIMUM BURY DEPTH FOR WATER MAIN. PROVIDE MINIMUM 18" VERTICAL CLEARANCE PIPE TO PIPE AT CROSSING
(11) SAN7056 PLACE MANHOLE BASED ON FIELD VERIFICATION OF LIVE SERVICE (SEE REMOVALS PLAN). COORDINATE PLACEMENT WITH COUNCIL'S AUTHORIZED REPRESENTATIVE, CITY OF MINNETONKA, AND OTHER PROPOSED WORK
℄ FELTL RD
(1)(20) 12" BFV AND BOX
12" TEE, 12" BFV, AND MH SEE DETAIL XXX. VALVE ON SOUTH LEG
12"– 45° BEND
12"– 22.5° BEND
12"– 22.5° BEND
12"– 22.5° BEND
PROFILE 1
(2)(3) 12" DIP
(29) 45'
(3) 12" DIP
FELTL RD
(2)(3) 12" DIP
12"– 45° BEND
12"– 22.5° BEND
(27) LOCATE AT 5' OUTSIDE CASING
PROFILE 1
(2) 14" HDPE PIPE
(27) LOCATE AT 5' OUTSIDE CASING
12"– 22.5° BEND
(20) 12" BFV AND BOX
(22)
℄ SMETANA RD
6"– 45° BEND
6"– 45° BEND
(3) 6" DIP
PROFILE 1
12" TEE 12"X6" REDUCER REDUCER ON WEST LEG
(1)(20) 12" BFV AND BOX 8"X12" REDUCER
(29) 70'
SMETANA RD
12"– 45° BEND
12"– 22.5° BEND
(29) 45'
DEER RIDGE LN
NOLAN DR
SAN7057
(1)(20) 12" BFV AND BOX
12"– 45° BEND
12"– 45° BEND
SAN7055 (11)
PROFILE 3
SAN7058
℄ TRACK 1
PROFILE 2
(2)(3) 30" AWWA C905 PVC
℄ TRACK 2
SAN7054
SAN7053 (11)
SAN7059 (11)
IPSS-SW308
0 15 30 60
HORIZONTAL SCALE IN FEET

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL — SOUTHWEST Green Line LRT Extension

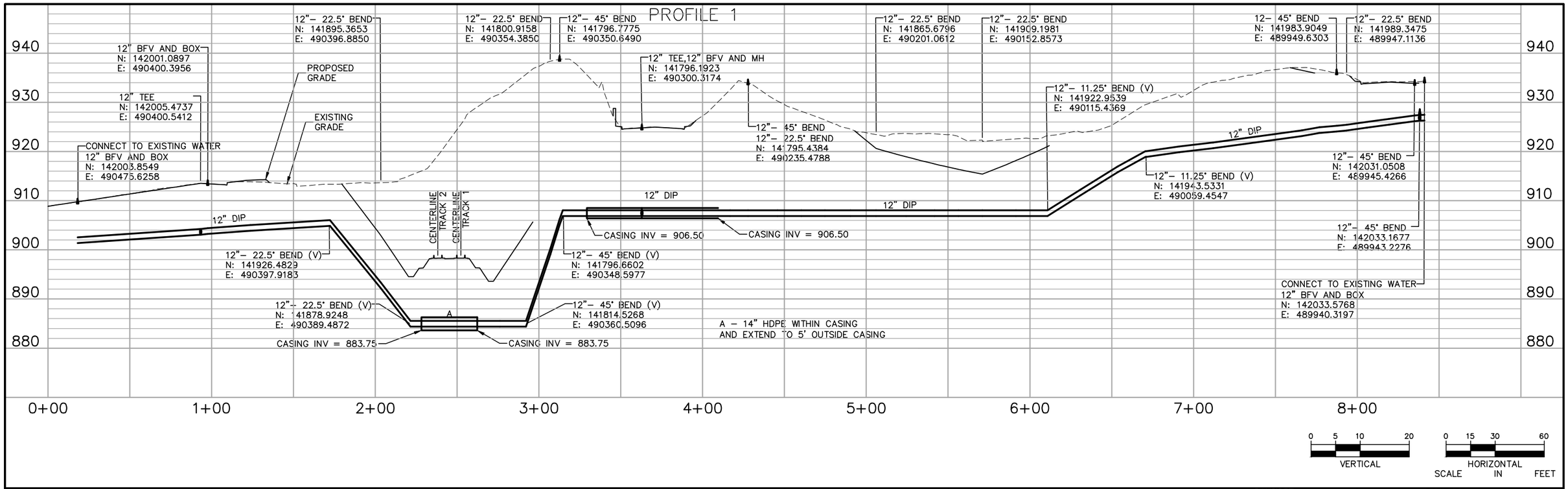
CIVIL - VOLUME 7
UTILITIES
FELTL RD / SMETANA RD 2 OF 3
PLAN

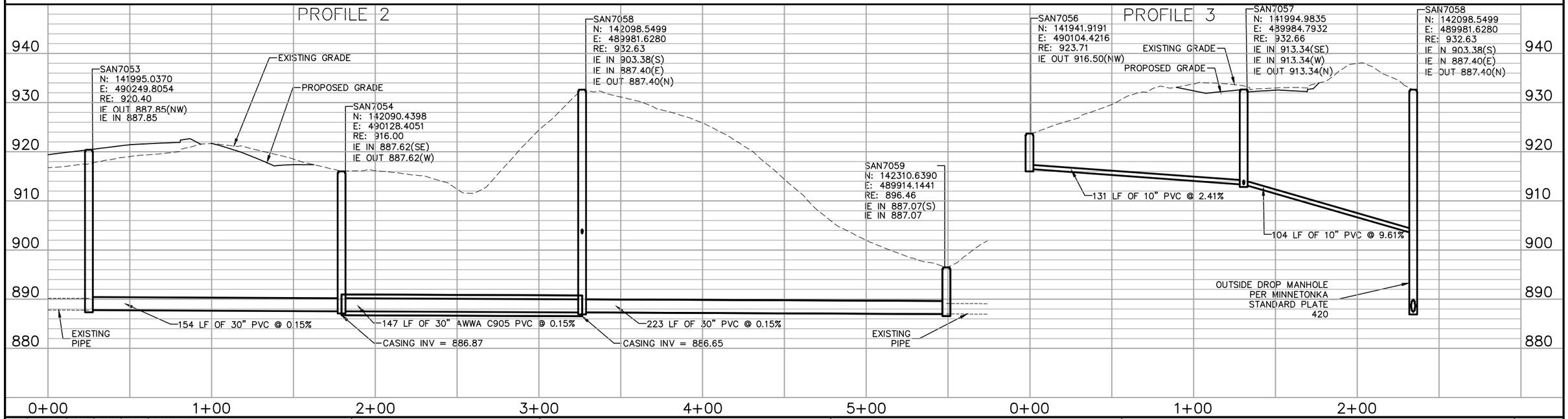
DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 012

SHEET 59 OF 214

Jan. 18 2016 10:35 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION 01/22/16

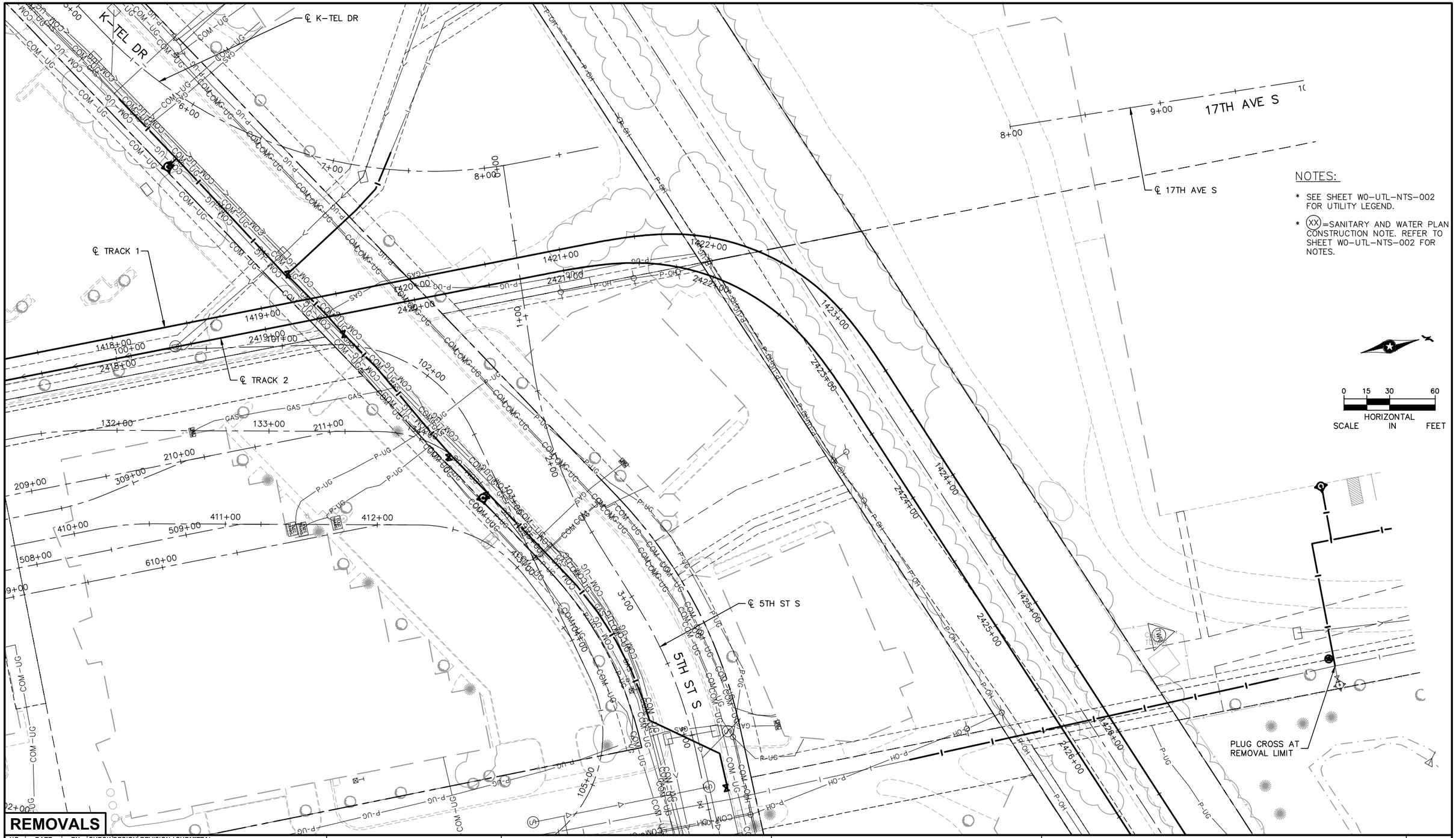
CIVIL - VOLUME 7
UTILITIES
FELTL RD / SMETANA RD 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 013

SHEET 60 OF 214

Jan, 18 2016 10:35 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-Youngb.JR



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SHADY OAK STATION 1 OF 6
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 014

SHEET 61 OF 214

Jan, 18 2016 10:36 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVE HYDRANT AND ASSOCIATED PIPING. LOCATION/EXTENTS OF PIPING UNKNOWN

REMOVE VALVE AND ASSOCIATED PIPING. LOCATION/EXTENTS OF PIPING UNKNOWN

REMOVE HYDRANT AND ASSOCIATED PIPING. LOCATION/EXTENTS OF PIPING UNKNOWN

REMOVE VALVE AND ASSOCIATED PIPING. LOCATION/EXTENTS OF PIPING UNKNOWN

CAP MAIN AT REMOVAL LIMIT

PLUG TEE AT REMOVAL LIMIT

℄ 17TH AVE S

℄ CSAH 3 (EXCELSIOR BLVD)

17TH AVE S

CSAH 3 (EXCELSIOR BLVD)

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 18+79 305+00 304+00 307+00 308+00

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SHADY OAK STATION 2 OF 6
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 015

SHEET 62 OF 214

Jan, 18 2016 10:37 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

K-TEL DR

℄ K-TEL DR

(1) 10"X8" REDUCER

8"X6" TEE

8"– 11.25° BEND

(21) 8" GV AND BOX

(29) 40'

(1)(21) 8" GV AND BOX

8"– 22.5° BEND

8"– 11.25° BEND

(22)

8" TEE

8"– 11.25° BEND

8" TEE
PLUG END

(21) 8" GV AND BOX

(27) LOCATE AT 5'
OUTSIDE CASING

℄ TRACK 1

(2) 10" HDPE PIPE

(27) LOCATE AT 5'
OUTSIDE CASING

(21) 8" GV AND BOX

℄ TRACK 2

8"X6" TEE

8"– 11.25° BEND

8"– 11.25° BEND

(22)

TPSS-SW300

PROFILE 1

8"– 22.5° BEND

℄ 5TH ST S

5TH ST S

8"– 45° BEND

8"– 45° BEND

(1)(21) 8" GV AND BOX

REFER TO OMF PACKAGE

(2)(3) 16" DIP

PROFILE 2

(29) 60'

(1)(10) 16" BFV AND BOX

SHADY OAK STATION

℄ 17TH AVE S

17TH AVE S

8"X6" TEE
PLUG END

(6)

8"– 22.5° BEND

(5)

TAP SERVICE AT MAIN PER
CITY OF HOPKINS STANDARDS

(7)

PROFILE 3

8"– 22.5° BEND

PLUG CROSS AT
REMOVAL LIMIT

8"X6" TEE

(6)

(29) 60'

(1)(10) 16" BFV AND BOX

16"X8" TEE

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) =SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL
SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SHADY OAK STATION 3 OF 6
PLAN

DISCIPLINE: UTILITIES

SHEET NAME: W3-UTL-PLN - 016

SHEET 63 OF 214

Jan, 18 2016 10:37 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

17TH AVE S

CSAH 3 (EXCELSIOR BLVD)

CAP MAIN AT REMOVAL LIMIT

℄ 17TH AVE S

℄ CSAH 3 (EXCELSIOR BLVD)

PLUG TEE AT REMOVAL LIMIT

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

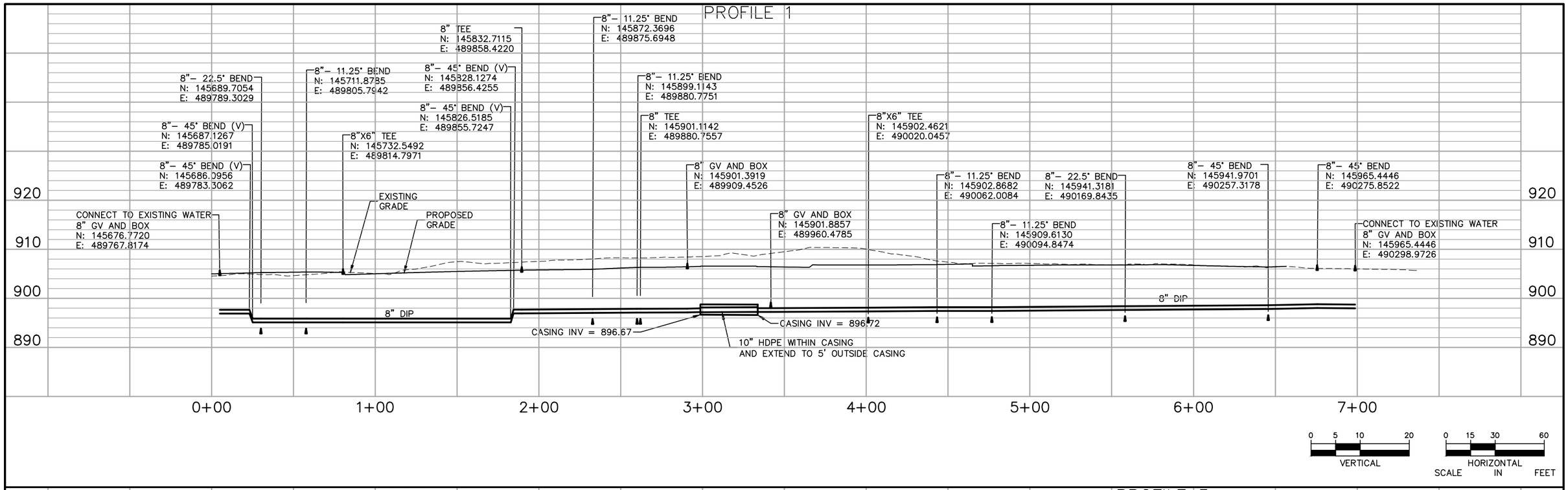
90% SUBMISSION 01/22/16

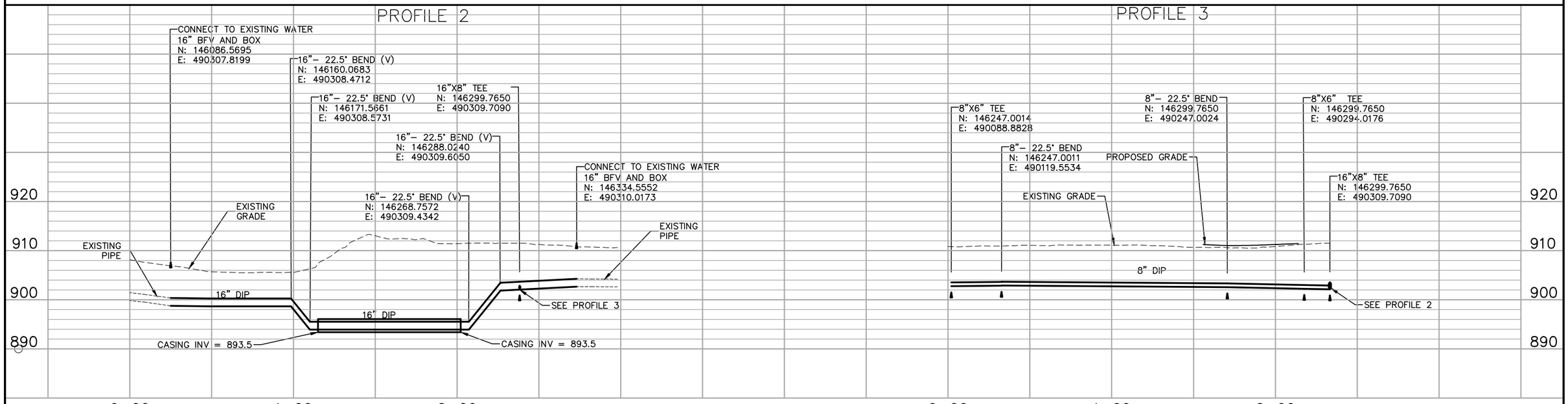
CIVIL - VOLUME 7
UTILITIES
SHADY OAK STATION 4 OF 6
PLAN

DISCIPLINE: UTILITIES
SHEET NAME: W3-UTL-PLN - 017

SHEET 64 OF 214

Jan. 18 2016 10:38 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-Youngb.JR





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

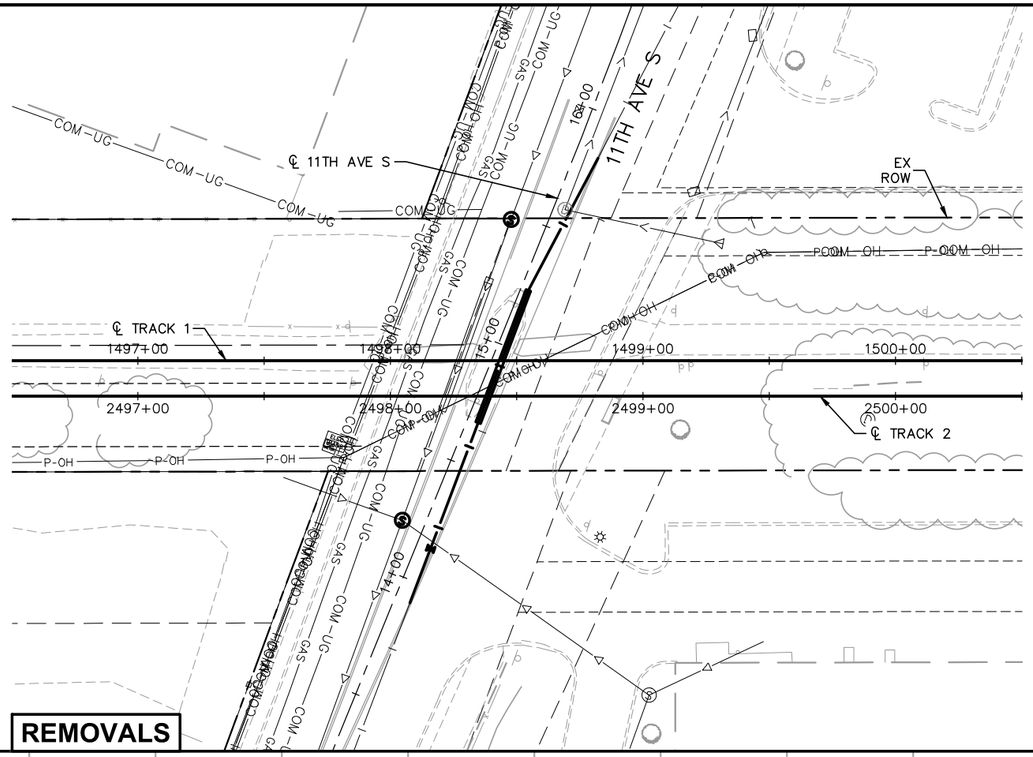
CIVIL - VOLUME 7
UTILITIES
SHADY OAK STATION 5 OF 6
PROFILES

DISCIPLINE: UTILITIES

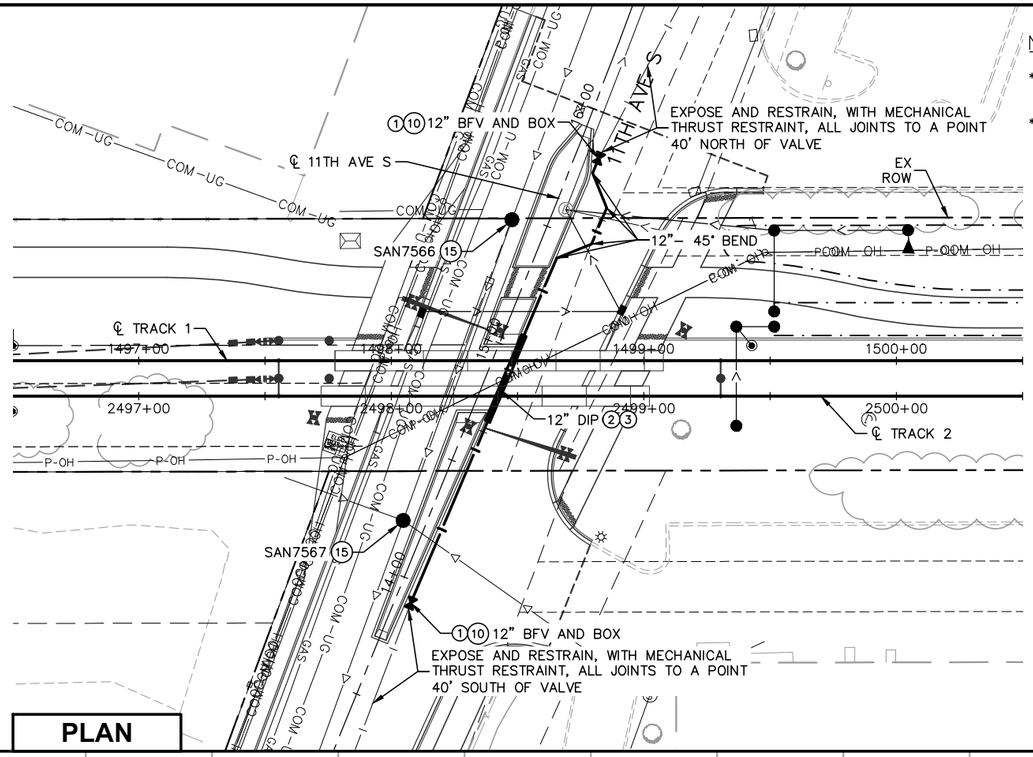
SHEET NAME: W3-UTL-PLN - 018

SHEET 65 OF 214

Jan, 18 2016 10:38 am V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: V-YoungbJR



REMOVALS

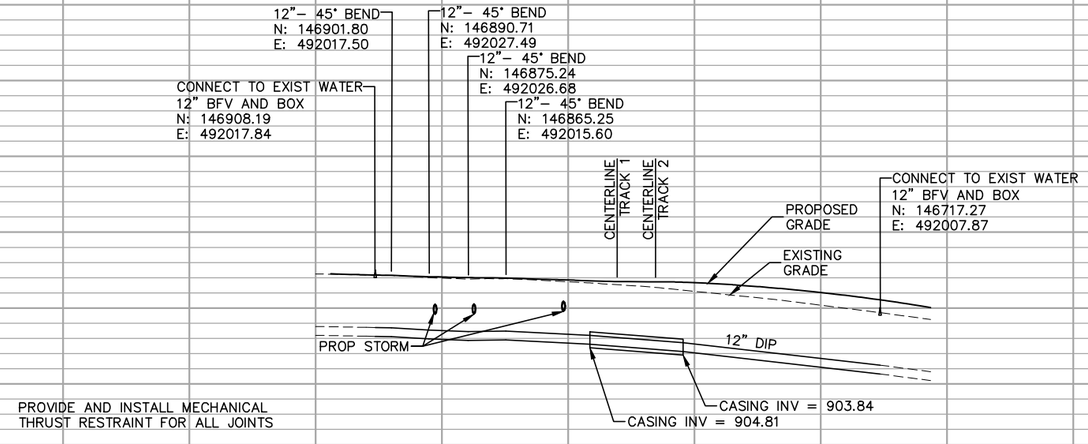


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

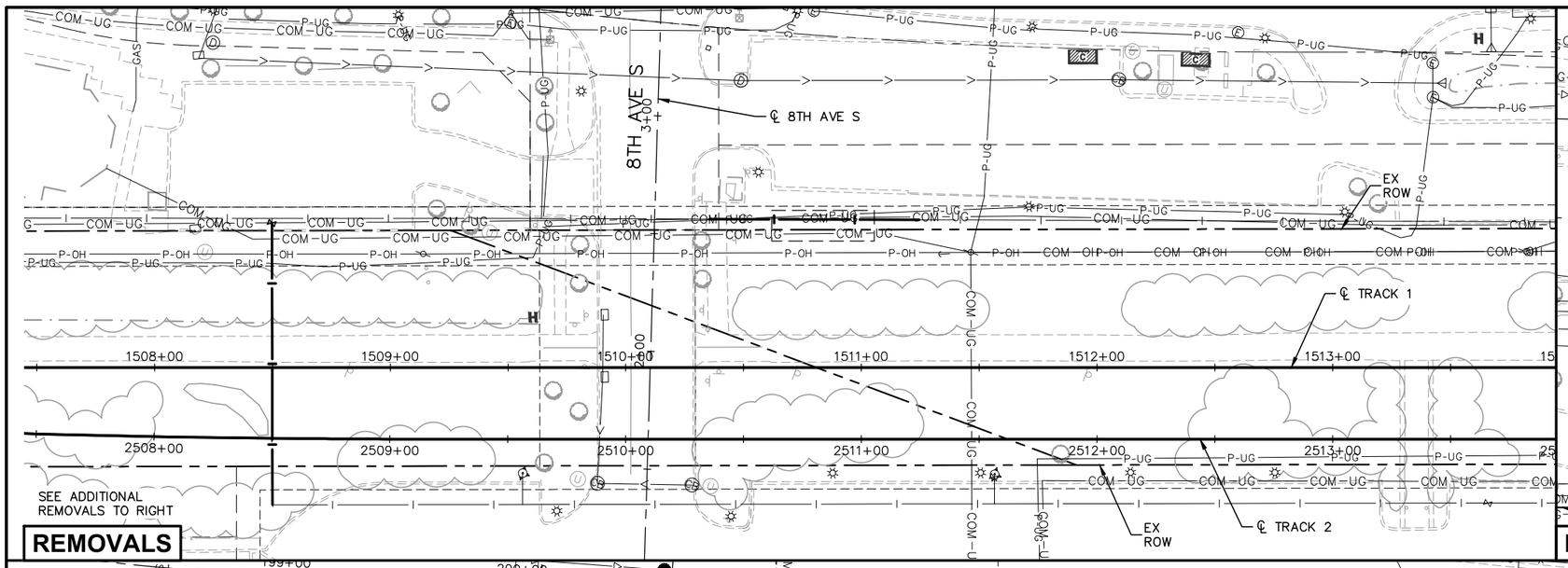
CIVIL - VOLUME 7
UTILITIES
11TH AVE S
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

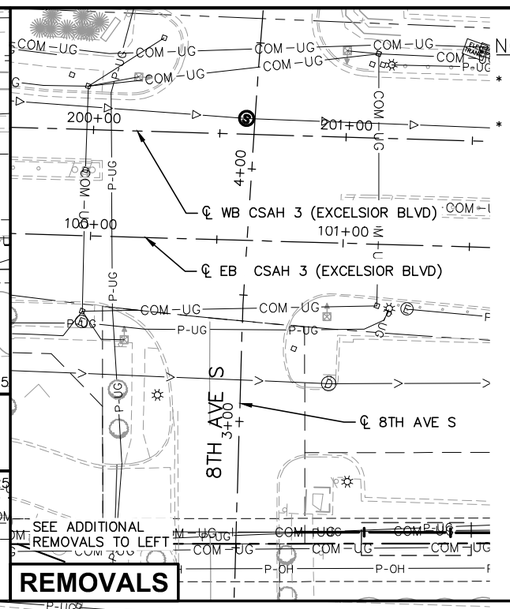
SHEET NAME: E1-UTL-PLN - 001

SHEET 67 OF 214

Jan, 18 2016 10:10 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MokiEM



REMOVALS

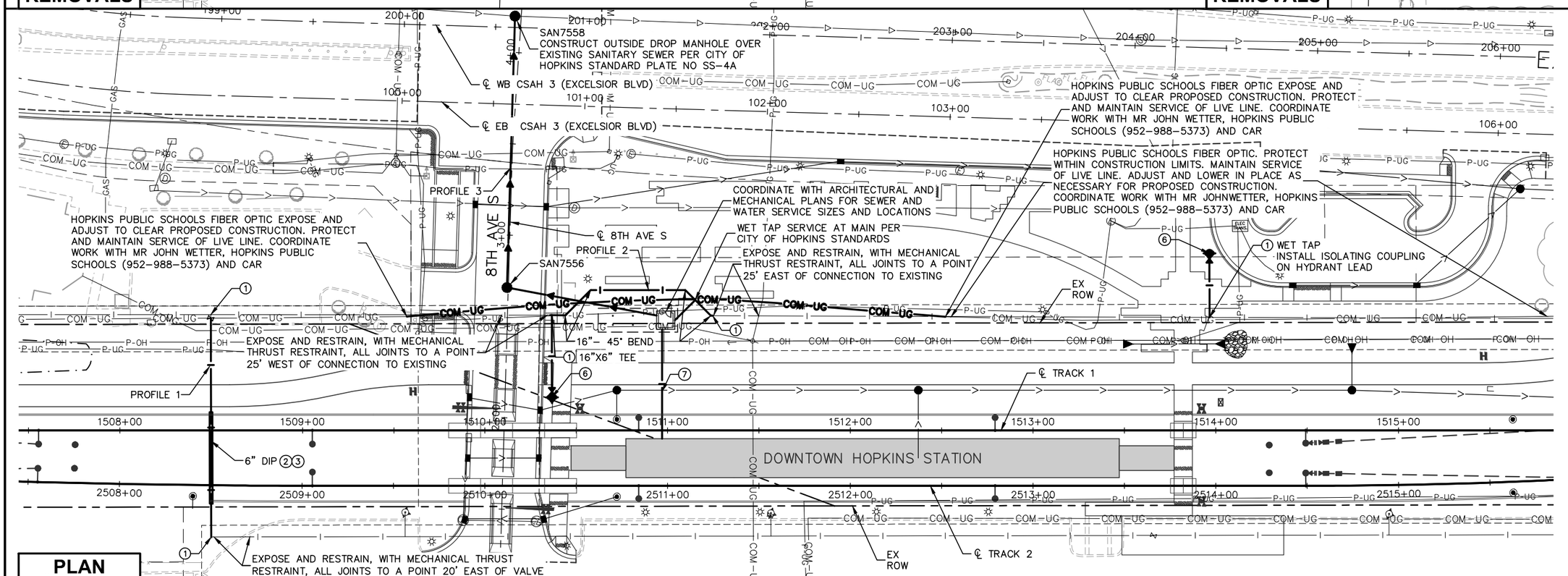


REMOVALS

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET



PLAN

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
HOPKINS STATION 1 OF 2
REMOVALS AND PLAN

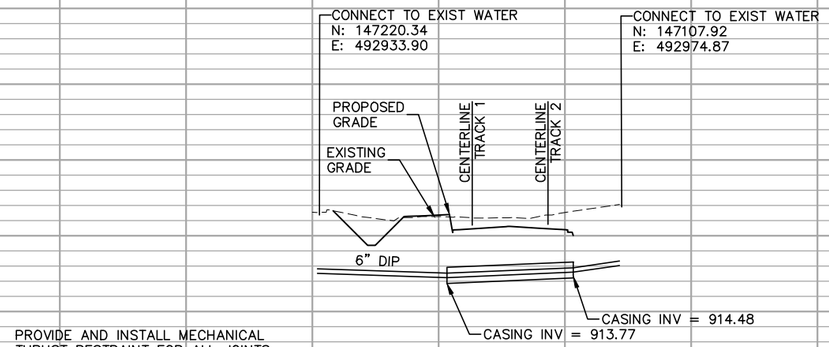
DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 002

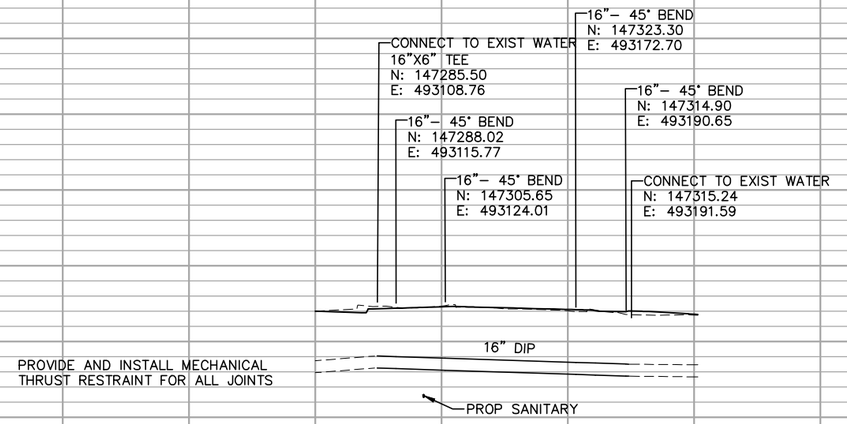
SHEET 68 OF 214

Jan, 18 2016 10:15 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM

PROFILE 1



PROFILE 2

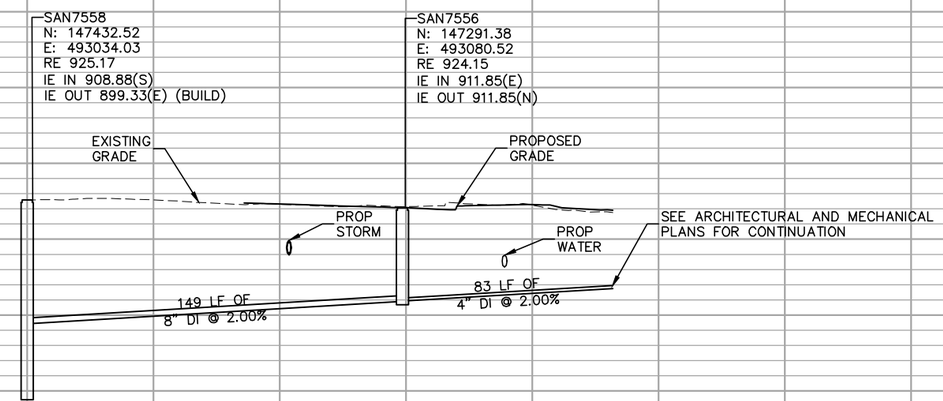


0 5 10 20 VERTICAL

0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
HOPKINS STATION 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 003

SHEET 69 OF 214

Jan, 18 2016 10:16 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM

REMOVALS

PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

HOPKINS PUBLIC SCHOOLS FIBER OPTIC. PROTECT WITHIN CONSTRUCTION LIMITS. MAINTAIN SERVICE OF LIVE LINE. ADJUST AND LOWER IN PLACE AS NECESSARY FOR PROPOSED CONSTRUCTION. COORDINATE WORK WITH MR JOHN WETTER, HOPKINS PUBLIC SCHOOLS (952-988-5373) AND CAR

EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 60' WEST OF VALVE

(1)(10) 16" BFV AND BOX

TPSS-SW310

PROFILE 1

PROFILE 2

PROFILE 3

16"- 22.5° BEND

EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 30' NORTH OF VALVE

(1)(4) 6" GV AND BOX

16"- 45° BEND

HOPKINS PUBLIC SCHOOLS FIBER OPTIC EXPOSE AND ADJUST TO CLEAR PROPOSED CONSTRUCTION. PROTECT AND MAINTAIN SERVICE OF LIVE LINE. COORDINATE WORK WITH MR JOHN WETTER, HOPKINS PUBLIC SCHOOLS (952-988-5373) AND CAR

(2)(3)(9) 14" DIP

(4) 6" GV AND BOX AND TEE

6"- 22.5° BEND

(2)(3) 6" DIP

(4) 6" GV AND BOX

(2)(3) 16" DIP

(1)(4) 6" GV AND BOX

(1)(10) 16" BFV AND BOX

EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 30' SOUTH OF VALVE

EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 55' SOUTH OF VALVE

EX ROW

℄ 5TH AVE S

℄ TRACK 1

℄ TRACK 2

12+00

1516+00 1517+00 1518+00 1519+00 1520+00 1521+00 1522+00 1523+00 1524+

2516+00 2517+00 2518+00 2519+00 2520+00 2521+00 2522+00 2523+00 2524+

N

0 15 30 60

HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

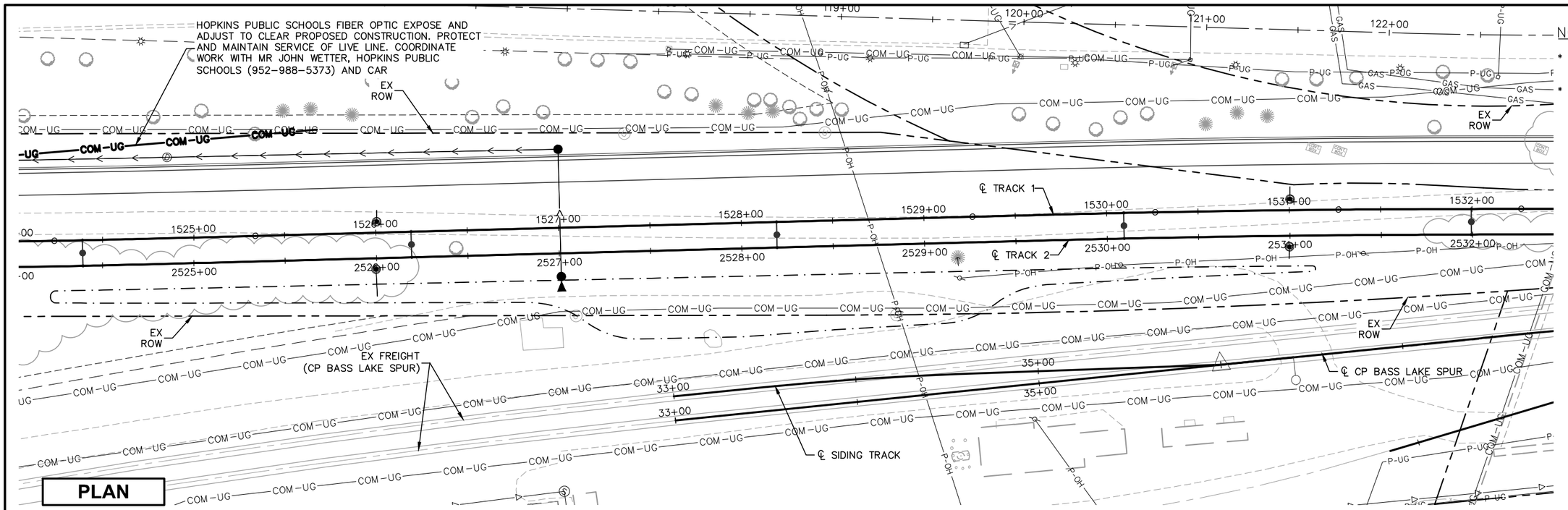
CIVIL - VOLUME 7
UTILITIES
5TH AVE S 1 OF 2
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 004

SHEET 70 OF 214

Jan. 18 2016 10:19 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MokiEM



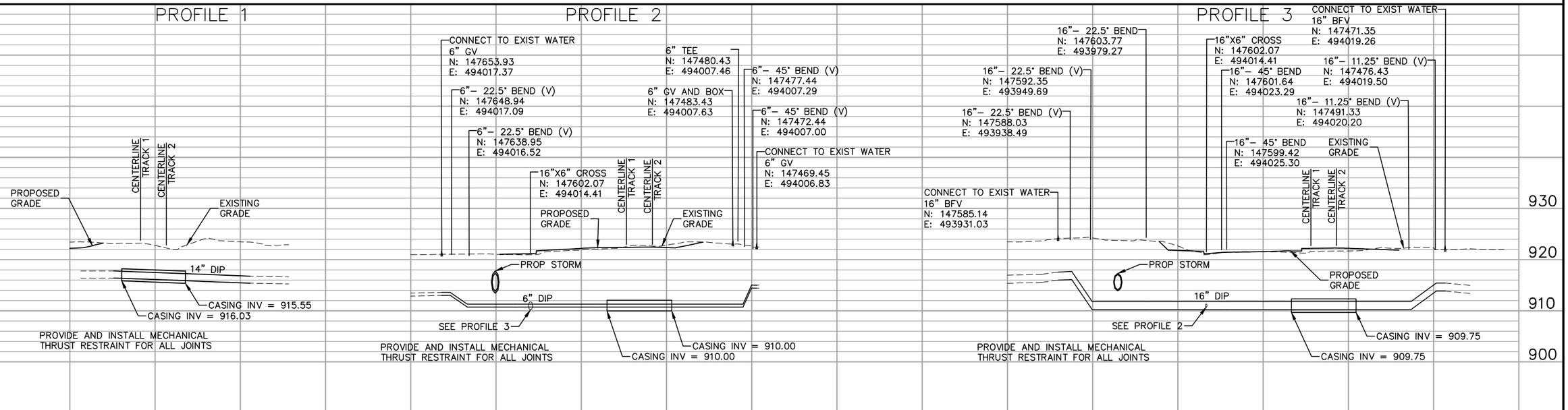
PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL

0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

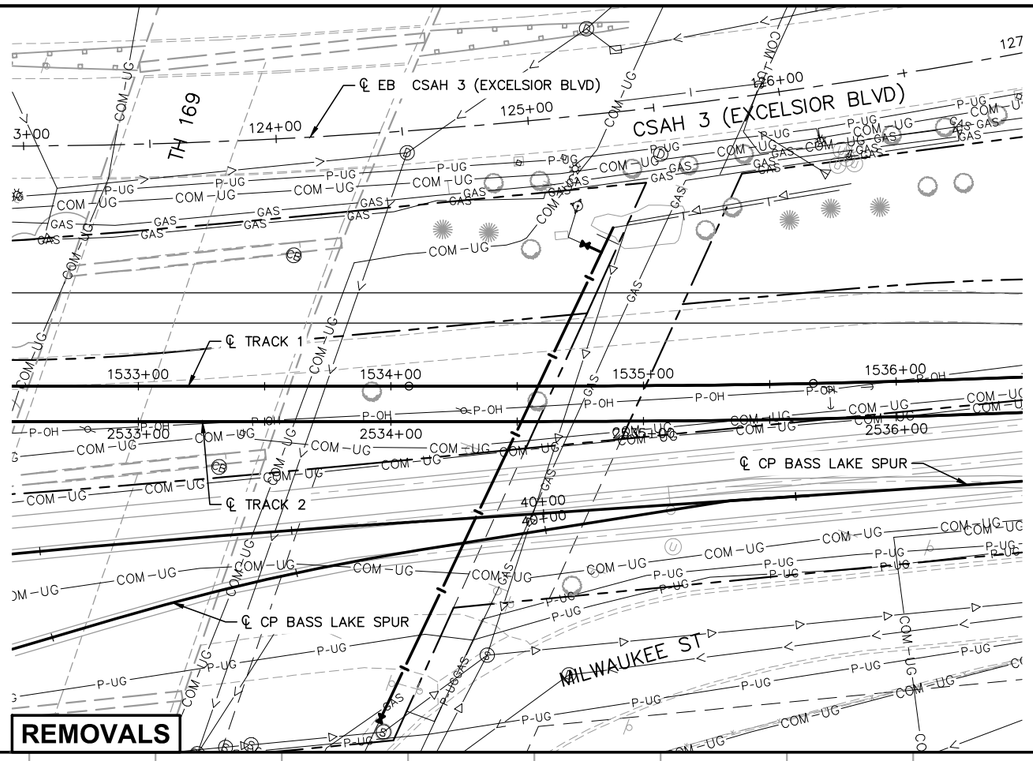
CIVIL - VOLUME 7
UTILITIES
5TH AVE S 2 OF 2
PLAN AND PROFILES

DISCIPLINE: UTILITIES

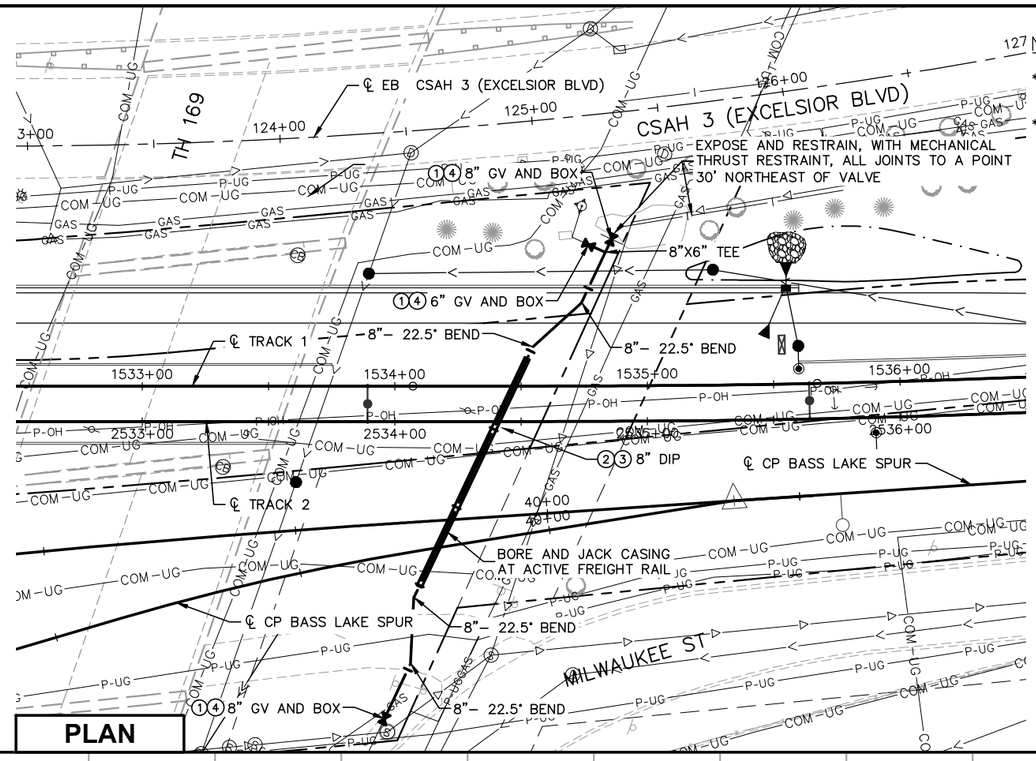
SHEET NAME: E1-UTL-PLN - 005

SHEET 71 OF 214

Jan, 18 2016 10:21 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM



REMOVALS

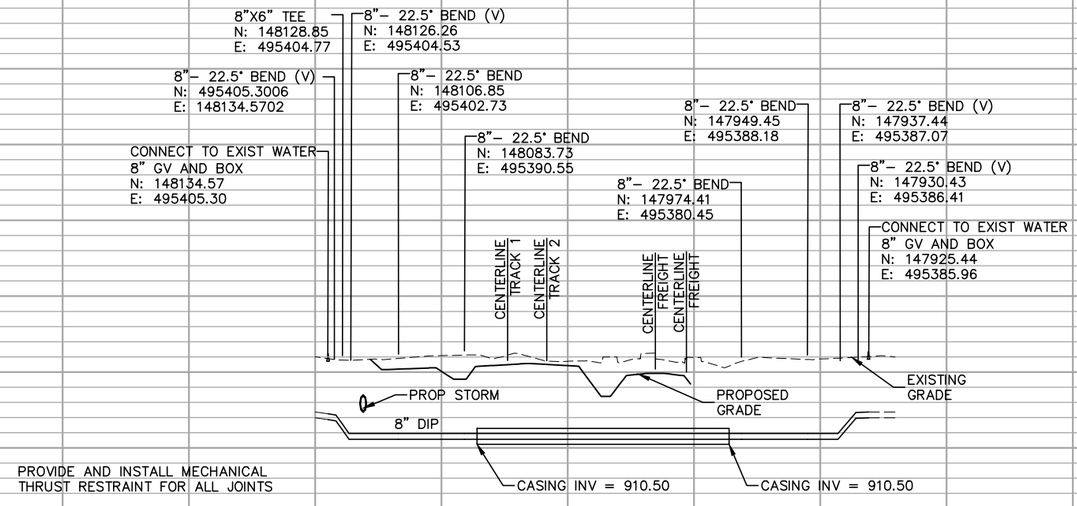


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

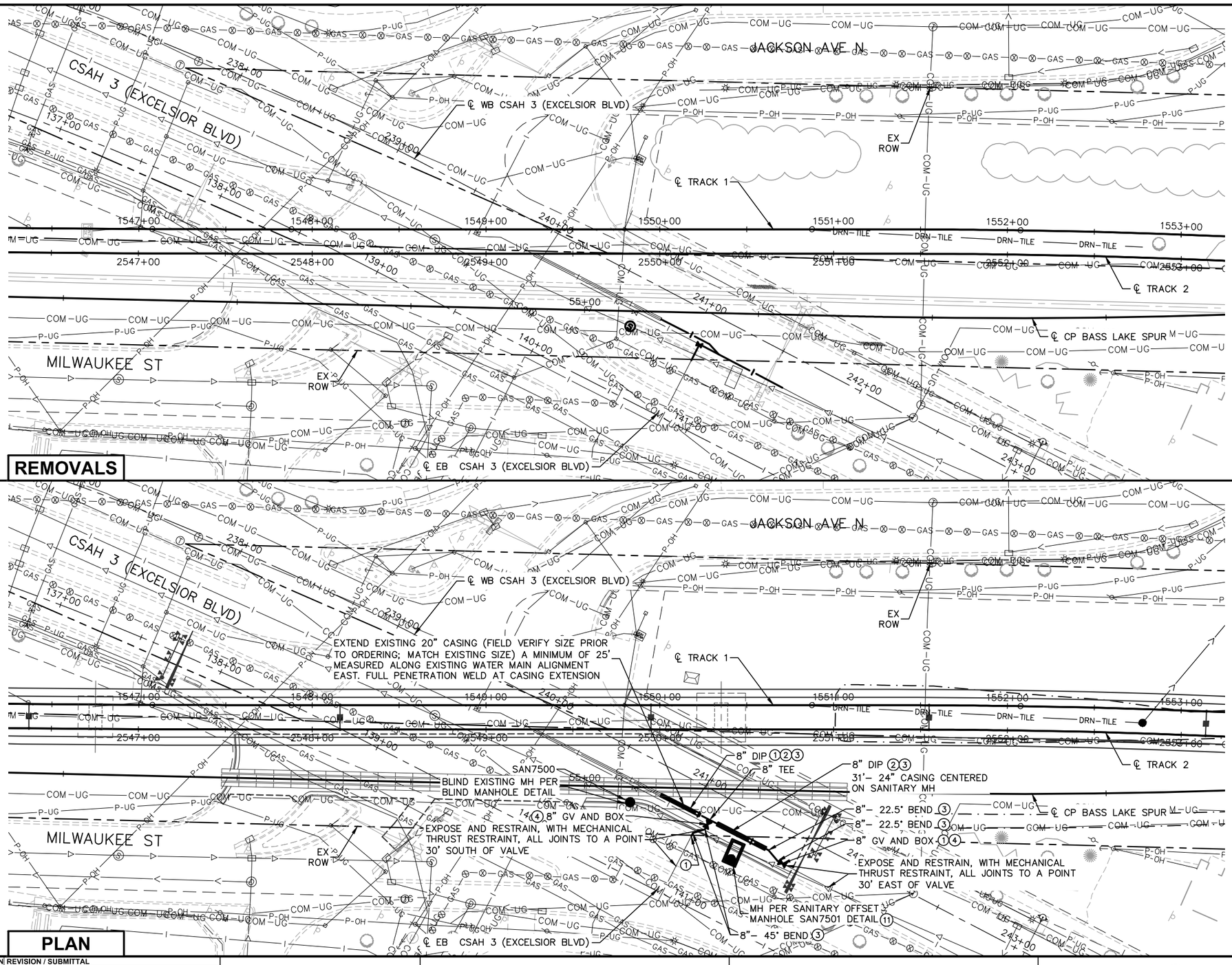
CIVIL - VOLUME 7
UTILITIES
TH 169
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 006

SHEET 72 OF 214

Jan, 18 2016 10:25 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MokiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

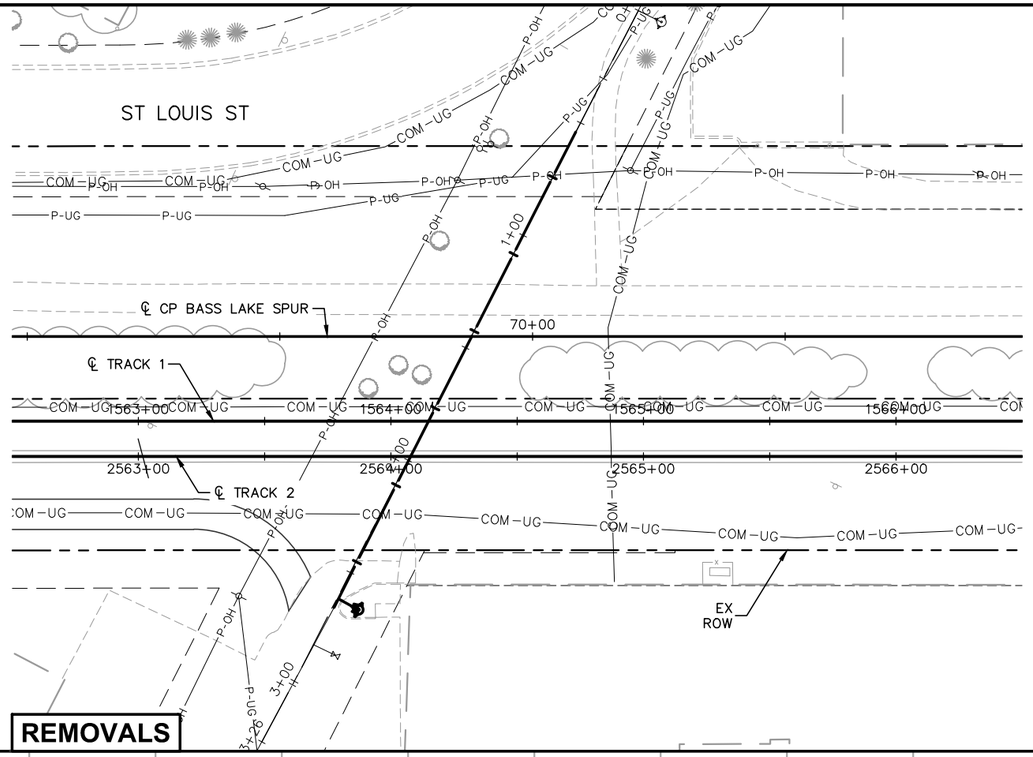
CIVIL - VOLUME 7
UTILITIES
EXCELSIOR BLVD
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

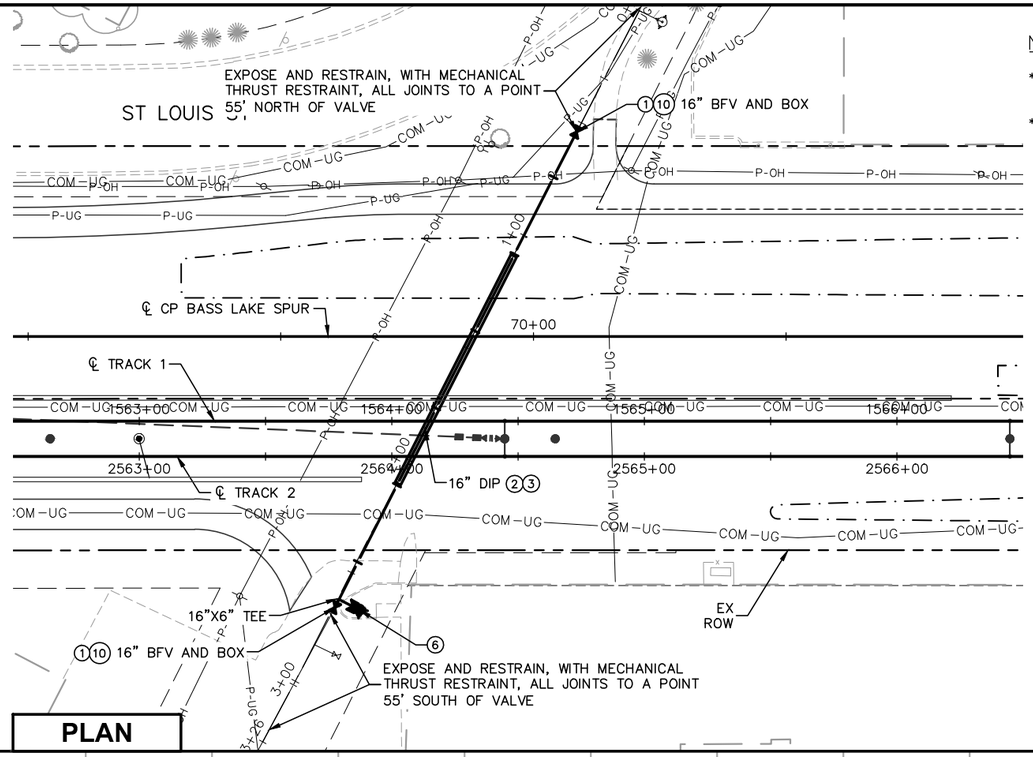
SHEET NAME: E1-UTL-PLN - 007

SHEET 73 OF 214

Jan, 18 2016 10:28 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM



REMOVALS

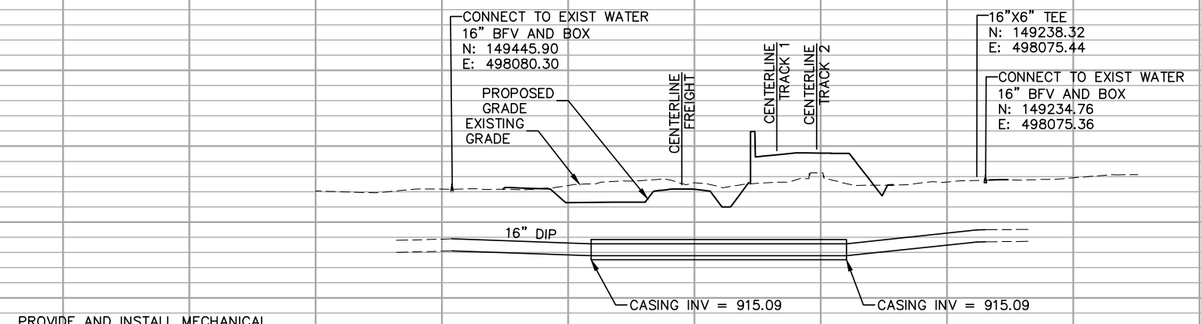


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
TYLER ST
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 008

SHEET 74 OF 214

Jan, 18 2016 10:31 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MokiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ TRACK 2
℄ TRACK 1
℄ CP BASS LAKE SPUR
℄ PIERCE AVE N
℄ CSAH 20 (BLAKE RD)
21+00 PIERCE AVE N
EX ROW
SANITARY SEWER REMOVALS (BY OTHERS)
CSAH 20 (BLAKE RD)

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
BLAKE STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES
SHEET NAME: E1-UTL-PLN - 009

SHEET 75 OF 214

Jan, 18 2016 12:27 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

℄ TRACK 2
℄ TRACK 1
℄ CP BASS LAKE SPUR
℄ PIERCE AVE N
℄ CSAH 20 (BLAKE RD)
PIERCE AVE N
BLAKE STATION
COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS FOR SEWER AND WATER SERVICE SIZES AND LOCATIONS
34'- 4" DIP @ 2.0%
SAN7552
PROFILE 2
8"- 45° BEND
6"- 45° BEND
8"X6" REDUCER
⑥ 8"X6" TEE
8"- 22.5° BEND
8" TEE
TAP SERVICE AT MAIN PER CITY OF HOPKINS STANDARDS
PROFILE 3
EX ROW
8"- 45° BEND
8"- 45° BEND
① 8"X6" REDUCER
8"X6" TEE
EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 60' SOUTH OF VALVE
⑪ SAN7553
12"X8" TEE
8"- 45° BEND
① 12"X8" REDUCER
12"- 22.5° BEND
⑩ 12" BFV AND BOX
8" GV AND BOX ④
12"- 22.5° BEND
② ③ 12" DIP
SANITARY SEWER RECONSTRUCTION (BY OTHERS)
① 12"X8" REDUCER
12"- 45° BEND
PROFILE 1
CSAH 20 (BLAKE RD)
EXPOSE AND RESTRAIN, WITH MECHANICAL THRUST RESTRAINT, ALL JOINTS TO A POINT 60' NORTH OF VALVE
12" BFV AND BOX ⑩

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

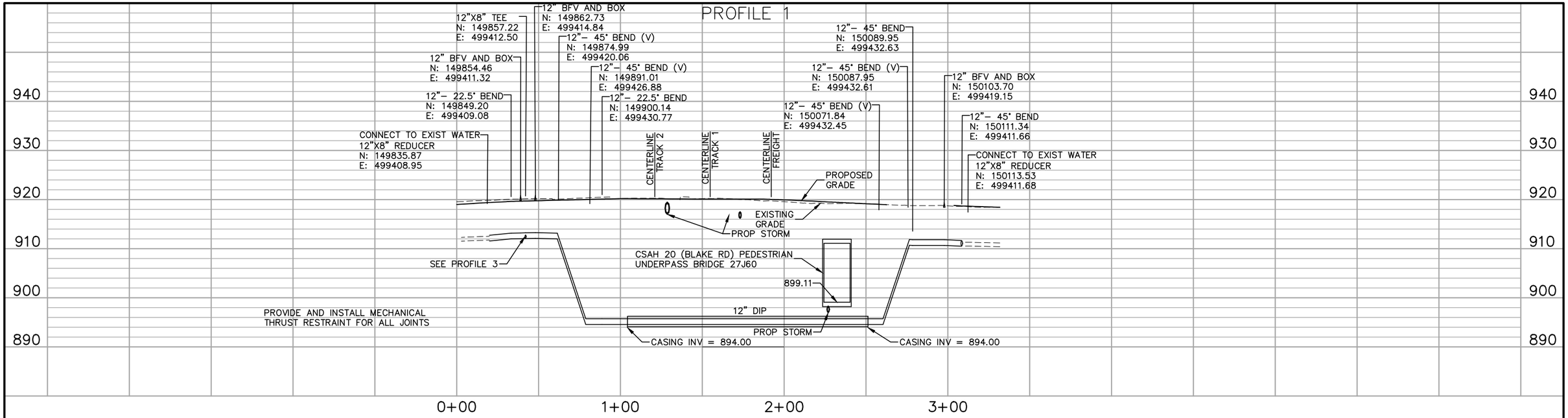
CIVIL - VOLUME 7
UTILITIES
BLAKE STATION 2 OF 3
PLAN

DISCIPLINE: UTILITIES
SHEET NAME: E1-UTL-PLN - 010

SHEET 76 OF 214

Jan, 18 2016 12:29 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM

PROFILE 1

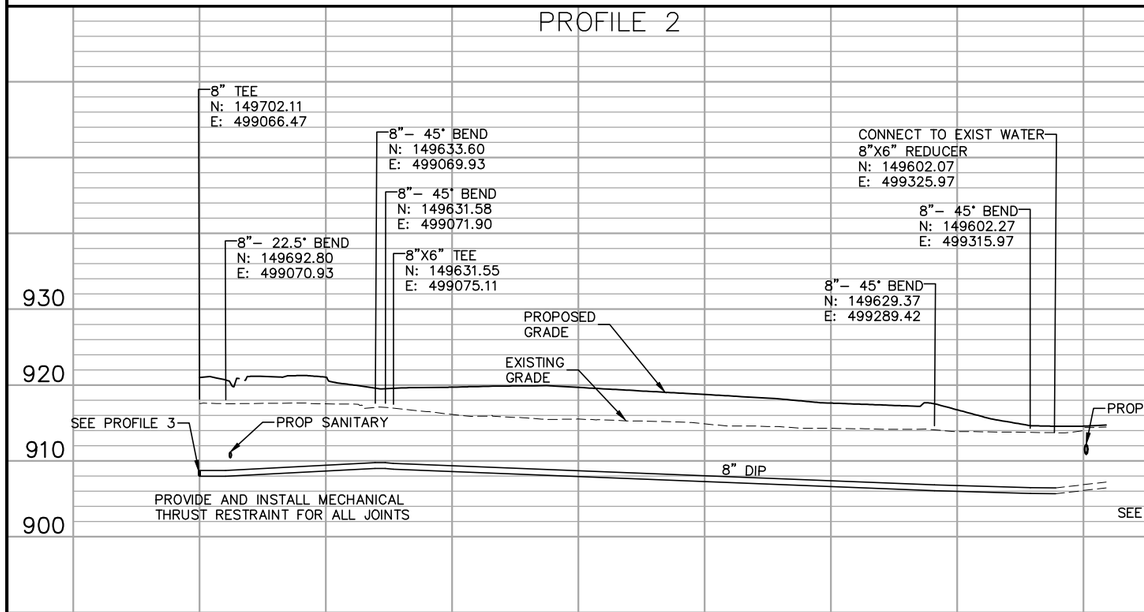


0 5 10 20 VERTICAL

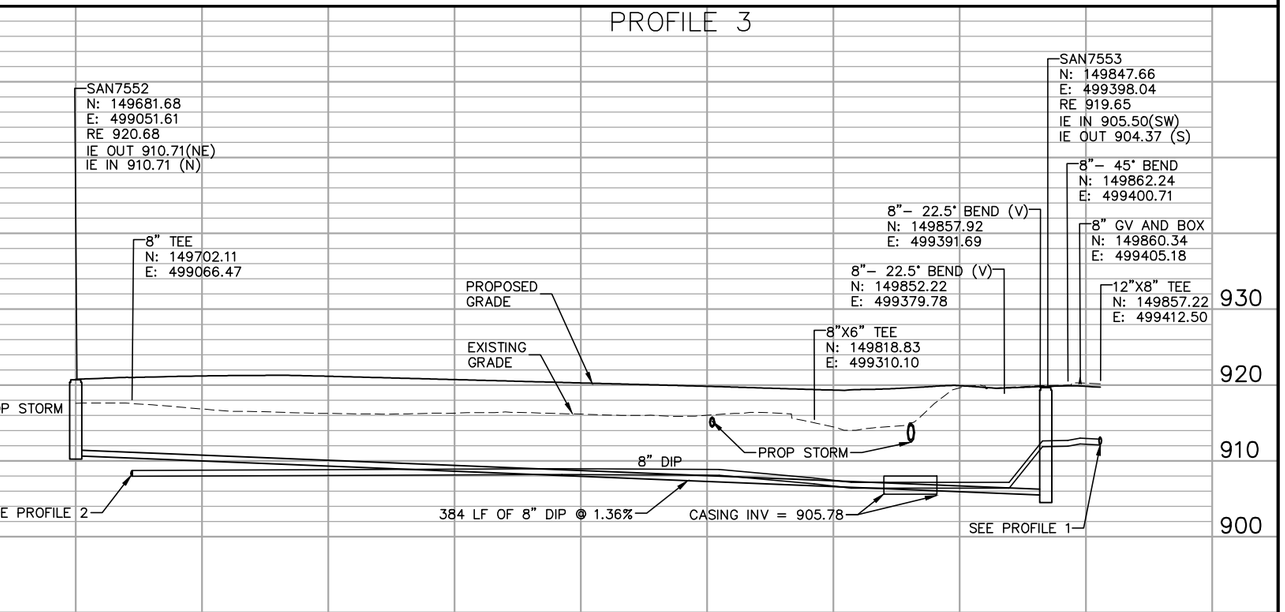
0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 2



PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL- VOLUME 7
UTILITIES
BLAKE STATION 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

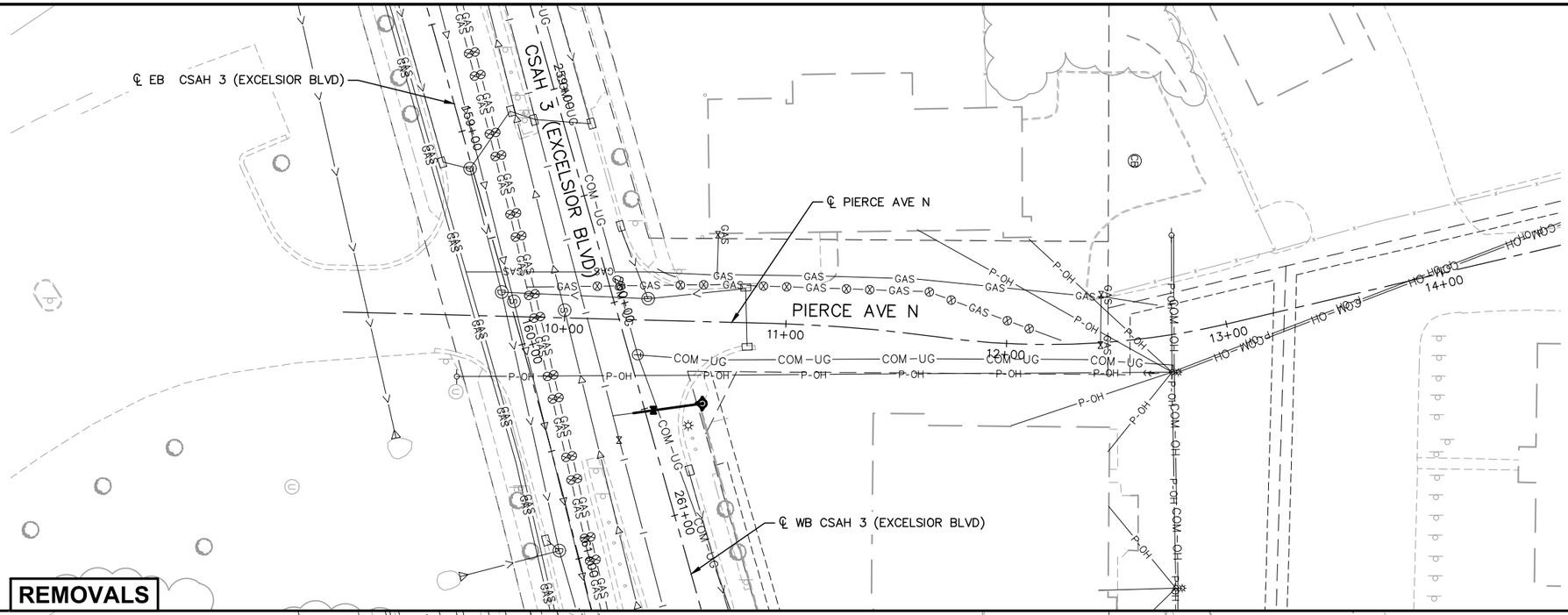
SHEET NAME: E1-UTL-PLN - 011

SHEET 77 OF 214

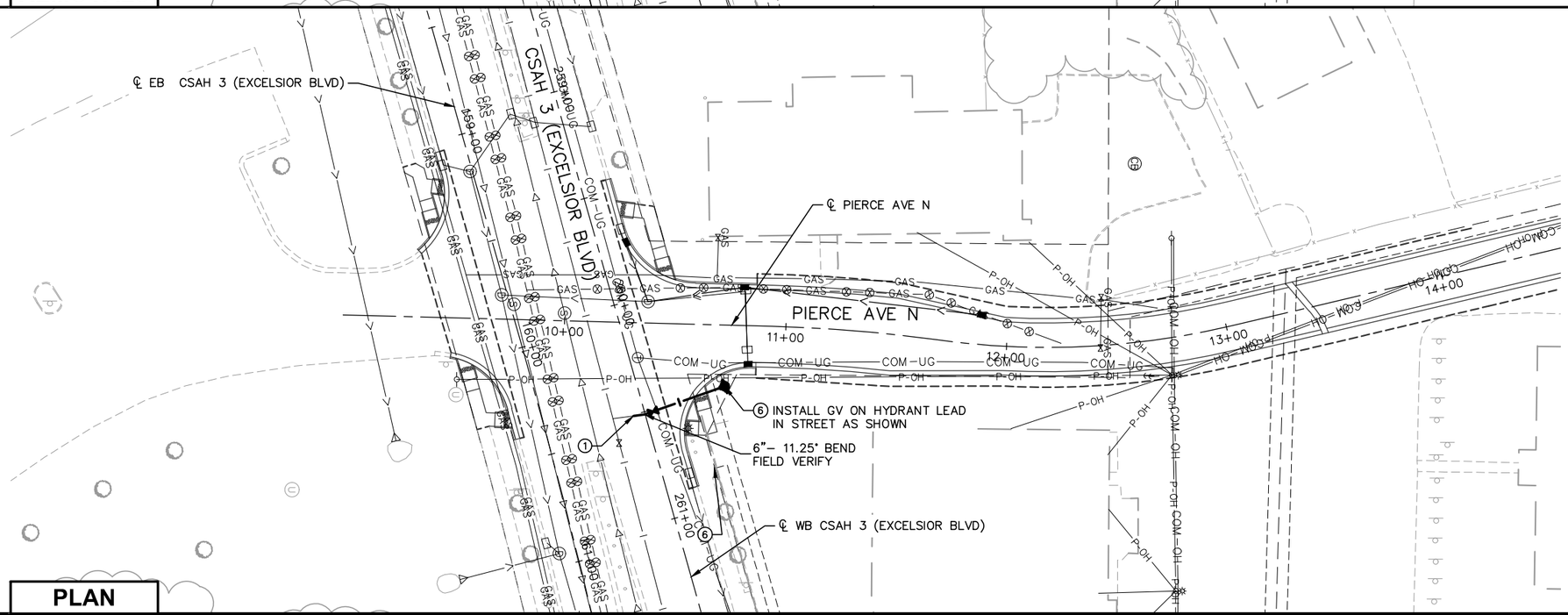
Jan, 18 2016 10:36 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



REMOVALS



PLAN

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

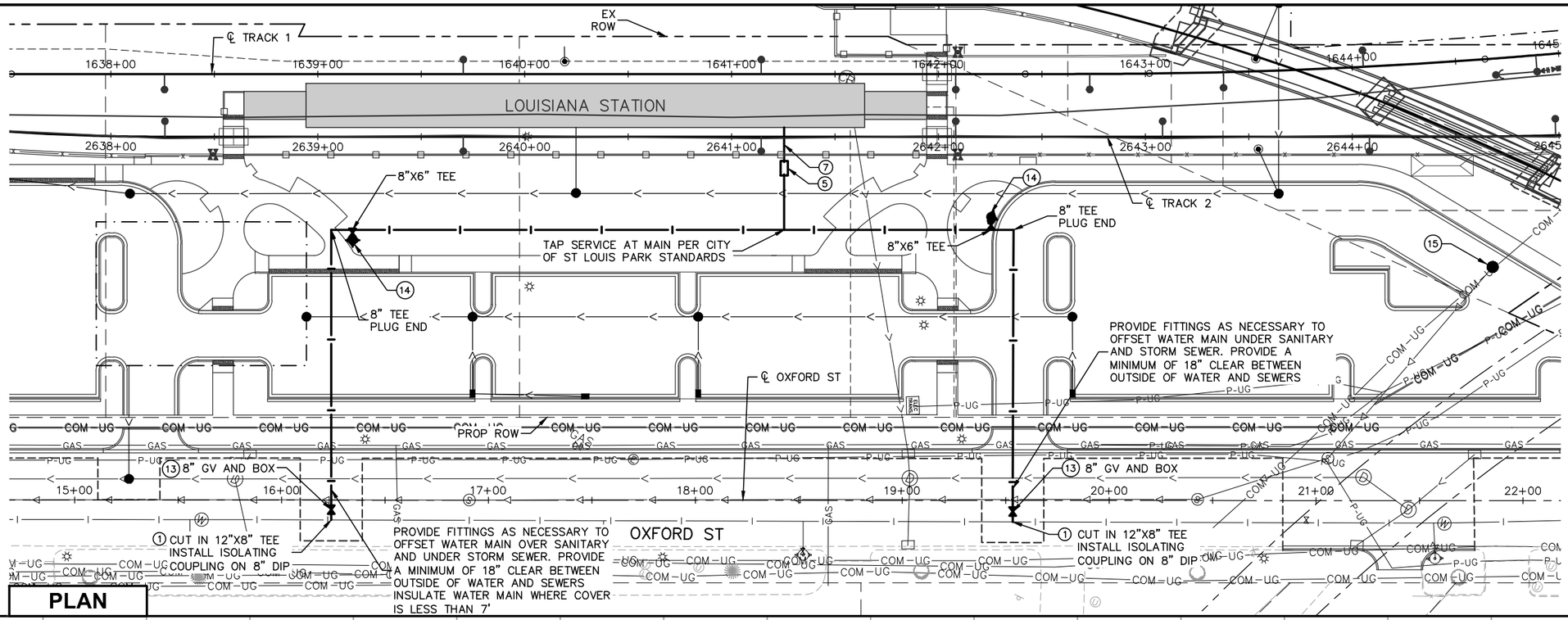
CIVIL - VOLUME 7
UTILITIES
EXCELSIOR BLVD / PIERCE AVE
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E1-UTL-PLN - 012

SHEET 78 OF 214

Jan, 18 2016 10:39 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E1-UTL-PLN.dwg By: MokiEM

