CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CAPITAL PROJECTS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WBS NO. R-000035-0027-4

CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY REQUIRES: SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

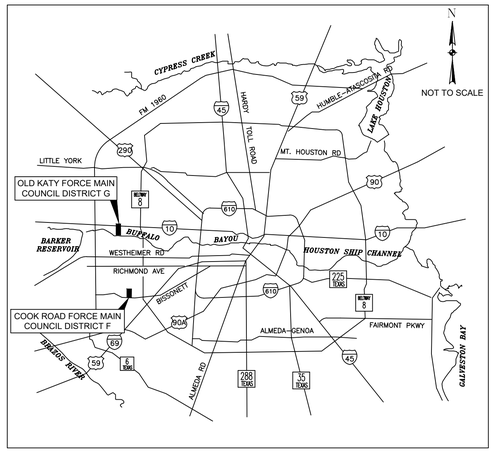
1.) HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT)
2.) HCFCD 48-HR PRE-CONSTRUCTION NOTICE

BOTH ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. THE HCFCD RIGHT-OF-WAY NOTIFICATION AND 48-HOUR NOTICE MUST BE PROVIDED TO HCFCD AT DCID@HCFCD.HCTX.NET.

TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO HTTP://APPS.HARRISCOUNTYTX.GOV/EPERMITS AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

FAILURE TO PROVIDE BOTH ITEMS COULD RESULT IN PROJECT DELAYS.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	REVISED 90%	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS



LOCATION MAP

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURE AND EXISTING DETECTION CURRENTLY INPLACE FOR ALL APPROACHES, IF DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL ALSO MAINTAIN EXISTING COMMUNICATION. THE CONTRACTOR SHALL ALSO MAINTAIN PEDESTRIAN ACCESSIBILITY TO PUSH BUTTONS AND PROPER SIGNAL ALIGNMENT THROUGHOUT TCP STAGES, OTHERWISE BAG PEDESTRIAN SIGNAL HEADS AND INSTALL CROSSWALK CLOSED SIGNS AND PROVIDE PEDESTRIAN DETOUR. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON TRAFFIC OPERATIONS FOR ANY SIGNAL TIMING MODIFICATIONS AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE TCP STAGES. THIS NOTE APPLIES TO ALL CONSTRUCTION PHASES AND STAGES.

TDLR EABPR _____

MAYOR
JOHN WHITMIRE

CONTROLLER
CHRIS HOLLINS

DISTRICT COUNCIL MEMBERS

AMY PECK, DISTRICT A
TARSHA JACKSON, DISTRICT B
ABBIE KAMIN, DISTRICT C
CAROLYN EVANS-SHABAZZ, DISTRICT D
FRED FLICKINGER, DISTRICT E
TIFFANY D. THOMAS, DISTRICT F
MARY NAN HUFFMAN, DISTRICT G
MARIO CASTILLO, DISTRICT H
JOAQUIN MARTINEZ, DISTRICT I
EDWARD POLLARD, DISTRICT J
MARTHA CASTEX-TATUM, DISTRICT K

COUNCIL MEMBERS AT-LARGE

JULIAN RAMIREZ, POSITION 1
WILLIE DAVIS, POSITION 2
TWILA CARTER, POSITION 3
ALEJANDRA SALINAS, POSITION 4
SALLIE ALCORN, POSITION 5

PARSONS
1 RIVERWAY, SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. _____
CITY OF HOUSTON PM: MARIA GEORGE, PE

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

PARKS-FORESTRY DEPT.

METRO

HOUSTON WATER

TRANSPORTATION & DRAINAGE OPERATIONS

CAPITAL PROJECTS | SURVEY

CITY ENGINEER DATE

DIRECTOR OF HOUSTON PUBLIC WORKS DATE

SHEET NO 1 OF 192 SHEETS

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003339\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-cover.dwg

SHEET No.	DRAWING No.	DESCRIPTION
		GENERAL DRAWINGS
1	G0.01	COVER SHEET
2	G0.02	DRAWING INDEX
3	G0.03	VICINITY MAPS
4	G0.04	OLD KATY FEMA MAP
5	G0.05	COOK ROAD FEMA MAP
6	G0.06	CONSTRUCTION NOTES
7	G0.07	GENERAL NOTES
8	G0.08	HARRIS COUNTY FLOOD CONTROL DISTRICT REVIEW SHEET
9	G0.09	ABBREVIATIONS
10	G0.10	SYMBOLS
11	G0.11	CONSTRUCTION SIGN BUILD HOUSTON FORWARD
		SURVEY CONTROL DRAWINGS
12	C0.01	DAIRY ASHFORD ROAD SURVEY CONTROL MAP SHEET 1 OF 4
13	C0.02	DAIRY ASHFORD ROAD SURVEY CONTROL MAP SHEET 2 OF 4
14	C0.03	DAIRY ASHFORD ROAD SURVEY CONTROL MAP SHEET 3 OF 4
15	C0.04	DAIRY ASHFORD ROAD SURVEY CONTROL MAP SHEET 4 OF 4
16	C0.05	DAIRY ASHFORD ROAD SURVEY SWINGTIES SHEET 1 OF 4
17	C0.06	DAIRY ASHFORD ROAD SURVEY SWINGTIES SHEET 2 OF 4
18	C0.07	DAIRY ASHFORD ROAD SURVEY SWINGTIES SHEET 1 OF 4
19	C0.08	DAIRY ASHFORD ROAD SURVEY SWINGTIES SHEET 2 OF 4
20	C0.09	COOK ROAD SURVEY CONTROL MAP SHEET 1 OF 2
21	C0.10	COOK ROAD SURVEY CONTROL MAP SHEET 2 OF 2
22	C0.11	COOK ROAD SWINGTIES SHEET 1 OF 2
23	C0.12	COOK ROAD SWINGTIES SHEET 2 OF 2
		CIVIL DRAWINGS
24	C1.01	OLD KATY FORCE MAIN OVERALL LAYOUT
25	C1.02	COOK ROAD FORCE MAIN OVERALL LAYOUT
26	C1.03	OLD KATY FORCE MAIN PLAN – BASELINE A BEGIN TO STA. 4+00
27	C1.04	OLD KATY FORCE MAIN PROFILE – BASELINE A BEGIN TO STA. 4+00
28	C1.05	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 4+00 TO STA. 7+50
29	C1.06	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 4+00 TO STA. 7+50
30	C1.07	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 7+50 TO STA. 11+50
31	C1.08	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 7+50 TO STA. 11+50
32	C1.09	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 11+50 TO STA. 15+00
33	C1.10	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 11+50 TO STA. 15+00
34	C1.11	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 15+00 TO STA. 19+25
35	C1.12	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 15+00 TO STA. 19+25
36	C1.13	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 19+25 TO STA. 23+00
37	C1.14	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 19+25 TO STA. 23+00
38	C1.15	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 23+00 TO STA. 27+00
39	C1.16	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 23+00 TO STA. 27+00
40	C1.17	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 27+00 TO STA. 31+00
41	C1.18	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 27+00 TO STA. 31+00
42	C1.19	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 31+00 TO STA. 35+00
43	C1.20	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 31+00 TO STA. 35+00
44	C1.21	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 35+00 TO STA. 39+00
45	C1.22	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 35+00 TO STA. 39+00
46	C1.23	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 39+00 TO STA. 43+00
47	C1.24	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 39+00 TO STA. 43+00
48	C1.25	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 43+00 TO STA. 47+00
49	C1.26	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 43+00 TO STA. 47+00
50	C1.27	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 47+00 TO STA. 50+00
51	C1.28	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 47+00 TO STA. 50+00
52	C1.29	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 50+00 TO STA. 54+00
53	C1.30	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 50+00 TO STA. 54+00
54	C1.31	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 54+00 TO STA. 58+00
55	C1.32	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 54+00 TO STA. 58+00
56	C1.33	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 58+00 TO STA. 62+00
57	C1.34	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 58+00 TO STA. 62+00
58	C1.35	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 62+00 TO STA. 66+00
59	C1.36	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 62+00 TO STA. 66+00
60	C1.37	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 66+00 TO STA. 70+00
61	C1.38	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 66+00 TO STA. 70+00
62	C1.39	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 70+00 TO STA. 74+00
63	C1.40	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 70+00 TO STA. 74+00
64	C1.41	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 74+00 TO STA. 78+00
65	C1.42	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 74+00 TO STA. 78+00
66	C1.43	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 78+00 TO STA. 82+00
67	C1.44	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 78+00 TO STA. 82+00
68	C1.45	OLD KATY FORCE MAIN PLAN – BASELINE A STA. 82+00 TO END
69	C1.46	OLD KATY FORCE MAIN PROFILE – BASELINE A STA. 82+00 TO END
70	C1.47	OLD KATY FORCE MAIN PLAN – BASELINE B BEGIN TO END
71	C1.48	OLD KATY FORCE MAIN PROFILE – BASELINE B BEGIN TO END
72	C1.49	COOK ROAD FORCE MAIN PLAN – BASELINE A BEGIN TO STA. 4+25
73	C1.50	COOK ROAD FORCE MAIN PROFILE – BASELINE A BEGIN TO STA. 4+25
74	C1.51	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 4+25 TO STA. 8+00
75	C1.52	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 4+25 TO STA. 8+00
76	C1.53	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 8+00 TO STA. 12+00
77	C1.54	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 8+00 TO STA. 12+00
78	C1.55	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 12+00 TO STA. 16+00
79	C1.56	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 12+00 TO STA. 16+00
80	C1.57	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 16+00 TO STA. 20+20
81	C1.58	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 16+00 TO STA. 20+20
82	C1.59	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 20+20 TO STA. 24+00
83	C1.60	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 20+20 TO STA. 24+00
84	C1.61	COOK ROAD FORCE MAIN PLAN – BASELINE A STA. 24+00 TO STA. END
85	C1.62	COOK ROAD FORCE MAIN PROFILE – BASELINE A STA. 24+00 TO STA. END
86	C1.63	COOK ROAD FORCE MAIN PLAN – BASELINE B BEGIN TO END
87	C1.64	COOK ROAD FORCE MAIN PROFILE – BASELINE B BEGIN TO END
88	C2.01	WASTEWATER DETAILS (SHEET 1 OF 6)
89	C2.02	WASTEWATER DETAILS (SHEET 2 OF 6)
90	C2.03	WASTEWATER DETAILS (SHEET 3 OF 6)
91	C2.04	WASTEWATER DETAILS (SHEET 4 OF 6)

SHEET No.	DRAWING No.	DESCRIPTION
		CIVIL DRAWINGS (CONTINUED)
92	C2.05	WASTEWATER DETAILS (SHEET 5 OF 6)
93	C2.06	WASTEWATER DETAILS (SHEET 6 OF 6)
94	C3.01	FERN DRIVE WATER LINE PLAN – BEGIN TO END
95	C3.02	FERN DRIVE WATER LINE PROFILE – BEGIN TO END
96	C4.01	WATER LINE DETAILS
		STORM WATER POLLUTION PREVENTION DRAWINGS
97	SWP1.01	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 11)
98	SWP1.02	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 11)
99	SWP1.03	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 11)
100	SWP1.04	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 11)
101	SWP1.05	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 11)
102	SWP1.06	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 6 OF 11)
103	SWP1.07	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 7 OF 11)
104	SWP1.08	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 8 OF 11)
105	SWP1.09	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 9 OF 11)
106	SWP1.10	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 10 OF 11)
107	SWP1.11	OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 11 OF 11)
108	SWP1.12	COOK ROAD STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 4)
109	SWP1.13	COOK ROAD STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 4)
110	SWP1.14	COOK ROAD STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 4)
111	SWP1.15	COOK ROAD STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 4)
112	SWP2.01	STORM WATER POLLUTION PREVENTION DETAILS (SHEET 1 OF 2)
113	SWP2.02	STORM WATER POLLUTION PREVENTION DETAILS (SHEET 2 OF 2)
		TREE PROTECTION DRAWINGS
114	TP1.01	OLD KATY TREE PROTECTION PLAN (SHEET 1 OF 11)
115	TP1.02	OLD KATY TREE PROTECTION PLAN (SHEET 2 OF 11)
116	TP1.03	OLD KATY TREE PROTECTION PLAN (SHEET 3 OF 11)
117	TP1.04	OLD KATY TREE PROTECTION PLAN (SHEET 4 OF 11)
118	TP1.05	OLD KATY TREE PROTECTION PLAN (SHEET 5 OF 11)
119	TP1.06	OLD KATY TREE PROTECTION PLAN (SHEET 6 OF 11)
120	TP1.07	OLD KATY TREE PROTECTION PLAN (SHEET 7 OF 11)
121	TP1.08	OLD KATY TREE PROTECTION PLAN (SHEET 8 OF 11)
122	TP1.09	OLD KATY TREE PROTECTION PLAN (SHEET 9 OF 11)
123	TP1.10	OLD KATY TREE PROTECTION PLAN (SHEET 10 OF 11)
124	TP1.11	OLD KATY TREE PROTECTION PLAN (SHEET 11 OF 11)
125	TP1.12	COOK ROAD TREE PROTECTION PLAN (SHEET 1 OF 4)
126	TP1.13	COOK ROAD TREE PROTECTION PLAN (SHEET 2 OF 4)
127	TP1.14	COOK ROAD TREE PROTECTION PLAN (SHEET 3 OF 4)
128	TP1.15	COOK ROAD TREE PROTECTION PLAN (SHEET 4 OF 4)
129	TP2.01	LIST OF TREES (SHEET 1 OF 2)
130	TP2.02	LIST OF TREES (SHEET 2 OF 2)
131	TP2.03	TREE PROTECTION DETAILS (SHEET 1 OF 2)
132	TP2.04	TREE PROTECTION DETAILS (SHEET 2 OF 2)
		TRAFFIC CONTROL DRAWINGS
133	TC1.01	TRAFFIC CONTROL GENERAL NOTES – TCP SHEET 1 OF 31
134	TC1.02	TRAFFIC CONTROL PLAN CONSTRUCTION NARRATIVE DAIRY ASHFORD ROAD – TCP SHEET 2 OF 31
135	TC1.03	TRAFFIC CONTROL PLAN CONSTRUCTION NARRATIVE COOK ROAD – TCP SHEET 3 OF 31
136	TC1.04	TRAFFIC CONTROL PLAN OVERALL LAYOUT DAIRY ASHFORD ROAD – TCP SHEET 4 OF 31
137	TC1.05	TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT 1 OF 2 DAIRY ASHFORD ROAD – TCP SHEET 5 OF 31
138	TC1.06	TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT 2 OF 2 DAIRY ASHFORD ROAD – TCP SHEET 6 OF 31
139	TC1.07	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 1 – TCP SHEET 7 OF 31
140	TC1.08	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 2 – TCP SHEET 8 OF 31
141	TC1.09	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 3 – TCP SHEET 9 OF 31
142	TC1.10	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 4 – TCP SHEET 10 OF 31
143	TC1.11	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 5 – TCP SHEET 11 OF 31
144	TC1.12	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 6 – TCP SHEET 12 OF 31
145	TC1.13	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 7 & 8 – TCP SHEET 13 OF 31
146	TC1.14	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 9 – TCP SHEET 14 OF 31
147	TC1.15	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 STEP I – TCP SHEET 15 OF 31
148	TC1.16	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 STEP II – TCP SHEET 16 OF 31
149	TC1.17	TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 STEP III – TCP SHEET 17 OF 31
150	TC1.18	TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT COOK ROAD – TCP SHEET 18 OF 31
151	TC1.19	TRAFFIC CONTROL PLAN COOK ROAD PHASE 1–STEPS 1–3 TCP SHEET 19 OF 31
152	TC1.20	TRAFFIC CONTROL PLAN COOK ROAD PHASE 2–STEPS 1–5 TCP SHEET 20 OF 31
153	TC1.21	TRAFFIC CONTROL PLAN COOK ROAD PHASE 3–STEPS 1–2 TCP SHEET 21 OF 31
154	TC1.22	DETOUR PLAN – DAIRY ASHFORD PHASE 1 & 2 TCP SHEET 22 OF 31
155	TC1.23	DETOUR PLAN – DAIRY ASHFORD PHASE 3 TCP SHEET 23 OF 31
156	TC1.24	DETOUR PLAN – DAIRY ASHFORD PHASE 5 TCP SHEET 24 OF 31
157	TC1.25	DETOUR PLAN – DAIRY ASHFORD PHASE 6 & 7 TCP SHEET 25 OF 31

SHEET No.	DRAWING No.	DESCRIPTION
		TRAFFIC CONTROL DRAWINGS (CONTINUED)
158	TC1.26	TRAFFIC CONTROL PLAN DAIRY ASHFORD & COOK ROAD TYPICAL SECTIONS TCP SHEET 26 OF 31
159	TC1.27	TRAFFIC CONTROL TYPICAL ONE LANE CLOSURE TCP SHEET 27 OF 31
160	TC1.28	TRAFFIC CONTROL PLAN LOW PROFILE CONCRETE BARRIER DETAIL 1 – TCP SHEET 28 OF 31
161	TC1.29	TRAFFIC CONTROL PLAN LOW PROFILE CONCRETE BARRIER DETAIL 2 – TCP SHEET 29 OF 31
162	TC1.30	TRAFFIC CONTROL PLAN BARRICADE DETAIL TCP SHEET 30 OF 31
163	TC1.31	TRAFFIC CONTROL PLAN PROJECT APPROACH SIGNING DETAIL TCP SHEET 31 OF 31
		PAVING DRAWINGS
164	P1.01	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 1 OF 11)
165	P1.02	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 2 OF 11)
166	P1.03	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 3 OF 11)
167	P1.04	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 4 OF 11)
168	P1.05	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 5 OF 11)
169	P1.06	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 6 OF 11)
170	P1.07	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 7 OF 11)
171	P1.08	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 8 OF 11)
172	P1.09	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 9 OF 11)
173	P1.10	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 10 OF 11)
174	P1.11	DAIRY ASHFORD ROAD PAVING PLAN (SHEET 11 OF 11)
175	P1.12	COOK ROAD PAVING PLAN (SHEET 1 OF 4)
176	P1.13	COOK ROAD PAVING PLAN (SHEET 2 OF 4)
177	P1.14	COOK ROAD PAVING PLAN (SHEET 3 OF 4)
178	P1.15	COOK ROAD PAVING PLAN (SHEET 4 OF 4)
179	P2.01	PAVEMENT DETAILS (SHEET 1 OF 14)
180	P2.02	PAVEMENT DETAILS (SHEET 2 OF 14)
181	P2.03	PAVEMENT DETAILS (SHEET 3 OF 14)
182	P2.04	PAVEMENT DETAILS (SHEET 4 OF 14)
183	P2.05	PAVEMENT DETAILS (SHEET 5 OF 14)
184	P2.06	PAVEMENT DETAILS (SHEET 6 OF 14)
185	P2.07	PAVEMENT DETAILS (SHEET 7 OF 14)
186	P2.08	PAVEMENT DETAILS (SHEET 8 OF 14)
187	P2.09	PAVEMENT DETAILS (SHEET 9 OF 14)
188	P2.10	PAVEMENT DETAILS (SHEET 10 OF 14)
189	P2.11	PAVEMENT DETAILS (SHEET 11 OF 14)
190	P2.12	PAVEMENT DETAILS (SHEET 12 OF 14)
191	P2.13	PAVEMENT DETAILS (SHEET 13 OF 14)
192	P2.14	PAVEMENT DETAILS (SHEET 14 OF 14)

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DRAWING INDEX

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

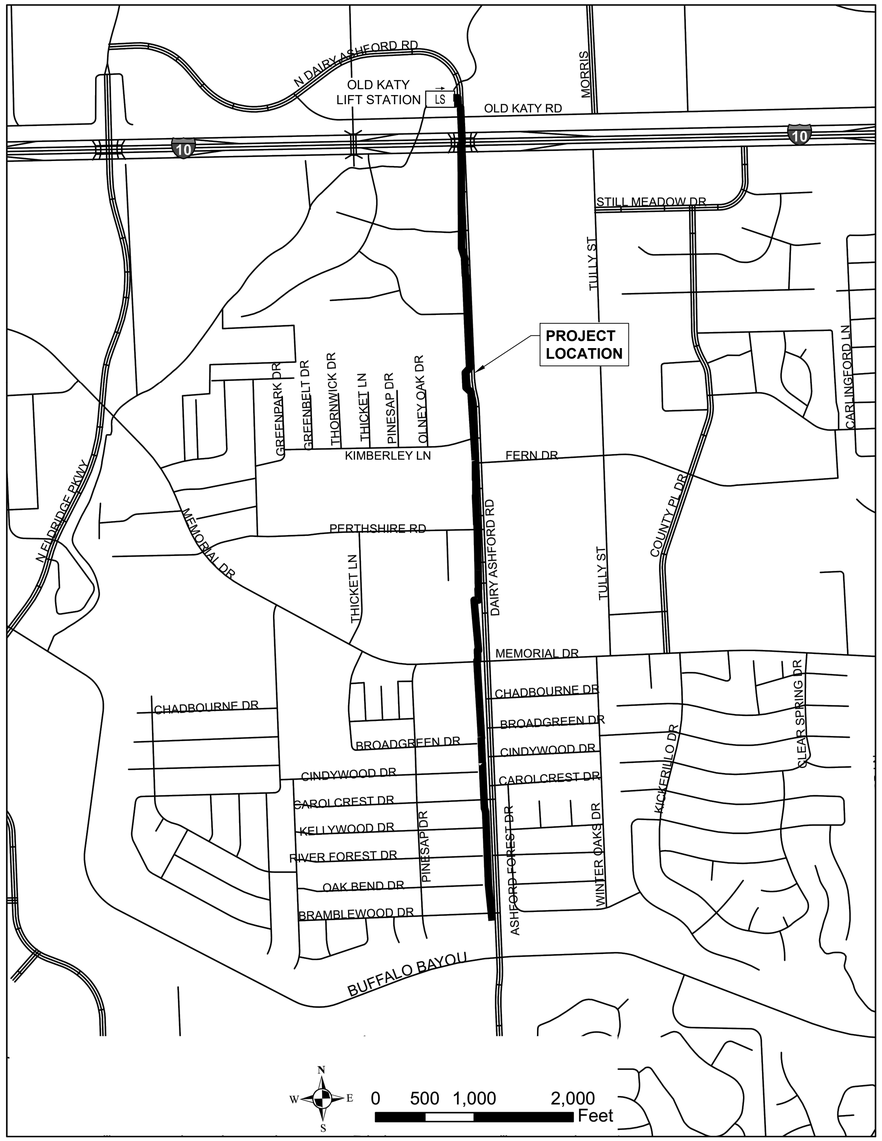
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: N.T.S.

SHEET NO. 2 OF 192

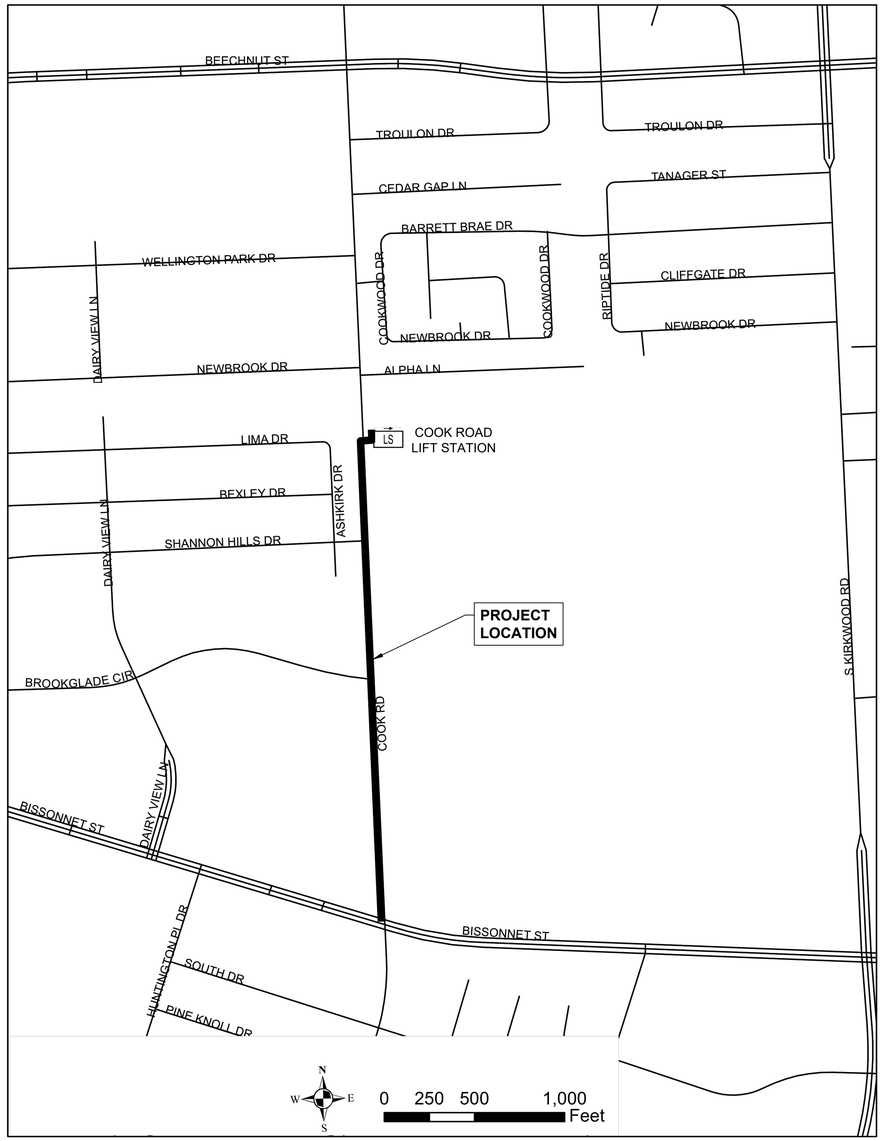
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FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-index.dwg



OLD KATY FORCE MAIN VICINITY MAP

KEY MAP NO. 488D, 488H
COUNCIL DISTRICT G



COOK ROAD FORCE MAIN VICINITY MAP

KEY MAP NO. 529N, 529S
COUNCIL DISTRICT F

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

VICINITY MAPS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

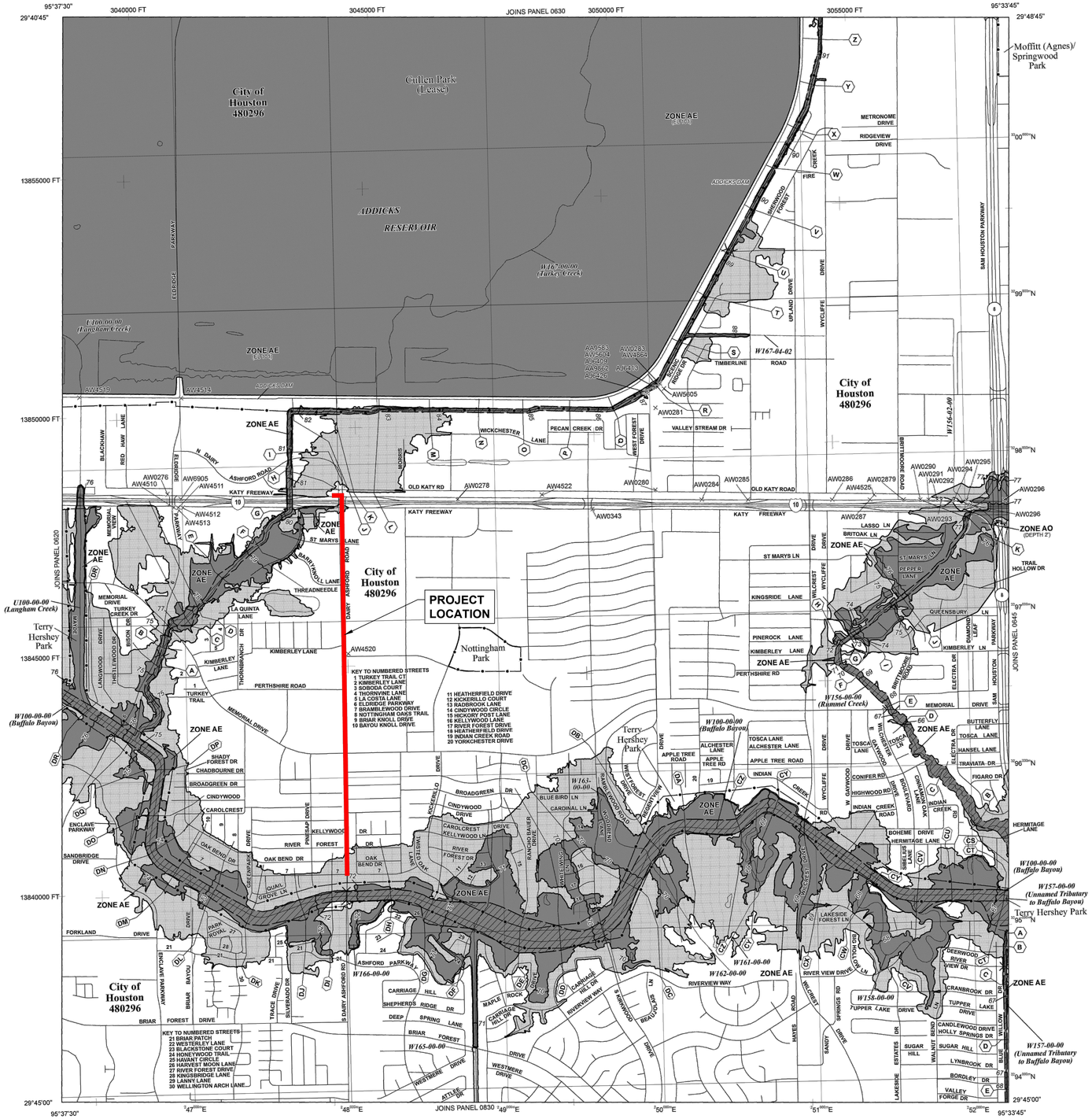
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