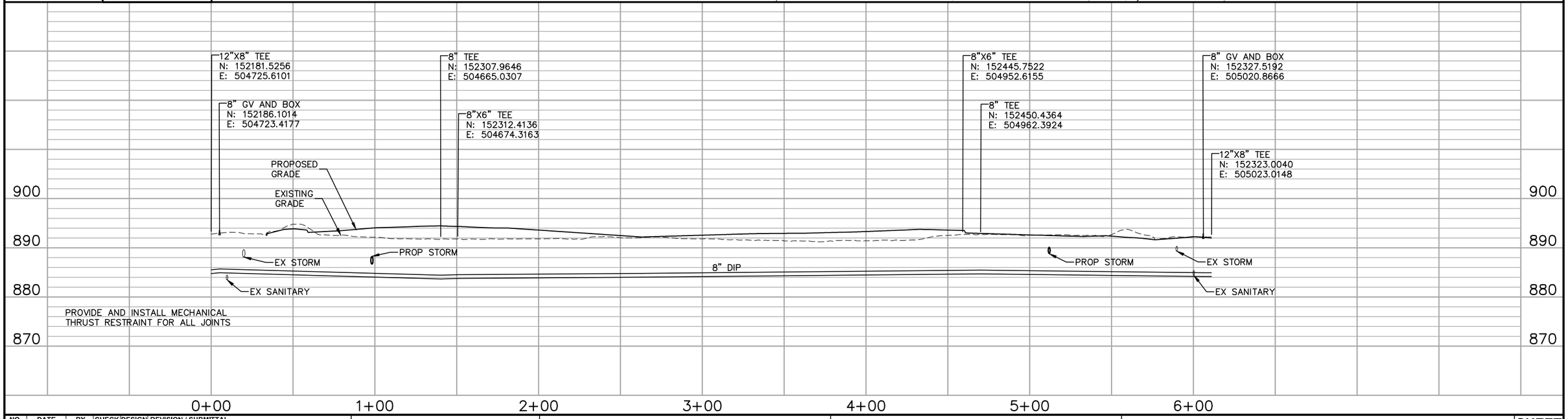


PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

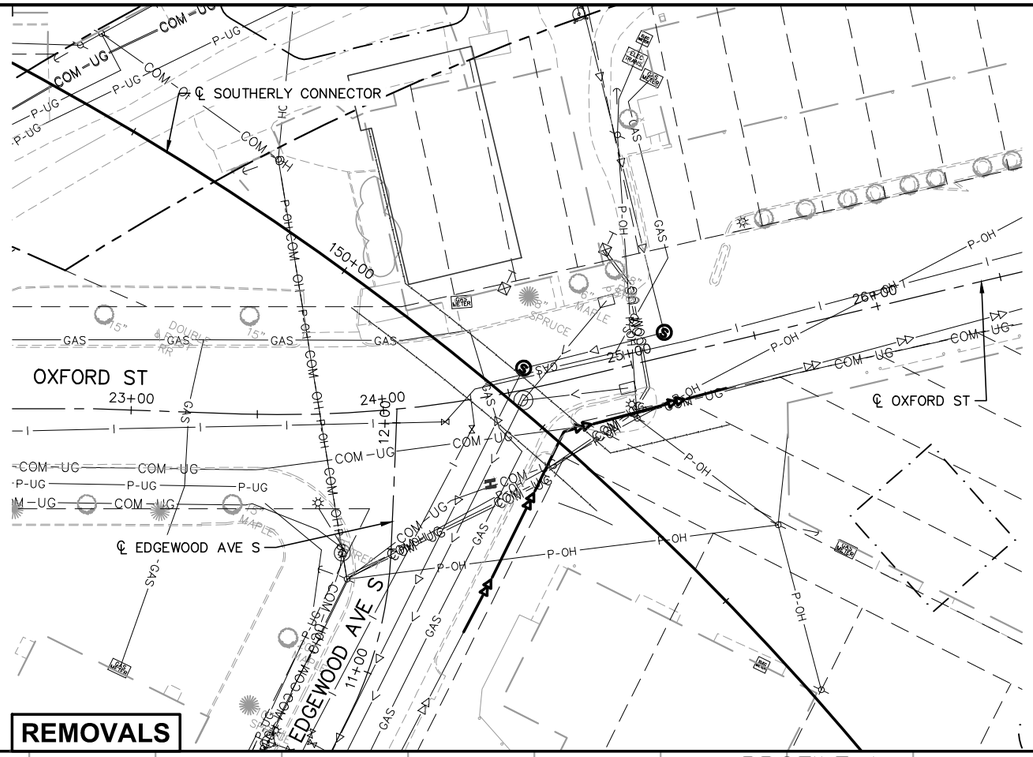
CIVIL - VOLUME 7
UTILITIES
LOUISIANA STATION
PLAN AND PROFILES

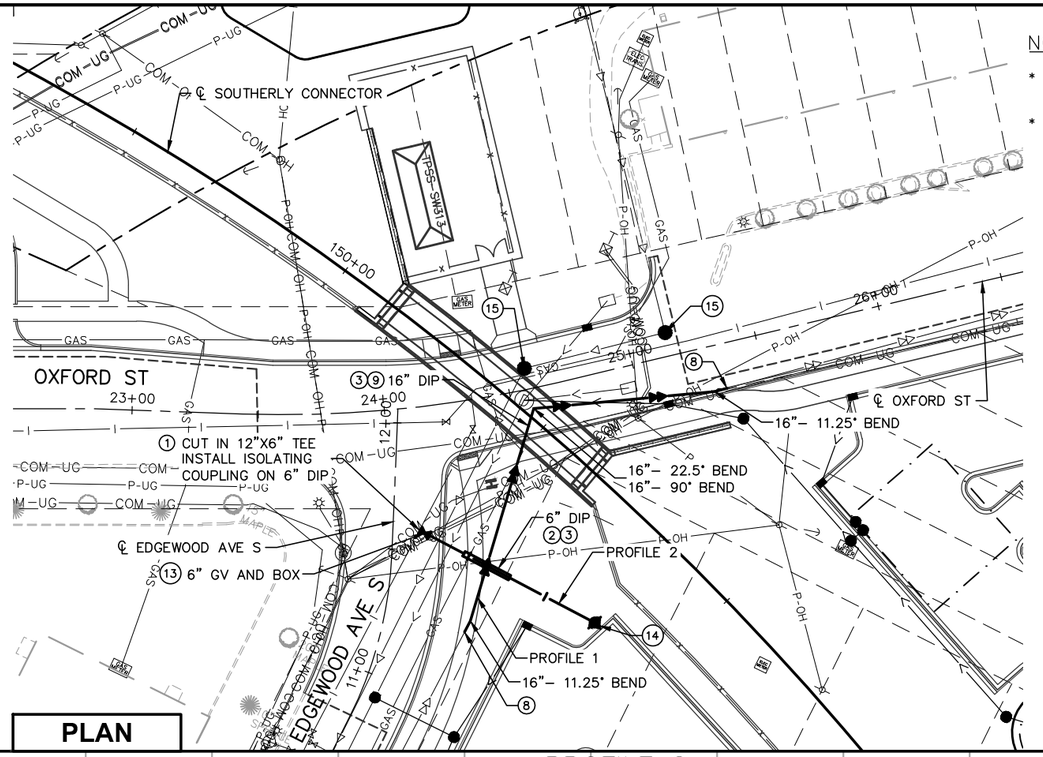
DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 001

SHEET 79 OF 214

Jan. 18 2016 10:46 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MokiEM



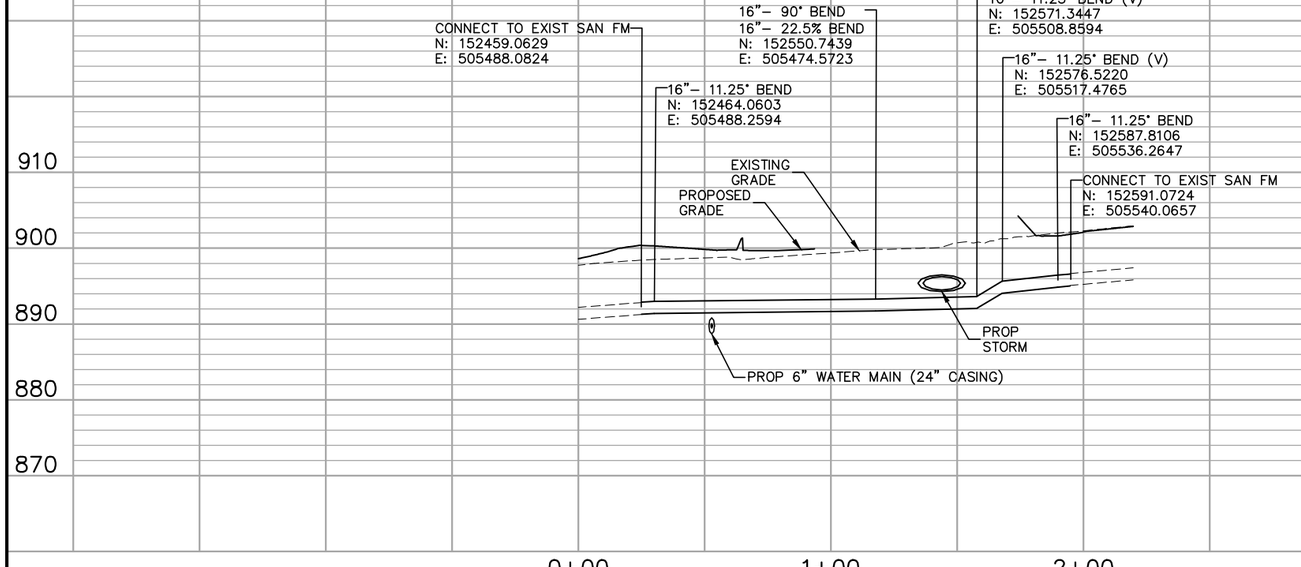


NOTES:

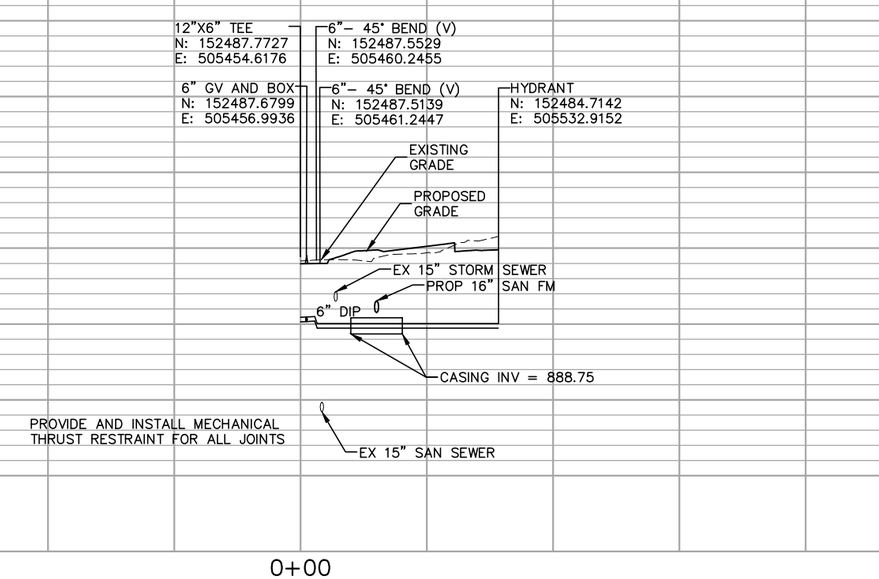
* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 1



PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

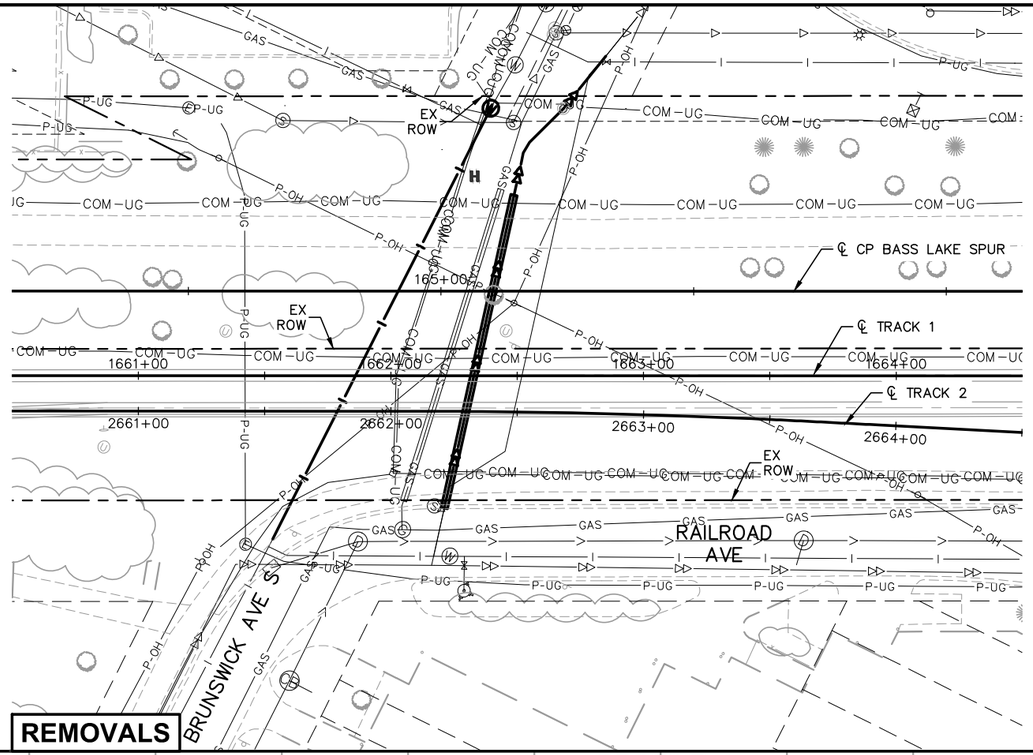
CIVIL - VOLUME 7
UTILITIES
OXFORD ST / EDGEWOOD AVE S
REMOVALS, PLAN, AND PROFILES

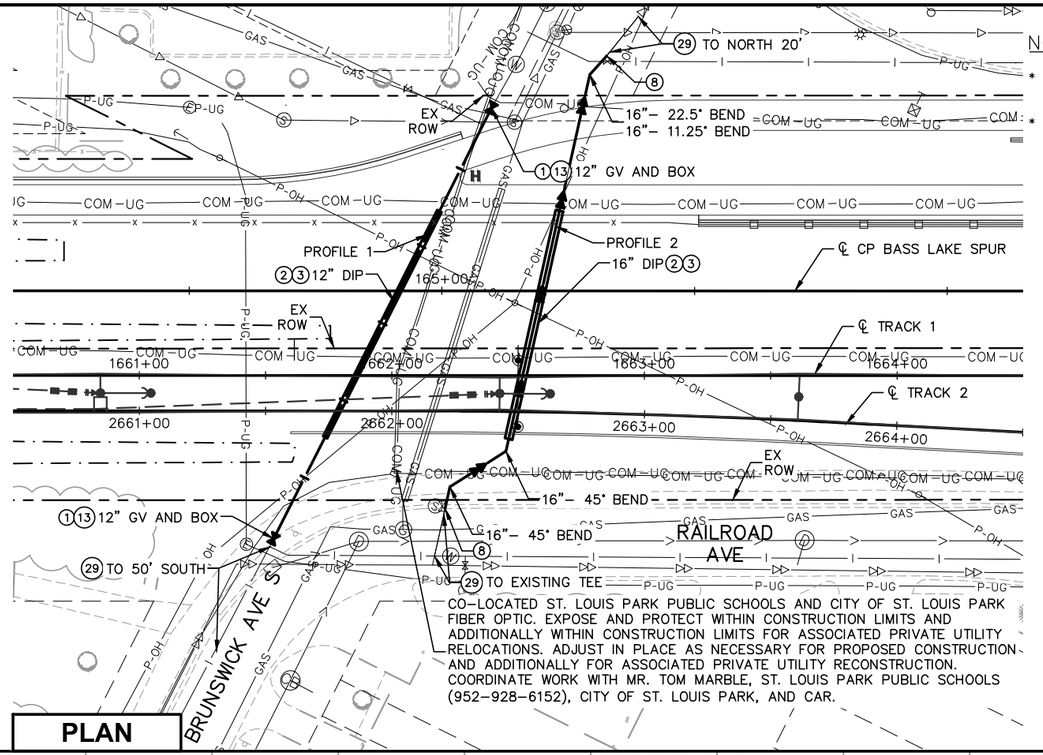
DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 002

SHEET 80 OF 214

Jan, 18 2016 10:49 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MakiEM



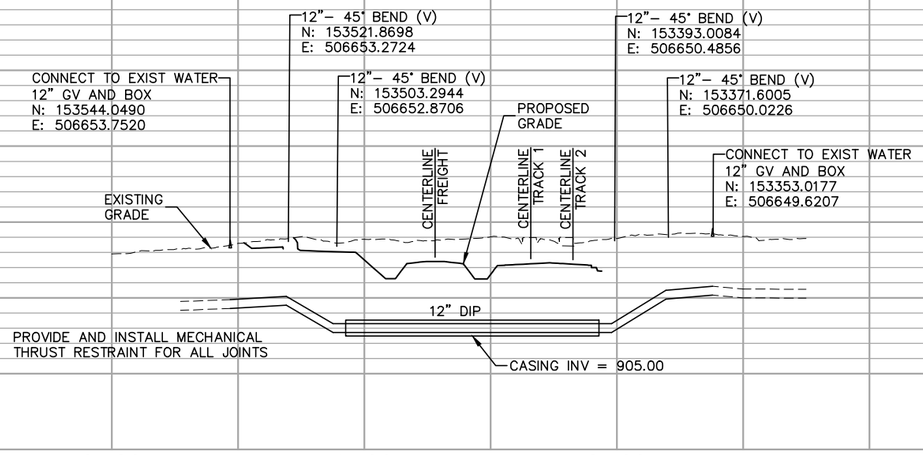


NOTES:

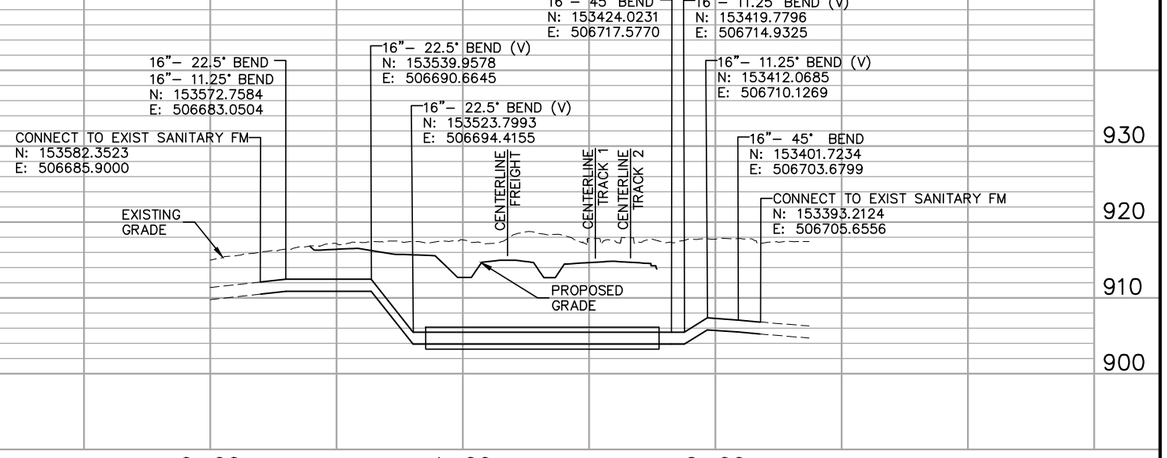
* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 1



PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

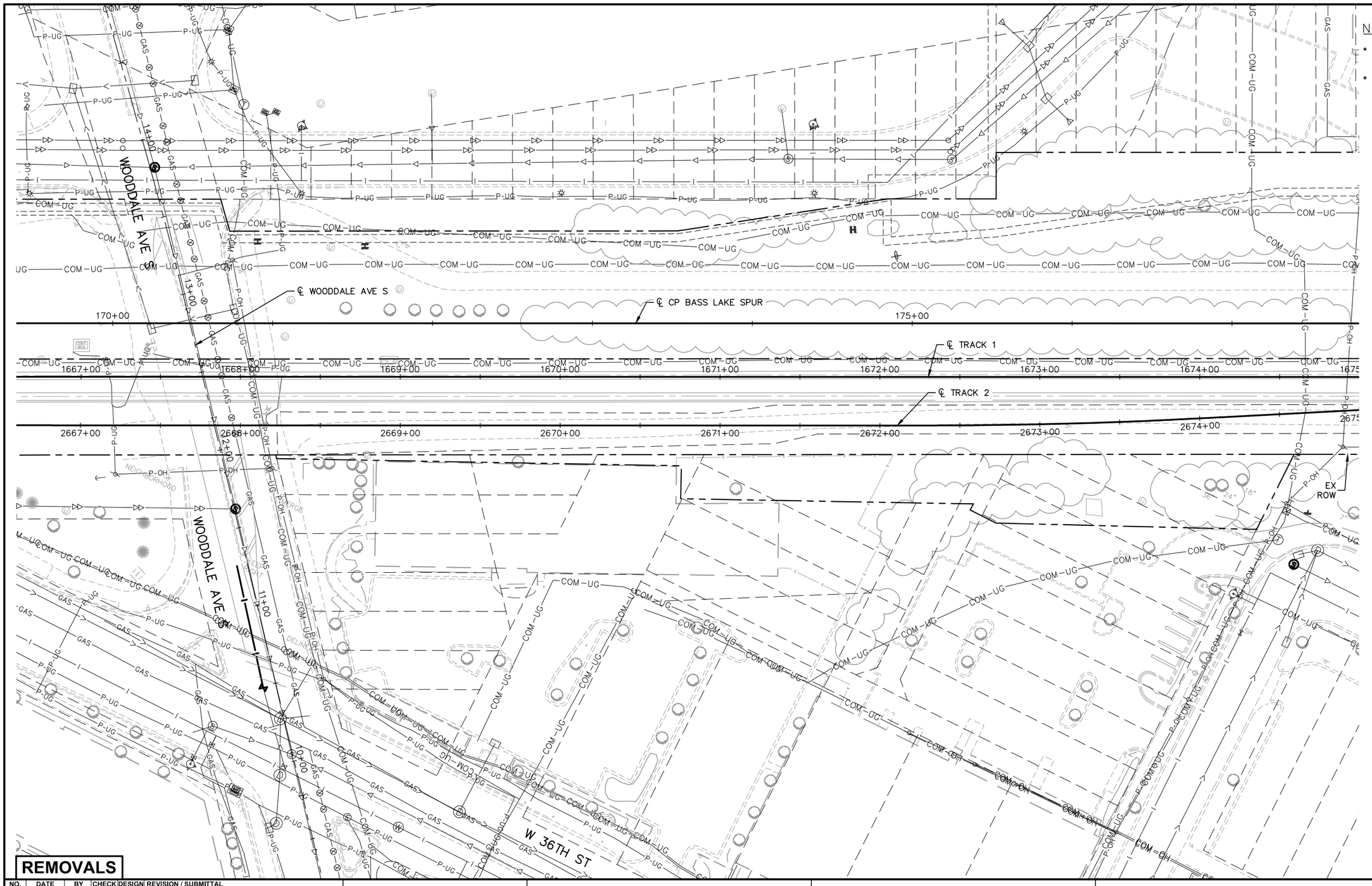
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
BRUNSWICK AVE S
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES
SHEET NAME: E2-UTL-PLN - 003

SHEET 81 OF 214

Jan, 18 2016 10:52 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MakiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
WOODDALE STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 004

SHEET 82 OF 214

Jan. 18 2016 10:54 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

(15) SAN7503
ROTATE ACCESS TO MEDIAN

WOODDALE AVE S

℄ WOODDALE AVE S

℄ CP BASS LAKE SPUR

℄ TRACK 1

℄ TRACK 2

WOODDALE STATION

(13) 8" GV AND BOX

8"– 90° BEND

8"– 11.25° BEND

(14) 8"X6" TEE AT MAIN

(2)(3) 8" DIP

30' OF CASING CENTERED ON STORM MH

(5)(7) TAP SERVICE AT MAIN PER CITY OF ST LOUIS PARK STANDARDS

8"– 22.5° BEND

EX ROW

(15) SAN7502
ROTATE ACCESS TO MEDIAN

CO-LOCATED ST. LOUIS PARK PUBLIC SCHOOLS AND CITY OF ST. LOUIS PARK FIBER OPTIC. EXPOSE AND PROTECT WITHIN CONSTRUCTION LIMITS AND ADDITIONALLY WITHIN CONSTRUCTION LIMITS FOR ASSOCIATED PRIVATE UTILITY RELOCATIONS. ADJUST IN PLACE AS NECESSARY FOR PROPOSED CONSTRUCTION AND ADDITIONALLY FOR ASSOCIATED PRIVATE UTILITY RECONSTRUCTION. COORDINATE WORK WITH MR. TOM MARBLE, ST. LOUIS PARK PUBLIC SCHOOLS (952-928-6152), CITY OF ST. LOUIS PARK, AND CAR.

(1)(13) 8" GV AND BOX
8"X6" REDUCER
ISOLATION COUPLING ON 8" MAIN

SAN7557

W 36TH ST

0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

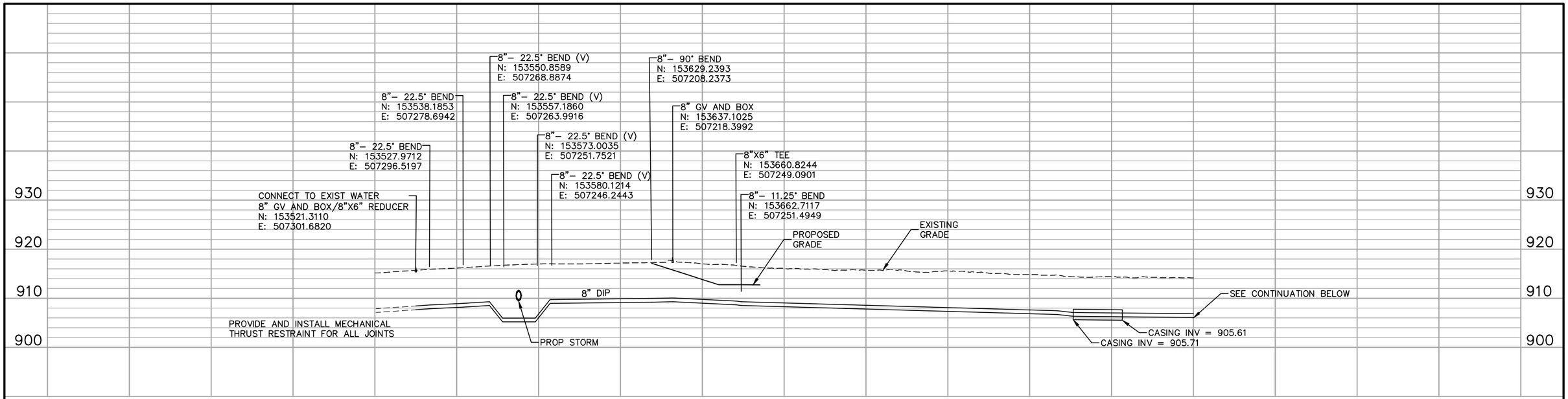
CIVIL - VOLUME 7
UTILITIES
WOODDALE STATION 2 OF 3
PLAN

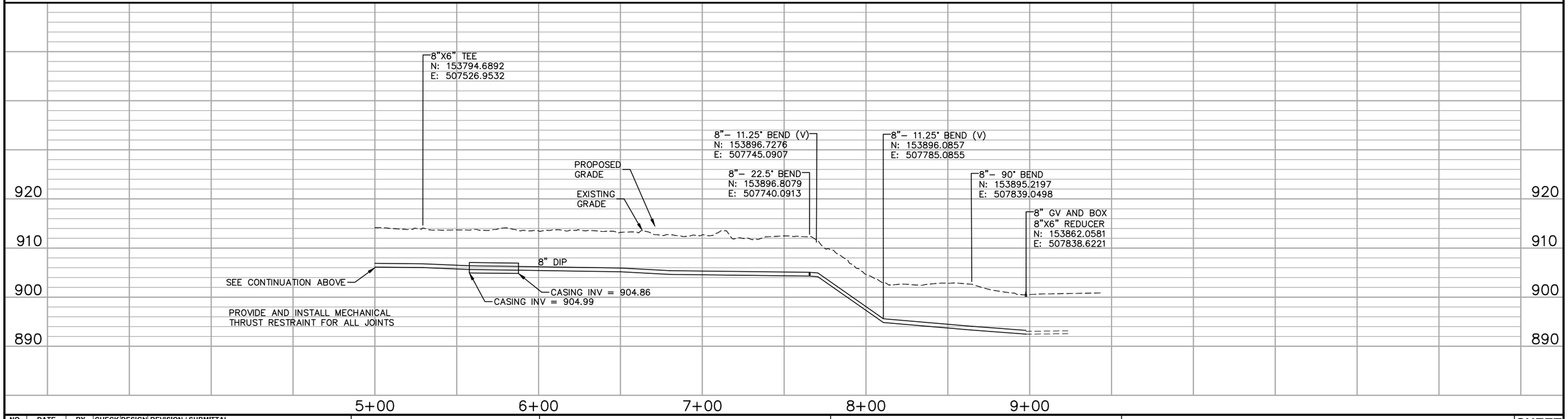
DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 005

SHEET 83 OF 214

Jan. 18 2016 10:55 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MokIEM





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
WOODDALE STATION 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 006

SHEET 84 OF 214

Jan, 18 2016 10:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET E0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E0-UTL-NTS-002 FOR NOTES.

BELTLINE BLVD

℄ BELTLINE BLVD

℄ CP BASS LAKE SPUR

℄ TRACK 2

℄ TRACK 1

℄ WB CSAH 25

℄ EB CSAH 25

CSAH 25

PLUG WATER MAIN AT EXISTING TEE

PLUG WATER MAIN AT EXISTING TEE

0 15 30 60
HORIZONTAL SCALE IN FEET

REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
BELTLINE STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 007

SHEET 85 OF 214

Jan, 18 2016 10:58 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MokiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

BELTLINE BLVD

℄ BELTLINE BLVD

℄ WB CSAH 25

℄ EB CSAH 25

CSAH 25

BELTLINE STATION

℄ TRACK 1

℄ TRACK 2

℄ CP BASS LAKE SPUR

PROFILE 1

PROFILE 2

PROFILE 3

PROFILE 4

PROFILE 5

(1)(13) CUT IN 12"X8" TEE 8" GV AND BOX

(1)(14) HYDRANT AND LEAD EXTENSION. MAINTAIN EXISTING GV

(1)(14) CUT IN 12"X6" TEE

8"– 22.5° BEND

8"– 22.5° BEND

(14) 8"X6" TEE AT MAIN

(7) TAP SERVICE AT MAIN PER CITYOF ST LOUIS PARK STANDARDS

(5)

TAP SERVICE AT MAIN PER CITY OF ST LOUIS PARK STANDARDS

8"X6" TEE PLUG END

(14)

COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS FOR SEWER AND WATER SERVICE SIZES AND LOCATIONS

SAN7548

SAN7549

SAN7550

ADJUST VALVE TO PROPOSED GRADE PROVIDE EXTENSION AS NECESSARY

(14) SEE PROFILE AND FIELD VERIFY FOR HYDRANT BARREL LENGTH

(2)(3) 6" DIP

6"– 45° BEND

6"– 45° BEND

(29) 25' NORTH

(1)(13) 6" GV AND BOX

30' SPLIT CASING CENTERED ON SANITARY SEWER. FULL PENETRATION WELD AT ALL SEAMS. CASING SIZE AND SPACERS PER TYPICAL CASING DETAIL

(29) 50' WEST

12" TEE ROTATE FOR VERTICAL OFFSET 12"X6" REDUCERS

(29) 25' SOUTH

(1)(13) 12" GV AND BOX

SAN7506

SAN7505

SAN7504

SAN7551

SAN7507

(29) TO EX HYD

8"X6" TEE PLUG END

(14)

0 15 30 60

HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
BELTLINE STATION 2 OF 3
PLAN

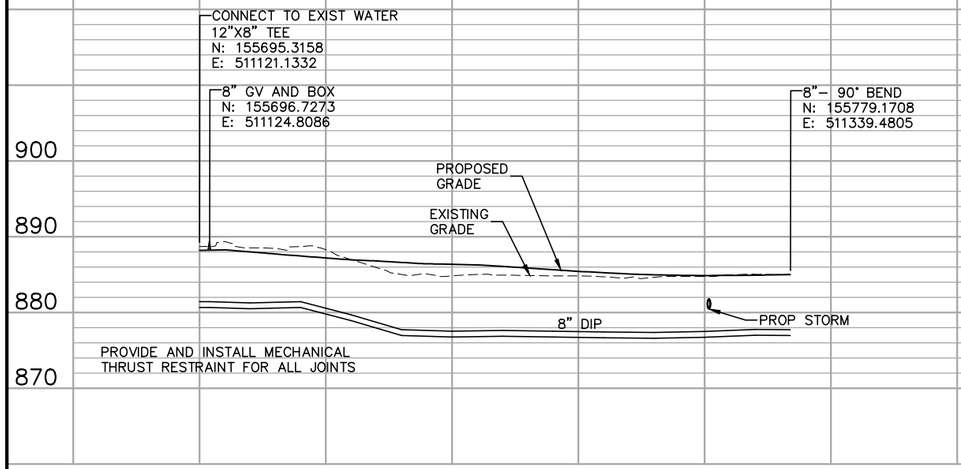
DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 008

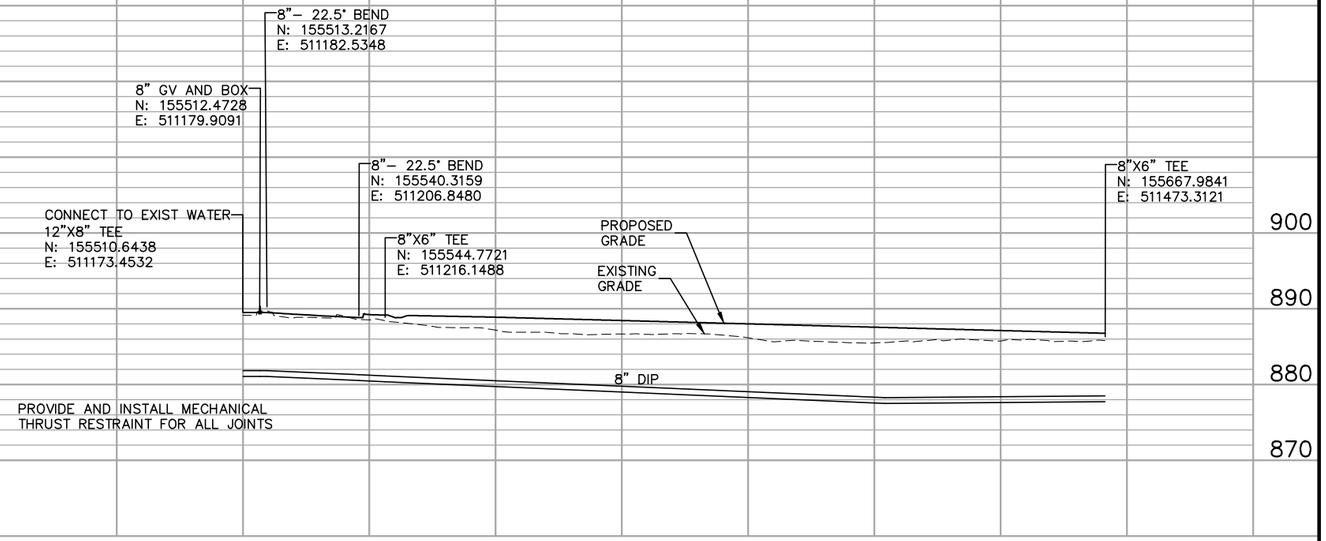
SHEET 86 OF 214

Jan, 18 2016 10:59 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MokiEM

PROFILE 1



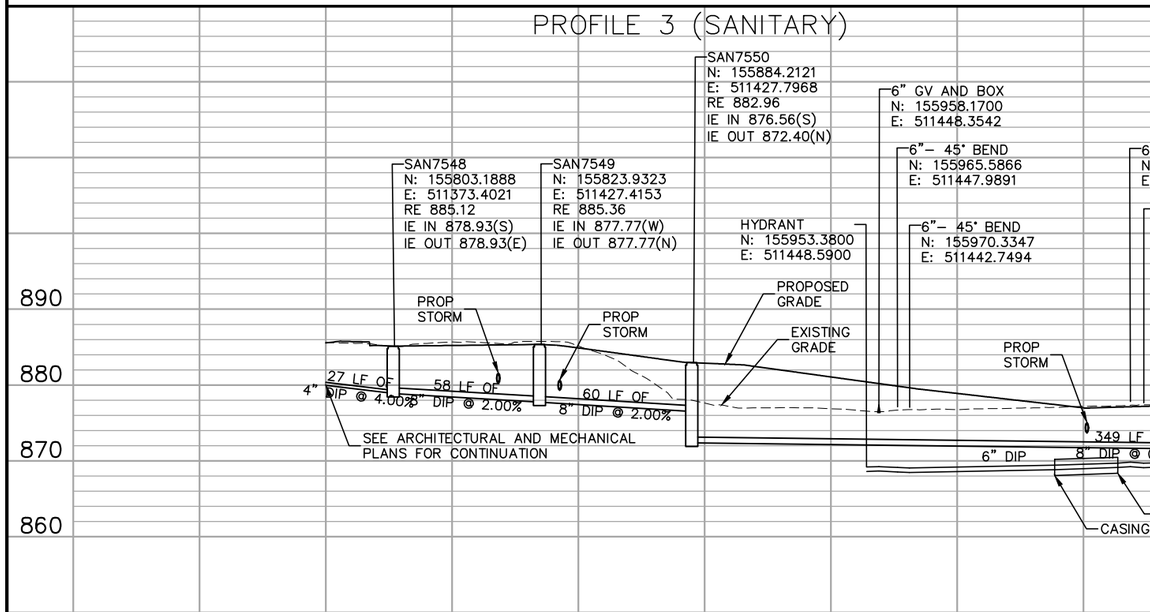
PROFILE 2



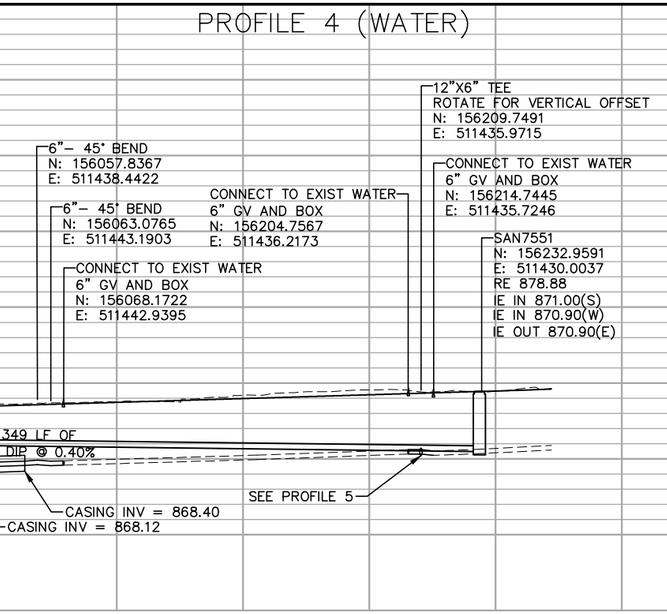
VERTICAL SCALE IN FEET: 0 5 10 20

HORIZONTAL SCALE IN FEET: 0 15 30 60

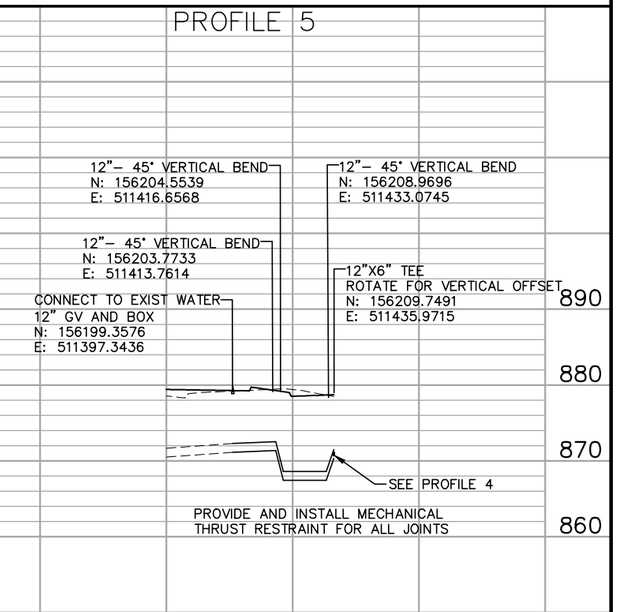
PROFILE 3 (SANITARY)



PROFILE 4 (WATER)



PROFILE 5



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

90% SUBMITTAL - 01/22/16

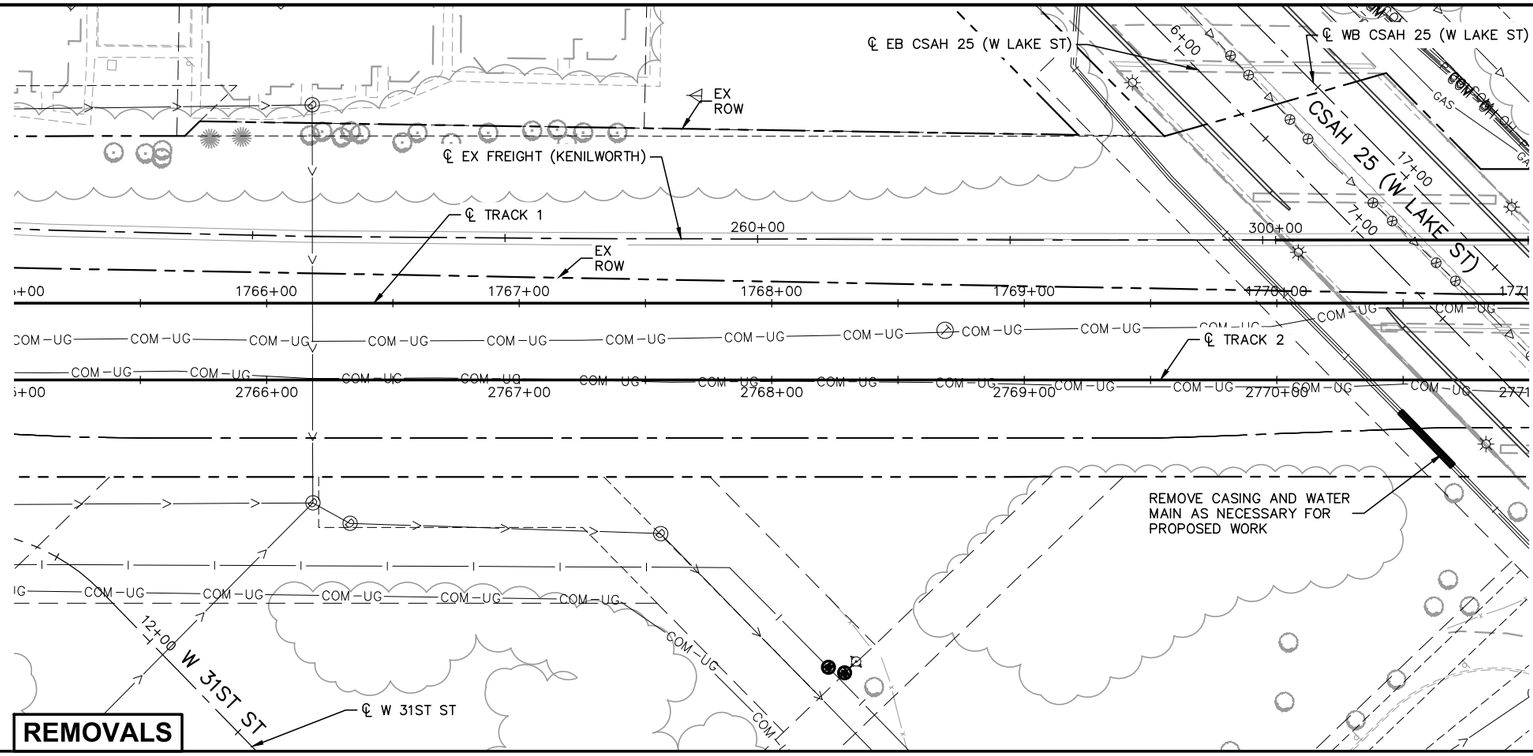
CIVIL - VOLUME 7
UTILITIES
BELTLINE STATION 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E2-UTL-PLN - 009

SHEET 87 OF 214

Jan, 18 2016 11:00 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E2-UTL-PLN.dwg By: MakiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

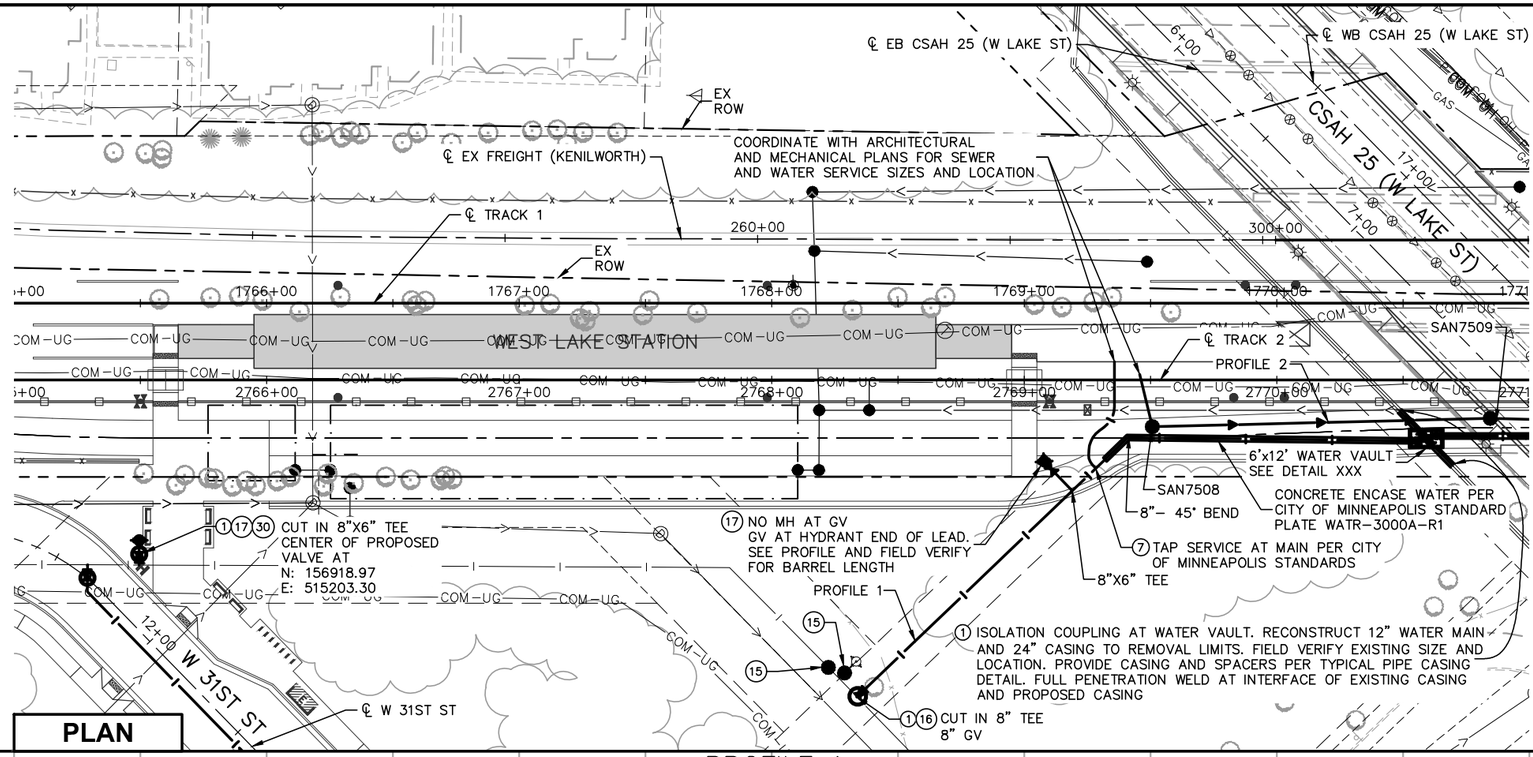
CIVIL - VOLUME 7
UTILITIES
WEST LAKE STATION 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 001

SHEET 88 OF 214

Jan. 18 2016 11:06 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

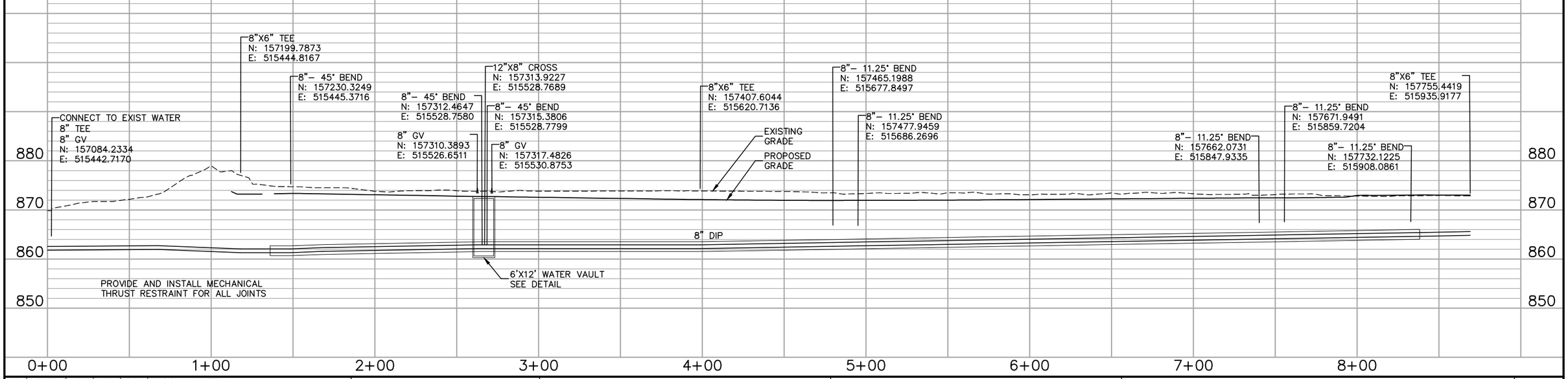


NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 1



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

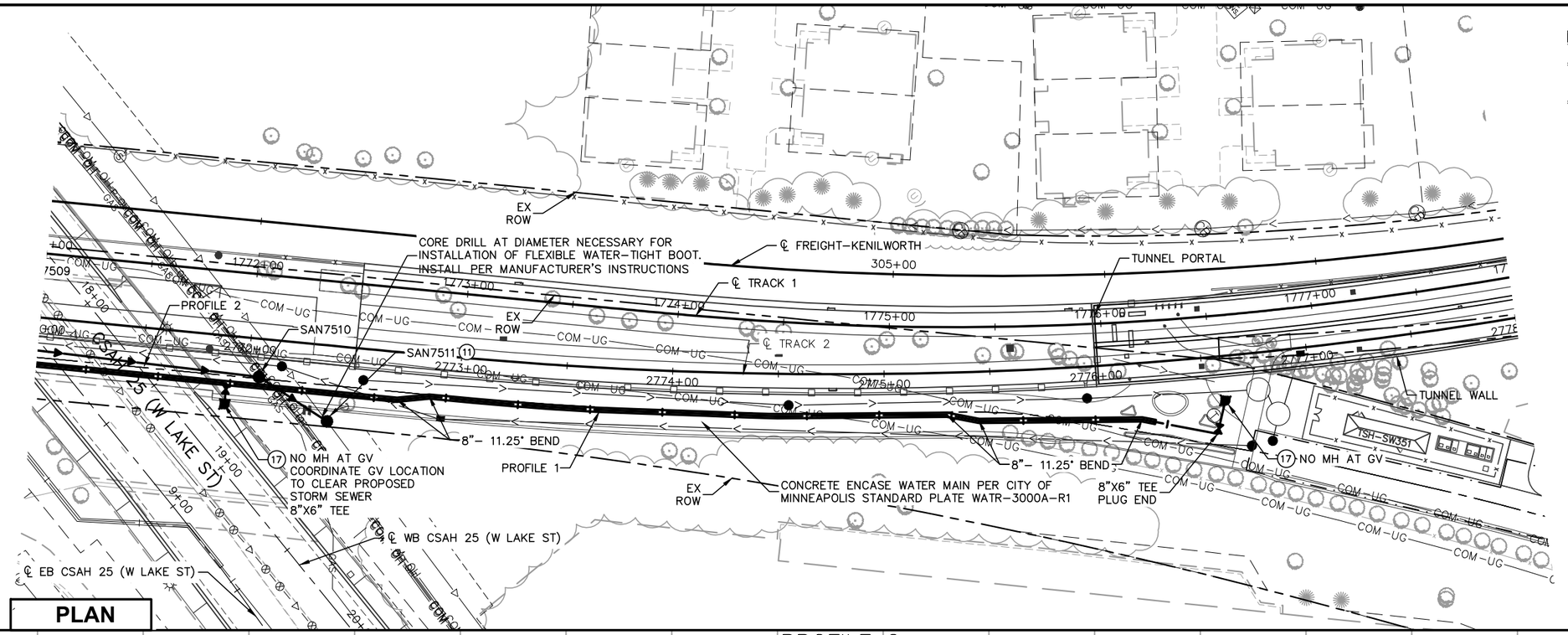
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
WEST LAKE STATION 2 OF 3
PLAN AND PROFILES

DISCIPLINE: UTILITIES
SHEET NAME: E3-UTL-PLN - 002

SHEET 89 OF 214

Jan. 18 2016 11:08 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM



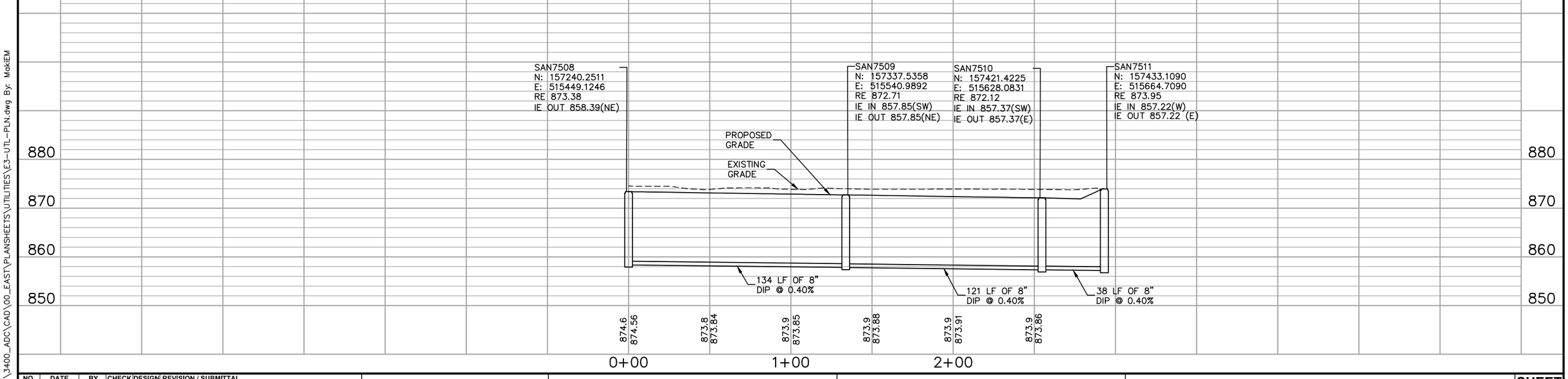
PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
WEST LAKE STATION 3 OF 3
PLAN AND PROFILES

DISCIPLINE: UTILITIES
SHEET NAME: E3-UTL-PLN - 003

SHEET 90 OF 214

Jan. 18 2016 11:09 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS

REMOVE LEAD TO EXISTING TEE

REMOVE EXISTING MH, VALVE, AND MAIN BETWEEN EXISTING VALVE AND PROPOSED VALVE AND ISOLATION JOINT MH. SEE NEXT PLAN SHEET

REMOVE EXISTING MH AND VALVE. REMOVE EXISTING SERVICE LEAD TO EXISTING TEE AND AS NECESSARY FOR INSTALLATION OF PROPOSED VALVE AND ISOLATION JOINT MH.

REMOVE LEAD TO EXISTING TEE

REMOVE EXISTING MH AND VALVE. REMOVE EXISTING SERVICE LEAD TO EXISTING TEE AND AS NECESSARY FOR INSTALLATION OF PROPOSED VALVE AND ISOLATION JOINT MH.

REMOVE LEAD TO EXISTING TEE

℄ W 31ST ST

W 31ST ST

℄ TRACK 1

℄ TRACK 2

℄ CHOWEN AVE S

CHOWEN AVE S

℄ ABBOTT AVE S

ABBOTT AVE S

℄ CSAH 3 (EXCELSIOR BLVD)

CSAH 3 (EXCELSIOR BLVD)

GAS METER

ELEC TRANS

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CHOWEN AVE S / ABBOTT AVE S 1 OF 2
REMOVALS

DISCIPLINE: UTILITIES

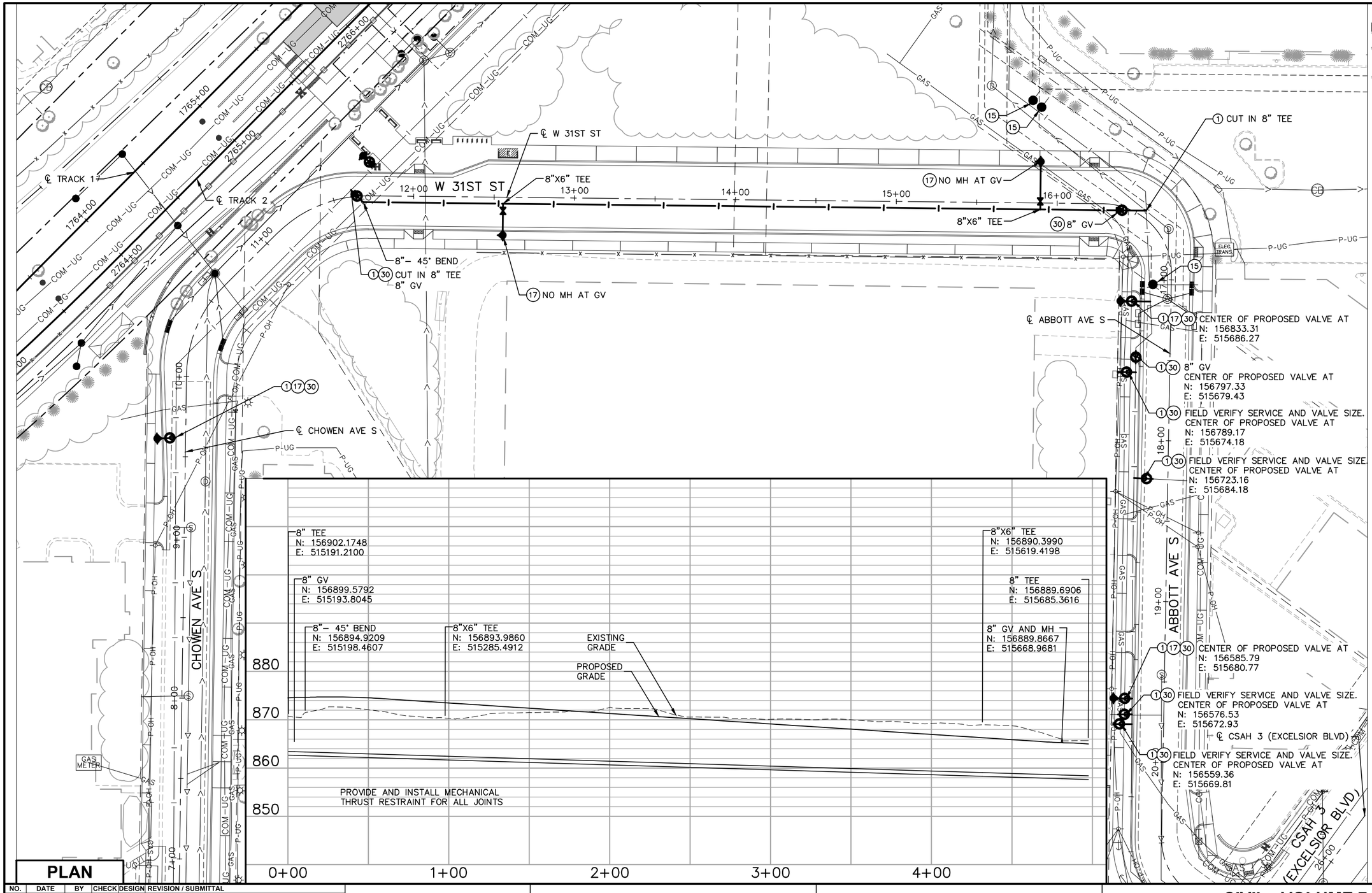
SHEET NAME: E3-UTL-PLN - 004

SHEET 91 OF 214

Jan, 18 2016 11:10 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CHOWEN AVE S / ABBOTT AVE S 2 OF 2
PLAN AND PROFILES

DISCIPLINE: UTILITIES

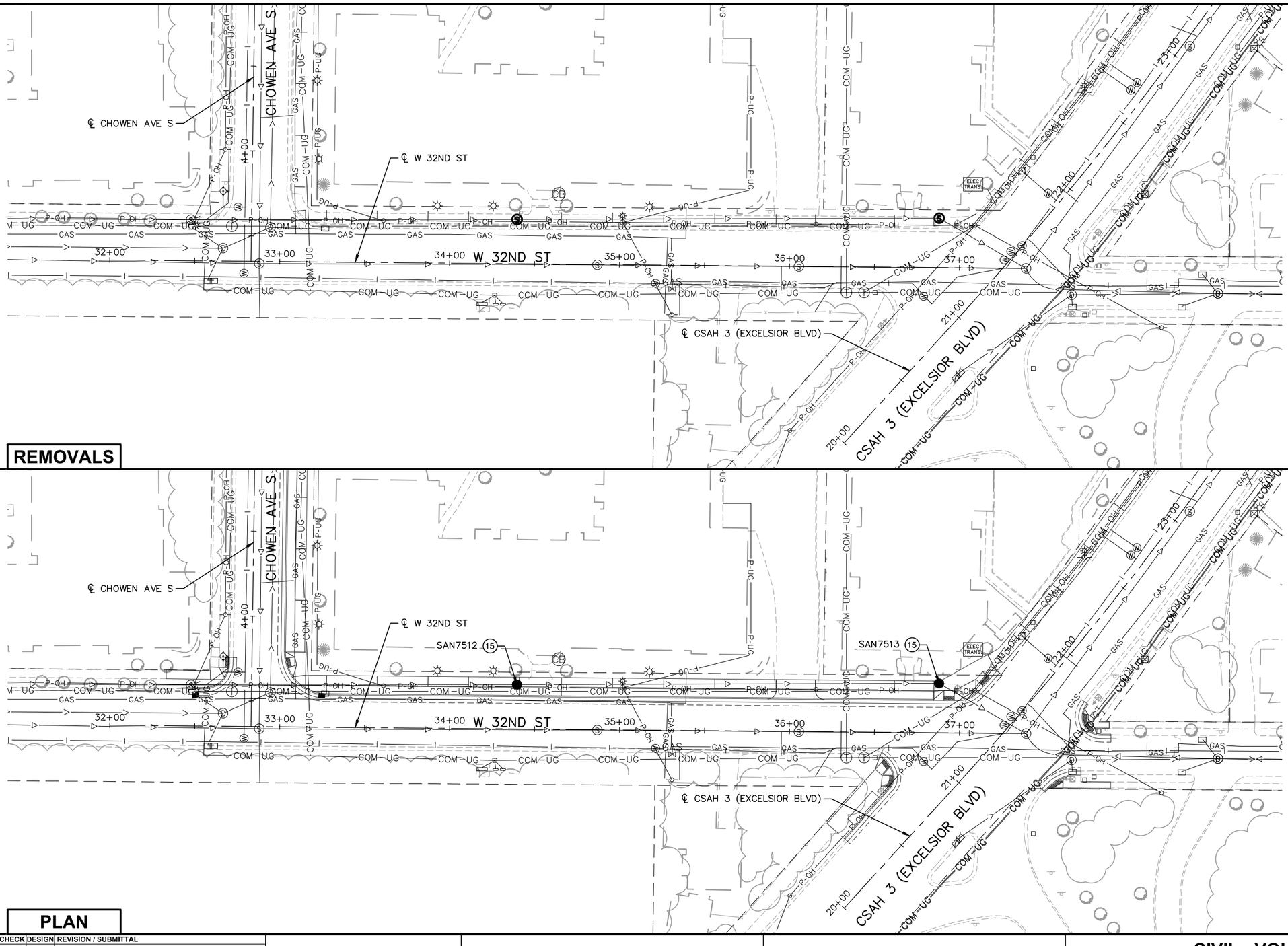
SHEET NAME: E3-UTL-PLN - 005

SHEET 92 OF 214

Jan, 18 2016 11:11 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



REMOVALS

PLAN

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
W 32ND ST
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

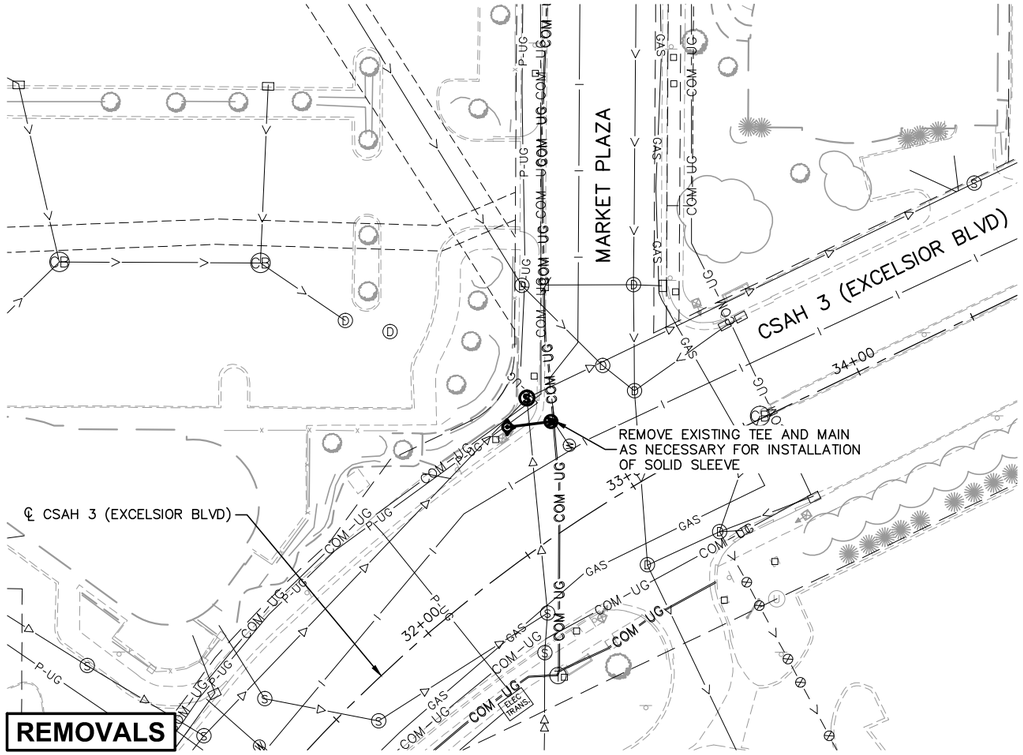
SHEET NAME: E3-UTL-PLN - 006

SHEET 93 OF 214

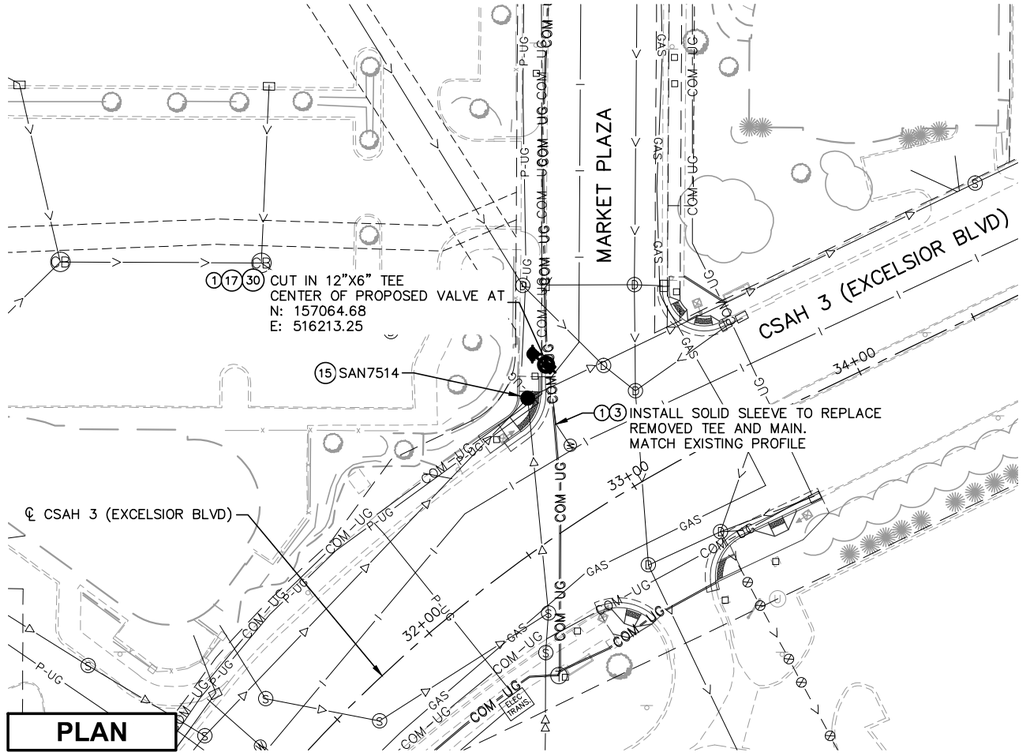
Jan, 18 2016 11:13 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



REMOVALS



PLAN

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
MARKET PLAZA / EXCELSIOR BLVD
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

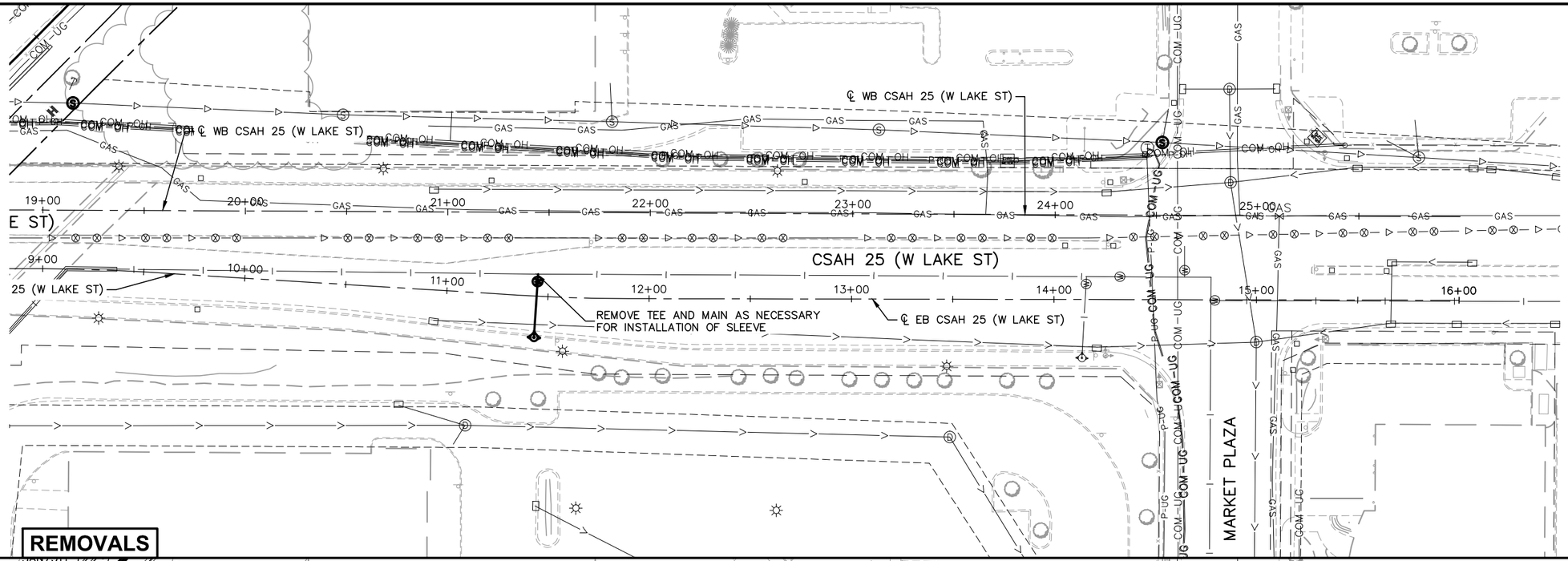
SHEET NAME: E3-UTL-PLN - 007

SHEET 94 OF 214

Jan, 18 2016 11:15 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MokiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

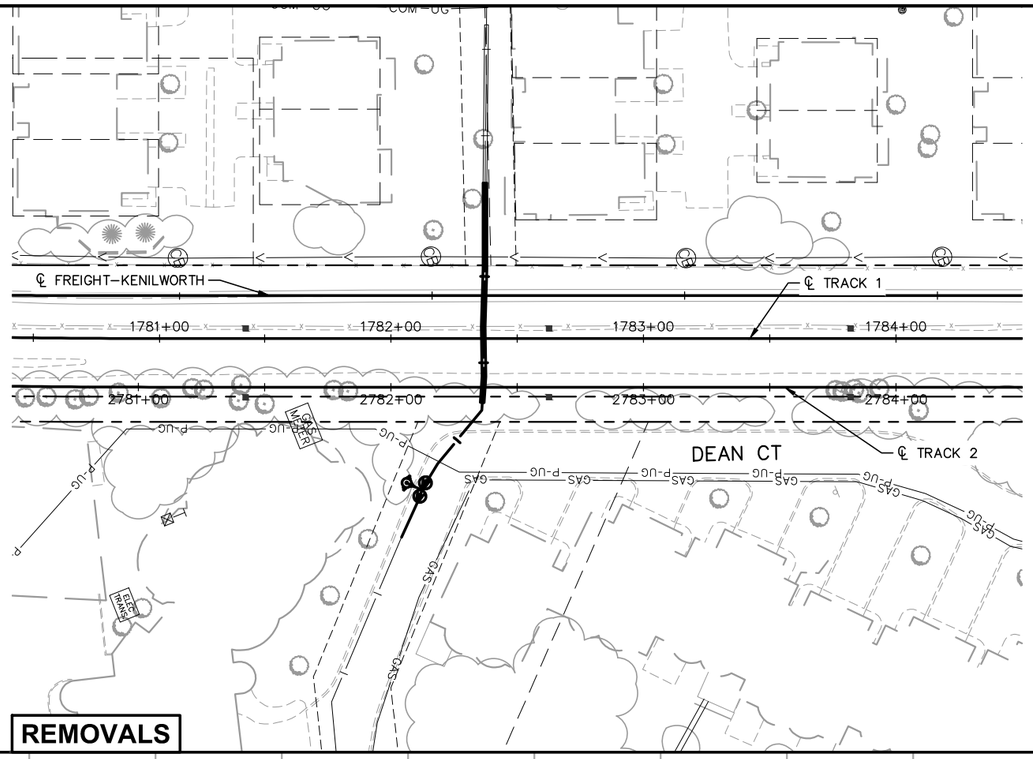
CIVIL - VOLUME 7
UTILITIES
MARKET PLAZA / W LAKE ST
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

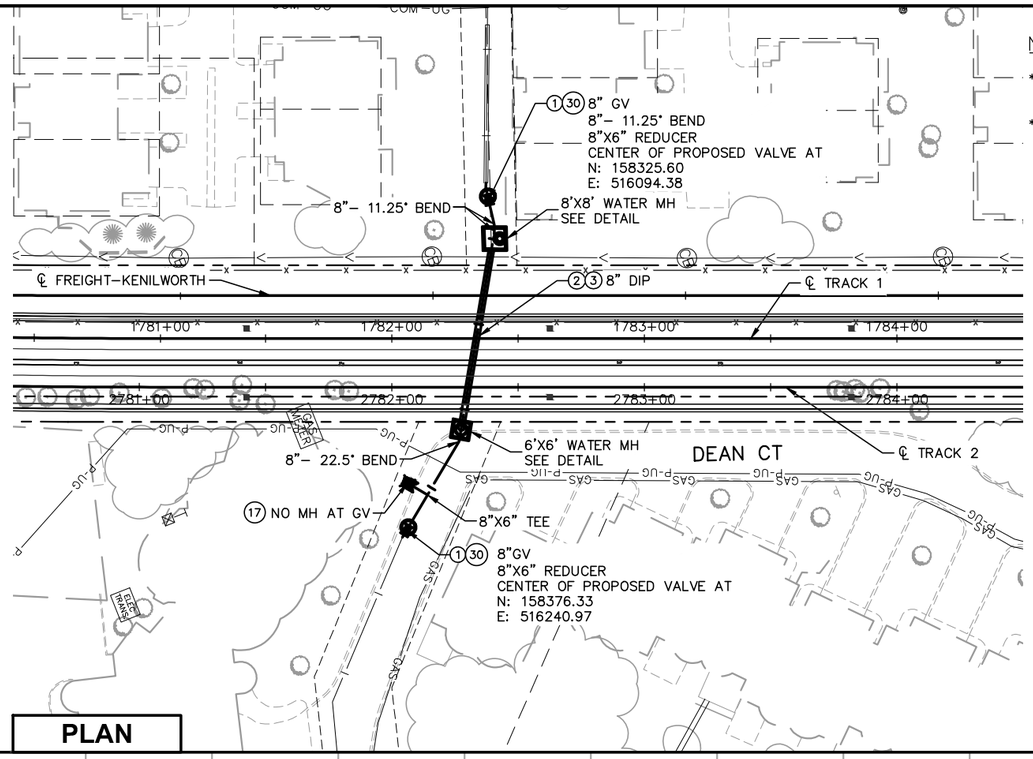
SHEET NAME: E3-UTL-PLN - 008

SHEET 95 OF 214

Jan, 18 2016 11:17 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM



REMOVALS



PLAN

NOTES:

* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

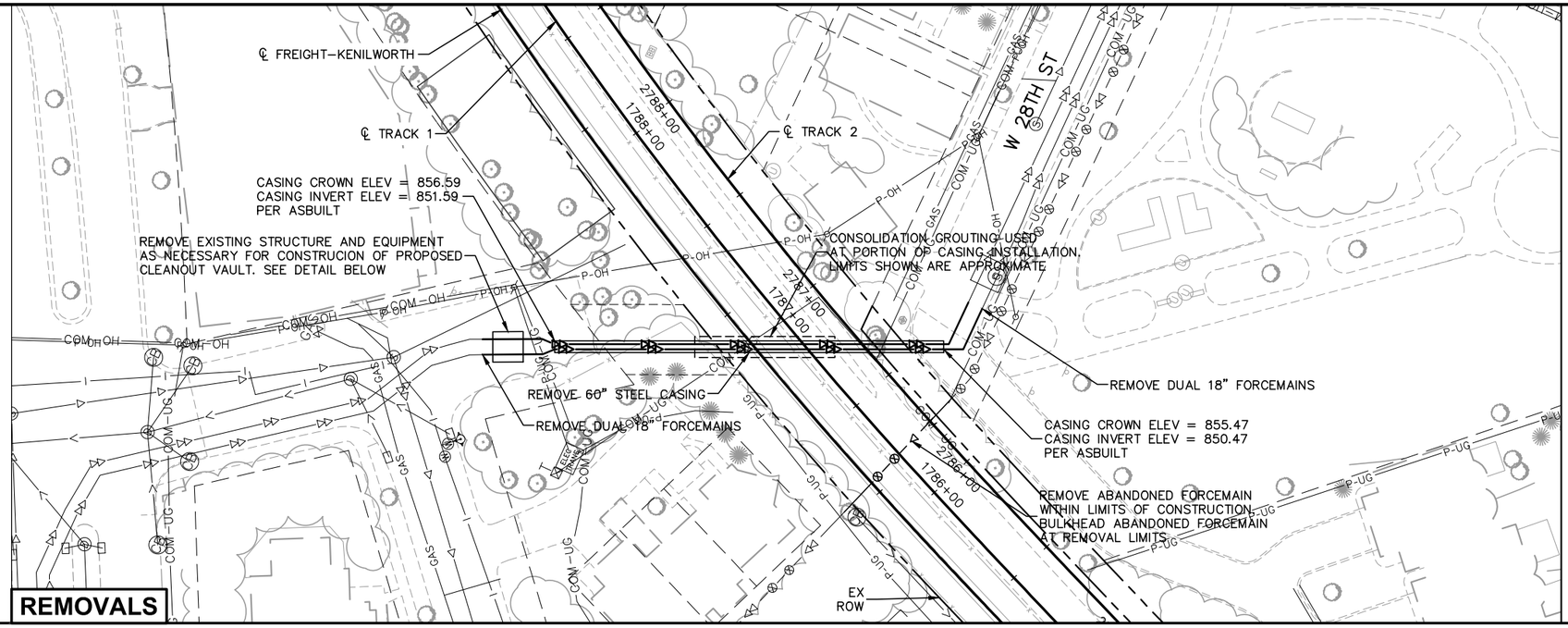
CIVIL - VOLUME 7
UTILITIES
DEAN CT
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 009

SHEET 96 OF 214

Jan. 18 2016 11:19 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MokiEM



NOTES:

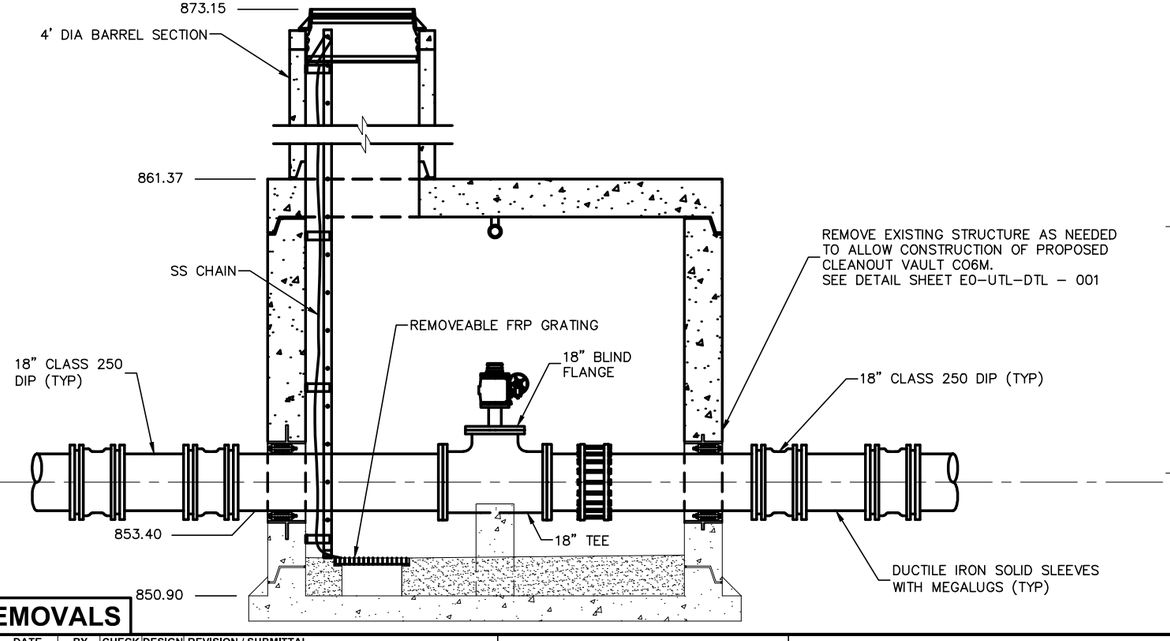
* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

1. DO NOT BEGIN ANY WORK WITHIN 50' OF THE EXISTING MCES FORCEMAIN UNTIL TEMPORARY CONVEYANCE HAS BEEN INSTALLED, PRESSURE TESTED, DEMONSTRATED TO WORK, AND APPROVED BY THE COUNCIL AUTHORIZED REPRESENTATIVE AND METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES.
2. CLEAN EXISTING FORCEMAIN PRIOR TO REMOVAL.
3. FIELD VERIFY PIPE, CASING, AND STRUCTURE INVERTS, SIZES, AND MATERIAL PRIOR TO REMOVAL.

0 15 30 60
HORIZONTAL SCALE IN FEET

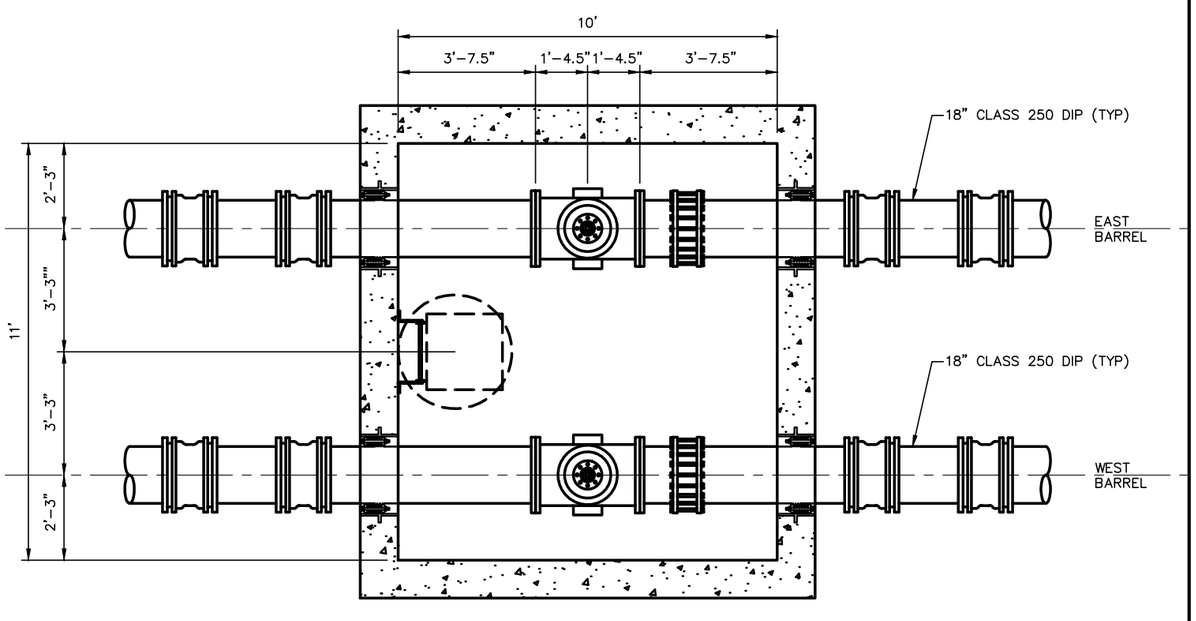
1 EXISTING CLEANOUT STRUCTURE SECTION (C06M)

SCALE: 1"=2'–0"



2 EXISTING CLEANOUT STRUCTURE PLAN (C06M)

SCALE: 1"=2'–0"



REMOVALS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMITTAL - 01/22/16

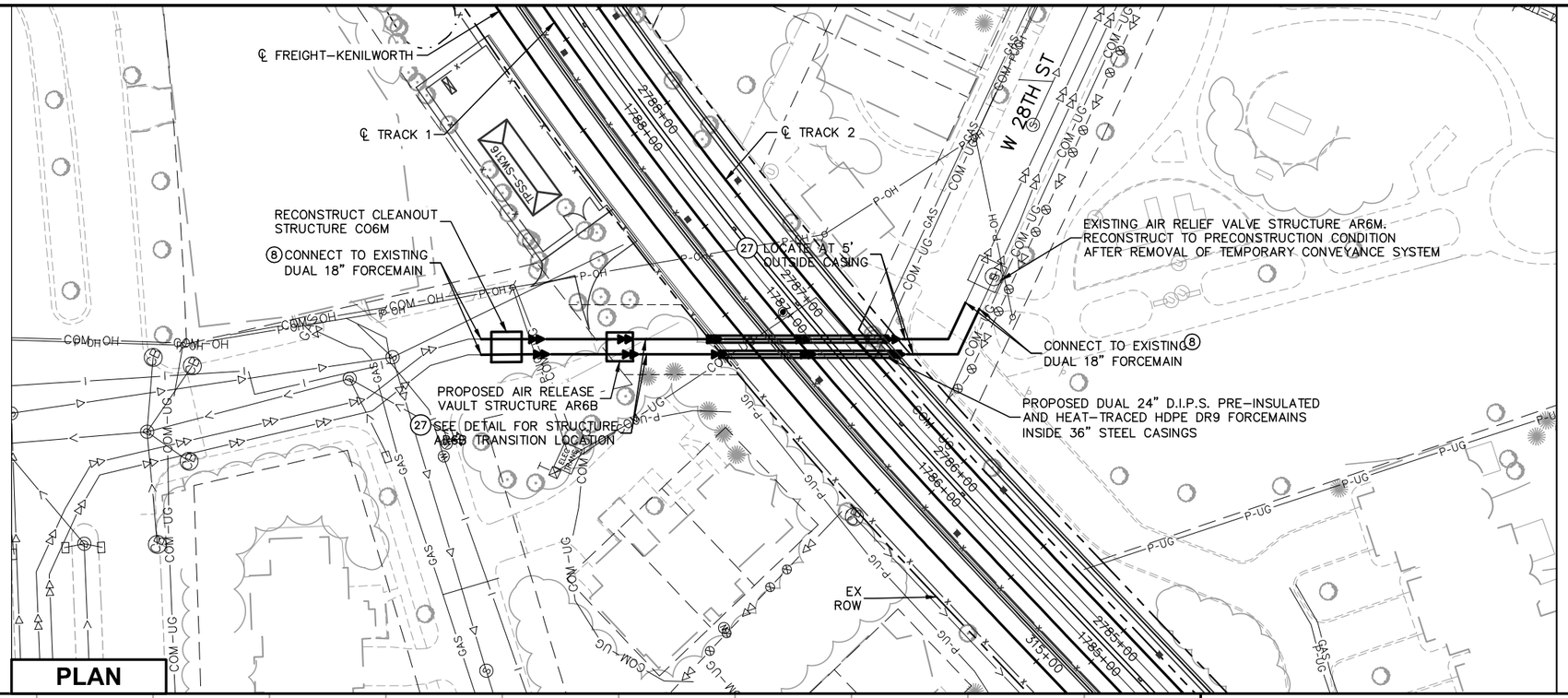
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
MCES FORCEMAIN 1 OF 3
REMOVALS

DISCIPLINE: UTILITIES
SHEET NAME: E3-UTL-PLN - 010

SHEET 97 OF 214

Jan, 18 2016 11:22 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM



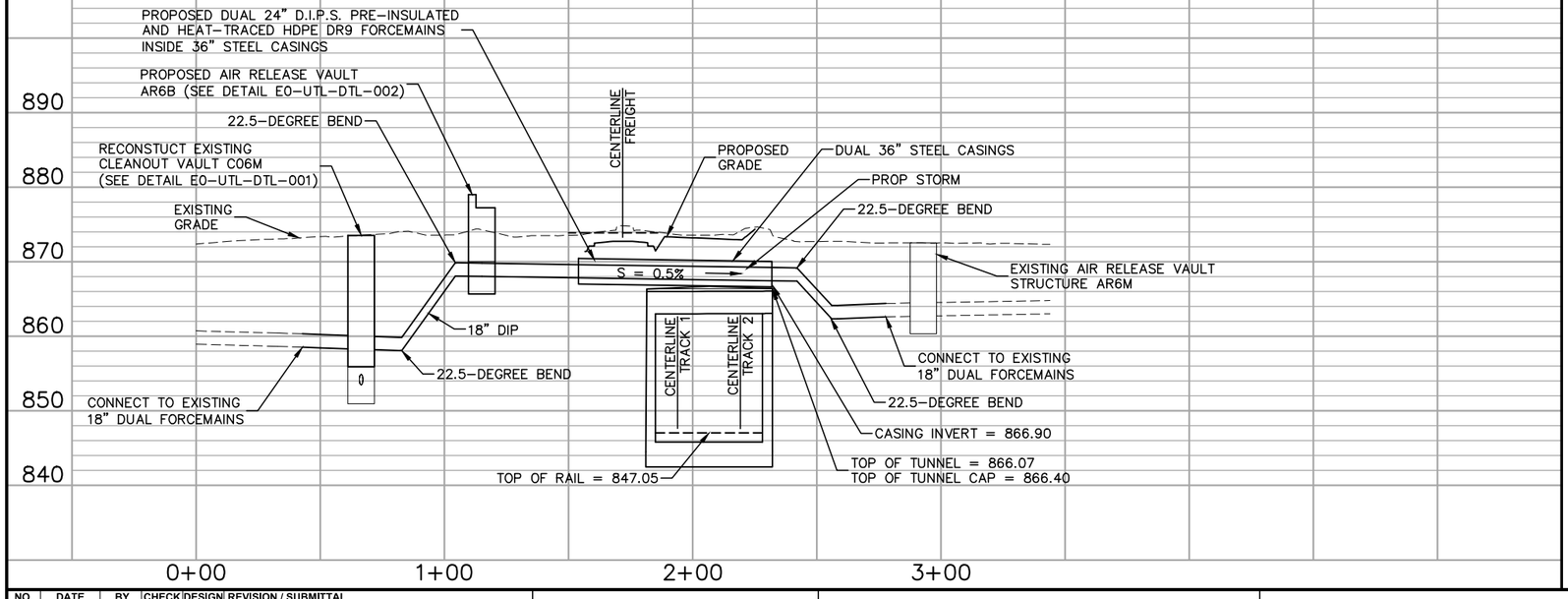
NOTES:

* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

VERTICAL 0 5.0 10 20

HORIZONTAL 0 15 30 60

SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

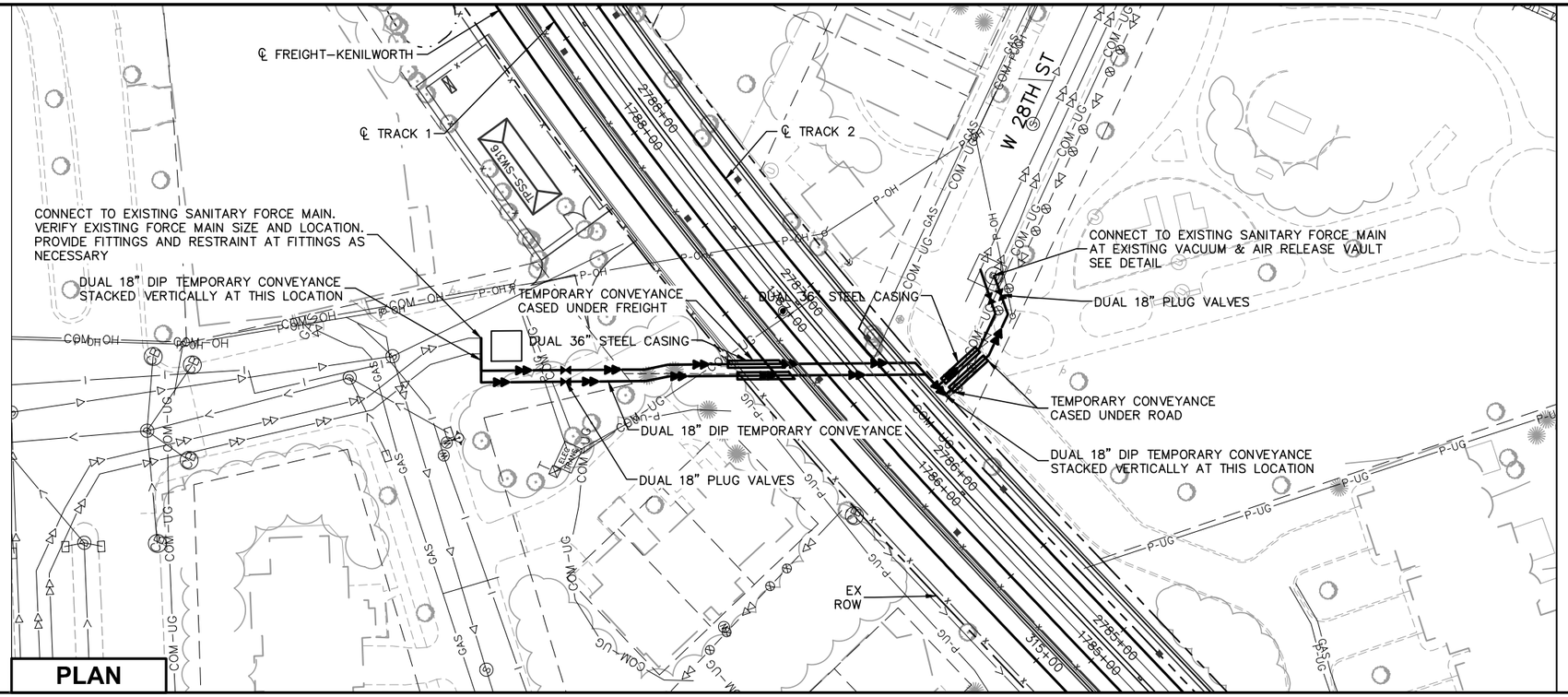
CIVIL - VOLUME 7
UTILITIES
MCES FORCEMAIN 2 OF 3
PLAN AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 011

SHEET 98 OF 214

Jan. 18 2016 11:24 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3–UTL–PLN.dwg By: MokiEM



NOTES:

* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

TEMPORARY CONVEYANCE NOTES:

1. THE TEMPORARY CONVEYANCE PLAN SHOWN REPRESENTS THE MINIMUM CONDITIONS THAT MUST BE MET AND THE MINIMUM EQUIPMENT THAT MUST BE FURNISHED, INSTALLED, AND MAINTAINED. CONTRACTOR IS RESPONSIBLE FOR DESIGNING, FURNISHING, INSTALLING, AND MAINTAINING THE TEMPORARY CONVEYANCE SYSTEM NECESSARY FOR THE PERFORMANCE OF WORK.
2. THE TEMPORARY CONVEYANCE PLAN SHOWN IS BASED ON USE OF 18"DIAMETER DUCTILE IRON PIPE.
3. CONTRACTOR IS RESPONSIBLE FOR DESIGNING, FURNISHING, INSTALLING, AND MAINTAINING THE TEMPORARY CONVEYANCE SYSTEM INCLUDING ALL REQUIRED PIPE RESTRAINT AND STRUCTURAL SUPPORT. DESIGN TO BE CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MINNESOTA.
4. THE TEMPORARY CONVEYANCE PLAN SHALL INCLUDE VACUUM BREAK/ AIR RELEASE VALVING INSTALLED AT THE HIGH POINT OF THE SYSTEM. PROVIDE MEASURES TO CONTAIN ANY WASTE BLOW OFF FROM AIR RELEASE. PROVIDE MEASURES FOR ODOR CONTROL FROM AIR RELEASE.
5. CONTRACTOR SHALL PROTECT AND MAINTAIN CONTINUOUS OPERATION OF THE TEMPORARY CONVEYANCE SYSTEM.
6. CONTRACTOR IS RESPONSIBLE TO COORDINATE THE TEMPORARY CONVEYANCE SYSTEM INSTALLATION AND OPERATION WITH OTHER PROJECT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ANY RECONSTRUCTION, ADJUSTMENT, RELOCATION, ETC. OF THE TEMPORARY CONVEYANCE SYSTEM AS NEEDED FOR THE PERFORMANCE OF WORK.
7. DO NOT BEGIN ANY WORK WITHIN 50' OF THE EXISTING MCES FORCEMAIN UNTIL TEMPORARY CONVEYANCE HAS BEEN INSTALLED, PRESSURE TESTED, DEMONSTRATED TO WORK, AND APPROVED BY THE COUNCIL AUTHORIZED REPRESENTATIVE AND METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES.
8. PROTECT TEMPORARY CONVEYANCE SYSTEM FROM FREEZING. METHODS USED SHALL INCLUDE THE ABILITY TO MEASURE AND RECORD PIPE TEMPERATURE AND AMBIENT AIR TEMPERATURE.
9. PROVIDE A METHOD FOR SECURING (LOCKS, ENCLOSURES, ETC.)VALVES FROM UNAUTHORIZED OPERATION. PROVIDE METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES AND COUNCIL AUTHORIZED REPRESENTATIVE ACCESS TO OPERATION OF VALVES AT ALL TIMES.
10. MAINTAIN UNOBSTRUCTED VEHICLE ACCESS AT DEAN COURT AND WEST 28TH STREET. TEMPORARY OBSTRUCTIONS MUST BE SCHEDULED WITH AND APPROVED BY THE COUNCIL AUTHORIZED REPRESENTATIVE AND PROPERTY OWNERS.
11. REMOVE THE TEMPORARY CONVEYANCE SYSTEM, IN ITS ENTIRETY, AFTER INSTALLATION, ACCEPTANCE (BY METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES AND COUNCIL AUTHORIZED REPRESENTATIVE), AND OPERATION OF THE PERMANENT FORCE MAIN RELOCATION.
12. ALL SHUTDOWNS OF THE EXISTING FORCE MAIN AND TEMPORARY CONVEYANCE SYSTEM MUST BE APPROVED, SCHEDULED (SCHEDULE TO INCLUDE START, DURATION, AND END OF SHUTDOWN) AND COORDINATED WITH METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES AND COUNCIL AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING SHUTDOWN. APPROVAL OF THE SHUTDOWN SCHEDULE IS SUBJECT TO (BUT NOT LIMITED TO) PERSONNEL AVAILABILITY, SEASONAL INFLUENCES, AND PROJECT SCHEDULE AND PHASING.
13. ALL SHUTDOWNS SHALL BE PHASED TO MAINTAIN CONTINUOUS OPERATION AND FLOW IN ONE PIPE.
14. MAINTAIN ANY NECESSARY MATERIALS ON SITE TO MAKE ANY EMERGENCY REPAIRS TO TEMPORARY CONVEYANCE SYSTEM. REFER TO UT SPECIFICATION 9.
15. PROVIDE FULL TIME SECURITY DURING ALL TEMPORARY CONVEYANCE OPERATIONS. REFER TO UT SPECIFICATION 9.

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AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
MCES FORCEMAIN 3 OF 3
TEMPORARY CONVEYANCE

DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 012

SHEET 99 OF 214

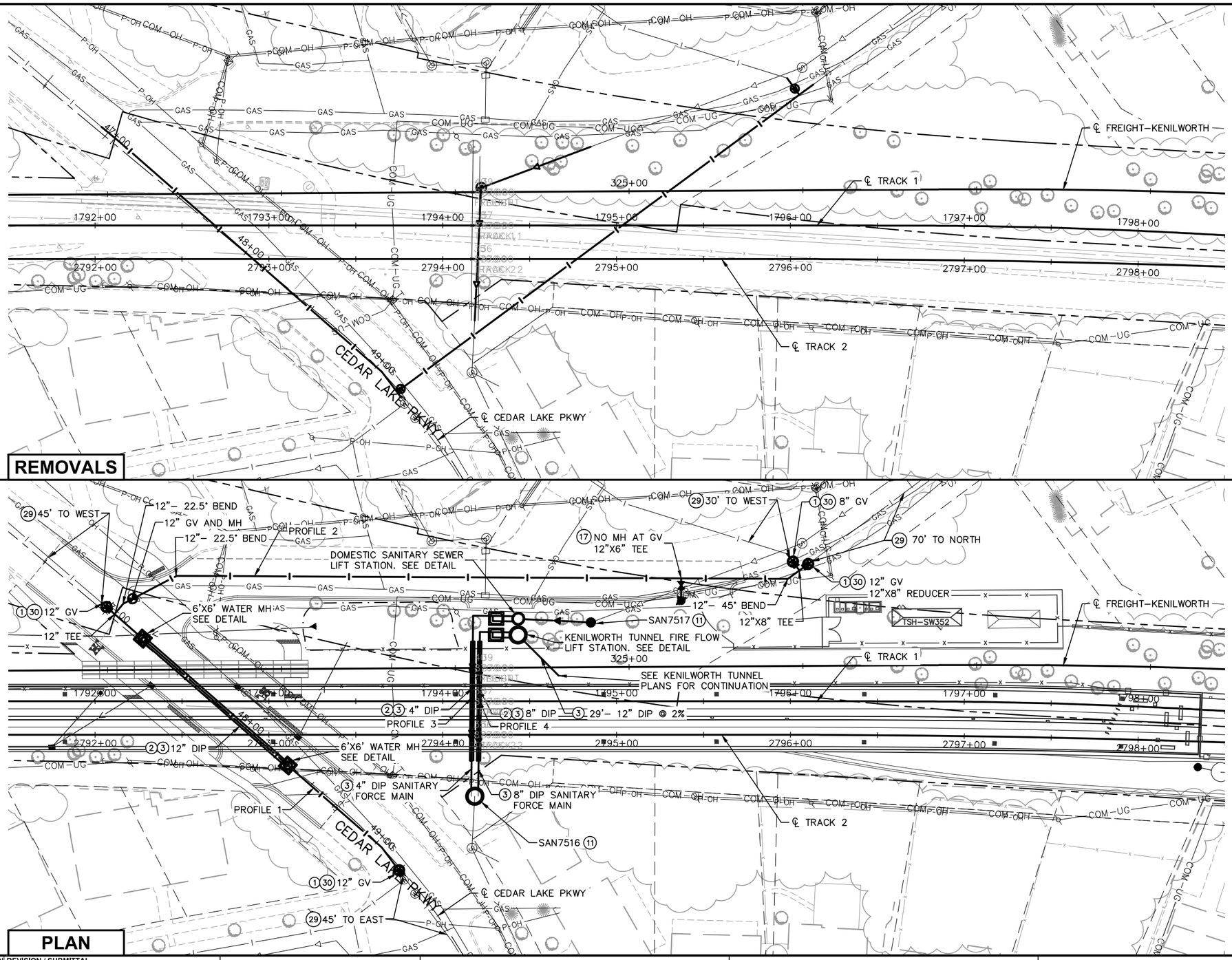
Jan. 18 2016 11:25 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS

PLAN



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CEDAR LAKE AVE 1 OF 2
REMOVALS AND PLAN

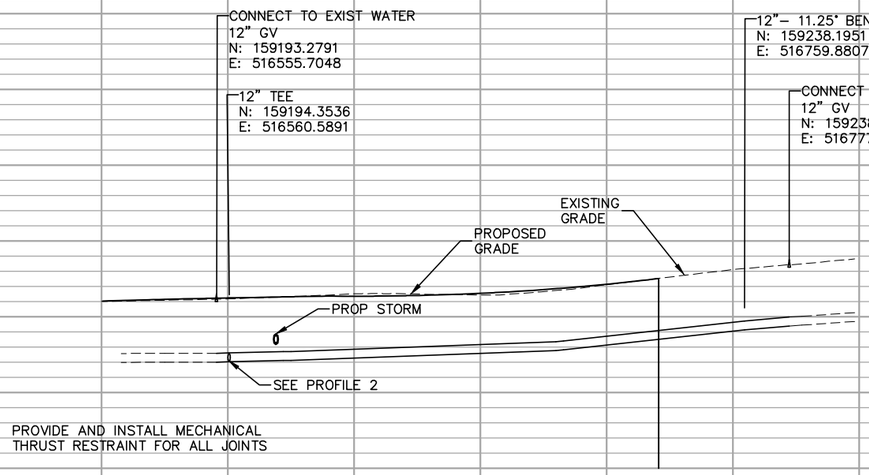
DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 013

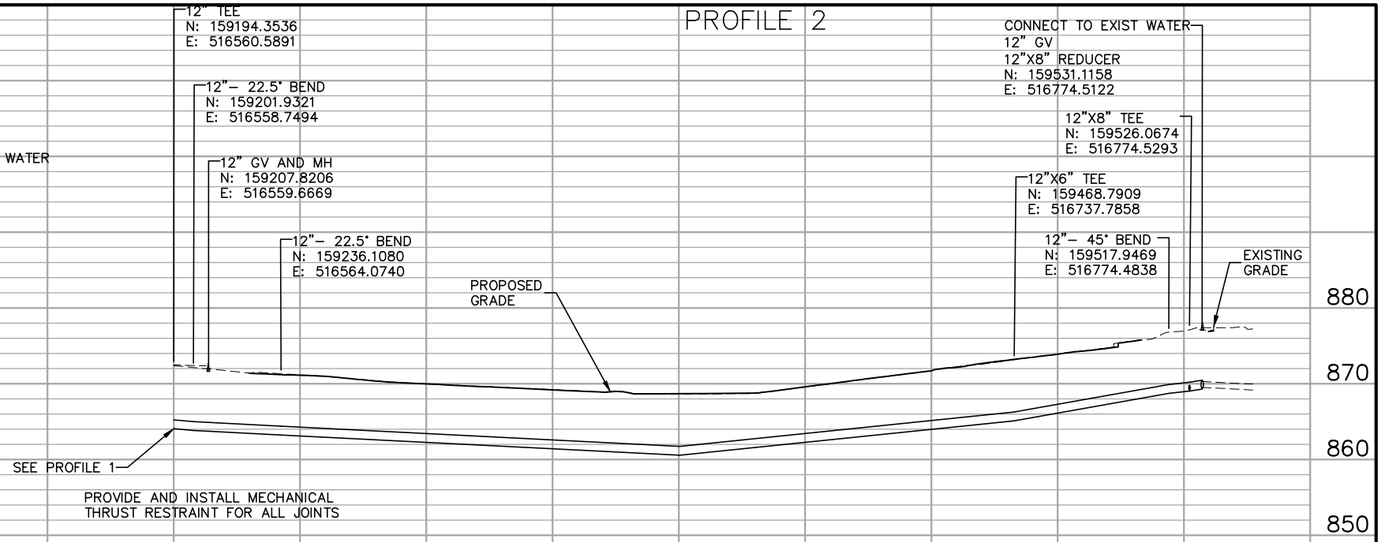
SHEET 100 OF 214

Jan, 18 2016 11:27 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

PROFILE 1



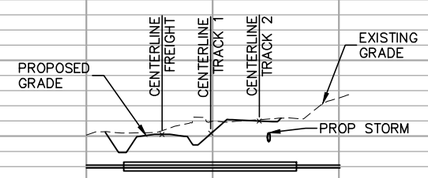
PROFILE 2



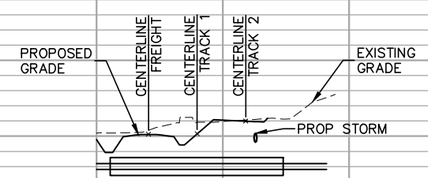
0 5.0 10 20
VERTICAL

0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 3



PROFILE 4



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

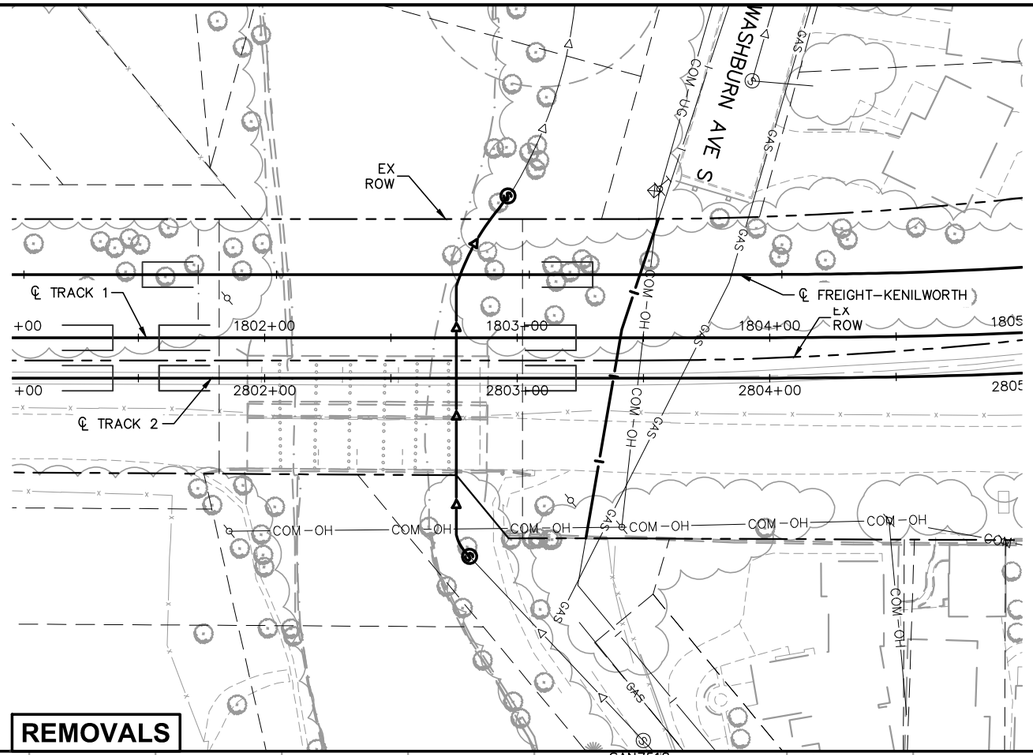
CIVIL - VOLUME 7
UTILITIES
CEDAR LAKE AVE 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

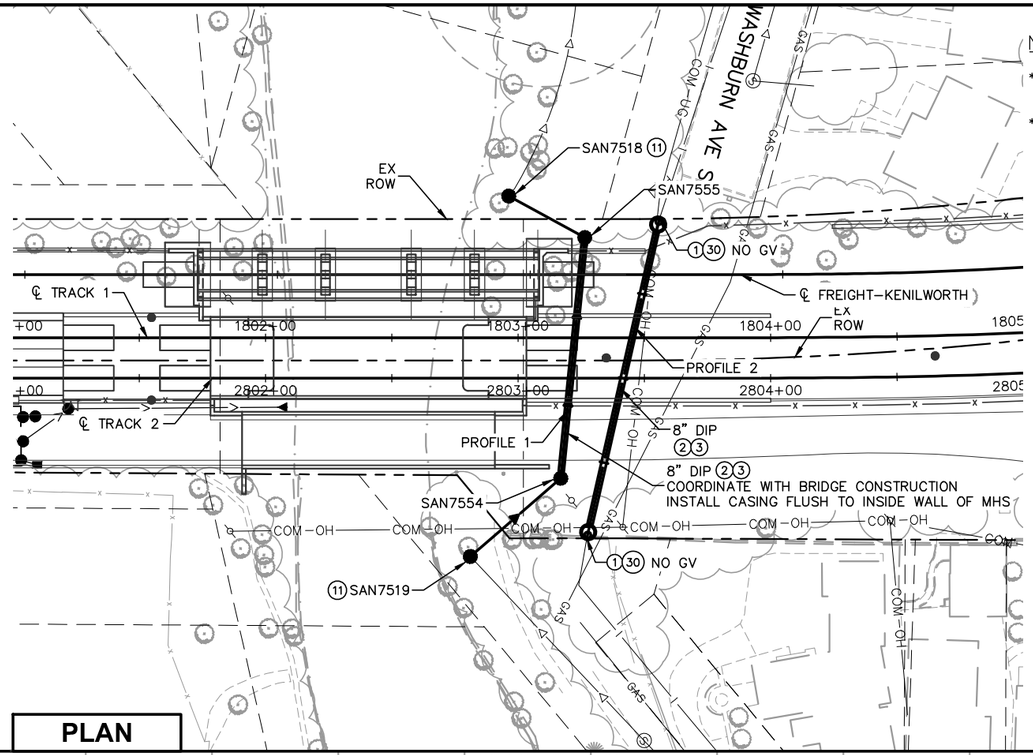
SHEET NAME: E3-UTL-PLN - 014

SHEET 101 OF 214

Jan, 18 2016 11:27 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM



REMOVALS



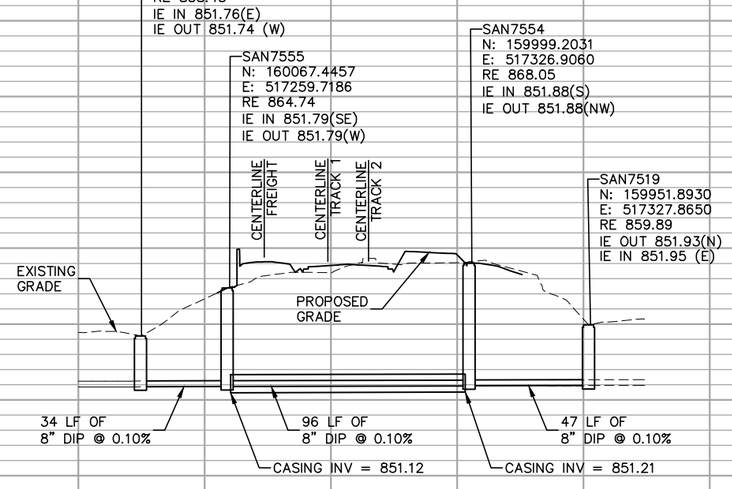
PLAN

NOTES:

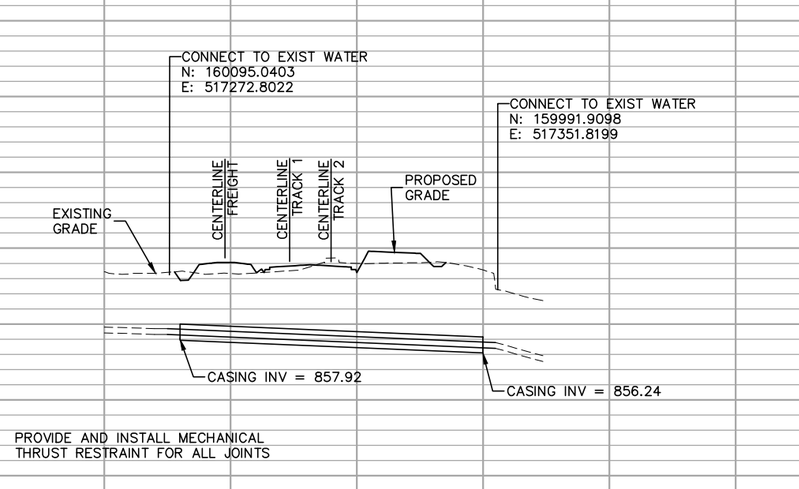
* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX) =SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

0 5.0 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PROFILE 1



PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
CEDAR-ISLES CHANNEL
REMOVALS, PLAN, AND PROFILES

DISCIPLINE: UTILITIES

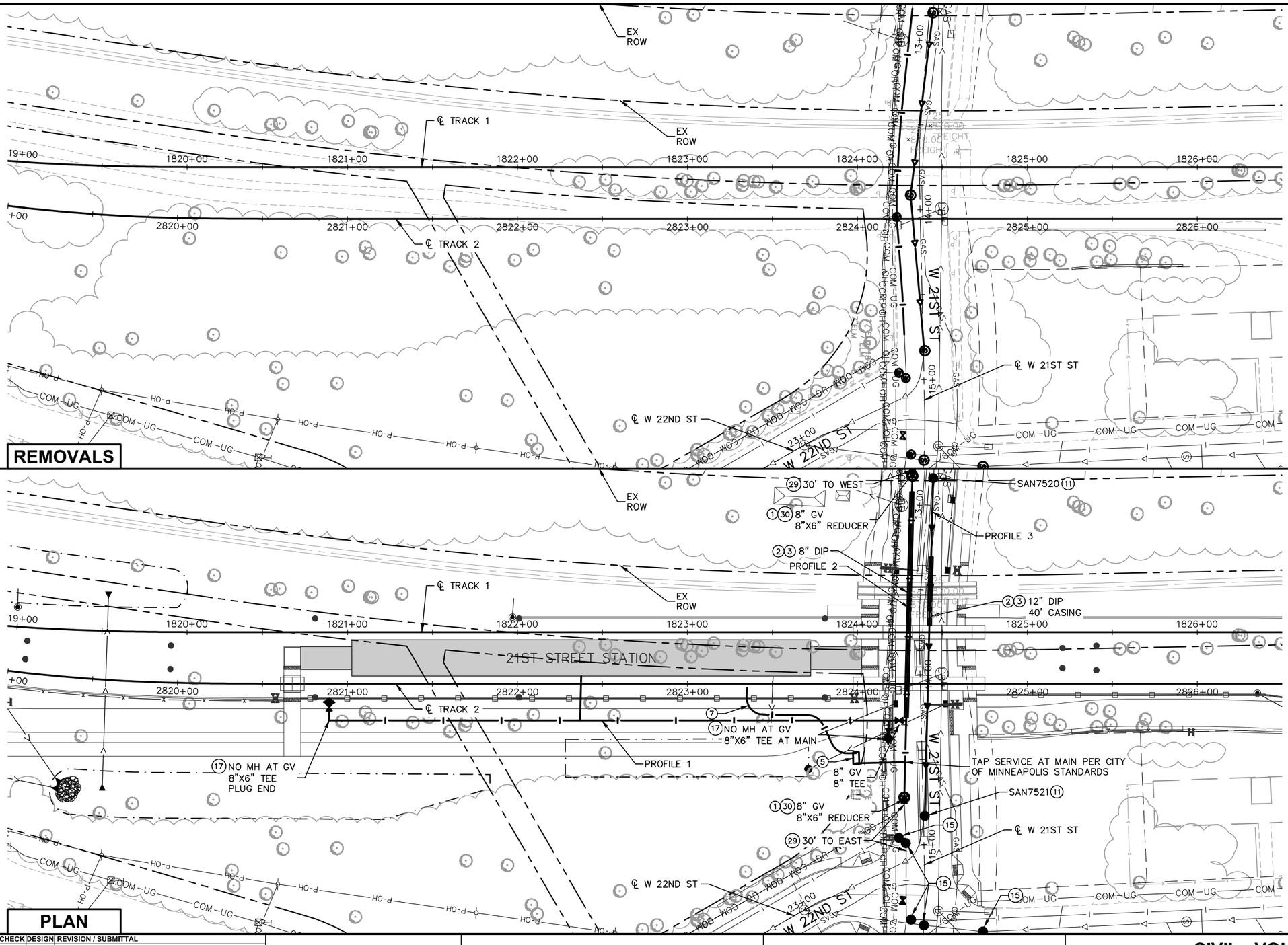
SHEET NAME: E3-UTL-PLN - 015

SHEET 102 OF 214

Jan, 18 2016 11:29 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakiEM

REMOVALS

PLAN



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

HORIZONTAL SCALE IN FEET
0 15 30 60

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
21ST ST STATION 1 OF 2
REMOVALS AND PLAN

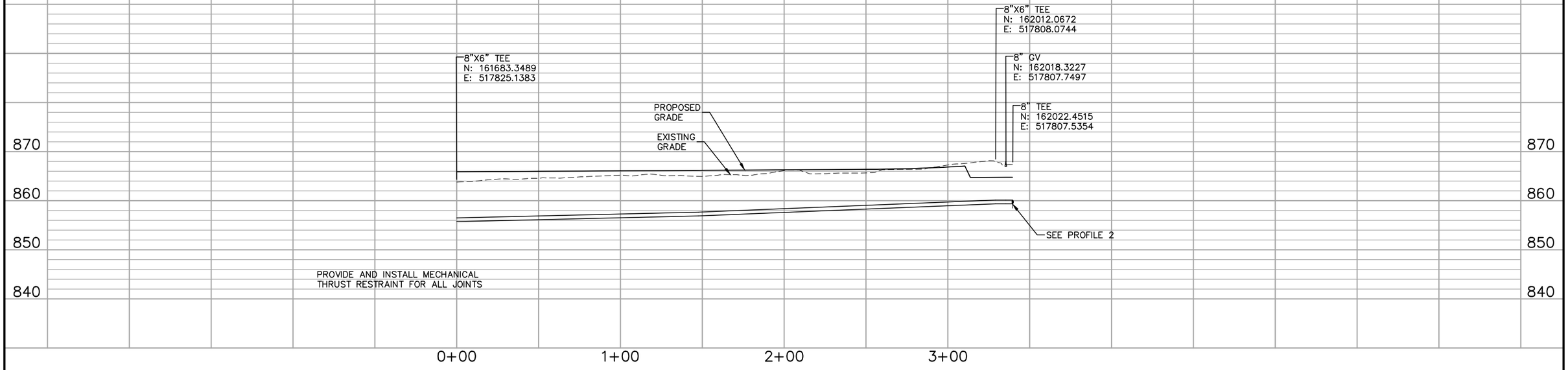
DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 016

SHEET 103 OF 214

Jan, 18 2016 11:31 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MakEM

PROFILE 1

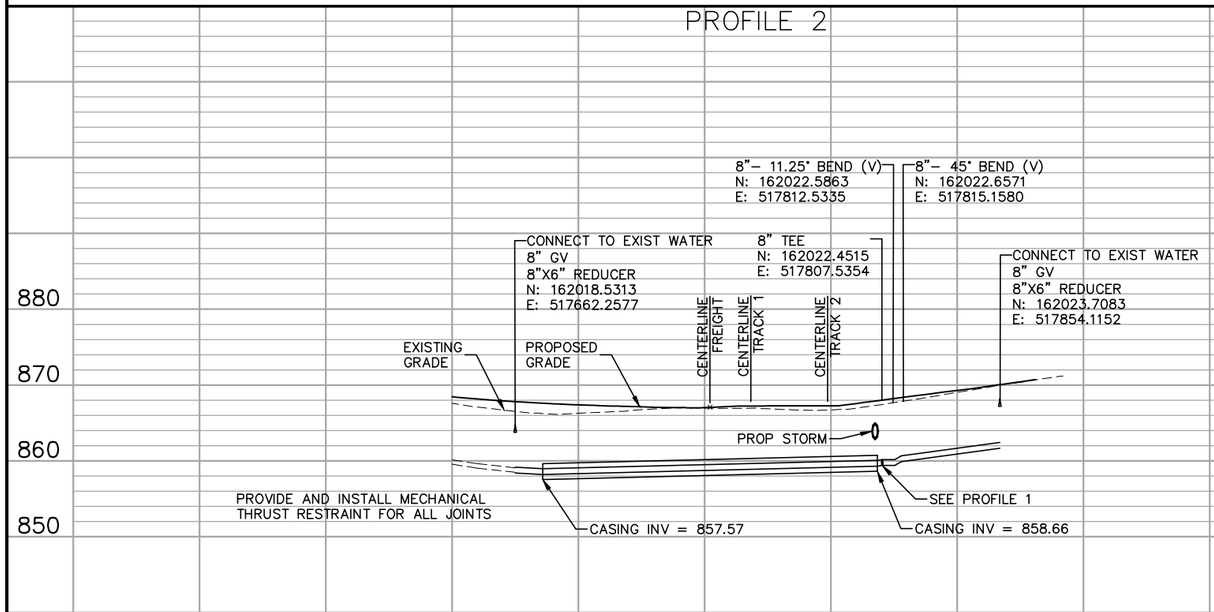


0 5 10 20 VERTICAL

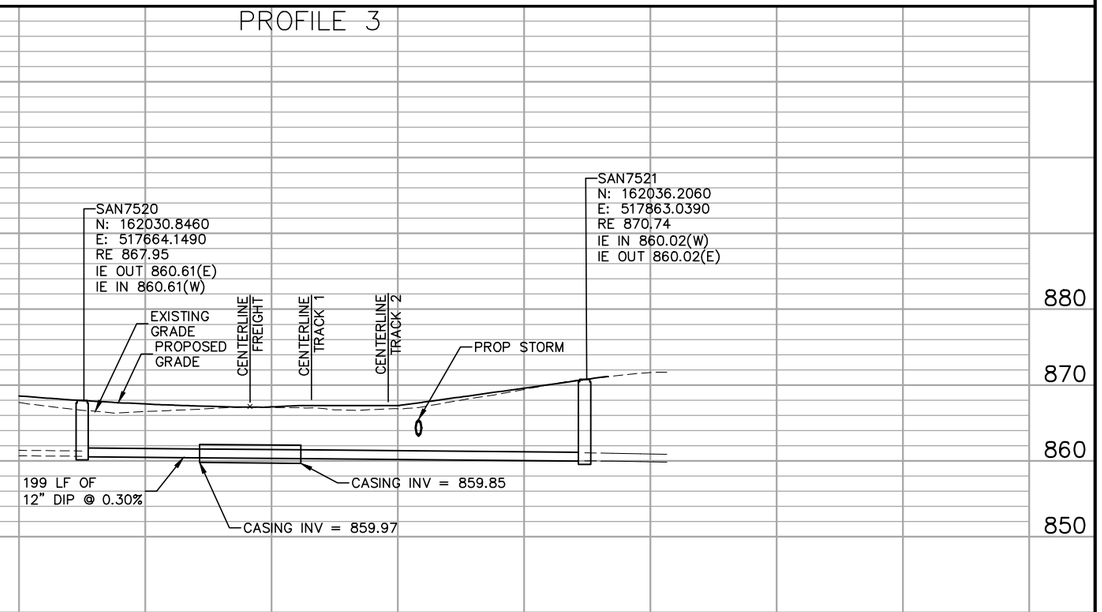
0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 2



PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

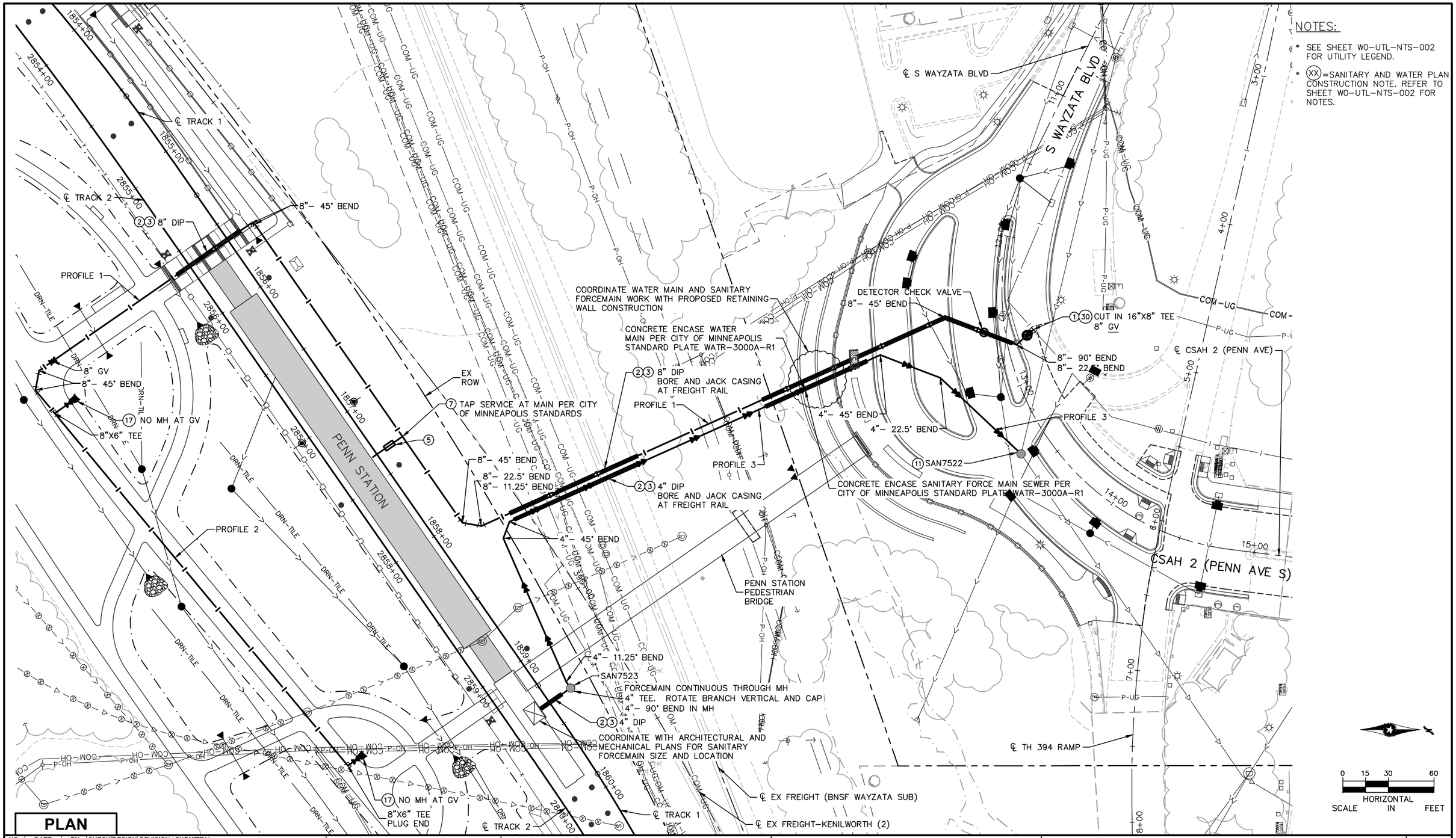
CIVIL - VOLUME 7
UTILITIES
21ST ST STATION 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E3-UTL-PLN - 017

SHEET 104 OF 214

Jan, 18 2016 11:32 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E3-UTL-PLN.dwg By: MokiEM



PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
PENN STATION 1 OF 3
PLAN

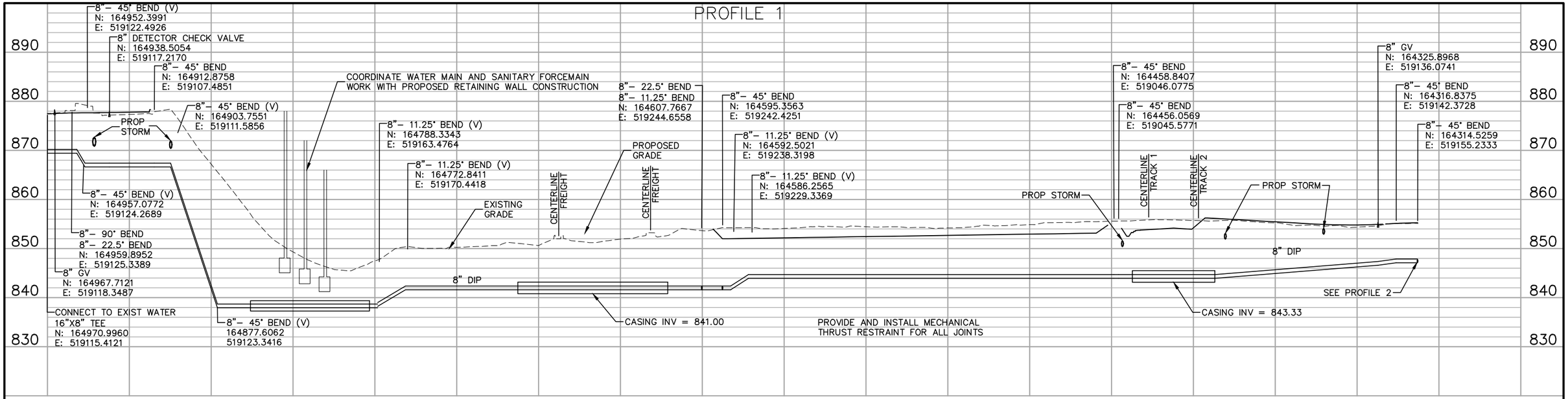
DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 001

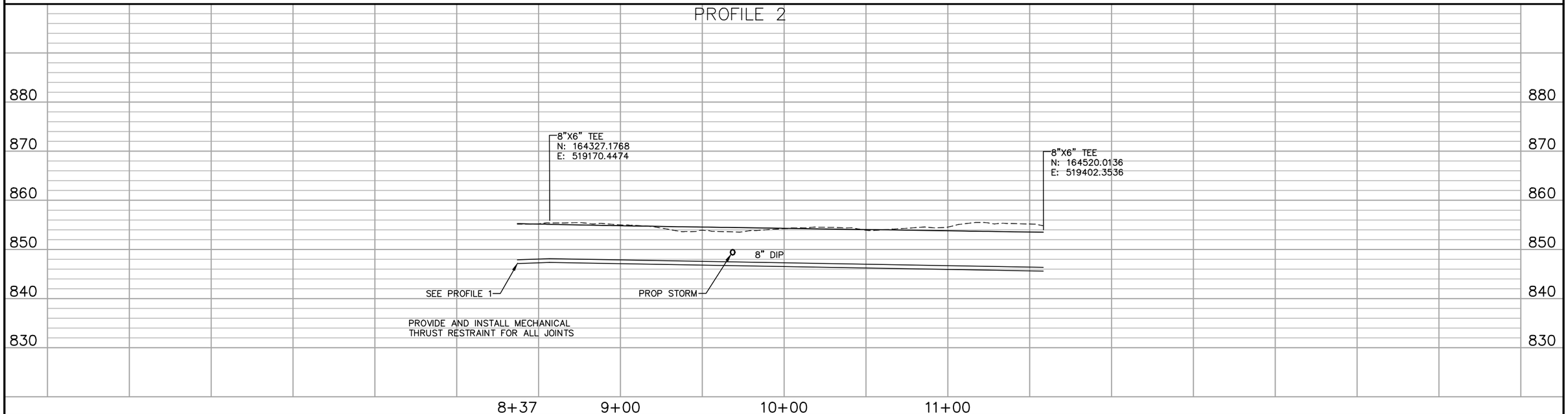
SHEET 105 OF 214

Jan, 18 2016 12:14 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM

PROFILE 1



PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

90% SUBMITTAL - 01/22/16

CIVIL - VOLUME 7
UTILITIES
PENN STATION 2 OF 3
PROFILES

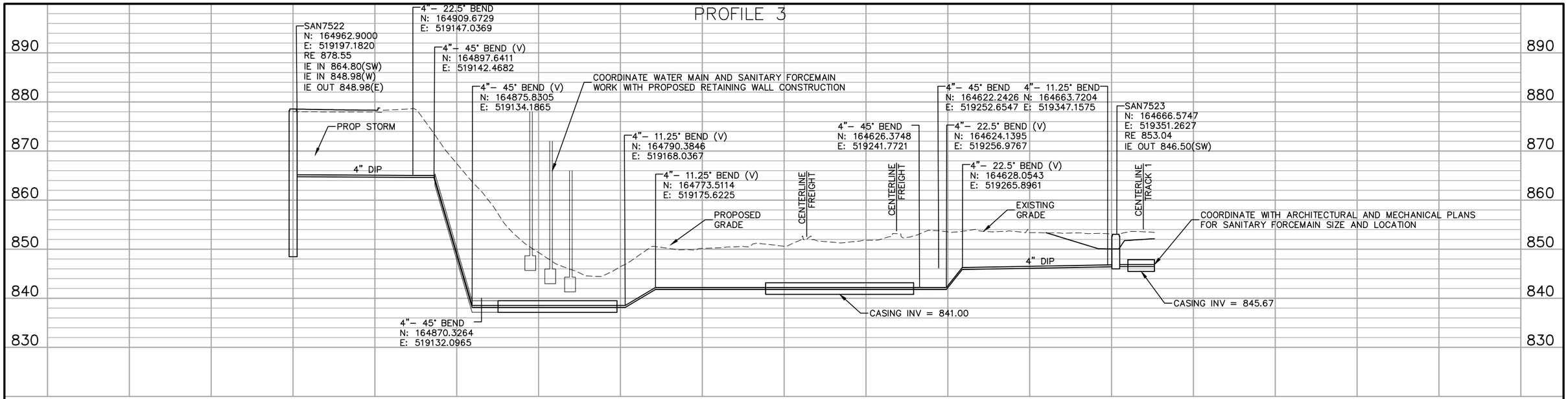
DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 002

SHEET 106 OF 214

Jan, 18 2016 11:37 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM

PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
PENN STATION 3 OF 3
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 003

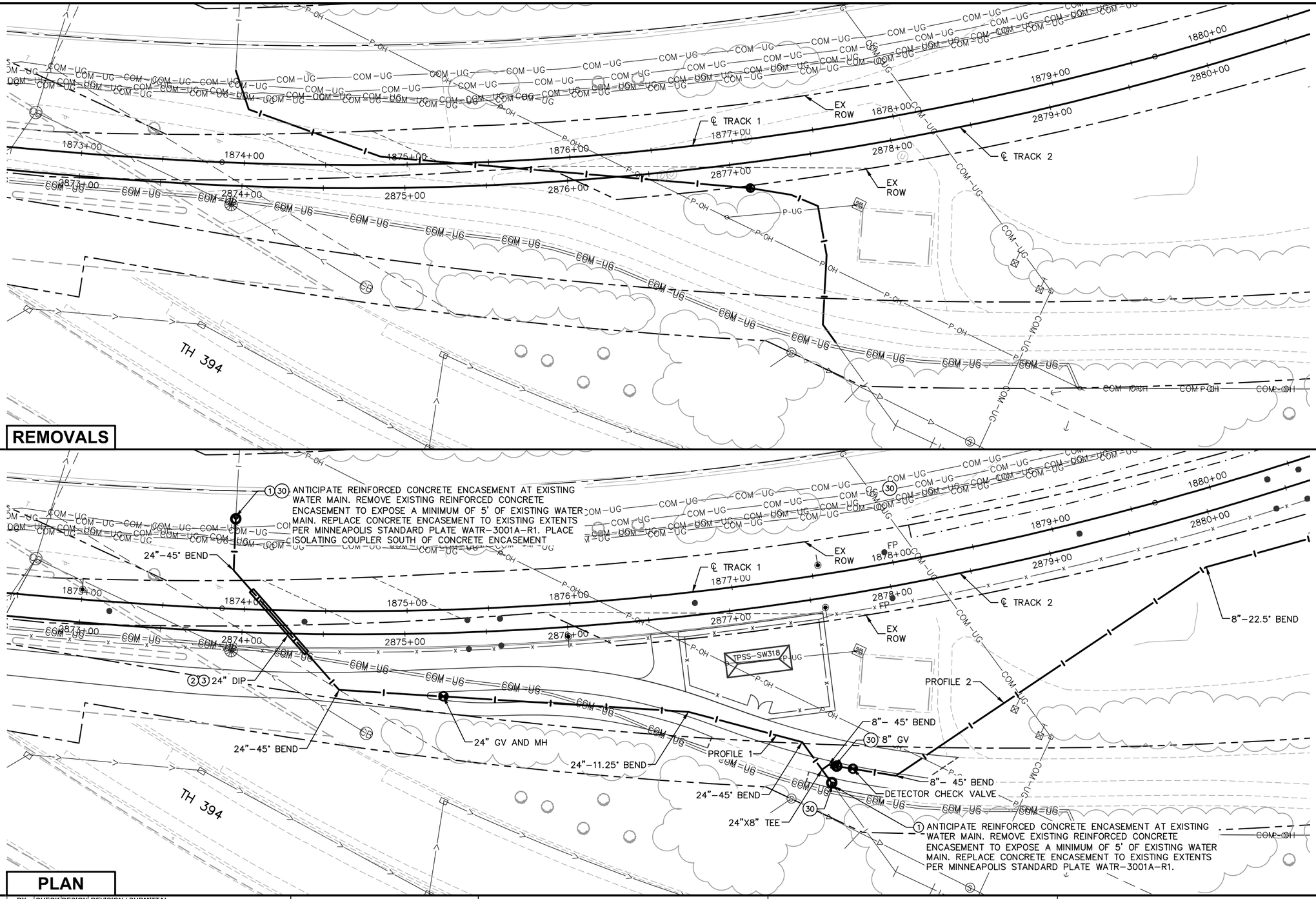
SHEET 107 OF 214

Jan. 18 2016 11:37 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS



PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 1 OF 6
REMOVALS AND PLAN

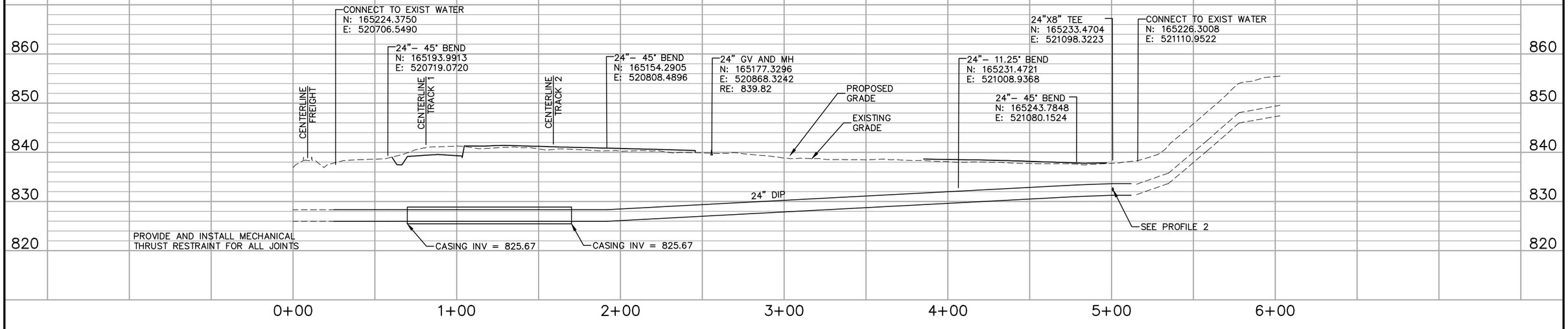
DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 004

SHEET 108 OF 214

Jan, 18 2016 11:39 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM

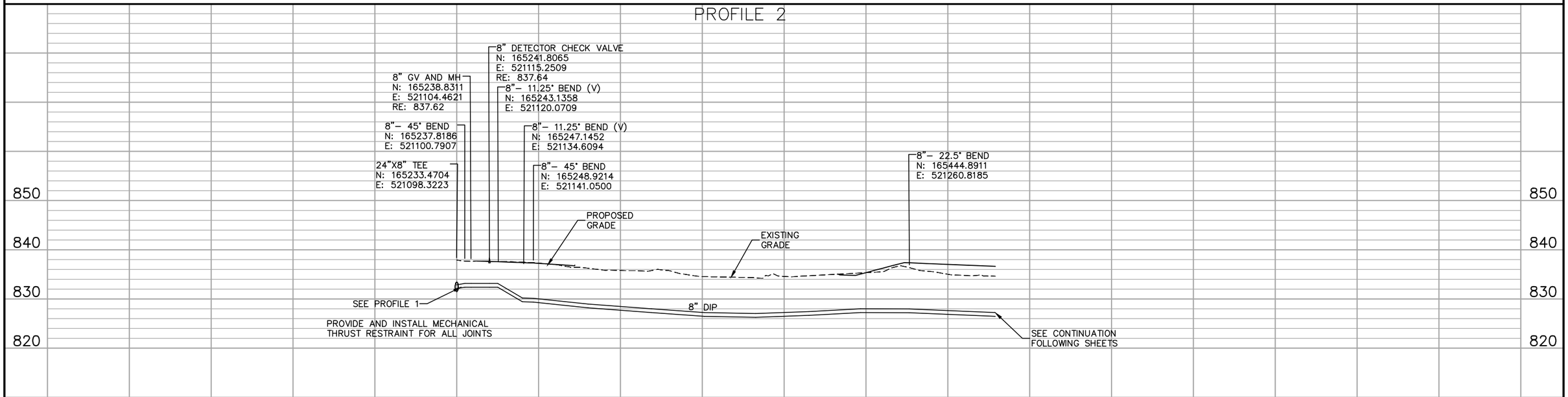
PROFILE 1



VERTICAL: 0 5.0 10 20

HORIZONTAL SCALE IN FEET: 0 15 30 60

PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

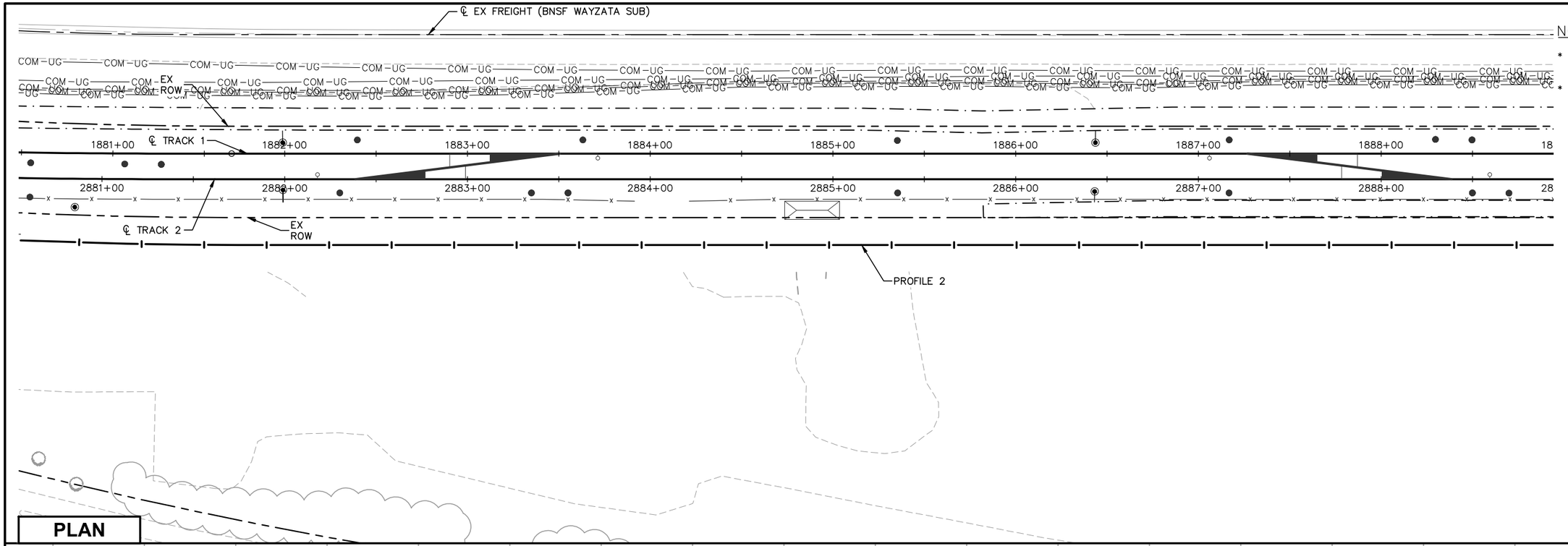
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 2 OF 6
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 005

SHEET 109 OF 214



NOTES:

- * SEE SHEET WO-UTL-NTS-002 FOR UTILITY LEGEND.
- * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET WO-UTL-NTS-002 FOR NOTES.

PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

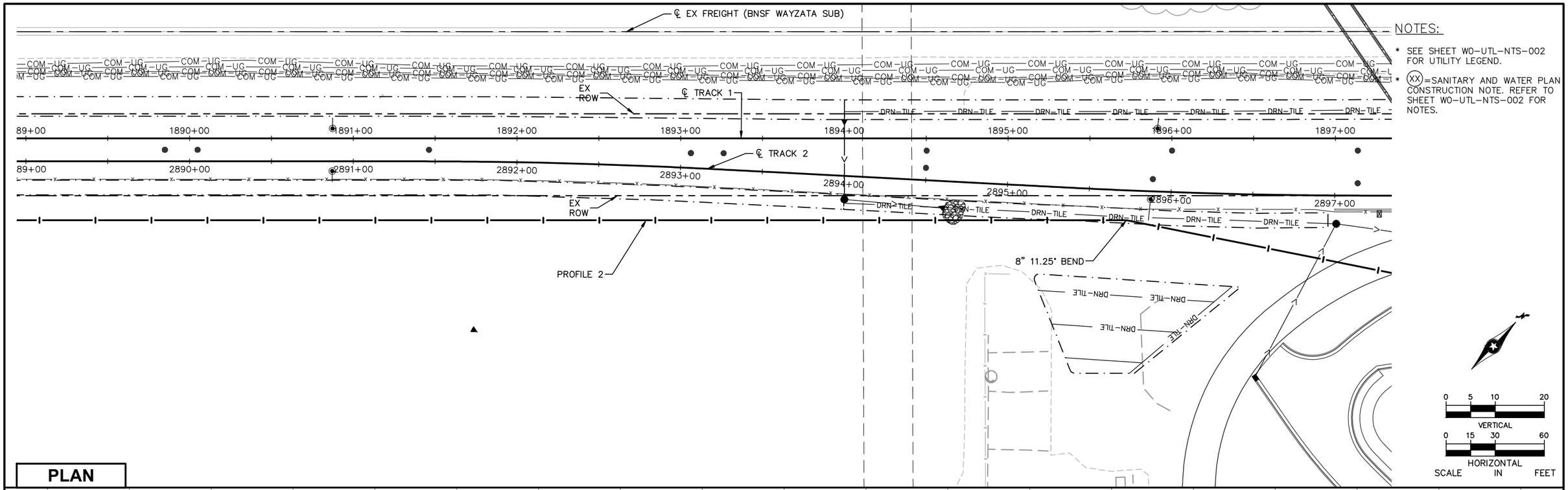
CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 3 OF 6
PLAN AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 006

SHEET 110 OF 214

Jan, 18 2016 11:40 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



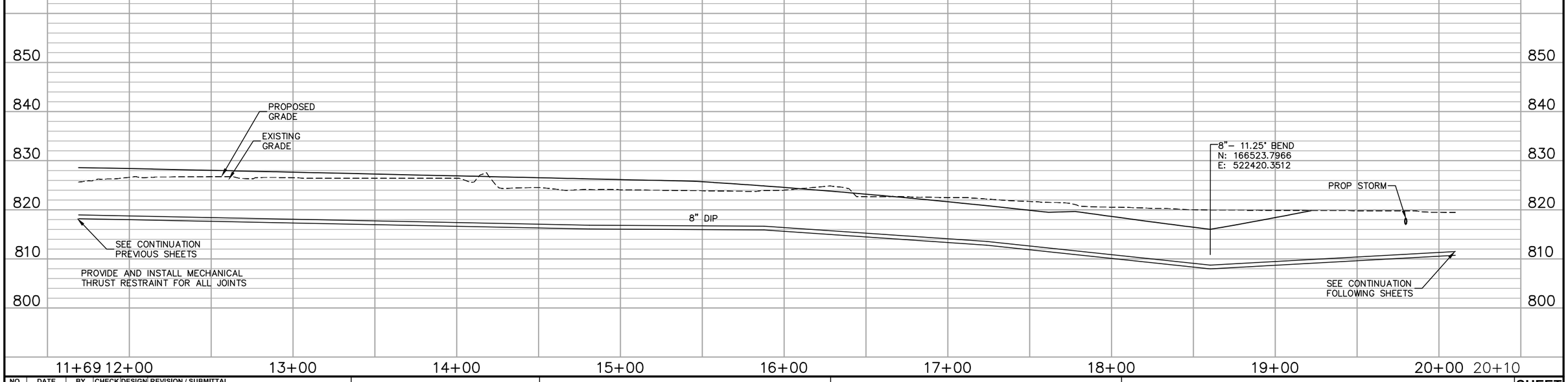
NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

PLAN

PROFILE 2



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

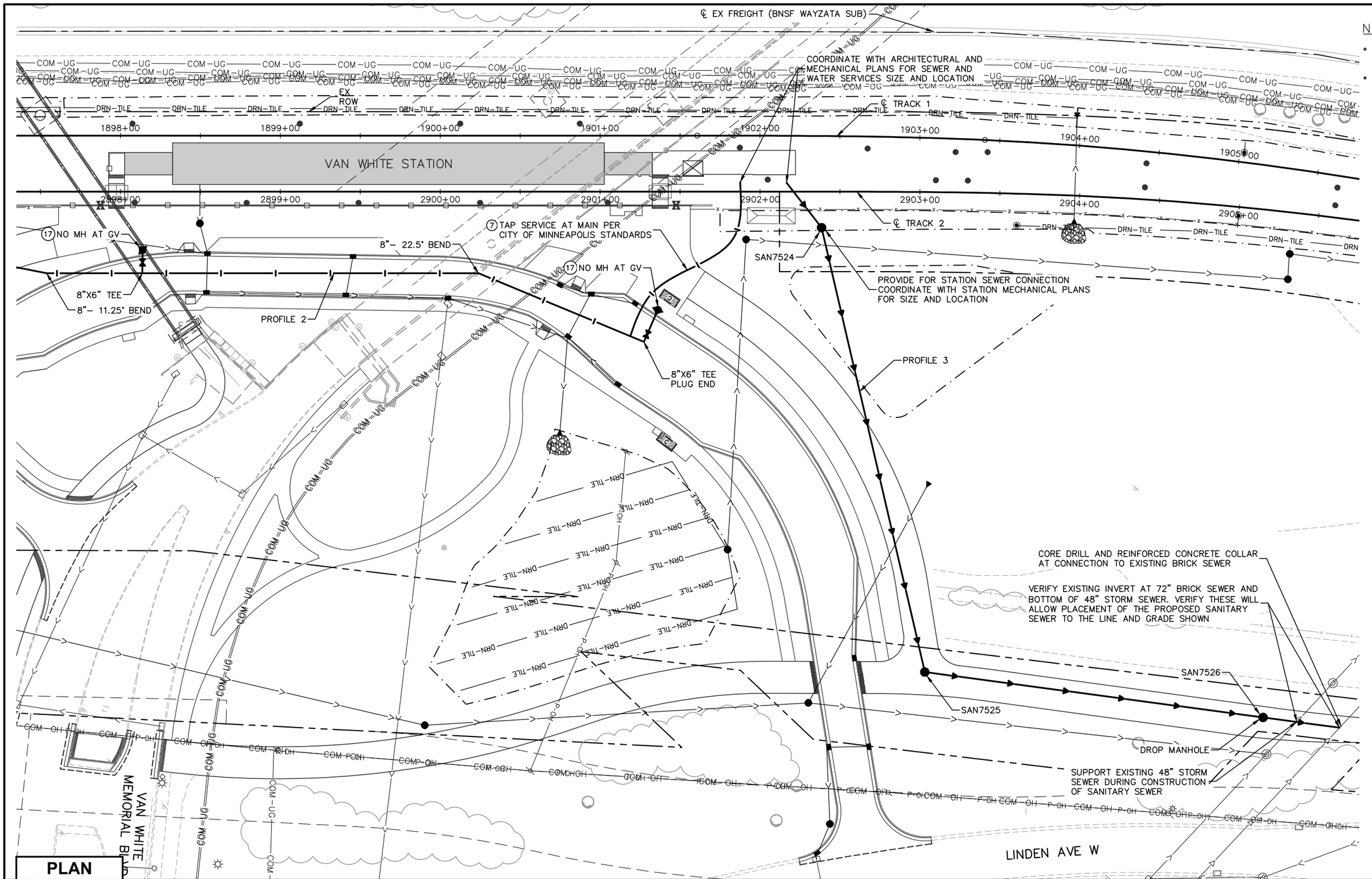
CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 4 OF 6
PLAN AND PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 007

SHEET 111 OF 214

Jan. 18 2016 11:41 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 5 OF 6
PLAN

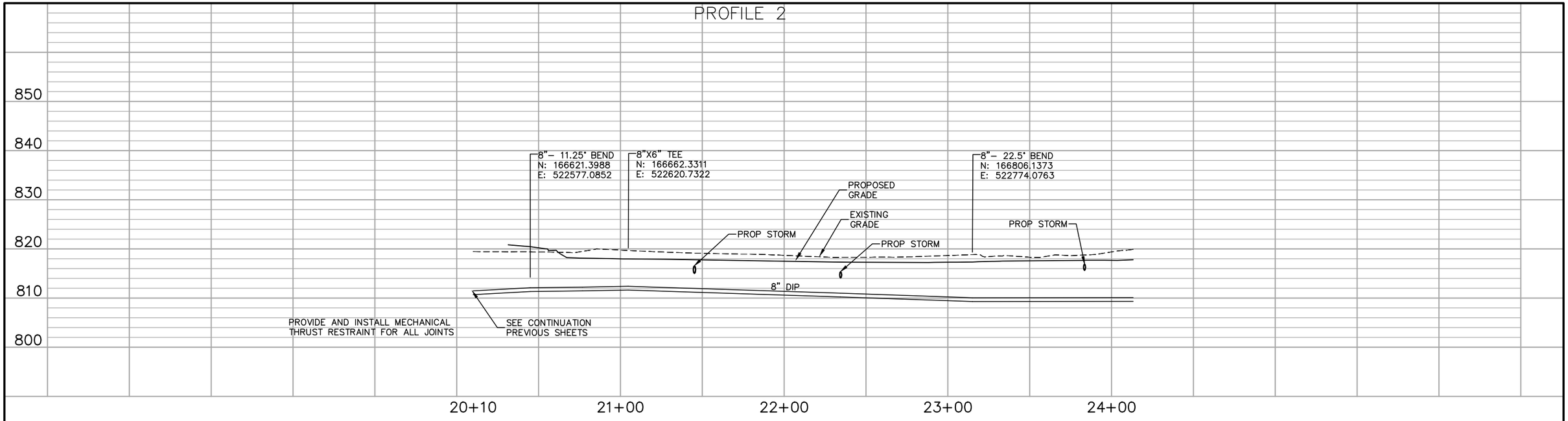
DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 008

SHEET 112 OF 214

Jan, 18 2016 11:42 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM

PROFILE 2

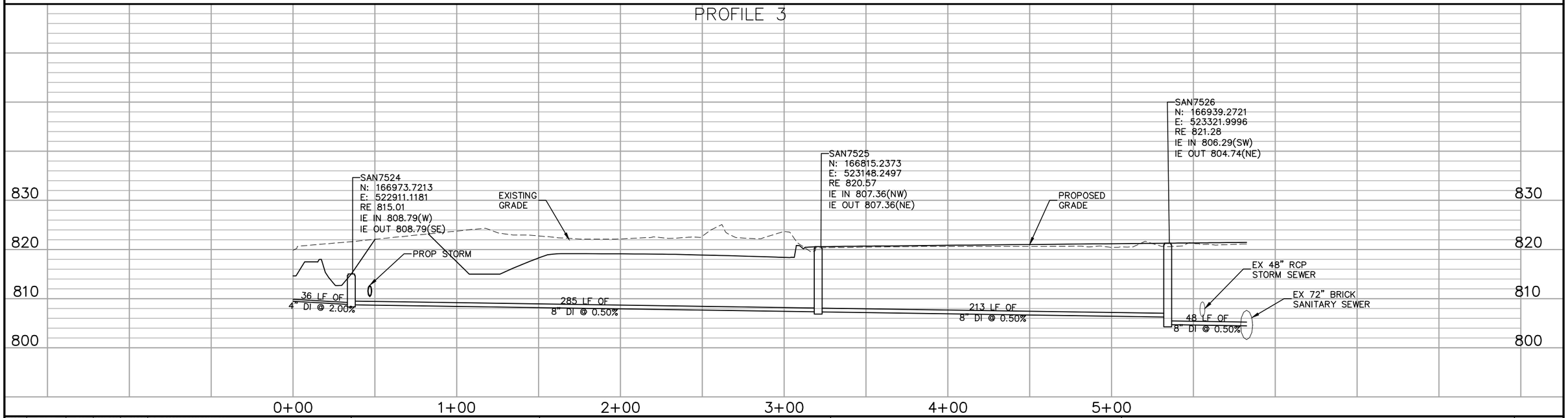


0 5 10 20 VERTICAL

0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 3



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

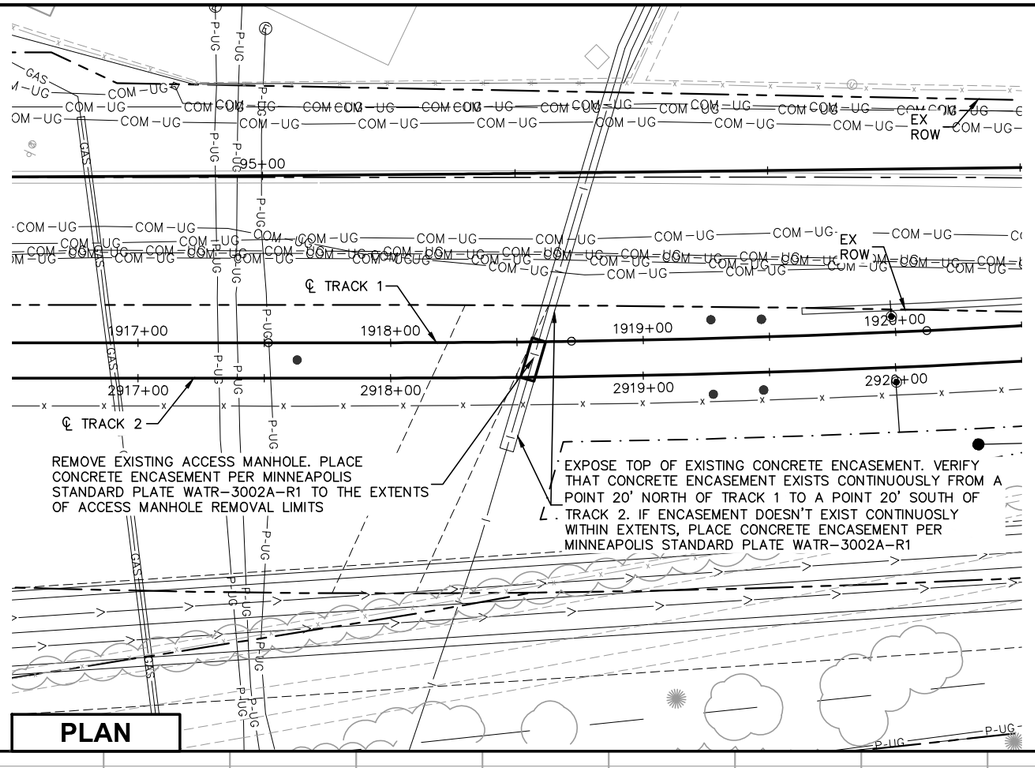
CIVIL - VOLUME 7
UTILITIES
VAN WHITE STATION 6 OF 6
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 009

SHEET 113 OF 214

Jan, 18 2016 11:42 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



PLAN

NOTES:

* SEE SHEET W0–UTL–NTS–002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0–UTL–NTS–002 FOR NOTES.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

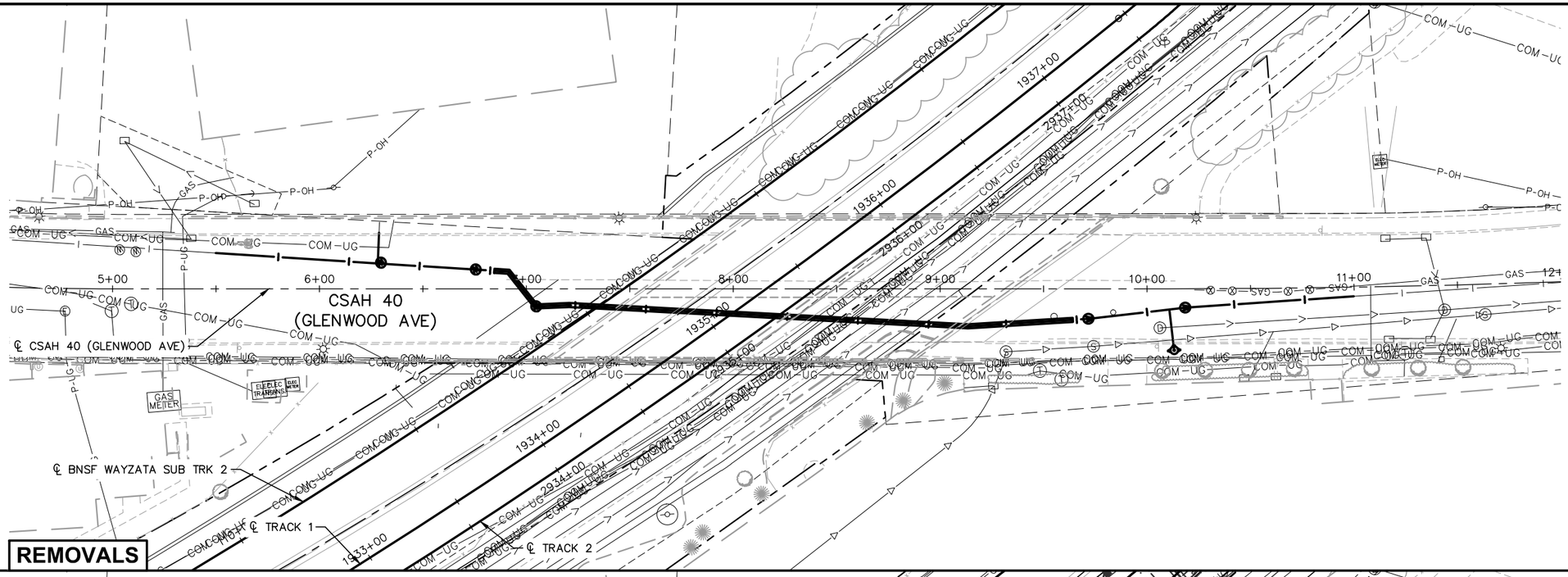
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
36" WATER ACCESS LINDEN YARDS
PLAN AND PROFILES

DISCIPLINE: UTILITIES
SHEET NAME: E4-UTL-PLN - 010

SHEET 114 OF 214

Jan. 18 2016 11:43 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4–UTL–PLN.dwg By: MokiEM



NOTES:

- * SEE SHEET WO-UTL-NTS-002 FOR UTILITY LEGEND.
- * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET WO-UTL-NTS-002 FOR NOTES.