SHEET NO. 3 OF 192

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LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*
  * Referenced to the North American Vertical Datum of 1988
- Cross section Line
- Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 15N
- 600000 FT — 5000-foot grid values: Texas State Plane coordinate system, South Central zone (FIPSZONE 4204), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 28, 1990

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 30, 1992
NOVEMBER 6, 1996
APRIL 20, 2000
JUNE 18, 2007
NOVEMBER 15, 2019
FOR REASON OF REVISION
SEE NOTICE TO FLOOD INSURANCE USERS IN THE FIS REPORT

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0640M

FIRM
FLOOD INSURANCE RATE MAP

HARRIS COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 640 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HOUSTON, CITY OF	480296	0640	M

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48201C0640M

MAP REVISED
NOVEMBER 15, 2019

Federal Emergency Management Agency

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY
FEMA MAP

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

SHEET NO. 4 OF 192

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LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

ZONE A99 Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
- ~~~513~~~ Base Flood Elevation line and value; elevation in feet*
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- Cross Section Line
- Transect Line
- 97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276000M 1000-meter Universal Transverse Mercator grid values, zone 15
- 600000 FT 5000-foot grid ticks
- DX5510× Bench mark (see explanation in Notes to Users section of this FIRM panel).
- ● M1.5 River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
SEPTEMBER 28, 1990

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

SEPTEMBER 30, 1992
NOVEMBER 6, 1996
APRIL 20, 2000
JUNE 18, 2007: to change base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to reflect updated topographic information, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0840L

FIRM
FLOOD INSURANCE RATE MAP
HARRIS COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 840 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HOUSTON, CITY OF	480296	0840	L
HARRIS COUNTY, UNINCORPORATED AREAS	480287	0840	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48201C0840L

MAP REVISED:
JUNE 18, 2007

Federal Emergency Management Agency

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FEMA MAP

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

SHEET NO. 5 OF 192

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FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-cook Fema.dwg

GENERAL CONSTRUCTION NOTES

1. CONSTRUCT WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING IN ACCORDANCE WITH THE LATEST EDITION OF THE PUBLICATIONS STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING, AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS. WATER LINES, STORM DRAINAGE, AND STREET PAVING PUBLISHED BY HOUSTON PUBLIC WORKS.
2. THE GEOTECHNICAL INVESTIGATION FOR THIS PROJECT WAS CONDUCTED IN ACCORDANCE WITH CHAPTER 11 OF THE LATEST EDITION OF THE PUBLICATION INFRASTRUCTURE DESIGN MANUAL, PUBLISHED BY HOUSTON PUBLIC WORKS. SOILS REPORT WAS PREPARED BY AVILES ENGINEERING CORPORATION REPORT NO. _____.
3. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS BY WHATEVER MEANS NECESSARY (METAL DETECTION, PROBES, EXCAVATION, SURVEY, OTHERS) PRIOR TO EXCAVATION. FIELD VERIFICATION WORK AND UTILITY ADJUSTMENTS SHALL BE COMPLETED PRIOR TO EXCAVATION AND CONSTRUCTION OF PROPOSED UTILITIES. THE CONSTRUCTION DOCUMENTS WERE PREPARED FROM THE CITY'S RECORD DRAWINGS. THE ACCURACY OF THE EXISTING UTILITIES AND INFRASTRUCTURE SHOWN ON THESE DOCUMENTS IS NOT GUARANTEED, AND THE USE OF SUCH INFORMATION IN NO WAY RELIEVES THE CONTRACTOR OR OTHERS OF ANY RESPONSIBILITY FOR ANY LOSS DUE TO INACCURACIES. NO SEPARATE PAY ITEM.
4. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567/811 OR 800-344-8377 AND LONE STAR NOTIFICATION CENTER AT 800-669-8344 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION. UTILITIES MARKED WITHIN THE PUBLIC RIGHT OF WAY OR IN EASEMENTS SHALL COMPLY WITH TAC TITLE 16, PART 1, CHAPTER 18, RULE §18.6 AND THE AMERICAN PUBLIC WORKS ADMINISTRATION (APWA) UNIFORM COLOR CODE.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS, STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, AND STREET PAVING AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING, REFERENCED ABOVE, AT NO ADDITIONAL COST.
6. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING AND SHORING AS SPECIFIED IN CITY OF HOUSTON ORDINANCE NO. 87-1457.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SECURITY TO PROTECT HIS OWN PROPERTY, EQUIPMENT AND WORK IN PROGRESS AS DEFINED IN SECTION 01560.
8. CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, HOUSTON PUBLIC WORKS @ 832-394-9098 OR VIA FAX AT 832-395-4424 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
9. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
10. CONTRACTOR SHALL IDENTIFY AND OBTAIN ALL REQUIRED CONSTRUCTION PERMITS PRIOR TO COMMENCEMENT OF WORK.
11. CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS AND RECORD AS-BUILT CONDITIONS DURING CONSTRUCTION. THESE REDLINE MARKED UP DRAWINGS WILL BE SUBMITTED TO THE DESIGN CONSULTANT WHO WILL MAKE THE CHANGES ON THE ORIGINAL TRACINGS, LABEL EACH SHEET IN THE SET AS "RECORD DRAWINGS", AND RETURN IT TO THE OFFICE OF THE CITY ENGINEER.
12. CONTRACTOR SHALL SOD ALL AREAS DISTURBED AS A RESULT OF CONSTRUCTION OPERATIONS, IF APPLICABLE, THAT ARE NOT COVERED BY STRUCTURES OR PAVEMENT. TEMPORARY ROADWAYS SHALL BE REMOVED AT THE CONCLUSION OF THE PROJECT, AND SITE WILL BE RESTORED TO ITS ORIGINAL CONDITIONS.
13. THE CONTRACTOR SHALL PROVIDE TAPE, FITTINGS, PLUGS, AND OTHER DEVICES FOR USE IN FILLING, FLUSHING, TESTING, ETC. (NO SEPARATE PAY).
14. THE CONTRACTOR SHALL NOT OPERATE ANY EQUIPMENT OR HAVE ANY PERSONS WITHIN 10 FEET (VERTICAL AND HORIZONTAL) OF ELECTRICAL POWER LINES.
15. CONTRACTOR SHALL SCHEDULE WORK AS TO MINIMIZE NOISE DISTURBANCES TO RESIDENTS AND BUSINESSES. WORKING HOURS SHALL CONFORM TO ALL STANDARD CITY OF HOUSTON ORDINANCES. 7AM-7PM MONDAY-SATURDAY. NO WORK SHALL BE ALLOWED ON SUNDAY AND/OR CITY HOLIDAYS UNLESS WRITTEN APPROVAL IS AUTHORIZED BY CITY PROJECT MANAGER. WORK REQUIRING 24 HOUR/7 DAY BY CONTRACTOR SHALL REQUIRE WRITTEN APPROVAL BY CITY PROJECT MANAGER.
16. ALL CONSTRUCTION EQUIPMENT MUST BE SOUND ATTENUATED MEETING CITY OF HOUSTON NOISE AND SOUND LEVEL REGULATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM NOISE TEST BY A CERTIFIED TESTING AGENCY, OR CITY OF HOUSTON APPROVED METHOD, AND SUBMIT RESULTS TO CITY PROJECT MANAGER FOR REVIEW AND RECORD DOCUMENTATION. BETWEEN HOURS OF 7AM – 8PM, CONSTRUCTION SOUND MAY NOT EXCEED 85DB(A). MAXIMUM NIGHTTIME LEVEL IS 58DB(A) BETWEEN 8PM – 7AM.

EXISTING UTILITIES

1. UNDERGROUND UTILITIES EXIST IN THE VICINITY OF THIS PROJECT. WHILE EVERY EFFORT HAS BEEN MADE TO SHOW LOCATIONS FOR EXISTING UTILITIES, THEY ARE APPROXIMATE AND OTHER UTILITIES MAY EXIST IN THE VICINITY OF THIS PROJECT, WHICH ARE NOT SHOWN ON THESE PLANS. THE LOCATION AND GRADES OF EXISTING UTILITIES ARE BASED ON CITY AS-BUILT DRAWING INFORMATION.
2. COORDINATE WITH THE PROPER UTILITY COMPANY TO RELOCATE OR DIVERT ANY UTILITY IN CONFLICT WITH PROPOSED CONSTRUCTION SO AS NOT TO DISRUPT SERVICE OF SAME. RESTORE RELOCATED OR DIVERTED UTILITY TO ITS ORIGINAL CONDITION AND LOCATION UPON COMPLETION OF CONSTRUCTION.
3. MAINTAIN EXISTING WATER SERVICE AND SANITARY SEWER SERVICE WITHIN CONSTRUCTION AREA UNTIL CONSTRUCTION OF THE NEW SYSTEM IS COMPLETE.

WATER LINES

1. ALL UTILITIES PRESENT ON THESE DRAWINGS ARE SHOWN AT APPROXIMATE LOCATIONS BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL FIELD DETERMINE THE EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES CAUSED BY FAILURE TO LOCATE AND MAINTAIN THESE UNDERGROUND UTILITIES AT NO ADDITIONAL COST TO THE CITY OF HOUSTON.

STORM SEWER

1. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.
2. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF THE STORM WATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES, AS PREPARED BY HARRIS COUNTY, HCFCD AND THE CITY OF HOUSTON IN COMPLIANCE WITH NPDES REQUIREMENTS.

SANITARY SEWERS CONSTRUCTION NOTES

1. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC" AND ALL CURRENT AMENDMENTS THERETO AND BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 217, "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS" SHALL GOVERN WHERE CONFLICTS EXIST EXCEPT WHERE CITY REQUIREMENTS ARE MORE STRINGENT.
2. SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
4. SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" – 6" ABOVE THE SURROUNDING LEVEL FINISHED GRADE AFTER PAVING WITH SLOPED BACKFILL ADDED FOR STORM WATER TO DRAIN AWAY FROM MANHOLE RIM.
5. IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBER 02317-02.
6. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"
7. FOR SANITARY MANHOLE (MH) RIMS SET INSIDE OF OR @ CURB & GUTTER PAVEMENT AND/OR BELOW T.C., MH RIMS WILL BE SET FLUSHED WITH AN ABUTTING PAVED SURFACE. THE (VALCUN, NEENAH OR EQUAL) HEAVY DUTY BOLTED SOLID MH COVER SHALL BE PROPERLY (AND SECURELY) ATTACHED AND SEALED TO ITS COMPATIBLE GASKETED FRAME BY USING BOTH A NEOPRENE GASKET AND (AT LEAST) 4 COUNTER-SUNK HEX-HEAD COARSE THREADED ½"-13 UNC STAINLESS STEEL BOLTS. THE HEAVY DUTY FRAME MH COVER SHALL BE SOLID (NO AIR HOLES). SAID FRAME SHALL BE BOTH EMBEDDED INTO THE MH'S TOP ALSO SECURELY ANCHORED TO THE UNDERLYING MH STRUCTURE WITH EITHER SECURELY ATTACHED EMBEDDED ANCHOR BOLTS OR THE CONCRETE MH'S EXPOSED REBARS WELDED TO THE FRAME OR OTHER EQUALLY SECURED METHODS TO PREVENT MH COVER/FRAME BLOW-OFFS/EJECTIONS.

SWPPP CONSTRUCTION NOTES

1. CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES AND REINFORCED FILTER FABRIC BARRIER ALONG ROAD AND SIDE DITCHES AT LOCATIONS SHOWN ON THE TYPICAL STORM WATER POLLUTION PREVENTION (SWPP) PLANS TO KEEP SILT AND OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM WATER INLETS AND DITCHES EVENTUALLY POLLUTING THE RECEIVING STORM.
2. DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATION MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FROM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEPT BACK INTO THE EXCAVATED AREA.
3. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FORM THE EXCAVATED AREA.
4. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.
5. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
   - DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
   - AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
   - STRUCTURAL CONTROL MEASURES.
   - LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
6. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION ON BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 4:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.
7. REMOVE/REPLACE INLET PROTECTION BEFORE/AFTER A SEVERE RAIN EVENT PER REQUEST BY THE CITY OF HOUSTON.

STREET AND BRIDGE CONSTRUCTION NOTES

1. FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY PRIOR TO INSTALLATION OF WATER LINE AND FILL AREA SHALL BE SEEDED AND FERTILIZED WITHIN 10 WORKING DAYS.
2. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURBED INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.
3. CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.
4. EXISTING PAVEMENTS, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF HOUSTON STANDARDS, WITH LATEST ADDENDA AND AMENDMENTS THERETO.
5. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
6. EXPOSED 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BARS 24" LONG 24" C-C DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.
7. WHEEL CHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF HOUSTON STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST AND THE EXISTING CURB OR SIDEWALK IS DAMAGED OR REMOVED DURING CONSTRUCTION.
8. PRIOR TO STREET CONSTRUCTION, THE CONTRACTOR SHALL CONTACT HOUSTON PUBLIC WORKS AT (PHONE) 832-394-9578 AND COMPLY WITH ALL REQUIREMENTS FOR THE ISSUANCE OF NECESSARY PERMITS/WORK ORDERS FOR STREET CONSTRUCTION.
9. DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 6-INCHES OFFSET OF THE CENTERLINE OF ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00PM TO 7:00AM.
3. CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLAINT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO THE BUS STOP.
4. CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
5. CONTRACTOR SHALL SECURE ROADWAY/SIDEWALK/STREET/BICYCLE FACILITY PERMITS AS DESCRIBED IN CITY OF HOUSTON ORDINANCE, CHAPTER 40 – STREETS & SIDEWALKS, SECTION 40-361 FROM HOUSTON PERMITTING CENTER (MOBILITY PERMIT SECTION AT https://geohub.houstontx.gov) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN BUSINESS DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
6. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES
7. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAY, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE CITY OF HOUSTON.
8. ADDITIONAL OFF DUTY POLICE OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DIRECTION OF THE CITY EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.

NO.	DATE	REVISION	APP.
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A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

CONSTRUCTION NOTES

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: N.T.S.

SHEET NO. 6 OF 192

FOR CITY OF HOUSTON USE ONLY

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FILE PATH: C:\Users\p003339\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-connotes.dwg

PRIVATE UTILITY NOTES:

AT&T TEXAS/ SWBT FACILITIES

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT (713) 567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.
7. AT&T SHALL NOT REGARD CONSTRUCTIBILITY ISSUES AS CONFLICTS. THE EXCAVATING CONTRACTOR SHALL SUPPORT AT&T FACILITIES EXPOSED WITHIN THEIR TRENCH, WHICH ARE NOT IN DIRECT CONFLICT WITH ROADWAY OR OTHER IMPROVEMENTS.

CENTERPOINT ENERGY NOTES

CAUTION: UNDERGROUND GAS FACILITIES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
   - WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL 713-207-5463 OR 713-945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
   - WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
   - WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
   - FOR EMERGENCIES REGARDING GAS LINES CALL 713-659-3552 OR 713-207-4200
2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES:

1. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
   - ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
   - OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.
2. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT 713-207-2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

1. NO APPROVAL TO USE, CROSS, OR OCCUPY NO CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING AND RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769

METRO

1. THE CONTRACTOR SHALL CONTACT METRO AT 713-615-9195 TWO WEEKS PRIOR TO DISTURBING EXISTING BUS STOPS.
2. CONTRACTOR SHALL COORDINATE WITH METRO TO REMOVE EXISTING AMENITIES.
3. BUS STOPS SHALL BE CONSTRUCTED PER CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL AND MEET CURRENT ADA REQUIREMENTS.

COMCAST NOTES

1. THE LOCATIONS OF COMCAST CABLE FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT BE OCCASIONED BY ITS FAILURE TO EXACTLY LOCATE AND PRESERVE THE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL TEXAS ONE-CALL AT 1-800-245-4545 AND COMCAST A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND UTILITIES FIELD LOCATED. THE LIST OF CONTACTS FOR COMCAST IS PROVIDED BELOW:

   LEONARDO CAFFERA
   713-545-8932

   ALI AHMED
   281-757-6711

3. WHEN EXCAVATING WITHIN 18-INCHES OF THE INDICATED LOCATION OF COMCAST CABLE FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
4. WHEN COMCAST FACILITIES ARE EXPOSED, CONTRACTOR SHALL PROVIDE SUPPORT TO PREVENT DAMAGE TO CONDUIT DUCTS OR CABLES.

TxDOT SPECIAL PROVISIONS

1. THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) IS NOT A MEMBER OF 811. AT LEAST 72 HOURS BEFORE STARTING WORK, MAKE ARRANGEMENTS FOR LOCATING EXISTING TXDOT-OWNED ABOVE GROUND AND UNDERGROUND FIBER OPTIC, COMMUNICATIONS, POWER, ILLUMINATION, AND TRAFFIC SIGNAL CABLING AND CONDUIT. DO THIS BY CALLING TXDOT'S HOUSTON DISTRICT TRAFFIC SIGNAL OPERATIONS OFFICE AT 713-802-5662 TO SCHEDULE MARKING OF UNDERGROUND LINES ON THE GROUND. USE CAUTION IF WORKING IN THESE AREAS TO AVOID DAMAGING OR INTERFERING WITH EXISTING FACILITIES.
2. NO DISCHARGES, SUCH AS EFFLUENT, PRODUCED GROUNDWATER, OR CHLORINATED FLUSH WATER, MAY BE DRAINED INTO STATE HIGHWAY STORM SEWER INFRASTRUCTURE, WITHOUT THE APPROVAL OF A SEPARATE AGREEMENT. CONTACT THE TXDOT HOUSTON DISTRICT PERMITS OFFICE AT (713) 802-5553, -5512, OR -5575 FOR ADDITIONAL INFORMATION. IN ADDITION, THE GRANTEE CERTIFIES THAT ITS STORM WATER RUNOFF TO THE STATE'S RIGHT-OF-WAY SHALL NOT BE CONTAMINATED BY ANY INDUSTRIAL PROCESSES OR SIGNIFICANT POLLUTANTS, AND THE STATE SHALL NOT BE HELD LIABLE FOR ANY POLLUTANTS ENTERING STATE RIGHT-OF-WAY THROUGH STORM WATER CONNECTIONS.
3. ALL EXCAVATIONS WITHIN THE RIGHT-OF-WAY SHALL BE BACKFILLED ACCORDING TO THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES, ITEM 400, AS CURRENTLY AMENDED. ALL BACKFILL SHALL BE COMPACTED TO DENSITIES EQUAL TO THAT OF SURROUNDING SOIL. ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY, AND THE EXCAVATION FINISHED FLUSH WITH SURROUNDING NATURAL GROUND. ALL EXPOSED DIRT SURFACES SHALL BE SODDED, UNLESS OTHERWISE APPROVED BY THE TXDOT AREA ENGINEER. A SLOPE OF 4:1, OR FLATTER, SHALL BE REQUIRED ON THE DITCH FRONT SLOPE.
4. ENCASEMENT SHALL BE STEEL AND SHALL EXTEND PAST THE TOP OF BACK SLOPE OF THE OUTERMOST DITCHES, OR FIVE FEET BEYOND THE BACK OF CURB.
5. HIGHWAY CROSSINGS SHALL BE BORED OR TUNNELED. ANNULAR VOIDS BETWEEN THE BORE HOLE OR TUNNEL, AND THE CARRIER LINE OR ENCASEMENT, SHALL BE FILLED WITH A SLURRY GROUT OR FLOW-ABLE FILL, TO PREVENT SETTLEMENT OF ANY PART OF THE HIGHWAY.
6. FLUIDS USED IN CONNECTION WITH BORING OPERATIONS SHALL ONLY BE ALLOWED IN SUFFICIENT QUANTITY TO LUBRICATE BORING PITS, OR TO PROVIDE A SMOOTH FLOW OF CUTTINGS. JETTING WILL NOT BE ALLOWED.
7. ALL MANHOLE COVERS SHALL BE INSTALLED FLUSH WITH GROUND LEVEL.
8. THE CONTRACTOR OR SUB-CONTRACTOR IS REQUIRED TO CONTACT THE TXDOT MAINTENANCE SUPERVISOR A MINIMUM OF 72 HOURS PRIOR TO COMMENCING ANY WORK.

TXDOT MAINTENANCE SUPERVISORS	OFFICE PHONE
HARRIS COUNTY, WEST	(713) 934-5900
TRAFFIC SIGNAL OPERATIONS	(713) 866-7101

STANDARD HCFCD NOTES FOR PLANS

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AND APPROVALS, WITH ASSISTANCE FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.
2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S DEVELOPMENT COORDINATION AND INSPECTION DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS OF ENGINEERS INDIVIDUAL SECTION 404 PERMIT OR COMPLIANCE WITH NATIONWIDE PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON, TEXAS 77092, ATTN: DEVELOPMENT COORDINATION AND INSPECTION DEPT. BY HAND DELIVERY, BY EMAIL DCID@HCFCD.HCTX.NET, OR FAX TO 713-684-4129 (FAX NUMBER).
3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S DEVELOPMENT COORDINATION AND INSPECTION SECTION REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE STAKED AND FLAGGED.
4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.
5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4".
7. PERFORM ALL ACTIVITIES WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY IN ACCORDANCE WITH THE MOST RECENT HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATIONS BOOK.
8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.
9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION.
10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILL IS TO BE PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY REQUIRES: SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

1.) HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT)
2.) HCFCD 48-HR PRE-CONSTRUCTION NOTICE

BOTH ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. THE HCFCD RIGHT-OF-WAY NOTIFICATION AND 48-HOUR NOTICE MUST BE PROVIDED TO HCFCD AT DCID@HCFCD.HCTX.NET.

TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO HTTP://APPS.HARRISCOUNTYTX.GOV/EPERMITS AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

FAILURE TO PROVIDE BOTH ITEMS COULD RESULT IN PROJECT DELAYS.

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A	10/7/24	60% SUBMITTAL	MS

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

GENERAL NOTES

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: N.T.S.

SHEET NO. 7 OF 192

FOR CITY OF HOUSTON USE ONLY

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1. PROPERTY DESCRIPTION

I. LOCATION INFORMATION

A. HARRIS COUNTY COMMISSIONER'S PRECINCT:
☐ 1 ☐ 2 ☐ 3 ☐ 4

B. KEY MAP: _____

C. ADDRESS: _____

II. LEGAL DESCRIPTION

A. ACREAGE: _____

B. ☐ SUBDIVISION: _____

☐ SURVEY & ABSTRACT: _____

C. ADJACENT ROADS: _____

III. PLATTING

A. SUBDIVISION PLAT
☐ PROPOSED PLAT / REPLAT
☐ RECORDED PLAT / REPLAT

PLAT NAME: _____

B. STREETS PROPOSED
☐ PUBLIC
☐ PRIVATE
☐ PUBLIC & PRIVATE
☐ NONE

IV. JURISDICTIONS

☐ CITY OF _____
☐ ETJ, CITY OF HOUSTON
☐ ETJ, CITY OF _____
☐ NO ETJ
☐ UTILITY DISTRICT (NAME)_____

V. HCAD ACCOUNT NOS. (ALL)

_____

_____

_____

2. SITE DETENTION DRAINAGE

I. PROPOSED DRAINAGE AREA

☐ NEW DEVELOPMENT AREA: _____
☐ RE-DEVELOPMENT AREA (AMOUNT INCREASED IMPERVIOUS AREA): _____
☐ LOW IMPACT DEVELOPMENT (LID)
METHOD/DESCRIPTION _____

II. METHODOLOGY

HCFCD PCPM DETENTION METHOD USED:
☐ METHOD 1 (LESS THAN 20 ACRES)
☐ METHOD 2 (20 ACRES TO 640 ACRES)
☐ METHOD 3 (GREATER THAN 640 ACRES)
☐ OTHER _____

III. DETENTION VOLUME & OUTFALL

OUTFALL TO:
☐ .65, H.C.F.C.D. CHANNEL, (H.C.F.C.D. UNIT NO.) _____
☐ .75, EXISTING STORM SEWER (OWNER & OPERATOR) _____
☐ 1.00, ROADSIDE DITCH, (OWNER & ROAD NAME) _____
☐ OTHER (OWNER & OPERATOR) _____

IV. STORMWATER DETENTION BASIN INFORMATION

A. HCFCD PCPM SUMMARY TABLE SEE SHEET _____ OF THESE PLANS.

DETENTION BASIN SERVICE AREA		acres	
STORM EVENT	50% EXCEEDANCE (2-YEAR)	10% EXCEEDANCE (10-YEAR)	1% EXCEEDANCE (100-YEAR)
MAXIMUM ALLOWABLE OUTFLOW (PRE-DEVELOPMENT PEAK FLOW)			
MAXIMUM OUTFLOW PROVIDED (PEAK FLOW FROM BASIN)			
LOWEST NATURAL/FINISHED GROUND OR FINISHED FLOOR ELEVATION ESTIMATE			
DESIGN WATER SURFACE ELEVATION			
MINIMUM STORAGE REQUIRED (ac-ft)			
DETENTION STORAGE PROVIDED (ac-ft)			
STORAGE RATE PROVIDED (ac-ft/ac)			
OUTFLOW VELOCITY INTO CHANNEL (ft/sec)			
DRAIN TIME – 1% ONLY (hours)			
EMERGENCY OVERFLOW (TYPE, SIZE, ELEVATION, ETC.)			

B. DETENTION BASIN TO BE MAINTAINED BY _____

C. DETENTION SERVICE AREA MAP ON SHEET _____

D. ADDITIONAL CRITERIA FOR PUMPED DETENTION BASINS
VOLUME OF PUMPED 1% EXCEEDANCE STORAGE VOLUME = _____ ACFT _____ % OF TOTAL VOLUME
MAXIMUM DESIGN OUTFLOW VELOCITY INTO HCFCD CHANNEL = _____ FT/SEC
DRAIN TIME FOR BASIN = _____ HOURS BASED ON _____HEAD CONDITIONS

V. DETENTION PROVIDED IN OTHER PLANS:

HCFCD PROJECT No. _____ DATE SIGNED BY HCFCD: _____
PLAN TITLE _____
DETENTION POND SERVICE AREA MAP IS PROVIDED ON SHEET _____
ENGINEERING FIRM _____
DETENTION BASIN MAINTAINED BY: _____

VI. FLOW RESTRICTOR SIZE

OUTFALL PIPE SIZE: _____
RESTRICTOR PIPE SIZE: _____
RESTRICTOR PLATE DIMENSION: _____

VII. DETENTION PROVIDED BY

☐ REGIONAL DETENTION BASIN SYSTEM (APPROVED H.C. PRJ NO.): _____

FOR PROJECTS LOCATED IN ANY FLOODPLAIN

Development constructed or placed in accordance with these plans will comply with all provisions of the designated Floodplain Administrator.

No net fill is allowed in the flood plain and no fill is allowed in the floodway.

OFFSITE SHEET FLOW: (100 YEAR)

OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMODATIONS ARE SHOWN ON SHEET ____ OR, AS PRESENTED IN THE APPROVED DRAINAGE STUDY ENTITLED _____.

TOTAL ACREAGE = ____
TOTAL DISCHARGE = ____

NOTE: ALL OFFSITE SHEET FLOW FROM ADJACENT PROPERTIES MUST BE IDENTIFIED AND PROPERLY ACCOUNTED FOR IN THE PROJECT. THE SIGNING ENGINEER HEREBY CERTIFIES THAT THESE AREAS HAVE BEEN ADDRESSED.

3. SWQ DISCHARGE INTO FCD FACILITY

I. SWPPP: CONSTRUCTION MEASURES. (Must complete)

☐ DISTURBS >1AC. SITE PLAN & DETAILS ON SHEET(S) _____

☒ DISTURBS <1AC. N/A

*II. APPLICABILITY FOR PERMANENT FEATURES. (Must complete)

EXEMPT NEW DEVELOPMENT:
☐ PROJECT IS ON A PARCEL (A COMMON PLAN OF DEVELOPMENT) LESS THAN 5 ACRES. (Must be verified with plat)

EXEMPT REDEVELOPMENT:
☒ PROJECT DOES NOT MEET THE DEFINITION OF SIGNIFICANT REDEVELOPMENT (Part A,Sec. 2.39 of Regulations of Harris County, Texas for Stormwater Quality Management)

EXEMPT GRANDFATHERED:
☐ PROJECT'S DRAINAGE TIES DIRECTLY INTO AN EXISTING DRAINAGE SYSTEM PRIOR TO OCTOBER 1, 2001.
(FOR VERIFICATION: PROVIDE ORIGINAL DRAINAGE AREA MAP INCLUDING CALCULATIONS)

GENERAL:
☒ PROJECT'S SWQ REQUIREMENTS FALL WITHIN THE JURISDICTION OF:
CITY OF HOUSTON
☐ STORMWATER QUALITY PERMIT REQUIREMENT IS COVERED BY AN EXISTING SWQMP WITHIN PROJECT TITLE:

_____

HARRIS COUNTY PROJECT No _____ & SWQ PERMIT No.

STORMWATER QUALITY MANAGEMENT PLAN:
☒ SITE PLAN ON SHEET(S) DRAWINGS SWP1.01, SWP2.01, SWP2.02 (SHEETS 64-66 OF 134)

III. PERMANENT SWQ FEATURES. (COMPLETE IF NOT EXEMPT)

☐ VEGETATIVE CONTROLS USED: (FILTER STRIP, GRASSY SWALE, URBAN FORESTRY DETAILS AND CALCULATIONS APPEAR ON SHEET(S) _____
☐ POND STRUCTURE USED (WET, DRY, WETLANDS) DETAILS AND CALCULATIONSAPPEAR ON SHEET(S)_____
☐ HYDRODYNAMIC TYPE SEPARATOR MODEL: _____
☐ OTHER(S): _____

4. FLOOD PLAIN STATUS

I. GENERAL INFORMATION

FIRM PANEL(S) FOR PROPERTY: 48201C0640M