(A) COORDINATE AND PHASE WATER MAIN CONSTRUCTION WITH SUPPORT OF EXCAVATION MEASURES, PILE INSTALLATION, AND RETAINING WALL AND BRIDGE CONSTRUCTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMITTAL - 01/22/16

CIVIL - VOLUME 7
UTILITIES
GLENWOOD AVE 1 OF 2
REMOVALS AND PLAN

SHEET 115 OF 214

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 011

Jan, 18 2016 11:45 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM

0 5 10 20
VERTICAL

0 15 30 60
HORIZONTAL
SCALE IN FEET

COORDINATE AND PHASE WATER MAIN CONSTRUCTION WITH SUPPORT OF EXCAVATION MEASURES, PILE INSTALLATION, AND RETAINING WALL AND BRIDGE CONSTRUCTION

CONNECT TO EXIST WATER
N: 168574.6271
E: 525527.8147

8"– 45° BEND
N: 168554.0384
E: 525616.7740

8"– 45° BEND
N: 168562.4641
E: 525610.3620

8"– 45° BEND (V)
N: 168548.4413
E: 525615.9493

8" GV AND MH
N: 168564.6512
E: 525595.5184

8"– 45° BEND (V)
N: 168518.7576
E: 525611.5755

8"– 45° BEND
N: 168502.1155
E: 525609.1234

8"– 11.25° BEND (V)
N: 168471.7338
E: 525701.2419

CENTERLINE FREIGHT

CENTERLINE TRACK 1

CENTERLINE TRACK 2

8"– 11.25° BEND (V)
N: 168468.8184
E: 525721.0283

PROPOSED GRADE

EXISTING GRADE

PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS

8"– 45° BEND
N: 168483.2403
E: 525623.1505

8"– 45° BEND
N: 168463.9009
E: 525754.4021

8" DIP

8" DIP

BORE AND JACK CASING AT EXISTING FREIGHT RAIL

CASING INV = 805.33

BASSETT CREEK STORM TUNNEL

8"– 45° BEND (V)
N: 168510.6729
E: 525928.9487

8"– 45° BEND
8"– 11.25° BEND
N: 168510.7243
E: 525925.5640

8"– 45° BEND
N: 168538.5228
E: 525908.6314

8"– 45° BEND
N: 168543.8829
E: 525886.5654

8"– 45° BEND (V)
N: 168510.2374
E: 525957.5854

8" GV AND MH
N: 168510.1802
E: 525961.3491

8"X6" TEE
N: 168509.6701
E: 525994.8911

CONNECT TO EXIST WATER
N: 168508.4638
E: 526074.2175

860 850 840 830 820 810 800 790 780 770

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

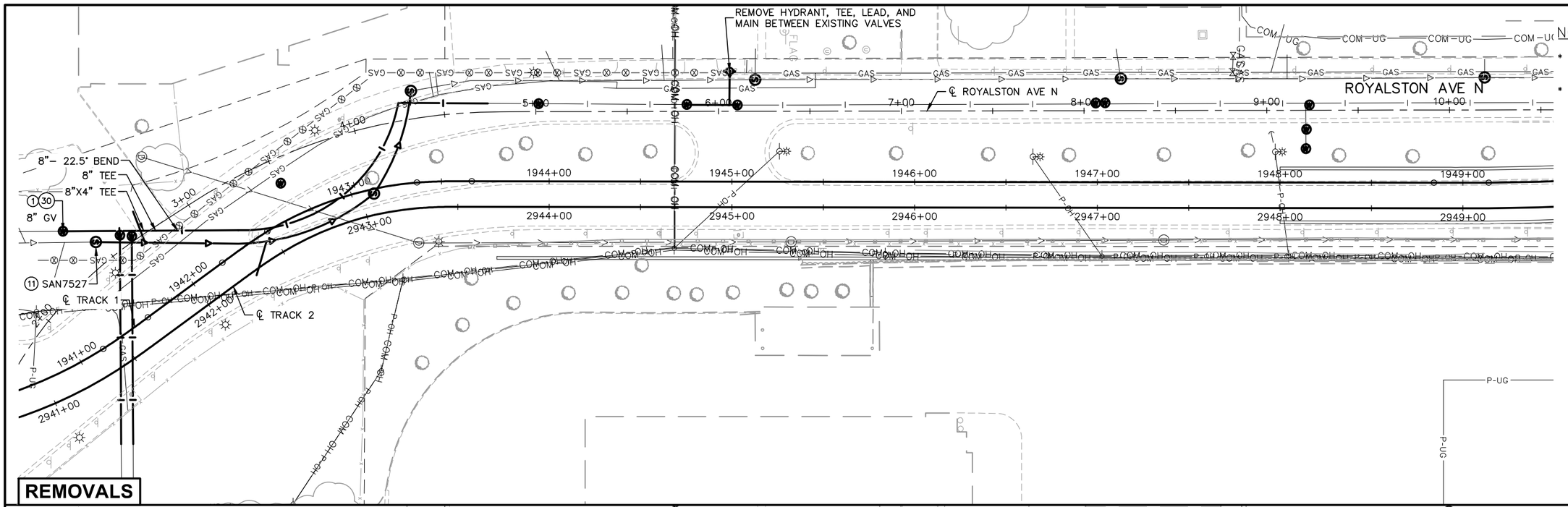
CIVIL - VOLUME 7
UTILITIES
GLENWOOD AVE 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 012

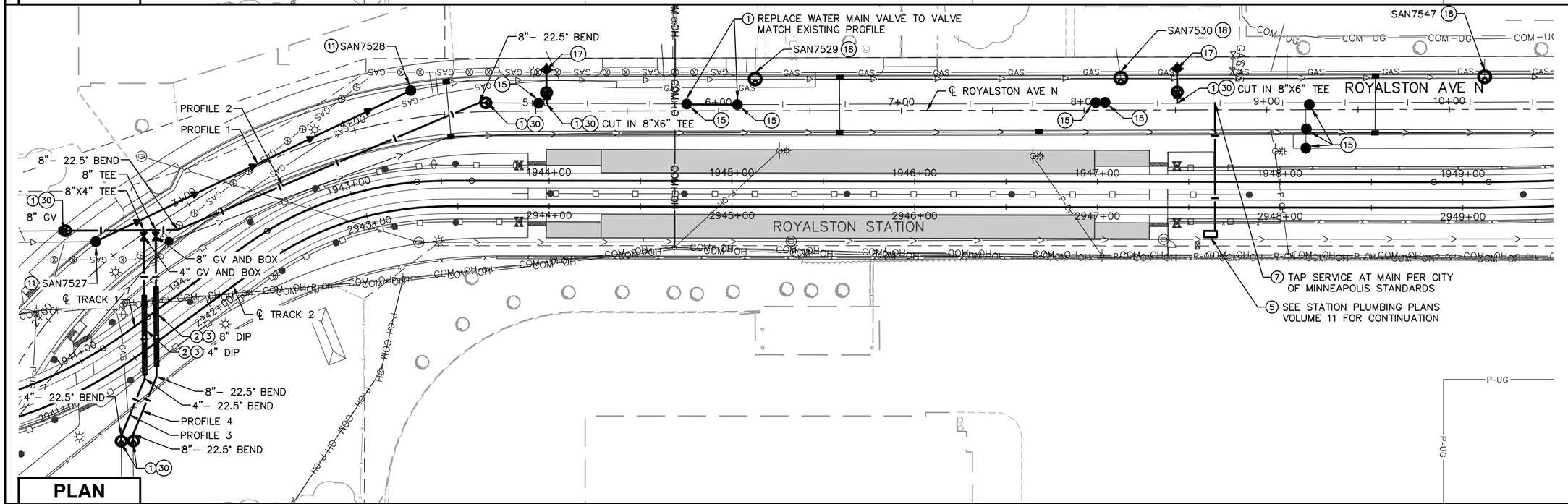
SHEET 116 OF 214

Jan, 18 2016 11:45 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM



NOTES:

* SEE SHEET E0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E0-UTL-NTS-002 FOR NOTES.



0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
ROYALSTON STATION 1 OF 2
REMOVALS AND PLANS

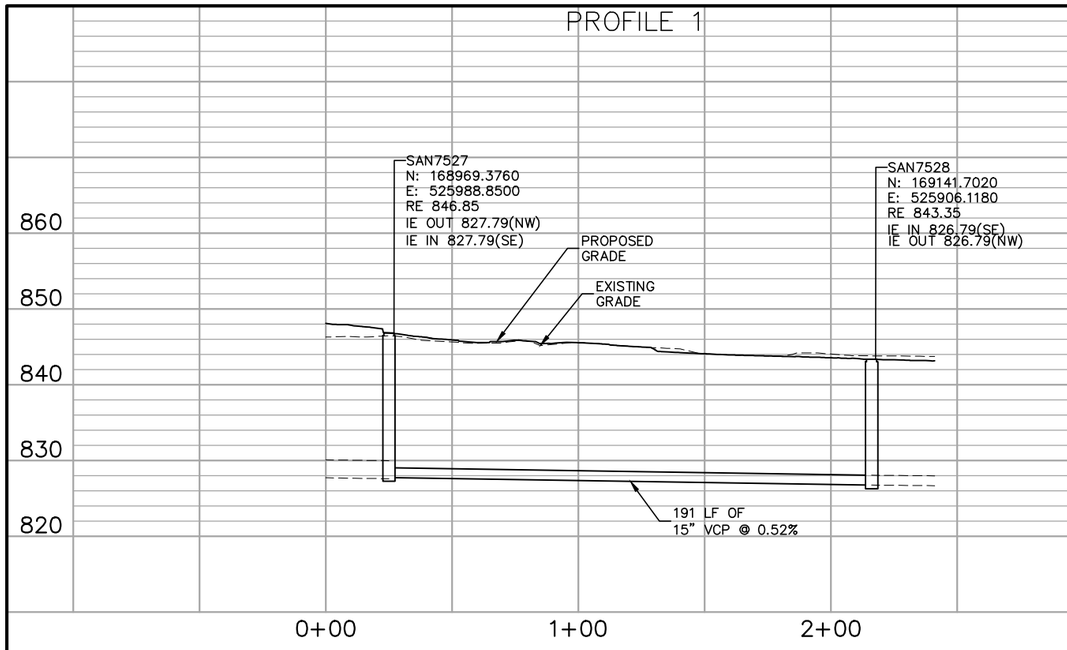
DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 013

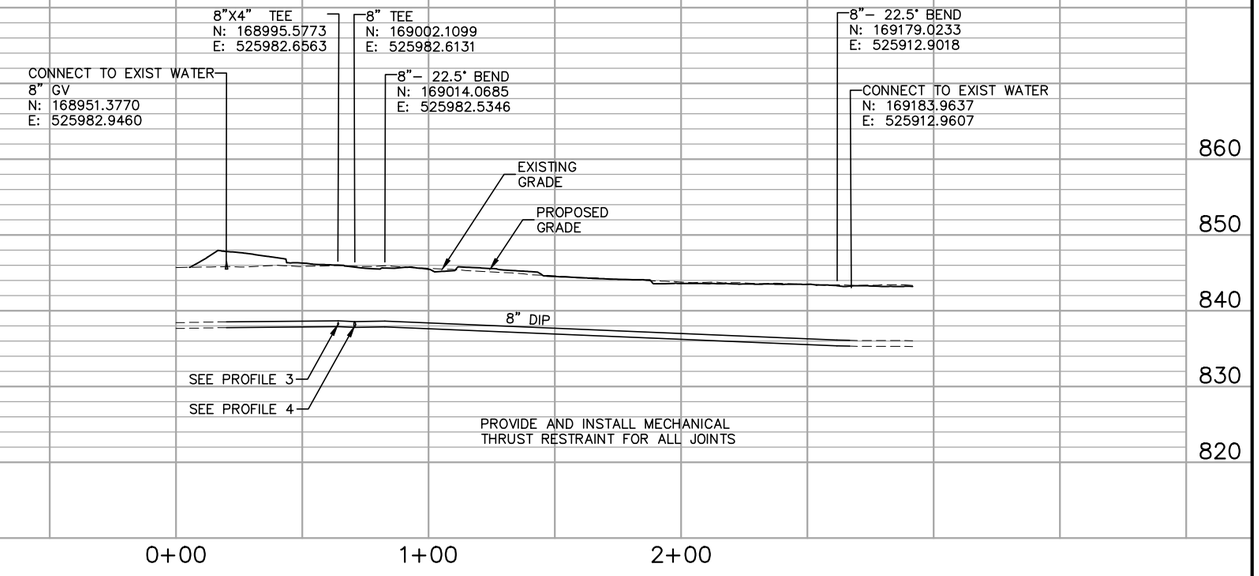
SHEET 117 OF 214

Jan. 18 2016 11:47 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM

PROFILE 1



PROFILE 2

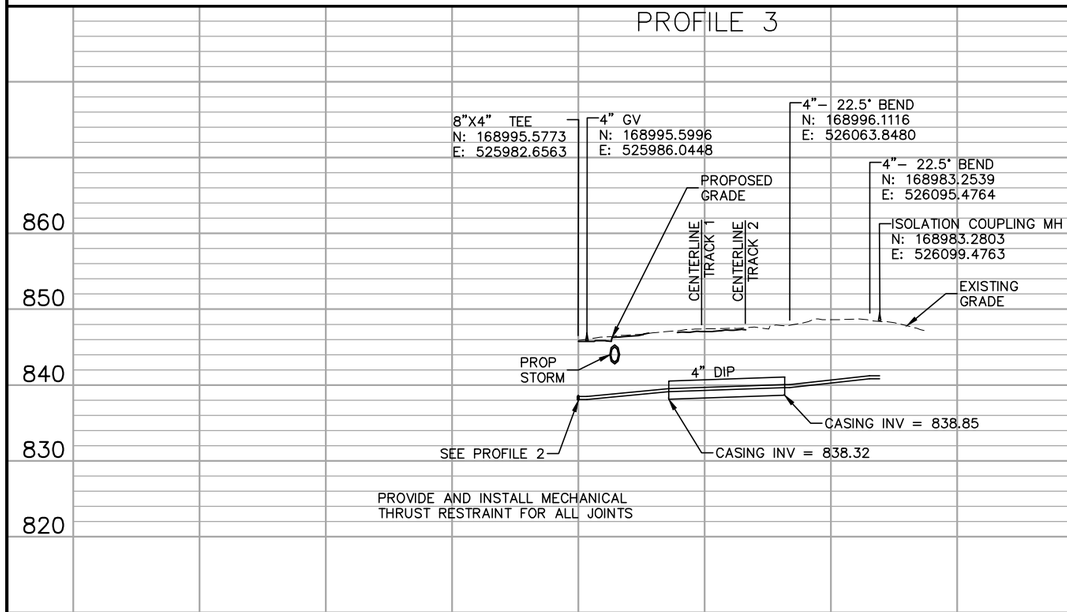


0 5 10 20 VERTICAL

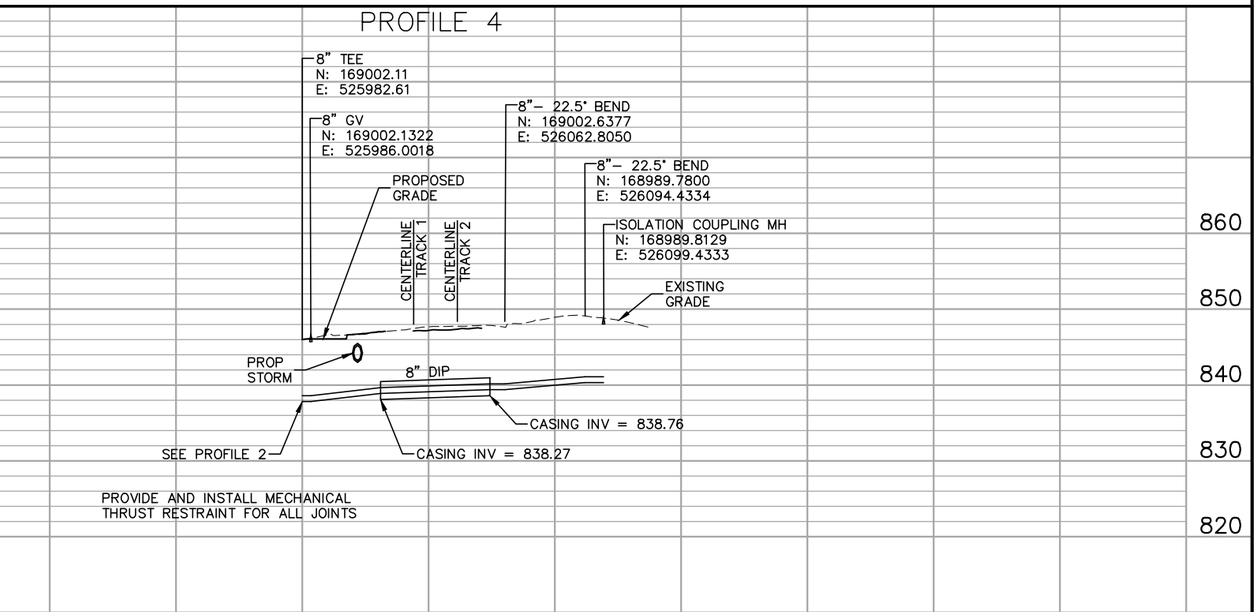
0 15 30 60 HORIZONTAL

SCALE IN FEET

PROFILE 3



PROFILE 4



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
ROYALSTON STATION 2 OF 2
PROFILES

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 014

SHEET 118 OF 214

Jan, 18 2016 02:21 pm V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS

PLAN

ROYALSTON AVE N
℄ ROYALSTON AVE N
℄ TRACK 1
℄ TRACK 2
℄ 5TH AVE N
5TH AVE N
℄ 7TH ST N
7TH ST N
REMOVE EXISTING TEE AND MAIN BETWEEN EXISTING HYDRANT AND PROPOSED HYDRANT. SEE PLAN BELOW FOR PROPOSED HYDRANT
SAN7534
SAN7532
SAN7533
SAN7531
8" DIP
8"X6" TEE
10" BASSWOOD
ELEC TRANS.
0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

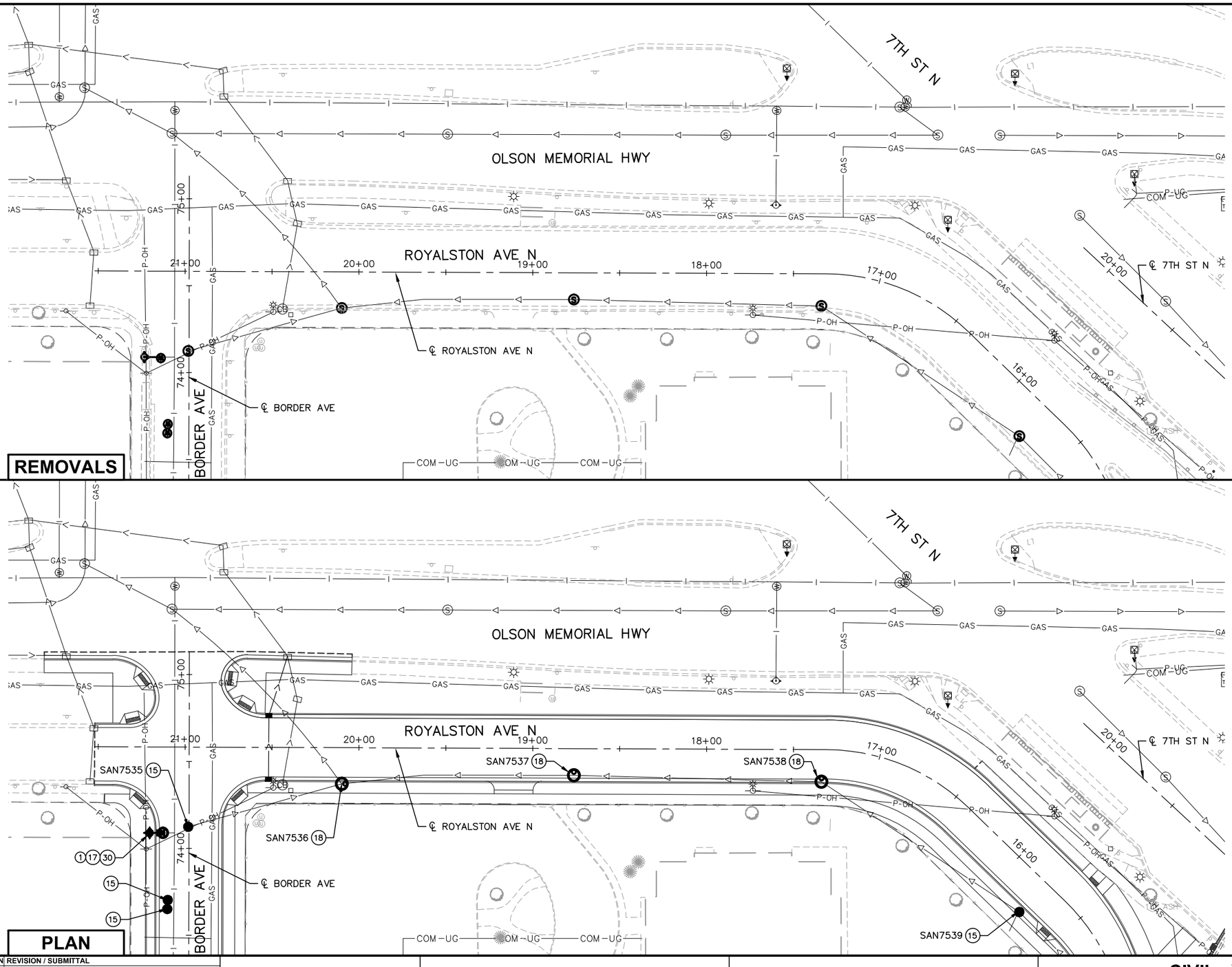
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
ROYALSTON AVE N / 5TH AVE N
REMOVALS AND PLAN

DISCIPLINE: UTILITIES
SHEET NAME: E4-UTL-PLN - 015

SHEET 119 OF 214

Jan, 18 2016 11:49 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MokiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX) = SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

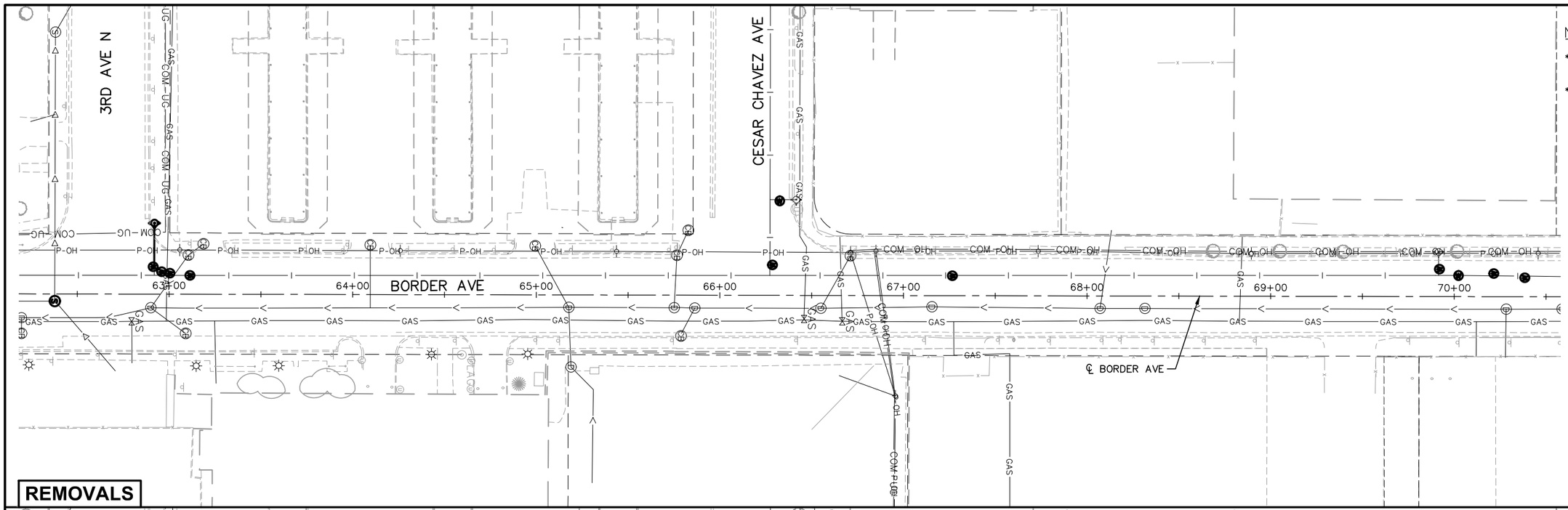
CIVIL - VOLUME 7
UTILITIES
ROYALSTON AVE N / BORDER AVE
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 016

SHEET 120 OF 214

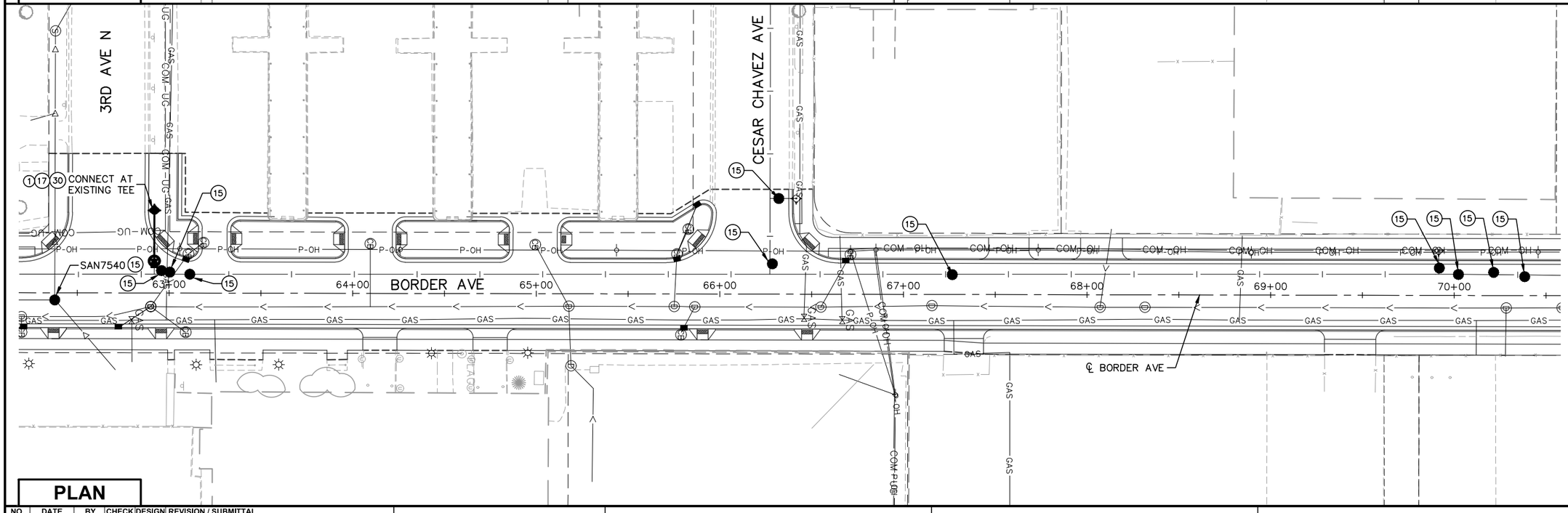
Jan, 18 2016 11:50 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

REMOVALS



0 15 30 60
HORIZONTAL SCALE IN FEET

PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

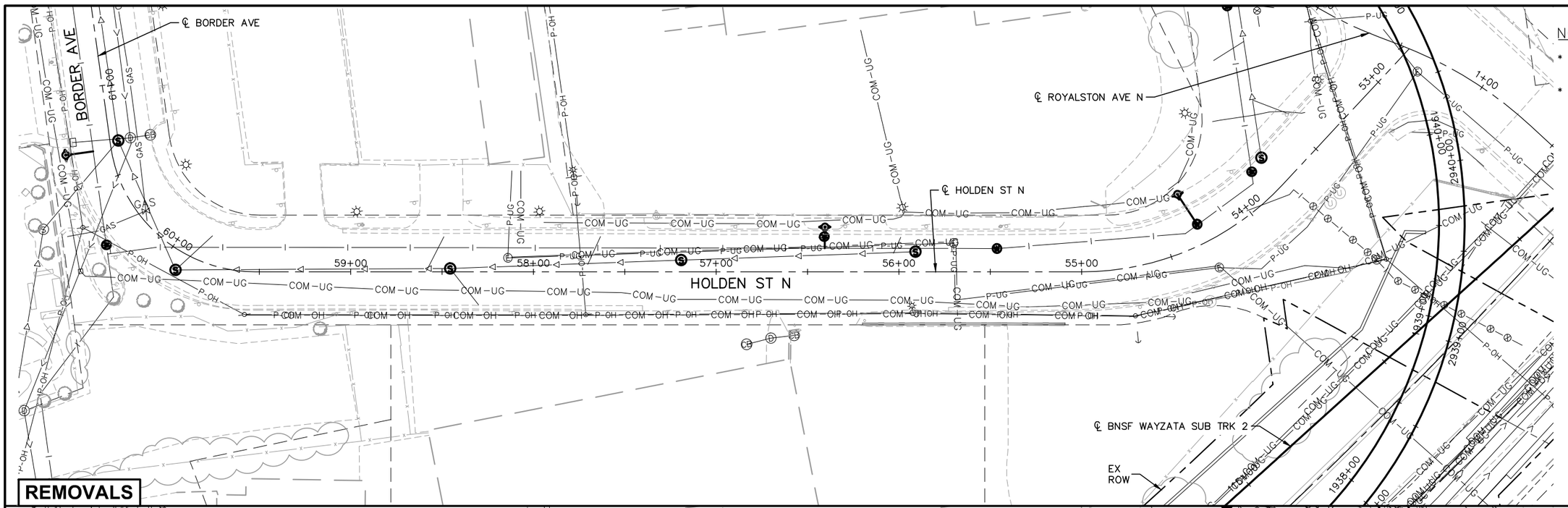
CIVIL - VOLUME 7
UTILITIES
BORDER AVE / CESAR CHAVEZ AVE
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 017

SHEET 121 OF 214

Jan, 18 2016 11:52 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



REMOVALS

PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

90% SUBMITTAL - 01/22/16

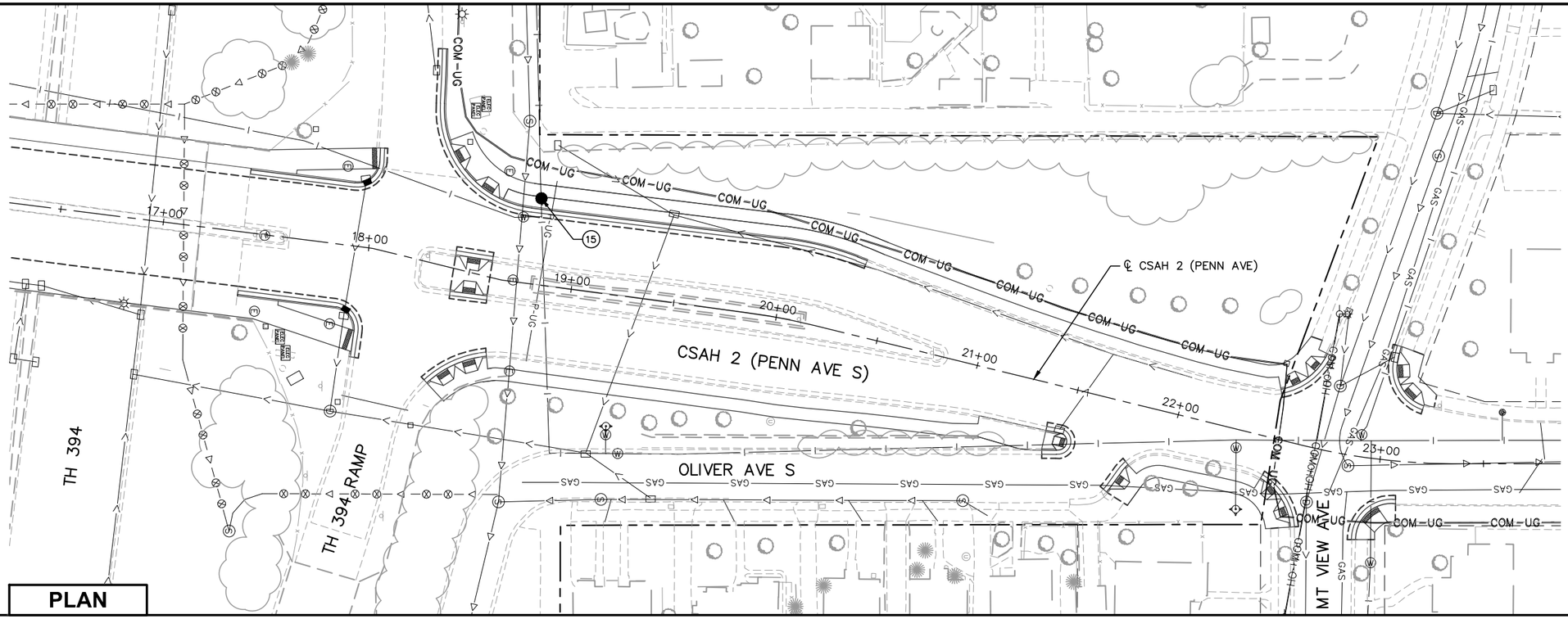
CIVIL - VOLUME 7
UTILITIES
HOLDEN ST N
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 018

SHEET 122 OF 214

Jan, 18 2016 11:53 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



PLAN

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
PENN AVE S / MT VIEW AVE
PLAN

DISCIPLINE: UTILITIES

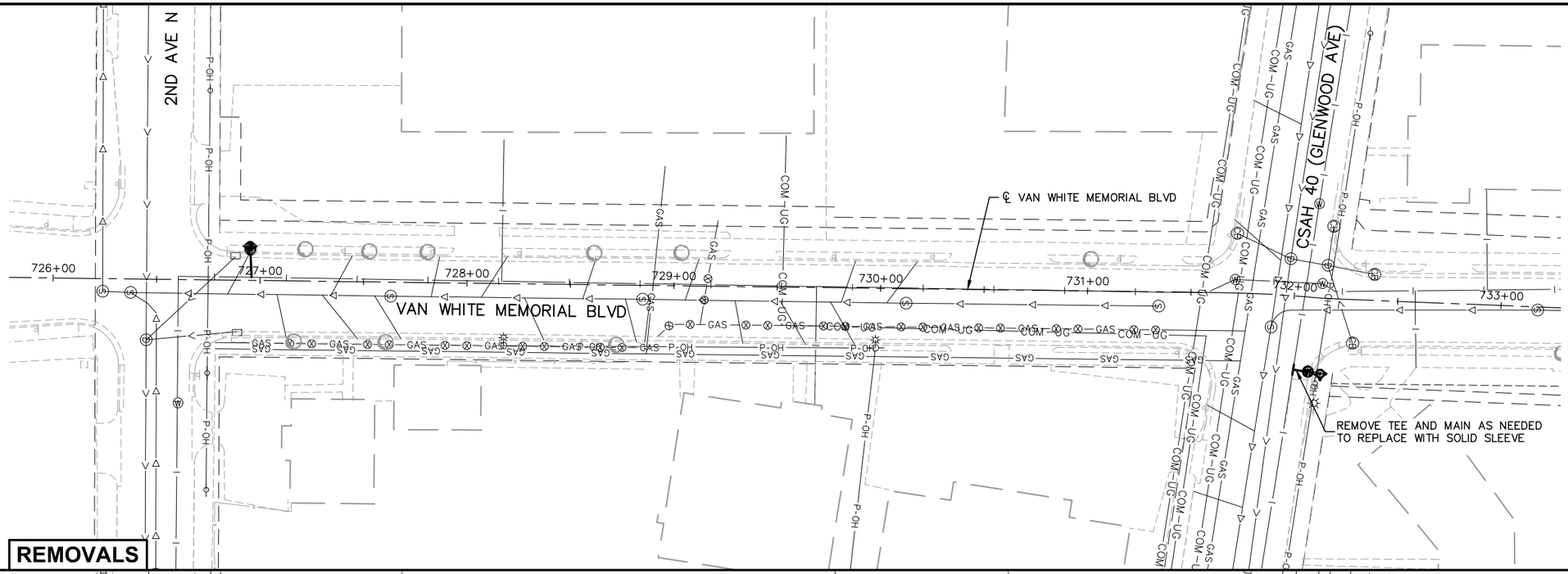
SHEET NAME: E4-UTL-PLN - 019

SHEET 123 OF 214

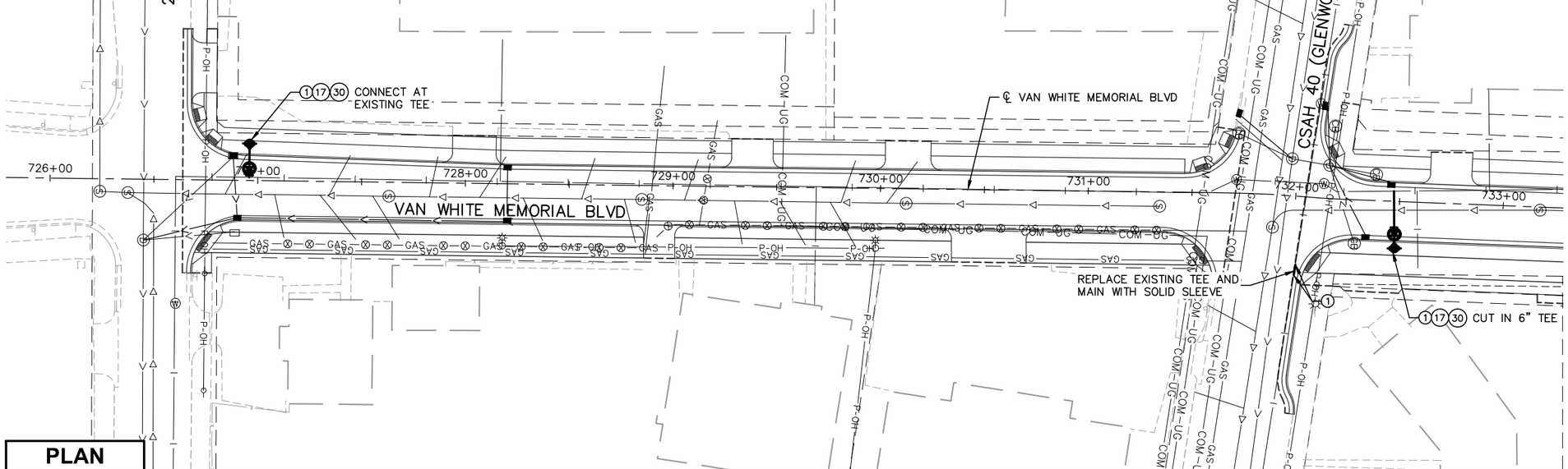
Jan. 18 2016 11:54 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM

NOTES:

* SEE SHEET W0-UTL-NTS-002 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W0-UTL-NTS-002 FOR NOTES.



REMOVALS



PLAN

0 15 30 60
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

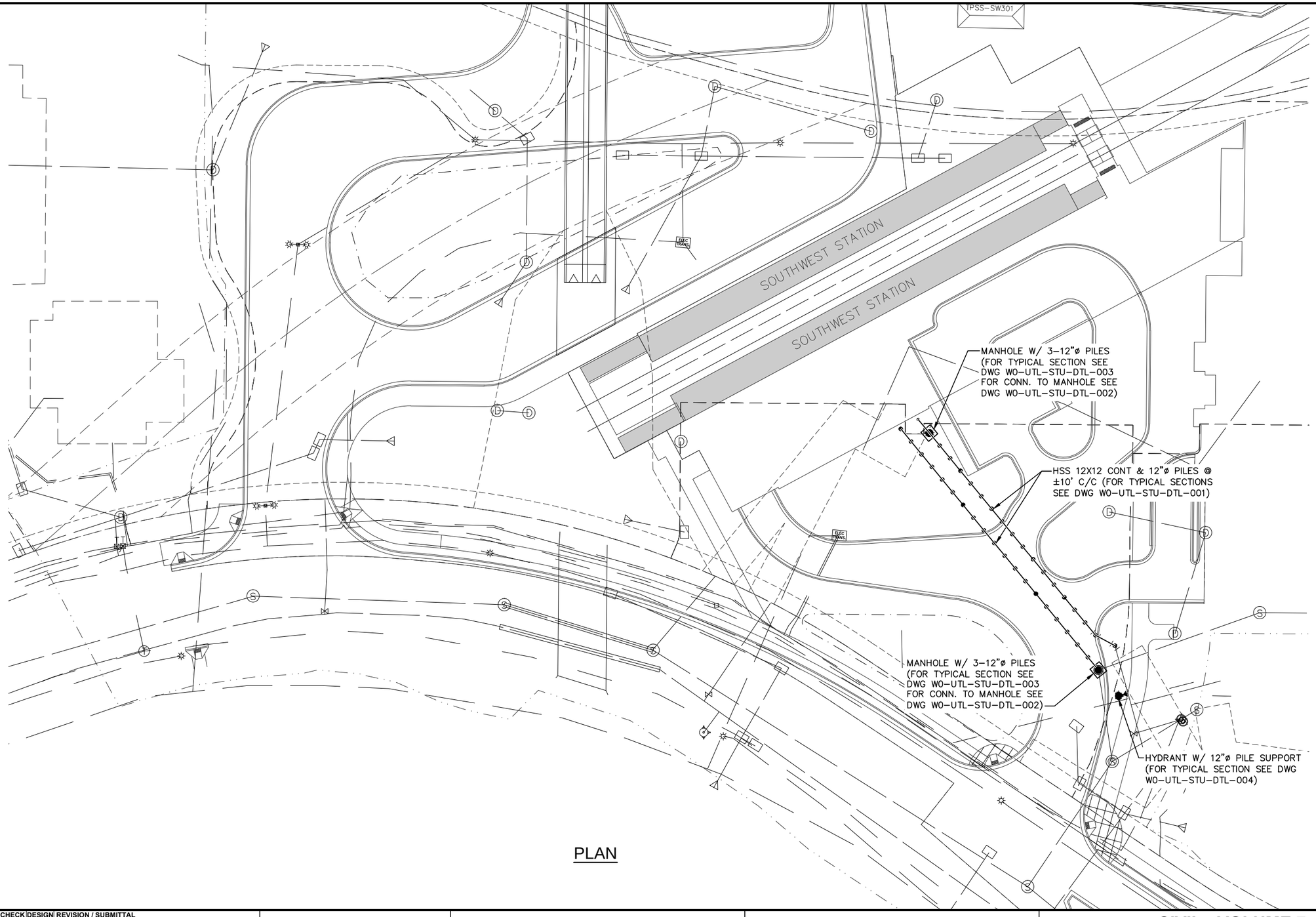
CIVIL - VOLUME 7
UTILITIES
VAN WHITE MEMORIAL BLVD
REMOVALS AND PLAN

DISCIPLINE: UTILITIES

SHEET NAME: E4-UTL-PLN - 020

SHEET 124 OF 214

Jan, 18 2016 11:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E4-UTL-PLN.dwg By: MakiEM



PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

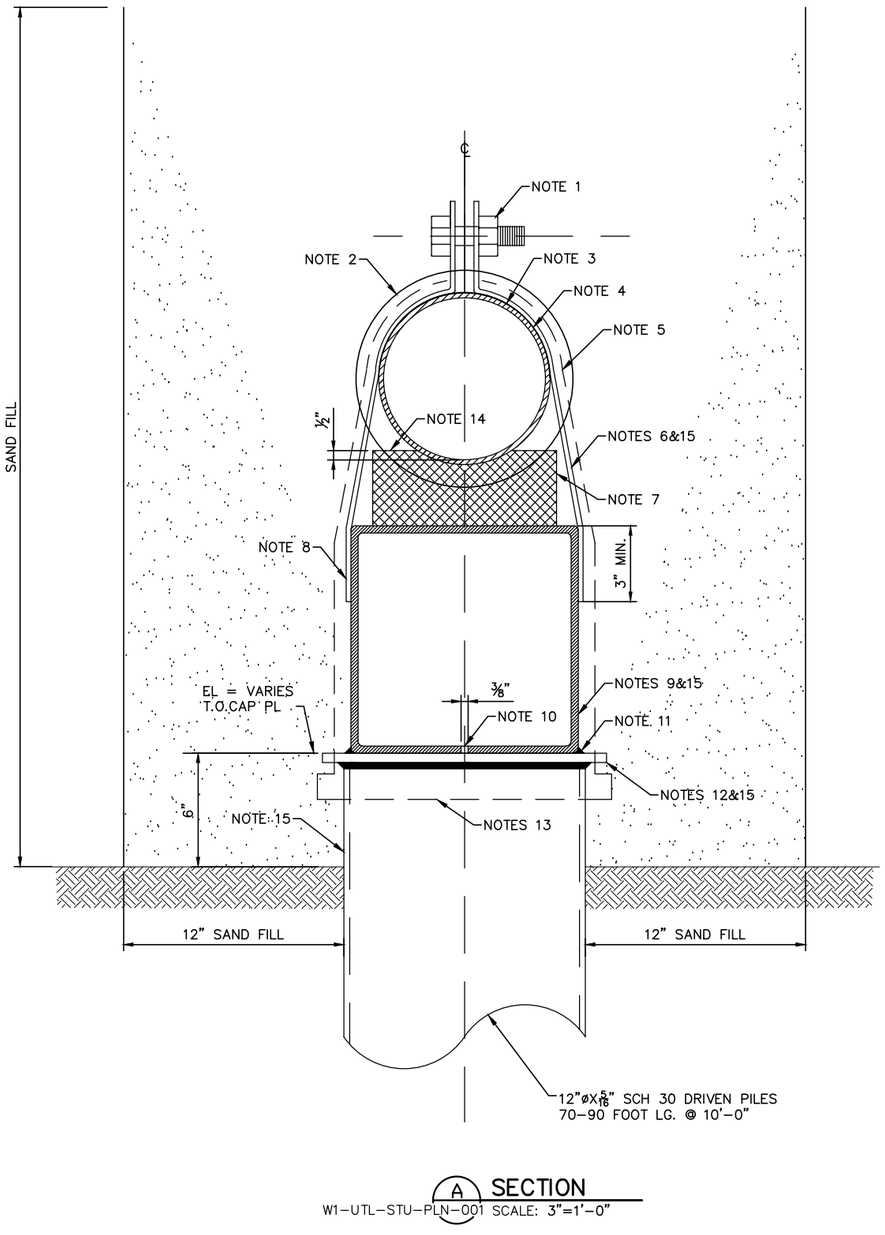
CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION
STRUCTURAL PLAN

DISCIPLINE: STRUCTURAL

SHEET NAME: W1-UTL-STU-PLN-001

SHEET 125 OF 214

Jan, 15 2016 01:49 pm V:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\W1-UTL-STU-PLN.dwg By: LuoJ



A SECTION
W1–UTL–STU–PLN–001 SCALE: 3"=1'–0"

NOTES:

1. ½" STRAP BOLT, WRAP BOLT & VERT. PORTION OF STRAP WITH TAPE AFTER INSTALLATION OF DRAPE COVER.
2. PIPE JOINT BEYOND
3. POLYWRAP.
4. PIPE – SET ½" INTO INSULATION AS SHOWN.
5. PROVIDE DRAPE COVER (SHOWN DASHED) OVER ENTIRE PIPE & BEAM ASSEMBLE. DRAPE OVER PIPE & "TUCK" UNDER BEAM AS SHOWN. CUT HOLE ON TOP AT STRAP BOLT LOCATIONS.
6. ¼"X2" WIDE HOLD DOWN STRAPS, SHAPE AS SHOWN TO MATCH PROFILE OF PIPE AND BEAM. LOCATE @ 6'–0" O.C. MAX. (PAINT AS NOTED).
7. 4" tw STYROFOAM HI–DENSITY INSULATION CONTINUOUS.
8. WELD HOLD DOWN STRAPS TO HSS 12X12X⅜ CONT. 3/16" FILLET WELD. TYP. BOTH SIDES OF BEAM.
9. HSS 12X12X⅜ BEAM. SPLICE AT CENTER OF PILE CAP.
10. PROVIDE ⅜"ø DRAIN HOLES IN CENTER OF BOTTOM OF HSS BEAM. LOCATE @ 6'–0" O.C. MAX.
11. WELD TUBE BEAM TO TOP OF CAP PLATE WITH A 5/16" X 5" LONG FILLET WELD ALONG EACH SIDE OF BEAM.
12. 1'–3"X1'–3" X ½" CAP PLATE WELD TO STEEL PILE WITH 5/16 CONT. FILLET WELD ALL AROUND PILE.
13. DRAPE COVER, SEE NOTE ABOVE
14. CUT AWAY INSULATION AT JOINTS AND VALVES AS REQUIRED TO INSTALL PIPE AT PROPER ELEVATIONS.
15. PROVIDE MIN. ⅜" tw WATER PROOFING ON ALL MILD STEEL (PILE, CAP PLATE, BEAM ETC.) EXCLUDING THE DUCTILE IRON.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION
PILE SUPPORT SHEET 1

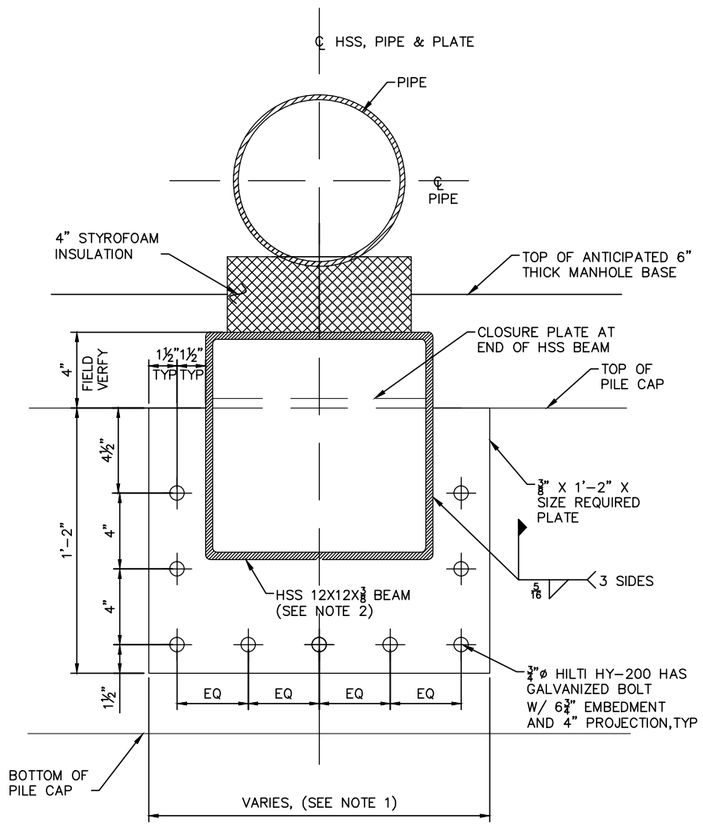
DISCIPLINE: STRUCTURAL

SHEET NAME: W0-UTL-STU-DTL-001

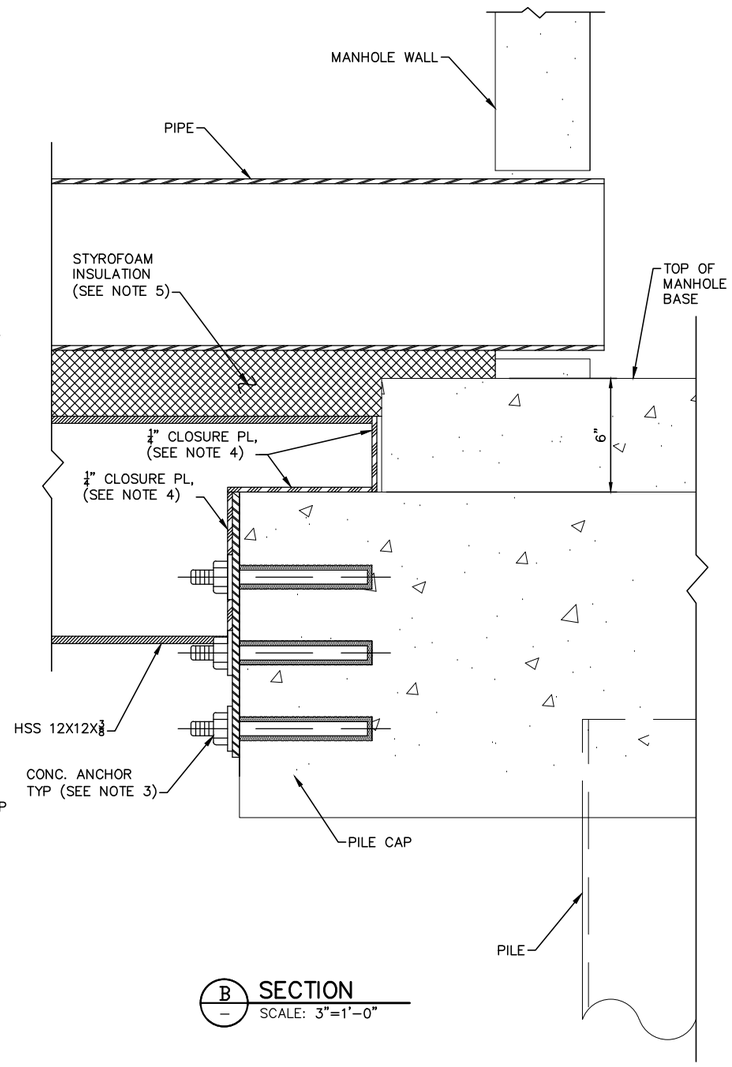
SHEET 126 OF 214

NOTES:

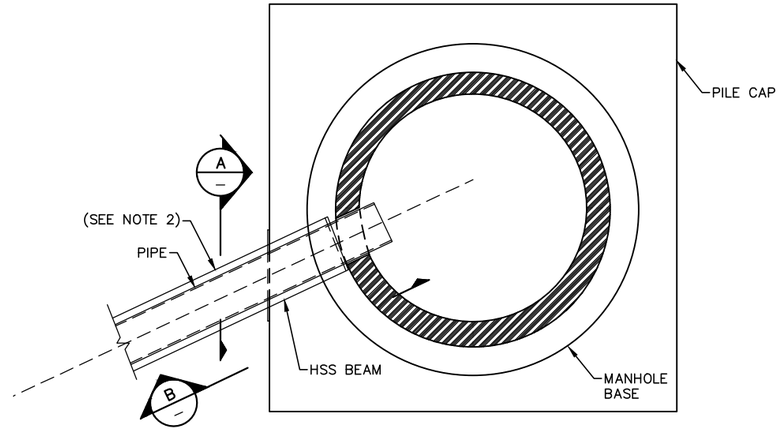
1. FOR CLARITY PURPOSE, THIS SECTION HAS BEEN DRAWN ASSUMING THE HSS BEAM AT A 90° ANGLE TO THE CONC. PIPE CAP. CONTRACTOR SHALL BEWARE THAT THE BEAM AND PIPE ARE ENTERING THE MANHOLE AT SOME UNKNOWN ANGLE. FIELD VERIFY AND ADJUST PLATE SIZE AS REQUIRED.
2. HSS BEAM IS NOT PERPENDICULAR TO THE FACE OF THE PILE CAP. IT IS THE INTENT TO CAP THE END AS REQUIRED TO ALLOW THE BEAM TO SIT FLUSH TO THE FACE OF THE $\frac{3}{8}$" PLATE. WELD BEAM TO THE $\frac{3}{8}$" PLATE WITH $\frac{5}{16}$ FILLET WELD ON THREE SIDES. NOTCH AS REQUIRED AND PROVIDE $\frac{1}{4}$" CLOSURE PLATES AS SHOWN.
3. DRILL INTO CONC. PILE CAP. WITH EPOXY BOLTS
4. $\frac{1}{4}$" CLOSURE PLATES AT END OF HSS BEAM. FIELD VERIFY DIMENSIONS FOR NOTCH ALLOW $\frac{1}{4}$" CAP BETWEEN CONC. AND PLATE. WELD W/ CONT. FILLET WELD ON ALL SIDES.
5. EXTEND INSULATION TO FACE OF MANHOLE. CUT AND NOTCH AS REQUIRED.



A — SECTION
SCALE: 3"=1'-0"



B — SECTION
SCALE: 3"=1'-0"



PLAN VIEW AT MANHOLE
SCALE: ¾" = 1'-0"

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION
PILE SUPPORT SHEET 2

DISCIPLINE: STRUCTURAL

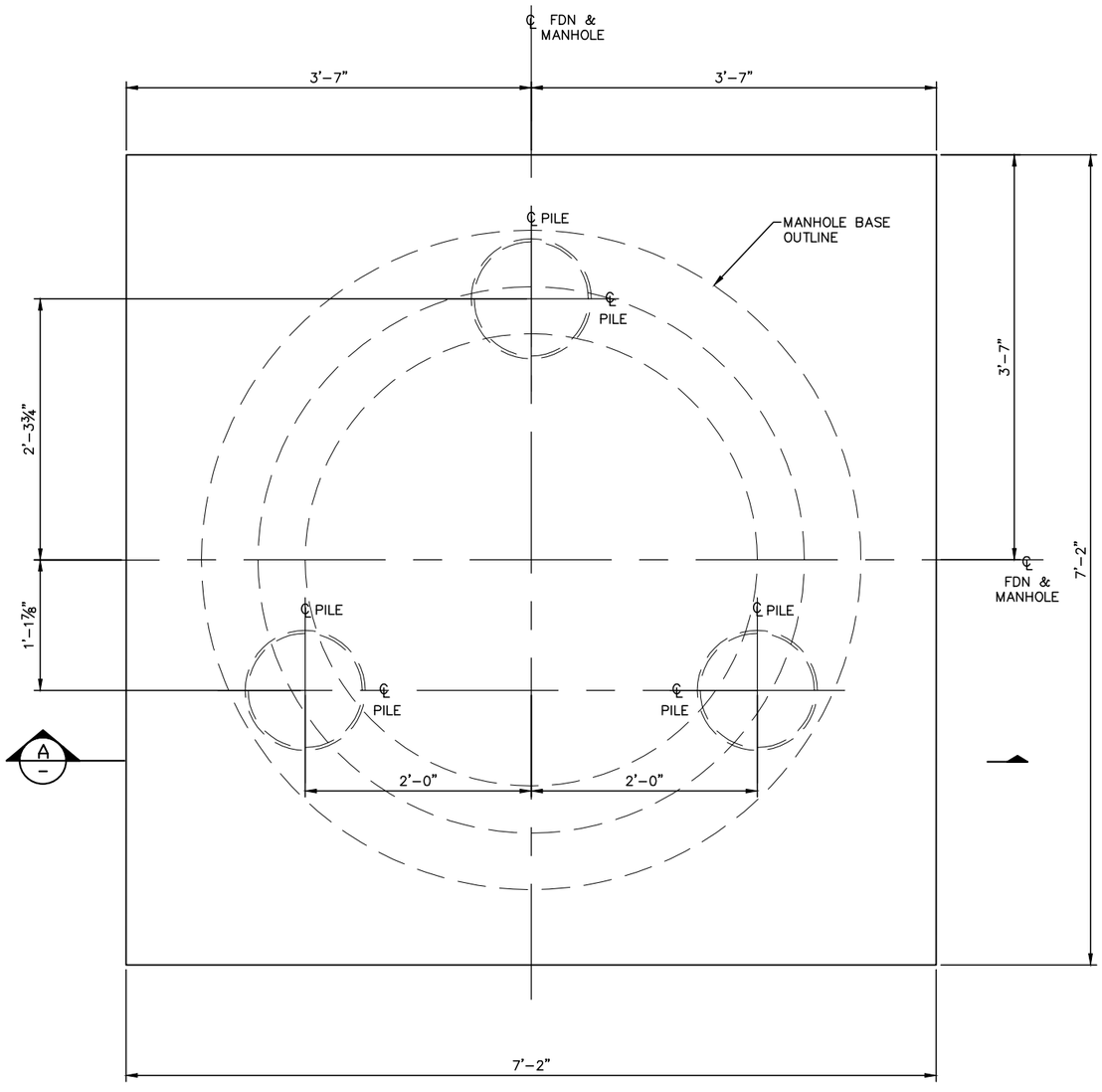
SHEET NAME: W0-UTL-STU-DTL-002

SHEET 127 OF 214

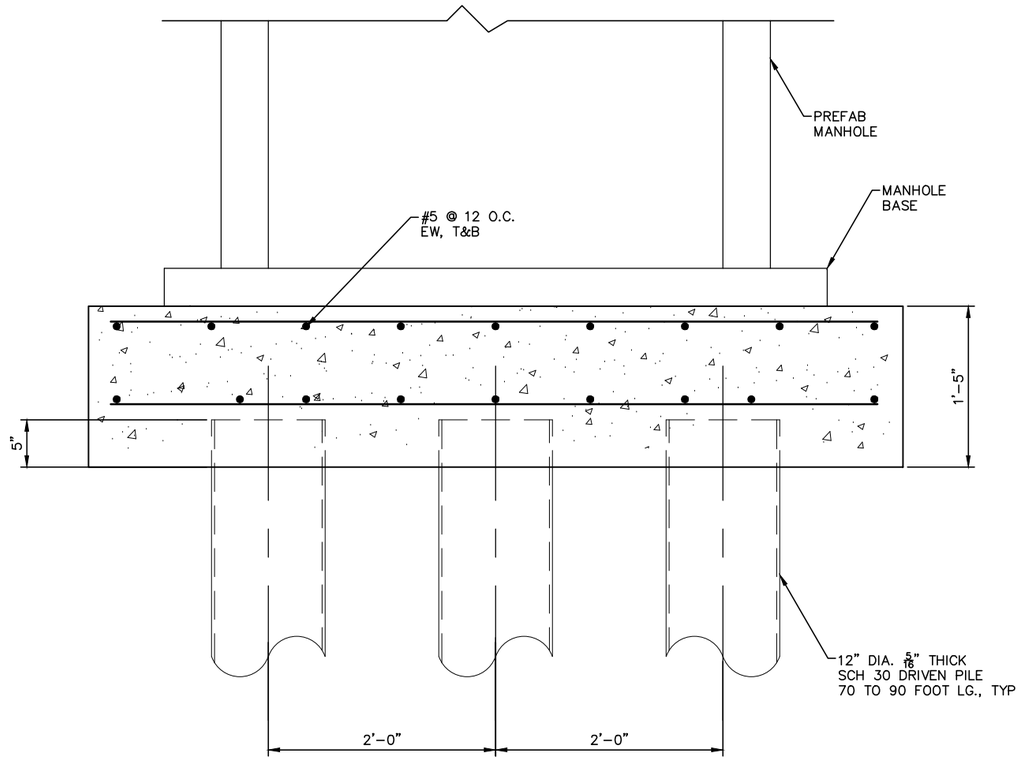
Jan. 15 2016 01:45 pm V:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\W0-UTL-STU-DTL-002.dwg By: LuoJ

NOTES:

1. SEE DWG. W1-UTL-STU-PLN-001 FOR MANHOLE LOCATIONS
2. MINIMUM 4000 PSI CONCRETE COMPRESSIVE STRENGTH WITH ASTM A-615 GRADE 60 REINFORCING BARS
3. LAP SPLICE LENGTH PER ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. SEE SPECIFICATIONS SECTION 26 05 43 FOR MORE DETAILED CONCRETE REQUIREMENTS



FOUNDATION PLAN
SCALE: 1½" = 1'-0"



A
SECTION
SCALE: 1 1/2"=1'-0"

Jan, 15 2016 01:44 pm V:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\W0-UTL-STU-DTL-003.dwg By: LuoJ

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AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION
MANHOLE PILE FOUNDATION DETAIL

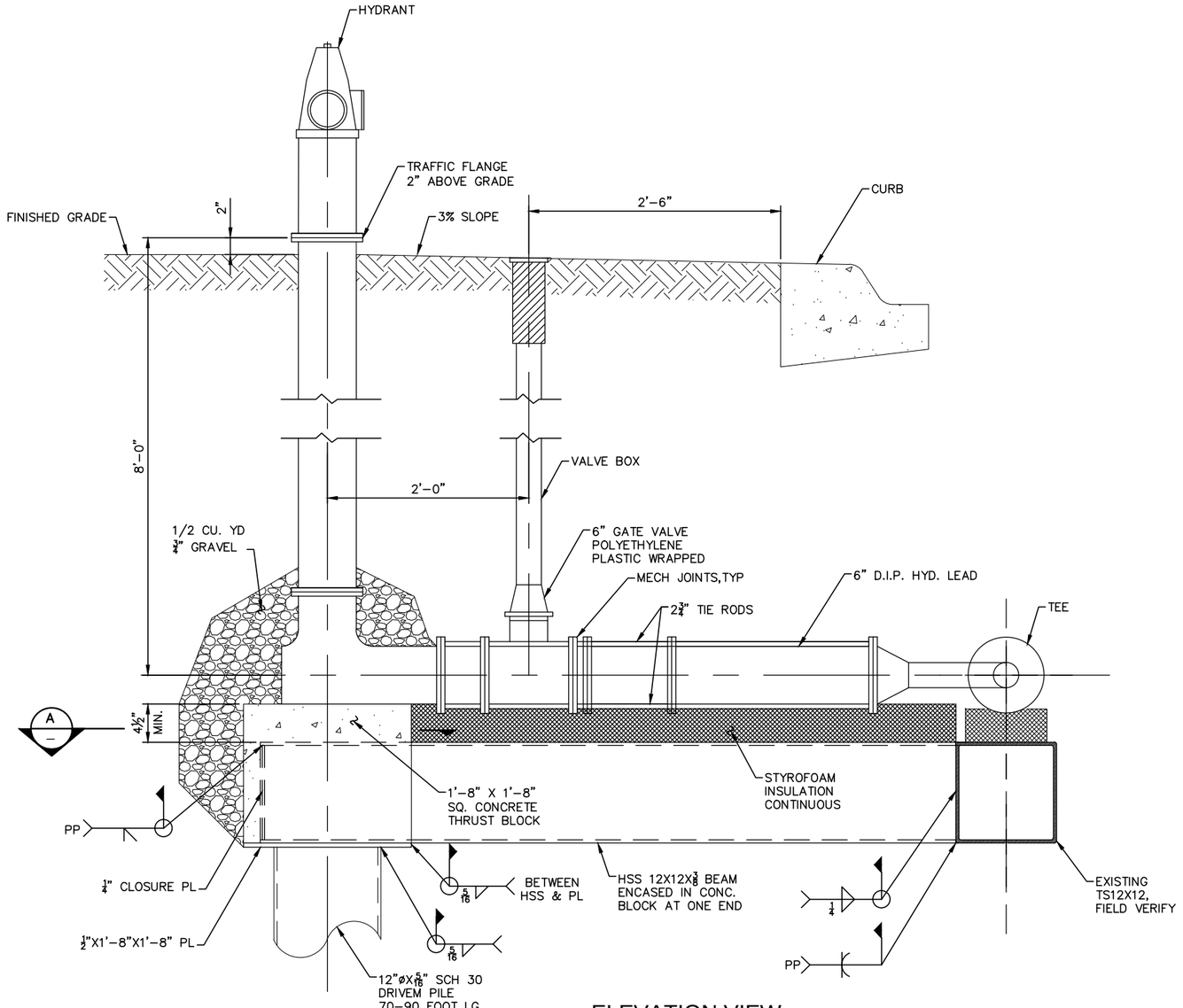
DISCIPLINE: STRUCTURAL

SHEET NAME: W0-UTL-STU-DTL-003

SHEET 128 OF 214

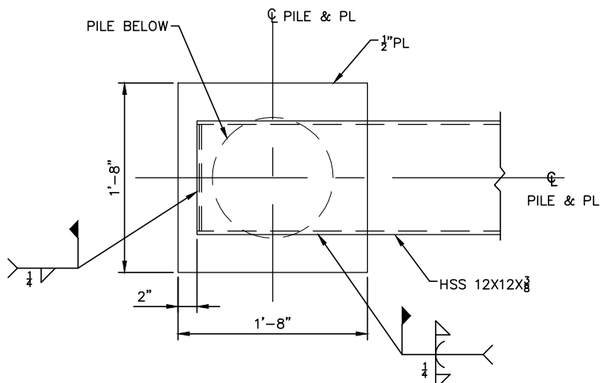
NOTES:

1. SEE DWG. W1-UTL-STU-PLN-001 FOR HYDRANT LOCATIONS
2. MINIMUM 4000 PSI CONCRETE COMPRESSIVE STRENGTH WITH ASTM A-615 GRADE 60 REINFORCING BARS
3. LAP SPLICE LENGTH PER ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. SEE SPECIFICATIONS FOR MORE DETAILED CONCRETE REQUIREMENTS



ELEVATION VIEW

SCALE: 1½" = 1'-0"



A — SECTION

SCALE: 1 1/2"=1'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

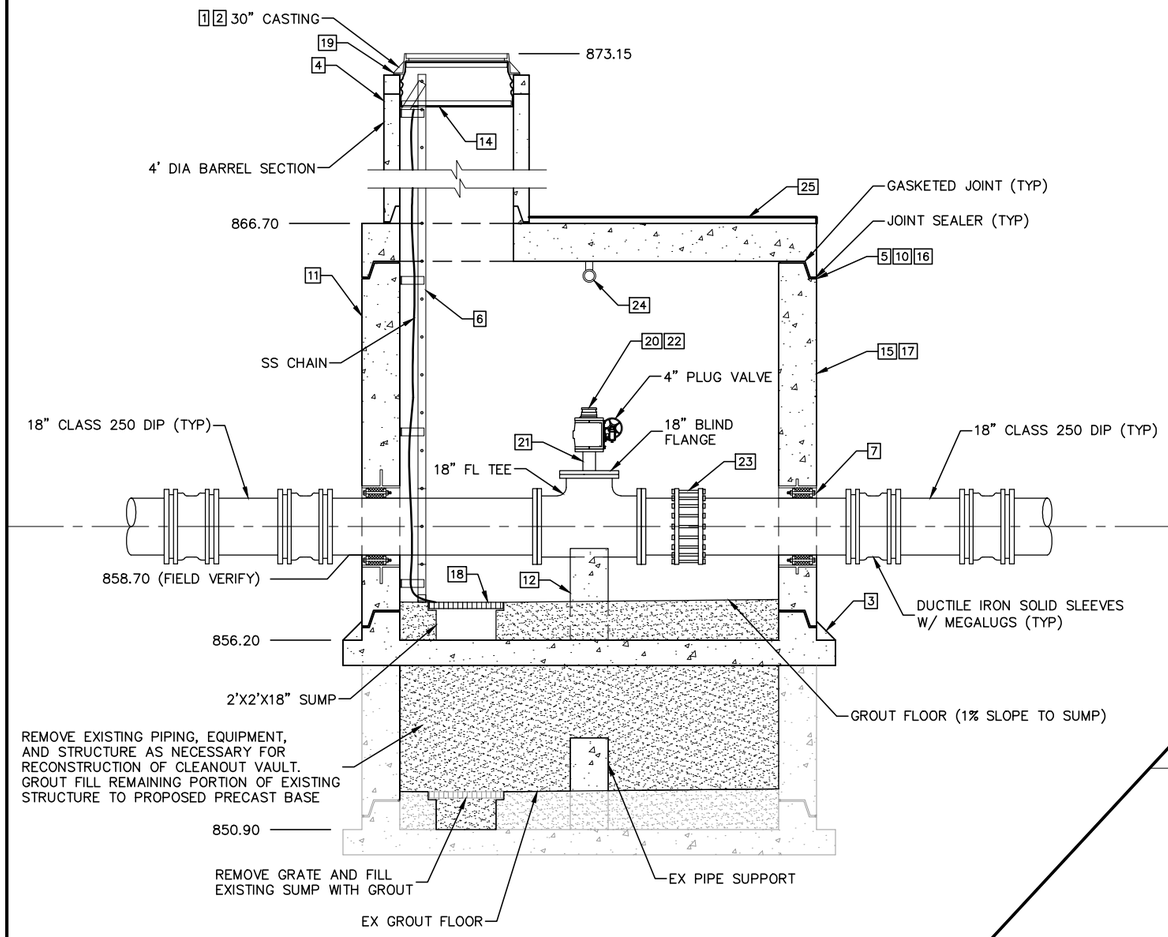
CIVIL - VOLUME 7
UTILITIES
SOUTHWEST STATION
HYDRANT SUPPORT DETAIL

DISCIPLINE: STRUCTURAL

SHEET NAME: W0-UTL-STU-DTL-004

SHEET 129 OF 214

Jan. 15 2016 01:44 pm v:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\W0-UTL-STU-DTL-004.dwg By: LuoJ

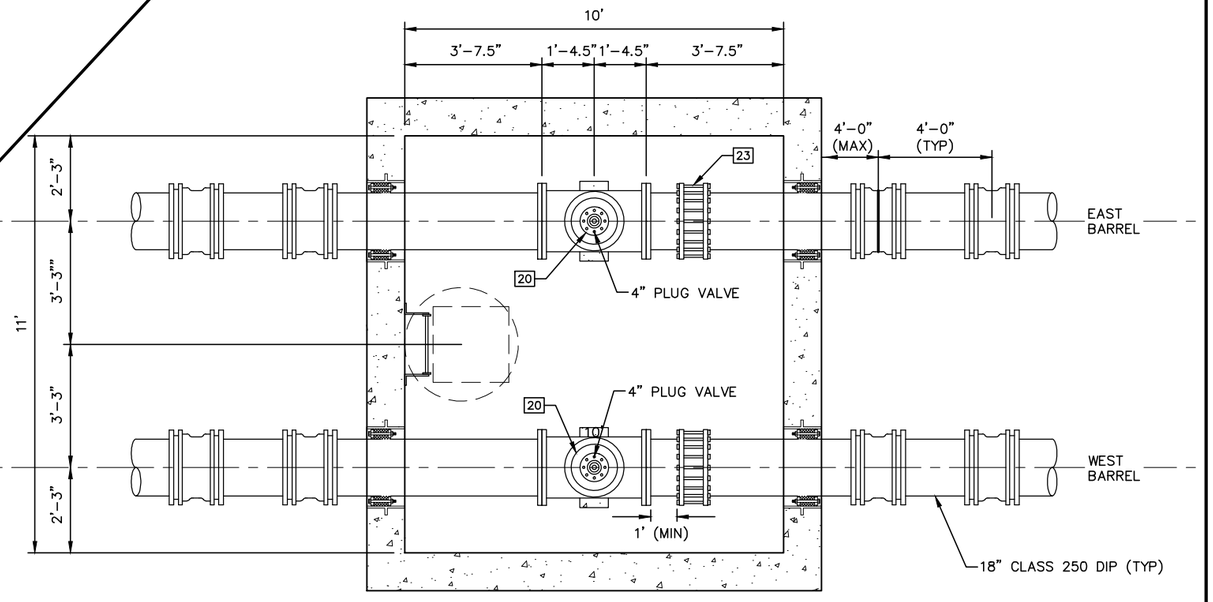


1 RECONSTRUCT CLEANOUT VAULT SECTION (C06M)

SCALE: 1"=2'-0"

KEYNOTES: XX

1. NEENAH R-1557A OR EQUAL.
2. PROVIDE 2 RINGS OF E-Z STICK (1/4") GASKET MATERIAL UNDER CASTING.
3. CEMENT MORTAR FILLET ALL AROUND.
4. STRUCTURE PER UT SPECIFICATION 19.
5. PROVIDE BUTYL RUBBER MASTIC STRIP SEALANT AT ALL CONCRETE JOINTS.
6. PROVIDE ALUMINUM LADDER WITH LADDER UP PER UT SPECIFICATION 22.
7. AT WALL PENETRATION, PROVIDE AWWA C100 CLASS B DUCTILE IRON WALL SPOOL AND MODULAR MECHANICAL SLEEVE SEAL. INSTALL SEAL FROM INSIDE STRUCTURE.
8. NOT USED.
9. NOT USED.
10. CORE DRILLING AT JOINTS IS NOT PERMITTED.
11. LIFTING HOLES WHICH PENETRATE THROUGH SECTION WALLS ARE NOT PERMITTED (TYP).
12. PIPE SUPPORT.
13. NOT USED.
14. PROVIDE INTERNAL CHIMNEY SEAL ALONG INTERIOR SURFACE OF CASTING FRAME AND MH SLAB OPENING.
15. DAMP PROOFING (TYP).
16. CONTINUOUS SEALER REQUIRED AT ALL JOINTS (TYP).
17. PRECAST CONCRETE VAULT PER UT SPECIFICATION 21.
18. PROVIDE REMOVABLE FIBERGLASS GRATING AND STAINLESS STEEL CHAIN FOR SUMP.
19. PROVIDE EZ-WRAP SEALER BETWEEN EXTERIOR OF CASTING AND PRECAST.
20. PROVIDE QUICK CONNECT ASSEMBLIES ON EACH FORCEMAIN.
21. SS NIPPLE FLANGED AND THREADED.
22. QUICK CONNECT COUPLING FLANGED TO 4" PLUG VALVE.
23. RESTRAINED COUPLING, ROMAC 400RG OR EQUAL.
24. EYEBOLT AND SLAB DESIGNED FOR XX LOAD AT EYEBOLT.
25. PROVIDE 2" OF INSULATION.