FIRM PANEL(S) DATE: NOVEMBER 15, 2019

STATUS OF PROPERTY ON MAP
☐ ENTIRELY LOCATED IN UNSHADED ZONE "X"
☒ LOCATED PARTIALLY OR ENTIRELY IN ANY "A" ZONE OR SHADED ZONE "X". DELINEATE FLOODPLAIN BOUNDARY ON CONSTRUCTION DRAWINGS (SHEETS 24-25)
(DRAINAGE LAYOUT PG. NO._____) (1% BASE FLOOD LEVEL 72)
(0.2% BASE FLOOD LEVEL_____)

☐ SITE REMOVED FROM FLOODPLAIN BY LOMR, LOMR-F, LOMA
CASE NO._____ REVISED FLOODPLAIN IS SHOWN ON SHEET____

ELEVATION INFORMATION
BENCHMARK USED
☐ HARRIS COUNTY FLOODPLAIN REFERENCE MARK
☐ HARRIS-GALVESTON COASTAL SUBSIDENCE DISTRICT BENCHMARK (FOR COASTAL AREAS)
DESCRIPTION OF BENCHMARK INCLUDING ELEVATION, DATUM AND YEAR OF ADJUSTMENT *(2001 ADJ.)* _____

II. FLOOD PLAIN DETERMINATION BASED ON GROUND ELEVATION

☐ PROPERTY LIES ENTIRELY ABOVE THE BASE FLOOD LEVEL AND IN SHADED ZONE "X"
☒ PROPERTY LIES PARTIALLY OR ENTIRELY BELOW THE BASE FLOOD LEVEL

III. FLOODPLAIN STORAGE SUMMARY

(APPLIES ONLY TO PORTION OF LAND LOCATED WITHIN FEMA REGULATORY FLOODPLAIN).

A. TOTAL VOLUME OF MATERIAL PROPOSED TO BE MOVED OR PLACED WITHIN THE FIRM DELINEATED FLOODPLAIN (FILL, BASE, CONCRETE, ASPHALT, ETC.):
BELOW 0.2% BASE FLOOD ELEVATION (2001 ADJ.) 0 CUBIC YARDS _____

B. TOTAL VOLUME OF MATERIAL PROPOSED TO BE REMOVED FROM THE FIRM DELINEATED FLOODPLAIN:
BELOW 0.2% BASE FLOOD ELEVATION (2001 ADJ.) 0 CUBIC YARDS _____
INCLUDING CALCULATIONS)

C. FILL AREA & VOLUME CALCULATIONS ARE SHOWN ON SHEET N/A

5. WORK IN HCFCD RIGHT-OF-WAY

I. TYPE OF WORK TO BE PERFORMED IN HCFCD HCFCD ROW

A. BOND/NOTIFICATION INFORMATION
☒ HCFCD WATERSHED BUFFALO BAYOU
☒ HCFCD UNIT No. W-100-00-00
☐ NUMBER OF OUTFALLS _____
☐ UTILITY CROSSING
☐ ROADWAY BRIDGE/CULVERT CROSSING
☐ FILL ACTIVITY
☐ REHABILITATION OF CHANNEL
☐ MAINTENANCE
☐ TEMPORARY CROSSING
☐ TRAIL (LENGTH) CONSTRUCTION OF 25 LF OF SANITARY SEWER PIPING.
☒ OTHER ABANDONMENT OF FORCE MAIN.
COST OF WORK IN HCFCD ROW $150,000

II. USACE ENVIRONMENTAL PERMIT

☐ US ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER(S) _____
☐ US ARMY CORPS OF ENGINEERS INDIVIDUAL PERMITS
☐ OTHER
☒ NO PERMITS REQUIRED
EXPLAIN:
PROJECT DOES NOT INCLUDE WORK IN AREAS WITHIN US ARMY CORPS OF ENGINEERS JURISDICTION

III. REFERENCE / BASIS OF DETERMINATION

N/A - NO WORK IN A HCFCD CHANNEL WILL BE PERFORMED

☐ ENVIRONMENTAL CONSULTANT REPORT
BY _____
REPORT TITLE _____
REPORT DATE _____
☐ OTHER _____

NOTES:
I. – III. REQUIRED ON PROJECTS WITH WORK IN A HCFCD CHANNEL. PLEASE REFERENCE SECTION 17 OF THE FLOOD CONTROL DISTRICT POLICY, CRITERIA, AND PROCEDURE MANUAL FOR MORE INFORMATION.

IV. HCFCD STANDARD NOTES: SEE SHEET 7 OF 192 OF THESE PLANS.

V. HCFCD STANDARD DETAILS: SEE SHEET N/A OF THESE PLANS.

VI. HCFCD ACCESS PLAN: SEE SHEET N/A OF THESE PLANS.

VII. REFER TO THE FOLLOWING PLAN SHEETS: DWG. C1.03 (SHEET 24 OF 134)
FOR EXISTING AND PROPOSED RIGHT(S) OF WAY INCLUDING DELINEATION AND RECORDING INFORMATION PER HCFCD POLICY, CRITERIA, & PROCEDURE MANUAL (i.e., DRAINAGE EASEMENT, FEE STRIP, ETC.) AND GRANTEE (e.g. COH, HCFCD, PUBLIC, TXDOT, ETC.)

6. REPORTS/AGREEMENTS

I. HCFCD ACCEPTED REPORTS (ALL)

STORMWATER DRAINAGE DESIGN REPORT

REPORT TITLE _____
HCFCD PROJECT # _____
ENGINEERING FIRM _____
REPORT ACCEPTANCE DATE _____

GEOTECHNICAL INVESTIGATION REPORT

REPORT TITLE _____
HCFCD PROJECT # _____
ENGINEERING FIRM _____
REPORT ACCEPTANCE DATE _____

HCFCD APPROVED VARIANCE

DESCRIPTION OF VARIANCE ABANDON EXISTING SIPHON IN PLACE
DOCUMENT ID # W12712
VARIANCE ACCEPTANCE DATE 10/15/2021

II. AGREEMENT TYPE & No.;

☐ INTERLOCAL (ILA): _____
☐ HCFCD MAINTENANCE _____
☐ TURF ESTABLISHMENT _____
☐ OTHER _____

HCFCD SIGNATURE BLOCK

PROJECT NAME: FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

ADDRESS: 12502 OLD KATY ROAD, HOUSTON, TX 77079

WAS ACCEPTED BY HARRIS COUNTY FLOOD CONTROL DISTRICT FOR THE PURPOSES LISTED BELOW:

HARRIS COUNTY FLOOD CONTROL DISTRICT

INTERPOSE NO OBJECTION

BY _____ OF HCFCD RIGHT-OF-WAY

E _____ FOR ITEMS LOCATED WITHIN EXISTING HCFCD RIGHT-OF-WAY

Michael P. Mo 2025.02.06 16:23:52-06'00' PMM

APPROVED:

BY _____ FOR ITEMS LOCATED WITHIN PROPOSED HCFCD RIGHT-OF-WAY

NO REVIEW REQUIRED:

BY _____ FINAL PERMITTING BY OTHERS

ADDITIONAL COMMENTS:

_____

_____

_____

_____

_____

THE PROJECT WAS REVIEWED, HOWEVER, THIS DOES NOT MEAN THE ENTIRE PROJECT, INCLUDING ALL SUPPORTING DATA AND CALCULATIONS HAVE BEEN COMPLETELY CHECKED AND VERIFIED. THESE DRAWINGS ARE SIGNED, DATED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS, WHICH THEREFORE CONVEYS THE ENGINEER'S RESPONSIBILITY AND ACCOUNTABILITY. THIS DOES NOT RELIEVE ANY PARTY FROM COMPLYING WITH APPROPRIATE FEDERAL, STATE AND LOCAL ENVIRONMENTAL RULES, LAWS, AND REGULATIONS AND ANY OTHER LEGALLY ADOPTED REGULATION OR ORDINANCE RELATED TO LAND DEVELOPMENT. IF THE CITY SIGNATURES ARE REQUIRED BY ORDINANCE, COUNTY PERMITS WILL NOT BE ISSUED UNTIL SUCH SIGNATURES ARE OBTAINED. PLAN APPROVAL EXPIRATION TO BE IN ACCORDANCE WITH LOCAL GOVERNEMENT CODE CH. 245.

ENGINEER'S CERTIFICATION

I, MONICA SUAREZ , A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THE INFORMATION PRESENTED ON THIS SHEET IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT I AM NOT VIOLATING ANY PROVISION OF THE CURRENT TEXAS ENGINEERING PRACTICE ACT AND RULES CONCERNING THE PRACTICE OF ENGINEERING AND PROFESSIONAL ENGINEERING LICENSURE.

ANY VIOLATIONS WILL BE FORWARDED TO THE HARRIS COUNTY DISTRICT ATTORNEY'S OFFICE FOR PROSECUTION.

THE COMPLETED PROJECT CONSISTS OF DRAWING SHEETS 1 THRU 192 .

SIGNATURE _____ 1/20/2025 DATE

SEAL: STATE OF TEXAS · MONICA PATRICIA SUAREZ · 99458 · LICENSED PROFESSIONAL ENGINEER

REVISIONS

NOTE: REVISION BLOCK IS TO BE USED ONLY FOR CHANGES MADE AFTER PLANS HAVE BEEN APPROVED BY HARRIS COUNTY FLOOD CONTROL.

DATE	SHEET NO.	DESCRIPTION	P.E. INITIAL	H.C.F.C.D APPROVED DATE

HARRIS COUNTY FLOOD CONTROL PROJECT NO.

SHEET NUMBER 8 OF 192

HARRIS COUNTY
FLOOD CONTROL DISTRICT
REVIEW SHEET

VERSION 1.0 OCTOBER 2019

ABBREVIATIONS:

&	AND
@	AT
AB	ALL BELL
AC	ACRE / ASBESTOS CEMENT
AI/VR	AIR INLET / VACUUM RELIEF
APPROX	APPROXIMATELY
ASPH	ASPHALT
AVE	AVENUE
℄	BASELINE
B/B	BACK TO BACK
BC	BACK OF CURB
BFV	BUTTERFLY VALVE
BL	BUILDING LINE
BLDG	BUILDING
BLVD	BOULEVARD
℄	CENTER LINE
C/C	CENTER TO CENTER
CGMP	CORRUGATED GALVANIZED METAL PIPE
CMP	CORRUGATED METAL PIPE
CIP	CAST IRON PIPE
CLR	CLEARANCE
CO	CLEAN OUT
COH	CITY OF HOUSTON
CONC	CONCRETE
CONSTR	CONSTRUCTION
CPEE	CENTERPOINT ENERGY ELECTRIC
CPEG	CENTERPOINT ENERGY GAS
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DWG	DRAWING
DWY	DRIVEWAY
E	EAST
EL	ELEVATION
EP	EDGE OF PAVEMENT
E/R	END OF RADIUS
ESMT	EASEMENT
EXST	EXISTING
FC	FACE OF CURB
F/F	FACE TO FACE
FH	FIRE HYDRANT
℄	FLOW LINE
FM	FORCE MAIN
FT	FEET
GPS	GLOBAL POSITIONING SYSTEM
GV	GATE VALVE
GV&B	GATE VALVE AND BOX
HCFCD	HARRIS COUNTY FLOOD CONTROL DISTRICT
HDPE	HIGH-DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
HP	HIGH PRESSURE
INV EL	INVERT ELEVATION
IP	INTERMEDIATE PRESSURE
IR	IRON ROD

ABBREVIATIONS:

J-BOX	JUNCTION BOX
JT	JOINT
JUNCT	JUNCTION
LF	LINEAR FEET
LN	LANE
LPT	LOW POINT
LT	LEFT
LS	LIFT STATION
MAX	MAXIMUM
METRO	METROPOLITAN TRANSIT AUTHORITY
MH	MANHOLE
MIN	MINIMUM
MON	MONUMENT
N	NORTH
NA	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NG	NATURAL GROUND
NO	NUMBER
NTS	NOT TO SCALE
OCC	ZERO CURB CUT
OS	OFFSET
OH	OVERHEAD
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PNT	POINT
PPCA	POTENTIALLY PETROLEUM CONTAMINATED AREA
PRC	POINT OF REVERSE
PROP	PROPOSED
PSI	POUND PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE / POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY

ABBREVIATIONS:

(R)	RECORD DRAWING
R	RADIUS
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REINF	REINFORCED
REM	REMOVABLE
RJ	RESTRAINED JOINT
ROW	RIGHT OF WAY
RR	RAILROAD
RRPM	REFLECTIVE REMOVABLE PAVEMENT MARKERS
RT	RIGHT
S	SOUTH
SAN	SANITARY
SCHED	SCHEDULE
SF	SQUARE FEET
SHT	SHEET
SSE	SANITARY SEWER EASEMENT
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STM	STORM
SWBT	SOUTHWESTERN BELL TELEPHONE
SWR	SEWER
SY	SQUARE YARD
TAN	TANGENT
TBM	TEMPORARY BENCHMARK
TEMP	TEMPORARY
TOB	TOP OF BANK
TOC	TOP OF CURB
TOP	TOP OF PAVEMENT
TOS	TOP OF STACK
TS&V	TAPPING SLEEVE AND VALVE
TXDOT	TEXAS DEPARTMENT OF TRANSPORTATION
TYP	TYPICAL
UE	UTILITY EASEMENT
UGND	UNDERGROUND
VC	VERTICAL CURVE
VPI	VERTICAL POINT OF INTERSECTION
W	WEST
W/	WITH
WL	WATER LINE
WLE	WATER LINE EASEMENT
WM	WATER METER
WP	WOOD POLE
WSEL	WATER SURFACE ELEVATION
WV	WATER VALVE
WWTP	WASTE WATER TREATMENT PLANT

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

ABBREVIATIONS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: N.T.S.

SHEET NO. 9 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-abbreviations.dwg

EXISTING PLAN VIEW

- WATER METER
- WATER VALVE (GATE)
- WATER VALVE (BUTTERFLY)
- FIRE HYDRANT/FLUSHING VALVE
- TAPPING SLEEVE & VALVE
- REDUCER
- ROUND CONNECTION
- SANITARY SEWER CLEANOUT & MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER INLETS
- CULVERT PIPE AND HEADWALL
- TOP OF CURB ELEVATION
- GUTTER ELEVATION
- TOP OF PAVEMENT ELEVATION
- CONTOUR LINE
- ROW LINE
- PROPERTY LINE
- LOT LINES
- EASEMENT LINE
- CENTER LINE OF ROW
- TRANSIT LINE
- EDGE OF DITCHES
- CENTER LINE OF DITCHES
- EDGE OF DITCHES
- FENCE LINE, WOOD
- FENCE LINE, CHAIN LINK
- FENCE LINE, BARBED WIRE
- FENCE LINE, HOG WIRE
- EDGE OF CONCRETE
- CURB LINE
- CONCRETE WALK
- EDGE OF ASPHALT
- EDGE OF SHELL OR GRAVEL
- DIMENSION LINE
- AERIAL POWER LINE
- UNDERGROUND POWER LINE
- GAS LINE
- UNKNOWN UNDERGROUND LINE
- OIL PIPELINE
- UNDERGROUND TELECOMM LINE W/VAULT
- AERIAL TELECOMM LINE
- RAILROAD LINE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON–POTABLE WATER LINE
- GAS METER
- GAS VALVE
- PROPANE LINE
- STEAM LINE
- MISC UNDERGROUND PIPELINE LABLE

PROPOSED PLAN VIEW

- WATER METER
- WATER VALVE (GATE)
- WATER VALVE (BUTTERFLY)
- FIRE HYDRANT/FLUSHING VALVE
- TAPPING SLEEVE & VALVE
- REDUCER
- ROUND CONNECTION
- SANITARY SEWER CLEANOUT & MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER INLETS
- CULVERT PIPE AND HEADWALL
- TOP OF CURB ELEVATION
- GUTTER ELEVATION
- TOP OF PAVEMENT ELEVATION
- CONTOUR LINE
- ROW LINE
- PROPERTY LINE
- LOT LINES
- EASEMENT LINE
- CENTER LINE OF ROW
- TRANSIT LINE
- EDGE OF DITCHES
- CENTER LINE OF DITCHES
- EDGE OF DITCHES
- FENCE LINE, WOOD
- FENCE LINE, CHAIN LINK
- FENCE LINE, BARBED WIRE
- FENCE LINE, HOG WIRE
- EDGE OF CONCRETE
- CURB LINE
- CONCRETE WALK
- EDGE OF ASPHALT
- EDGE OF SHELL OR GRAVEL
- DIMENSION LINE
- AERIAL POWER LINE
- UNDERGROUND POWER LINE
- GAS LINE
- UNKNOWN UNDERGROUND LINE
- OIL PIPELINE
- UNDERGROUND TELCOMM LINE W/ VAULT
- AERIAL TELECOMM LINE
- RAILROAD LINE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON–POTABLE WATER LINE
- GAS METER
- GAS VALVE
- PROPANE LINE
- STEAM LINE
- MISC UNDERGROUND PIPELINE LABLE
- MATCH LINE

EXISTING PLAN VIEW

- PAVING HEADER
- BUILDING, RESIDENTIAL
- BUILDING, COMMERCIAL
- TREE
- HEDGE
- IRON PIPE OR IRON ROD MONUMENT
- POINT OF INTERSECTION (PI)
- POINT OF CURVE (PC)
- POINT OF TANGENCY (PT)
- POWER POLE
- POWER POLE W/DOWN GUY

EXISTING PROFILE VIEW

- NORTH OR EAST PROPERTY LINE
- SOUTH OR WEST PROPERTY LINE
- NORTH OR EAST CURB
- SOUTH OR WEST CURB
- NORTH OR EAST DITCH
- SOUTH OR WEST DITCH
- NORTH OR EAST NATURAL GROUND
- SOUTH OR WEST NATURAL GROUND
- NORTH OR EAST CULVERT
- SOUTH OR WEST CULVERT
- CENTERLINE OF ROW
- CENTERPOINT ENERGY CONDUIT
- GAS LINE
- WESTERN UNION
- AT&T CONDUIT
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON–POTABLE WATER LINE
- CENTERPOINT ENERGY MANHOLE
- AT&T MANHOLE
- WATER LINE MANHOLE
- SANITARY SEWER MANHOLE & CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER INLET

PROPOSED PLAN VIEW

- PAVING HEADER
- BUILDING, RESIDENTIAL
- BUILDING, COMMERCIAL
- TREE
- HEDGE
- IRON PIPE OR IRON ROD MONUMENT
- POINT OF INTERSECTION (PI)
- POINT OF CURVE (PC)
- POINT OF TANGENCY (PT)
- POWER POLE
- POWER POLE W/DOWN GUY

PROPOSED PROFILE VIEW

- NORTH OR EAST PROPERTY LINE
- SOUTH OR WEST PROPERTY LINE
- NORTH OR EAST CURB
- SOUTH OR WEST CURB
- NORTH OR EAST DITCH
- SOUTH OR WEST DITCH
- NORTH OR EAST NATURAL GROUND
- SOUTH OR WEST NATURAL GROUND
- NORTH OR EAST CULVERT
- SOUTH OR WEST CULVERT
- CENTERLINE OF ROW
- CENTERPOINT ENERGY CONDUIT
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- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON–POTABLE WATER LINE
- CENTERPOINT ENERGY MANHOLE
- AT&T MANHOLE
- WATER LINE MANHOLE
- SANITARY SEWER MANHOLE & CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER INLET

MISC STANDARD ELEMENTS

- COH NORTH ARROW
- COH BAR SCALE
- REVISION CLOUD/DELTA
- DETAIL/SECTION TITLE
- SECTION CALLOUT
- DETAIL CALLOUT

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

SYMBOLS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

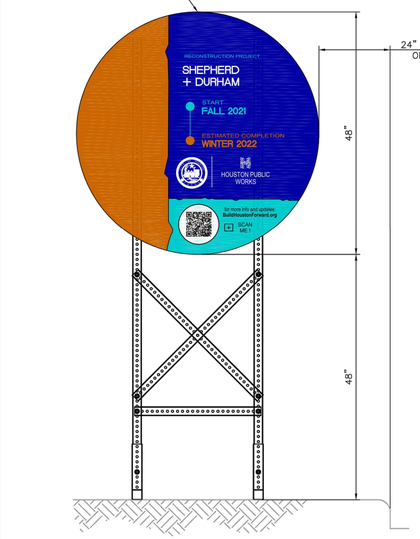
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SHEET NO. 10 OF 192