2 RECONSTRUCT CLEANOUT VAULT PLAN (C06M)

SCALE: 1"=2'-0"

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

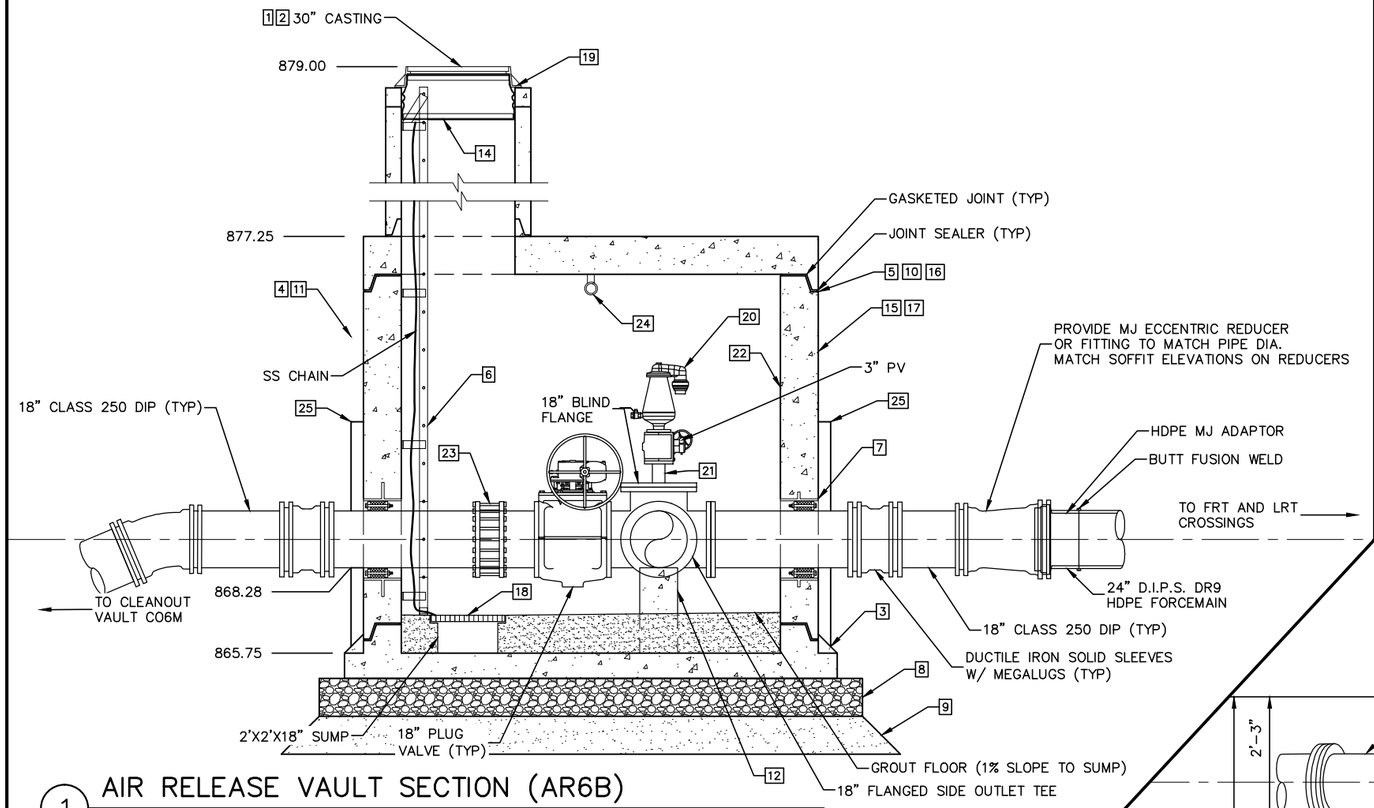
CIVIL - VOLUME 7
UTILITIES
MCES CLEANOUT VAULT

DISCIPLINE: UTILITIES

SHEET NAME: E0-UTL-DTL - 001

SHEET 139 OF 214

Jan, 18 2016 11:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-DTL.dwg By: MakiEM

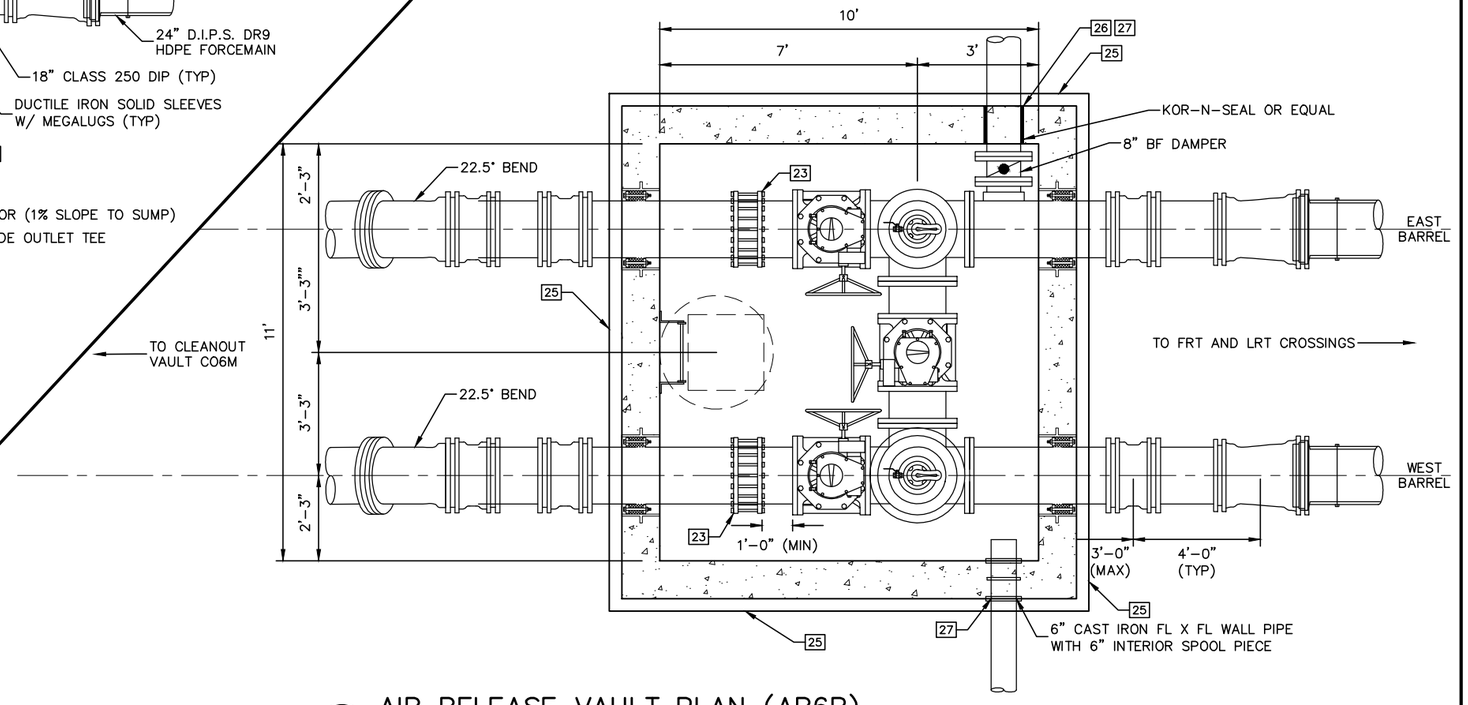


1 AIR RELEASE VAULT SECTION (AR6B)

SCALE: 1"=2'-0"

KEYNOTES: XX

1. NEENAH R-1557A OR EQUAL.
2. PROVIDE 2 RINGS OF E-Z STICK (1/4") GASKET MATERIAL UNDER CASTING.
3. CEMENT MORTAR FILLET ALL AROUND.
4. STRUCTURE PER UT SPECIFICATION 19.
5. PROVIDE BUTYL RUBBER MASTIC STRIP SEALANT AT ALL CONCRETE JOINTS.
6. PROVIDE ALUMINUM LADDER WITH LADDER UP PER UT SPECIFICATION 22.
7. AT WALL PENETRATION, PROVIDE AWWA C100 CLASS B DUCTILE IRON WALL SPOOL AND MODULAR MECHANICAL SLEEVE SEAL. INSTALL SEAL FROM INSIDE STRUCTURE.
8. COMPACTED CLEAR ROCK BEDDING (12" MIN).
9. COMPACTED SUBGRADE.
10. CORE DRILLING AT JOINTS IS NOT PERMITTED.
11. LIFTING HOLES WHICH PENETRATE THROUGH SECTION WALLS ARE NOT PERMITTED (TYP).
12. PIPE SUPPORT.
13. NOT USED.
14. PROVIDE INTERNAL CHIMNEY SEAL ALONG INTERIOR SURFACE OF CASTING FRAME AND MH SLAB OPENING.
15. DAMP PROOFING (TYP).
16. CONTINUOUS SEALER REQUIRED AT ALL JOINTS (TYP).
17. PRECAST CONCRETE VAULT PER UT SPECIFICATION 21.
18. PROVIDE REMOVABLE FIBERGLASS GRATING AND STAINLESS STEEL CHAIN FOR SUMP.
19. PROVIDE EZ-WRAP SEALER BETWEEN EXTERIOR OF CASTING AND PRECAST.
20. PROVIDE ARI 3" D-023 AIR RELEASE/VACUUM VALVE FLANGED WITH 3" PLUG VALVE.
21. SS NIPPLE FLANGED AND THREADED.
22. PROVIDE SULFIDE RESISTANT COATING ON INTERIOR CONCRETE SURFACES PER UT SPECIFICATION 23.
23. RESTRAINED COUPLING, ROMAC 400RG OR EQUAL.
24. EYEBOLT AND SLAB DESIGNED FOR XX LOAD AT EYEBOLT.
25. PROVIDE 4" OF INSULATION TO A POINT 6" BELOW FINISHED GRADE.
26. COORDINATE PENETRATIONS FOR ODOR CONTROL PIPING. PROVIDE KOR-N-SEAL AT PVC PENETRATIONS.
27. 8" PVC PENETRATES EAST WALL FOR ODOR CONTROL PIPING. 6" DIP PENETRATES WEST WALL FOR VENT PIPING.



2 AIR RELEASE VAULT PLAN (AR6B)

SCALE: 1"=2'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

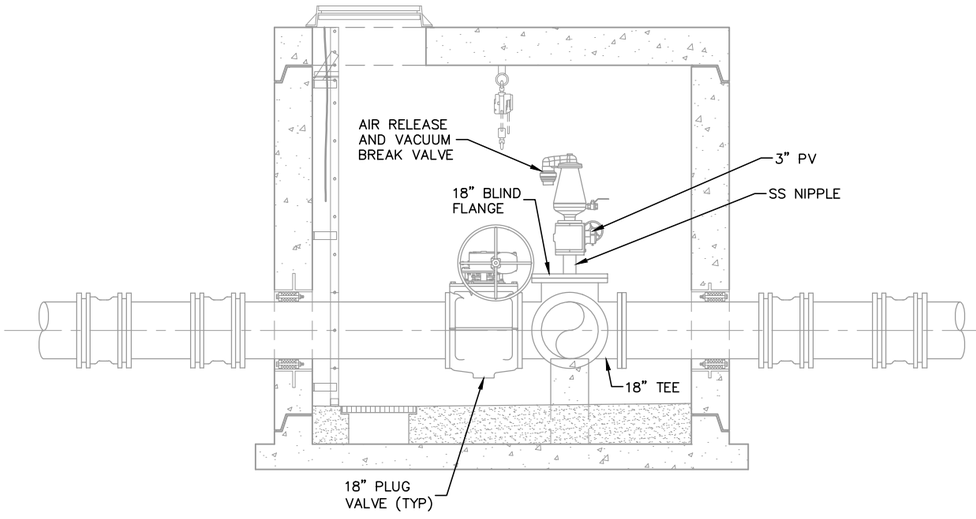
CIVIL - VOLUME 7
UTILITIES
MCES AIR RELEASE / VACUUM VAULT

DISCIPLINE: UTILITIES

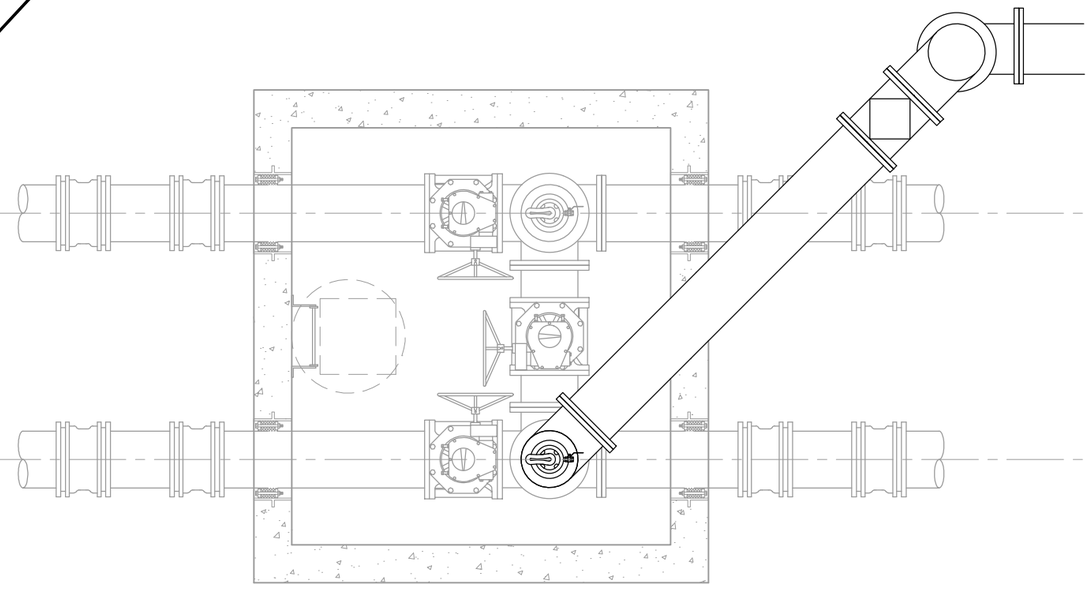
SHEET NAME: E0-UTL-DTL - 002

SHEET 140 OF 214

Jan, 18 2016 11:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-DTL.dwg By: MakiEM



1 EXISTING AIR RELEASE VAULT SECTION (AR6M)
SCALE: 1"=2'-0"



2 EXISTING AIR RELEASE VAULT PLAN (AR6M)
SCALE: 1"=2'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

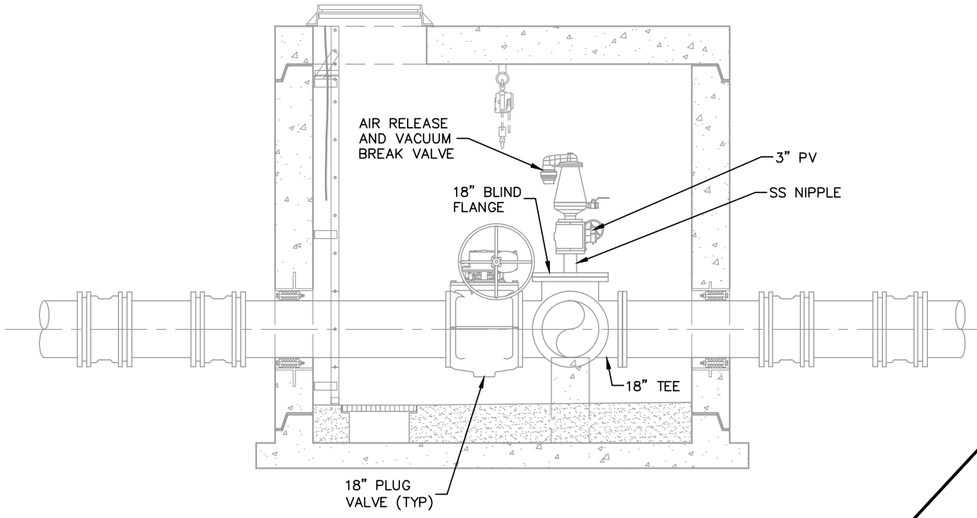
CIVIL - VOLUME 7
UTILITIES
MCES TEMPORARY CONVEYANCE
STAGING PHASE 1 DETAILS

DISCIPLINE: UTILITIES

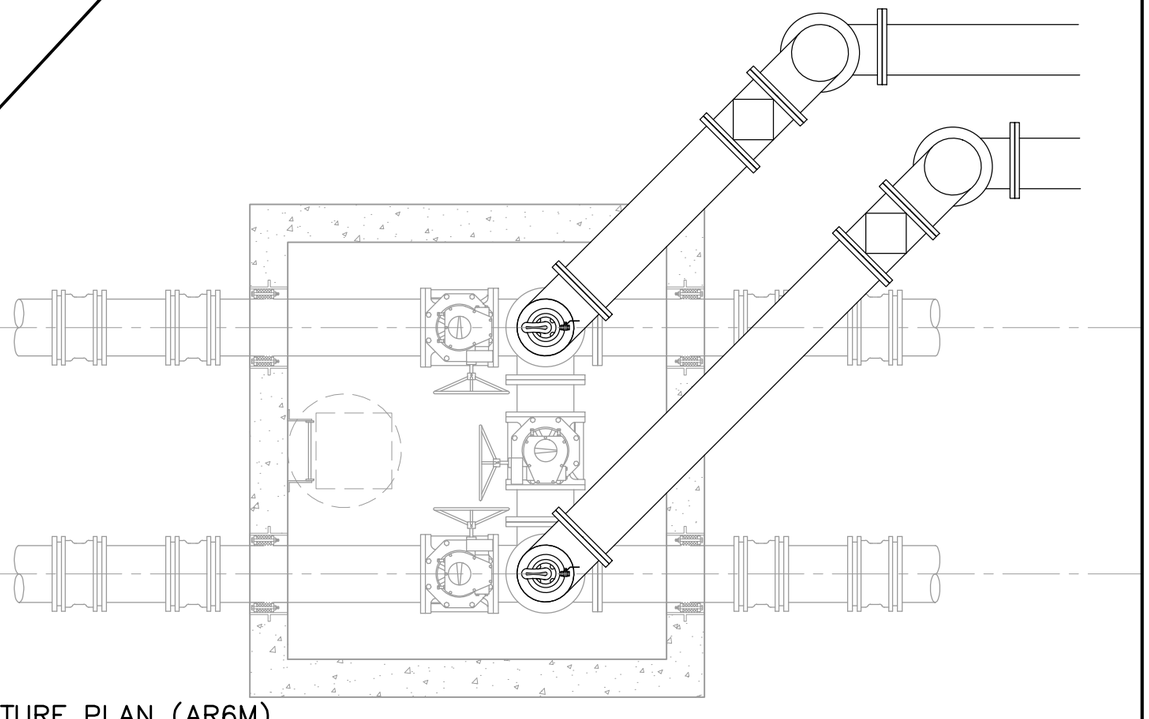
SHEET NAME: E0-UTL-DTL - 003

SHEET 141 OF 214

Jan, 18 2016 11:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-DTL.dwg By: MakiEM



1 EXISTING AIR RELEASE STRUCTURE SECTION (AR6M)
SCALE: 1"=4'-0"



2 EXISTING AIR RELEASE STRUCTURE PLAN (AR6M)
SCALE: 1"=4'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

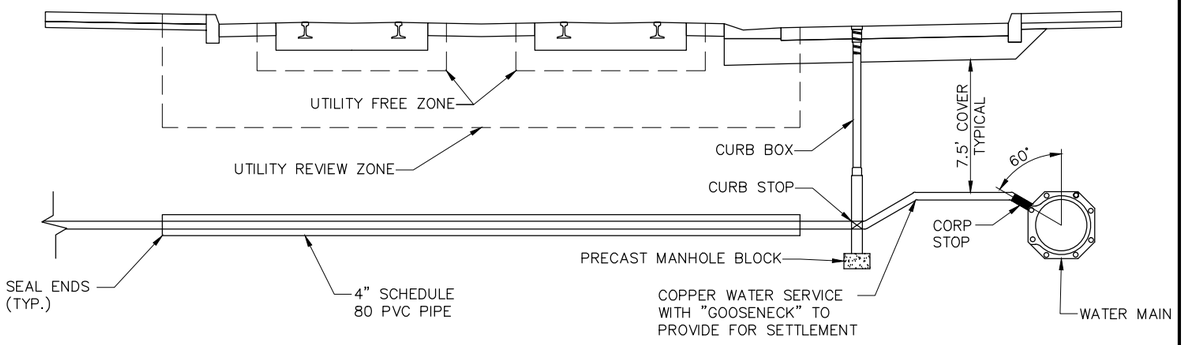
CIVIL - VOLUME 7
UTILITIES
MCES TEMPORARY CONVEYANCE STAGING PHASE 2 DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: E0-UTL-DTL - 004

SHEET 142 OF 214

Jan, 18 2016 11:56 am V:\3400_ADC\CAD\00_EAST\PLANSHEETS\UTILITIES\E0-UTL-DTL.dwg By: MakiEM



1 TYPICAL WATER SERVICE TRACK CROSSING FOR 2" COPPER SERVICE OR SMALLER

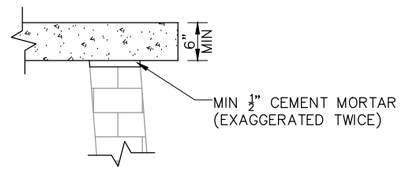
0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

1. 2" CONNECTED VIA TEE, GATE VALVE AND MANHOLE (NOT SHOWN).

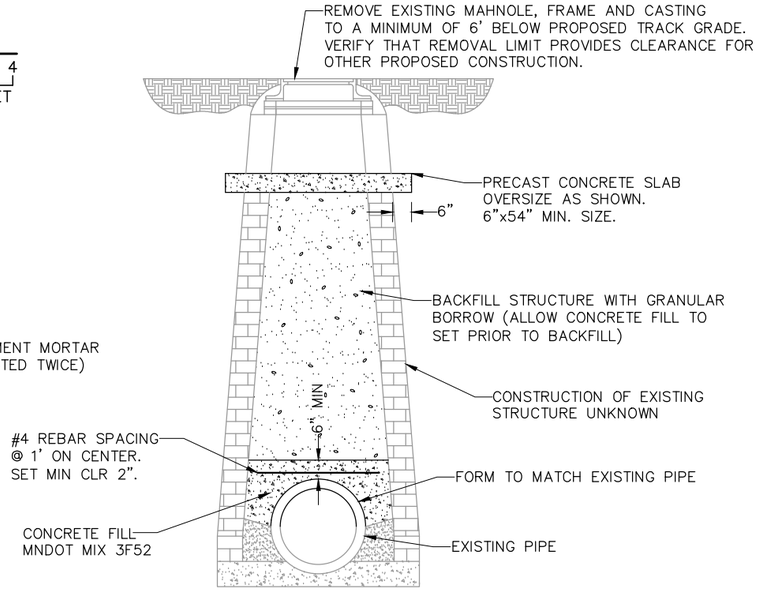
2 BLIND MANHOLE DETAIL

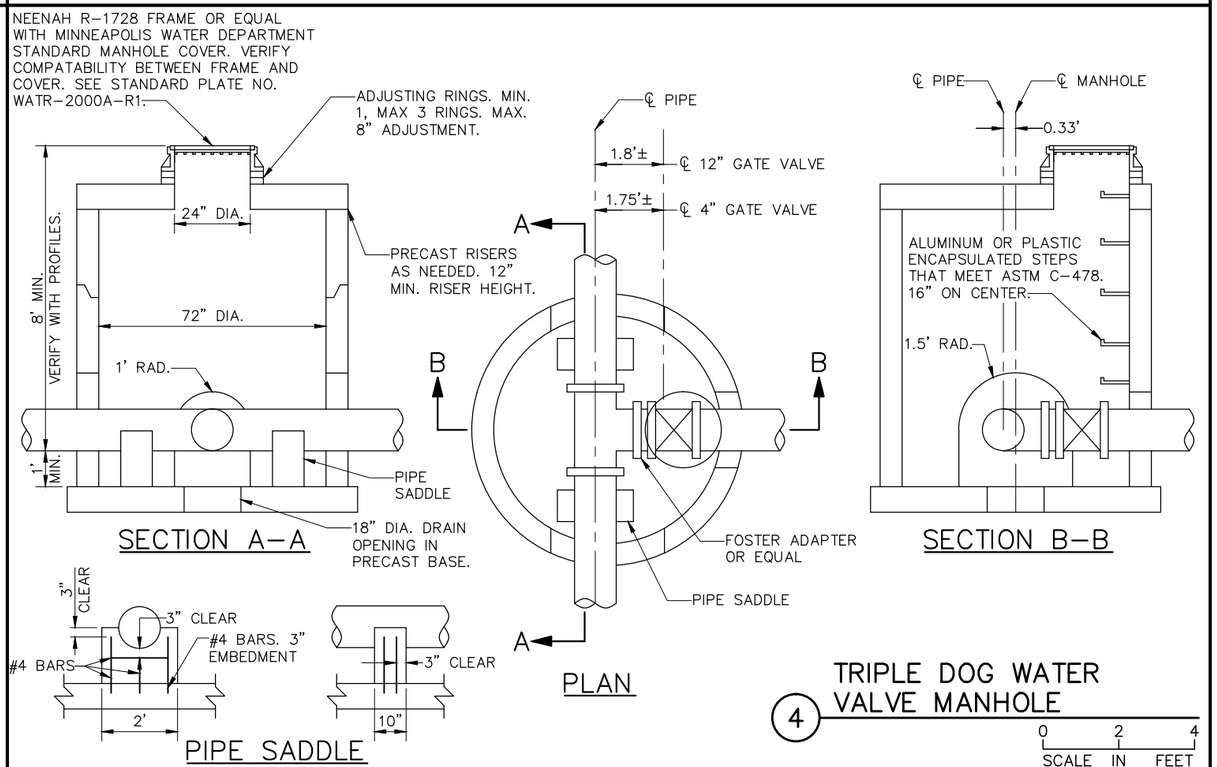
0 2 4
SCALE IN FEET



DETAIL TOP SLAB

0 1 2
SCALE IN FEET





4 TRIPLE DOG WATER VALVE MANHOLE

0 2 4
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION 01/22/16

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

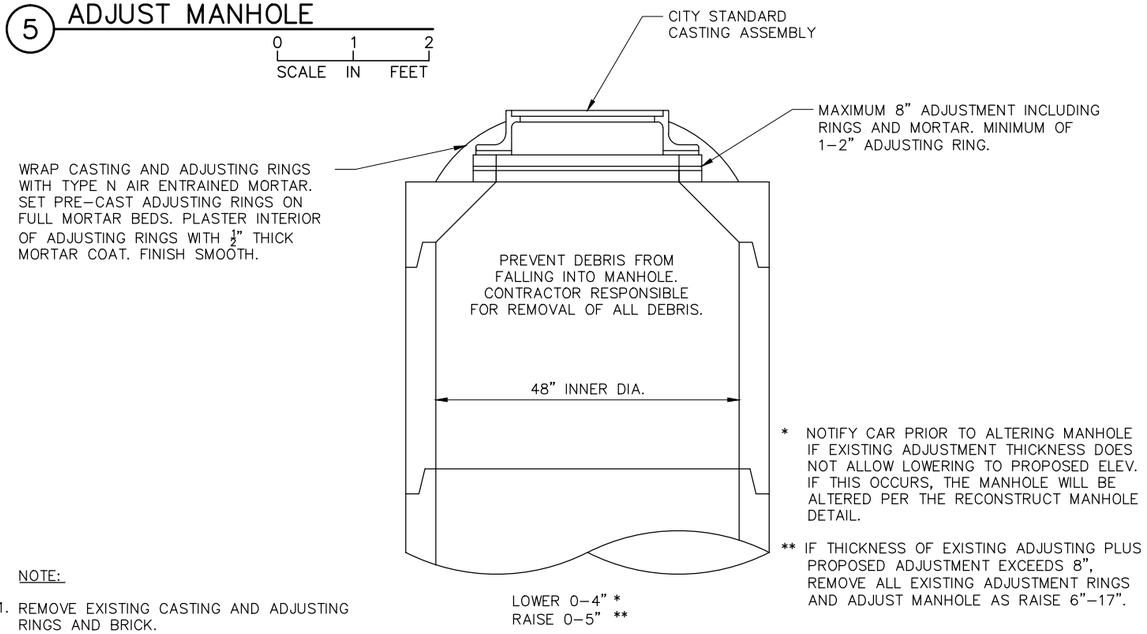
SHEET 143 OF 214

DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 001

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

5 ADJUST MANHOLE

SCALE IN FEET: 0 1 2

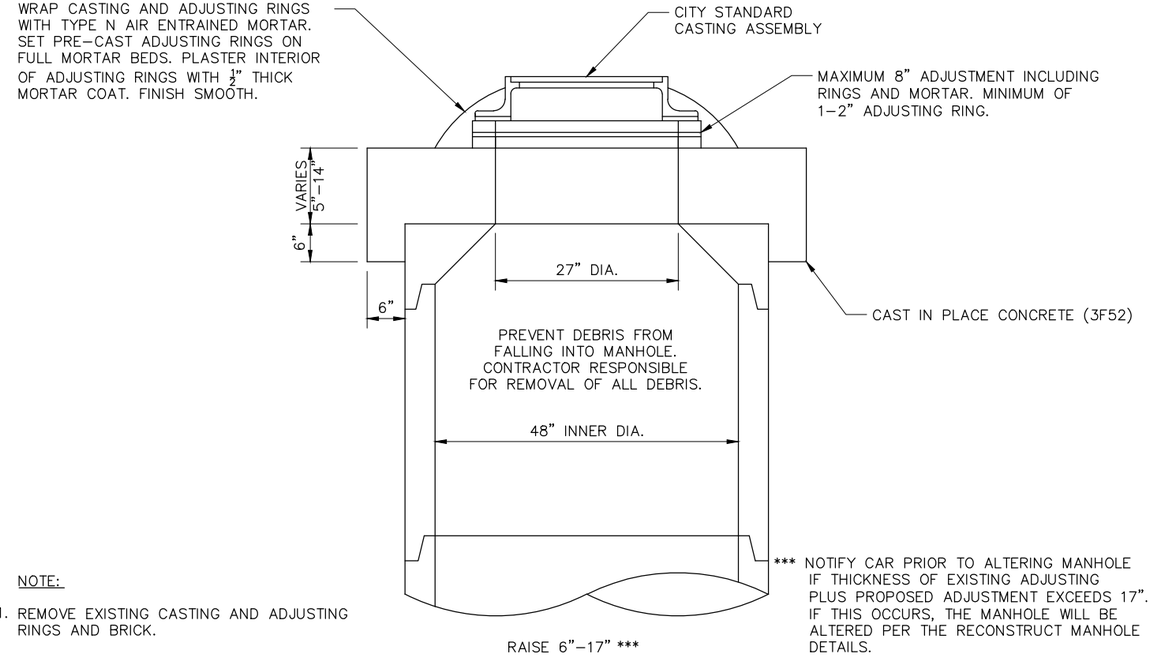


* NOTIFY CAR PRIOR TO ALTERING MANHOLE IF EXISTING ADJUSTMENT THICKNESS DOES NOT ALLOW LOWERING TO PROPOSED ELEV. IF THIS OCCURS, THE MANHOLE WILL BE ALTERED PER THE RECONSTRUCT MANHOLE DETAIL.

** IF THICKNESS OF EXISTING ADJUSTING PLUS PROPOSED ADJUSTMENT EXCEEDS 8", REMOVE ALL EXISTING ADJUSTMENT RINGS AND ADJUST MANHOLE AS RAISE 6"–17".

NOTE:

1. REMOVE EXISTING CASTING AND ADJUSTING RINGS AND BRICK.



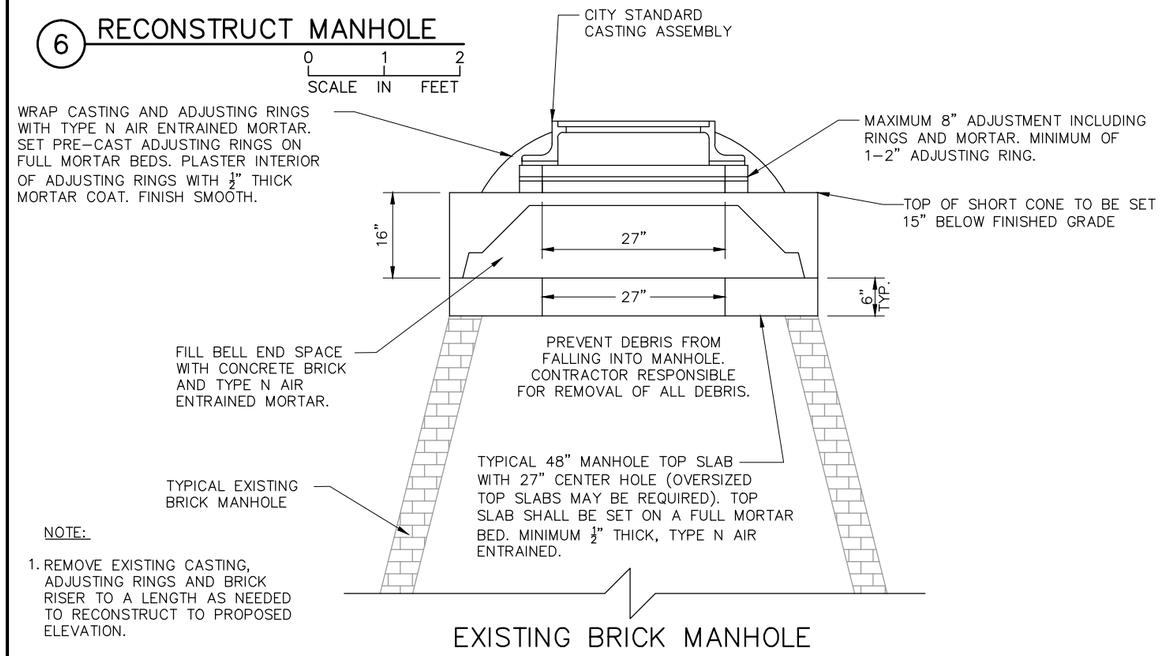
*** NOTIFY CAR PRIOR TO ALTERING MANHOLE IF THICKNESS OF EXISTING ADJUSTING PLUS PROPOSED ADJUSTMENT EXCEEDS 17". IF THIS OCCURS, THE MANHOLE WILL BE ALTERED PER THE RECONSTRUCT MANHOLE DETAILS.

NOTE:

1. REMOVE EXISTING CASTING AND ADJUSTING RINGS AND BRICK.

6 RECONSTRUCT MANHOLE

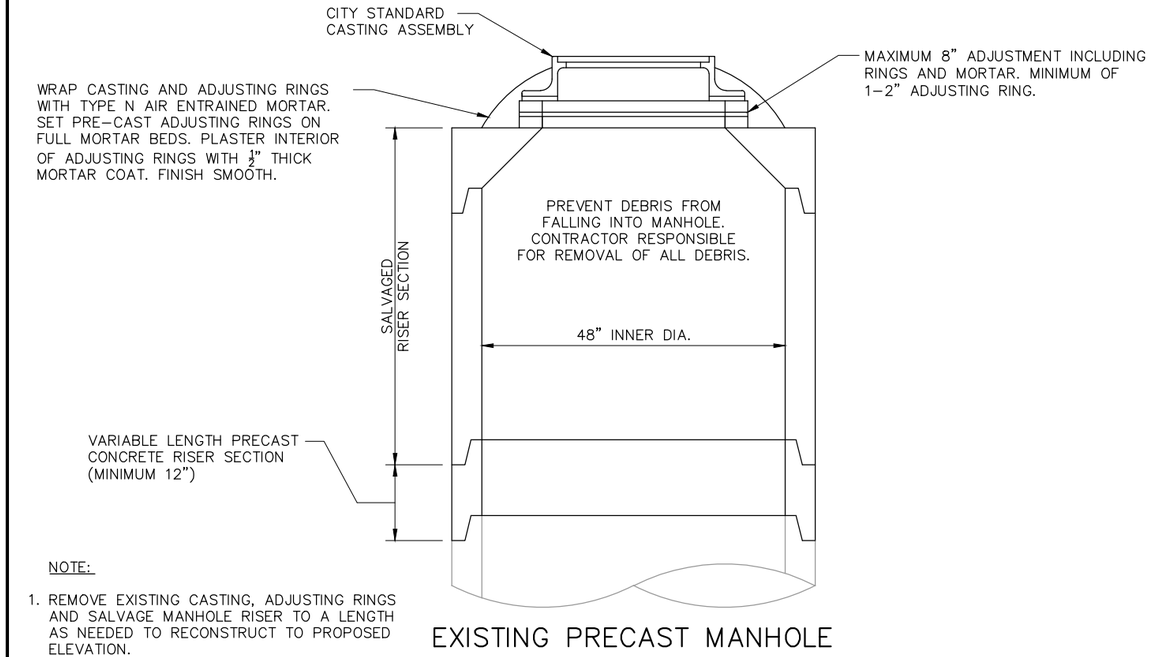
SCALE IN FEET: 0 1 2



NOTE:

1. REMOVE EXISTING CASTING, ADJUSTING RINGS AND BRICK RISER TO A LENGTH AS NEEDED TO RECONSTRUCT TO PROPOSED ELEVATION.

EXISTING BRICK MANHOLE



NOTE:

1. REMOVE EXISTING CASTING, ADJUSTING RINGS AND SALVAGE MANHOLE RISER TO A LENGTH AS NEEDED TO RECONSTRUCT TO PROPOSED ELEVATION.

EXISTING PRECAST MANHOLE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

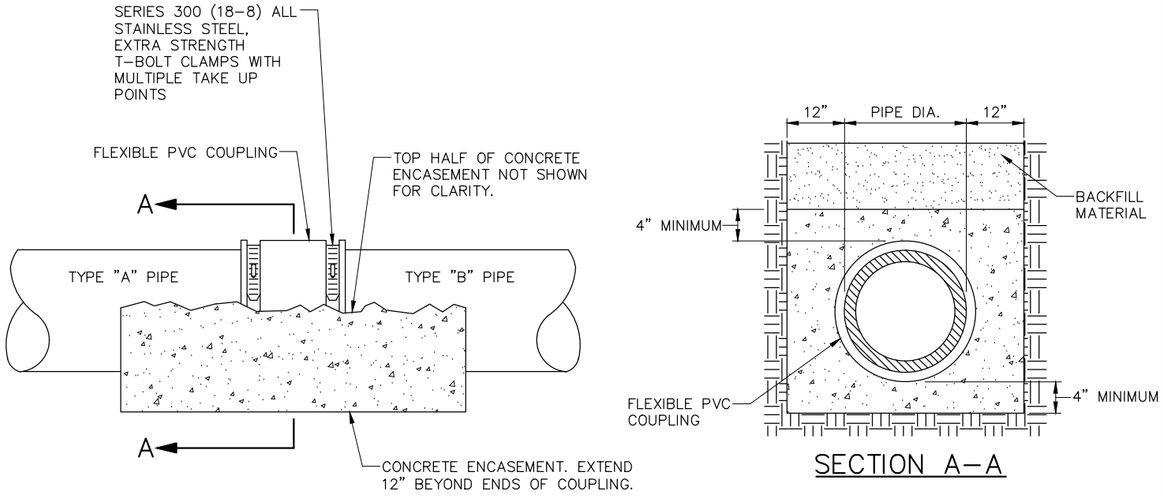
CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

SHEET 144 OF 214

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 002

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR



SECTION A-A

NOTES:

1. FOR USE WITH NON PRESSURIZED SEWER.

7 JOINING DISSIMILAR PIPE

0 NOT TO SCALE 0

SCALE IN FEET

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-Youngb.R

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

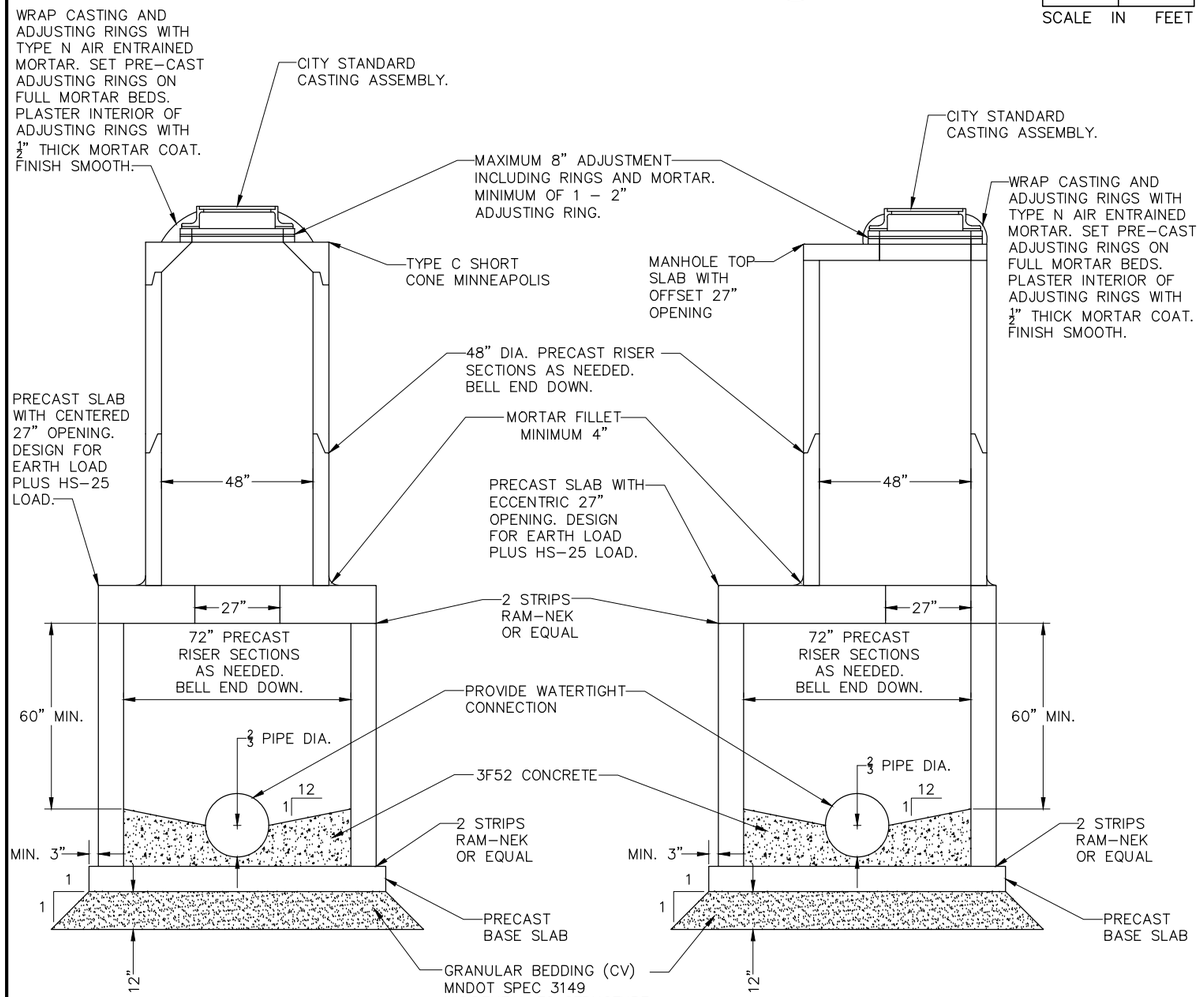
DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 003

SHEET 145 OF 214

(10) 72" SANITARY MANHOLE

0 2 4
SCALE IN FEET



NOTES:

1. PRECAST RISER TO MEET ASTM C-478.
2. TONGUE AND GROOVE PRECAST RISER SECTION JOINTS TO USE O-RING RUBBER GASKET CONFORMING TO ASTM C-443.
3. SAW CUT PIPES FLUSH WITH INTERIOR WALL OF MANHOLE.
4. DESIGN ALL PORTIONS OF STRUCTURE FOR EARTH LOAD PLUS HS-25 LOAD.
5. IN MINNEAPOLIS, WHEN THE INVERT OF THE INLET PIPE IS BELOW THE SPRING LINE OF THE MAIN, PROVIDE CONCRETE POWER FLOWS PER CITY STANDARD PLATE NO. SEWR-1002.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

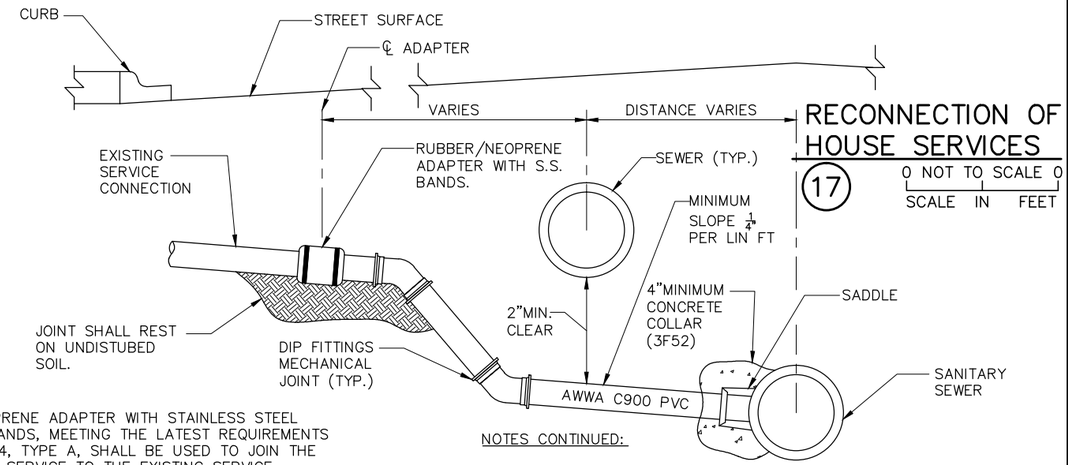
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

SHEET 146 OF 214

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 004



RECONNECTION OF HOUSE SERVICES

17

0 NOT TO SCALE 0

SCALE IN FEET

NOTES:

1. RUBBER/NEOPRENE ADAPTER WITH STAINLESS STEEL TIGHTENING BANDS, MEETING THE LATEST REQUIREMENTS OF ASTM C594, TYPE A, SHALL BE USED TO JOIN THE REPLACEMENT SERVICE TO THE EXISTING SERVICE.
2. DIAMETER OF THE REPLACEMENT SERVICE SHALL BE NOT LESS THAN THAT OF THE EXISTING SERVICE OR 6", WHICHEVER IS GREATER.
3. NEATLY TRIM AND SQUARE OFF EXISTING SERVICE AT RECONNECTION POINT.

NOTES CONTINUED:

4. NO BEND SHARPER THAN 1/8 BEND (45°) MAY BE USED AND ALL BENDS SHALL BE THE LONG RADIUS TYPE.
5. CORE DRILL MAIN LINE SEWER TO ACCEPT SADDLE. USE ROMAC INDUSTRIES INC. "CB" SADDLE OR APPROVED EQUAL FOR 6" CONNECTIONS. USE INSERTA TEE FOR SERVICE CONNECTIONS LARGER THAN 6".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

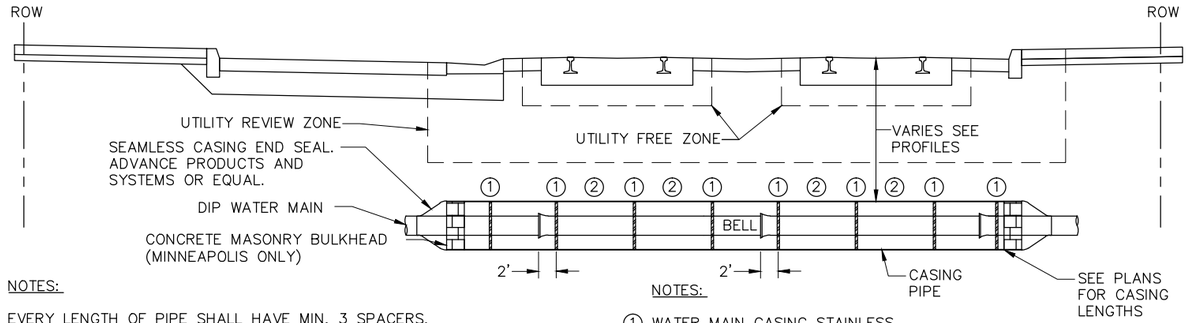
CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 005

SHEET 147 OF 214

Jan, 18 2016 12:37 pm v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-Youngb.R



NOTES:

EVERY LENGTH OF PIPE SHALL HAVE MIN. 3 SPACERS.

CASING SPACERS ARE REQUIRED ON WATER MAIN AND SHALL BE INCIDENTAL TO CASING.

ALL WATER MAIN IN CASING PIPE SHALL BE RESTRAINED JOINT.

CASING PIPE TO BE WELDED STEEL WITH A MINIMUM YIELD OF 35,000 PSI. WALL THICKNESS SHALL BE AS SHOWN IN TABLE (A).

CASING SPACERS SHALL BE STAINLESS STEEL AS MANUFACTURED BY CASCADE WATERWORKS MFG., ADVANCED PRODUCTS & SYSTEMS, INC., OR APPROVED EQUAL.

ENDS OF CASING PIPE SHALL BE SEALED WITH A SEAMLESS CASING END SEAL. SAND FILL IN CASING TUBE IS NOT ALLOWED.

ADDITIONAL NOTES FOR CASING INSTALLATION IN MINNEAPOLIS:

VENT CASING PIPE TO AID IN GROUT FILLING.

GROUT FILL ANNULAR SPACE WITH MNDOT TYPE 3A GROUT.

CUT AND CAP VENT PIPING AFTER GROUT FILLING.

NOTES:

(1) WATER MAIN CASING STAINLESS STEEL SPACERS (TYPICAL)

(2) 8' ON 20' PIPE LENGTHS
7' ON 18' PIPE LENGTHS

BELL O.D. (MJ PIPE)	SIZE OF MAIN	MINIMUM CASING SIZE	MINIMUM CASING WALL THICKNESS
11.12"	6"	24"	0.375"
13.37"	8"	24"	0.375"
17.88"	12"	24"	0.375"
22.50"	16"	30"	0.469"
27.00"	20"	36"	0.531"
31.50"	24"	42"	0.625"
39.12"	30"	48"	0.688"
46.00"	36"	54"	0.781"

TABLE (A)

(8) TYPICAL PIPE CASING INSTALLATION

0 NOT TO SCALE 0
SCALE IN FEET

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

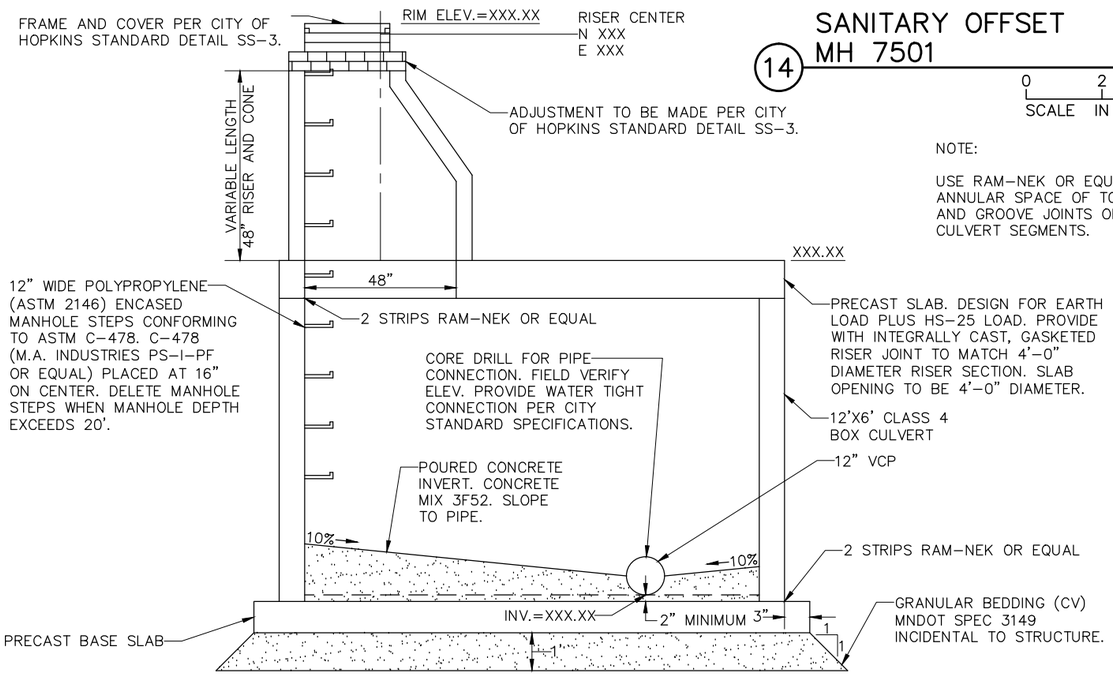
CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 006

SHEET 148 OF 214

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-Youngb.JR



(14) SANITARY OFFSET MH 7501

0 2 4
SCALE IN FEET

NOTE:

USE RAM-NEK OR EQUAL AT ANNULAR SPACE OF TONGUE AND GROOVE JOINTS OF CULVERT SEGMENTS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

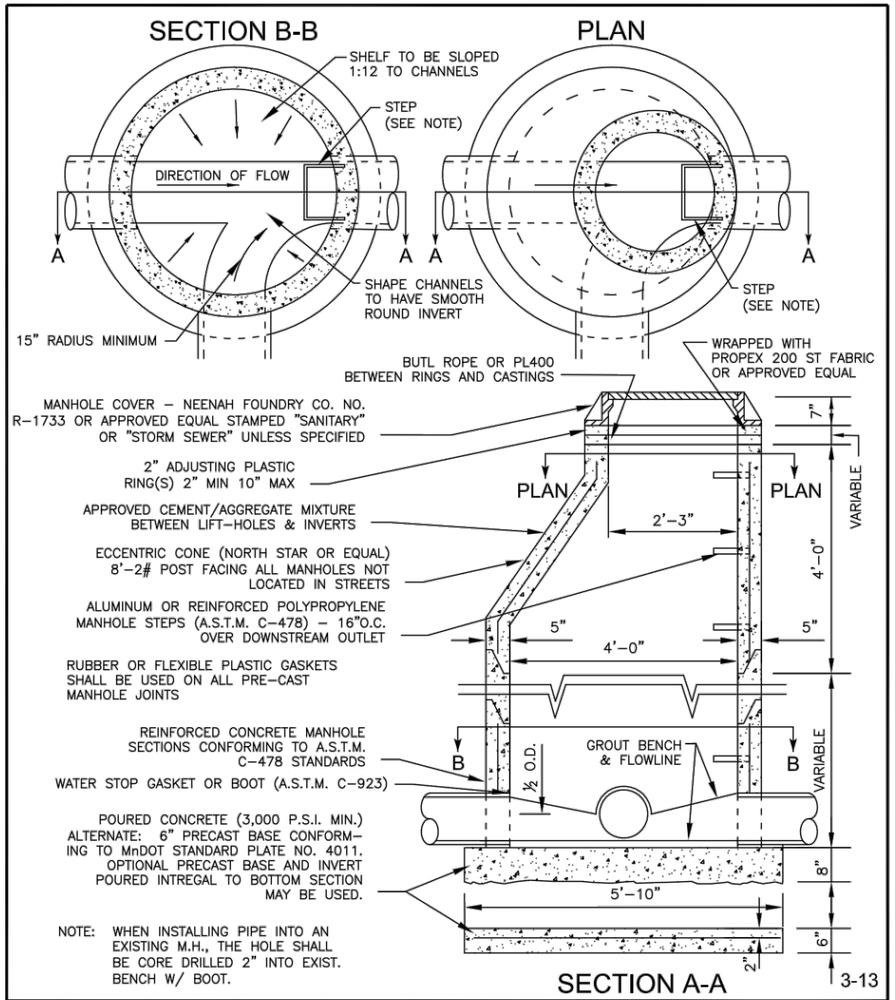
SHEET NAME: W0-UTL-DTL - 007

SHEET 149 OF 214

Jan, 18 2016 12:37 pm v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF EDEN PRAIRIE TYP. STANDARD MANHOLE DETAIL

0 NOT TO SCALE 0
SCALE IN FEET



NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

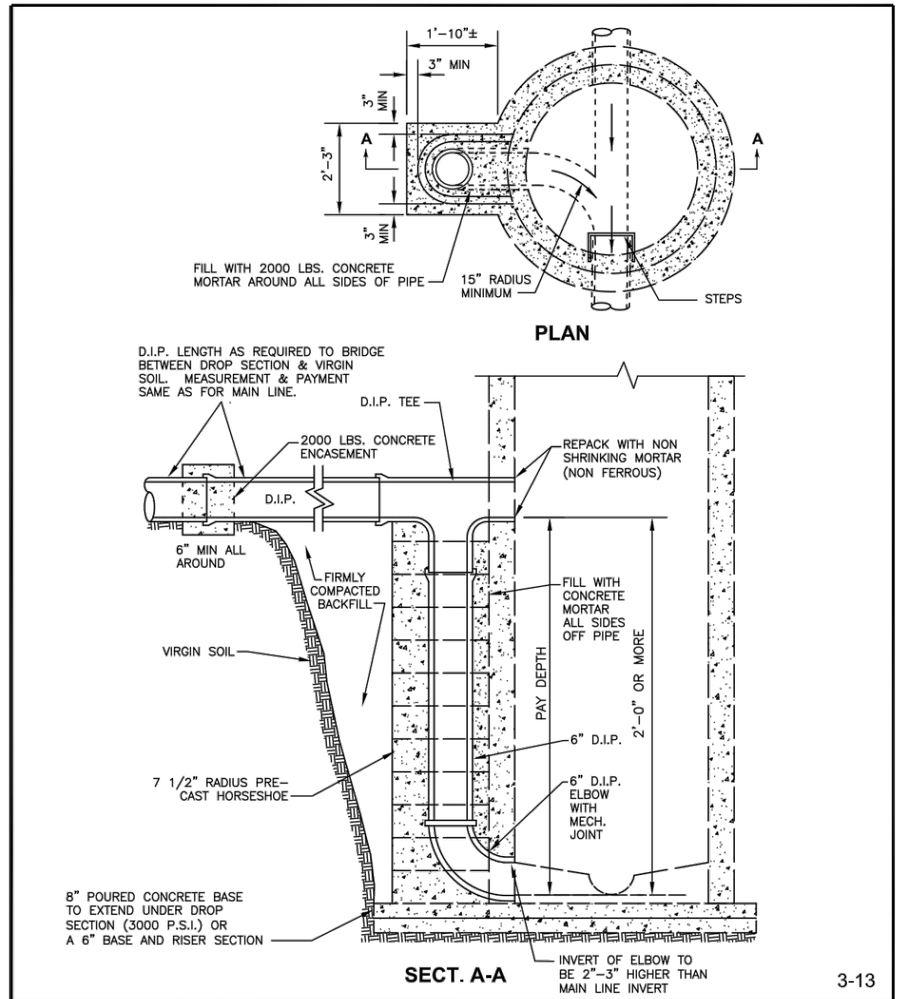
CITY OF EDEN PRAIRIE, MINNESOTA

STANDARD MANHOLE DETAIL

DEPARTMENT OF ENGINEERING **S-1**

(19) CITY OF EDEN PRAIRIE TYP. OUTSIDE DROP MANHOLE

0 NOT TO SCALE 0
SCALE IN FEET



CITY OF EDEN PRAIRIE, MINNESOTA

OUTSIDE DROP SECTION

DEPARTMENT OF ENGINEERING **S-4**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

90% SUBMISSION 01/22/16

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

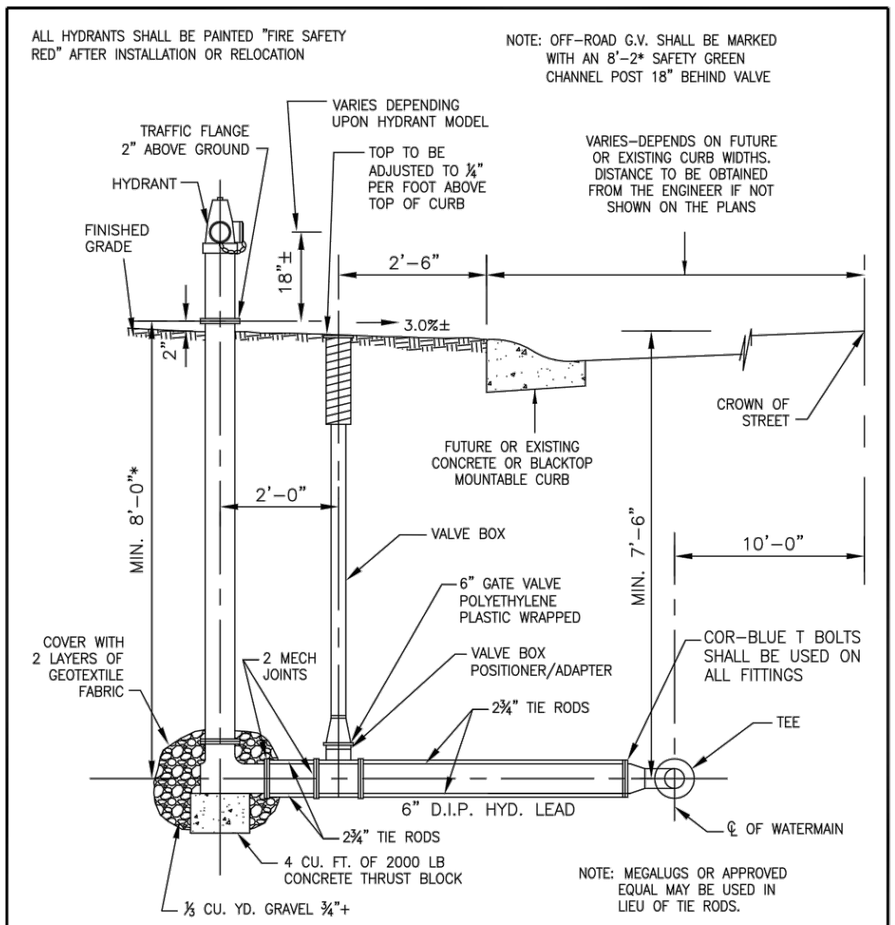
DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 008

SHEET 150 OF 214

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF EDEN PRAIRIE TYP. HYDRANT

0 NOT TO SCALE 0
SCALE IN FEET



* 7'-6" BARREL WITH 6" EXTENSION KIT MAY BE USED IN LIEU OF 8'-0" BARREL. ALL HYDRANTS SHALL BE MARKED WITH AN 8'-2"* SAFETY GREEN CHANNEL POST 18" BEHIND HYDRANT.

3-13

CITY OF EDEN PRAIRIE, MINNESOTA

TYPICAL HYDRANT DETAIL

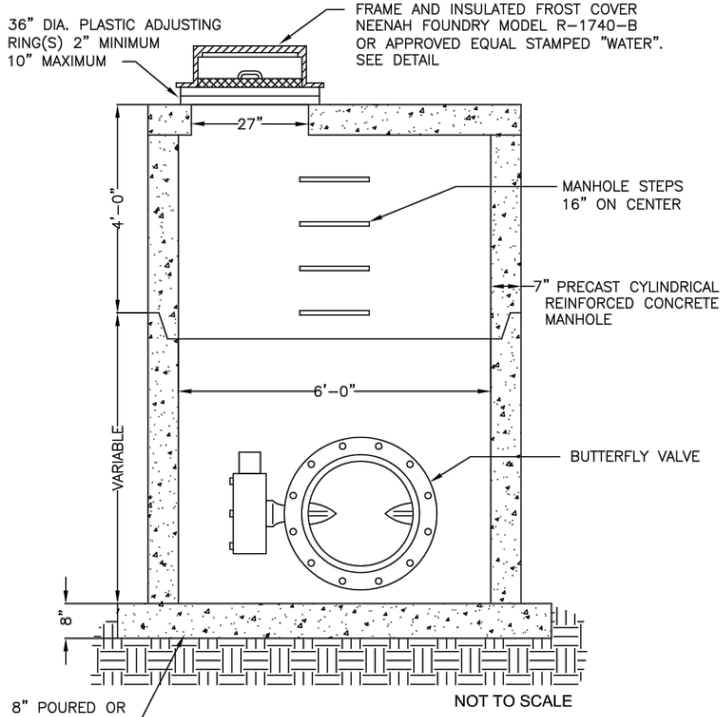
DEPARTMENT OF ENGINEERING **W-3**

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

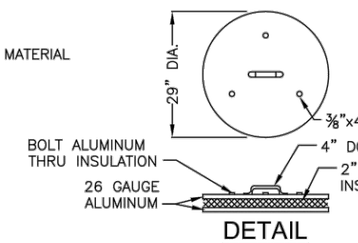
(19) CITY OF EDEN PRAIRIE TYP. MANHOLE

0 NOT TO SCALE 0
SCALE IN FEET



NOTE: OPENING AROUND PIPE TO BE SEALED WITH BITUMINOUS EXPANSION MATERIAL

NOTE:
ALL OFF ROAD VALVED MANHOLES SHALL BE MARKED WITH AN 8' – 2 LB. SAFETY GREEN CHANNEL POST.



DETAIL

3-13

CITY OF EDEN PRAIRIE, MINNESOTA

M.H. for 16" and Larger Butterfly Valves

DEPARTMENT OF ENGINEERING **W-5**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION 01/22/16

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

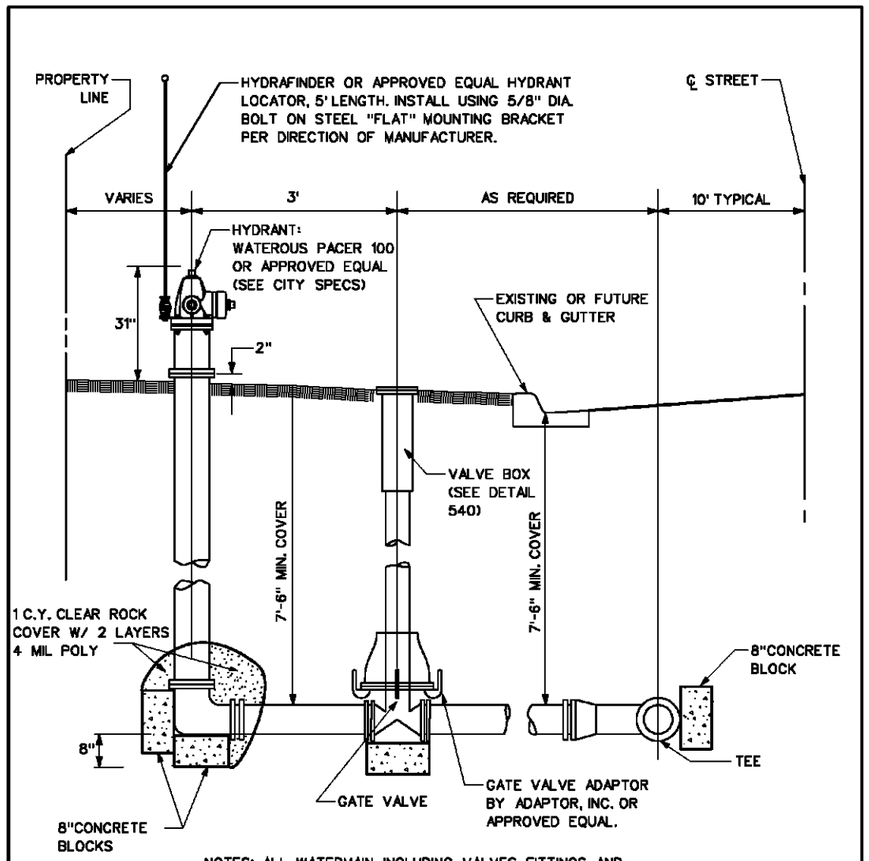
DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 009

SHEET 151 OF 214

Jan, 18 2016 12:37 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF MINNETONKA TYP. HYDRANT

0 NOT TO SCALE 0
SCALE IN FEET



NOTES: ALL WATERMAIN, INCLUDING VALVES, FITTINGS AND APPURTENANCES, SHALL BE FULLY ENCASED IN POLYETHYLENE FILM (4 MIL.)

ALL GATE VALVES AND BUTTERFLY VALVES SHALL BE FURNISHED WITH AN ADAPTOR TO PREVENT THE BOX FROM SETTLING OR SHIFTING. SEE CITY SPECIFICATIONS.

ALL MECHANICAL JOINTS SHALL BE RESTRAINED BY MEGALUGS.

City of minnetonka	HYDRANT	SCALE: NOT TO SCALE	STD PLATE NO: 500
		APPROVED: 5/2000 REVISED: 1/2008	

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

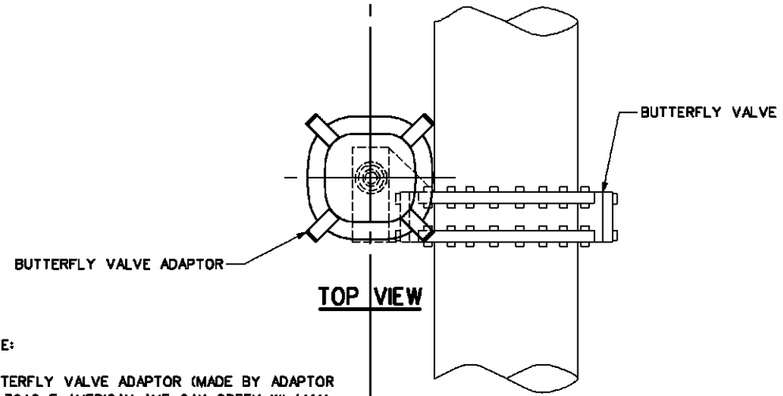
DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 010

SHEET 152 OF 214

Jan, 18 2016 12:37 pm v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF MINNETONKA TYP. BUTTERFLY VALVE ADAPTOR

0 NOT TO SCALE 0
SCALE IN FEET

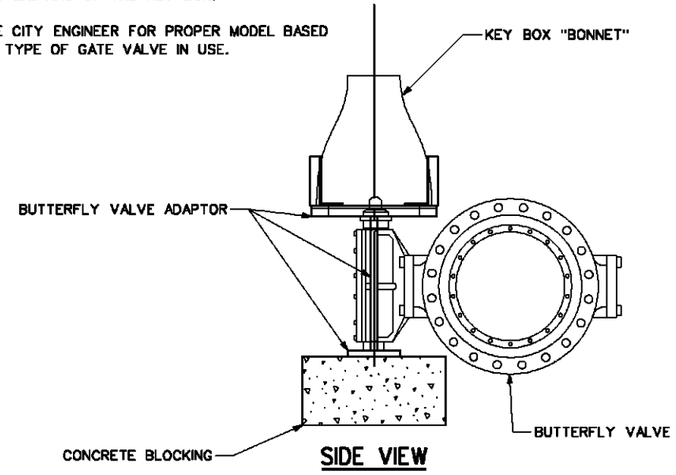


TOP VIEW

NOTE:

BUTTERFLY VALVE ADAPTOR (MADE BY ADAPTOR INC. 3642 E. AMERICAN AVE, OAK CREEK, WI. (414) 764-6733) SHALL BE USED BETWEEN KEY BOX BONNET AND BUTTERFLY VALVE TO MAINTAIN PROPER BOX SETTING AND MINIMIZE SETTLING AND SHIFTING OF THE KEY BOX.

SEE CITY ENGINEER FOR PROPER MODEL BASED ON TYPE OF GATE VALVE IN USE.



SIDE VIEW

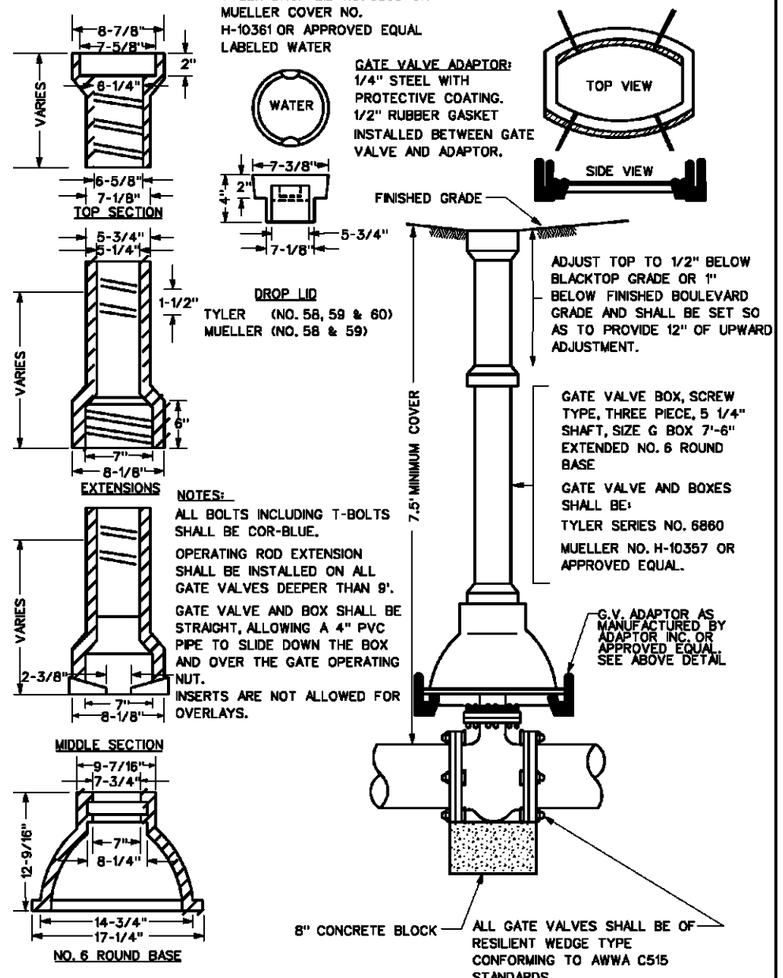
City of minnetonka	BUTTERFLY VALVE ADAPTOR	SCALE: NOT TO SCALE	STD PLATE NO: 520
		APPROVED: 5/2000 REVISED:	

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

(19) CITY OF MINNETONKA TYP. GATE VALVE

0 NOT TO SCALE 0
SCALE IN FEET



City of minnetonka	GATE VALVE	SCALE: NOT TO SCALE	STD PLATE NO: 540
		APPROVED: 1/2008 REVISED: 1/2008	

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

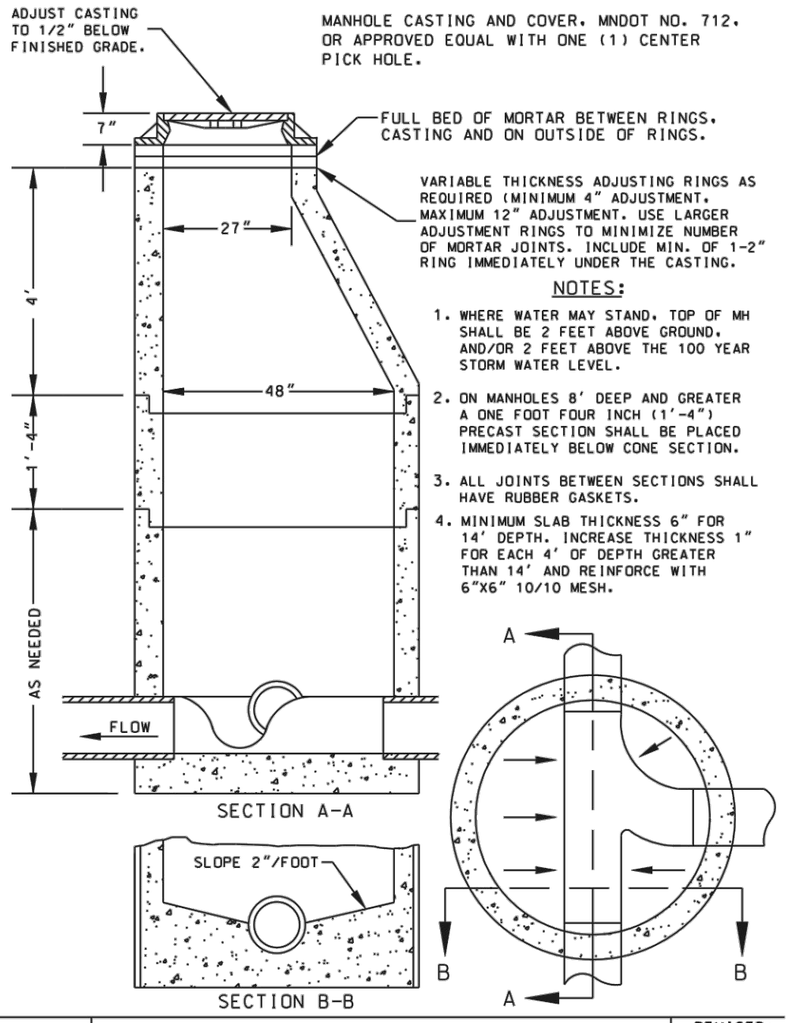
DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 011

SHEET 153 OF 214

Jan, 18 2016 12:38 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF HOPKINS TYP. STANDARD SANITARY SEWER MANHOLE

0 NOT TO SCALE 0
SCALE IN FEET



NOTES:

1. WHERE WATER MAY STAND, TOP OF MH SHALL BE 2 FEET ABOVE GROUND, AND/OR 2 FEET ABOVE THE 100 YEAR STORM WATER LEVEL.
2. ON MANHOLES 8' DEEP AND GREATER A ONE FOOT FOUR INCH (1'-4") PRECAST SECTION SHALL BE PLACED IMMEDIATELY BELOW CONE SECTION.
3. ALL JOINTS BETWEEN SECTIONS SHALL HAVE RUBBER GASKETS.
4. MINIMUM SLAB THICKNESS 6" FOR 14' DEPTH. INCREASE THICKNESS 1" FOR EACH 4' OF DEPTH GREATER THAN 14' AND REINFORCE WITH 6"X6" 10/10 MESH.