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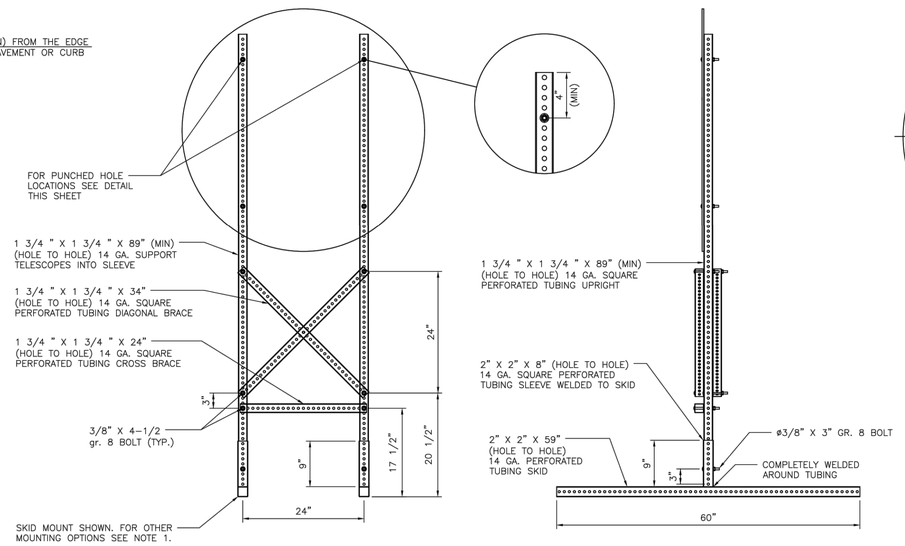
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FRONT VIEW

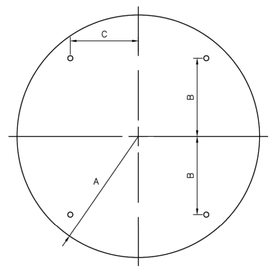
PROJECT SIGN – 48"



FRONT VIEW

SIDE VIEW

SKID MOUNTED SUPPORTS FOR 48" PROJECT SIGN



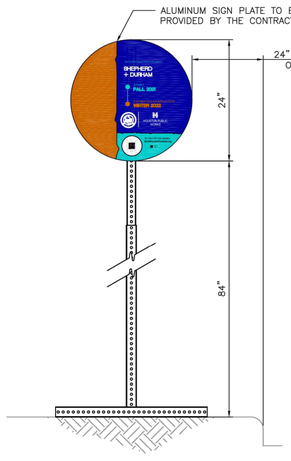
CIRCLE

A	B	C	T
24"	15"	12"	0.080"

48" SIGN PLATE HOLE DETAIL

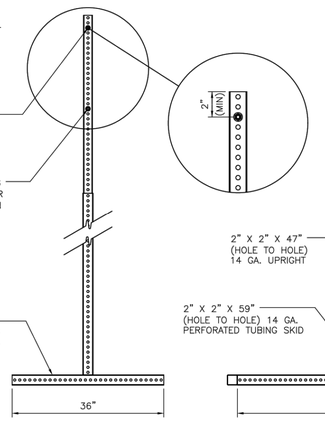
NOTES:

1. ALLOWABLE POST INSTALLATION METHODS ARE: CONCRETE FOOTING, SURFACE MOUNTING, SKID MOUNTING AND PILE DRIVEN POSTS.
2. FOR POST INSTALLATION WITH CONCRETE FOOTING, REFER TO DETAIL 01554-01.
3. FOR SURFACE MOUNTED POST INSTALLATION, REFER TO DETAIL 01554-02.
4. FOR SKID MOUNTING REQUIREMENTS REFER TO SPECIFICATION 01582.
5. PILE DRIVEN POSTS MUST BE DRIVEN TO A MINIMUM DEPTH OF 4-FEET INTO EXISTING GROUND.
6. LAYOUT, TEXT SIZE, AND OVERALL DESIGN OF THE SIGN WILL BE THE RESPONSIBILITY OF THE BUILD HOUSTON COORDINATOR.
7. ALL SIGN POSTS, SIGN TUBING, AND SIGN FASTENERS SHALL BE GALVANIZED STEEL PER SPECIFICATION 01582.

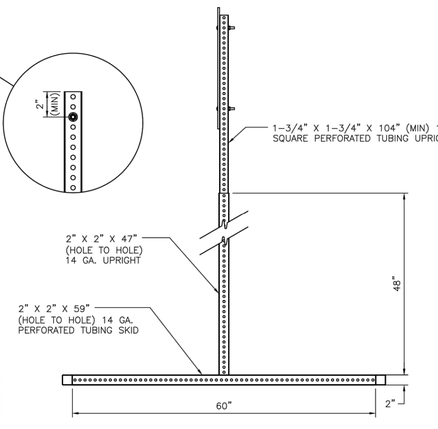


FRONT VIEW

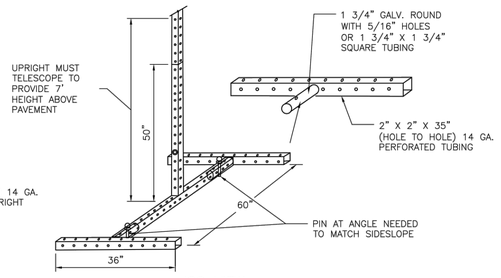
PROJECT SIGN – 24"



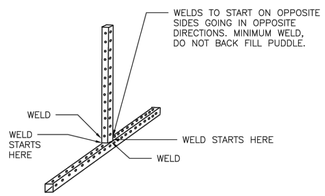
FRONT VIEW



SIDE VIEW

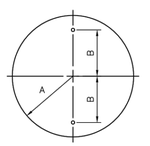


ISO VIEW



ISO VIEW

SKID MOUNTED SUPPORTS FOR 24" PROJECT SIGN



A	B	C
12"	8"	0.080"

24" SIGN PLATE HOLE DETAIL

APPROVED BY:	APPROVED BY:
DocuSigned by: Sukat Kanwar 9EFB80C641F5478...	DocuSigned by: Carl Hallock A80C41697283453...
CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: NOV-27-2023	DWG NO: 01582-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONSTRUCTION SIGN BUILD HOUSTON FORWARD

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
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B	2/24/25	90% SUBMITTAL	MS
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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

CONSTRUCTION SIGN BUILD HOUSTON FORWARD

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

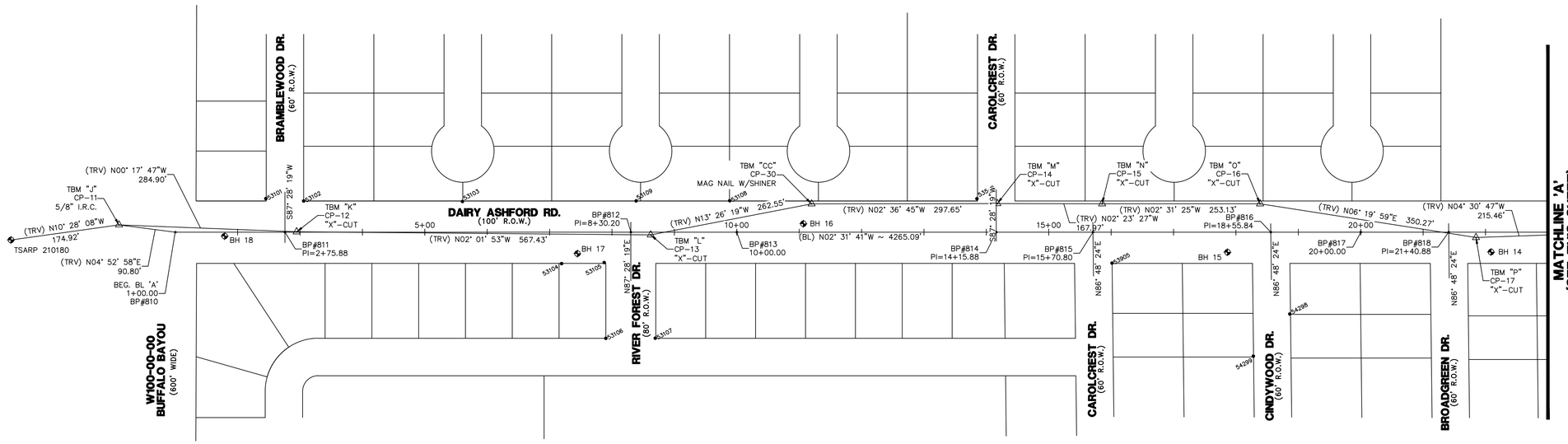
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

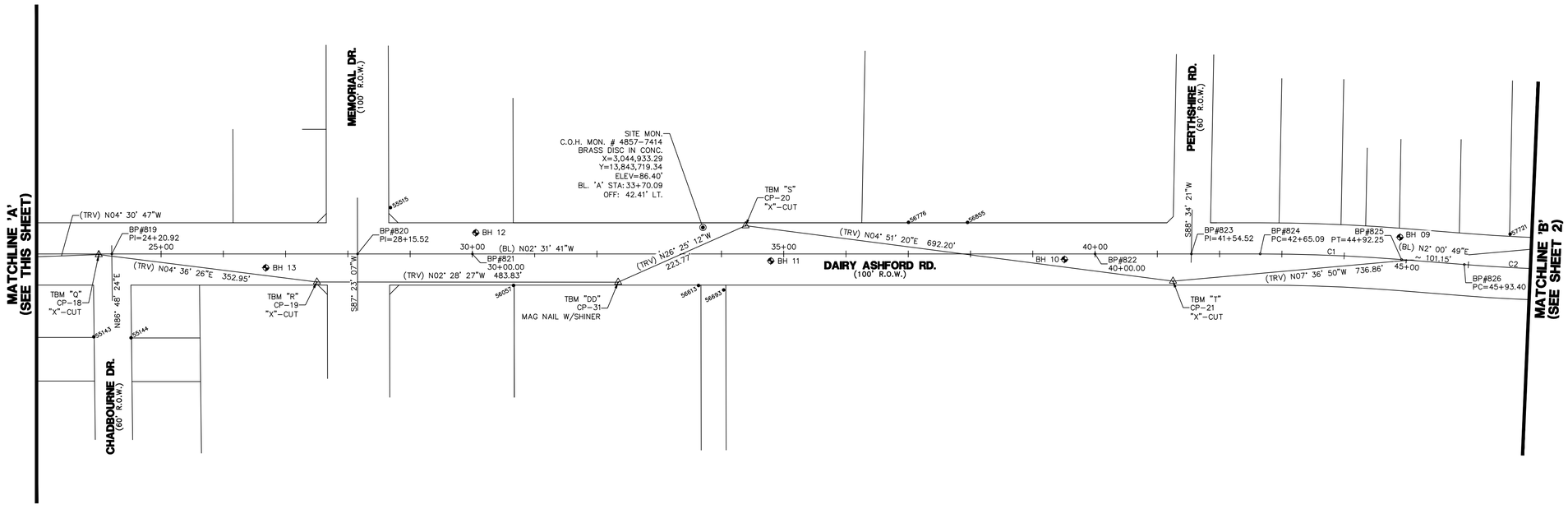
DRAWING SCALE: N.T.S.

SHEET NO. 11 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Gen\453562-COHFM-consign.dwg





100 0 50 100 200

SCALE: 1" = 100'

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- ● 6969 CONTROL MONUMENTS

GENERAL NOTES:

CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates "X" Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
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D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.33 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
10375 RICHMOND AVE., SUITE 1325 TEL (713) 271-2900
HOUSTON, TEXAS 77042 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

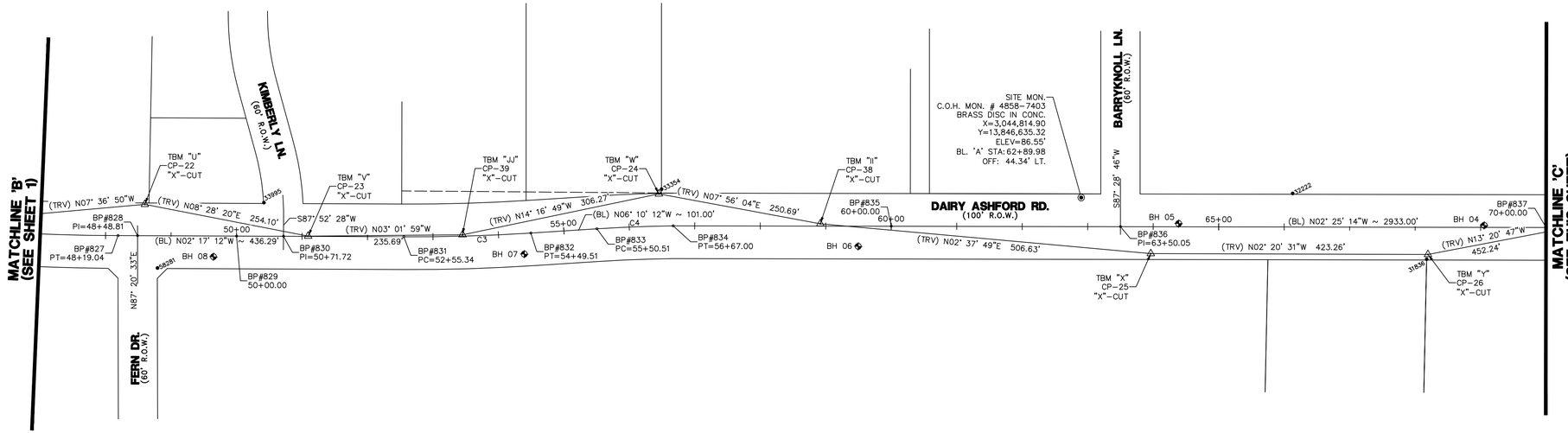
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

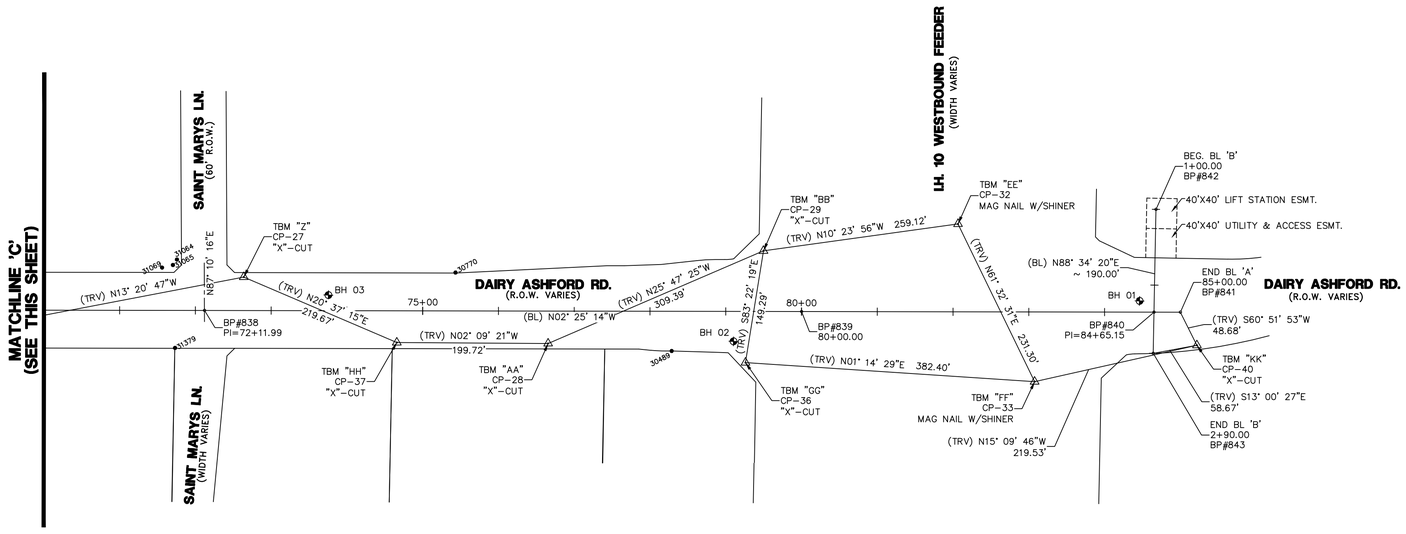
DAIRY ASHFORD ROAD
SURVEY CONTROL MAP
SHEET 1 OF 4
SURVEY

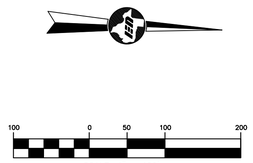
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S-000900-0304-3	
DRAWING SCALE	
H: 1"=100'	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 12 OF 192	

C0.01

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SURVEY CONTROL MASTER.dwg Mar 16 2026







LEGEND:

- HCAD PROPERTY LINE
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- RIGHT-OF-WAY / PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
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CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.02

United Engineers, Inc.
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SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD
SURVEY CONTROL MAP
SHEET 2 OF 4
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
H: 1"=100'	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 13 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SURVEY CONTROL MASTER.dwg Mar 16 2026

TSARP CONVERSION REFERENCE MONUMENT

(TSARP) HARRIS COUNTY FLOODPLAIN REFERENCE MARK NUMBER 210180:
FLOOD PLAIN REFERENCE MARK, BRASS DISK STAMPED "W 100 BM 07",
FROM THE INTERSECTION OF SOUTH DAIRY ASHFORD RD. AND MEMORIAL DR.,
TRAVEL SOUTH ON SOUTH DAIRY ASHFORD RD. APPROXIMATELY 0.5 MILE TO
BRIDGE. MONUMENT IS LOCATED ON NORTHBOUND DOWNSTREAM CENTERLINE.
PUBLISHED ELEV= 76.75' (NAVD 1988, 2001 ADJ.) GEOID 99
OBSERVED ELEV= 76.42' (NAVD 1988, CORS '96) GEOID 12B

PROJECT SITE MONUMENT:

SITE MONUMENT #4857-7414
SET ALUMINUM DISK IN CONCRETE LOCATED WEST SIDE OF
DAIRY ASHFORD APPROX. 577 FEET NORTH OF MEMORIAL DR.
INTERSECTION.
ELEV= 86.40' (NAVD '88, (CORS '96) GEOID 12B)

SITE MONUMENT #4858-7403
SET ALUMINUM DISK IN CONCRETE LOCATED AT SOUTHWEST
CORNER OF DAIRY ASHFORD RD. AND BERRYKNOLL LN.
ELEV= 86.55' (NAVD '88, (CORS '96) GEOID 12B)

TBM LIST:

TBM 'J', CP-11, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 76.37'

TBM 'K', CP-12, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 73.30'

TBM 'L', CP-13, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 76.40'

TBM 'M', CP-14, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 79.66'

TBM 'N', CP-15, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 79.84'

TBM 'O', CP-16, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 80.88'

TBM 'P', CP-17, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 83.24'

TBM 'Q', CP-18, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 83.87'

TBM 'R', CP-19, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 85.49'

TBM 'S', CP-20, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 86.26'

TBM 'T', CP-21, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 84.83'

TBM 'U', CP-22, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 85.98'

TBM 'V', CP-23, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 87.34'

TBM 'W', CP-24, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 86.67'

TBM 'X', CP-25, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 86.53'

TBM 'Y', CP-26, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 84.32'

TBM 'Z', CP-27, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 82.43'

TBM 'AA', CP-28, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 81.81'

TBM 'BB', CP-29, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 80.58'

TBM 'CC', CP-30, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.38'

TBM 'DD', CP-31, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 84.84'

TBM 'EE', CP-32, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 81.79'

TBM 'FF', CP-33, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 82.75'

TBM 'GG', CP-36, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 81.60'

TBM 'HH', CP-37, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 82.42'

TBM 'II', CP-38, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 87.10'

TBM 'JJ', CP-39, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 87.02'

TBM 'KK', CP-40, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 81.71'

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
11	0+09.95	-11.71'L	A	13,840,364.26'	3,045,112.14'	76.37'	TBM "J"
12	2+94.64	-0.62'L	A	13,840,649.12'	3,045,110.67'	73.30'	TBM "K"
13	8+62.05	4.30'R	A	13,841,216.12'	3,045,090.56'	76.40'	TBM "L"
14	14+17.51	-45.84'L	A	13,841,768.75'	3,045,015.98'	79.66'	TBM "M"
15	15+85.48	-45.43'L	A	13,841,936.56'	3,045,008.98'	79.84'	TBM "N"
16	18+38.61	-45.41'L	A	13,842,189.41'	3,044,997.83'	80.88'	TBM "O"
17	21+84.69	8.54'R	A	13,842,537.49'	3,045,036.46'	83.24'	TBM "P"
18	24+00.02	1.08'R	A	13,842,752.25'	3,045,019.51'	83.87'	TBM "Q"
19	27+50.24	44.92'R	A	13,843,104.02'	3,045,047.86'	85.49'	TBM "R"
20	34+38.66	-45.26'L	A	13,843,787.70'	3,044,927.42'	86.26'	TBM "S"
21	41+25.12	43.69'R	A	13,844,477.33'	3,044,986.00'	84.83'	TBM "T"
22	48+59.67	-47.81'L	A	13,845,207.59'	3,044,888.38'	85.98'	TBM "U"
23	51+09.30	-0.37'L	A	13,845,458.88'	3,044,925.81'	87.34'	TBM "V"
24	56+46.33	-49.07'L	A	13,845,990.99'	3,044,837.81'	86.67'	TBM "W"
25	63+96.45	41.00'R	A	13,846,745.28'	3,044,895.65'	86.53'	TBM "X"
26	68+19.71	41.58'R	A	13,847,168.13'	3,044,878.36'	84.32'	TBM "Y"
27	72+63.75	-44.13'L	A	13,847,608.10'	3,044,773.98'	82.43'	TBM "Z"
28	76+65.61	42.77'R	A	13,848,013.22'	3,044,843.82'	81.81'	TBM "AA"
29	79+49.62	-79.95'L	A	13,848,291.76'	3,044,709.23'	80.58'	TBM "BB"
30	11+19.85	-45.40'L	A	13,841,471.45'	3,045,029.55'	78.38'	TBM "CC"
31	32+34.06	45.37'R	A	13,843,587.33'	3,045,026.97'	84.84'	TBM "DD"
32	82+06.23	-115.92'L	A	13,848,546.59'	3,044,662.47'	81.79'	TBM "EE"
33	83+07.76	91.90'R	A	13,848,656.79'	3,044,865.79'	82.75'	TBM "FF"
36	79+26.14	67.48'R	A	13,848,274.53'	3,044,857.51'	81.60'	TBM "GG"
37	74+65.90	41.85'R	A	13,847,813.67'	3,044,851.34'	82.42'	TBM "HH"
38	58+91.79	-3.61'L	A	13,846,239.25'	3,044,872.41'	87.10'	TBM "II"
39	53+45.05	-2.04'L	A	13,845,694.22'	3,044,913.34'	87.02'	TBM "JJ"
40	85+21.88	43.48'R	A	13,848,868.65'	3,044,808.38'	81.71'	TBM "KK"

BOREHOLE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
20000	84+46.01	-14.82'L	A	13,848,790.38'	3,044,753.34'	82.04'	BH 01
20001	73+75.53	-20.52'L	A	13,847,720.76'	3,044,792.85'	82.08'	BH 03
20002	69+05.44	-2.91'L	A	13,847,251.89'	3,044,830.30'	84.23'	BH 04
20003	64+38.95	-4.92'L	A	13,846,785.79'	3,044,847.98'	86.26'	BH 05
20004	59+49.67	30.87'R	A	13,846,298.53'	3,044,904.40'	85.78'	BH 06
20005	54+37.61	31.56'R	A	13,845,789.82'	3,044,938.69'	85.76'	BH 07
20006	49+64.85	31.74'R	A	13,845,315.85'	3,044,963.66'	86.18'	BH 08
20007	44+87.04	-35.47'L	A	13,844,838.26'	3,044,899.54'	84.39'	BH 09
20008	39+50.72	8.86'R	A	13,844,301.58'	3,044,958.90'	84.96'	BH 10
20009	34+79.21	11.11'R	A	13,843,830.70'	3,044,981.94'	84.58'	BH 11
20010	30+05.30	-33.93'L	A	13,843,355.32'	3,044,957.85'	84.49'	BH 12
20011	26+68.20	22.19'R	A	13,843,021.06'	3,045,028.77'	84.88'	BH 13
20012	22+08.75	31.87'R	A	13,842,562.55'	3,045,058.71'	81.83'	BH 14
20013	17+86.29	32.08'R	A	13,842,140.56'	3,045,077.54'	80.30'	BH 15
20014	11+06.63	-13.52'L	A	13,841,459.65'	3,045,061.97'	78.95'	BH 16
20015	7+44.60	34.28'R	A	13,841,100.13'	3,045,125.68'	74.16'	BH 17
20016	1+79.22	6.26'R	A	13,840,534.13'	3,045,122.63'	74.01'	BH 18
20017	79+10.24	39.58'R	A	13,848,257.46'	3,044,830.31'	81.42'	BH 02

ALIGNMENT CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	4°32'36"	2864.79'	227.16'	N00° 15' 23"W ~ 227.11'
C2	4°30'46"	2864.79'	225.64'	N00° 14' 34"W ~ 225.58'
C3	3°53'00"	2864.79'	194.17'	N04° 13' 43"W ~ 194.13'
C4	3°06'20"	2149.29'	116.49'	N04° 46' 25"W ~ 116.48'

RIGHT OF WAY CONTROL MONUMENT TABLE

POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
53101	2+45.22	-53.76'L	A	1"I.P.	CM
53102	3+05.88	-49.94'L	A	5/8"I.R.	CM
53103	5+60.32	-49.23'L	A	3/8"I.R.	CM
53104	7+19.26	50.34'R	A	5/8"I.R.	CM
53105	7+87.49	48.61'R	A	1"I.P.	CM
53106	7+90.20	170.00'R	A	5/8"I.R.	CM
53109	8+38.75	-50.15'L	A	5/8"I.R.	CM
53107	8+69.32	169.82'R	A	5/8"I.R.	CM
53108	9+88.65	-50.40'L	A	3/4"I.R.	CM
53540	13+84.88	-53.62'L	A	1"I.P.	CM
53905	16+01.34	49.51'R	A	3/8"I.R.	CM
54299	18+27.85	198.55'R	A	1/2"I.R.	CM
54298	18+86.24	131.05'R	A	5/8"I.R.	CM
55143	23+92.07	132.91'R	A	3/8"I.R.	CM
55144	24+51.83	134.51'R	A	3/8"I.R.	CM
55515	28+68.39	-74.41'L	A	1"I.P.	-
56057	30+66.09	50.48'R	A	3/8"I.R.	CM
56613	33+63.16	50.61'R	A	5/8"I.R.	CM
56693	34+03.51	57.79'R	A	5/8"I.R.	-
56776	37+00.34	-50.79'L	A	5/8"I.R.C.	CM
56855	37+95.12	-50.67'L	A	5/8"I.R.	CM
57721	46+64.40	-53.73'L	A	5/8"I.R.C.	-
58281	48+79.56	49.25'R	A	5/8"I.R.C.	CM
33995	50+41.63	-51.24'L	A	5/8"I.R.	CM
33354	56+50.58	-56.24'L	A	1"I.P.	-
32222	66+12.93	-51.27'L	A	X-CUT	CM
31836	68+17.71	48.84'R	A	5/8"I.R.	CM
31069	71+55.88	-56.46'L	A	3/8"I.R.	-
31065	71+70.25	-59.87'L	A	3/8"I.R.	-
31379	71+73.22	49.51'R	A	X-CUT	CM
31064	71+75.51	-67.14'L	A	3/8"I.R.	-
30770	75+43.25	-50.59'L	A	MAG	CM
30489	78+28.71	52.41'R	A	X-CUT	CM

BASELINE POINT TABLE (A)

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
810	1+00.00	A	13,840,454.72'	3,045,119.87'	SET 5/8" I.R.C.
811	2+75.88	A	13,840,630.41'	3,045,112.11'	SET 5/8" I.R.C.
812	8+30.20	A	13,841,184.12'	3,045,087.67'	SET X-CUT
813	10+00.00	A	13,841,353.73'	3,045,080.18'	UNABLE TO SET
814	14+15.88	A	13,841,769.15'	3,045,061.84'	SET X-CUT
815	15+70.80	A	13,841,923.90'	3,045,055.01'	SET X-CUT
816	18+55.84	A	13,842,208.62'	3,045,042.44'	SET X-CUT
817	20+00.00	A	13,842,352.63'	3,045,036.08'	SET 5/8" I.R.C.
818	21+40.88	A	13,842,493.35'	3,045,029.87'	SET X-CUT
819	24+20.92	A	13,842,773.08'	3,045,017.52'	SET X-CUT
820	28+15.52	A	13,843,167.25'	3,045,000.11'	SET X-CUT
821	30+00.00	A	13,843,351.52'	3,044,991.98'	SET X-CUT
822	40+00.00	A	13,844,350.42'	3,044,947.88'	SET X-CUT
823	41+54.52	A	13,844,504.77'	3,044,941.06'	SET 60D NAIL W/SHINNER
824	42+65.09	A	13,844,615.22'	3,044,936.19'	SET X-CUT
825	44+92.25	A	13,844,842.29'	3,044,935.17'	SET 5/8" I.R.C.
826	45+93.40	A	13,844,943.36'	3,044,938.72'	SET X-CUT
827	48+19.04	A	13,845,168.91'	3,044,937.77'	SET X-CUT
828	48+48.81	A	13,845,198.65'	3,044,936.58'	SET X-CUT
829	50+00.00	A	13,845,349.70'	3,044,930.55'	SET X-CUT
830	50+71.72	A	13,845,421.36'	3,044,927.69'	SET X-CUT
831	52+55.34	A	13,845,604.80'	3,044,920.36'	SET 5/8" I.R.C.
832	54+49.51	A	13,845,798.38'	3,044,906.05'	SET X-CUT
833	55+50.51	A	13,845,898.79'	3,044,895.19'	SET X-CUT
834	56+67.00	A	13,846,014.84'	3,044,885.50'	SET 5/8" I.R.C.
835	60+00.00	A	13,846,347.50'	3,044,871.44'	SET X-CUT
836	63+50.05	A	13,846,697.19'	3,044,856.66'	SET X-CUT
837	70+00.00	A	13,847,346.48'	3,044,829.21'	SET 5/8" I.R.C.
838	72+11.99	A	13,847,558.26'	3,044,820.26'	SET X-CUT
839	80+00.00	A	13,848,345.46'	3,044,786.98'	SET X-CUT
840	84+65.15	A	13,848,810.14'	3,044,767.33'	SET X-CUT
841	85+00.00	A	13,848,844.95'	3,044,765.86'	SET 5/8" I.R.C.

BASELINE POINT TABLE (B)

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
840	2+35.72	B	13,848,810.14'	3,044,767.33'	SET X-CUT
842	1+00.12	B	13,848,806.76'	3,044,631.79'	UNABLE TO SET
843	2+90.00	B	13,848,811.49'	3,044,821.58'	SET 5/8" I.R.C.

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. / EASEMENT
- RIGHT-OF-WAY / PROPERTY LINE
- (TRV.) N 00° 00' 00" E. — TRAVERSE LINE
- (BL) N 00° 00' 00" E. — BASELINE
- 60869 — CONTROL MONUMENTS

GENERAL NOTES:
CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.33 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.03

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
10375 RICHMOND AVE., SUITE 1325 HOUSTON, TEXAS 77042
TEL (713) 271-2900 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD
SURVEY CONTROL MAP
SHEET 3 OF 4
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 14 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SURVEY CONTROL MASTER.dwg Mar 16 2026

HARRIS COUNTY FLOODPLAIN REFERENCE MARKS

Floodplain RM No.:	210180	**Reference Mark Status**	
Stream Number:	W100-00-00	**Date:**	6/4/2013
		Condition:	Recovered
County: Harris	**State:** Texas	**Established By:**	CDS/Muery & Pate Eng.
Key Map No.:	488M	**Date Established:**	5/14/2003
NGS Classification(1).:	Range VI	**Watershed:**	Buffalo Bayou
RM's Directly Tied:	210175,210185,210325	**Survey Method Horz:**	GPSOBS
Units of Measure:	US Survey Foot	**Survey Method Vert:**	GPSOBS
Horizontal Datum:	NAD83	**Vertical Datum:**	NAVD88
Horizontal Adj.(2):	2001 Adjustment	**Vertical Adj.(3):**	2001 Adjustment
Projection Zone:	Texas South Central 4204	**Geoid Model Used:**	GEOID99 (CONUS)
Station Name:	210180	**Contractor PID:**	8065
Marker:	Brass DISC	**Rod Depth:**	NA
Stamping:	W100 BM07	**Sleeve Depth:**	NA
Mark Logo:	HCFCD	**Geoid Height:**	-89.55
Latitude:	29° 45' 42.81118" N	**Northing:**	13840192.06
Longitude:	95° 36' 21.96412" W	**Easting:**	3045143.91
Ellipsoid Height:	-13.06	**Elevation(4):**	76.75
Convergence:	1° 39' 46"	**Scale Factor:**	0.99989091
Satellite Observable:	YES	**Elevation Factor:**	1.00000062
NGS PID (if applic):	NA	**Combined Factor:**	0.99989154

Notes:

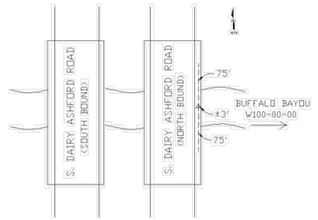
1. This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m=meters).
2. Horizontal Adjustment - This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
3. Vertical Adjustment - This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
4. The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.
5. The elevation is established by differential leveling techniques, utilizing the published elevations from nearby Reference Marks.

Station Recovery Data: Report an Issue with a Reference Mark - submit to Harris County Flood Control

HARRIS COUNTY FLOODPLAIN REFERENCE MARKS

Floodplain RM Number: 210180
Stream Number: W100-00-00
Northing: 13840192.06 **Easting:** 3045143.91 **Elevation:** 76.75

Location:
South Dairy Ashford Road and Buffalo Bayou



To Reach Description
From the intersection of South Dairy Ashford Road and Memorial Drive, travel South On South Dairy Ashford Road approximately 0.5 mile to bridge. Monument is located on Northbound downstream centerline.

Photo 1-Station Detail:

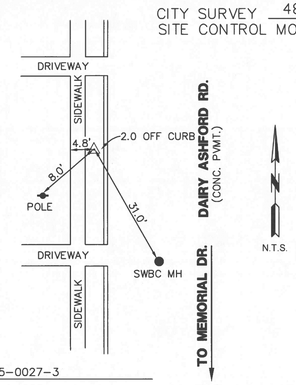


Photo 2-Station Area Picture:



CITY OF HOUSTON

CITY SURVEY 4857-7414
SITE CONTROL MONUMENT



Project WBS# R-000035-0027-3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,044,933.29
Y= 13,843,719.34

Lat.= N 29°46'17.78"
Lon.= W 95°36'23.19"

Keymap Page: 488 H
Orthometric Elevation = 86.40
Ellipsoid Height= -3.57
Geoid: GEOID 12B
Datum Source & Adjustment:
NAD '83 (CORS '96)

Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: W. SIDE OF JENSEN DR. APPROX. 90' NORTH OF INTERSECTION OF WIMBERLY ST.

Date Set: 06-11-2024 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-19, 'X' CUT IN CONC., S 10° 33' 12" E ~ 625.99'
TO CP-20, 'X' CUT IN CONC., N 04° 51' 04" W ~ 68.62'
TO CP-21, 'X' CUT IN CONC., N 03° 58' 59" E ~ 759.92'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999870017
3. Surface= Grid
S.F.

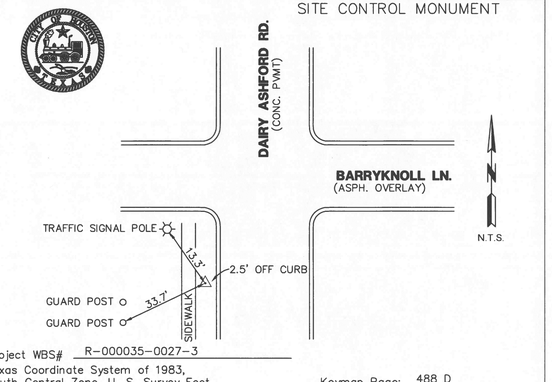
STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR
7-3-24

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Observed: June 17, 2024
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 4858-7403
SITE CONTROL MONUMENT



Project WBS# R-000035-0027-3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,044,814.90
Y= 13,846,635.32

Lat.= N 29°46'46.67"
Lon.= W 95°36'23.57"

Keymap Page: 488 D
Orthometric Elevation = 86.55
Ellipsoid Height= -3.44
Geoid: GEOID 12B
Datum Source & Adjustment:
NAD '83 (CORS '96)

Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: NORTHEAST CNR. AT THE INTERSECTION OF BRIARGATE DR. AND BLUERIDGE RD.

Date Set: 06-11-2024 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-24, 'X' CUT IN CONC., S 02° 01' 46" E ~ 644.74'
TO CP-25, 'X' CUT IN CONC., N 36° 14' 45" E ~ 136.47'
TO CP-26, 'X' CUT IN CONC., N 06° 46' 59" E ~ 536.72'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999870017
3. Surface= Grid
S.F.

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR
7-3-24

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Observed: June 18, 2024
City of Houston, Harris County, Texas

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY / PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:
CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
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W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:
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3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.33 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.04

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-00142 SURVEY FIRM # 101178-00
10375 RICHMOND AVE., SUITE 1325
HOUSTON, TEXAS 77042
TEL. (713) 271-2900
FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

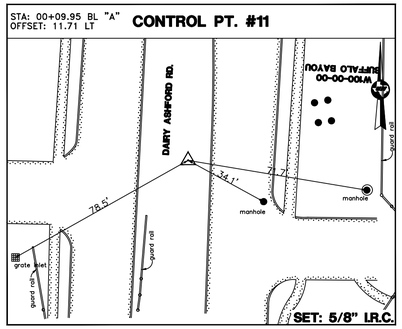
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

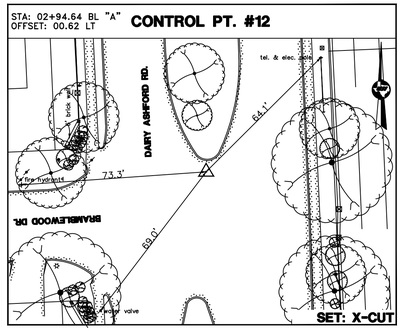
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

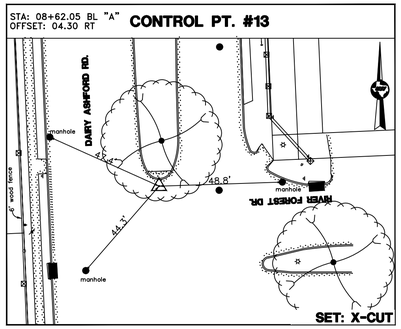
DAIRY ASHFORD ROAD
SURVEY CONTROL MAP
SHEET 4 OF 4
SURVEY

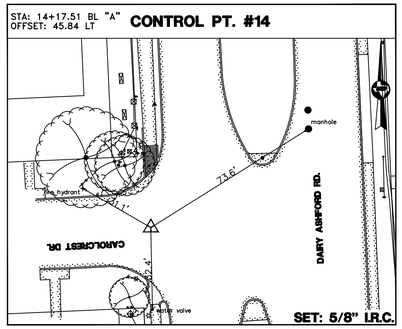
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 15 OF 192	

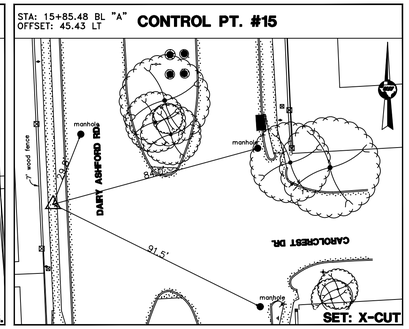
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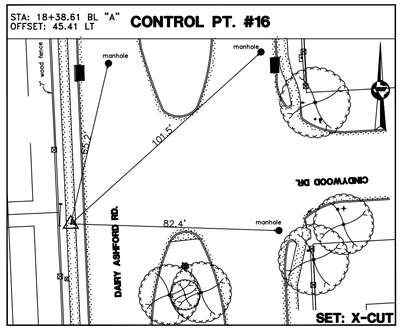


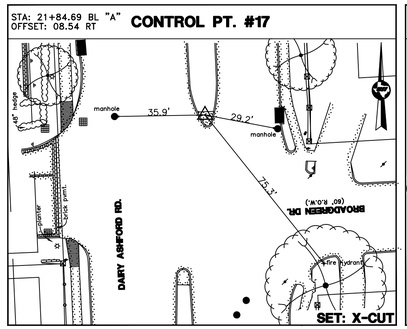


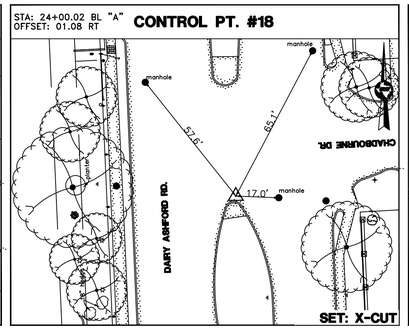


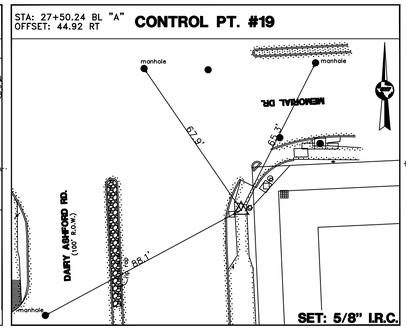


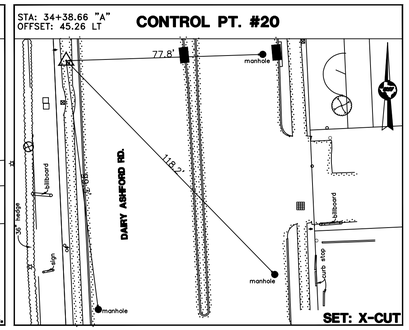


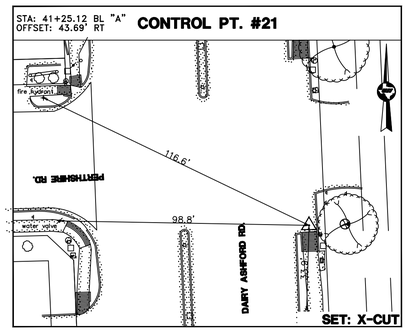


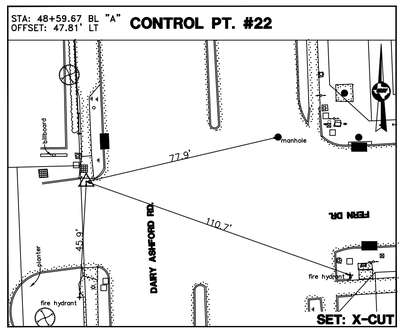


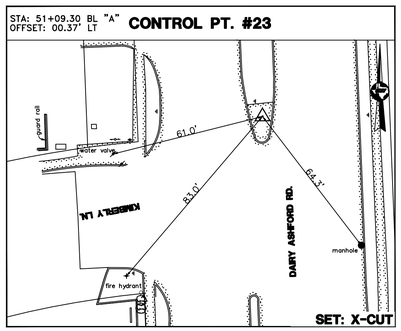


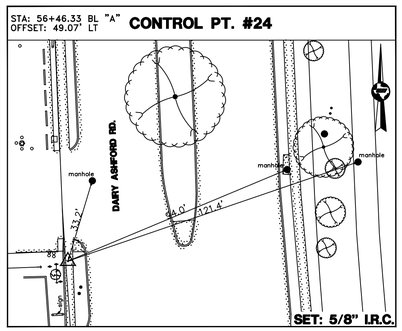


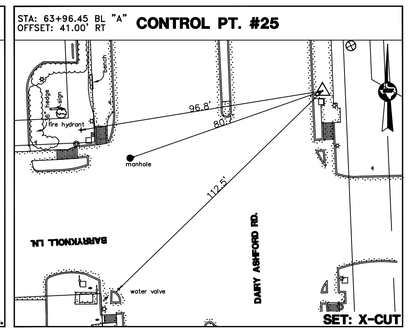


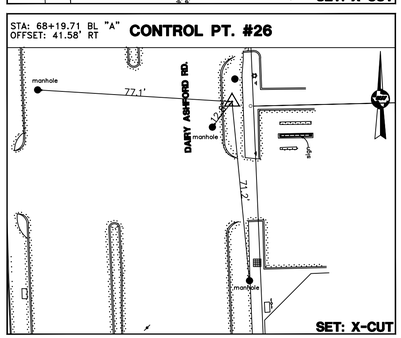


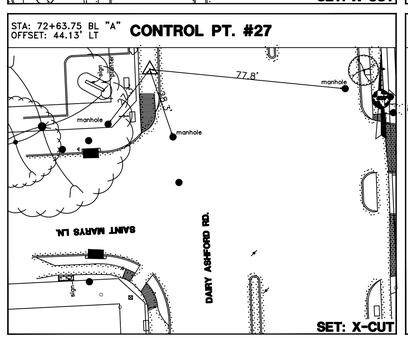


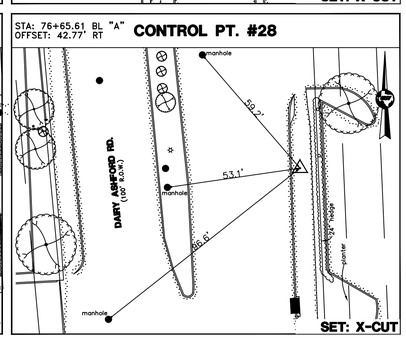


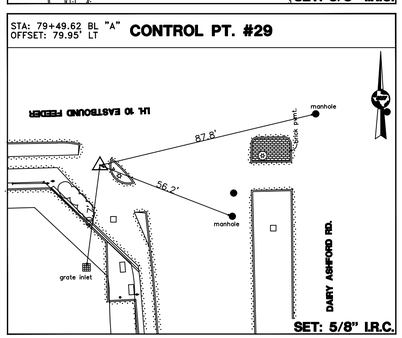


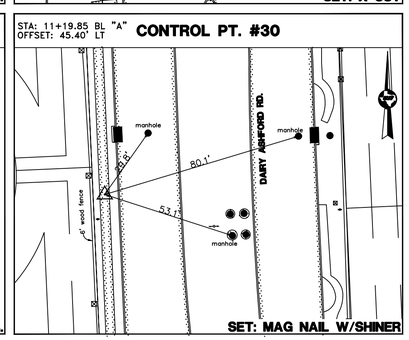












LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:
OP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.33 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.05

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
10375 RICHMOND AVE., SUITE 1325 TEL (713) 271-2900
HOUSTON, TEXAS 77042 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

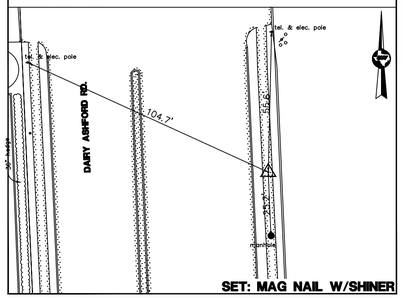
DAIRY ASHFORD ROAD
SWINGTIES
SHEET 1 OF 4
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 16 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SWINGTIE MASTER.dwg Mar 16 2026

STA: 32+34.06 BL "A"
OFFSET: 45.37' RT

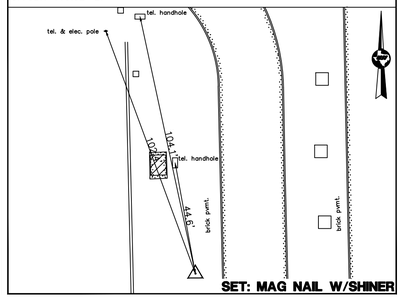
CONTROL PT. #31



SET: MAG NAIL W/SHINER

STA: 82+06.23 BL "A"
OFFSET: 115.92' LT

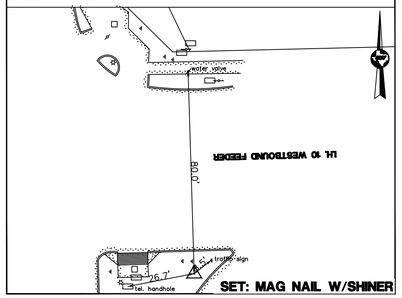
CONTROL PT. #32



SET: MAG NAIL W/SHINER

STA: 83+07.76 BL "A"
OFFSET: 91.90' RT

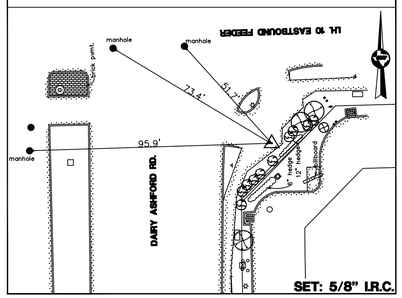
CONTROL PT. #33



SET: MAG NAIL W/SHINER

STA: 79+26.14 BL "A"
OFFSET: 67.48 RT

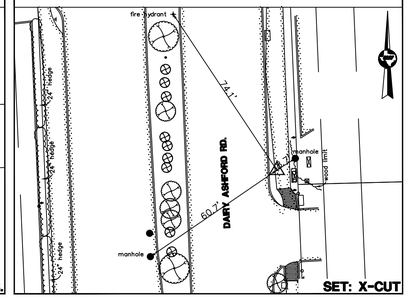
CONTROL PT. #36



SET: 5/8" I.R.C.

STA: 74+65.90 BL "A"
OFFSET: 41.85 RT

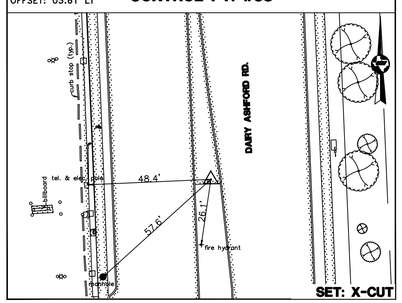
CONTROL PT. #37



SET: X-CUT

STA: 58+91.79 BL "A"
OFFSET: 03.61 LT

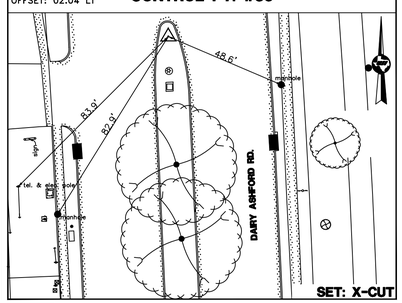
CONTROL PT. #38



SET: X-CUT

STA: 53+45.05 BL "A"
OFFSET: 02.04 LT

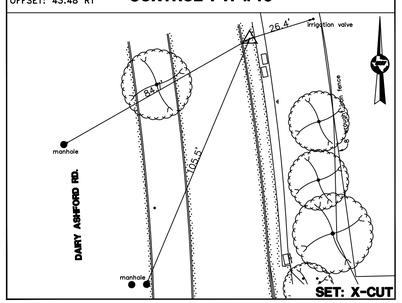
CONTROL PT. #39



SET: X-CUT

STA: 85+21.88 "A"
OFFSET: 43.48 RT

CONTROL PT. #40



SET: X-CUT

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:
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I.R.C. indicates Iron Rod w/Cap
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TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.06

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
10375 RICHMOND AVE., SUITE 1325 TEL. (713) 271-2900
HOUSTON, TEXAS 77042 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

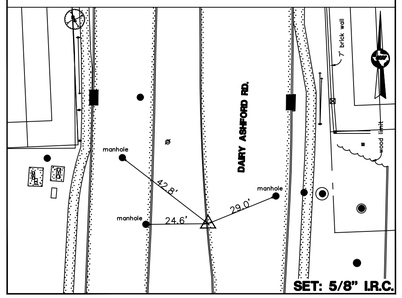
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD
SWINGTIES
SHEET 2 OF 4
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 17 OF 192	

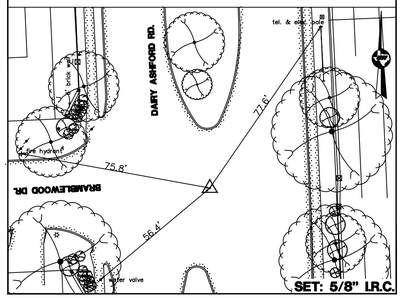
K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SWINGTIE MASTER.dwg Mar 16 2026

STA: 01+00.00 BL "A" **BASELINE PT. #810**



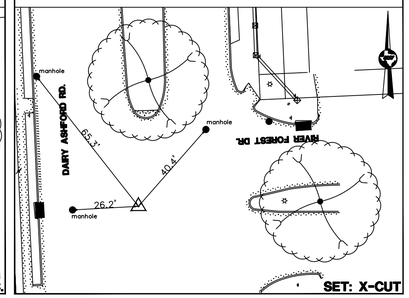
SET: 5/8" I.R.C.

STA: 02+75.88 BL "A" **BASELINE PT. #811**



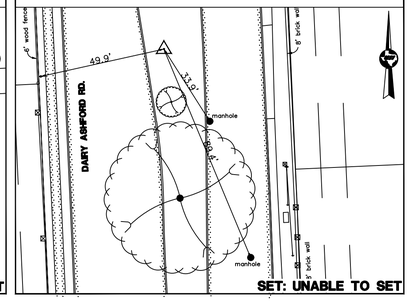
SET: 5/8" I.R.C.

STA: 08+30.20 BL "A" **BASELINE PT. #812**



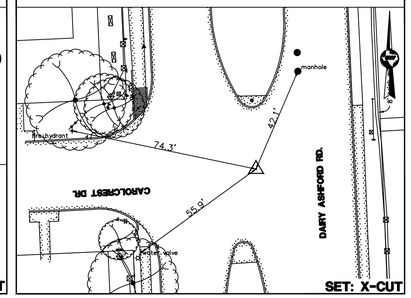
SET: X-CUT

STA: 10+00.00 BL "A" **BASELINE PT. #813**



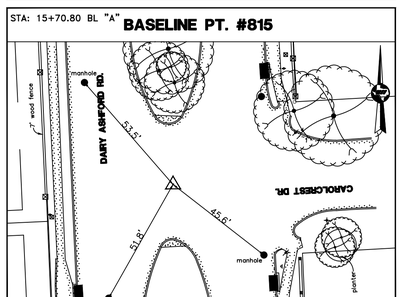
SET: UNABLE TO SET

STA: 14+15.88 BL "A" **BASELINE PT. #814**



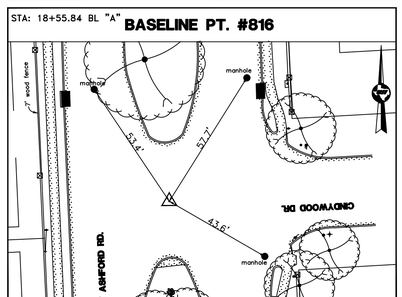
SET: X-CUT

STA: 15+70.80 BL "A" **BASELINE PT. #815**



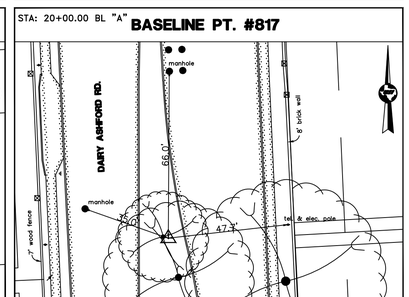
SET: X-CUT

STA: 18+55.84 BL "A" **BASELINE PT. #816**



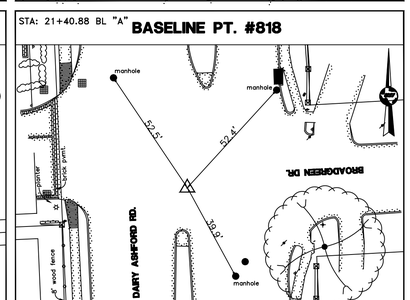
SET: X-CUT

STA: 20+00.00 BL "A" **BASELINE PT. #817**



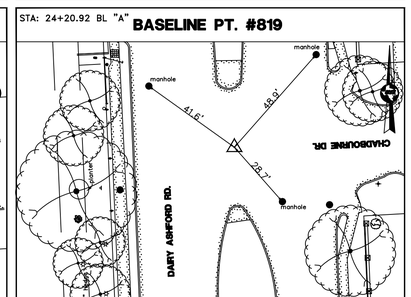
SET: 5/8" I.R.C.

STA: 21+40.88 BL "A" **BASELINE PT. #818**



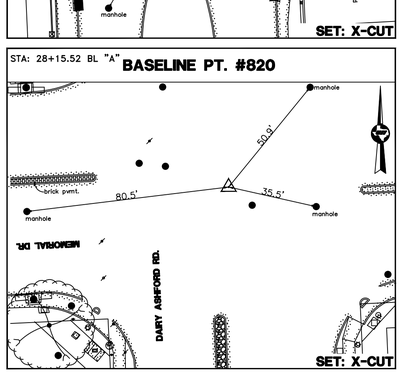
SET: X-CUT

STA: 24+20.92 BL "A" **BASELINE PT. #819**



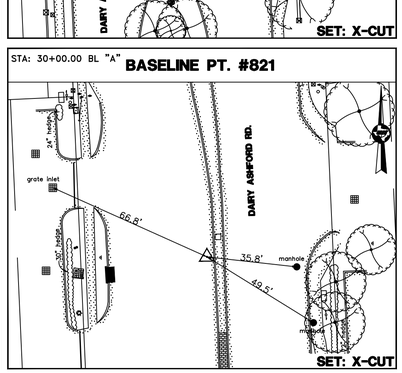
SET: X-CUT

STA: 28+15.52 BL "A" **BASELINE PT. #820**



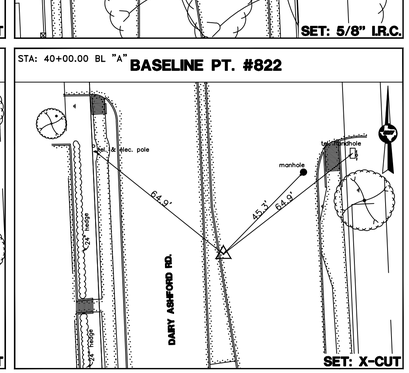
SET: X-CUT

STA: 30+00.00 BL "A" **BASELINE PT. #821**



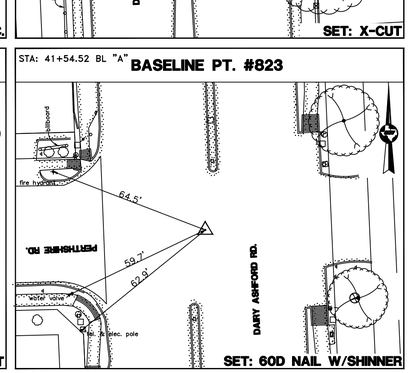
SET: X-CUT

STA: 40+00.00 BL "A" **BASELINE PT. #822**



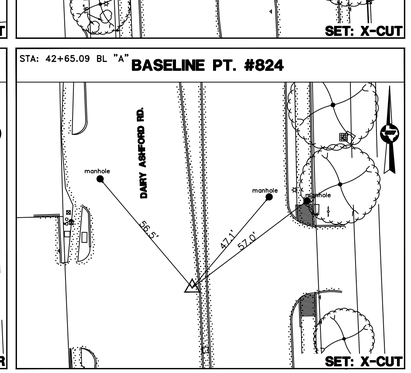
SET: X-CUT

STA: 41+54.52 BL "A" **BASELINE PT. #823**



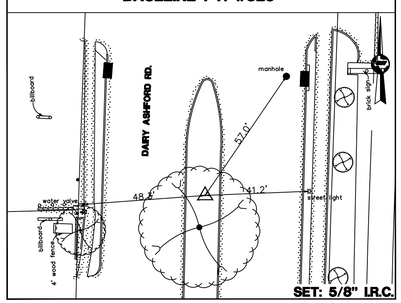
SET: 60D NAIL W/SHINNER

STA: 42+65.09 BL "A" **BASELINE PT. #824**



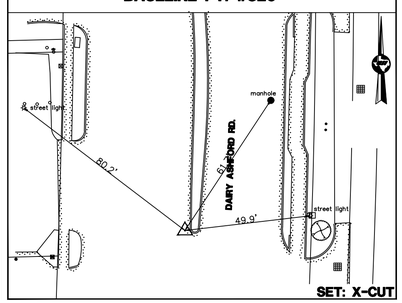
SET: X-CUT

STA: 44+92.25 BL "A" **BASELINE PT. #825**



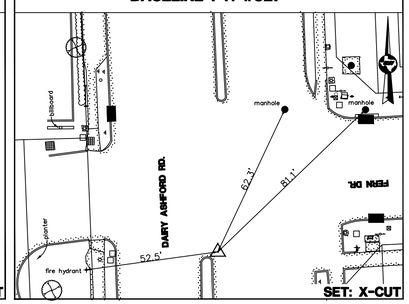
SET: 5/8" I.R.C.

STA: 45+93.40 BL "A" **BASELINE PT. #826**



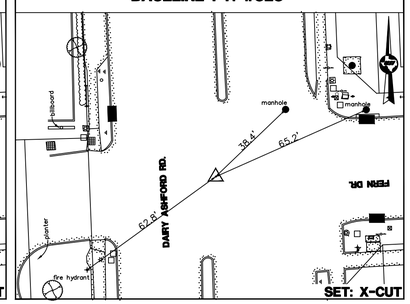
SET: X-CUT

STA: 48+19.04 BL "A" **BASELINE PT. #827**



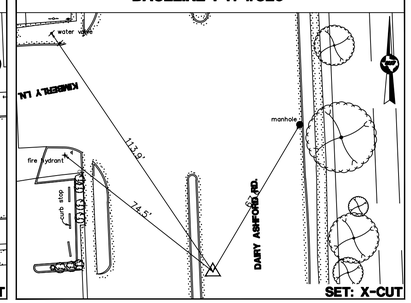
SET: X-CUT

STA: 48+48.81 BL "A" **BASELINE PT. #828**



SET: X-CUT

STA: 50+00.00 BL "A" **BASELINE PT. #829**



SET: X-CUT

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:
OP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
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U.E. indicates Utility Easement
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S.E. indicates Storm Sewer Easement
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M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.33 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.07

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10176-00
10375 RICHMOND AVE., SUITE 1325 TEL: (713) 271-2900
HOUSTON, TEXAS 77042 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

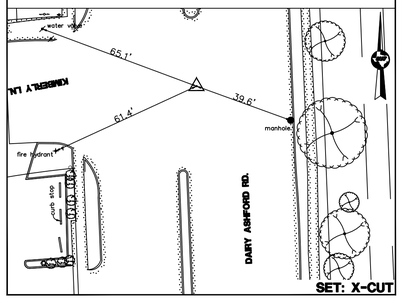
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD
SWINGTIES
SHEET 3 OF 4
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 18 OF 192	

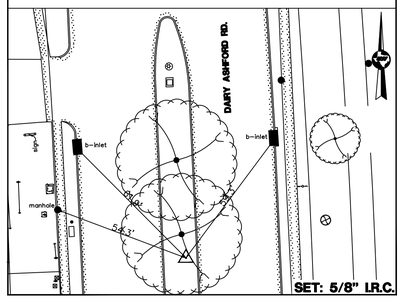
K:\GIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SWINGTIE MASTER.dwg Mar 16 2026

STA: 50+71.72 BL "A" **BASELINE PT. #830**