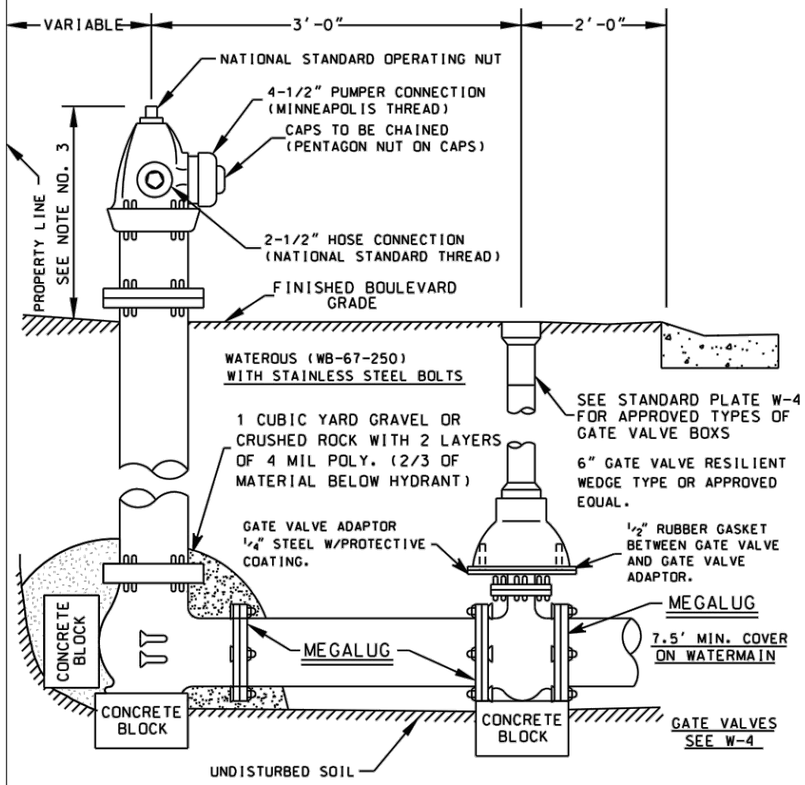
DRAWN BY:	STANDARD DETAILS STANDARD SANITARY SEWER MANHOLE CITY OF HOPKINS	REVISED: 2-02
APPROV. BY:		CITY PL. NO. SS-3

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

(19) CITY OF HOPKINS TYP. HYDRANT AND GATE VALVE

0 NOT TO SCALE 0
SCALE IN FEET



NOTES:

1. GATE VALVES ARE REQUIRED WITH ALL HYDRANTS.
2. FIRE HYDRANTS SHALL BE PAINTED RED AT THE FACTORY.
3. TOP OF FIRE HYDRANT DESIGN ELEVATION SHALL BE 2.5' ABOVE FINISHED BOULEVARD GRADE.
4. THRUST BLOCKING MAY ALSO BE REQUIRED IN CUL-DE-SACS.
5. ALL BOLTS INCLUDING T-BOLTS SHALL BE STAINLESS STEEL.

DRAWN BY:	STANDARD DETAILS HYDRANT AND GATE VALVE INSTALLATION CITY OF HOPKINS	REVISED: 2-02
APPROV. BY:		CITY PL. NO. W-2

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

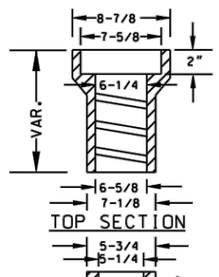
CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 012

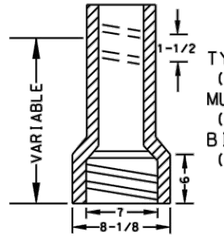
SHEET 154 OF 214

19 CITY OF HOPKINS TYP. GATE VALVE AND BOX

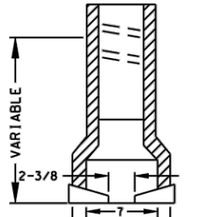
0 NOT TO SCALE 0
SCALE IN FEET



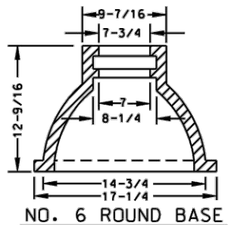
TOP SECTION



EXTENSIONS

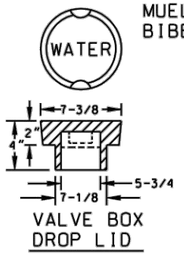


MIDDLE SECTION



NO. 6 ROUND BASE

TYLER 6865
MUELLER H-10361
BIBBY B-5160



VALVE BOX
DROP LID

ADJUST TOP TO 1/2" BELOW BLACKTOP GRADE OR 1" BELOW FINISHED BOULEVARD GRADE AND SHALL BE SET SO AS TO PROVIDE 12" OF UPWARD ADJUSTMENT.

TYLER
(NO. 58, 59 & 60)
MUELLER
(NO. 58 & 59)
BIBBY
(NO. 57, 58, 59 & 60)

GATE VALVE BOXES

TYLER 6860
MUELLER H-10357
BIBBY B-5001
DOMESTIC FOUNDRY DF69

GATE VALVE BOXES ARE 3 PIECE, 5-1/4" SHAFT

GATE VALVE RESILIENT WEDGE TYPE OR APPROVED EQUAL.

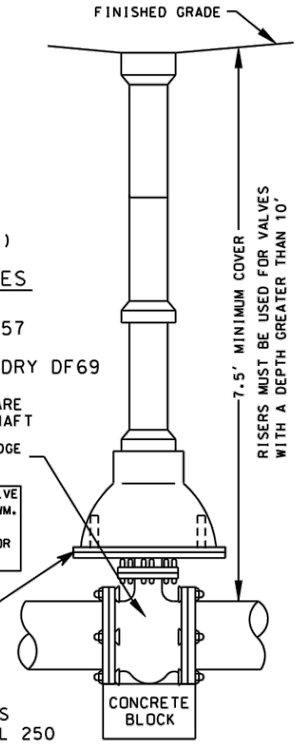
USE A RESILIENT SEAT WEDGE VALVE UP TO AND INCLUDING 12" DIA. WM. RESILIENT SEAT WEDGE VALVE OR BUTTERFLY VALVE MAY BE USED FOR LARGER DIAMETER WATERMAIN.

GATE VALVE ADAPTOR 1/4" STEEL W/PROTECTIVE COATING AND 1/2" RUBBER GASKET BETWEEN GATE VALVE AND GATE VALVE ADAPTOR.

GATE VALVES

1. AMERICAN FLOW CONTROL 2500 SERIES
2. U.S. PIPE METROSEAL 250
3. KENNEDY
4. CLOW

NOTE: ALL BOLTS INCLUDING T-BOLTS SHALL BE STAINLESS STEEL BOLTS.



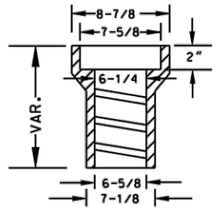
DRAWN BY:	STANDARD DETAILS	REVISED: 2-02
APPROV. BY:	GATE VALVE AND BOX INSTALLATION CITY OF HOPKINS	CITY PL. NO. W-4

NOTE:

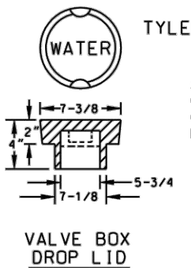
REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

19 CITY OF HOPKINS TYP. BUTTERFLY VALVE AND BOX

0 NOT TO SCALE 0
SCALE IN FEET



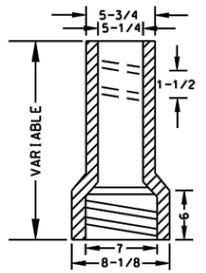
TOP SECTION



VALVE BOX
DROP LID

TYLER 6865

ADJUST TOP TO 1/2" BELOW BLACKTOP GRADE OR 1" BELOW FINISHED BOULEVARD GRADE AND SHALL BE SET SO AS TO PROVIDE 12" OF UPWARD ADJUSTMENT.



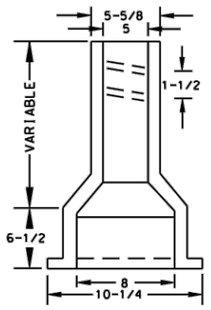
EXTENSION

TYLER
(NO. 58, 59 & 60)

BUTTERFLY GATE VALVE BOXES

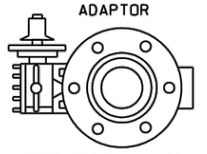
TYLER 6860

GATE VALVE BOXES ARE 2 PIECE, 5-1/4" SHAFT



BOTTOM SECTION

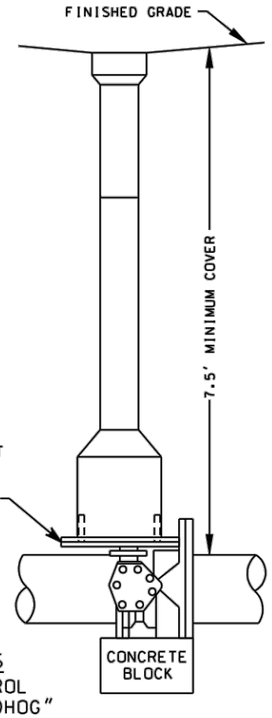
BUTTERFLY VALVE ADAPTOR



BUTTERFLY VALVES

1. AMERICAN FLOW CONTROL
2. HENRY PRATT "GROUNDHOG"
3. DRESSER 450
4. KENNEDY
5. MUELLER

NOTE: ALL BOLTS INCLUDING T-BOLTS SHALL BE STAINLESS STEEL BOLTS.



DRAWN BY:	STANDARD DETAILS	REVISED: 2-02
APPROV. BY:	BUTTERFLY VALVE AND BOX INSTALLATION CITY OF HOPKINS	CITY PL. NO. W-5

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 013

SHEET 155 OF 214

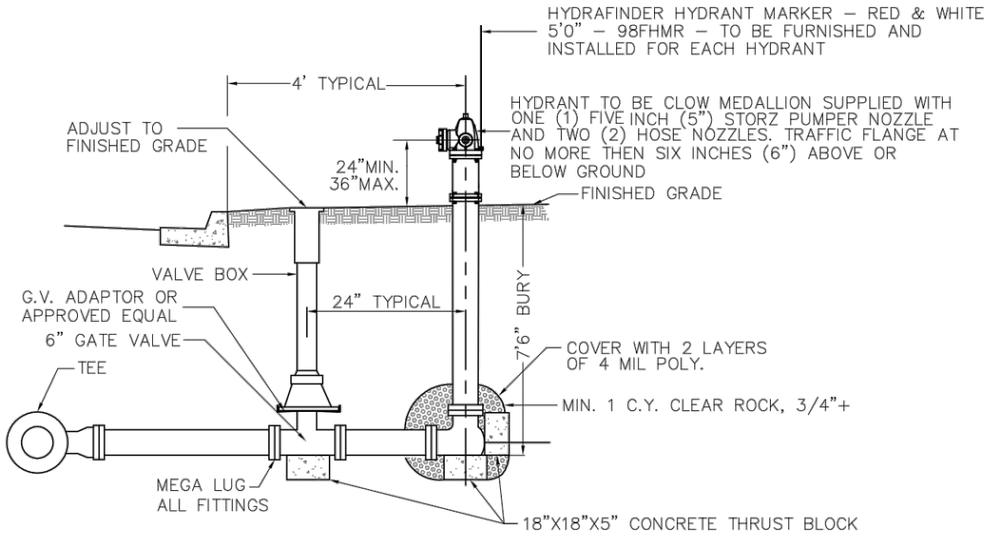
Jan, 18 2016 12:38 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(19) CITY OF ST. LOUIS PARK TYP. HYDRANT WITH PUMPER NOZZLE

0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS

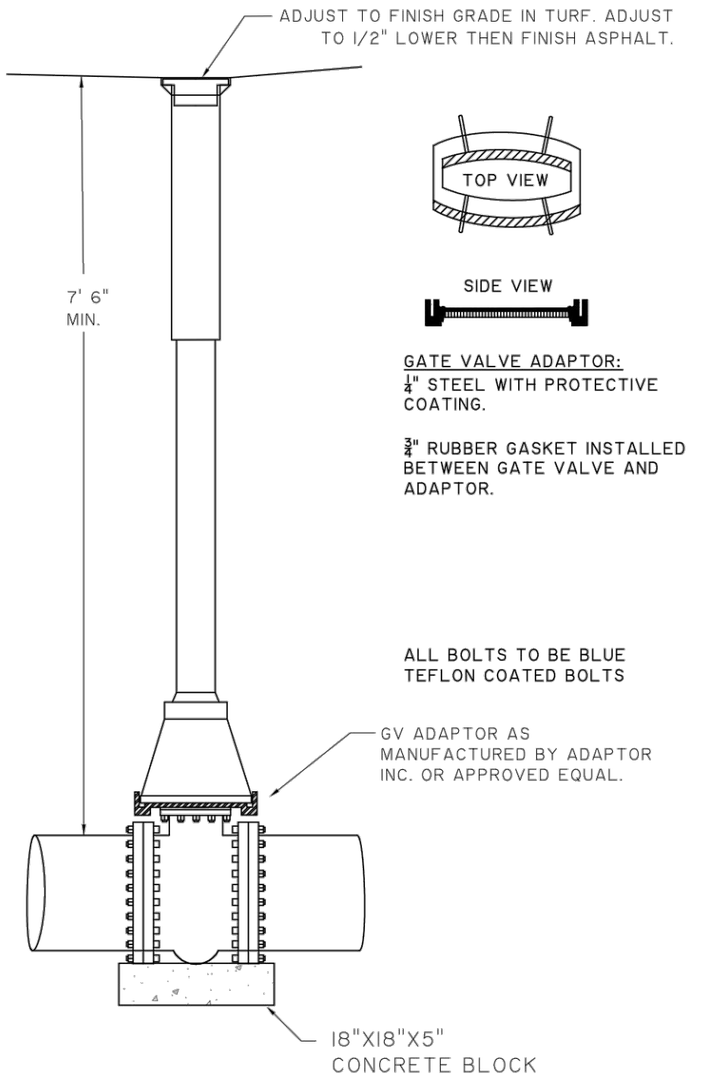


NOTES:
1. WEEP HOLE TO REMAIN OPEN UNLESS OTHERWISE SPECIFIED.
2. ALL BOLTS TO BE BLUE TEFLON COATED.
3. HYDRANT COATINGS DAMAGED DURING CONSTRUCTION SHALL REPAIRED AFTER THE BITUMINOUS BASE IS INSTALLED. PRIME AND PAINT HYDRANTS PER AWWA AND MANUFACTURER'S STANDARD.
4. BURY DEPTH DEPENDS ON WATER MAIN DEPTH. PREMEASURE TO ORDER HYDRANT AND VALVE.

St. Louis Park MINNESOTA ENGINEERING	CLOW MEDALLION HYDRANT WITH STORZ PUMPER NOZZLE	PUBLISH DATE 1/7/2015	PLATE NO. W-2

(19) CITY OF ST. LOUIS PARK TYP. GATE VALVE

0 NOT TO SCALE 0
SCALE IN FEET



St. Louis Park MINNESOTA ENGINEERING	GATE VALVE	PUBLISH DATE 1/7/2015	PLATE NO. W-3

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 014

SHEET 156 OF 214

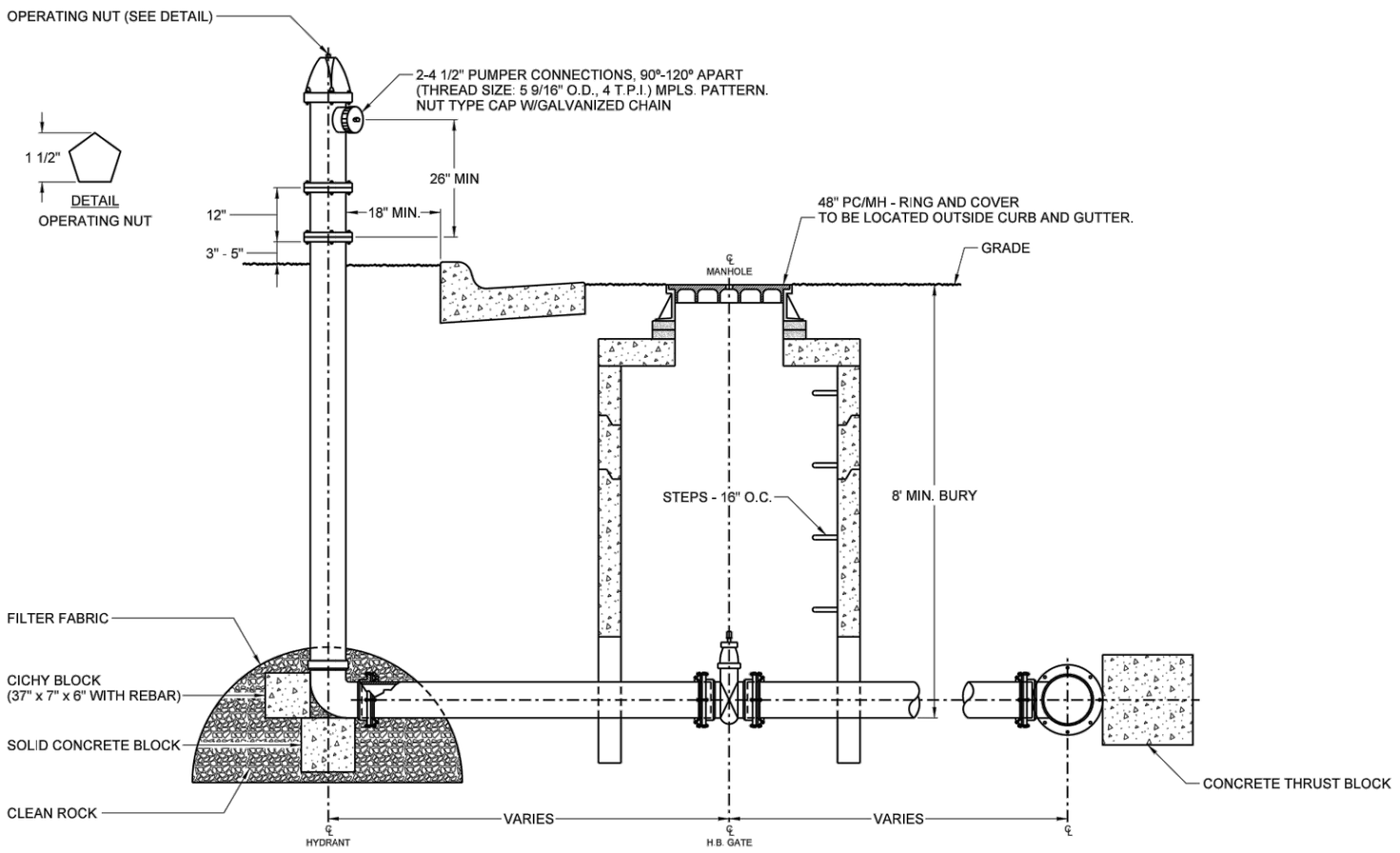
Jan, 18 2016 12:38 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

21 HYDRANT BRANCH INSTALLATION

0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS



Minneapolis City of Lakes	MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS	HYDRANT BRANCH INSTALLATION	STANDARD PLATE NO. WATR-1000A-R2
	DRAWN: TDS DATE: 11/19/13		
	APPROVED: RCE DATE: 11/19/13		

NOTES:
1. OPERATING NUT SHALL BE FURNISHED WITH L.H. (COUNTER CLOCKWISE) OPENING.
2. HYDRANTS SHALL MEET THE REQUIREMENTS IN THE SPECIAL PROVISIONS.
3. USE EBAA MEGALUGS OR APPROVED EQUAL FOR THRUST RESTRAINT ON ALL JOINTS OF HYDRANT BRANCH.

NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES
SHEET NAME: W0-UTL-DTL - 015

SHEET 157 OF 214

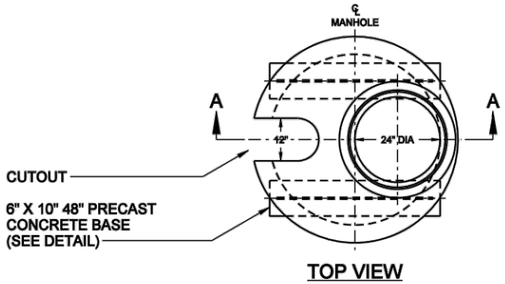
Jan, 18 2016 12:38 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

22 WATER VALVE – HYDRANT IN MANHOLE

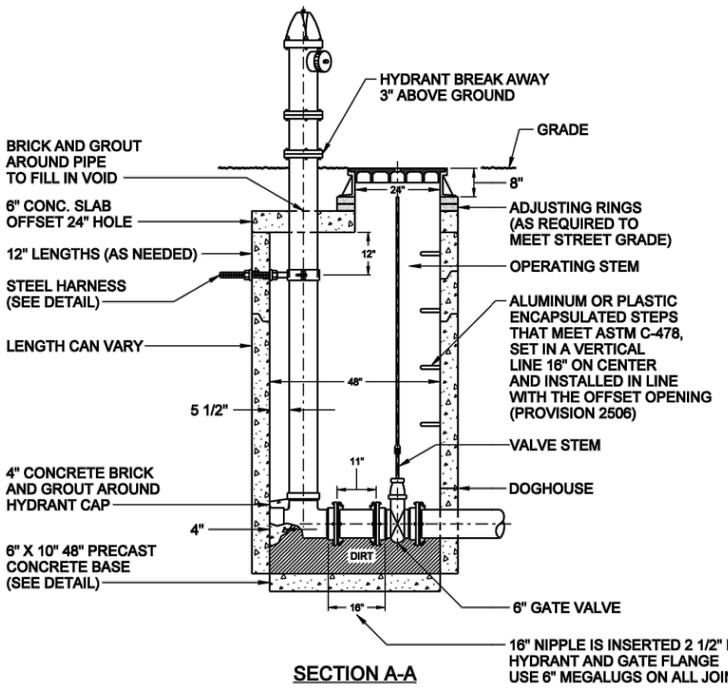
0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

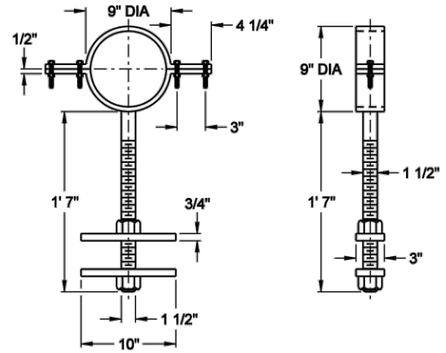
REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS



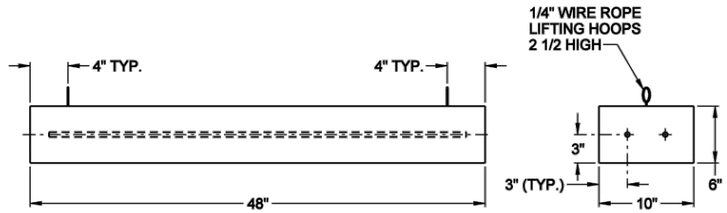
TOP VIEW

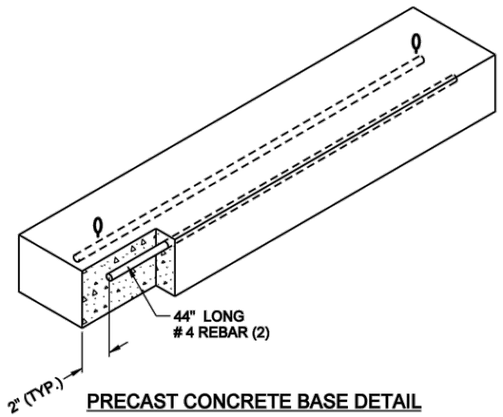


SECTION A-A



STEEL HARNESS DETAIL





PRECAST CONCRETE BASE DETAIL

NOT TO SCALE

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		WATER VALVE - HYDRANT IN MANHOLE	STANDARD PLATE NO. WATR-1001A-R1
DRAWN: TDS	DATE: 1/1/12		
APPROVED: RCE	DATE: 1/1/12		

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 016

SHEET 158 OF 214

Jan, 18 2016 12:38 pm v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(23) DRIP BOX

0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

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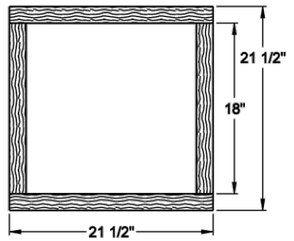
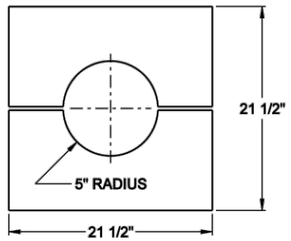
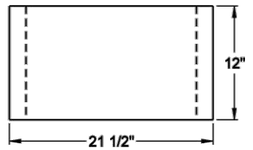


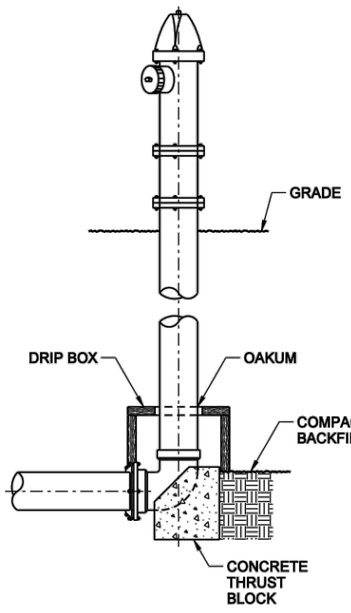
TOP VIEW
(COVER REMOVED)



COVER



FRONT VIEW



NOTES:
ALL MATERIALS SHALL BE TREATED LUMBER. THE DRIP BOX SHALL BE LEFT VOID AND THE SPACE WHERE THE HYDRANT BARREL COMES THROUGH THE COVER SHALL BE SEALED WITH OAKUM TO PREVENT BACKFILL MATERIAL FROM ENTERING THE DRIP BOX.

SEE MATERIAL AND CONSTRUCTION SPECIFICATIONS FOR WATER SERVICE CONSTRUCTION IN MINNEAPOLIS, SECTION B, ITEM W.M. - 2.3-D. "BLOCKING AND ANCHORING OF PIPE" FOR REACTION BLOCKING SPECIFICATIONS.

NOT TO SCALE

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		DRIP BOX	STANDARD PLATE NO. WATR-1002A-R1
DRAWN: TDS	DATE: 1/1/12		
APPROVED: RCE	DATE: 1/1/12		

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 017

SHEET 159 OF 214

Jan, 18 2016 12:38 pm V:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

CITY OF MINNEAPOLIS TYP. WATER VALVE MANHOLE

0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

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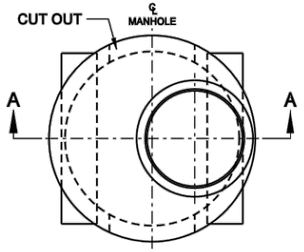
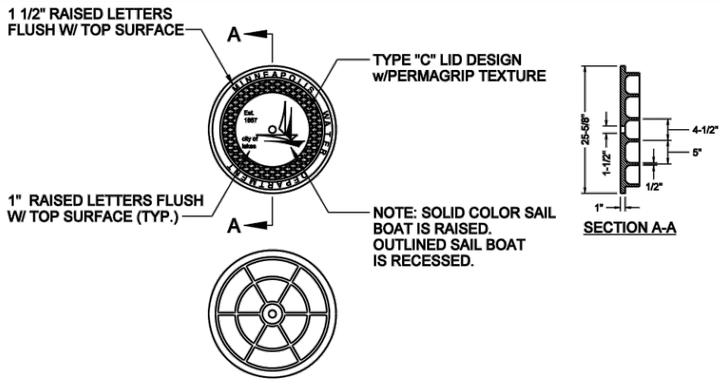
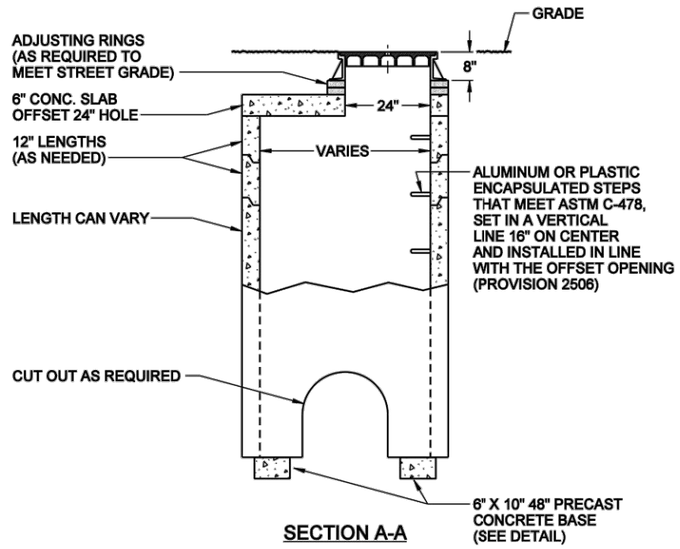


TOP VIEW

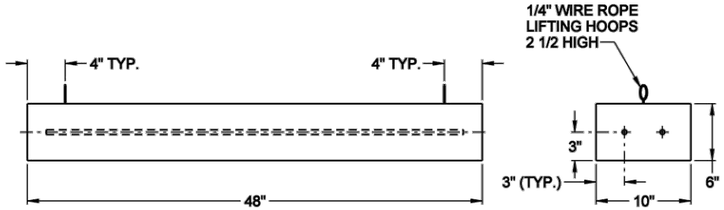


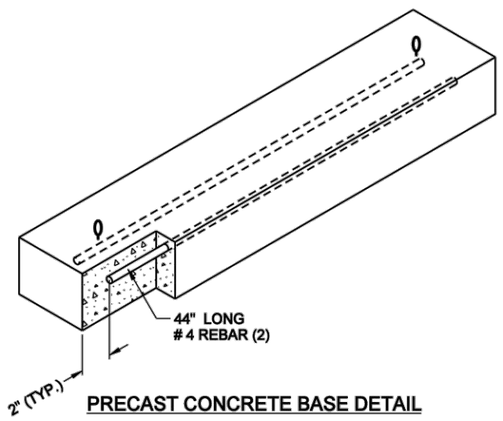
BOTTOM VIEW

STANDARD MANHOLE COVER DETAIL



SECTION A-A





PRECAST CONCRETE BASE DETAIL

NOT TO SCALE

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		STANDARD MANHOLE	STANDARD PLATE NO. WATR-2000A-R2
DRAWN: TDS	DATE: 1/1/12		
APPROVED: RCE	DATE: 1/1/12		

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 018

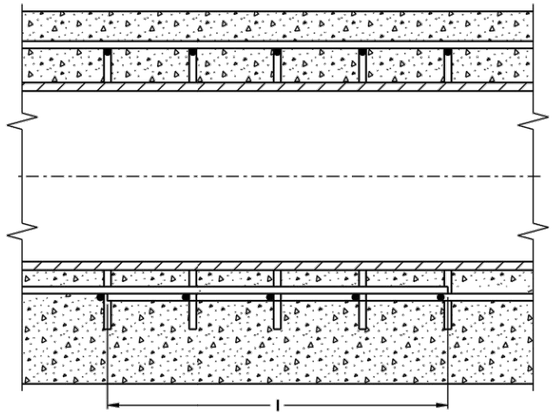
SHEET 160 OF 214

20 REINFORCED CONCRETE ENCASEMENT: 4"–12"

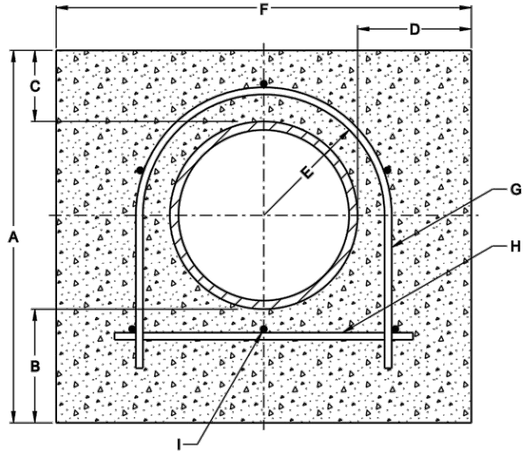
0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS



LONGITUDINAL SECTION



TRANSVERSE SECTION

PIPE SIZE (IN.)	A MIN. (IN.)	B (IN.)	C (IN.)	D (IN.)	E (IN.)	F MIN. (IN.)	G	H	I MIN.	YDS. CONC. PER FT.	LBS. STEEL PER FT.
4	15	6	4	7	4	19	#3 BAR, 6" O.C., 23" LONG, 4" R	#3 BAR, 6" O.C., 10" LONG	6 - #3 BARS, 12" OVERLAP	0.08	5
6	17	6	4	7	5	21	#3 BAR, 6" O.C., 28" LONG, 5" R	#3 BAR, 6" O.C., 12" LONG	6 - #3 BARS, 12" OVERLAP	0.08	5
8	22	8	5	8	6.5	25	#4 BAR, 6" O.C., 39" LONG, 6.5" R	#4 BAR, 6" O.C., 17" LONG	6 - #4 BARS, 12" OVERLAP	0.12	10
12	26	8	5	8	8.5	29	#4 BAR, 6" O.C., 49" LONG, 8.5" R	#4 BAR, 6" O.C., 21" LONG	6 - #4 BARS, 12" OVERLAP	0.16	12

MINNEAPOLIS
DEPARTMENT OF PUBLIC WORKS

DRAWN: TDS	DATE: 1/1/12
APPROVED: RCE	DATE: 1/1/12

REINFORCED CONCRETE ENCASEMENT FOR 4", 6", 8" AND 12" WATERMAINS

STANDARD PLATE NO. WATR-3000A-R1

NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 019

SHEET 161 OF 214

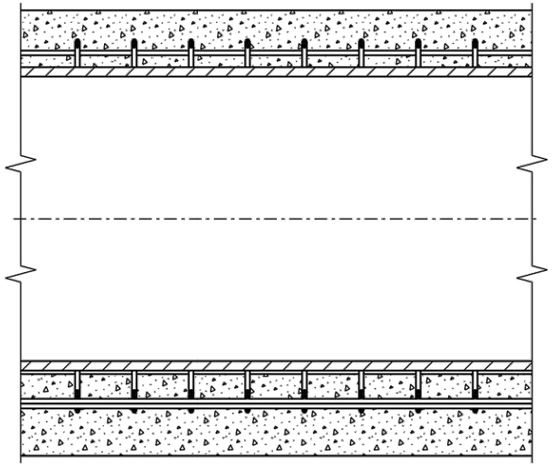
Jan, 18 2016 12:38 pm v:\3400_ADC\CAD\00_WEST\PLANSHEETS\UTILITIES\W0-UTL-DTL.dwg By: V-YoungbJR

(20) REINFORCED CONCRETE ENCASEMENT: 16"–30"

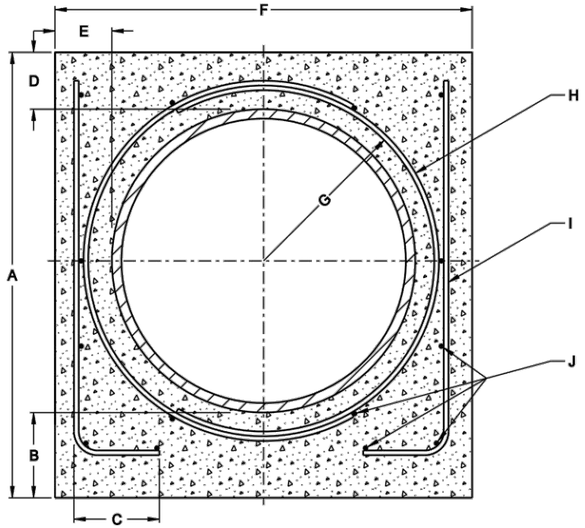
0 NOT TO SCALE 0
SCALE IN FEET

NOTE:

REFERENCES TO PAY ITEMS OR PAY QUANTITIES IN THESE DETAILS ARE NOT APPLICABLE TO THIS PROJECT. SEE SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES OF THE PROJECT SPECIFICATIONS FOR MEASUREMENT AND PAYMENT REQUIREMENTS



LONGITUDINAL SECTION



TRANSVERSE SECTION

PIPE SIZE (IN.)	A (IN.)	B (IN.)	C (IN.)	D (IN.)	E (IN.)	F MIN. (IN.)	G (IN.)	H (BEND TO RADIUS G)	I	J MIN.	CU. YDS. CONC. PER FT.	LBS. STEEL PER FT.
16	35	9	9	6	6	32	11	#4 BARS, 6" O.C., 48" LONG	#4 BAR, 6" O.C., 36" LONG	14 - #4 BARS, 12" OVERLAP MIN.	.24	29
18	35	9	9	6	6	32	12	2 - #4 BARS, 6" O.C., 50" LONG	2 - #4 BARS, 6" O.C., 38" LONG	14 - #4 BARS, 12" OVERLAP MIN.	.24	30.5
20	37	9	9	6	6	34	13	2 - #4 BARS, 6" O.C., 53" LONG	2 - #4 BARS, 6" O.C., 40" LONG	14 - #4 BARS, 12" OVERLAP MIN.	.25	32
24	41	9	9	6	6	38	15	2 - #4 BARS, 6" O.C., 59" LONG	2 - #4 BARS, 6" O.C., 44" LONG	14 - #4 BARS, 12" OVERLAP MIN.	.29	36
30	47	9	9	6	6	44	18	2 - #4 BARS, 6" O.C., 69" LONG	2 - #4 BARS, 6" O.C., 50" LONG	14 - #4 BARS, 12" OVERLAP MIN.	.37	39

MINNEAPOLIS
DEPARTMENT OF PUBLIC WORKS

DRAWN: TDS	DATE: 1/1/12
APPROVED: RCE	DATE: 1/1/12

REINFORCED CONCRETE ENCASEMENT FOR 16", 18", 20", 24" AND 30" WATERMAINS

STANDARD PLATE NO. WATR-3001A-R1

NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES
SANITARY AND WATER DETAILS

DISCIPLINE: UTILITIES

SHEET NAME: W0-UTL-DTL - 020

SHEET 162 OF 214

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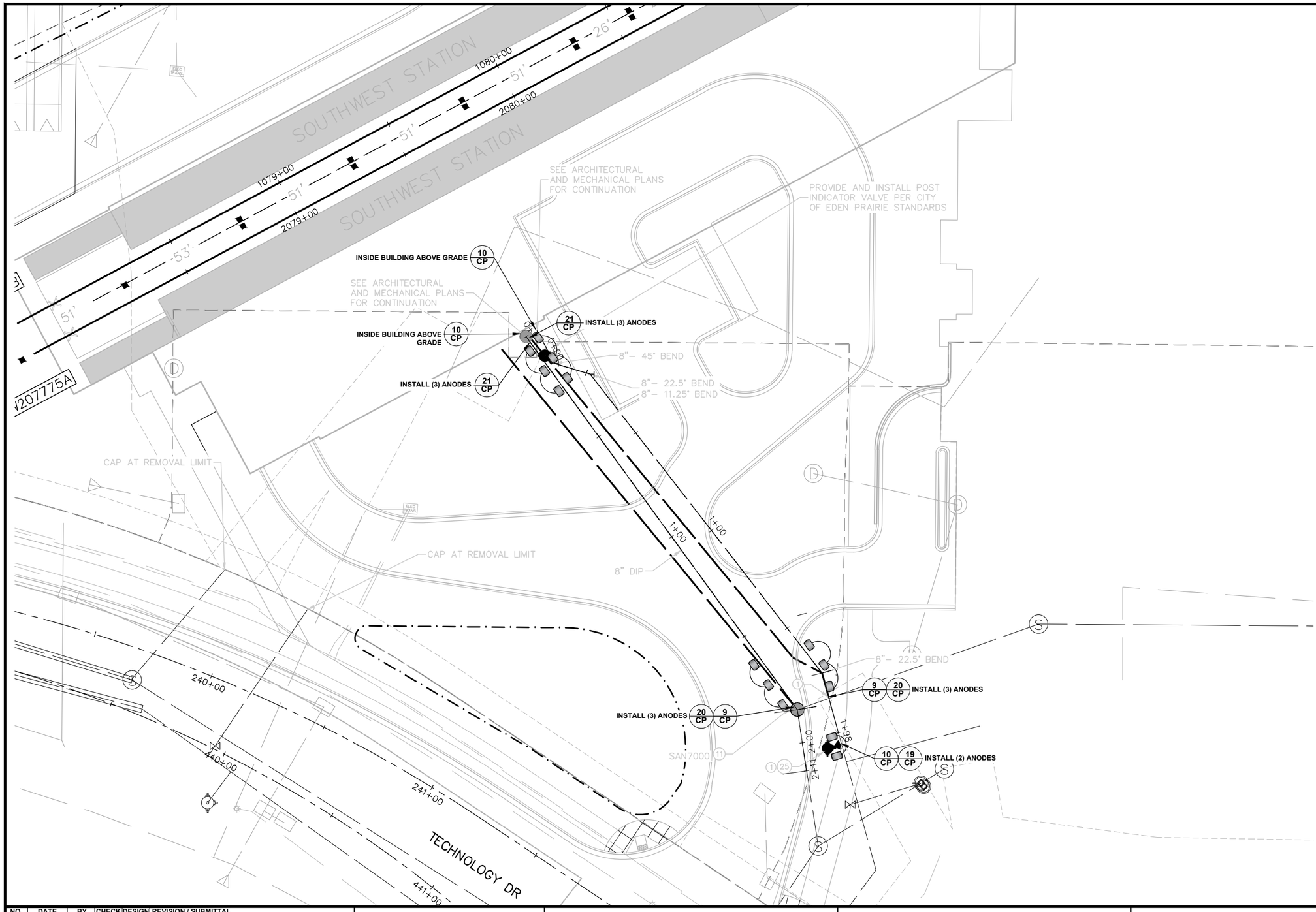


NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
2. ALL REFERENCED CATHODIC PROTECTION DETAILS ARE SHOWN ON SHEETS E0-SYS-CORR-DTL-028 TO 034
3. COPPER WATER SERVICE LINES WILL BE CATHODICALLY PROTECTED AND BE ISOLATED FROM THE NEW WATER MAIN AND WITHIN THE STATION, COATED WITH POLYETHYLENE BACKED BUTYL RUBBER TAPE SYSTEM IN COMPLIANCE WITH AWWA C209 AND HAVE MAGNESIUM ANODE(S) DIRECTLY ATTACHED AS CALLED OUT AT EACH SERVICE LOCATION. THE TAPE COATING SYSTEM WILL CONSIST OF A PRIMER AND POLYETHYLENE BACKED BUTYL RUBBER TAPE.
4. ALL CATHODICALLY PROTECTED PIPES SHALL BE ELECTRICALLY ISOLATED FROM EXISTING PIPE AT TIE-IN LOCATIONS.
5. BOND CABLES SHALL BE ATTACHED ACROSS ALL CUT-OUT SECTIONS OF EXISTING PIPE TO MAINTAIN ELECTRICAL CONTINUITY OF EXISTING PIPE TO MAINTAIN ELECTRICAL CONTINUITY OF EXISTING PIPE AROUND NEW TIE-IN FITTING(S).
6. CORROSION CONTROL TEST STATION ROADWAY BOXES ARE TO BE LOCATED DIRECTLY OVER THE PIPELINE EXCEPT IN AREAS THAT WOULD PLACE THE TEST STATION IN A ROADWAY. LOCATE THESE TEST STATION TO THE CLOSET POINT JUST OFF THE EDGE OF THE ROAD. THE TEST WIRES SHALL BE ROUTED UNDER THE ROADWAY TO THE TEST BOX THROUGH PVC CONDUIT.
7. AT CASED CROSSING WITH HDPE PIPE CARRIER PIPES, TEST STATIONS AS SHOWN IN DETAILS 23 OR 25 ON SHEETS E0-SYS-CORR-DTL-033 OR 034 SHALL BE INSTALLED WITH THE TEST WIRES ATTACHED TO THE STEEL CASING AND TO THE DUCTILE IRON PIPE AT THE HDPE / DUCTILE IRON TRANSITION COUPLING.

LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

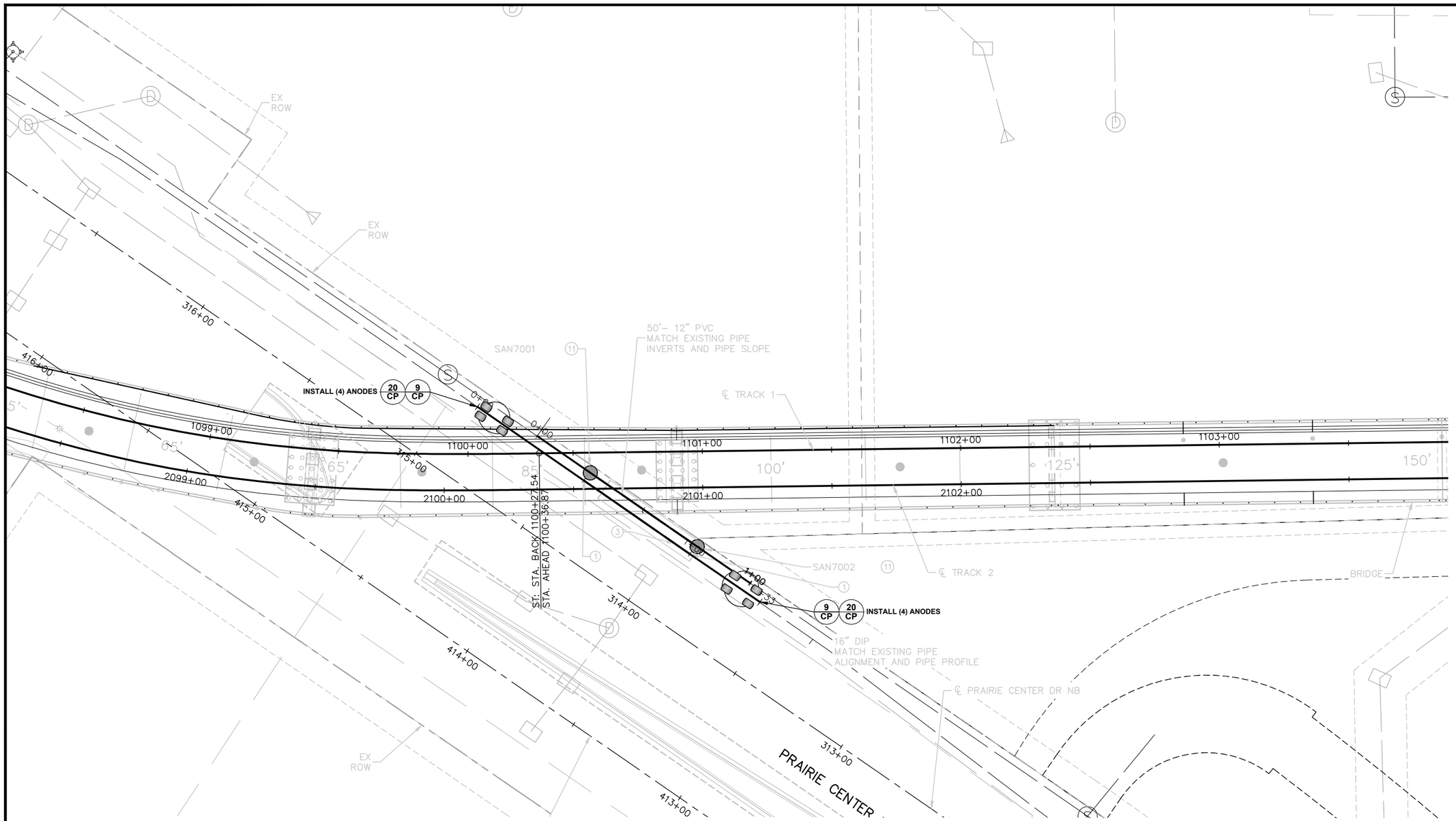
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
SOUTHWEST STATION

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 001

SHEET 163 OF 214



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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
PRAIRIE CENTER DR BRIDGE

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 002

SHEET 164 OF 214

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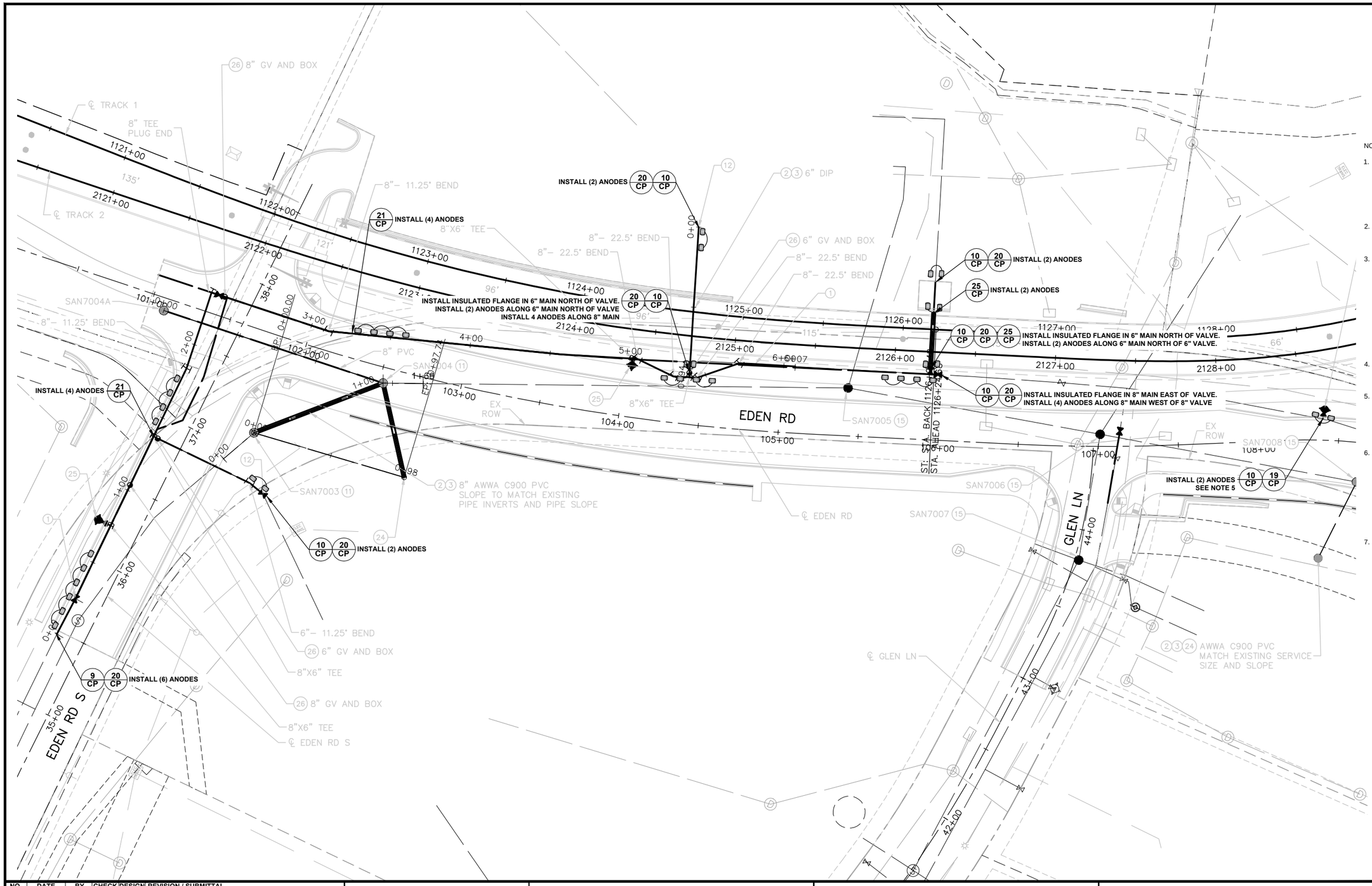

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
EDEN RD

SHEET 165 OF 214

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 003

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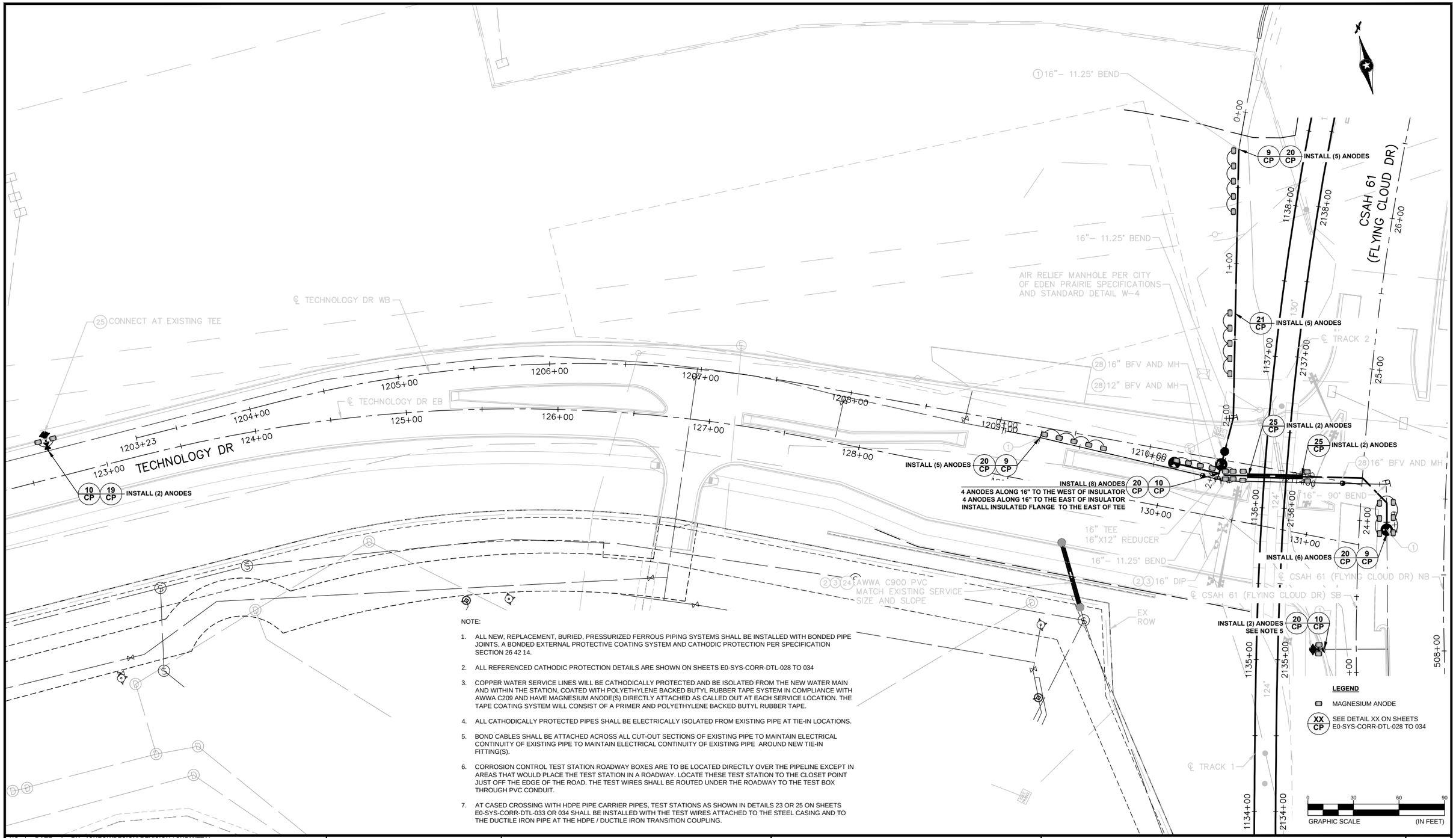

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
TECHNOLOGY DR / FLYING CLOUD DR

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 004

SHEET 166 OF 214

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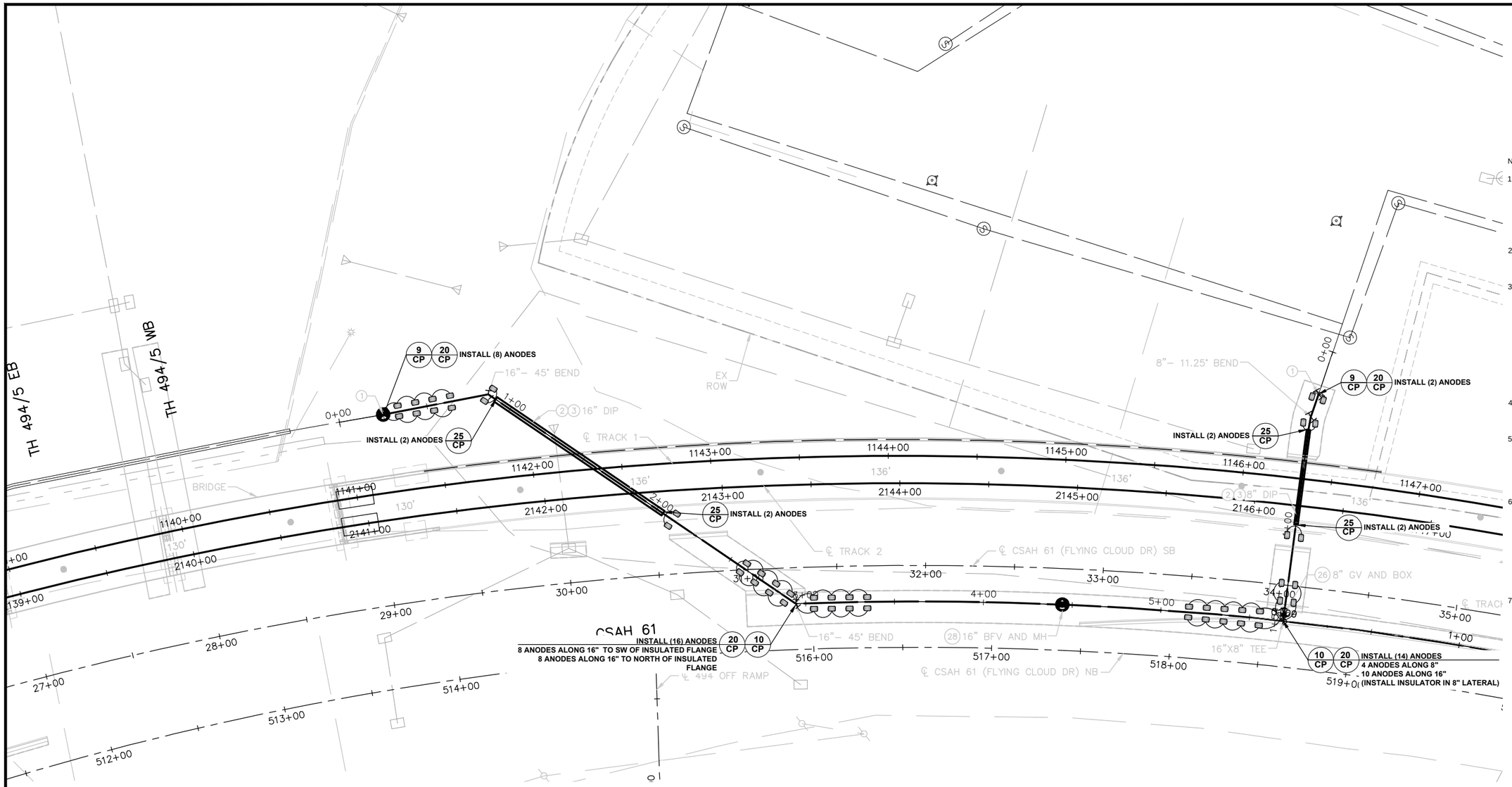

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
FLYING CLOUD DR 1 OF 3

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 005

SHEET 167 OF 214

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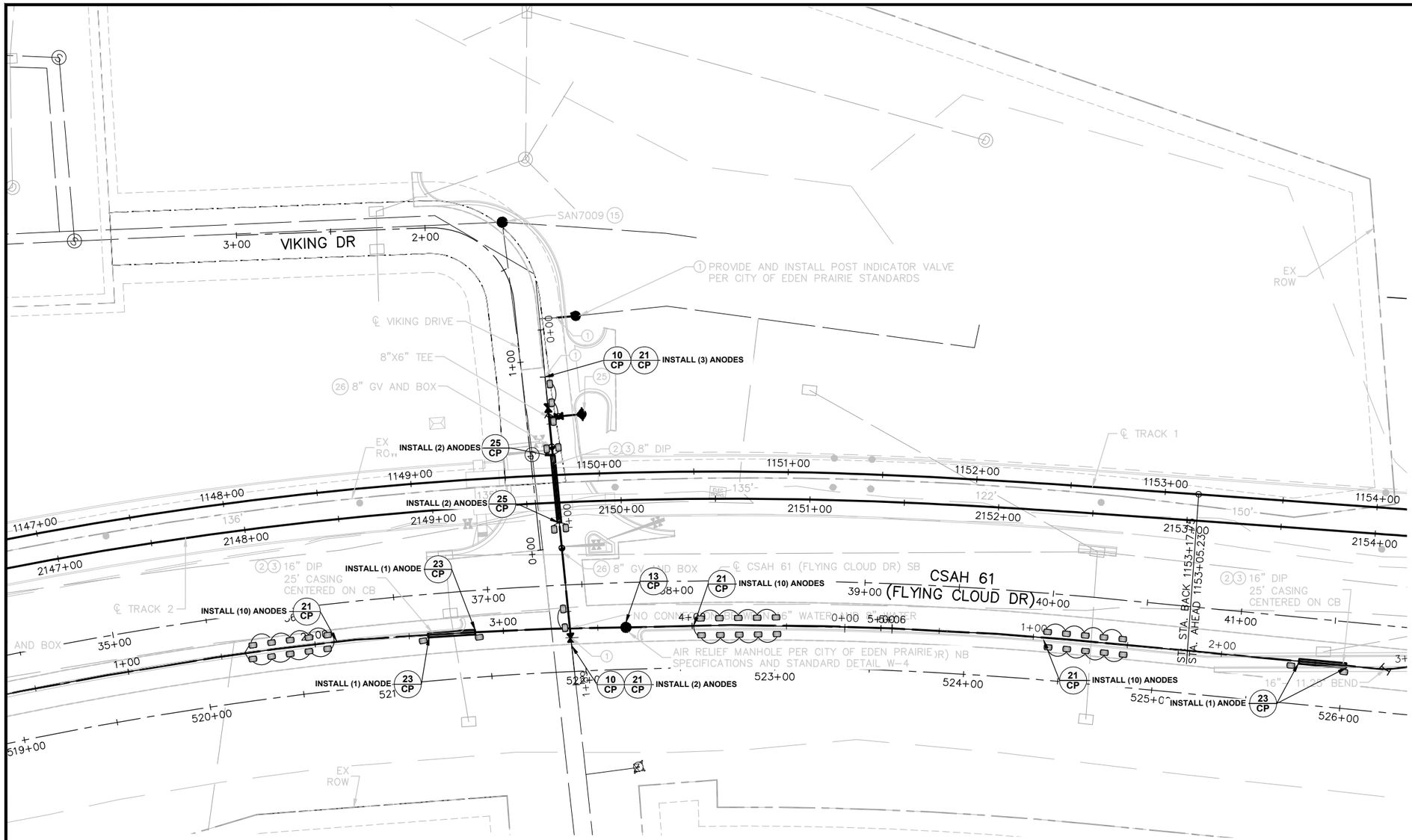

NOTE:

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

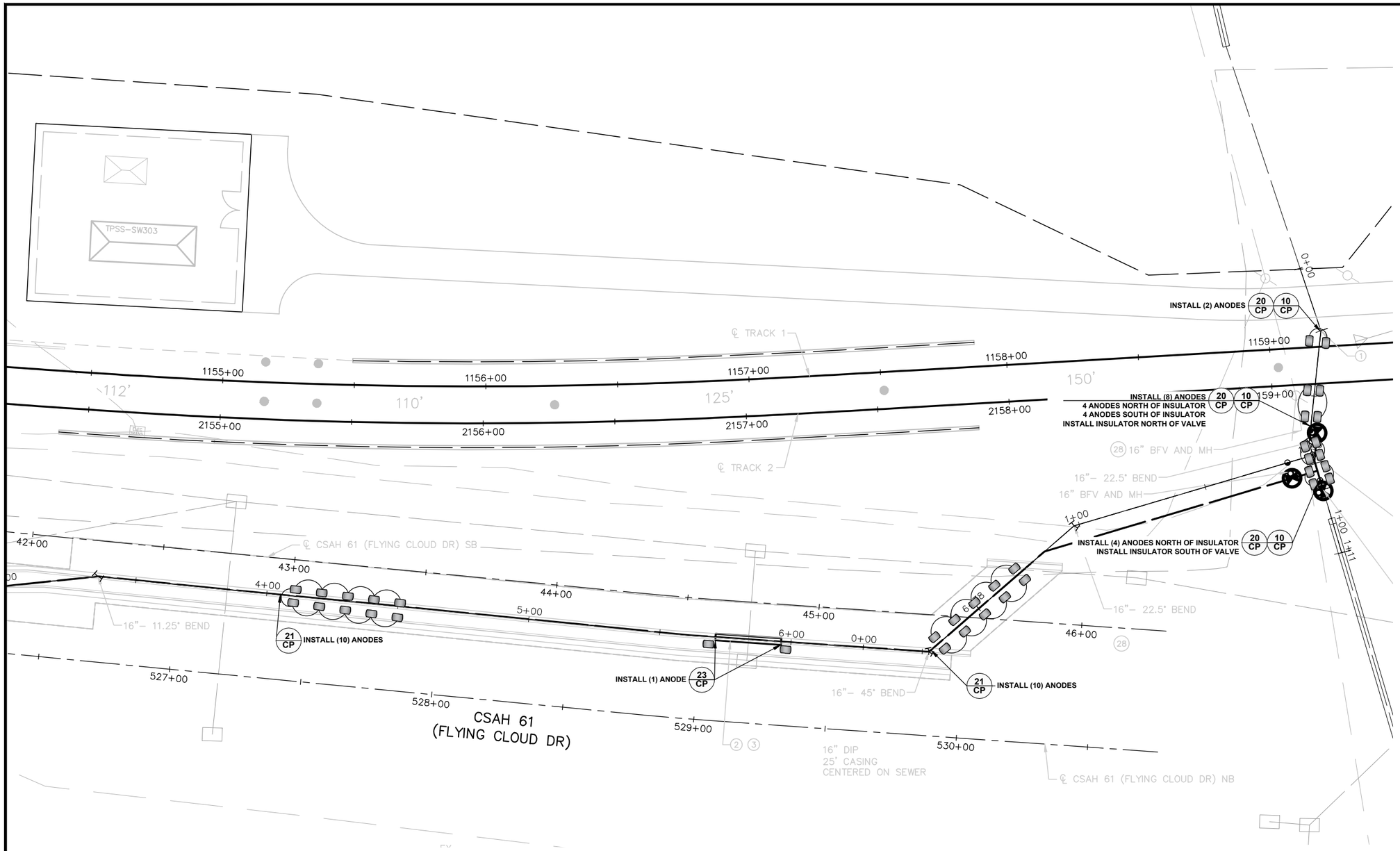
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
FLYING CLOUD DR 2 OF 3

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 006

SHEET 168 OF 214

Jan, 15 2016 11:38 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6484\W1-UTL-PLN.dwg By: Carlos_Deese



NOTE:

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

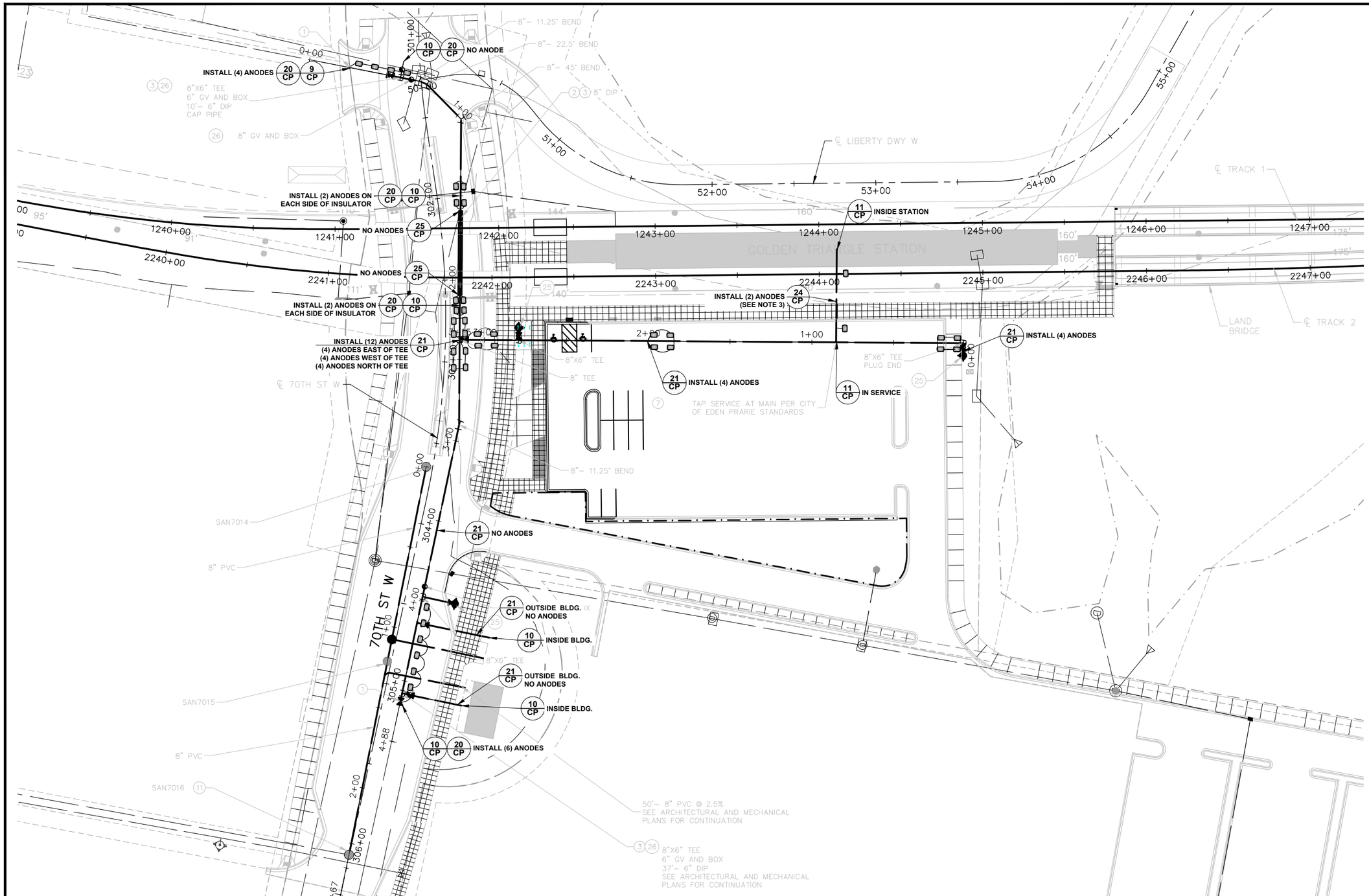
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
FLYING CLOUD DR 3 OF 3

DISCIPLINE: CORR

SHEET NAME: W1-UTL-CORR - 007

SHEET 169 OF 214

Jan, 15 2016 11:39 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6484\W1-UTL-PLN.dwg By: Carlos_Deese



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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

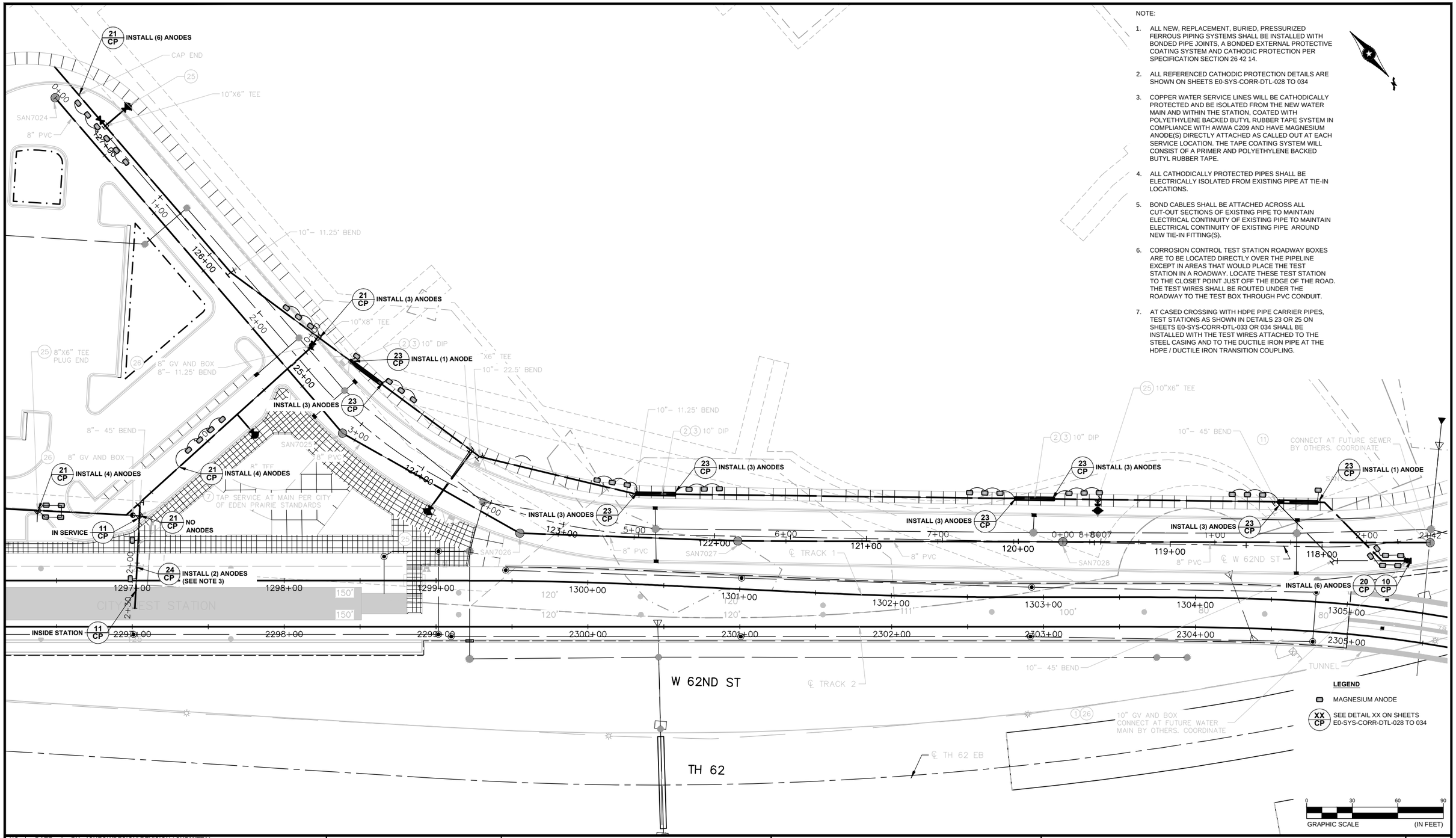
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
GOLDEN TRIANGLE STATION

DISCIPLINE: CORR

SHEET NAME: W2-UTL-CORR - 001

SHEET 170 OF 214



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AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

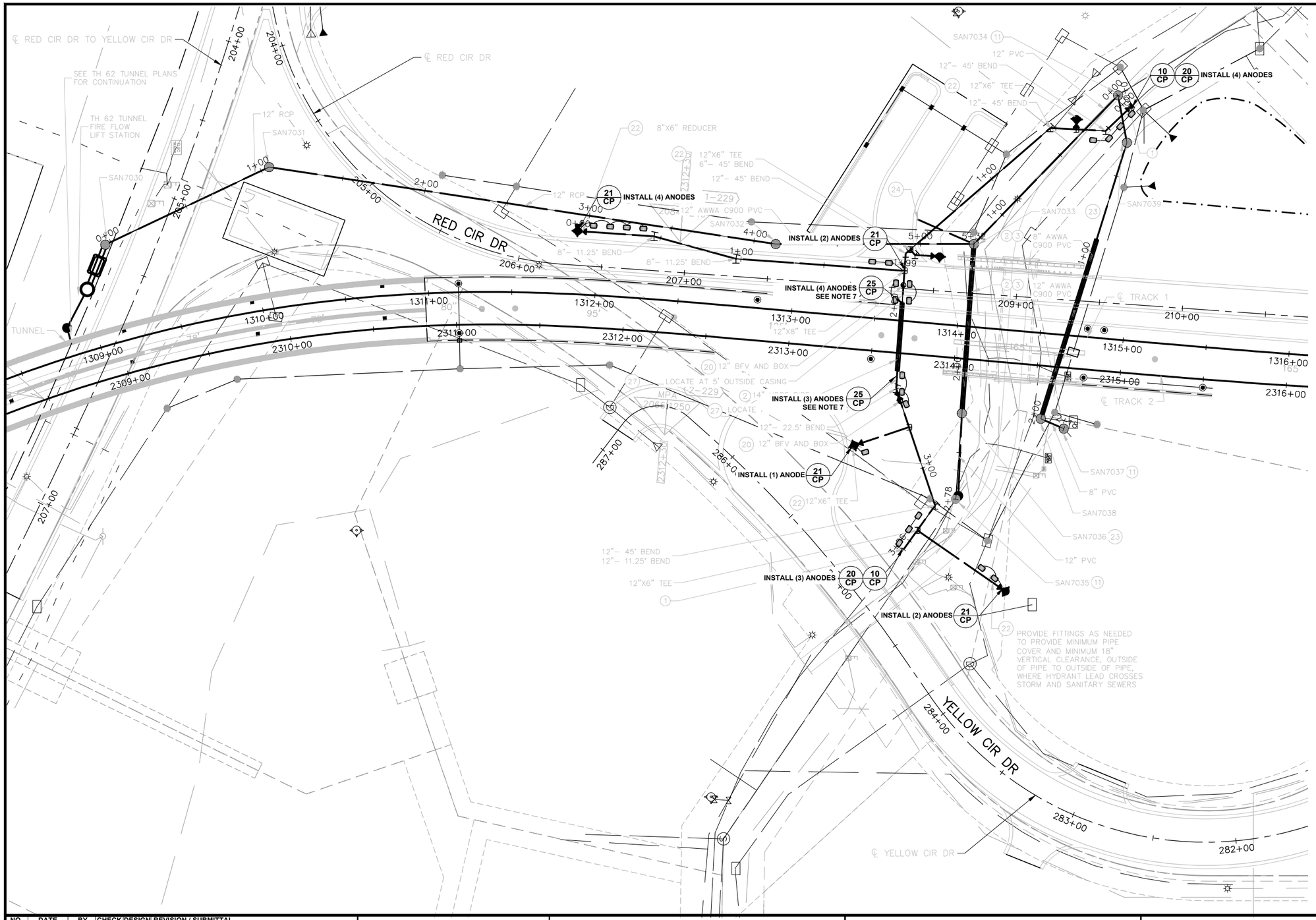
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
CITY WEST STATION

DISCIPLINE: CORR

SHEET NAME: W2-UTL-CORR - 002

SHEET 171 OF 214



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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

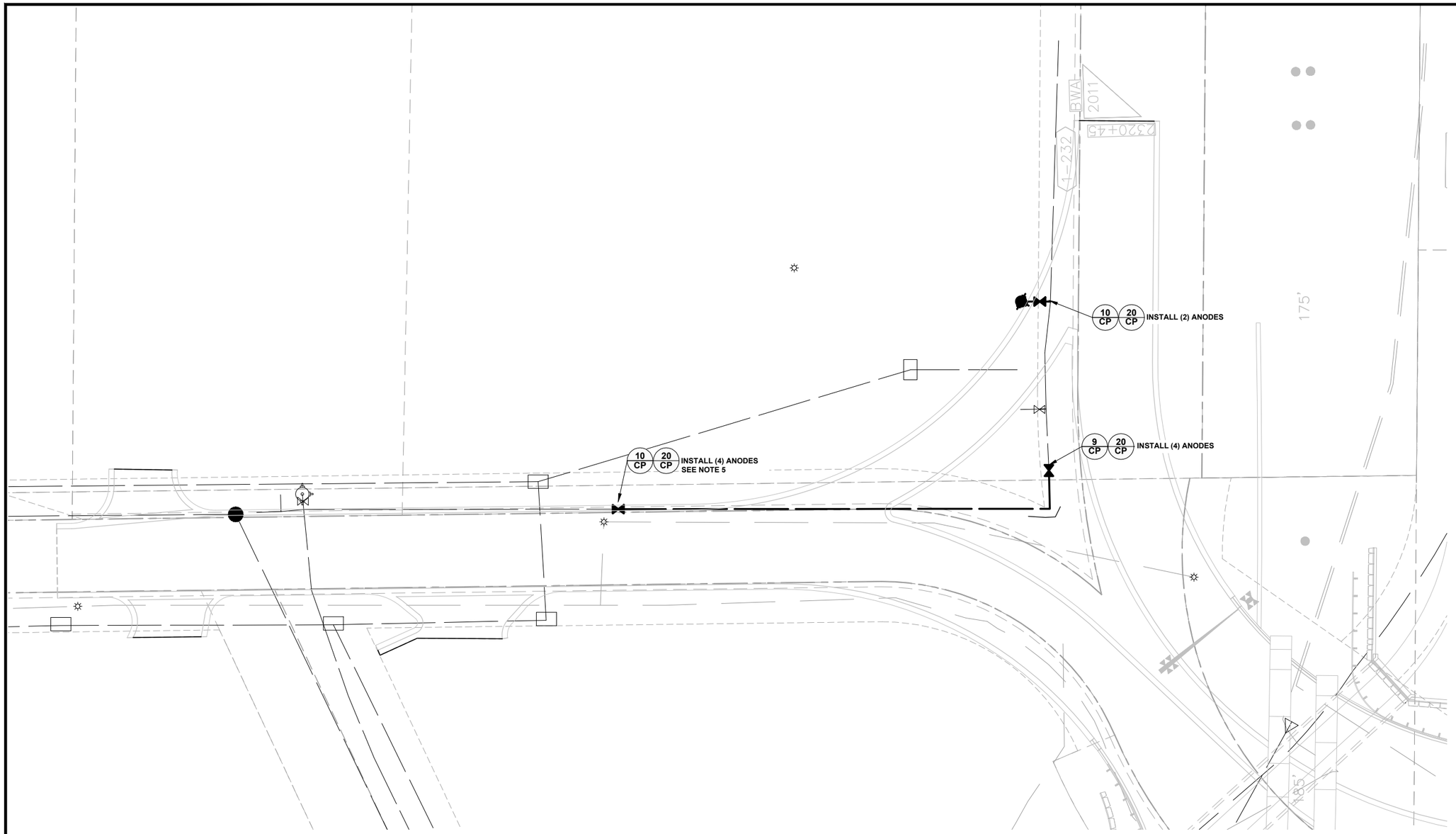
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
RED CIR DR / YELLOW CIR DR

DISCIPLINE: CORR

SHEET NAME: W2-UTL-CORR - 003

SHEET 172 OF 214



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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

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90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

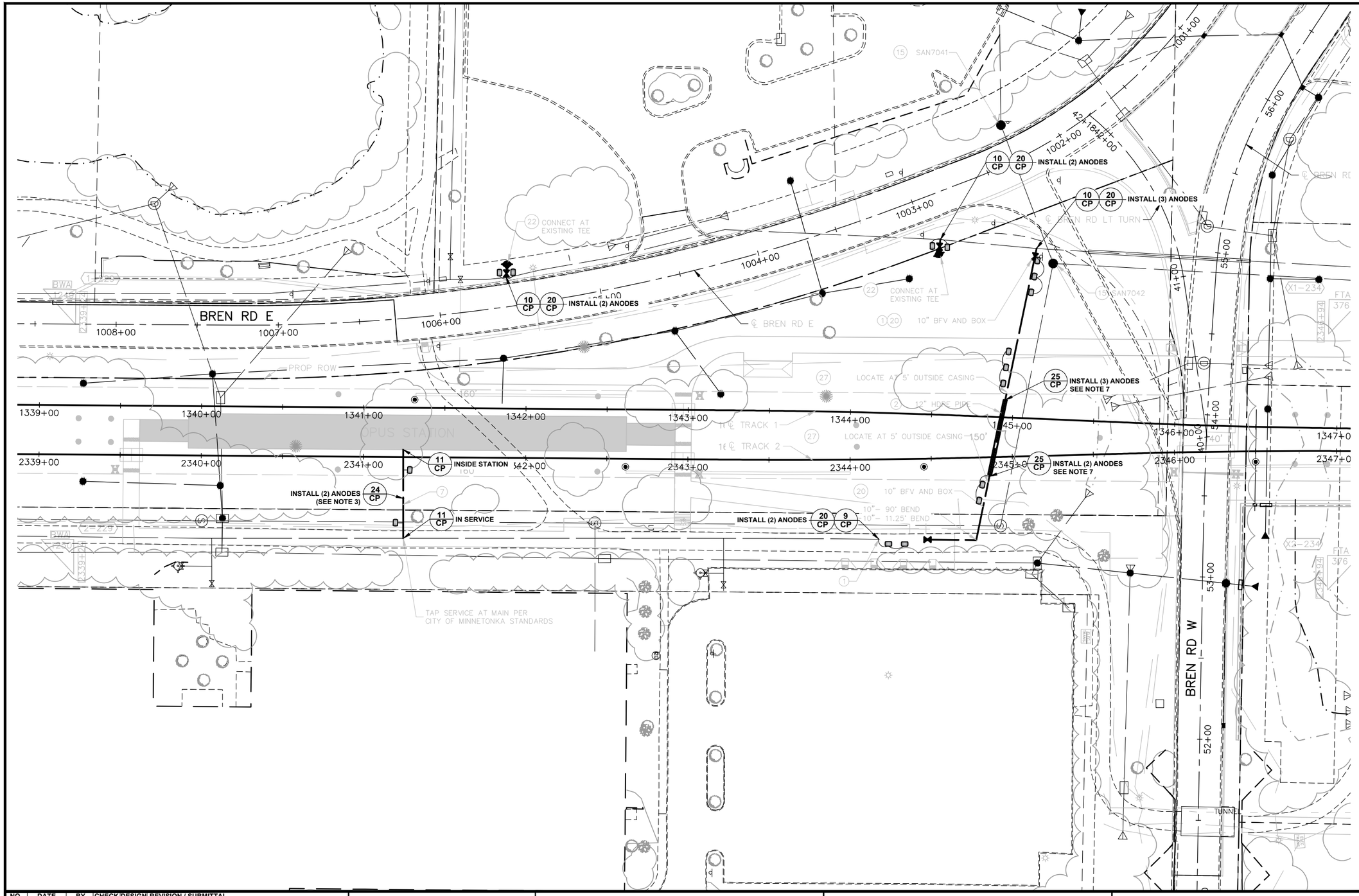
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
RED CIR DR / BREN RD

DISCIPLINE: CORR

SHEET NAME: W2-UTL-CORR - 004

SHEET 173 OF 214

Jan. 15 2016 11:37 am G:\Data\Departments\Pipeline\Minnesota Streetcar CP Design – 60336960\7.0 ACAD Drawings\CAD\00_WEST\PLANSHEETS\UTILITIES\W2-UTL-PLN.dwg By: yolanda_bell



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LEGEND

▭ MAGNESIUM ANODE

XX CP SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90

GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

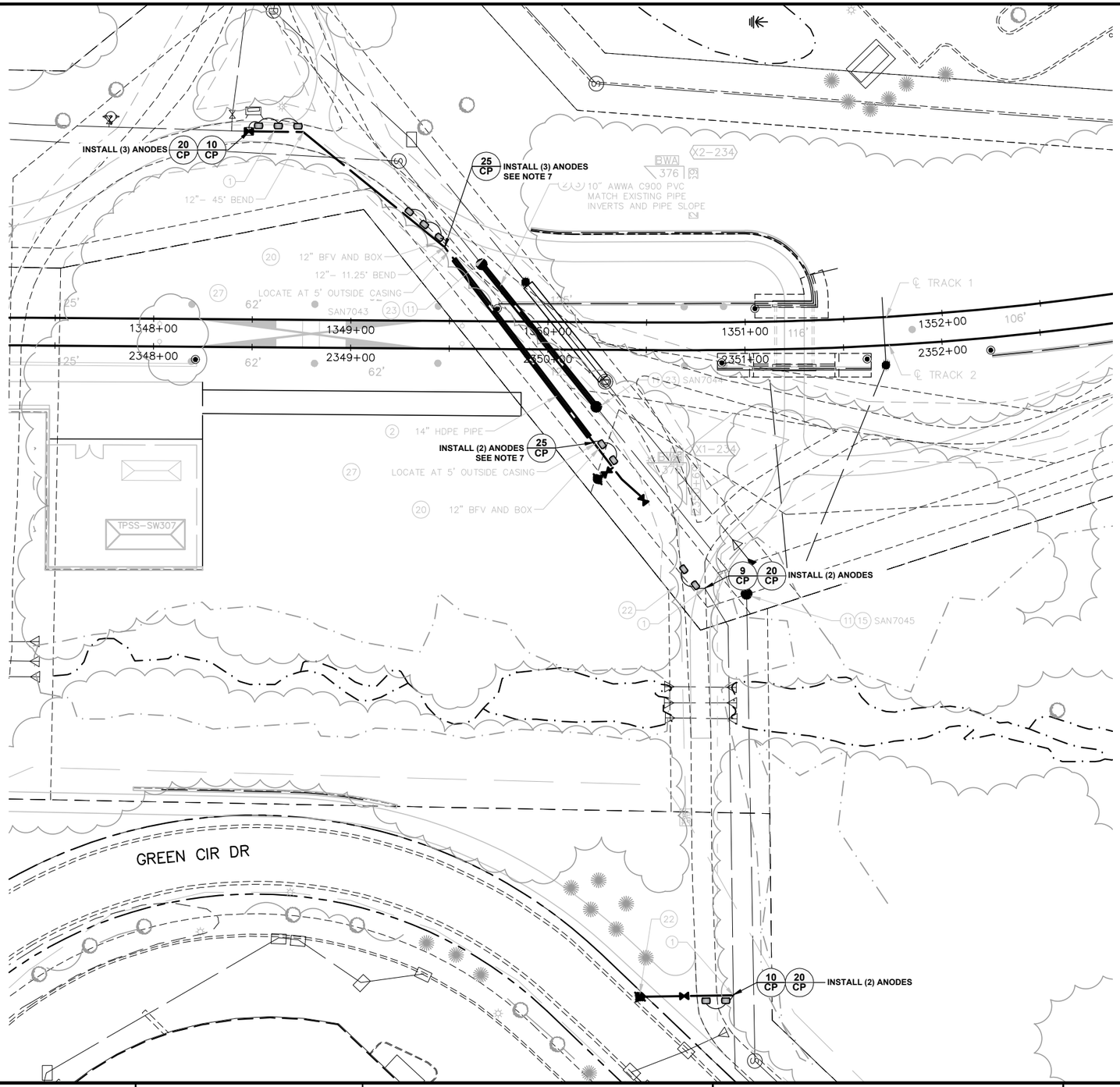
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
OPUS STATION 1 OF 2

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 001

SHEET 174 OF 214

Jan, 15 2016 11:56 am G:\Data\Departments\Pipeline\Minnesota Streetcar CP Design - 60336960\7.0 ACAD Drawings\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: yolanda_bell



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XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

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90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

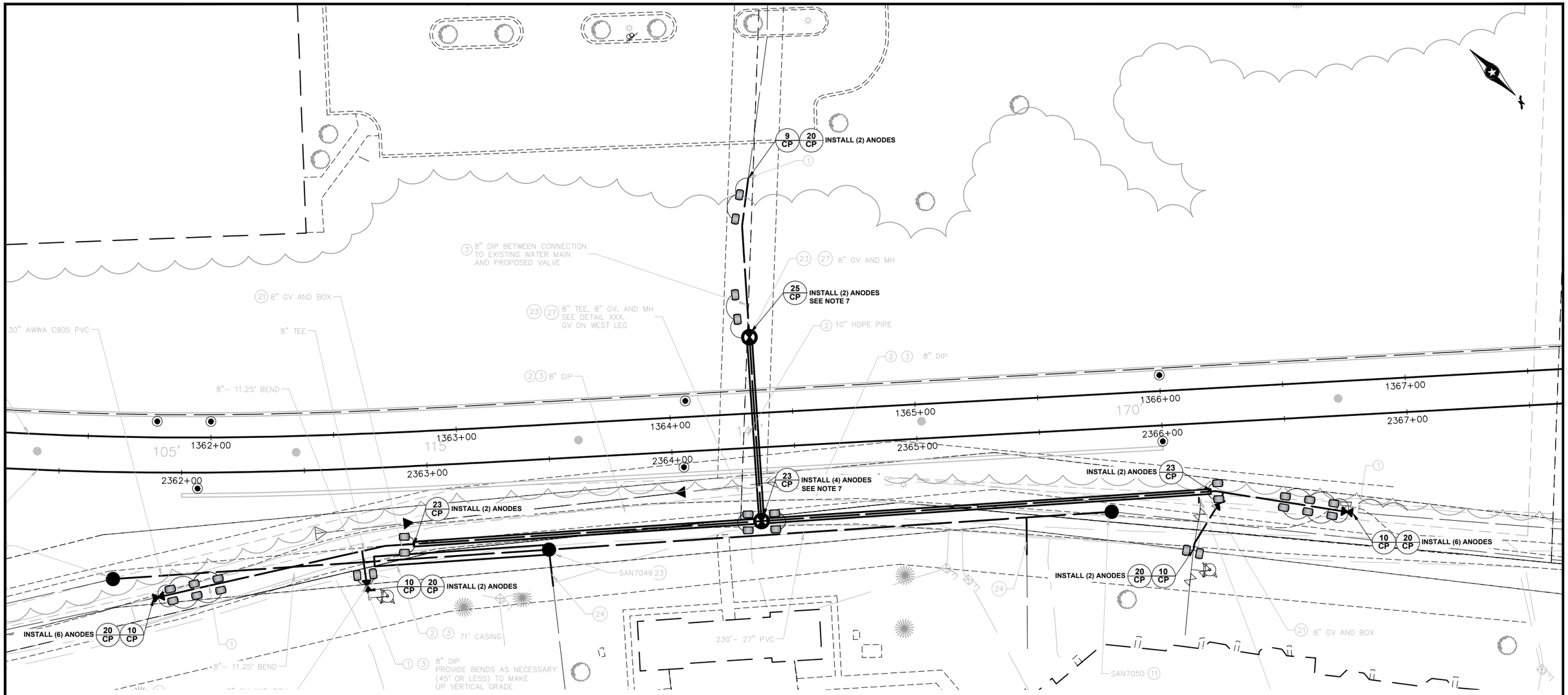
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
OPUS STATION 2 OF 2

SHEET 175 OF 214

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 002

Jan. 15 2016 12:02 pm G:\Data\Departments\Pipeline\Minnesota Streetcar CP Design – 60336960\7.0 ACAD Drawings\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: yolanda_bell



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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

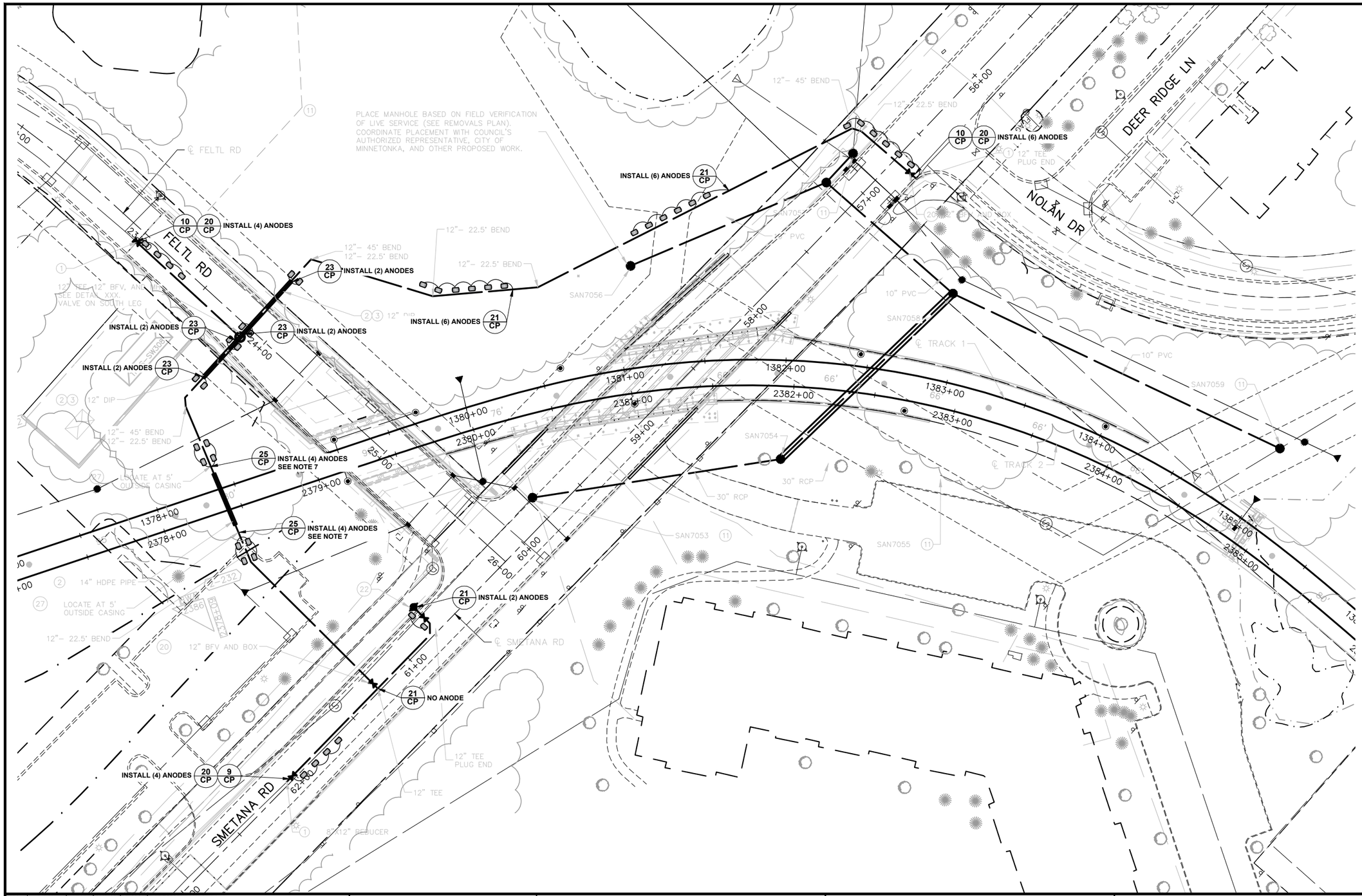
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
OPUS HILL

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 003

SHEET 176 OF 214



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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
FELTL RD / SMETANA RD

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 004

SHEET 177 OF 214

NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
2. ALL REFERENCED CATHODIC PROTECTION DETAILS ARE SHOWN ON SHEETS E0-SYS-CORR-DTL-028 TO 034
3. COPPER WATER SERVICE LINES WILL BE CATHODICALLY PROTECTED AND BE ISOLATED FROM THE NEW WATER MAIN AND WITHIN THE STATION, COATED WITH POLYETHYLENE BACKED BUTYL RUBBER TAPE SYSTEM IN COMPLIANCE WITH AWWA C209 AND HAVE MAGNESIUM ANODE(S) DIRECTLY ATTACHED AS CALLED OUT AT EACH SERVICE LOCATION. THE TAPE COATING SYSTEM WILL CONSIST OF A PRIMER AND POLYETHYLENE BACKED BUTYL RUBBER TAPE.
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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

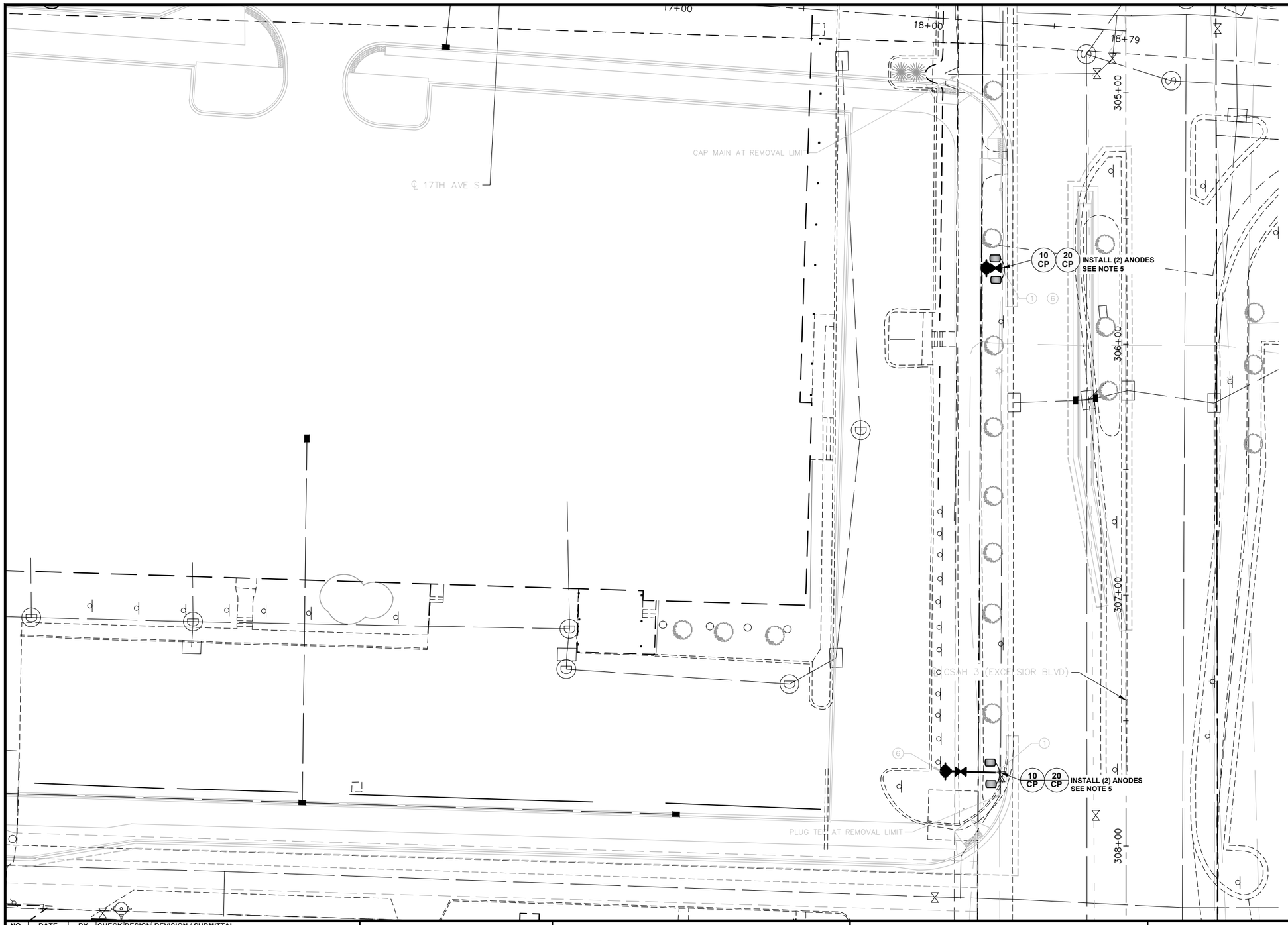
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
SHADY OAK STATION 1 OF 2

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 005

SHEET 178 OF 214

Jan, 15 2016 12:24 pm G:\Data\Departments\Pipeline\Minnesota Streetcar CP Design – 60336960\7.0 ACAD Drawings\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: yolanda_bell



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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 1/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

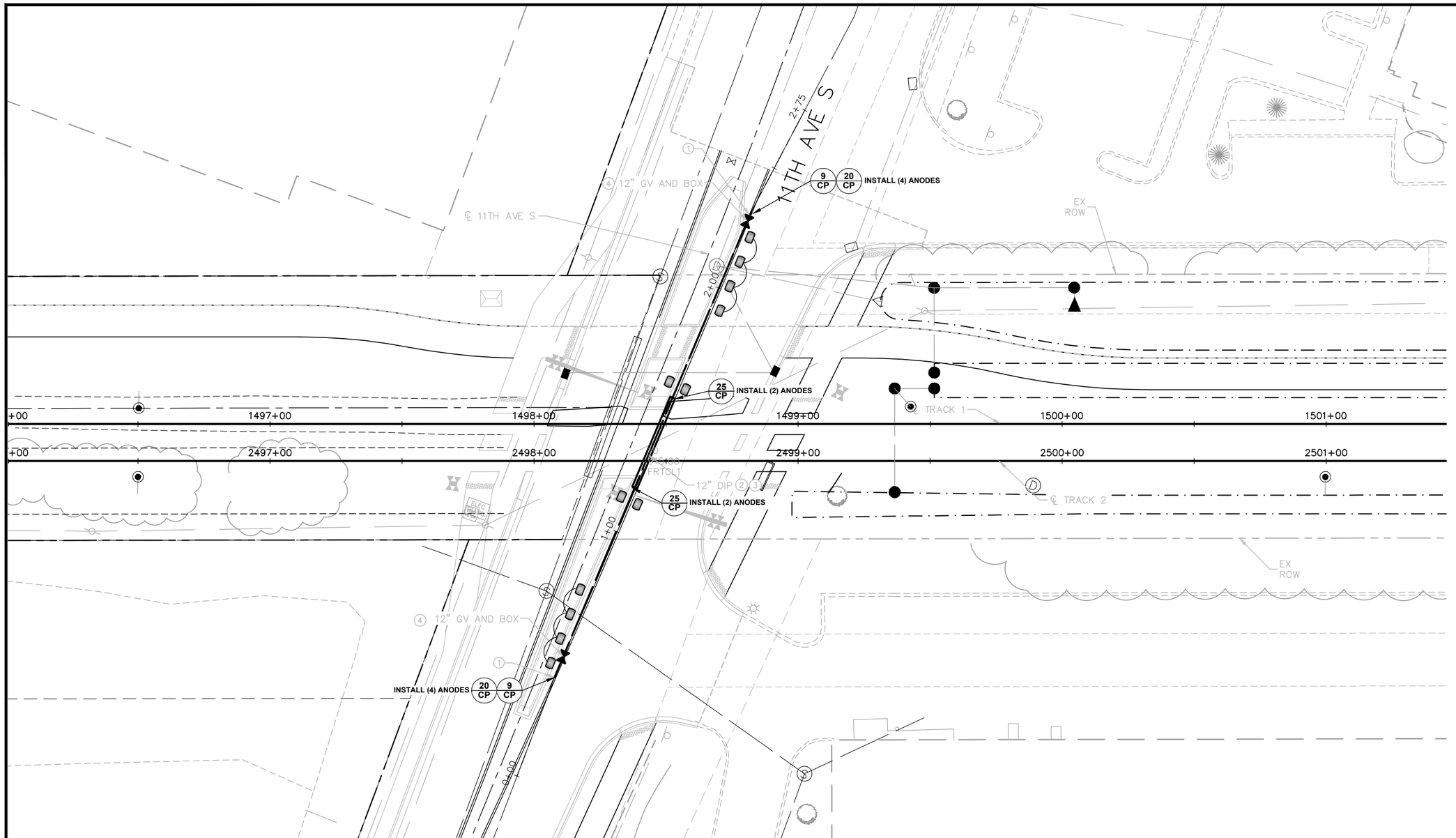
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
SHADY OAK STATION 2 OF 2

SHEET 179 OF 214

DISCIPLINE: CORR

SHEET NAME: W3-UTL-CORR - 006

Jan. 15 2016 12:29 pm G:\Data\Departments\Pipeline\Minnesota Streetcar CP Design – 60336960\7.0 ACAD Drawings\CAD\00_WEST\PLANSHEETS\UTILITIES\W3-UTL-PLN.dwg By: yolanda_bell



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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

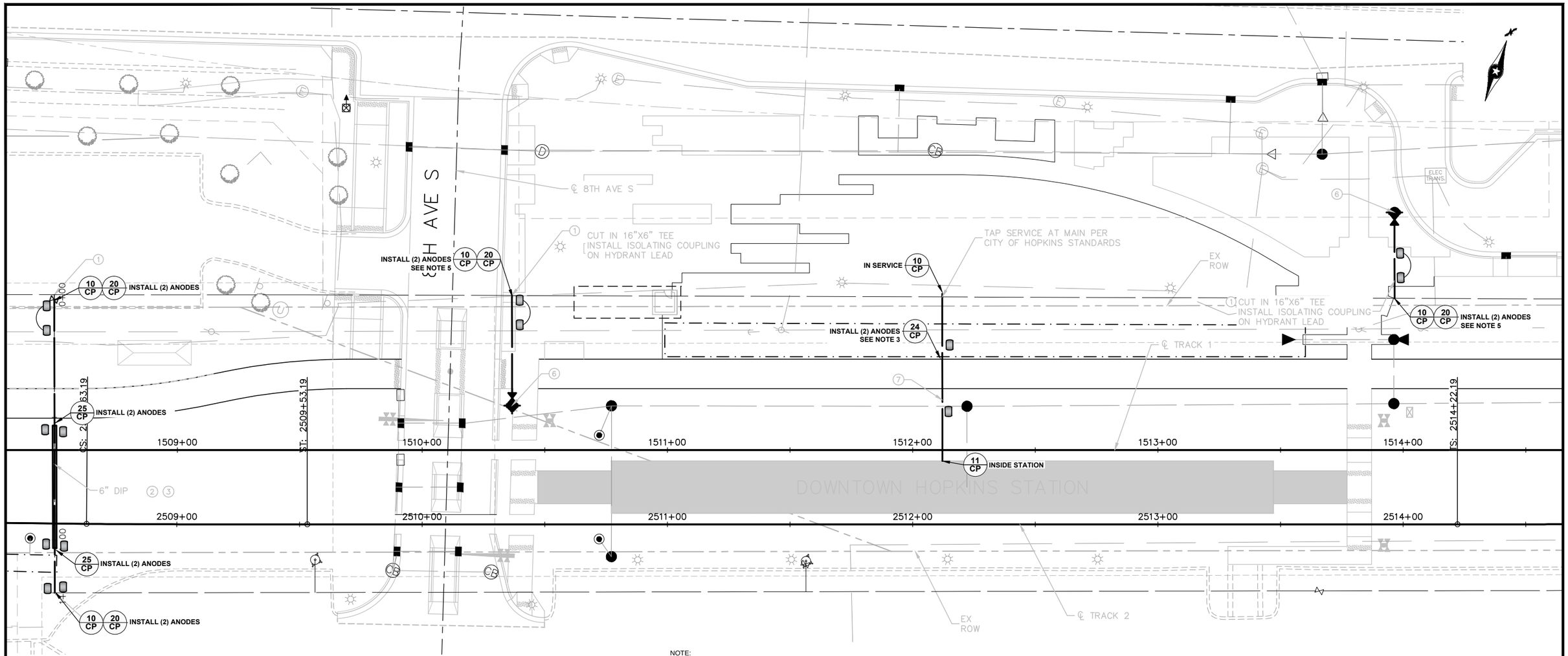
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
11TH AVE S

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 001

SHEET 180 OF 214

Jan, 15 2016 11:12 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6700\E1-UTL-PLN.dwg By: Carlos_Deese



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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

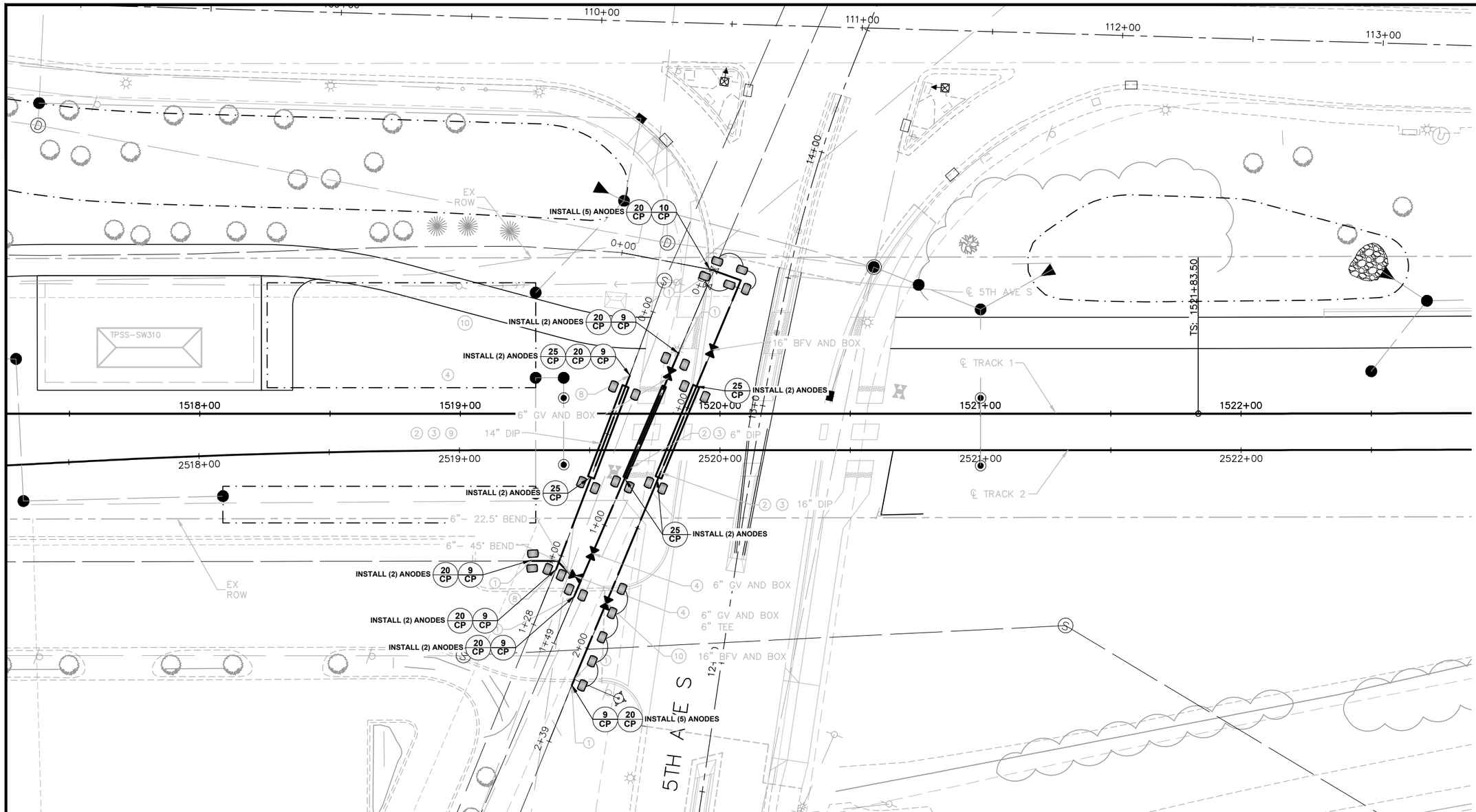
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
HOPKINS STATION

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 002

SHEET 181 OF 214



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0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

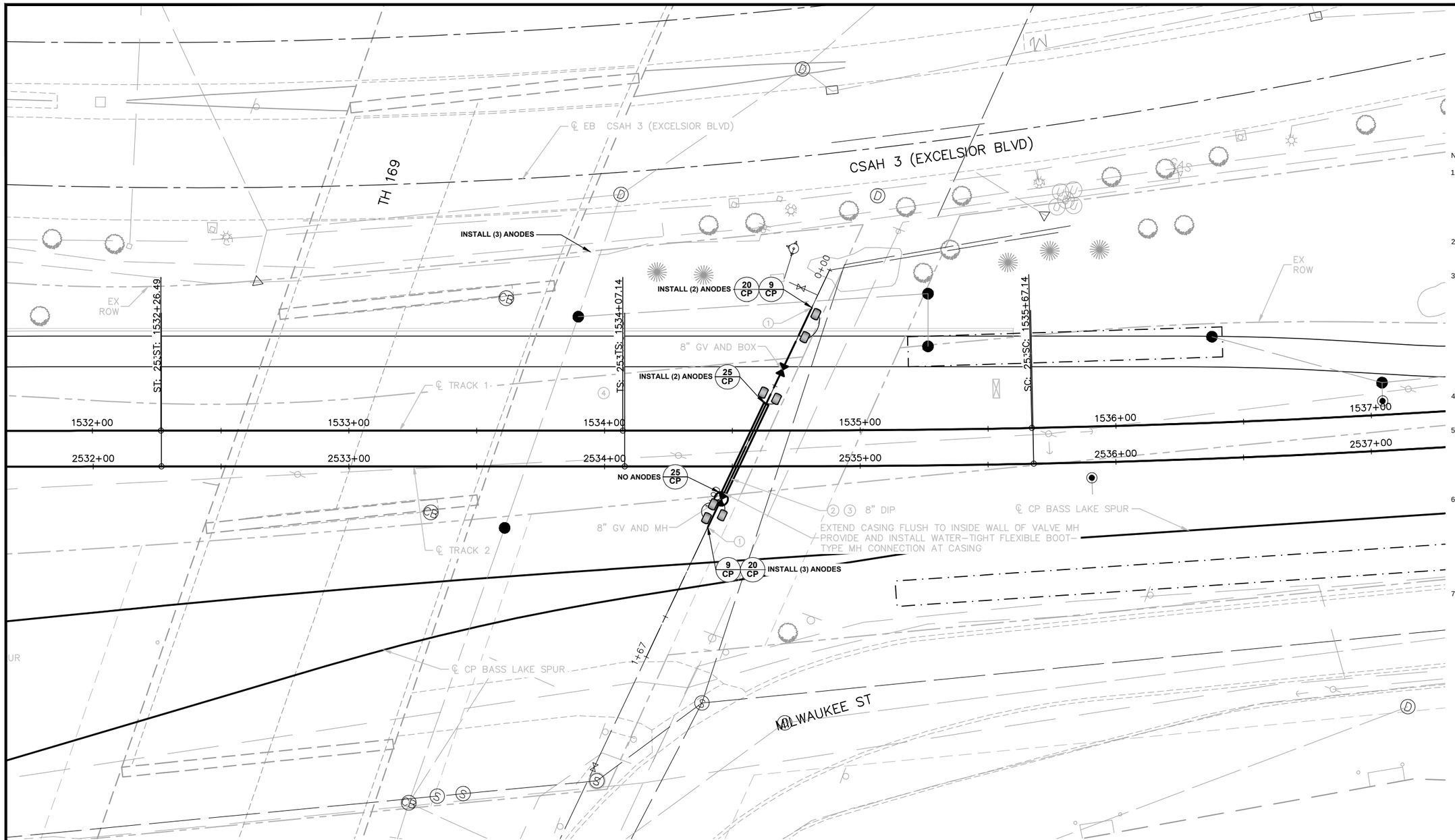
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
5TH AVE S

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 003

SHEET 182 OF 214

Jan, 15 2016 11:16 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6700\E1-UTL-PLN.dwg By: Carlos_Deese



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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

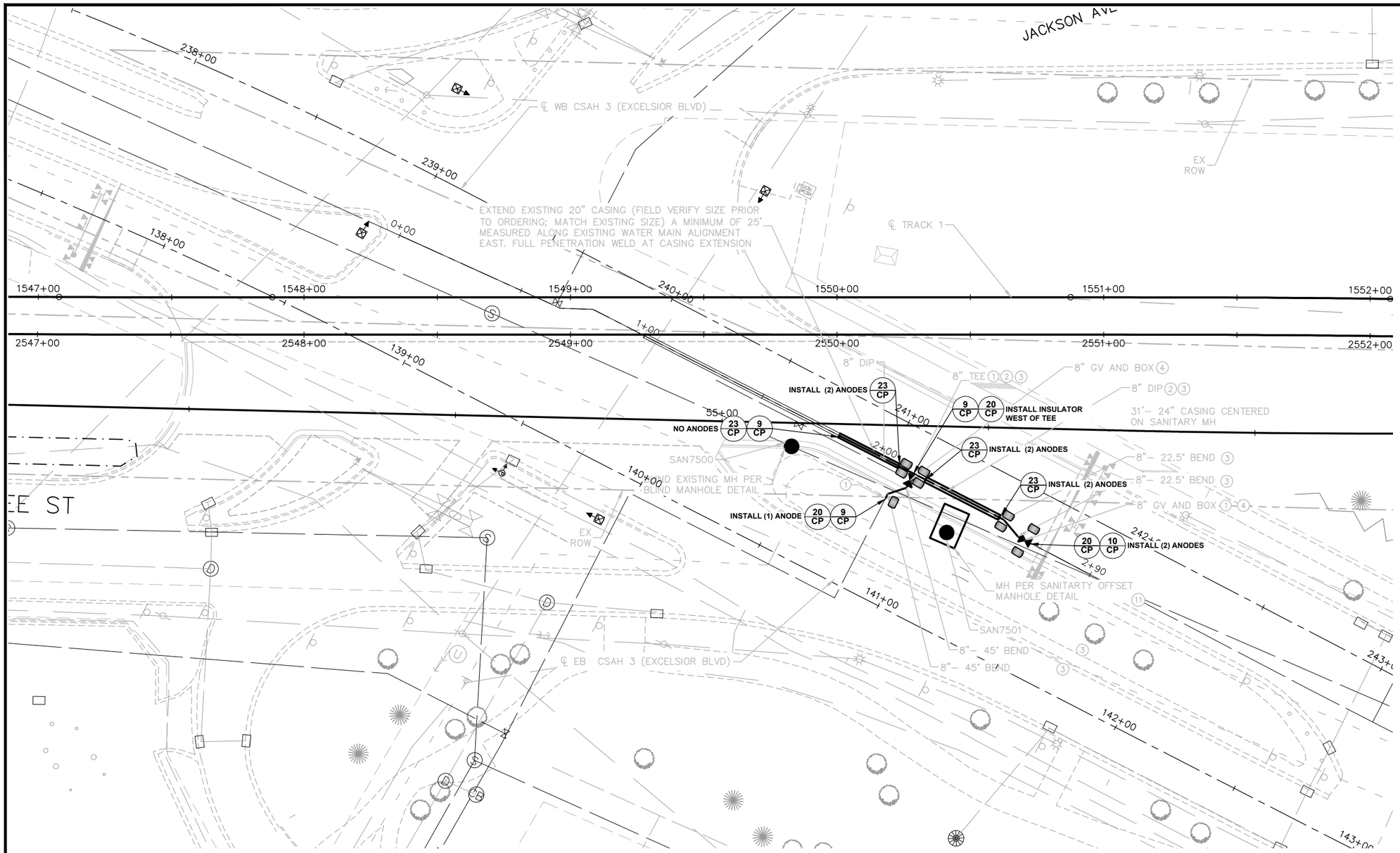
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
TH 169

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 004

SHEET 183 OF 214

Jan, 15 2016 11:18 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6700\E1-UTL-PLN.dwg By: Carlos_Deese



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LEGEND

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0 20 40 60
GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

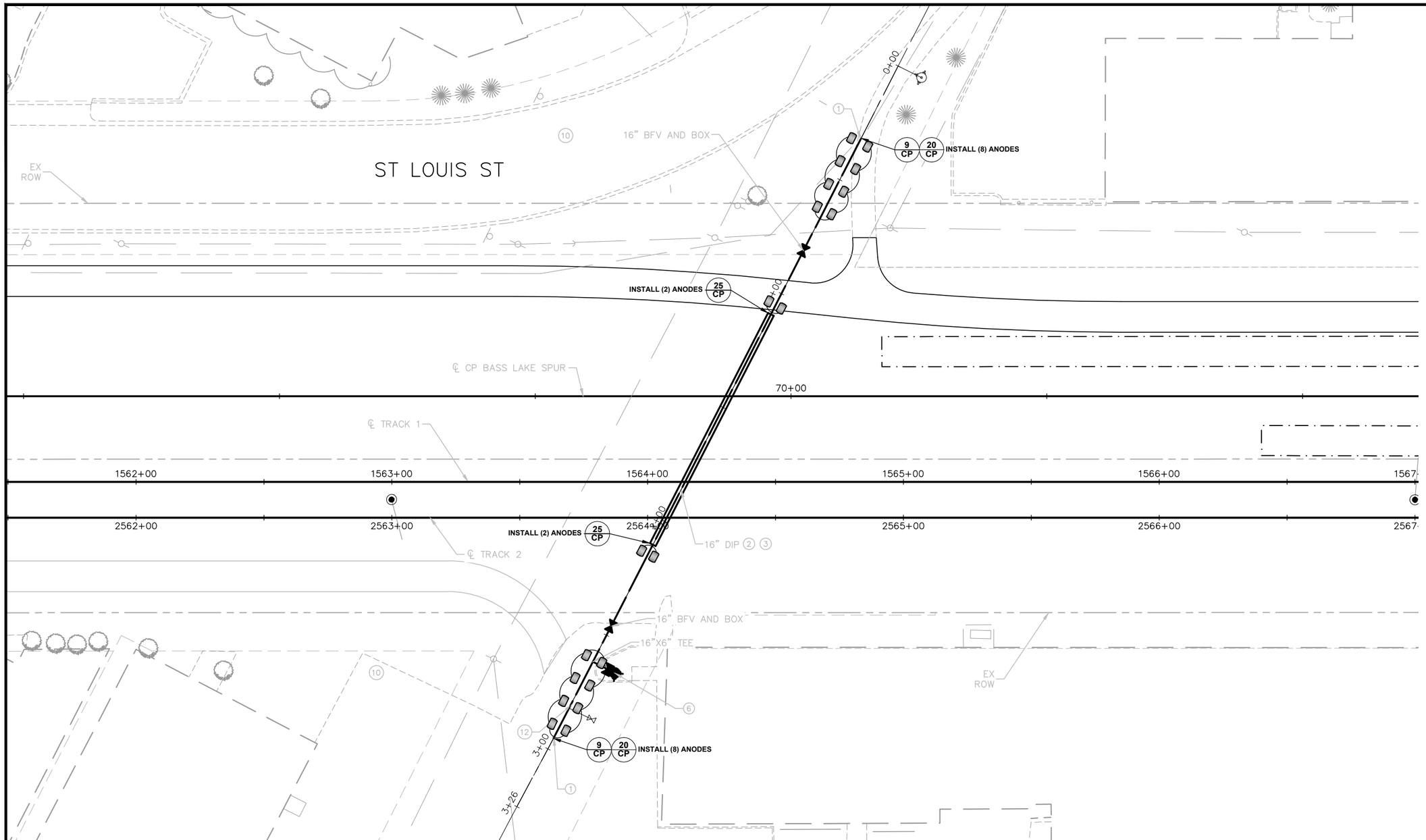
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
EXCELSIOR BLVD

SHEET 184 OF 214

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 005



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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
TYLER ST

SHEET 185 OF 214

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 006

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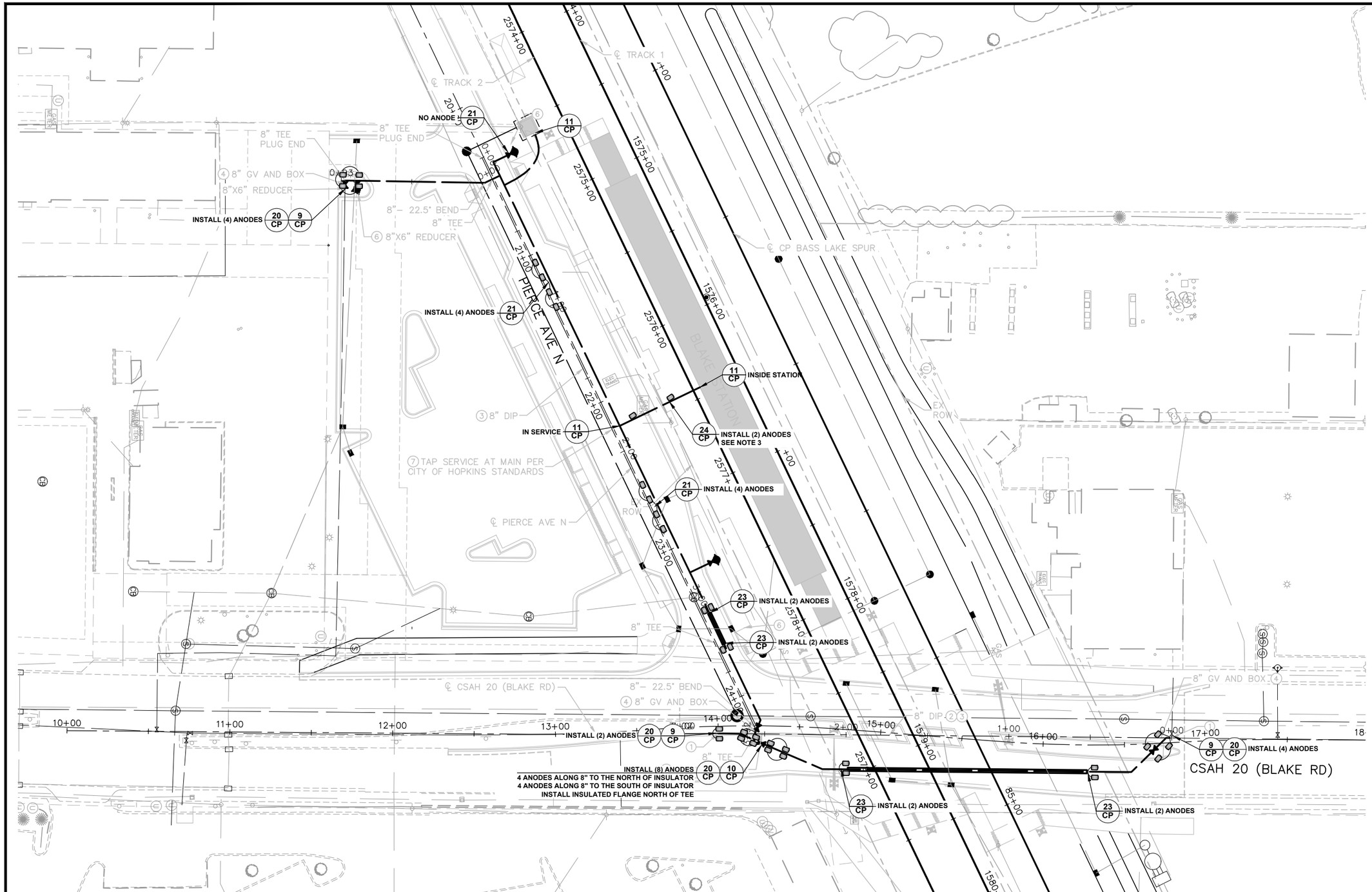

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

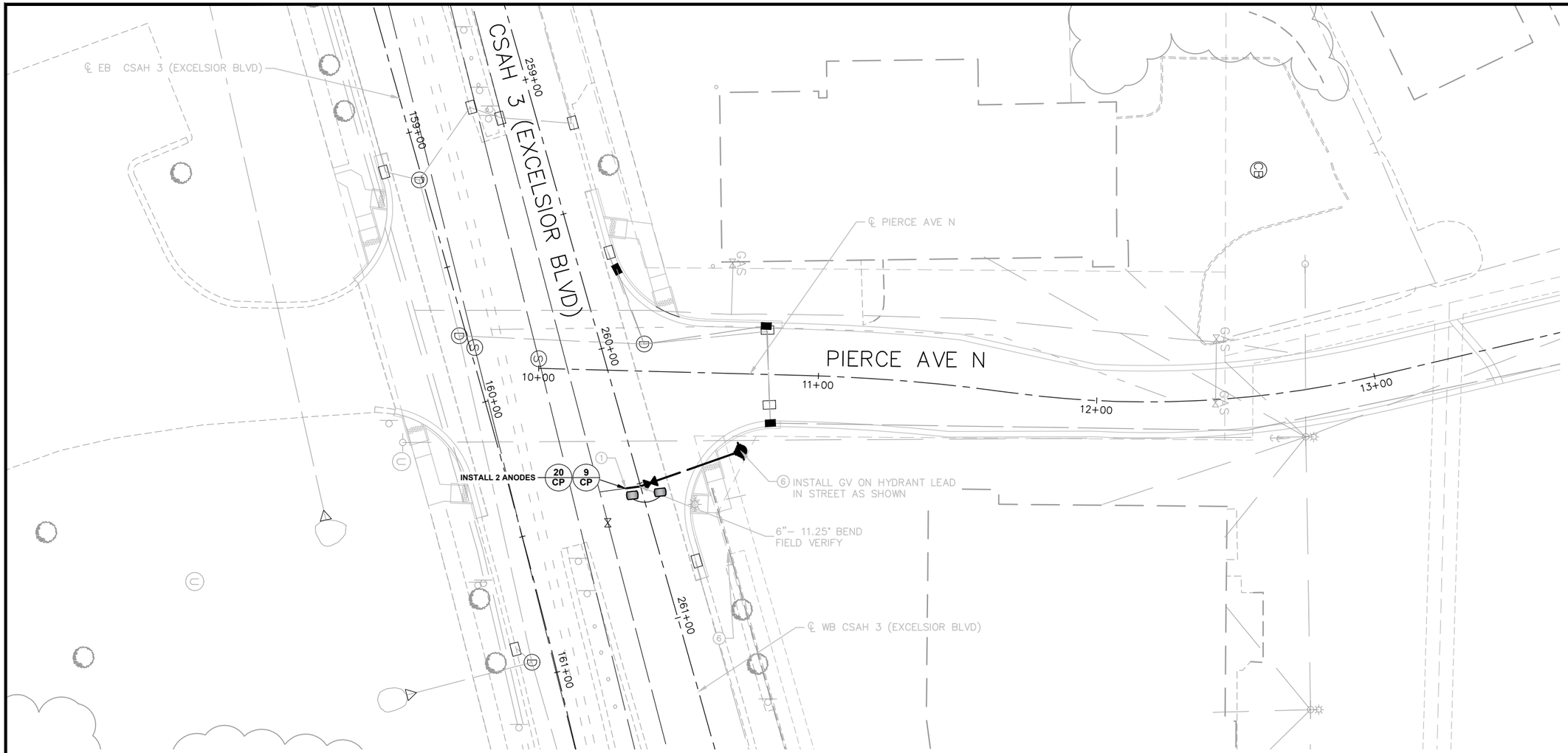
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
BLAKE STATION

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 007

SHEET 186 OF 214



NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
EXCELSIOR BLVD / PIERCE AVE

DISCIPLINE: CORR

SHEET NAME: E1-UTL-CORR - 008

SHEET 187 OF 214

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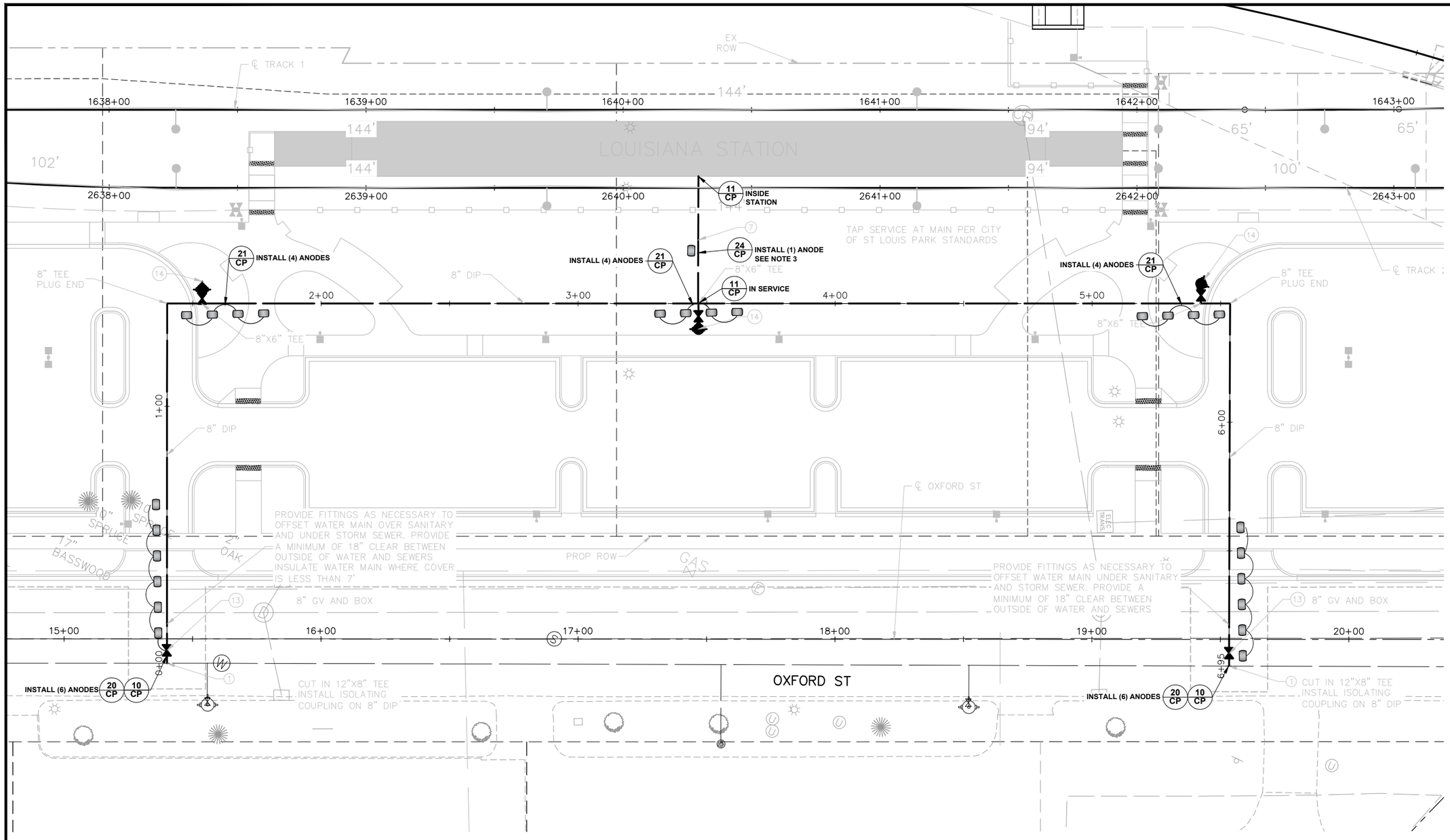

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
LOUISIANA STATION

DISCIPLINE: CORR

SHEET NAME: E2-UTL-CORR - 001

SHEET 188 OF 214

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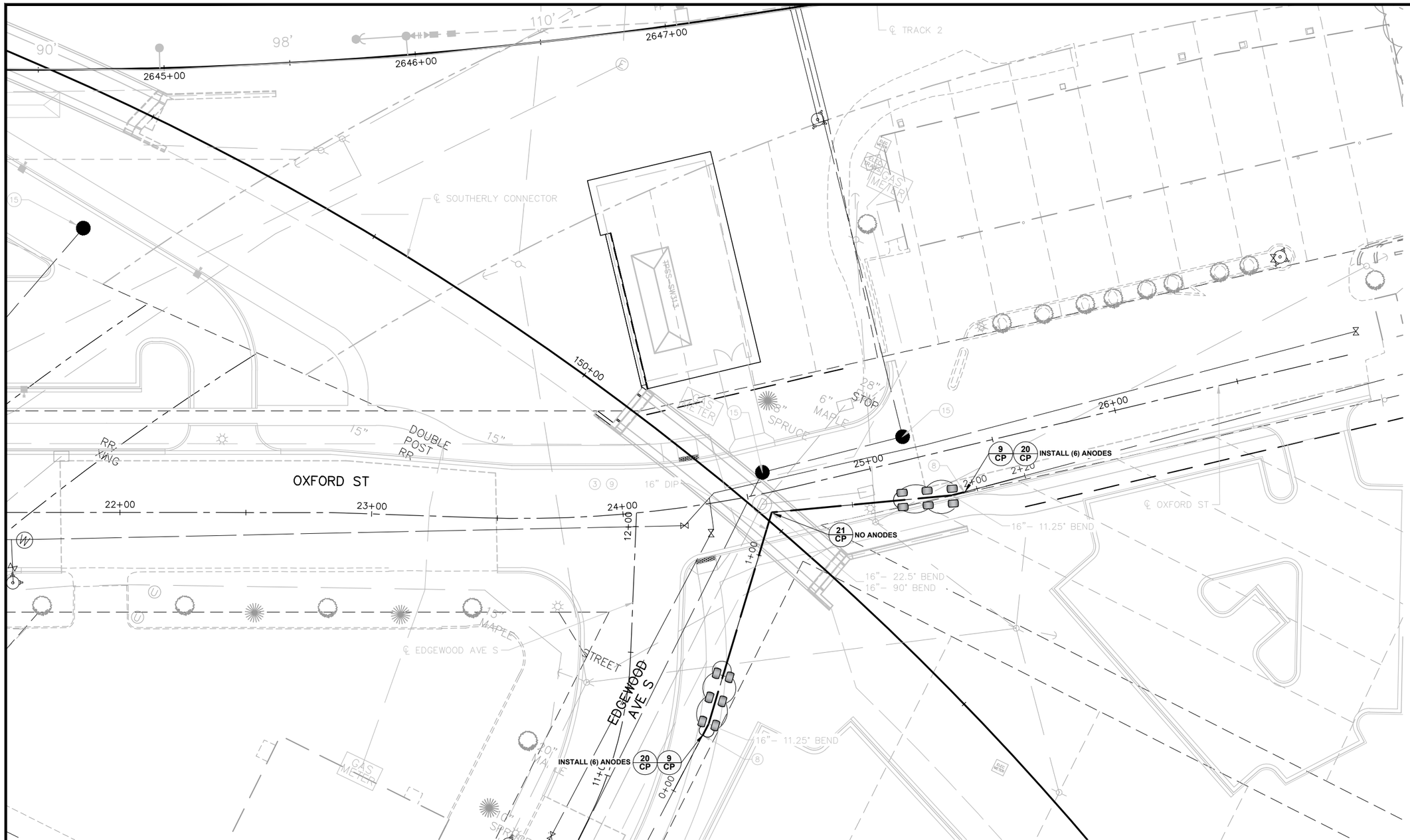

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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE (IN FEET): 0, 20, 40, 60

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

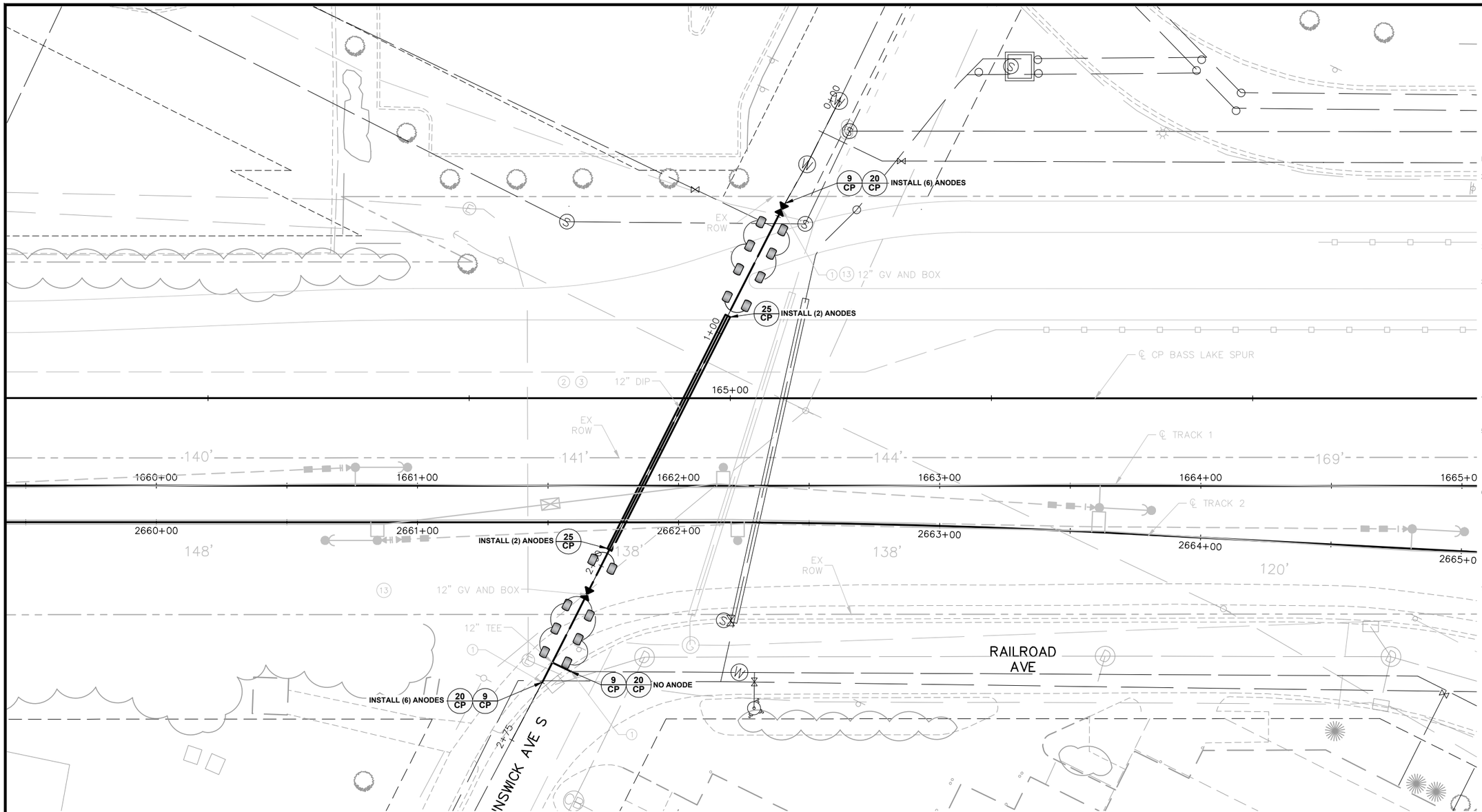
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
OXFORD ST / EDGEWOOD AVE S

DISCIPLINE: CORR

SHEET NAME: E2-UTL-CORR - 002

SHEET 189 OF 214



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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
BRUNSWICK AVE S

SHEET 190 OF 214

DISCIPLINE: CORR

SHEET NAME: E2-UTL-CORR - 003

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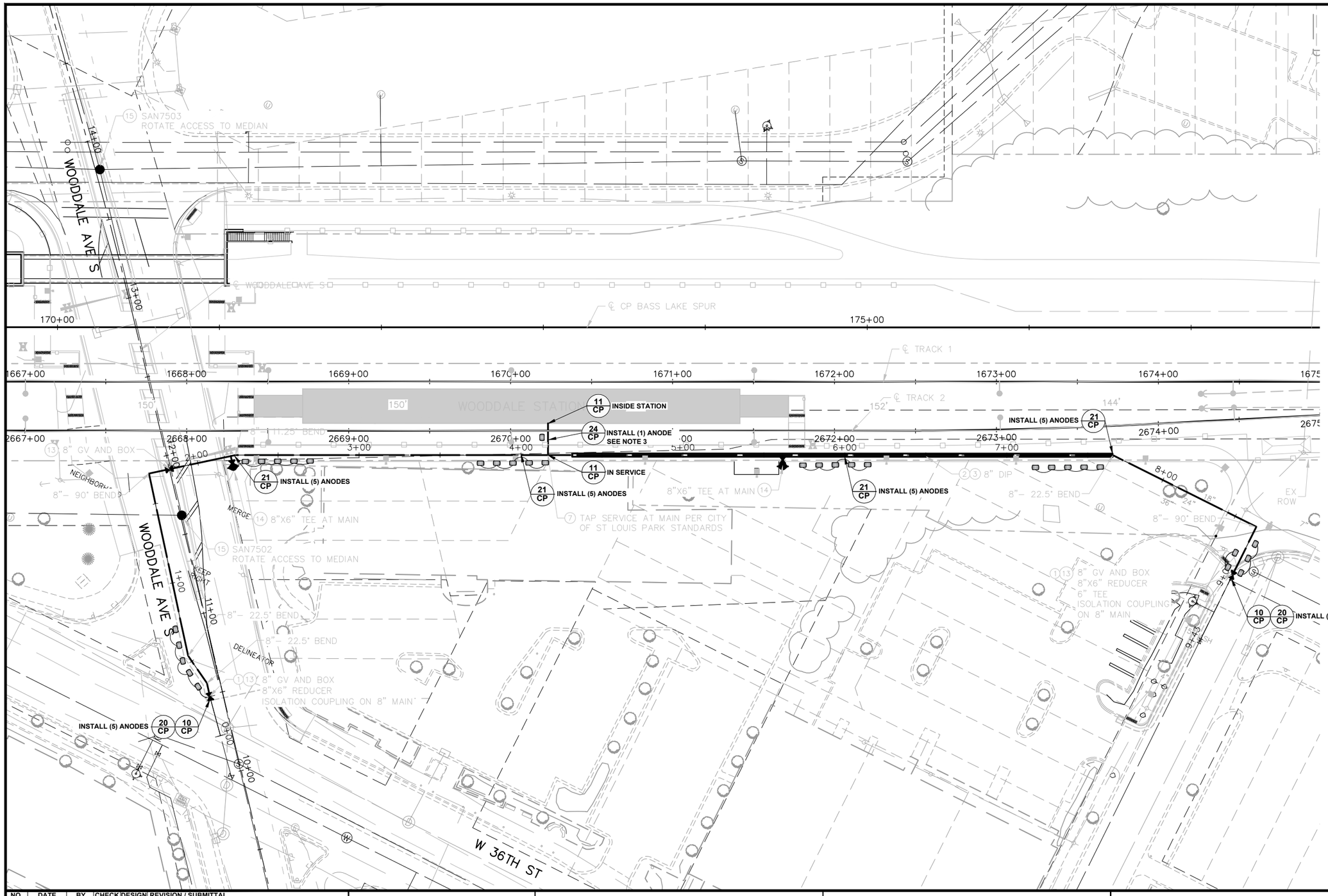

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
WOODDALE STATION

SHEET 191 OF 214

DISCIPLINE: CORR

SHEET NAME: E2-UTL-CORR - 004

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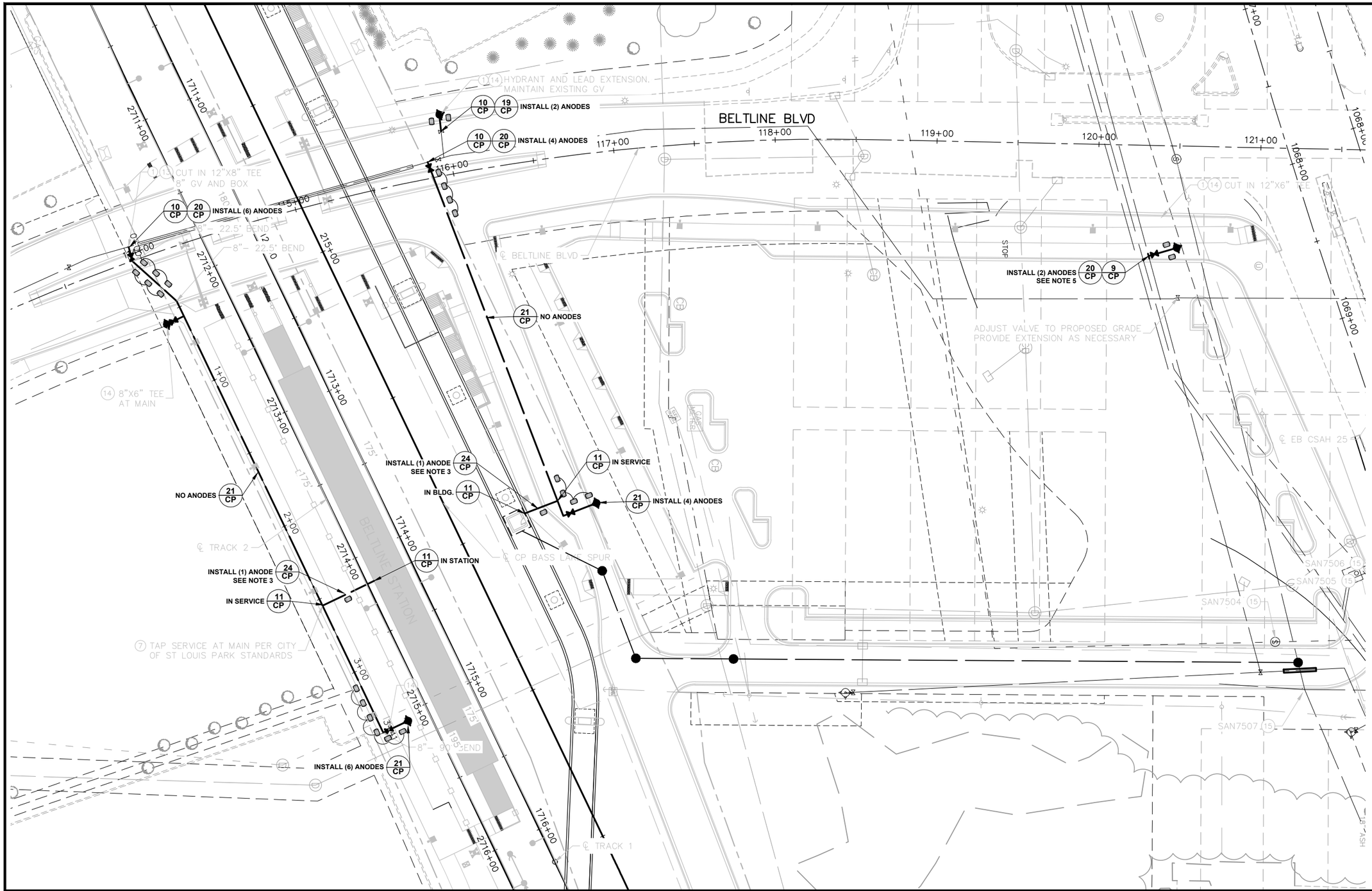

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
BELTLINE STATION

SHEET 192 OF 214

DISCIPLINE: CORR

SHEET NAME: E2-UTL-CORR - 005

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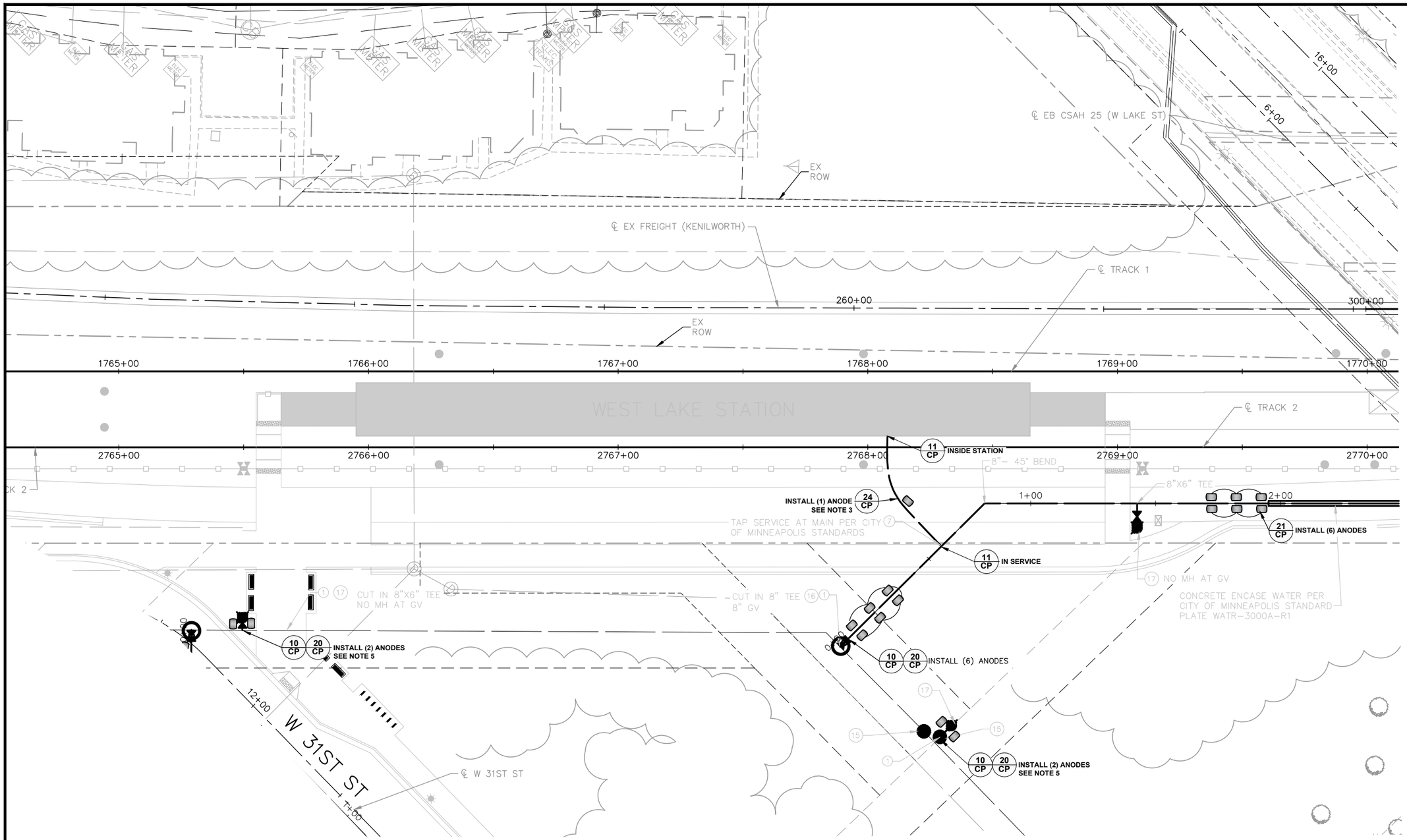

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
WEST LAKE STATION 1 OF 2

SHEET 193 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 001

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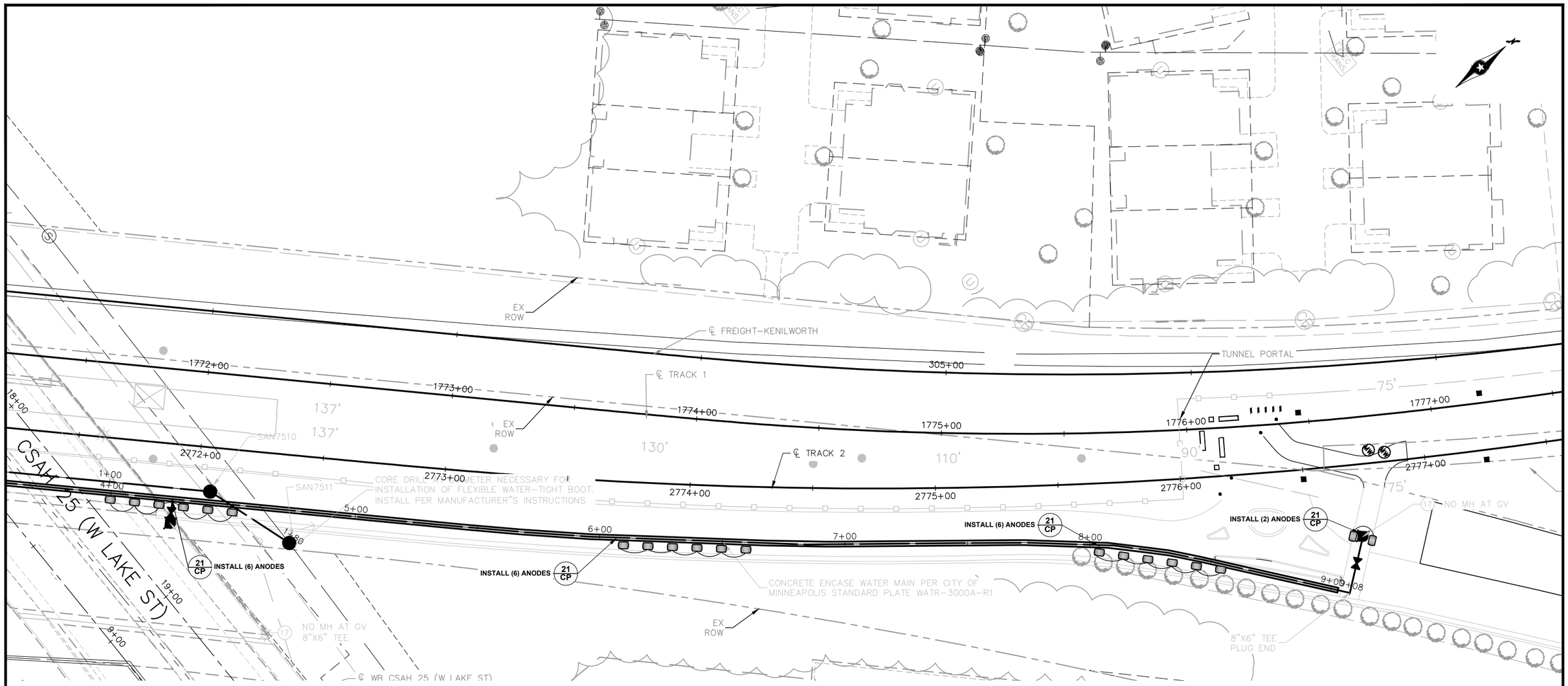