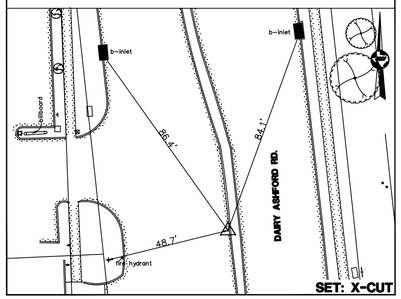
SET: X-CUT

STA: 52+55.34 BL "A" **BASELINE PT. #831**



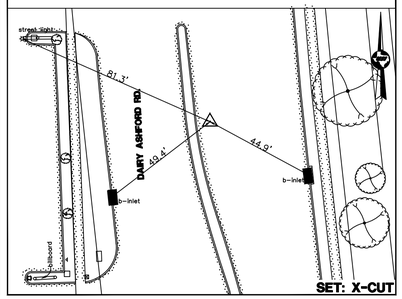
SET: 5/8" I.R.C.

STA: 54+49.51 BL "A" **BASELINE PT. #832**



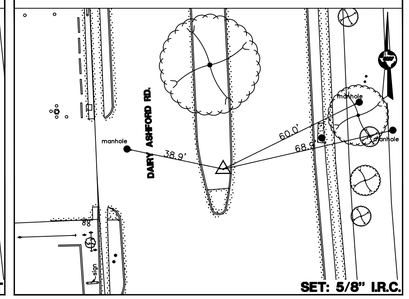
SET: X-CUT

STA: 55+50.51 BL "A" **BASELINE PT. #833**



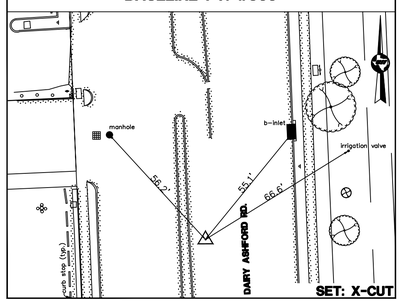
SET: X-CUT

STA: 56+67.00 BL "A" **BASELINE PT. #834**



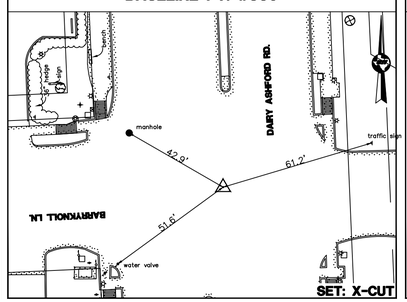
SET: 5/8" I.R.C.

STA: 60+00.00 BL "A" **BASELINE PT. #835**



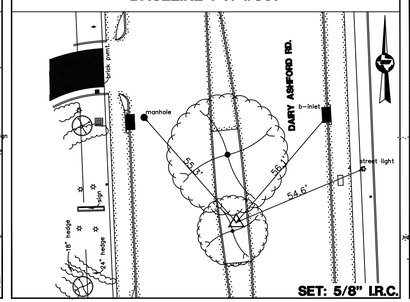
SET: X-CUT

STA: 63+50.05 BL "A" **BASELINE PT. #836**



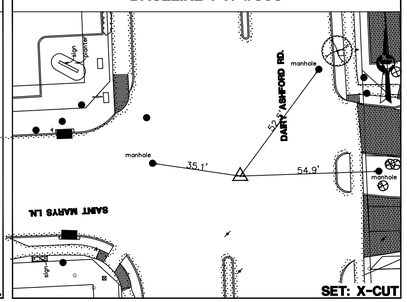
SET: X-CUT

STA: 70+00.00 BL "A" **BASELINE PT. #837**



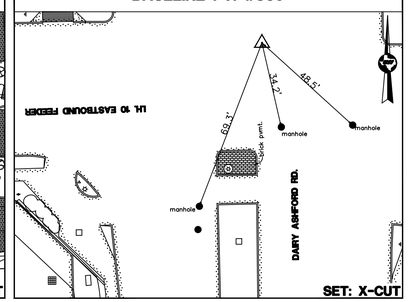
SET: 5/8" I.R.C.

STA: 72+11.99 BL "A" **BASELINE PT. #838**



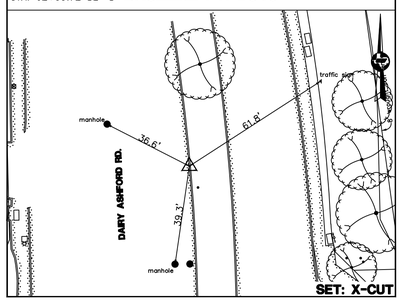
SET: X-CUT

STA: 80+00.00 BL "A" **BASELINE PT. #839**



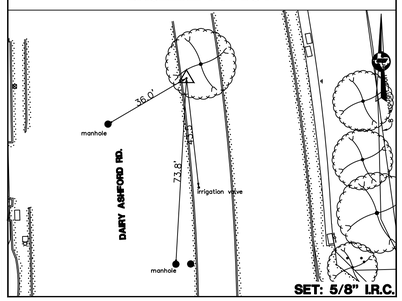
SET: X-CUT

STA: 84+65.15 BL "A"
STA: 02+35.72 BL "B" **BASELINE PT. #840**



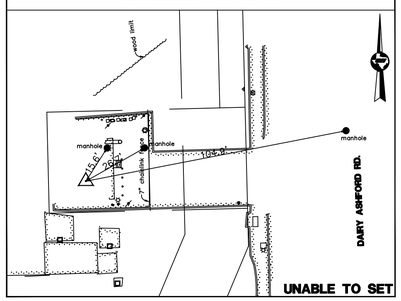
SET: X-CUT

STA: 85+00.00 BL "A" **BASELINE PT. #841**



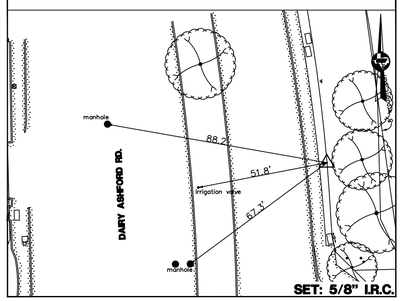
SET: 5/8" I.R.C.

STA: 01+00.12 BL "B" **BASELINE PT. #842**



UNABLE TO SET

STA: 02+90.00 BL "B" **BASELINE PT. #843**



SET: 5/8" I.R.C.

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:

- CP= indicates Traverse Point
- BP# indicates Baseline Point
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- CM indicates Control Monument
- Fnd. indicates Found
- RT indicates Right
- LT indicates Left
- XC indicates 'X' Cut
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- PT indicates Point of Tangent
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TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.08

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
10370 RICHMOND AVE., SUITE 1325 TEL (713) 271-2900
HOUSTON, TEXAS 77042 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON

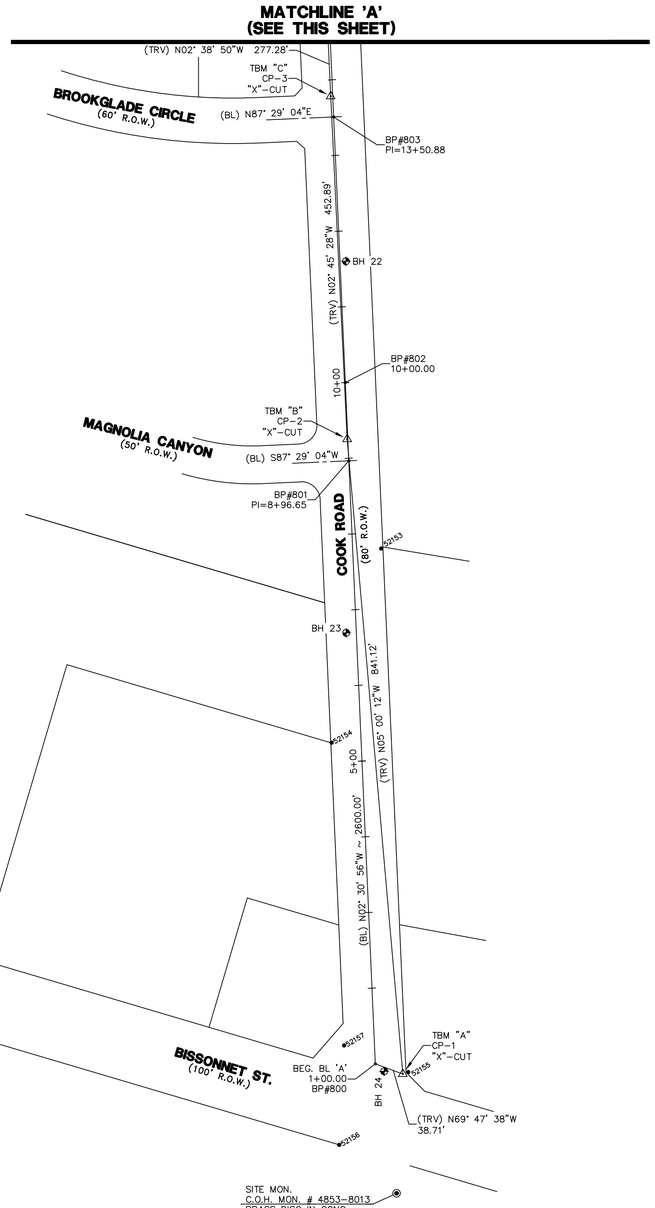
HOUSTON PUBLIC WORKS

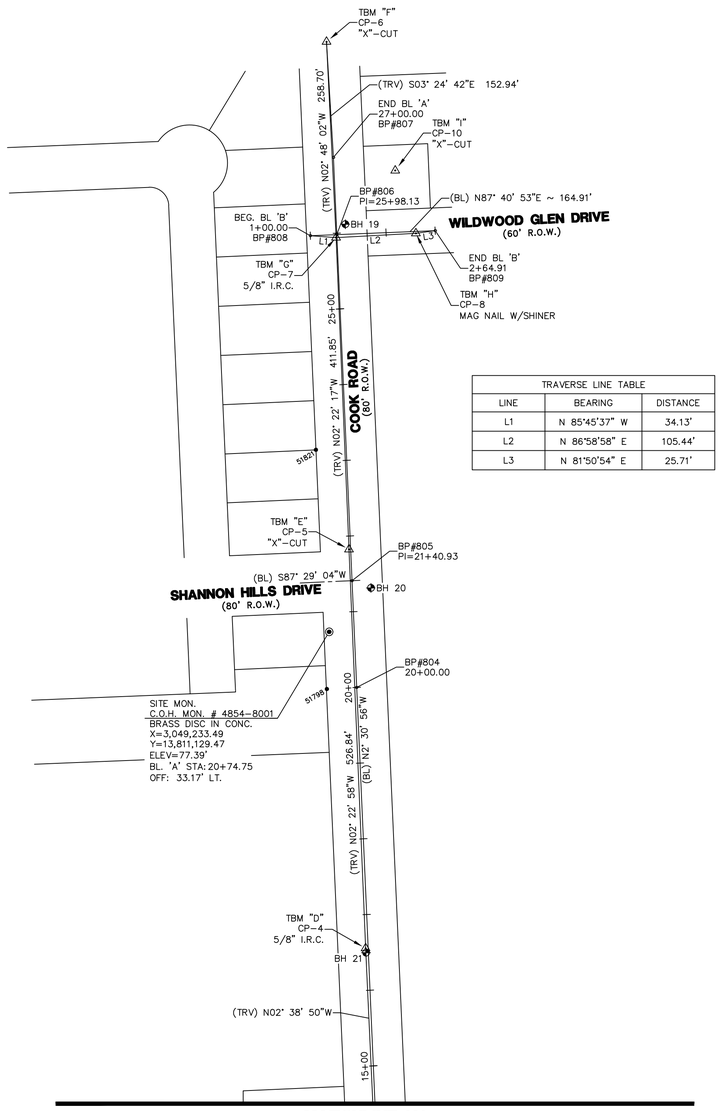
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD
SWINGTIES
SHEET 4 OF 4
SURVEY

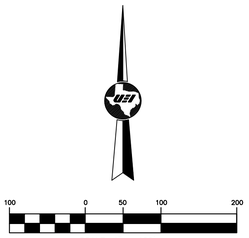
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 19 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\DAIRY\DAIRY SWINGTIE MASTER.dwg Mar 16 2026





TRAVERSE LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 85°45'37" W	34.13'
L2	N 86°58'58" E	105.44'
L3	N 81°50'54" E	25.71'



LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
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4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.63 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

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CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.09

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SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD
SURVEY CONTROL MAP
SHEET 1 OF 2
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
H: 1"=100'	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 20 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\COOK\COOK SURVEY CONTROL MASTER.dwg Mar 16 2026

HARRIS COUNTY FLOODPLAIN REFERENCE MARKS

Floodplain RM No.:	040525	**Reference Mark Status**	
Stream Number:	D120-00-00	**Date:**	6/4/2013
		Condition:	Recovered
County: Harris	**State:** Texas	**Established By:**	CDS/Muery & Pate Eng.
Key Map No.:	528R	**Date Established:**	5/14/2003
NGS Classification(1):	Range VI	**Watershed:**	Brays Bayou
RM's Directly Tied:	040530,040520,040630	**Survey Method Horz:**	GPSOBS
Units of Measure:	US Survey Foot	**Survey Method Vert:**	GPSOBS
Horizontal Datum:	NAD83	**Vertical Datum:**	NAVD88
Horizontal Adj.(2):	2001 Adjustment	**Vertical Adj.(3):**	2001 Adjustment
Projection Zone:	Texas South Central 4204	**Geoid Model Used:**	GEOID99 (CONUS)
Station Name:	040525	**Contractor PID:**	5147
Marker:	Brass DISC	**Rod Depth:**	NA
Stamping:	040525	**Sleeve Depth:**	NA
Mark Logo:	HCFCD	**Geoid Height:**	-89.34
Latitude:	29° 41' 01.97443" N	**Northing:**	13811856.15
Longitude:	95° 36' 14.48937" W	**Easting:**	3046625.99
Ellipsoid Height:	-8.38	**Elevation(4):**	81.22
Convergence:	1° 39' 49"	**Scale Factor:**	0.99988172
Satellite Observable:	YES	**Elevation Factor:**	1.0000004
NGS PID (if applic):	NA	**Combined Factor:**	0.99988212

Notes:

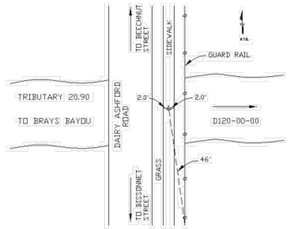
1. This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m=meters).
2. Horizontal Adjustment - This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
3. Vertical Adjustment - This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
4. The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.
5. The elevation is established by differential leveling techniques, utilizing the published elevations from nearby Reference Marks.

Station Recovery Data: Report an Issue with a Reference Mark - submit to Harris County Flood Control

HARRIS COUNTY FLOODPLAIN REFERENCE MARKS

Floodplain RM Number: 040525
Stream Number: D120-00-00
Northing: 13811856.15 **Easting:** 3046625.99 **Elevation:** 81.22

Location:
S Dairy Ashford Road and D120-00-00



To Reach Description
From the intersection of Beechnut Street and Dairy Ashford Road, travel South on Dairy Ashford Road approximately 0.4 mile to culvert. Monument is located on the East sidewall.

Photo 1-Station Detail:



Photo 2-Station Area Picture:



TSARP CONVERSION REFERENCE MONUMENT

(TSARP) HARRIS COUNTY FLOODPLAIN REFERENCE MARK NUMBER 040525:
FLOOD PLAIN REFERENCE MARK, BRASS DISK STAMPED 040525.
FROM THE INTERSECTION OF BEECHNUT ST. AND DAIRY ASHFORD RD.
TRAVEL SOUTH ON DAIRY ASHFORD RD APPROXIMATELY 0.35 MILE TO CULVERT.
MONUMENT IS LOCATED ON THE EAST SIDEWALK.
PUBLISHED ELEV= 81.22' (NAVD 1988, 2001 ADJ.) GEOID 99
OBSERVED ELEV= 80.59' (NAVD 1988, CORS '96) GEOID 12B

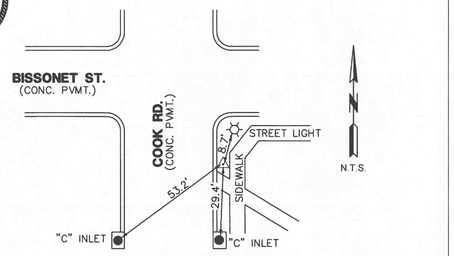
PROJECT SITE MONUMENT:

SITE MONUMENT #4853-8013
SET ALUMINUM DISK IN CONCRETE LOCATED AT SOUTHEAST
CORNER OF COOK ROAD AND BISSONET STREET.
ELEV= 80.59' (NAVD '88, (CORS '96) GEOID 12B)

SITE MONUMENT #4854-8001
SET ALUMINUM DISK IN CONCRETE LOCATED AT SOUTHWEST
CORNER OF COOK ROAD AND SHANNON HILLS DRIVE.
ELEV= 77.39' (NAVD '88, (CORS '96) GEOID 12B)

CITY OF HOUSTON

CITY SURVEY 4853-8013
SITE CONTROL MONUMENT



Project WBS# R-000035-0027-3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,049,381.39
Y= 13,808,987.49
Lat.= N 29°40'32.79"
Lon.= W 95°35'44.21"
Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: SOUTHEAST CORNER OF BISSONETT ST. AND COOK RD.

Keymap Page: 529 S
Orthometric Elevation = 80.59
Ellipsoid Height= -9.09
Geoid: GEOID 12B
Datum Source & Adjustment:
NAD '83 (CORS '96)

Date Set: 06-17-2024 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-1, 'X' CUT IN CONC., N 02° 59' 26" E ~ 157.73'
TO CP-2, 'X' CUT IN CONC., N 03° 44' 36" W ~ 997.56'
TO CP-3, 'C' CUT IN CONC., N 03° 26' 08" W ~ 1,450.41'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999870017
3. Surface= Grid
S.F.

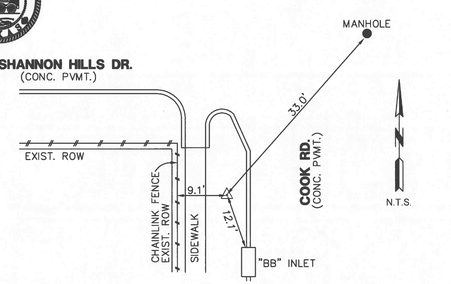
STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR
7-3-24

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Observed: June 17, 2024
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 4854-8001
SITE CONTROL MONUMENT



Project WBS# R-000035-0027-3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,049,233.49
Y= 13,811,129.47
Lat.= N 29°40'54.03"
Lon.= W 95°35'45.18"
Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: SOUTHWEST CORNER AT THE INTERSECTION OF COOK RD. AND SHANNON HILLS

Keymap Page: 529 N
Orthometric Elevation = 77.39
Ellipsoid Height= -12.32
Geoid: GEOID 12B
Datum Source & Adjustment:
NAD '83 (CORS '96)

Date Set: 06-17-2024 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-5, 'X' CUT IN CONC., N 13° 33' 48" E ~ 112.02'
TO CP-4, 5/8" IRON ROD W/CAP, S 06° 34' 57" E ~ 420.26'
TO CP-3, 'X' CUT IN CONC., S 05° 01' 06" W ~ 697.15'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999870017
3. Surface= Grid
S.F.

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR
7-3-24

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HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Observed: June 17, 2024
City of Houston, Harris County, Texas

ALIGNMENT LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 87°26'08" E	1321.52'
L2	S 69°04'50" E	135.62'
L3	N 87°24'28" E	924.81'
L4	N 75°56'42" E	169.91'

ALIGNMENT CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	15°18'44"	3000.00'	801.74'	S84° 54' 31"E ~ 799.36'
C2	23°38'47"	1988.94'	820.86'	S80° 52' 18"E ~ 815.04'
C3	23°31'18"	2000.19'	821.14'	S80° 49' 50"E ~ 815.39'
C4	10°55'13"	2121.78'	404.40'	N81° 44' 32"E ~ 403.79'

HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	0+85.05	35.70'R	A	13,809,144.97'	3,049,389.60'	81.49'	TBM "A"
2	9+25.38	-0.81'L	A	13,809,982.78'	3,049,316.25'	78.51'	TBM "B"
3	13+78.26	-2.72'L	A	13,810,435.08'	3,049,294.47'	78.55'	TBM "C"
4	16+55.54	-3.36'L	A	13,810,712.03'	3,049,281.66'	77.53'	TBM "D"
5	21+82.38	-2.14'L	A	13,811,238.35'	3,049,259.76'	77.80'	TBM "E"
6	28+52.93	-2.39'L	A	13,811,908.15'	3,049,230.08'	78.24'	TBM "F"
7	25+94.23	-1.10'L	A	13,811,649.79'	3,049,242.72'	77.06'	TBM "G"
8	25+95.16	104.33'R	A	13,811,655.34'	3,049,348.00'	80.08'	TBM "H"
10	26+79.26	80.76'R	A	13,811,738.32'	3,049,320.76'	82.11'	TBM "I"
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
7	1+33.91	3.90'R	B	13,811,649.79'	3,049,242.72'	77.06'	TBM "G"
8	2+39.34	2.61'R	B	13,811,655.34'	3,049,348.00'	80.08'	TBM "H"
10	2+15.48	-81.41'L	B	13,811,738.32'	3,049,320.76'	82.11'	TBM "I"

BOREHOLE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
20023	0+89.62	11.31'R	A	13,809,148.46'	3,049,365.03'	81.18'	BH 24
20022	6+69.87	-13.34'L	A	13,809,727.00'	3,049,314.94'	78.01'	BH 23
20021	11+59.78	7.84'R	A	13,810,217.31'	3,049,314.61'	77.17'	BH 22
20020	16+49.75	-3.14'L	A	13,810,706.25'	3,049,282.13'	77.68'	BH 21
20019	21+30.30	24.55'R	A	13,811,187.49'	3,049,288.71'	76.89'	BH 20
20018	26+11.27	11.81'R	A	13,811,667.38'	3,049,254.87'	77.34'	BH 19

BASELINE POINT TABLE (A)					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
800	1+00.00	A	13,809,158.34'	3,049,353.28'	SET X-CUT
801	8+96.65	A	13,809,954.11'	3,049,318.32'	SET X-CUT
802	10+00.00	A	13,810,057.35'	3,049,313.78'	SET 5/8" I.R.C.
803	13+50.88	A	13,810,407.84'	3,049,298.39'	SET X-CUT
804	20+00.00	A	13,811,056.26'	3,049,269.90'	SET X-CUT
805	21+40.93	A	13,811,197.03'	3,049,263.72'	SET X-CUT
806	25+98.13	A	13,811,653.73'	3,049,243.65'	SET 5/8"I.R.C.
807	27+00.00	A	13,811,755.49'	3,049,239.18'	SET 5/8"I.R.C.
BASELINE POINT TABLE (B)					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
806	1+35.00	B	13,811,653.73'	3,049,243.65'	SET 5/8"I.R.C.
808	1+00.00	B	13,811,652.32'	3,049,208.69'	SET X-CUT
809	2+64.91	B	13,811,658.99'	3,049,373.44'	SET X-CUT

RIGHT OF WAY CONTROL MONUMENT TABLE					
POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
51798	19+99.58	-39.48'L	A	5/8"I.R.	CM
51821	23+15.58	-40.00'L	A	5/8"I.R.	CM
52153	7+79.14	37.73'R	A	X-CUT	
52154	5+26.09	-38.92'L	A	X-CUT	CM
52155	0+87.27	43.04'R	A	5/8"I.R.C.	
52156			A	1"I.P.	CM
52157	1+26.02	-40.00'L	A	5/8"I.R.	CM

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-24

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.10

TBM LIST:

TBM 'A', CP-1, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 81.49'

TBM 'B', CP-2, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.51'

TBM 'C', CP-3, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.55'

TBM 'D', CP-4, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.53'

TBM 'E', CP-5, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 77.80'

TBM 'F', CP-6, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.24'

TBM 'G', CP-7, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.06'

TBM 'H', CP-8, MAG NAIL W/SHINER. (SEE RECOVERY SKETCH)
ELEV= 80.08'

TBM 'I', CP-10, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 82.11'

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 6969 CONTROL MONUMENTS

GENERAL NOTES:
CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.63 FEET TO ALL ELEVATIONS.

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-00142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
TEL. (713) 271-2900
FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND
RECONSTRUCTION FOR OLD KATY
AND COOK ROAD LIFT STATIONS

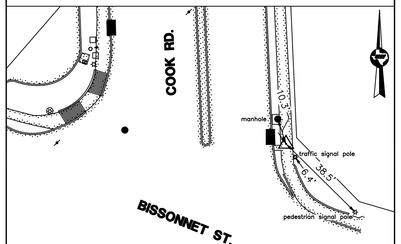
COOK ROAD
SURVEY CONTROL MAP
SHEET 2 OF 2
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 21 OF 192	

K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\COOK\COOK SURVEY CONTROL MASTER.dwg Mar 16 2026

STA: 0+85.05 BL "A"
OFFSET: 35.70' RT

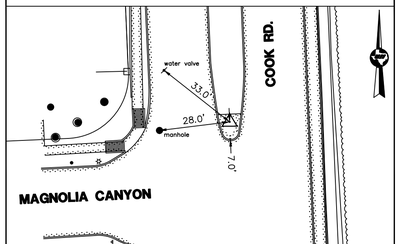
CONTROL PT. #1



SET: X-CUT

STA: 9+25.38 BL "A"
OFFSET: 0.81' LT

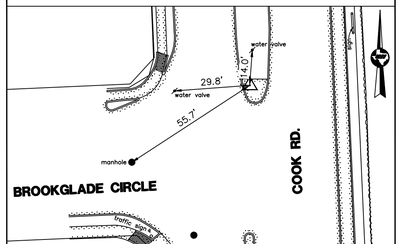
CONTROL PT. #2



SET: X-CUT

STA: 13+78.26 BL "A"
OFFSET: 2.72' LT

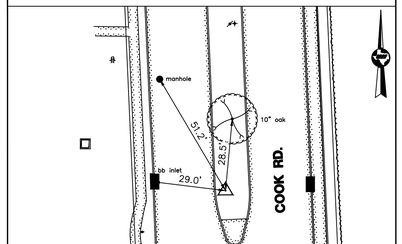