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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
WEST LAKE STATION 2 OF 2

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 002

SHEET 194 OF 214

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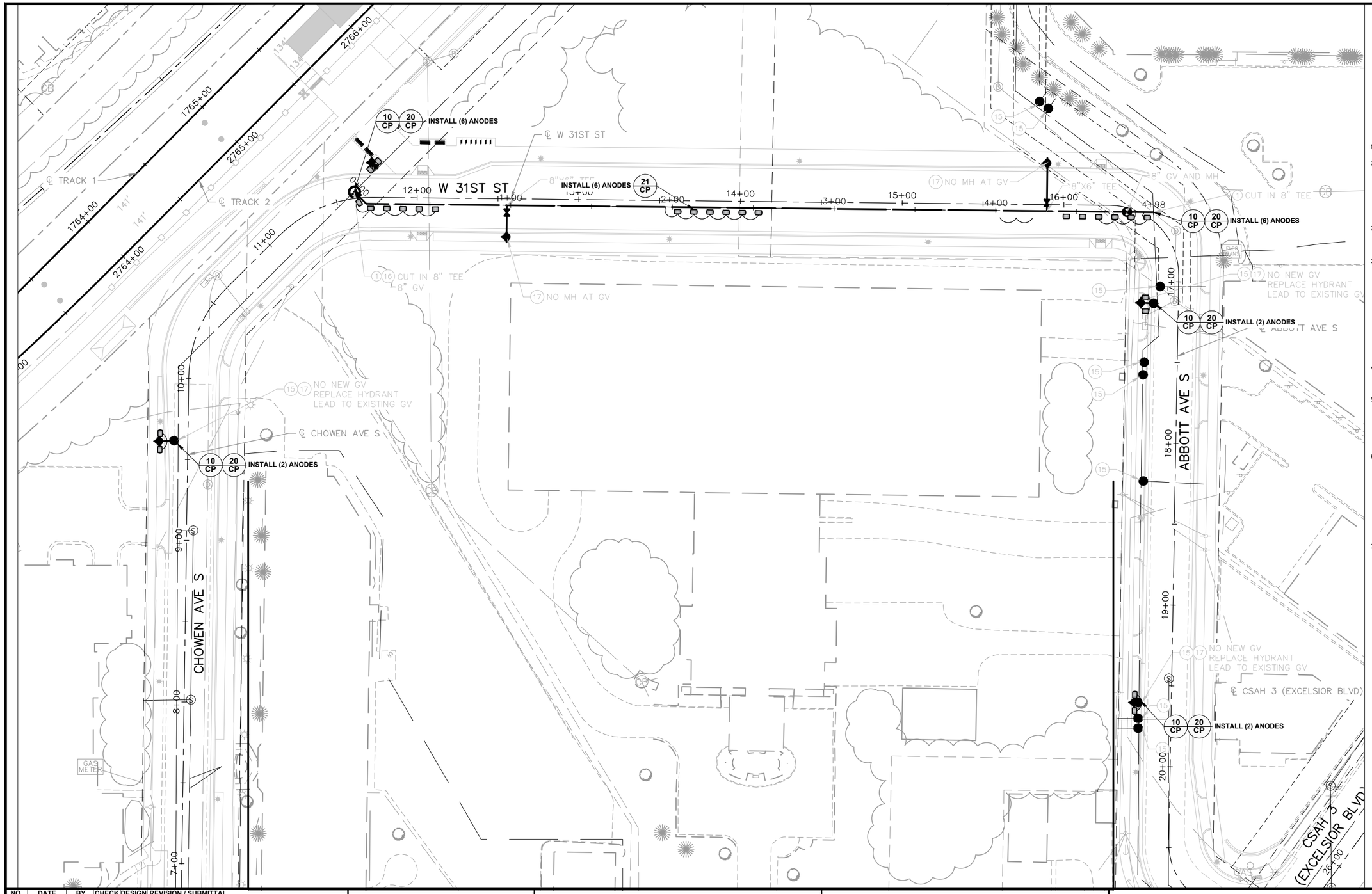

NOTE:

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

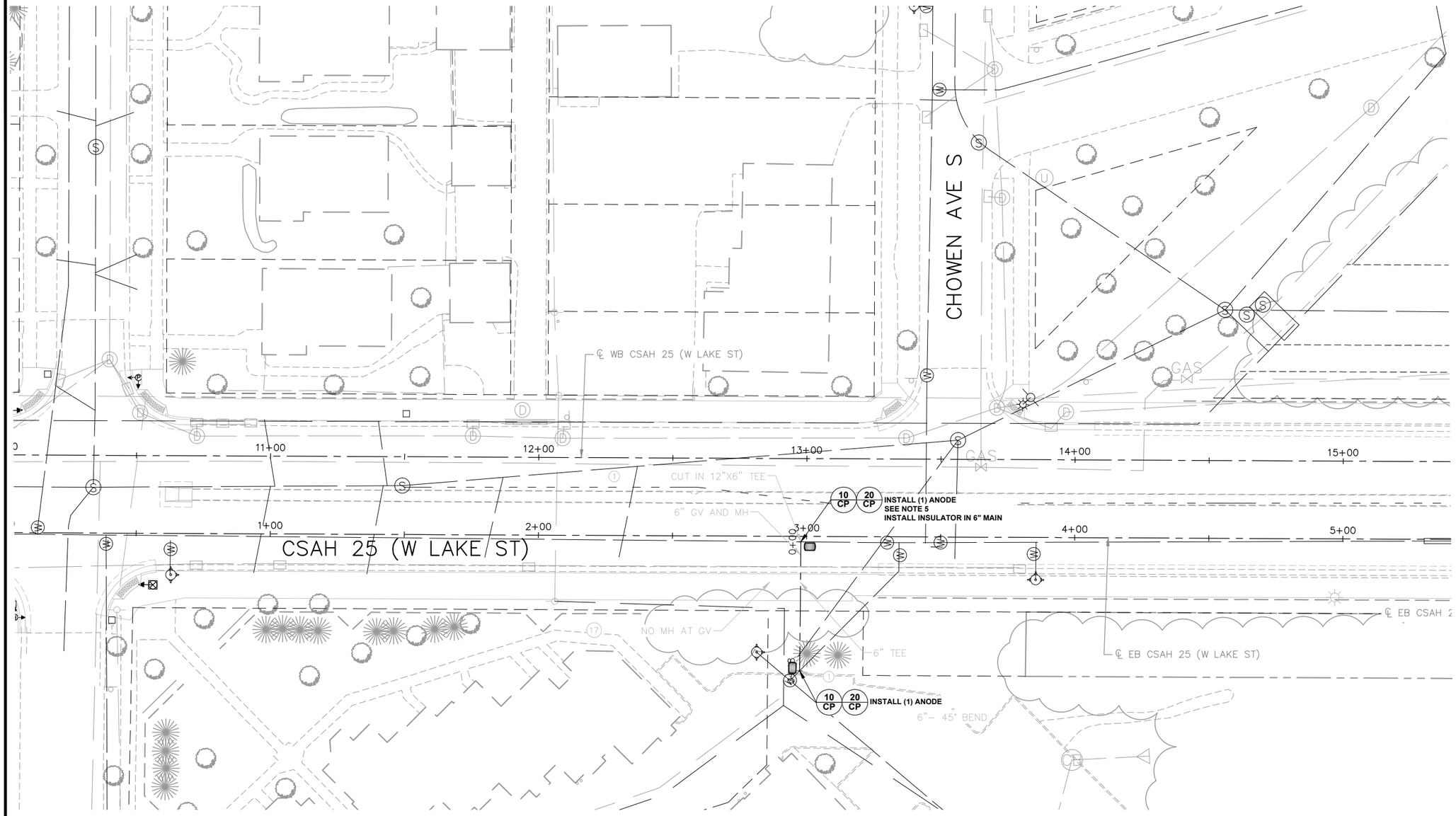
CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
CHOWEN AVE S / ABBOTT AVE S

SHEET 195 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 003

Jan. 15 2016 11:42 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6700\E3-UTL-PLN.dwg By: Carlos_Deese



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LEGEND

MAGNESIUM ANODE

XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
CHOWEN AVE S / W LAKE ST

SHEET 196 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 004

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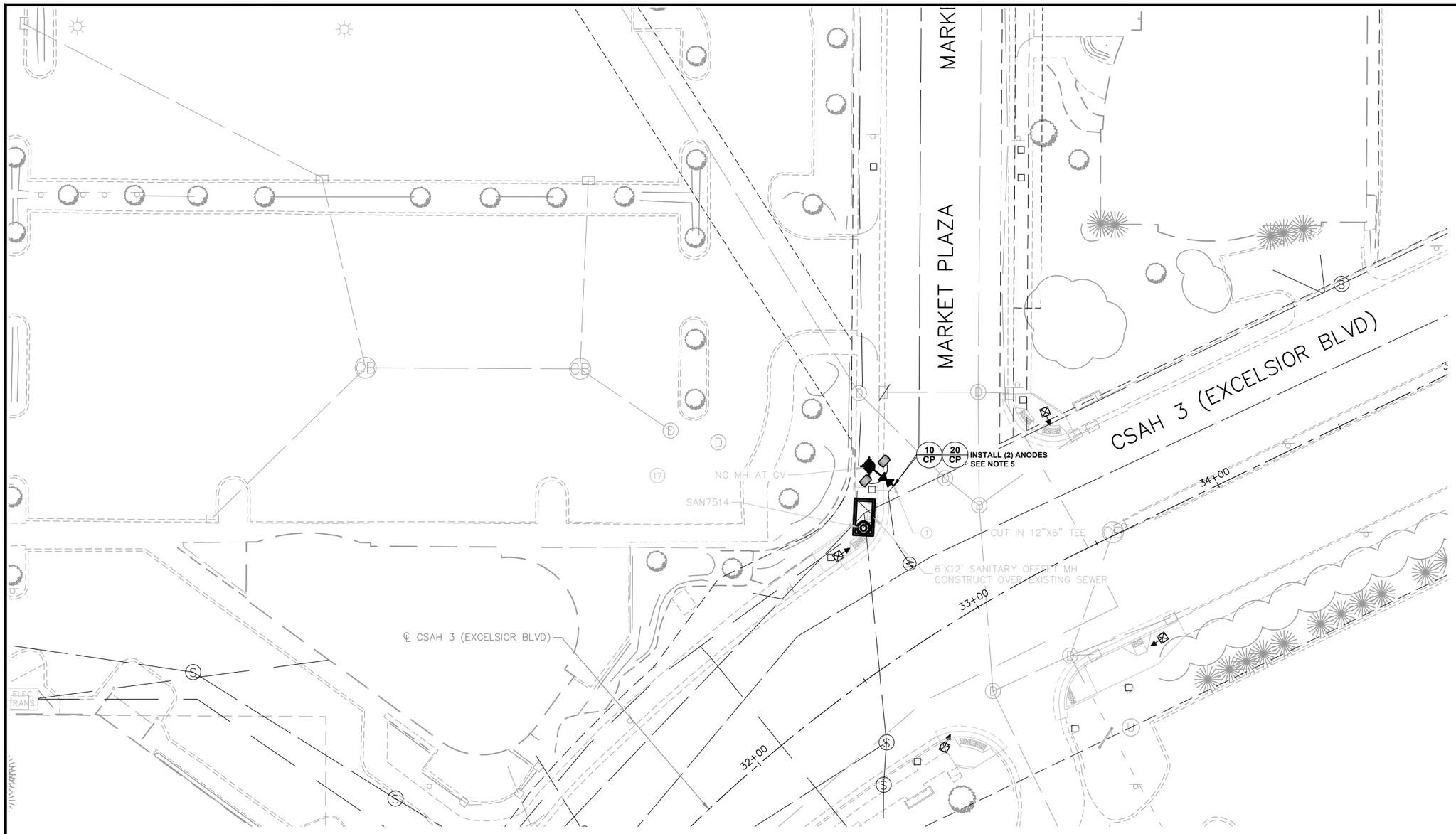

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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
MARKET PLAZA / EXCELSIOR BLVD

SHEET 197 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 005

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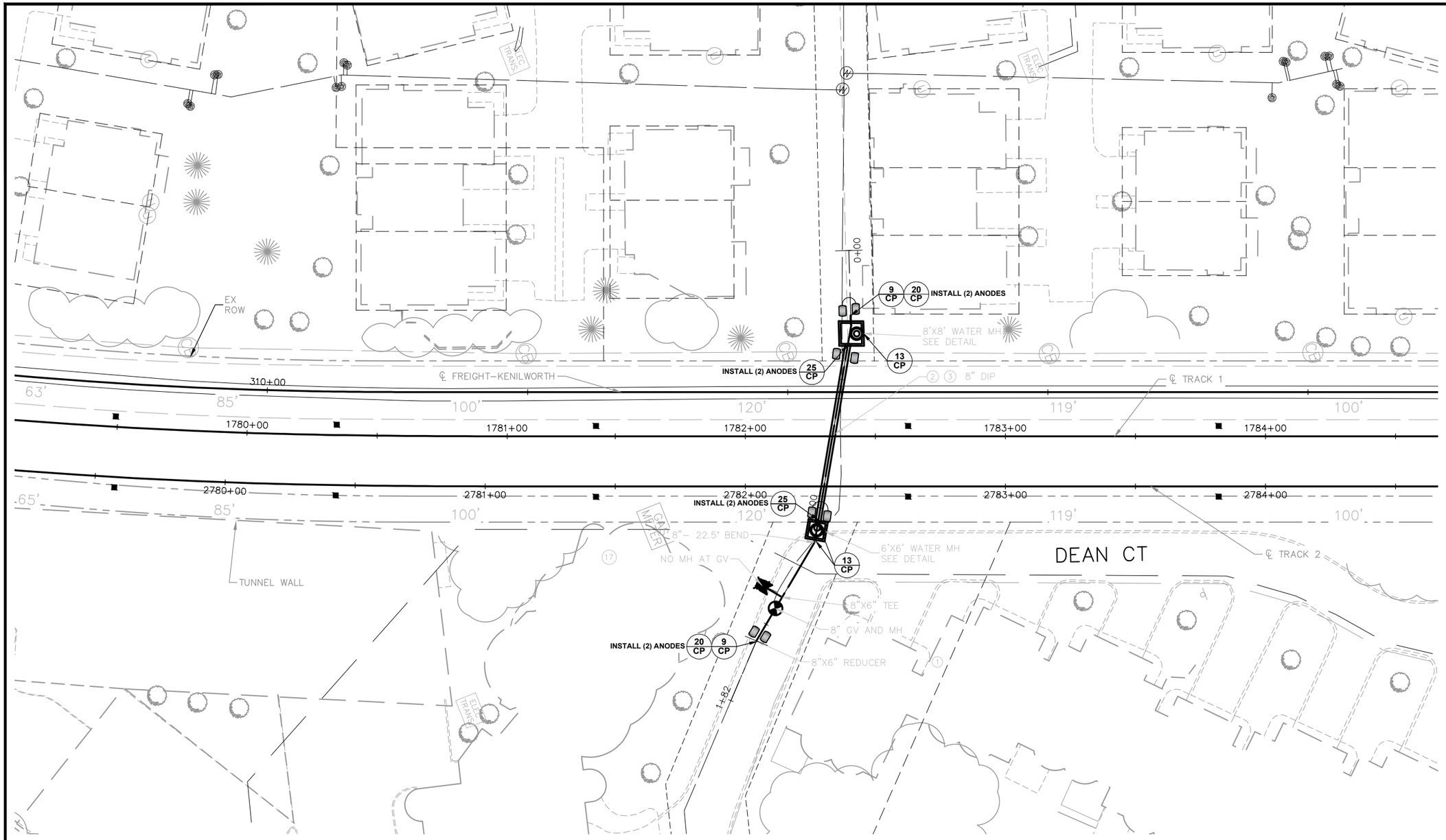

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
DEAN CT

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 006

SHEET 198 OF 214

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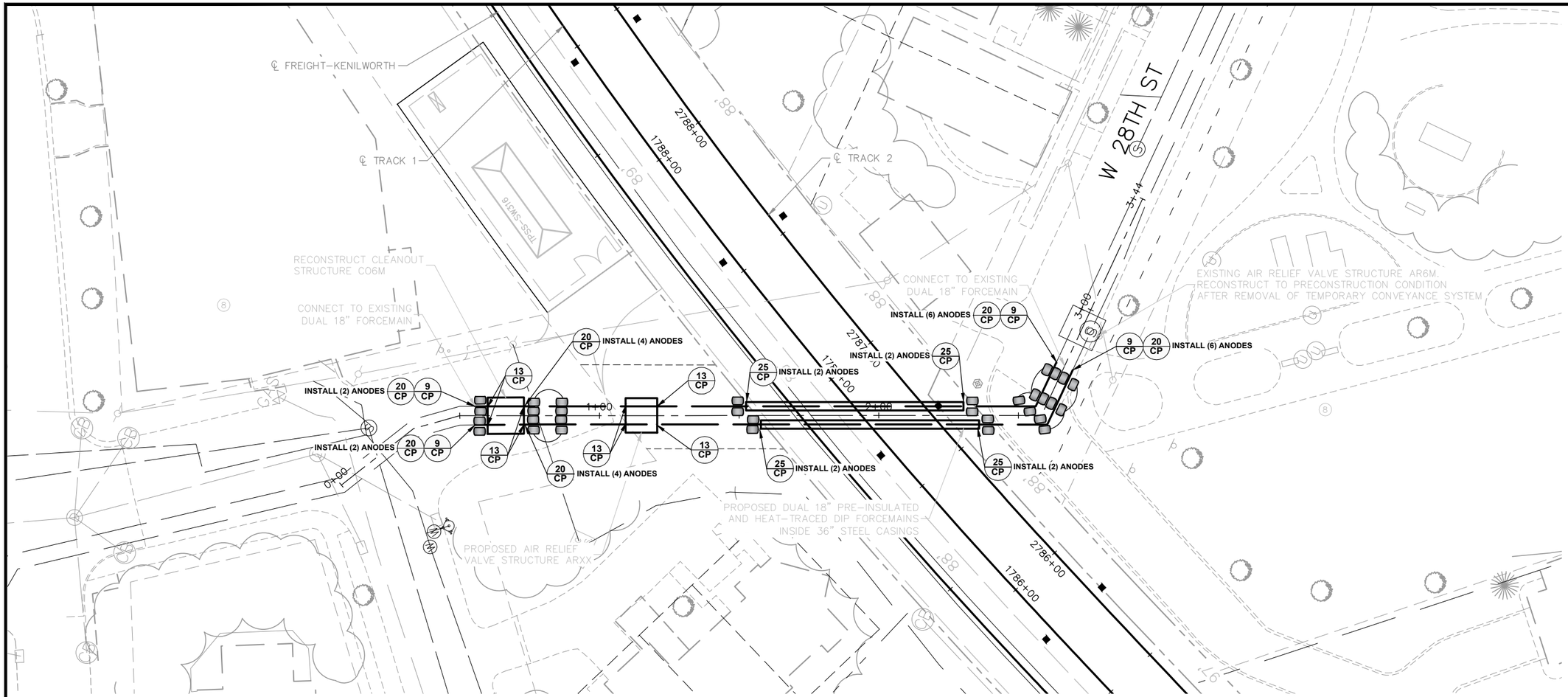

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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
MCES FORCEMAIN

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 007

SHEET 199 OF 214

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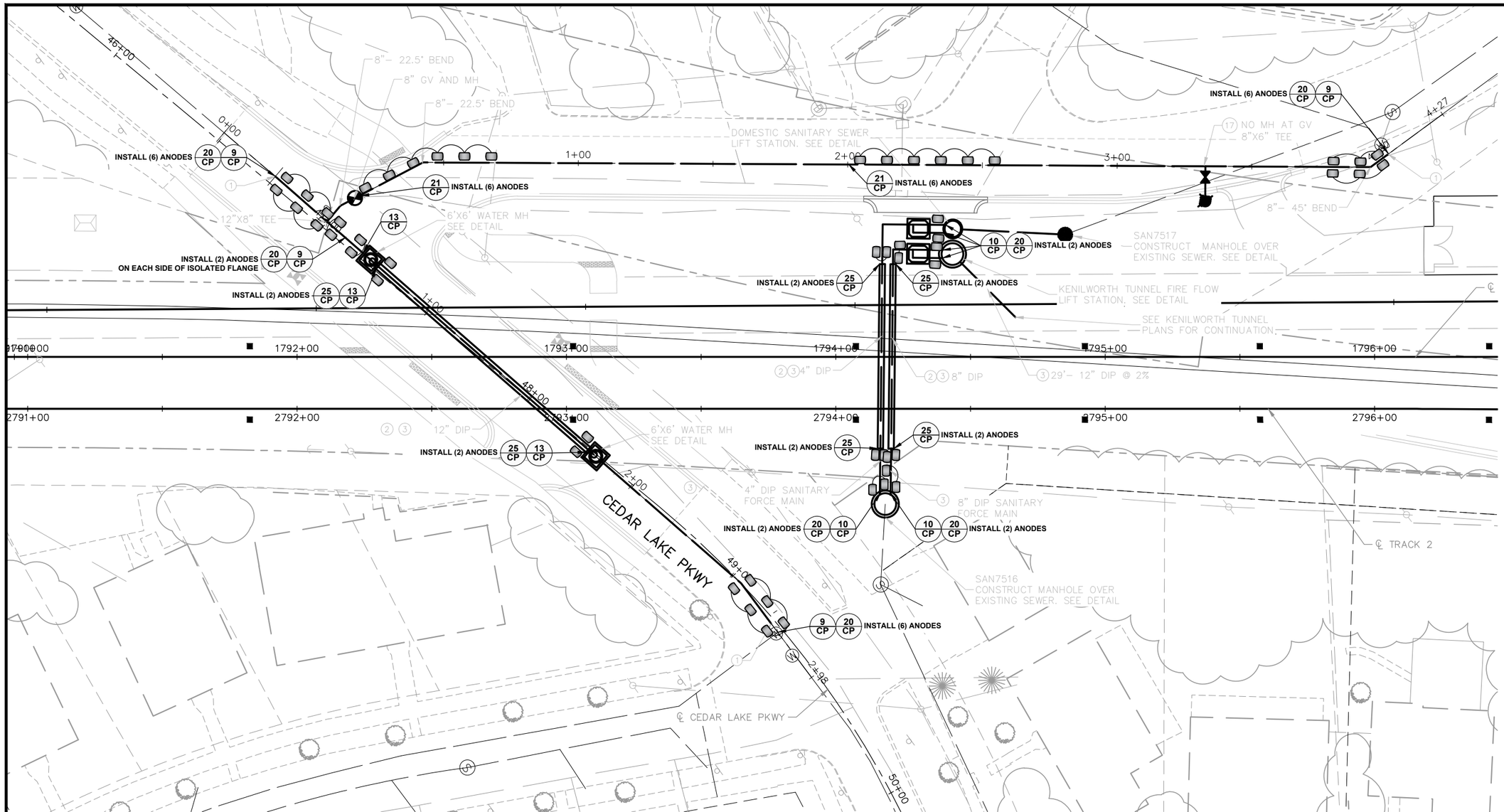

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LEGEND

- MAGNESIUM ANODE
- XX / CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 20 40 60 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

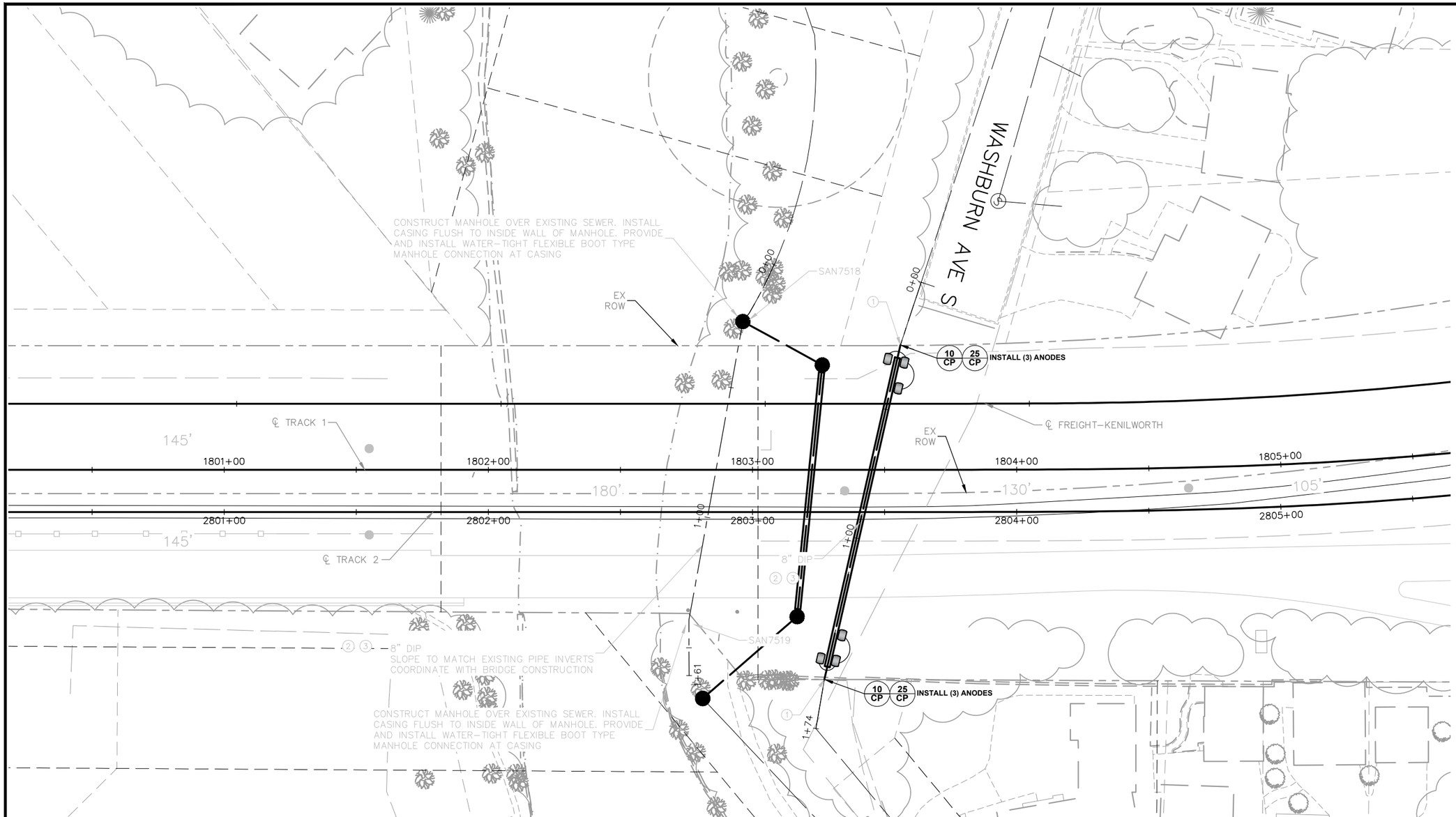
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
CEDAR LAKE AVE

SHEET 200 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 008



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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
CEDAR-ISLES CHANNEL

SHEET 201 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 009

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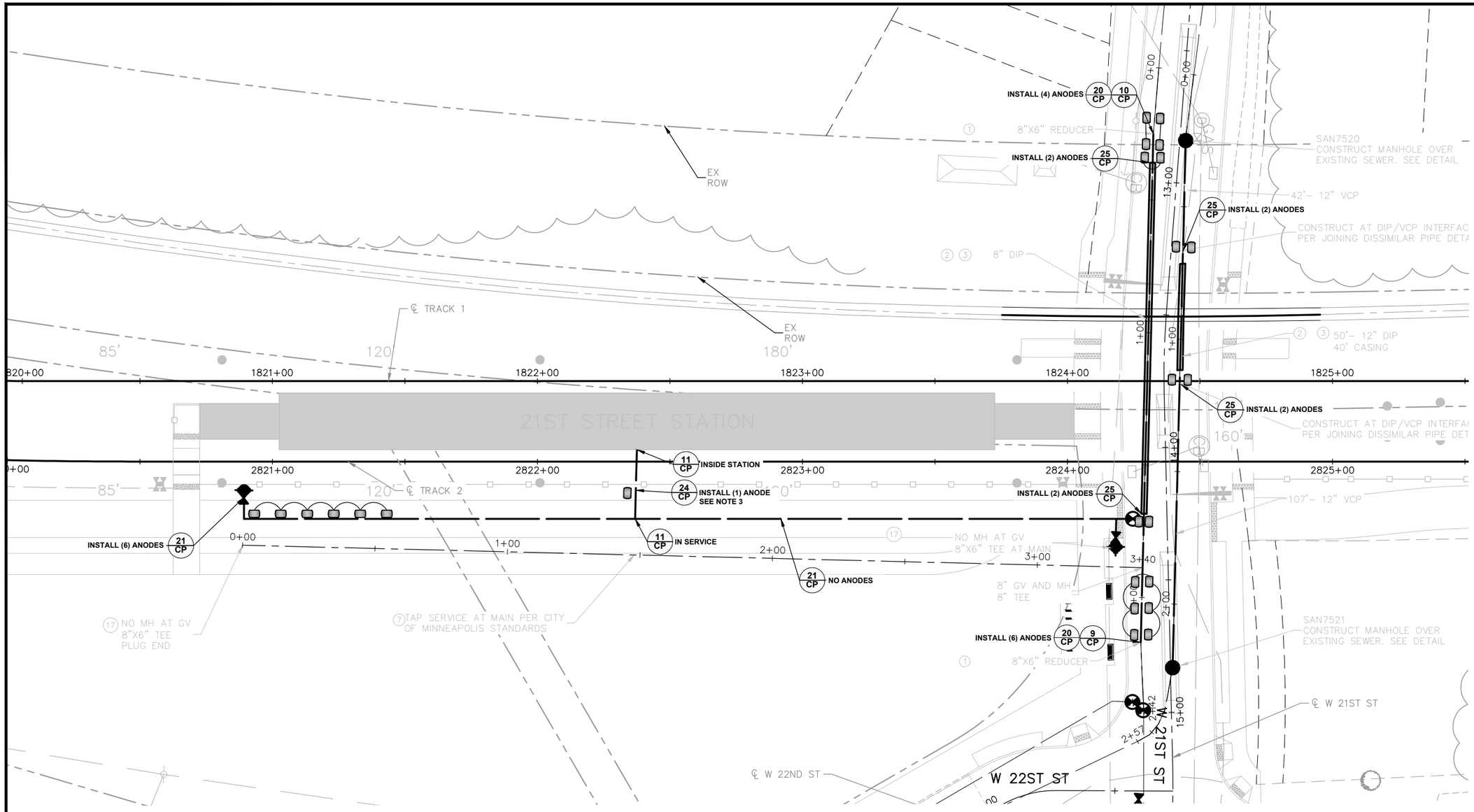

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LEGEND

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- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
21ST ST STATION

SHEET 202 OF 214

DISCIPLINE: CORR

SHEET NAME: E3-UTL-CORR - 010

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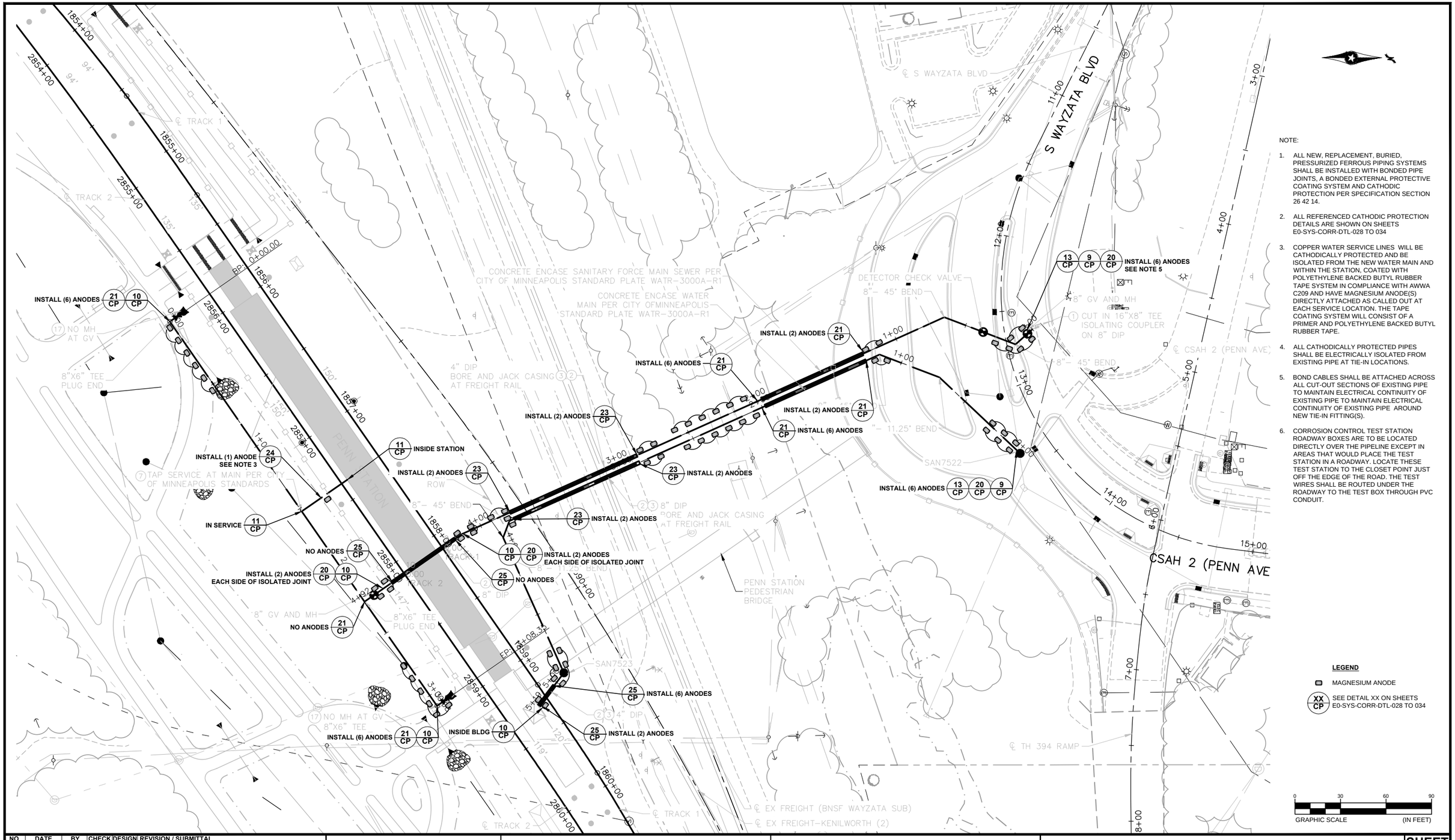

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
PENN STATION

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 001

SHEET 203 OF 214

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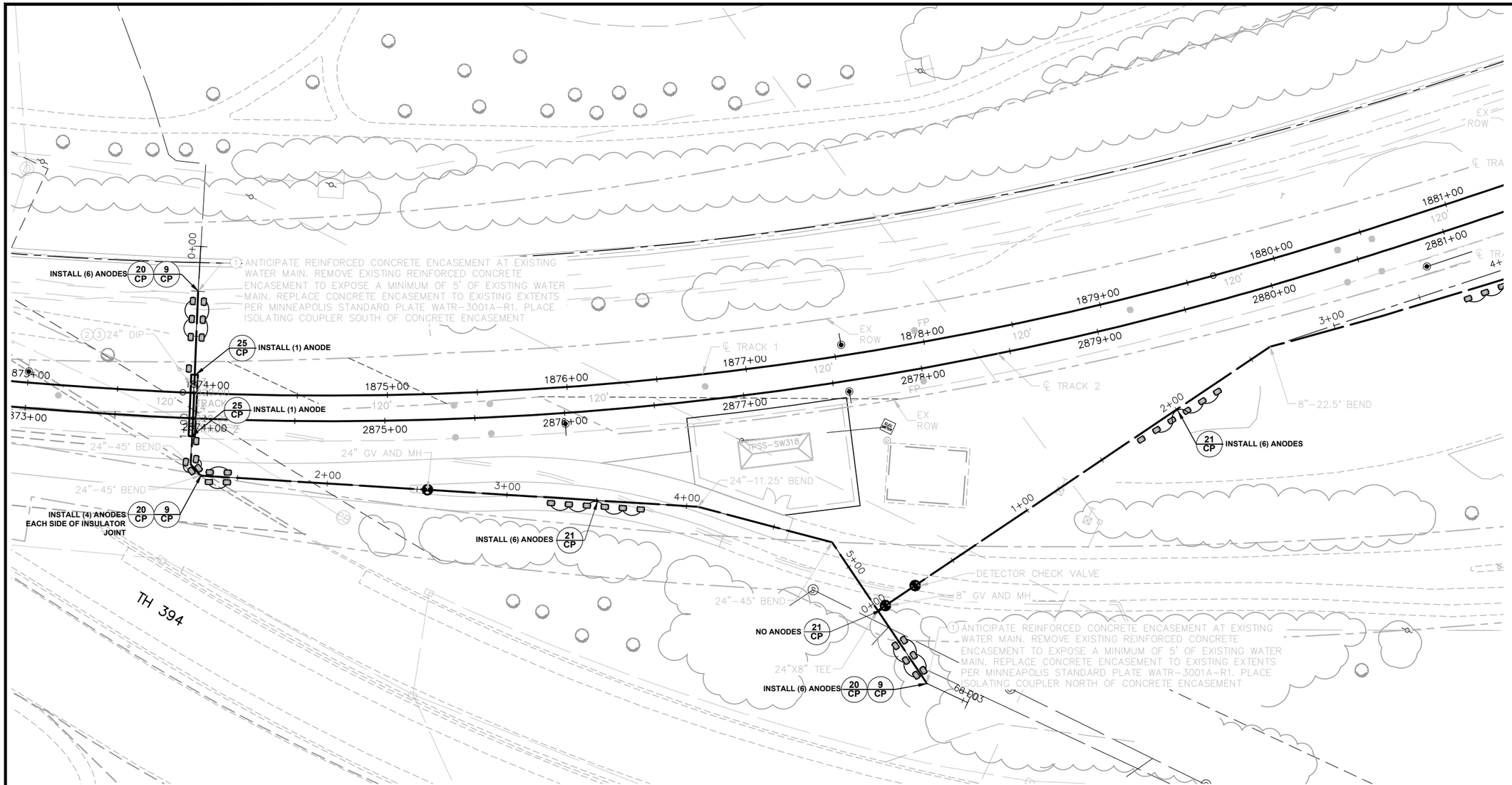

NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
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3. COPPER WATER SERVICE LINES WILL BE CATHODICALLY PROTECTED AND BE ISOLATED FROM THE NEW WATER MAIN AND WITHIN THE STATION, COATED WITH POLYETHYLENE BACKED BUTYL RUBBER TAPE SYSTEM IN COMPLIANCE WITH AWWA C209 AND HAVE MAGNESIUM ANODE(S) DIRECTLY ATTACHED AS CALLED OUT AT EACH SERVICE LOCATION. THE TAPE COATING SYSTEM WILL CONSIST OF A PRIMER AND POLYETHYLENE BACKED BUTYL RUBBER TAPE.
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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

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GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
VAN WHITE STATION 1 OF 4

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 002

SHEET 204 OF 214

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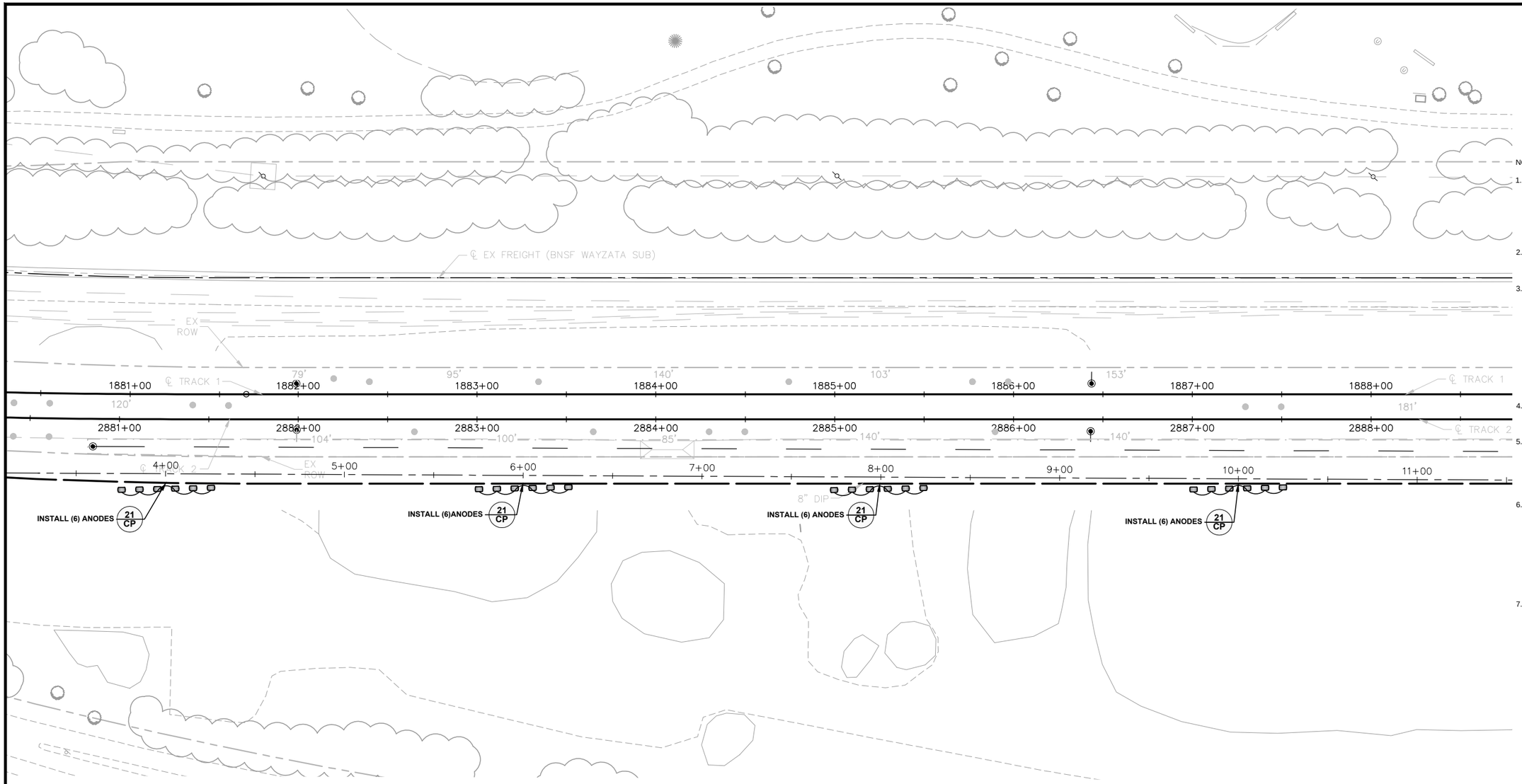

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
VAN WHITE STATION 2 OF 4

SHEET 205 OF 214

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 003

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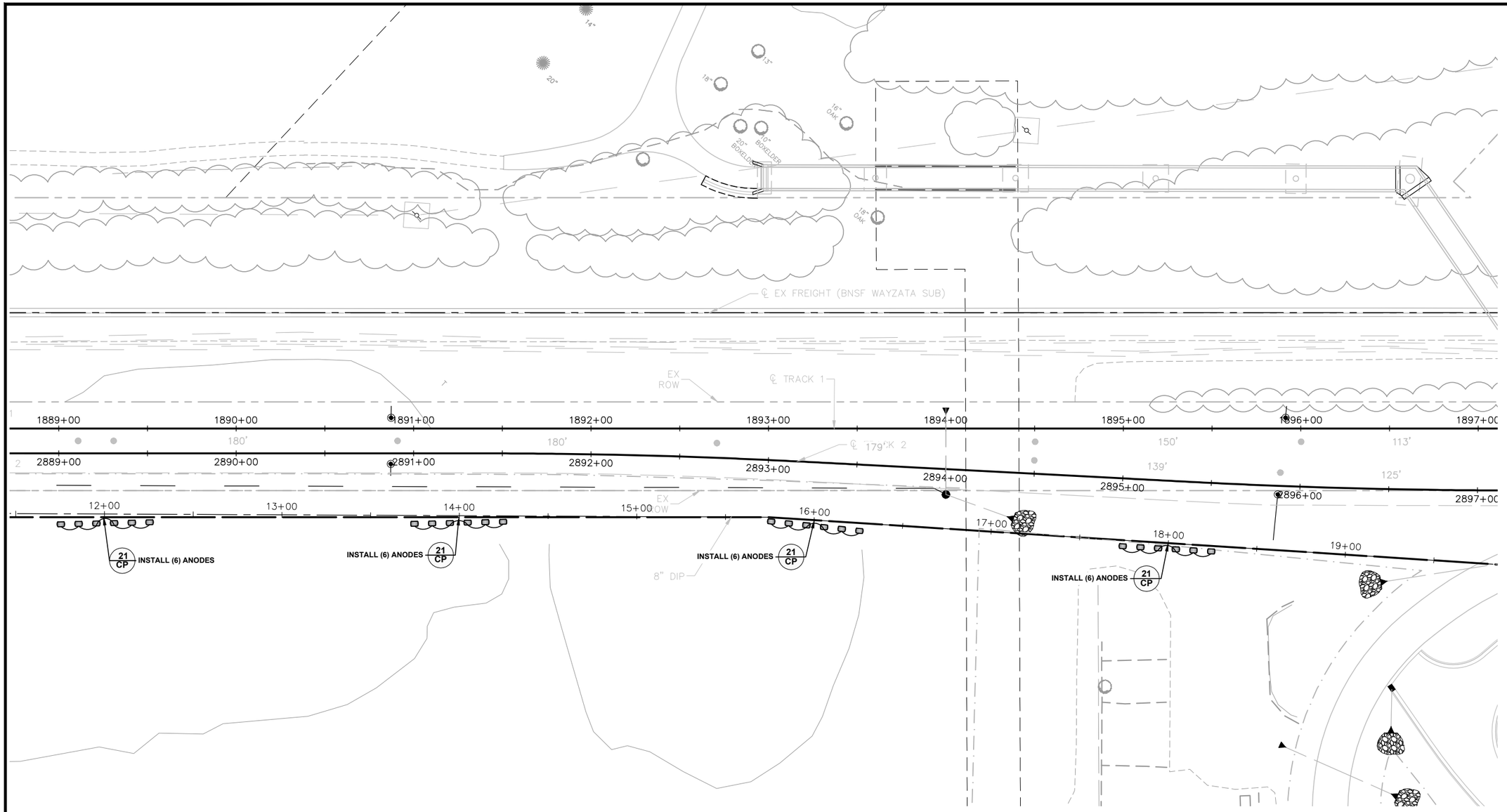

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

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AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
VAN WHITE STATION 3 OF 4

SHEET 206 OF 214

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 004

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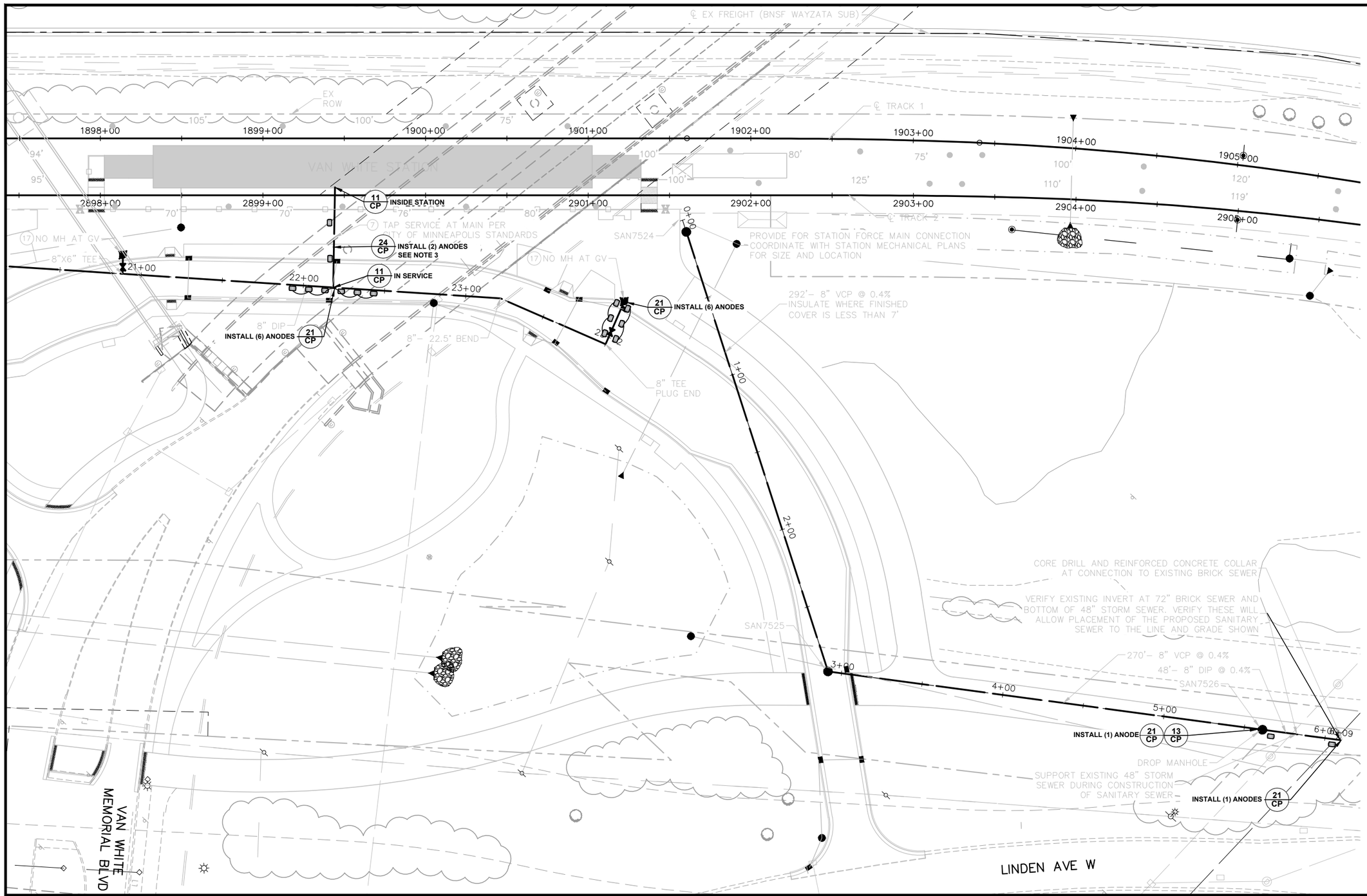

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LEGEND

- MAGNESIUM ANODE
- XX CP SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

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AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
VAN WHITE STATION 4 OF 4

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 005

SHEET 207 OF 214

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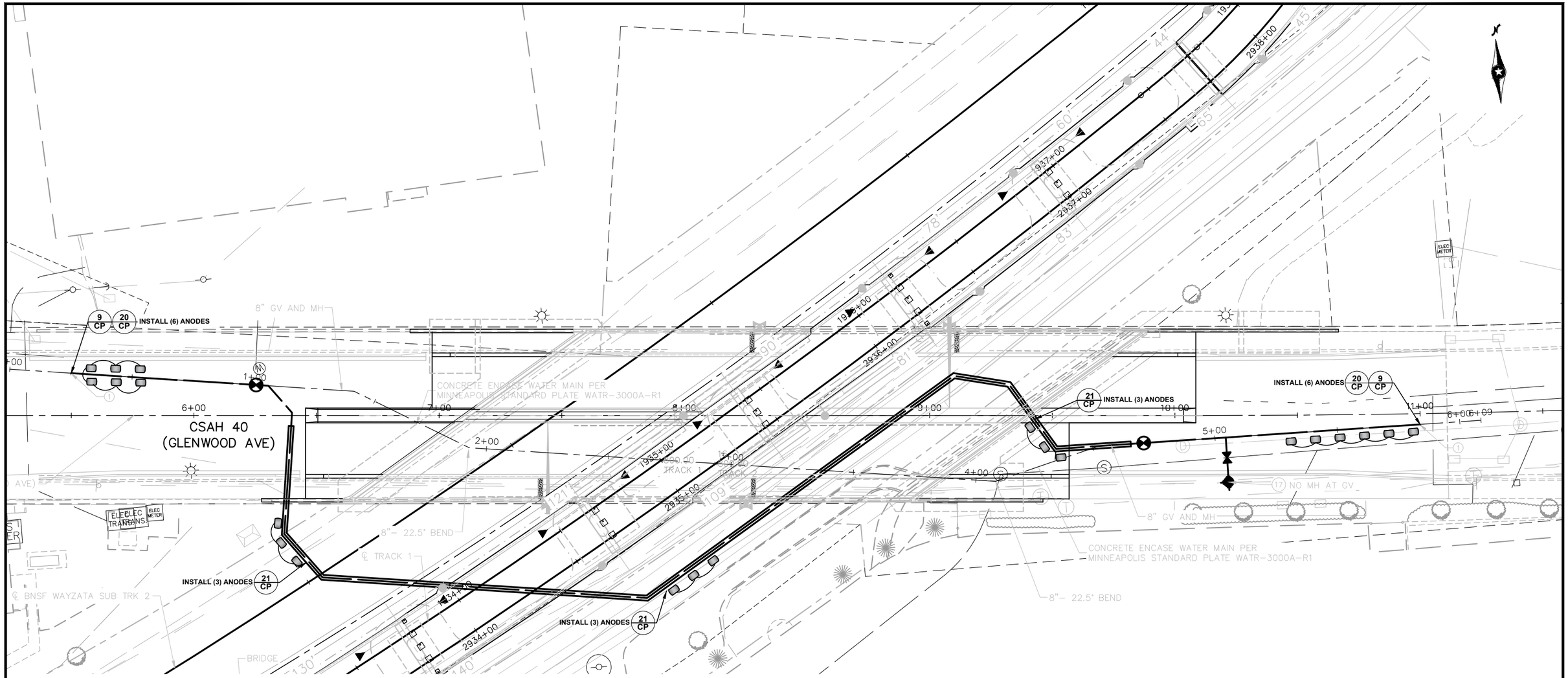

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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
GLENWOOD AVE

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 006

SHEET 208 OF 214

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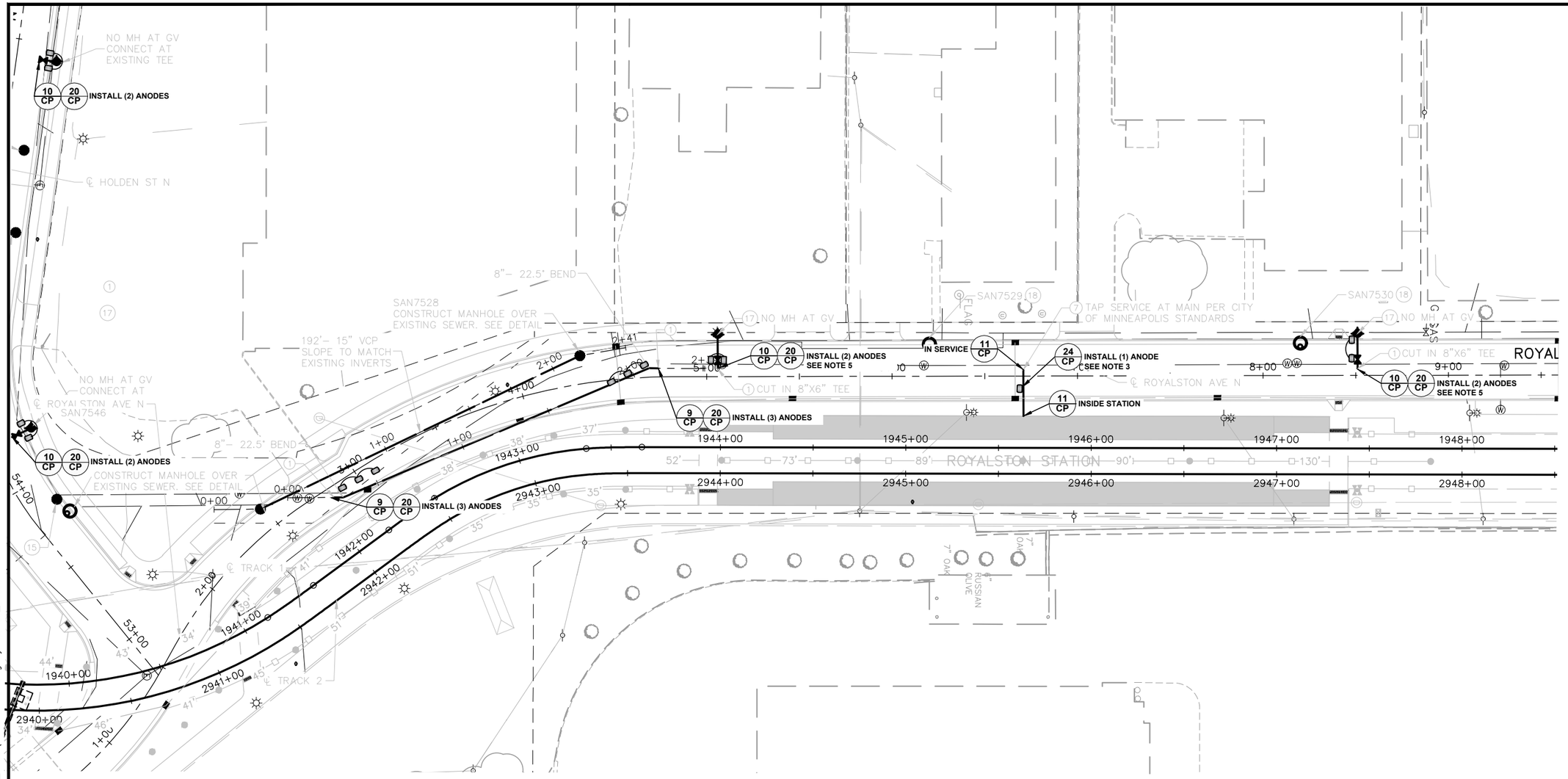

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LEGEND

MAGNESIUM ANODE

XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 30 60 90
GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
ROYALSTON STATION

SHEET 209 OF 214

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 007

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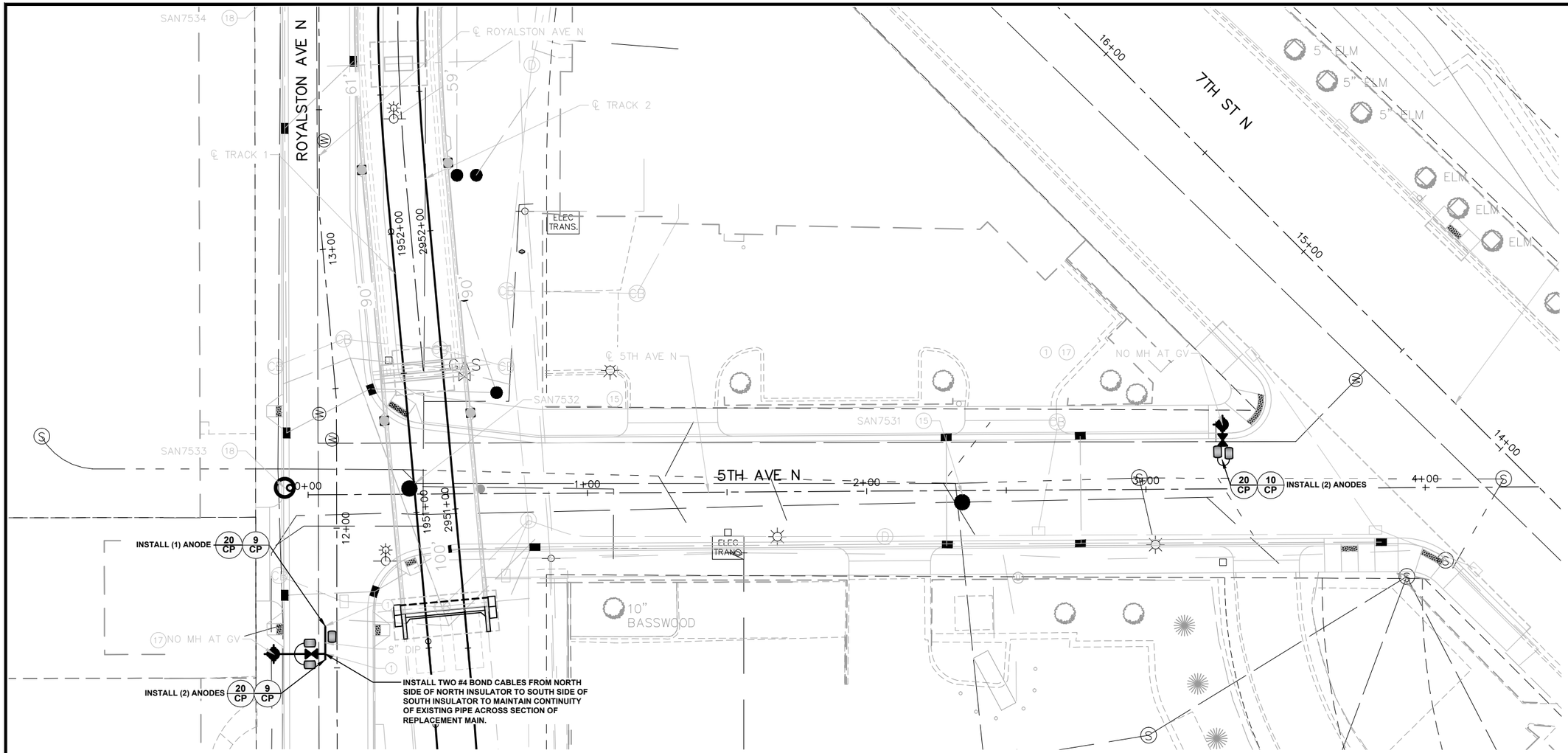

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0 20 40 60
GRAPHIC SCALE (IN FEET)

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
ROYALSTON AVE N / 5TH AVE N

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 008

SHEET 210 OF 214

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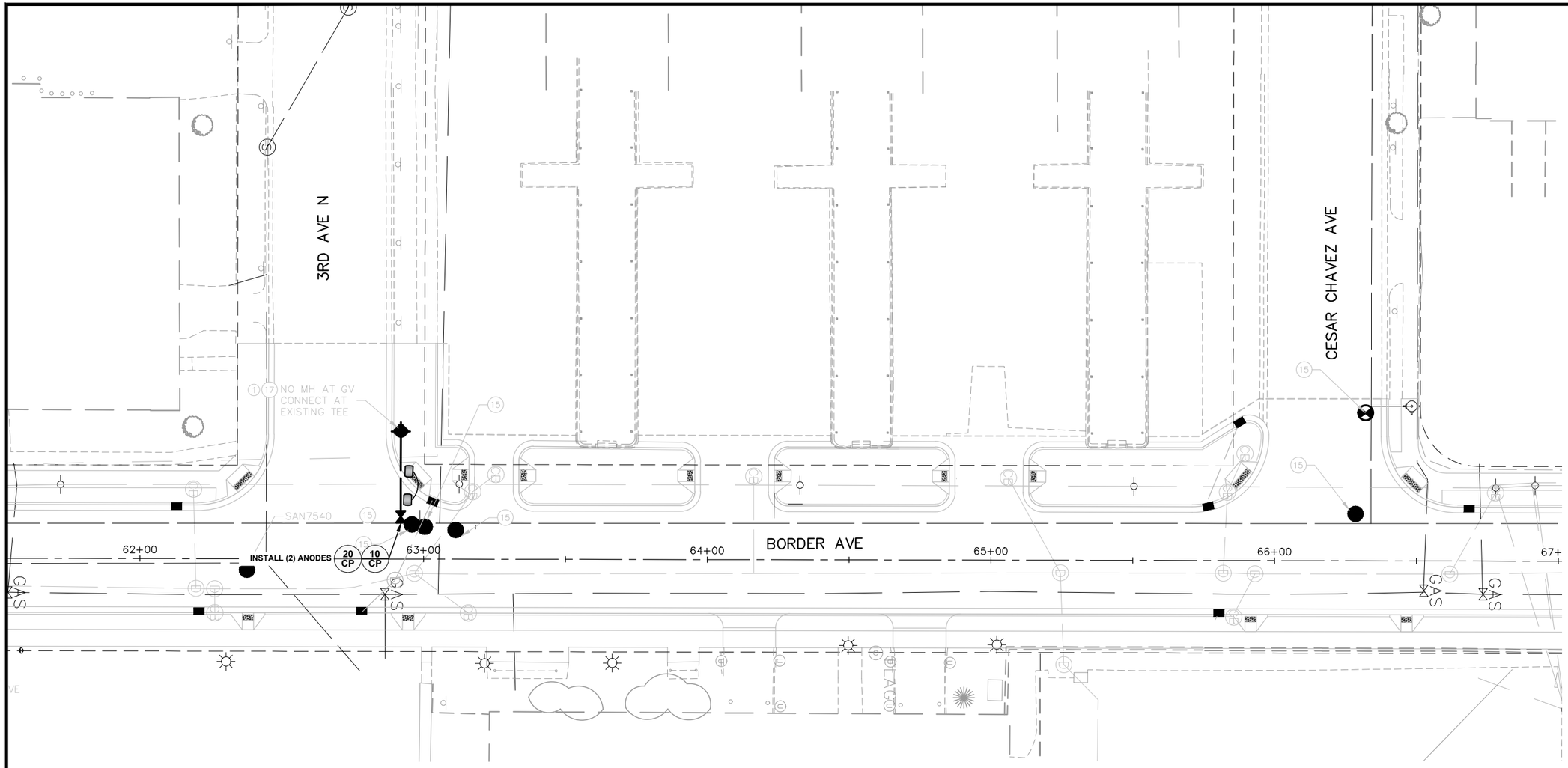

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0 20 40 60
GRAPHIC SCALE (IN FEET)

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90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

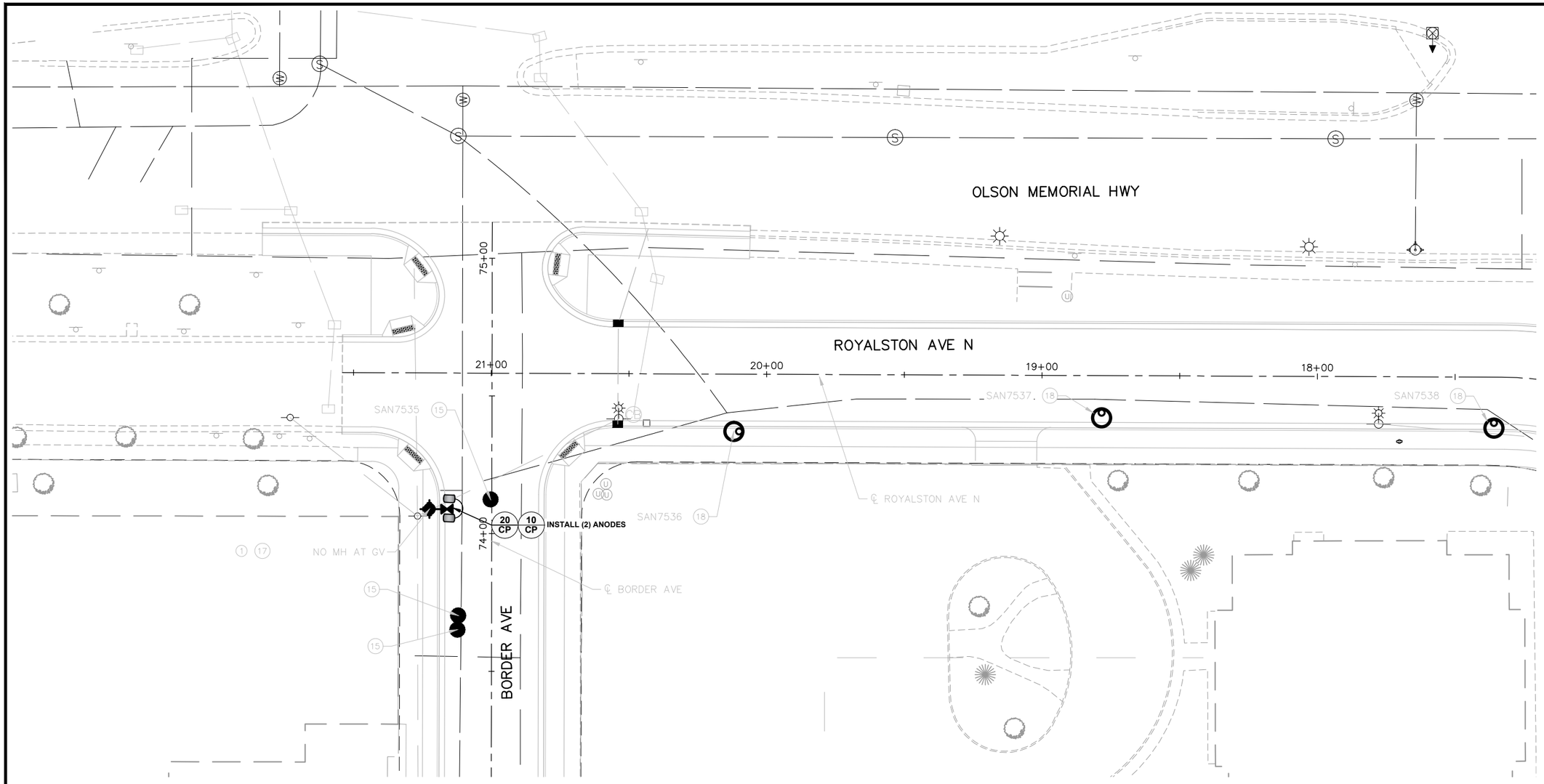
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
BORDER AVE / CESAR CHAVEZ AVE

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 009

SHEET 211 OF 214



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6. CORROSION CONTROL TEST STATION ROADWAY BOXES ARE TO BE LOCATED DIRECTLY OVER THE PIPELINE EXCEPT IN AREAS THAT WOULD PLACE THE TEST STATION IN A ROADWAY. LOCATE THESE TEST STATION TO THE CLOSET POINT JUST OFF THE EDGE OF THE ROAD. THE TEST WIRES SHALL BE ROUTED UNDER THE ROADWAY TO THE TEST BOX THROUGH PVC CONDUIT.
7. AT CASED CROSSING WITH HDPE PIPE CARRIER PIPES, TEST STATIONS AS SHOWN IN DETAILS 23 OR 25 ON SHEETS E0-SYS-CORR-DTL-033 OR 034 SHALL BE INSTALLED WITH THE TEST WIRES ATTACHED TO THE STEEL CASING AND TO THE DUCTILE IRON PIPE AT THE HDPE / DUCTILE IRON TRANSITION COUPLING.

LEGEND

MAGNESIUM ANODE

XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

0 20 40 60
GRAPHIC SCALE (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

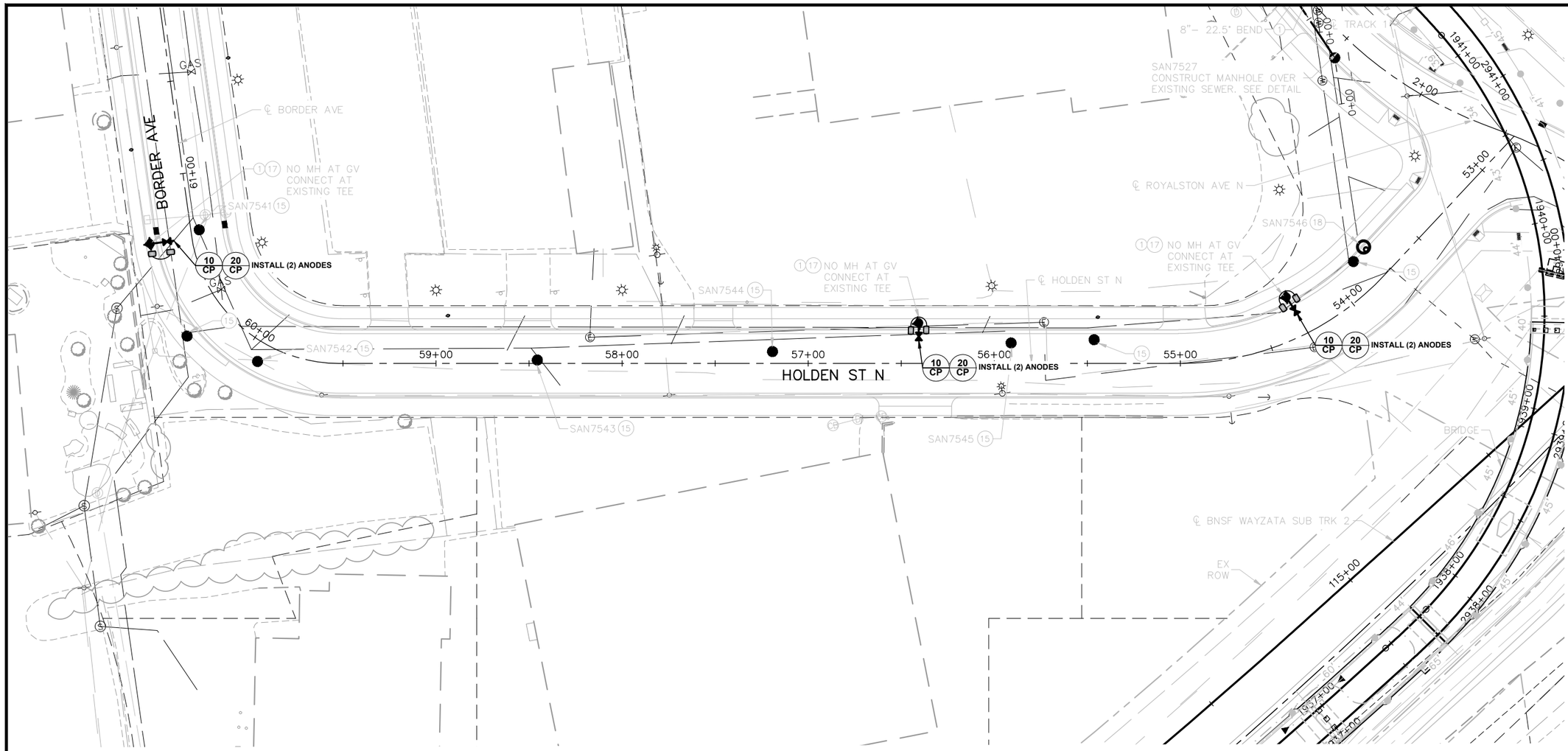
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
ROYALSTON AVE N / BORDER AVE

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 010

SHEET 212 OF 214



NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
2. ALL REFERENCED CATHODIC PROTECTION DETAILS ARE SHOWN ON SHEETS E0-SYS-DTL-028 TO 034
3. COPPER WATER SERVICE LINES WILL BE CATHODICALLY PROTECTED AND BE ISOLATED FROM THE NEW WATER MAIN AND WITHIN THE STATION, COATED WITH POLYETHYLENE BACKED BUTYL RUBBER TAPE SYSTEM IN COMPLIANCE WITH AWWA C209 AND HAVE MAGNESIUM ANODE(S) DIRECTLY ATTACHED AS CALLED OUT AT EACH SERVICE LOCATION. THE TAPE COATING SYSTEM WILL CONSIST OF A PRIMER AND POLYETHYLENE BACKED BUTYL RUBBER TAPE.
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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
HOLDEN ST N

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 011

SHEET 213 OF 214

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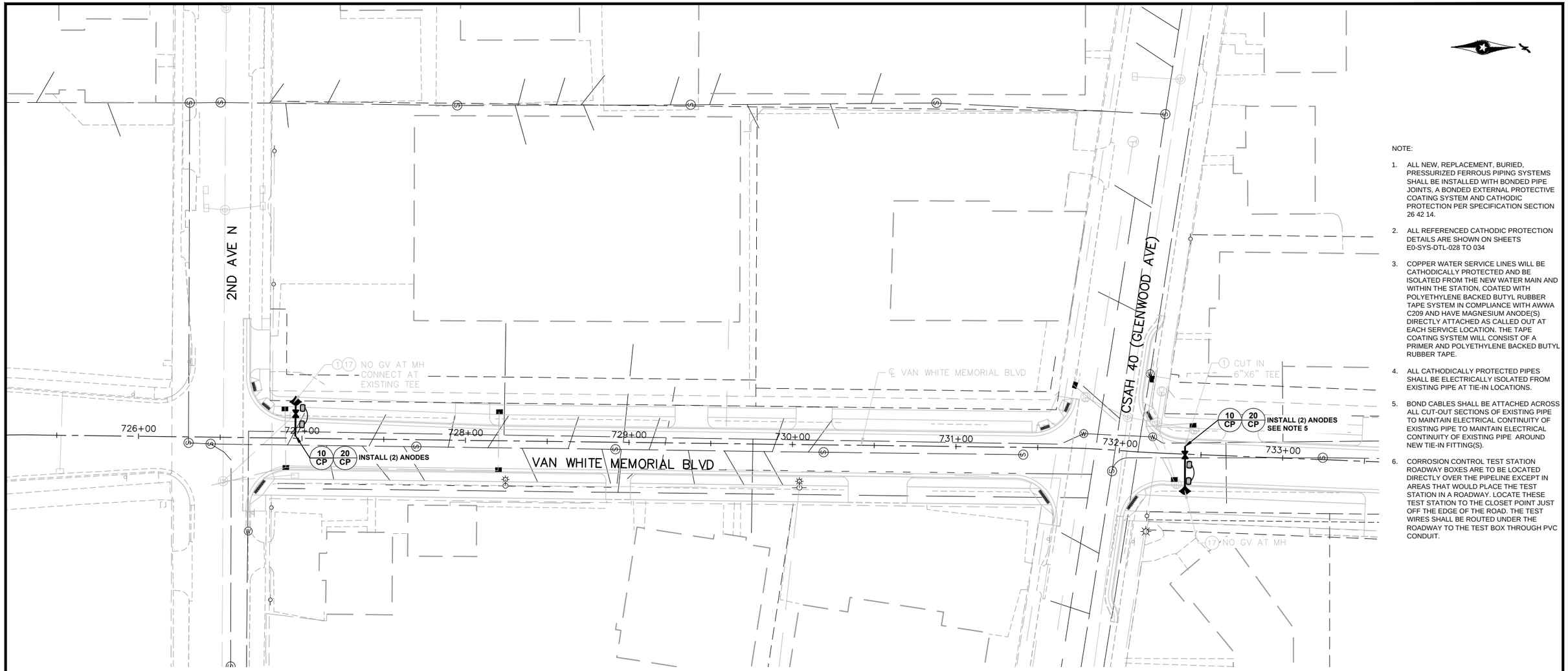

NOTE:

1. ALL NEW, REPLACEMENT, BURIED, PRESSURIZED FERROUS PIPING SYSTEMS SHALL BE INSTALLED WITH BONDED PIPE JOINTS, A BONDED EXTERNAL PROTECTIVE COATING SYSTEM AND CATHODIC PROTECTION PER SPECIFICATION SECTION 26 42 14.
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LEGEND

- MAGNESIUM ANODE
- XX CP — SEE DETAIL XX ON SHEETS E0-SYS-CORR-DTL-028 TO 034

GRAPHIC SCALE 0 30 60 90 (IN FEET)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMITTAL - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 7
UTILITIES - STRAY CURRENT CONTROL
VAN WHITE MEMORIAL BLVD

DISCIPLINE: CORR

SHEET NAME: E4-UTL-CORR - 012

SHEET 214 OF 214

Jan. 15 2016 11:04 am C:\Users\carlos_deese\appdata\local\temp\AcPublish_6700\E4-UTL-PLN.dwg By: Carlos_Deese