CONTROL PT. #3



SET: X-CUT

STA: 16+55.54 BL "A"
OFFSET: 3.36' LT

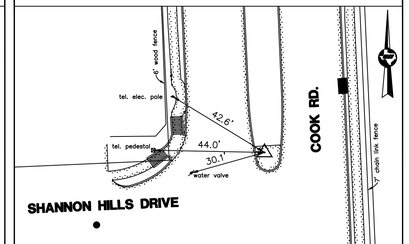
CONTROL PT. #4



SET: 5/8" I.R.C.

STA: 21+82.38 BL "A"
OFFSET: 2.14' LT

CONTROL PT. #5



SET: X-CUT

STA: 28+52.93 BL "A"
OFFSET: 2.39' LT

CONTROL PT. #6

OFF SITE
NO TOPO FOR SKETCH

SET: X-CUT

STA: 25+94.23 BL "A"
OFFSET: 1.10' LT

CONTROL PT. #7

SET: 5/8" I.R.C.

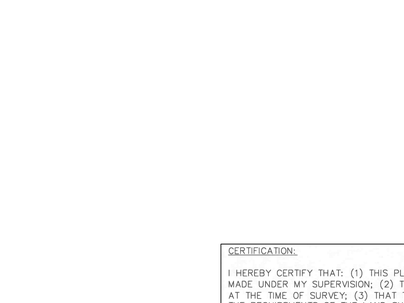
STA: 2+39.34 BL "B"
OFFSET: 2.61' RT

CONTROL PT. #8

SET: MAG NAIL W/SHINER

STA: 2+15.48 BL "B"
OFFSET: 81.41' LT

CONTROL PT. #10



SET: X-CUT

GENERAL NOTES:
CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
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CM indicates Control Monument
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NOTES:

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2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.63 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.11

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TEXAS 77074
TEL (713) 271-2900 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

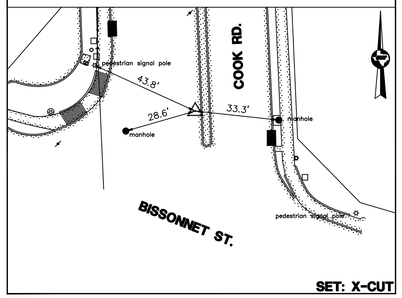
FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD
SWINGTIES
SHEET 1 OF 2
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 22 OF 192	

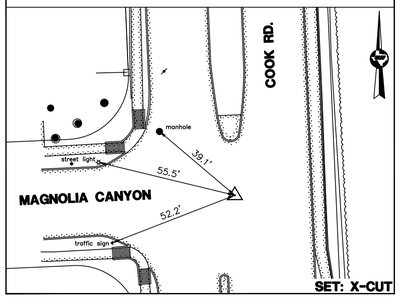
K:\CIV\224-050 - Cook and Dairy Ashford LS\Survey\Dwg\SURVEY CONTROL MAP\COOK\COOK SWINGTIE MASTER.dwg Mar 16 2026

STA: 1+00.00 BL "A" **BASELINE PT. #800**



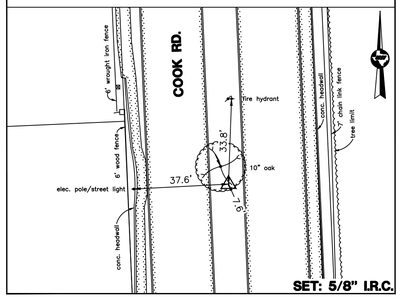
SET: X-CUT

STA: 8+96.65 BL "A" **BASELINE PT. #801**



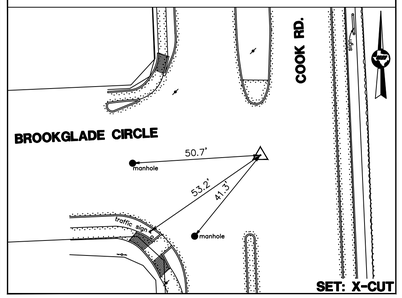
SET: X-CUT

STA: 10+00.00 BL "A" **BASELINE PT. #802**



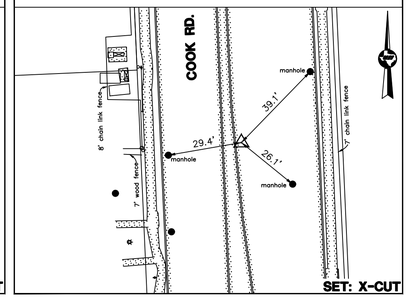
SET: 5/8" I.R.C.

STA: 13+50.88 BL "A" **BASELINE PT. #803**



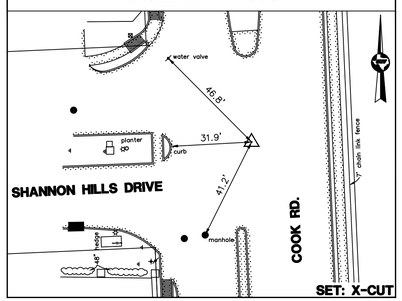
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STA: 20+00.00 BL "A" **BASELINE PT. #804**



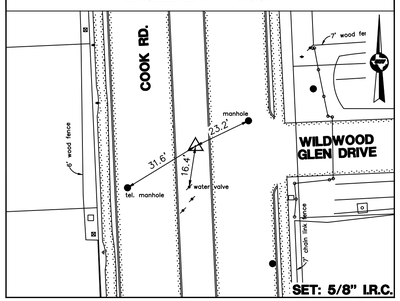
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STA: 21+40.93 BL "A" **BASELINE PT. #805**



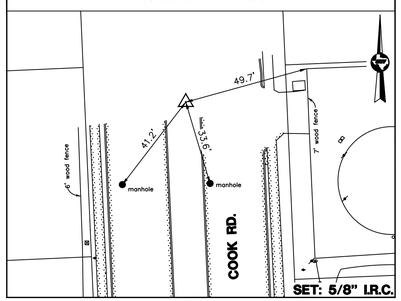
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STA: 25+98.13 BL "A" **BASELINE PT. #806**



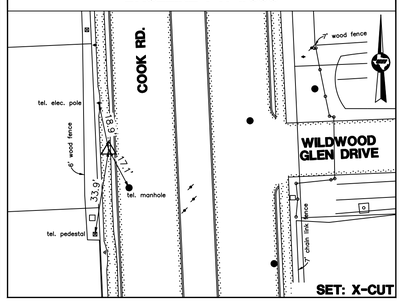
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STA: 27+00.00 BL "A" **BASELINE PT. #807**



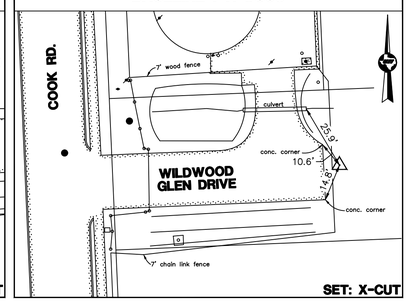
SET: 5/8" I.R.C.

STA: 1+00.00 BL "B" **BASELINE PT. #808**



SET: X-CUT

STA: 2+64.91 BL "B" **BASELINE PT. #809**



SET: X-CUT

GENERAL NOTES:
CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C., indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (2011), ITRF (EPOCH 2010.0000), NAVD '88 (GEOID 12B).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999870017.
3. RIGHT OF WAY NOR PROPERTY LINES WILL BE SHOWN ON THIS PROJECT.
4. TO CONVERT PROJECT TO TSARP DATUM (GD99) ADD 0.63 FEET TO ALL ELEVATIONS.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 — DATE 3-16-26

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR

C0.12

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TEXAS 77074
TEL (713) 271-2900 FAX (713) 271-2999

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UEI
FB NO. P6417

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD
SWINGTIES
SHEET 2 OF 2
SURVEY

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0304-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
MARIA GEORGE, PE	
SHEET NO. 23 OF 192	

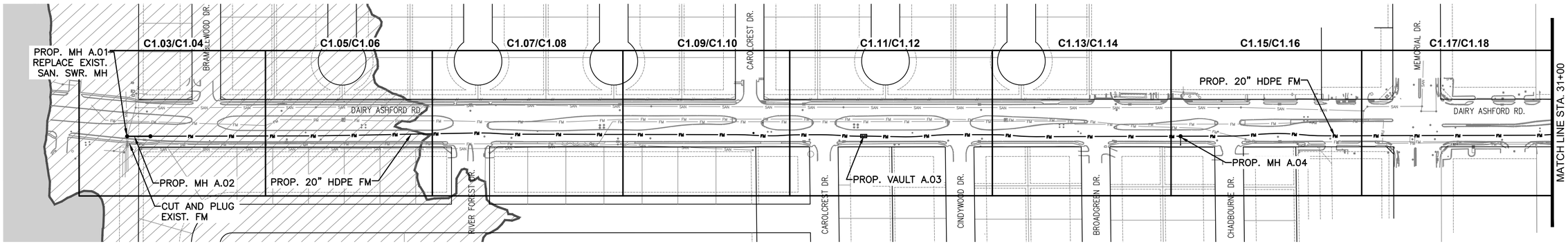
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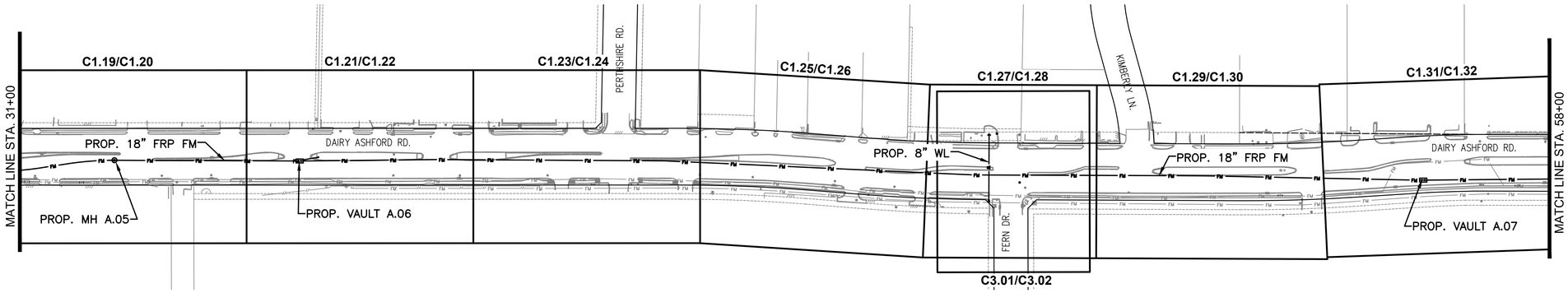
NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

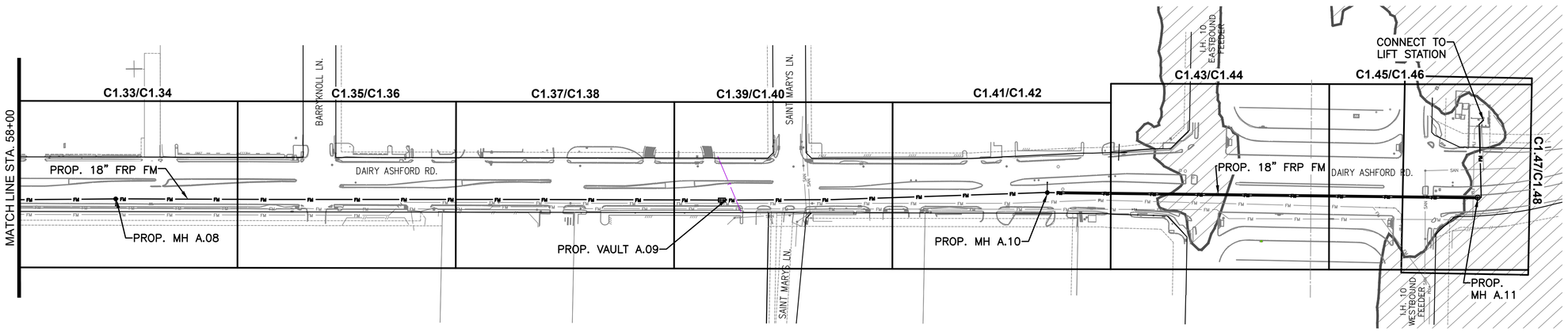
N

0' 55' 110' 220'

SCALE: 1"=110'







FMO NOTES:

1. THIS PROJECT WILL NOT RESULT IN THE ADDITION OF ANY FILL MATERIAL WITHIN THE 500-YR FLOODPLAIN.
2. DURING ALL CONSTRUCTION ACTIVITY, THE CONTRACTOR MUST NOT STORE ANY CONSTRUCTION EXCAVATED MATERIALS WITHIN THE PROJECT SITE THAT IS IN THE DELINEATED 500-YR FLOOD ZONE AND BELOW THE 500-YEAR FLOOD ELEVATION. THE CONTRACTOR'S CONSTRUCTION "MEANS AND METHODS" MUST INCLUDE THE REMOVAL AND/OR HAULING OF ANY EXCAVATED MATERIALS FROM THE SITE.
3. 100-YR AND 500-YR FLOOD PLAIN DETERMINATION FROM FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP PANEL NUMBER 48201C0640M, REVISED NOVEMBER 15, 2019.

LEGEND:

- FEMA 100-YEAR FLOODPLAIN
- FEMA 500-YEAR FLOODPLAIN

C1.01

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99459 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN OVERALL LAYOUT

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=110'

SHEET NO. 24 OF 192

FOR CITY OF HOUSTON USE ONLY

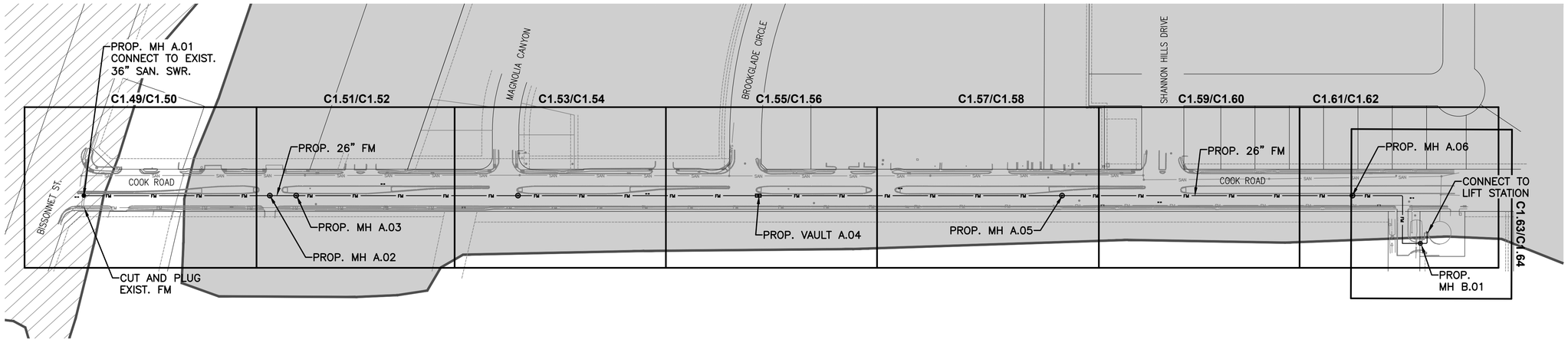
FILE PATH: C:\Users\p003339\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Overall.dwg

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

N

0' 55' 110' 220'

SCALE: 1"=110'



FMO NOTES:

1. THIS PROJECT WILL NOT RESULT IN THE ADDITION OF ANY FILL MATERIAL WITHIN THE 500-YR FLOODPLAIN.
2. DURING ALL CONSTRUCTION ACTIVITY, THE CONTRACTOR MUST NOT STORE ANY CONSTRUCTION EXCAVATED MATERIALS WITHIN THE PROJECT SITE THAT IS IN THE DELINEATED 500-YR FLOOD ZONE AND BELOW THE 500-YEAR FLOOD ELEVATION. THE CONTRACTOR'S CONSTRUCTION "MEANS AND METHODS" MUST INCLUDE THE REMOVAL AND/OR HAULING OF ANY EXCAVATED MATERIALS FROM THE SITE.
3. 100-YR AND 500-YR FLOOD PLAIN DETERMINATION FROM FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP PANEL NUMBER 48201C0840L, REVISED JUNE 18, 2007.

LEGEND:

FEMA 100-YEAR FLOODPLAIN

FEMA 500-YEAR FLOODPLAIN

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN OVERALL PLAN

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=110'

SHEET NO. 25 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.02

FILE PATH: C:\Users\p003339l1\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Overall.dwg

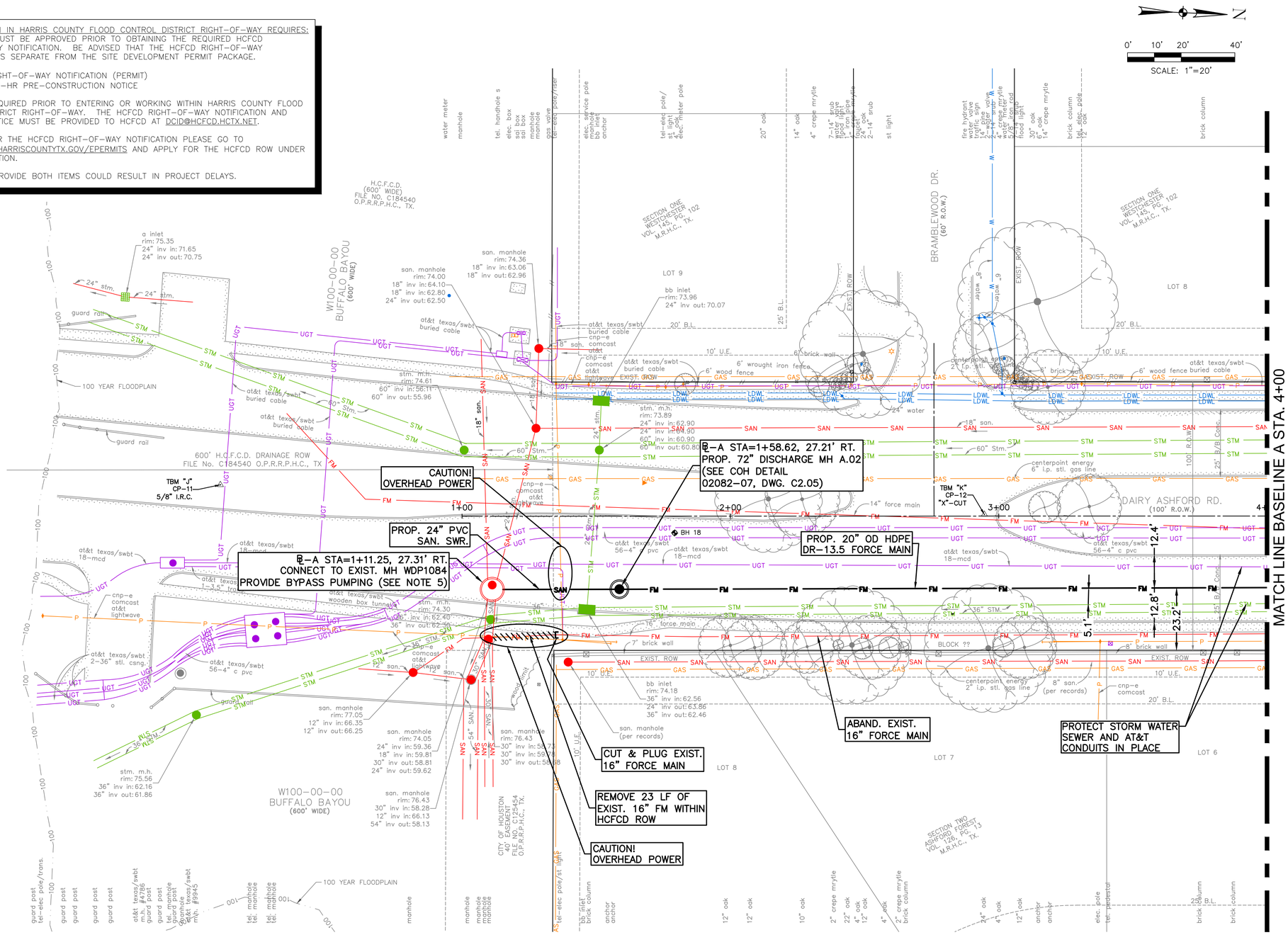
CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY REQUIRES: SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

1.) HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT)
2.) HCFCD 48-HR PRE-CONSTRUCTION NOTICE

BOTH ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. THE HCFCD RIGHT-OF-WAY NOTIFICATION AND 48-HOUR NOTICE MUST BE PROVIDED TO HCFCD AT DCID@HCFCD.HCTX.NET.

TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO HTTP://APPS.HARRISCOUNTYTX.GOV/EPERMITS AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

FAILURE TO PROVIDE BOTH ITEMS COULD RESULT IN PROJECT DELAYS.



BENCHMARK:

CP-11 AT STA. 0+09.95, 11.71' LT, EL.=76.37
CP-12 AT STA. 2+94.64, 0.62' LT, EL.=73.30

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.
5. INSPECT AND REHABILITATE MANHOLE PRIOR TO CONNECTION OF THE 24-INCH SEWER LINE.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A BEGIN TO STA. 4+00

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

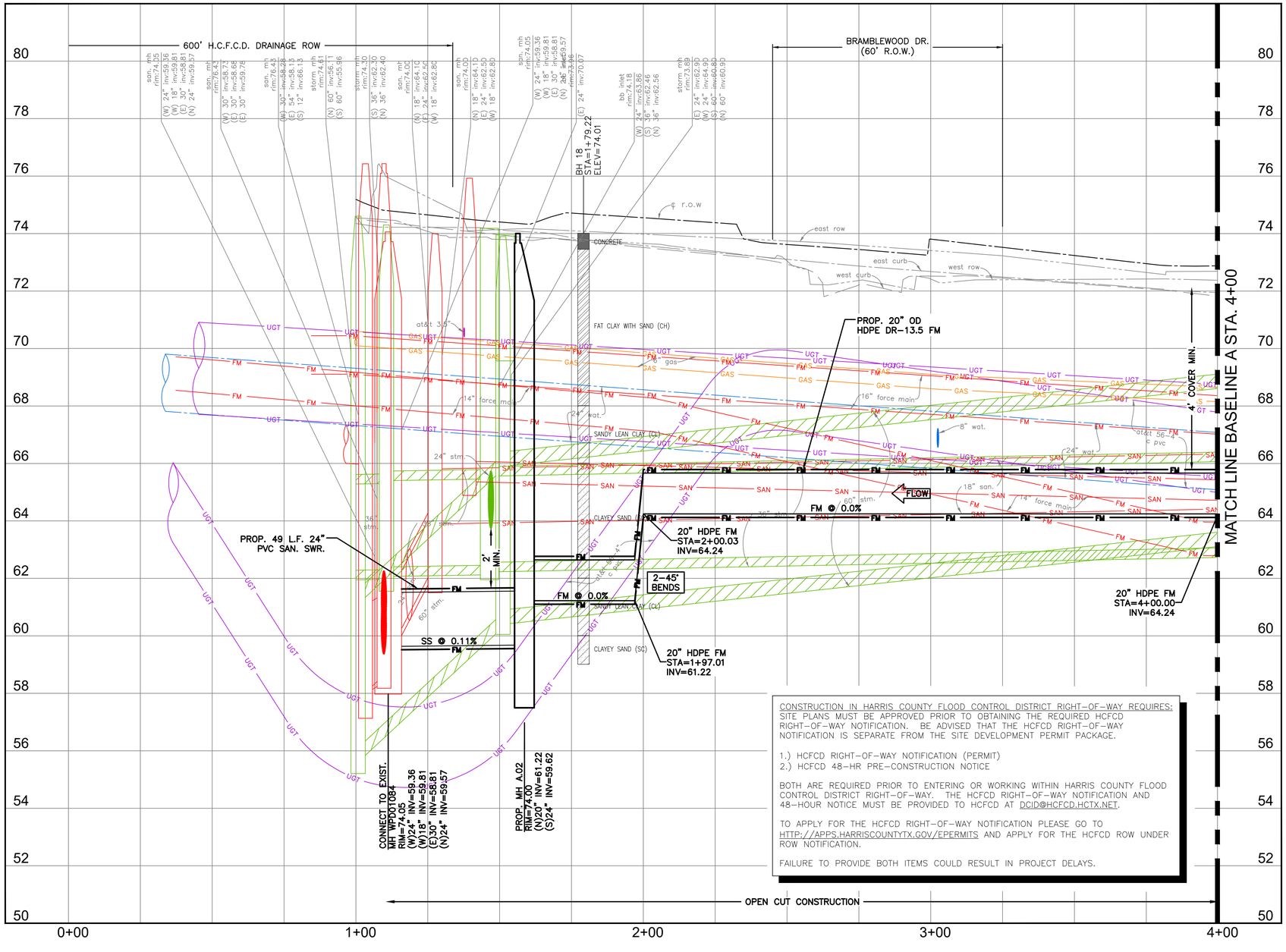
DRAWING SCALE: 1"=20'

SHEET NO. 26 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.03

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY REQUIRES: SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

1.) HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT)
2.) HCFCD 48-HR PRE-CONSTRUCTION NOTICE

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TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO HTTP://APPS.HARRISCOUNTYTX.GOV/EPERMITS AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

FAILURE TO PROVIDE BOTH ITEMS COULD RESULT IN PROJECT DELAYS.

0' 10' 20' 40'
SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A BEGIN TO STA. 4+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

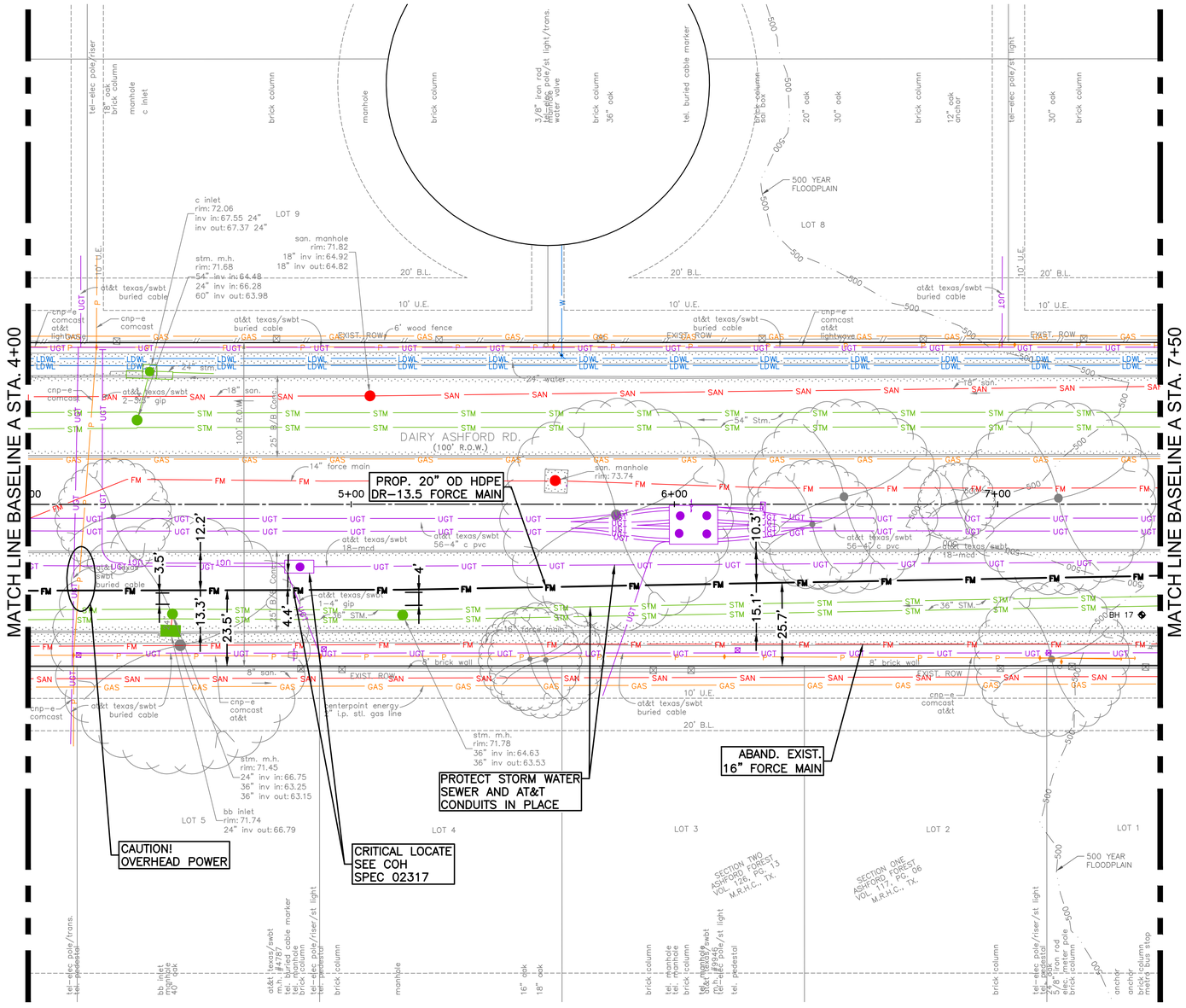
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

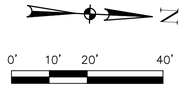
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 27 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg





BENCHMARK:

CP-12 AT STA. 2+94.64, 0.62' LT., EL=73.30'
CP-13 AT STA. 8+62.05, 4.30' RT., EL=76.40'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 4+00 TO STA. 7+50

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

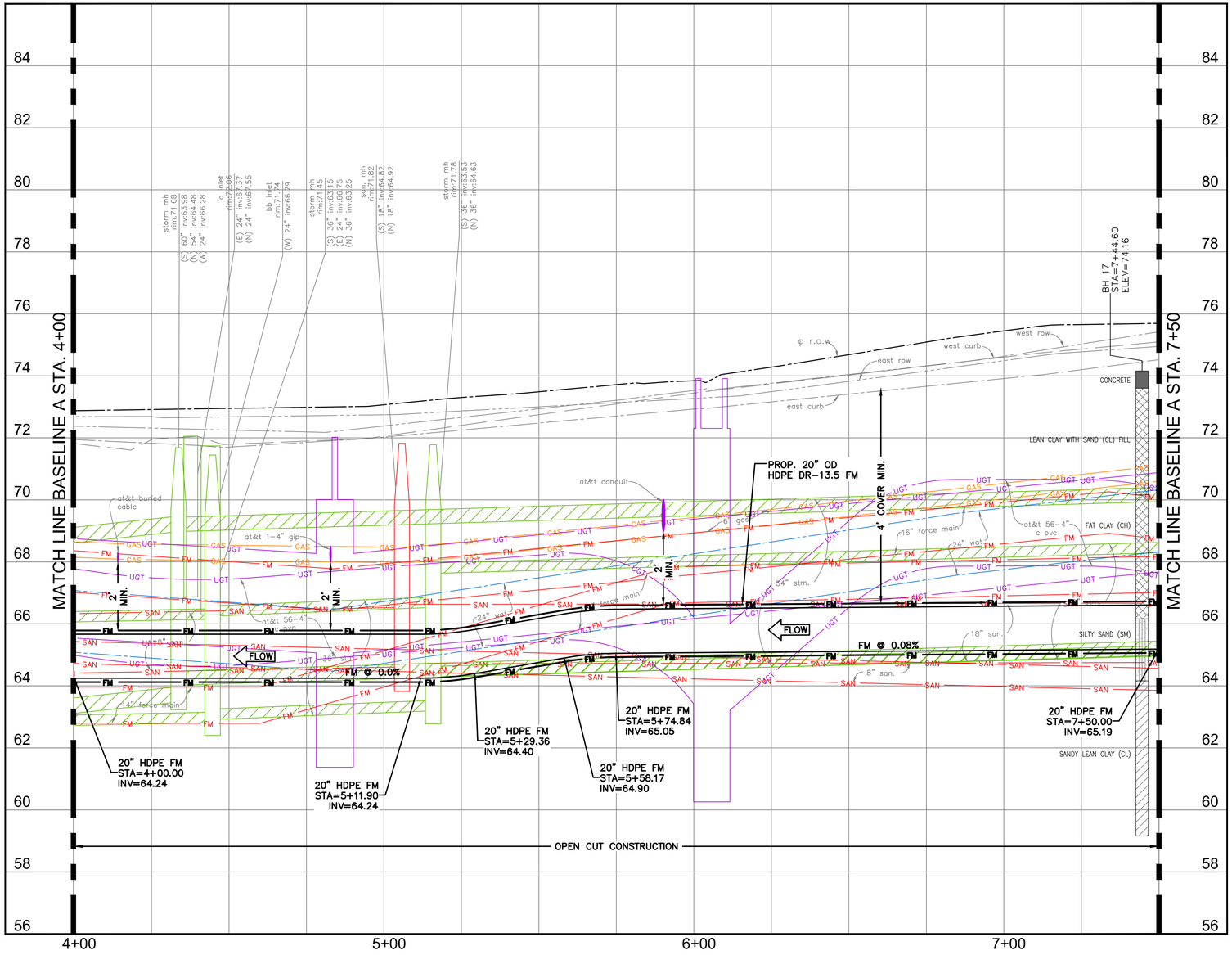
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 28 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:

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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99459 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 4+00 TO STA. 7+50

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4

CITY OF HOUSTON PM: MARIA GEORGE, PE

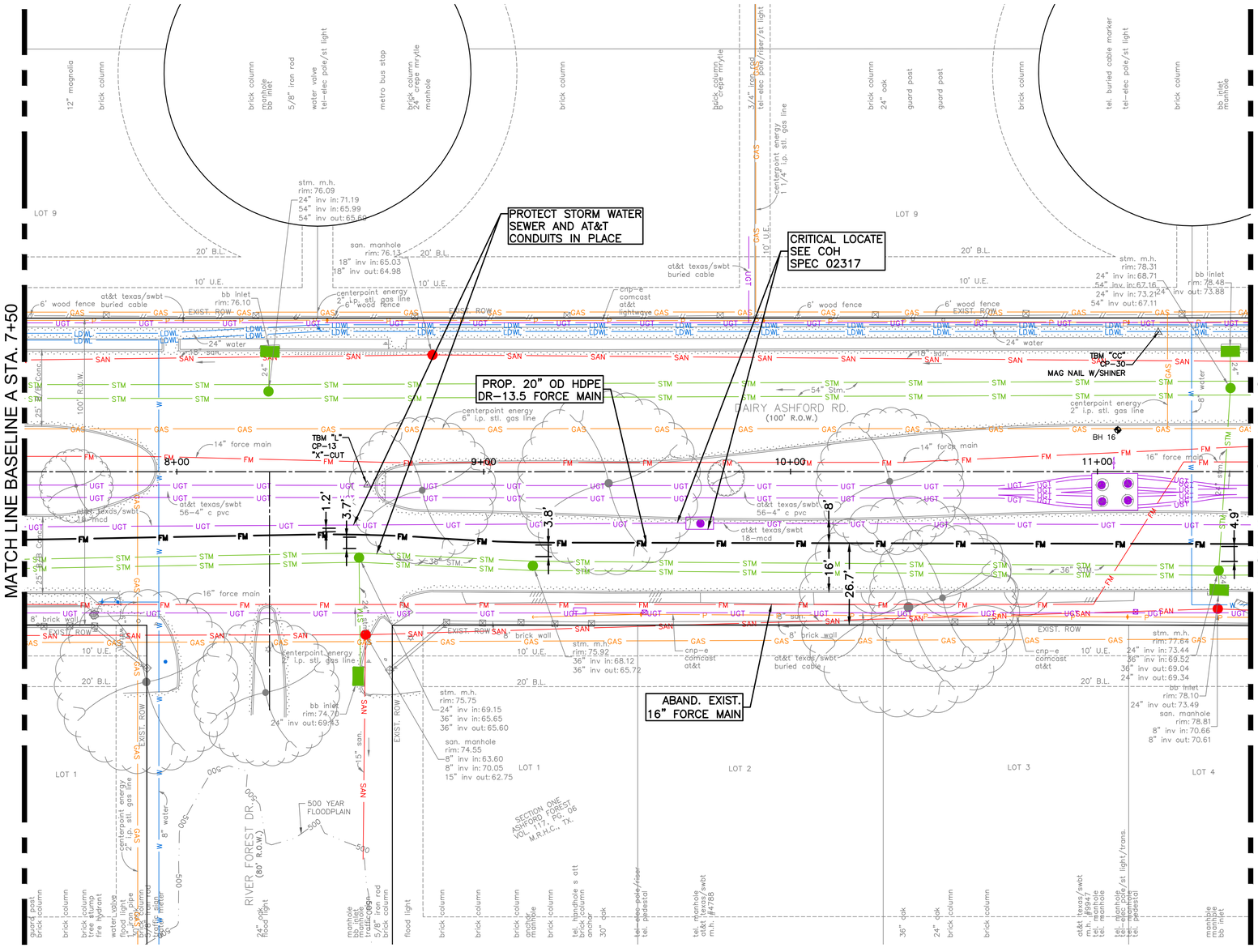
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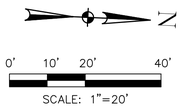
SHEET NO. 29 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.06

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg





NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

BENCHMARK:

CP-13 AT STA. 8+62.05, 4.30' RT., EL=76.40'
CP-30 AT STA. 11+19.85, 45.40' LT., EL=78.38'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

NOTICE:

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 7+50 TO STA. 11+50

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

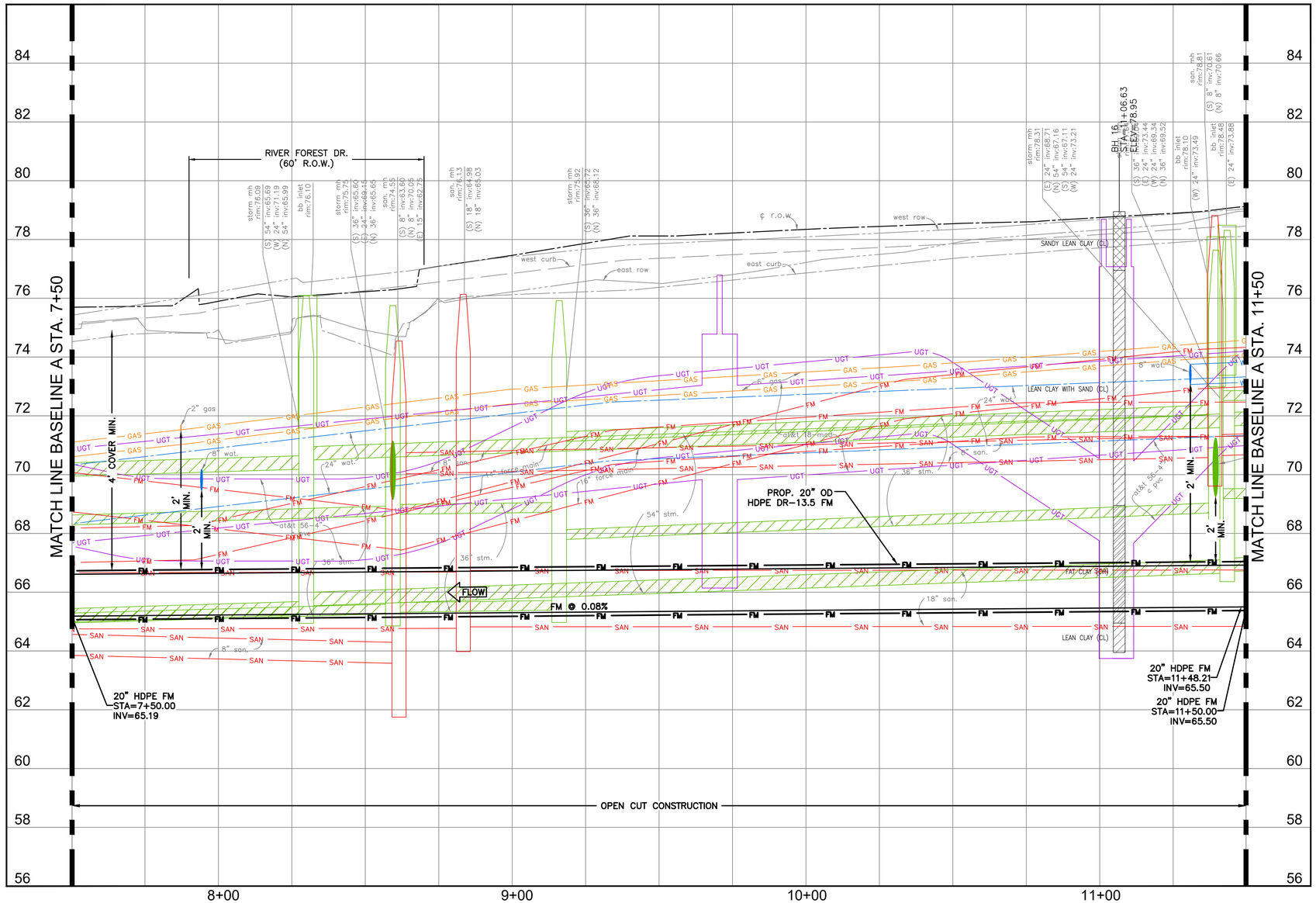
DRAWING SCALE: 1"=20'

SHEET NO. 30 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.07

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 7+50 TO STA. 11+50

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

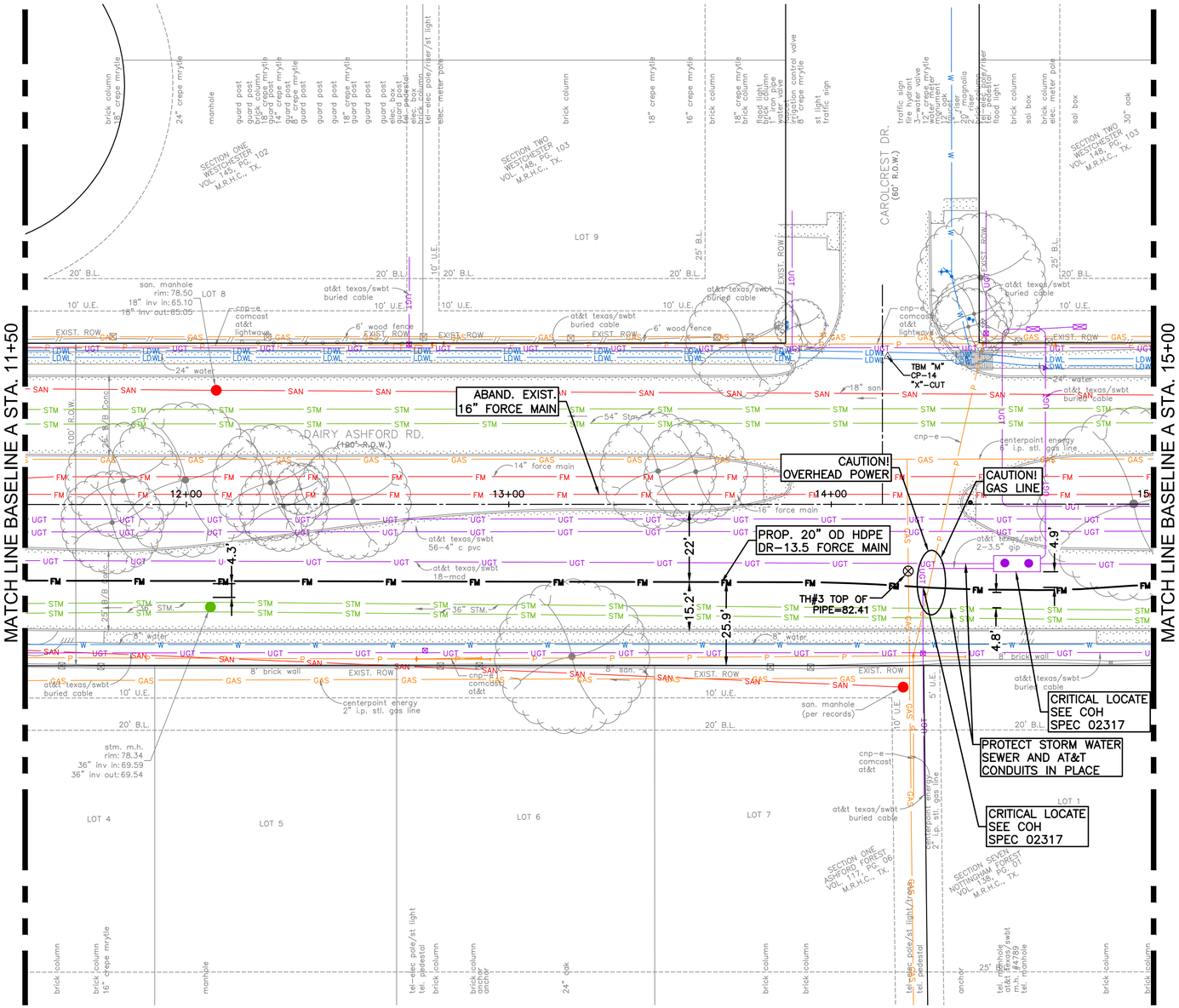
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SHEET NO. 31 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.08

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP-14 AT STA. 14+17.51, 45.84' LT., EL=79.66'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

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VERIFICATION OF PRIVATE UTILITY LINES

Date

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Date

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Date

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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 11+50 TO STA. 15+00

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

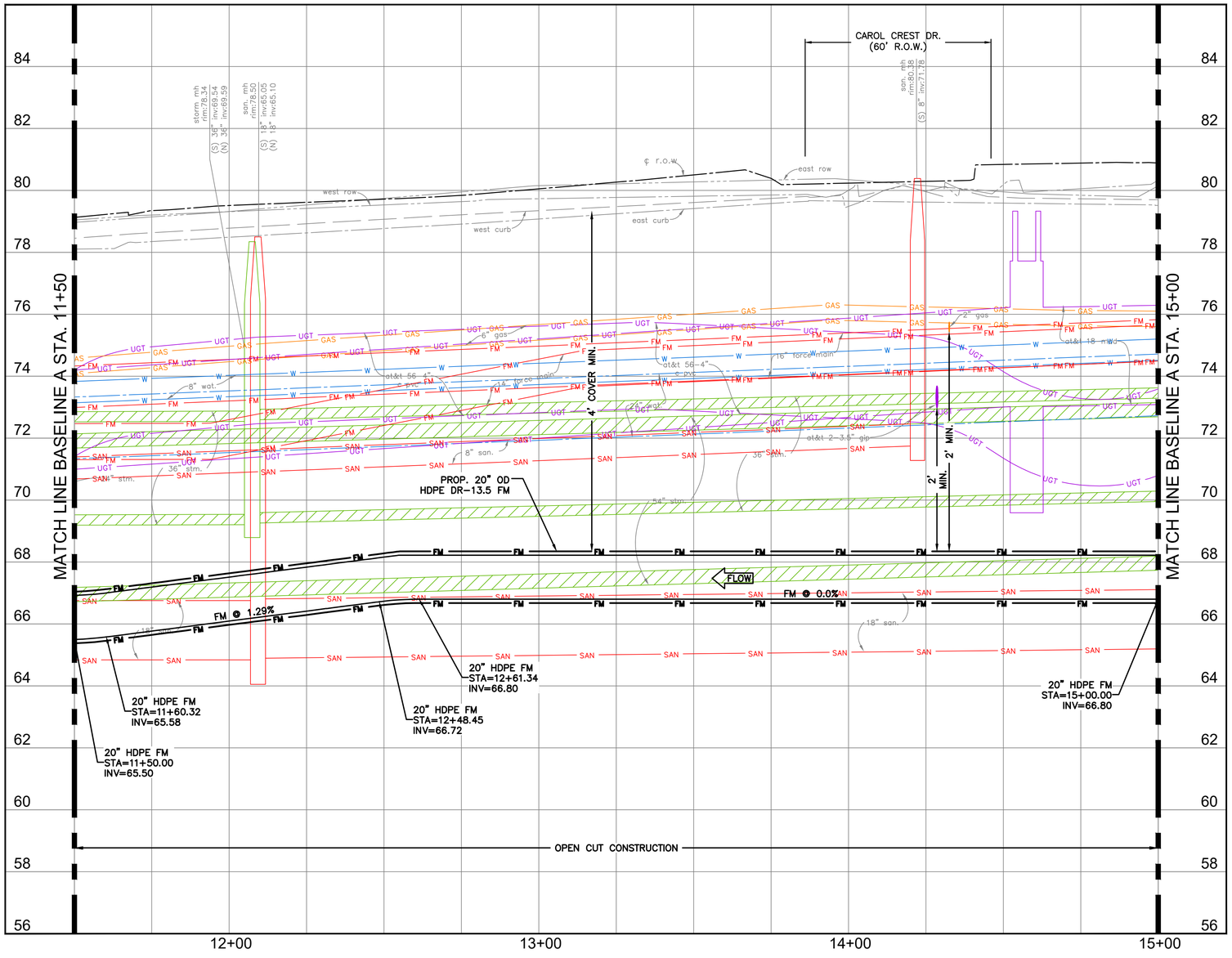
DRAWING SCALE: 1"=20'

SHEET NO. 32 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.09

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 11+50 TO STA. 15+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

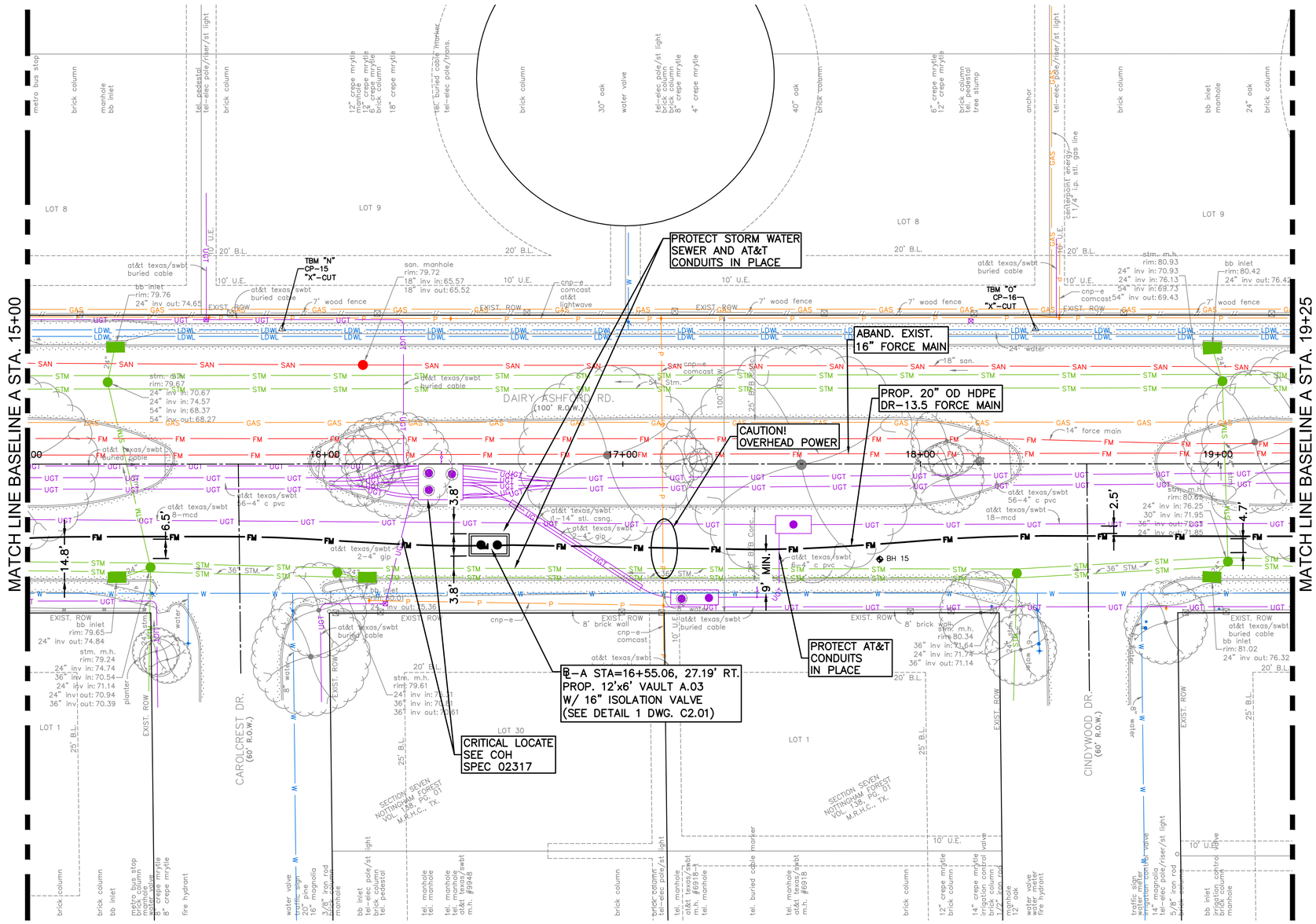
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 33 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.10

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



FILE PATH: C:\Users\p003391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

BENCHMARK:

CP-15 AT STA. 15+85.48, 45.43' LT., EL=79.84'
CP-16 AT STA. 18+38.61, 45.41' LT., EL=80.88'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 15+00 TO STA. 19+25

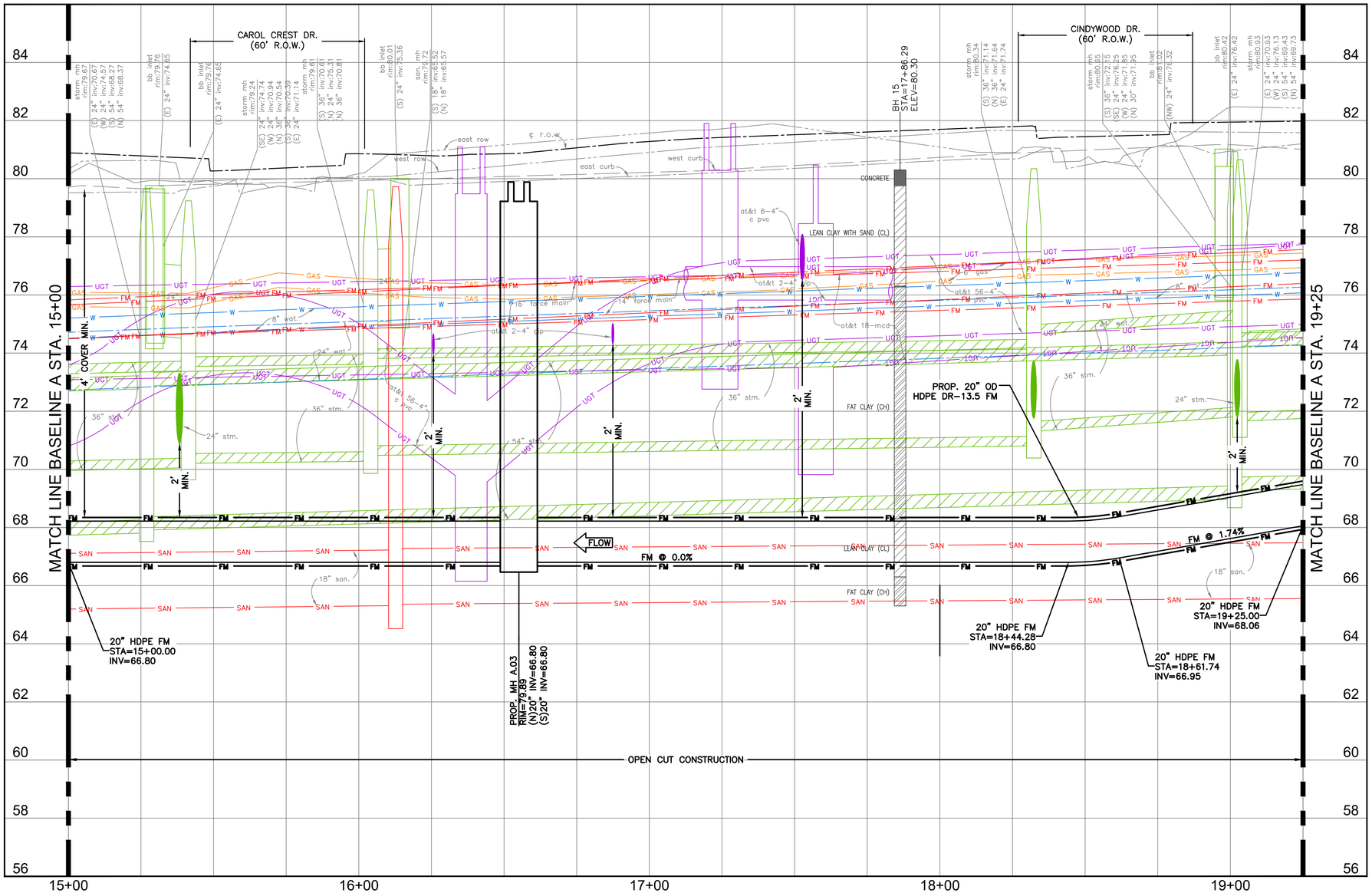
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 34 OF 192

FOR CITY OF HOUSTON USE ONLY



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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Date

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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 15+00 TO STA. 19+25

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

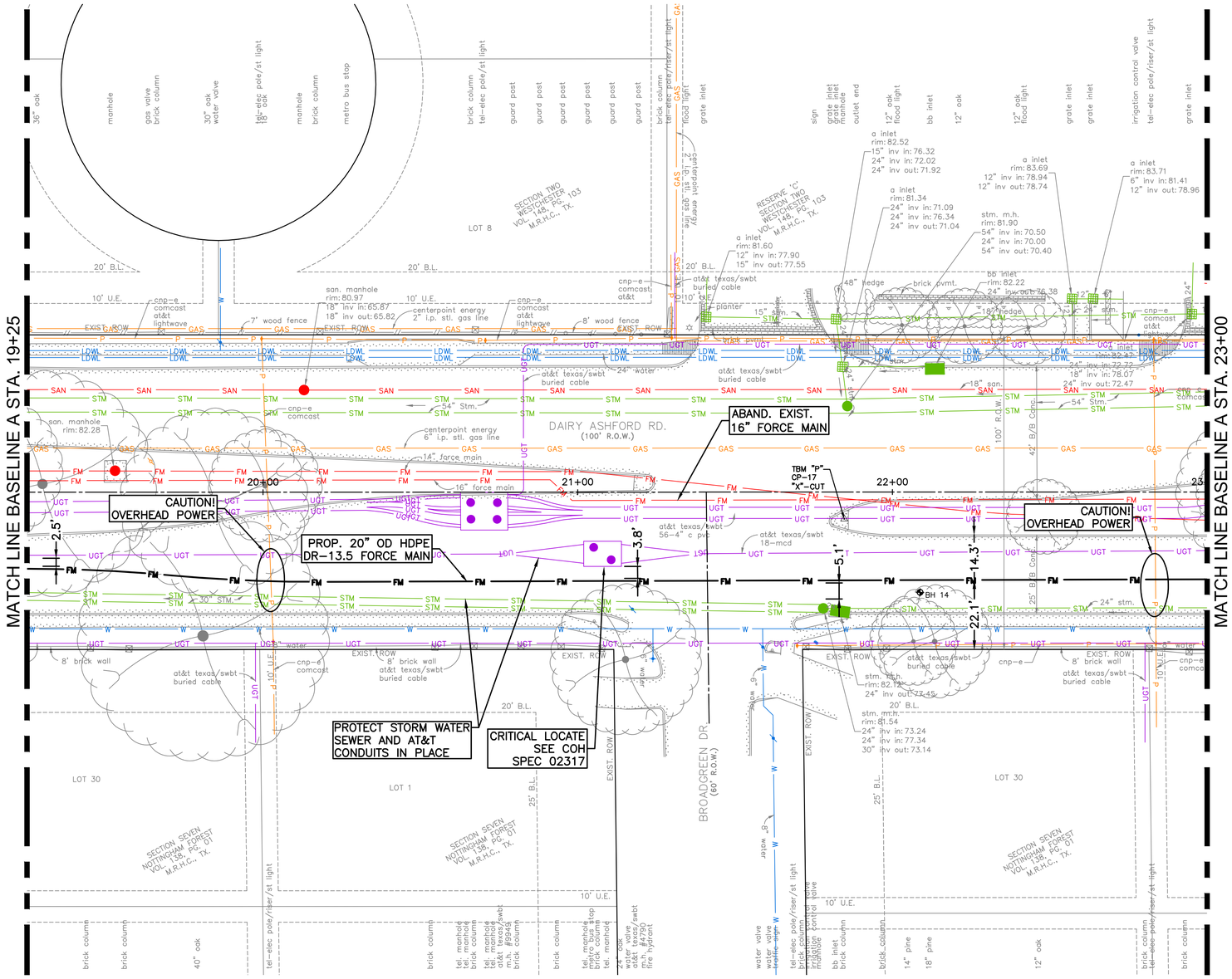
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 35 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.12

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



NO.	DATE	REVISION	APP.
A	10/7/24	60% SUBMITTAL	MS
B	2/24/25	90% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
D	3/23/26	100% SUBMITTAL	MS

N

0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP-17 AT STA. 21+84.69, 8.54' RT., EL=83.24'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
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VERIFICATION OF PRIVATE UTILITY LINES

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Date

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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 19+25 TO STA. 23+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

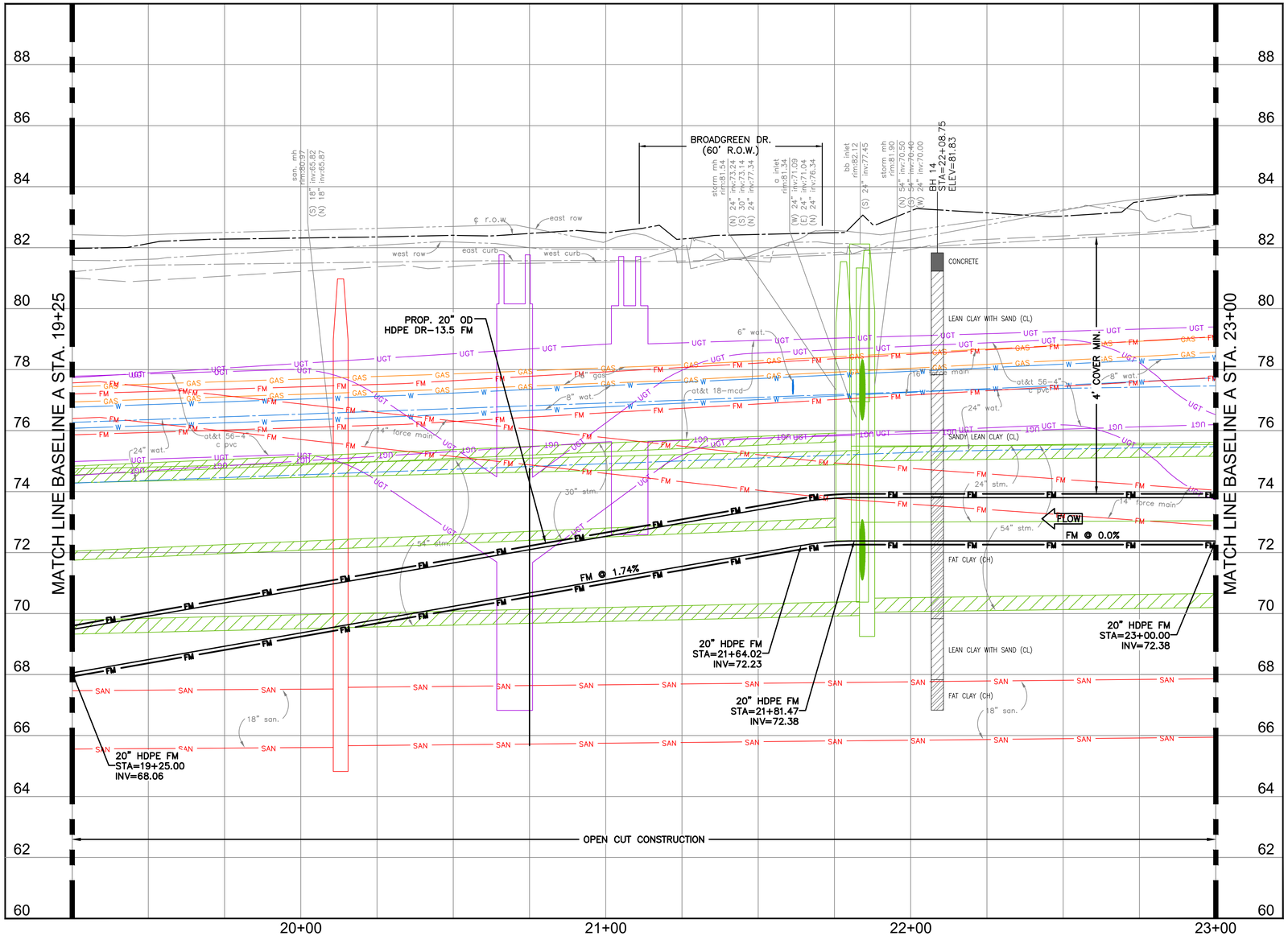
DRAWING SCALE: 1"=20'

SHEET NO. 36 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.13

FILE PATH: C:\Users\p003391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 19+25 TO STA. 23+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

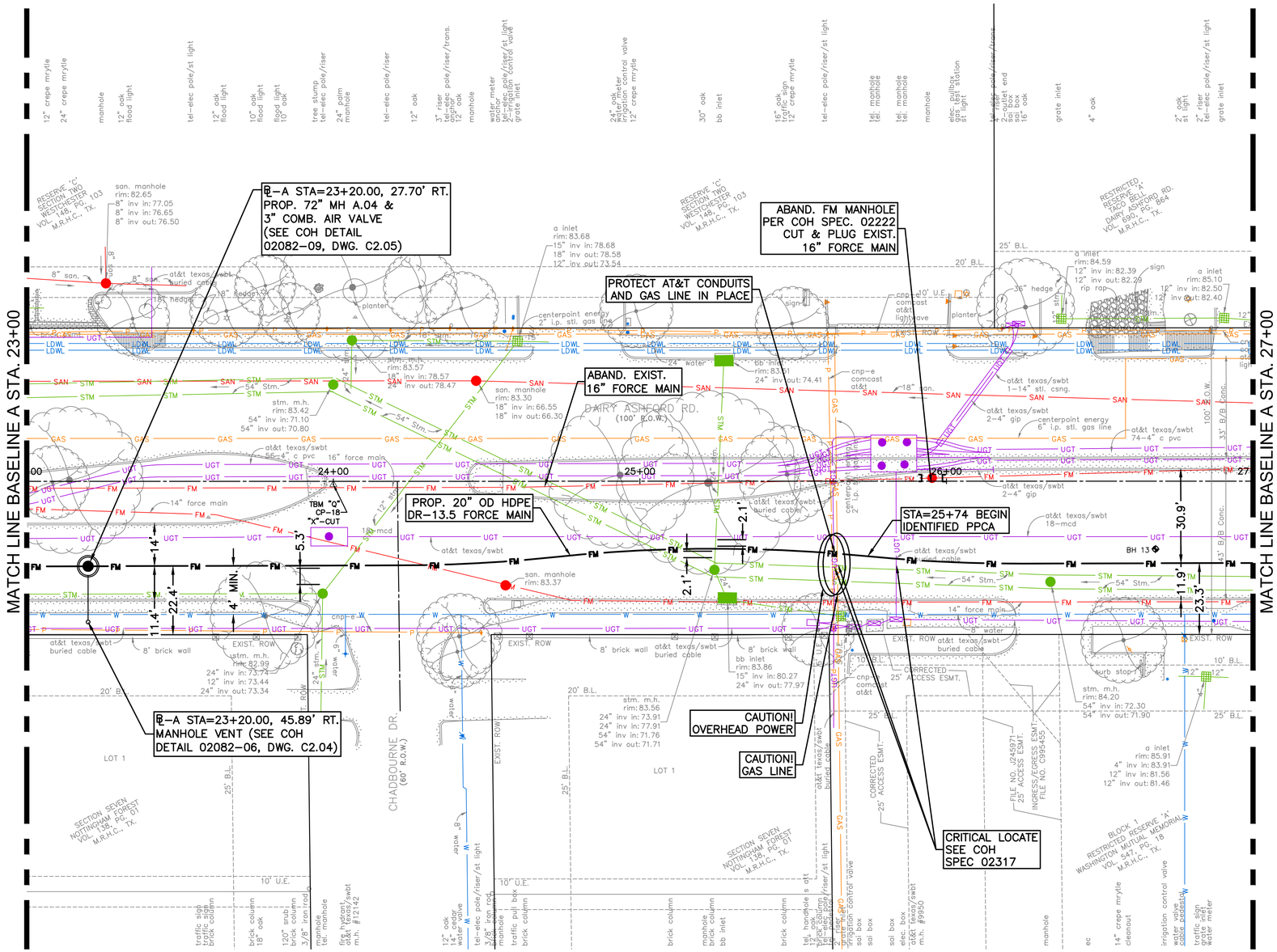
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 37 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP–18 AT STA. 24+00.02, 1.08' RT., EL=83.87'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
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HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 23+00 TO STA. 27+00

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4

CITY OF HOUSTON PM: MARIA GEORGE, PE

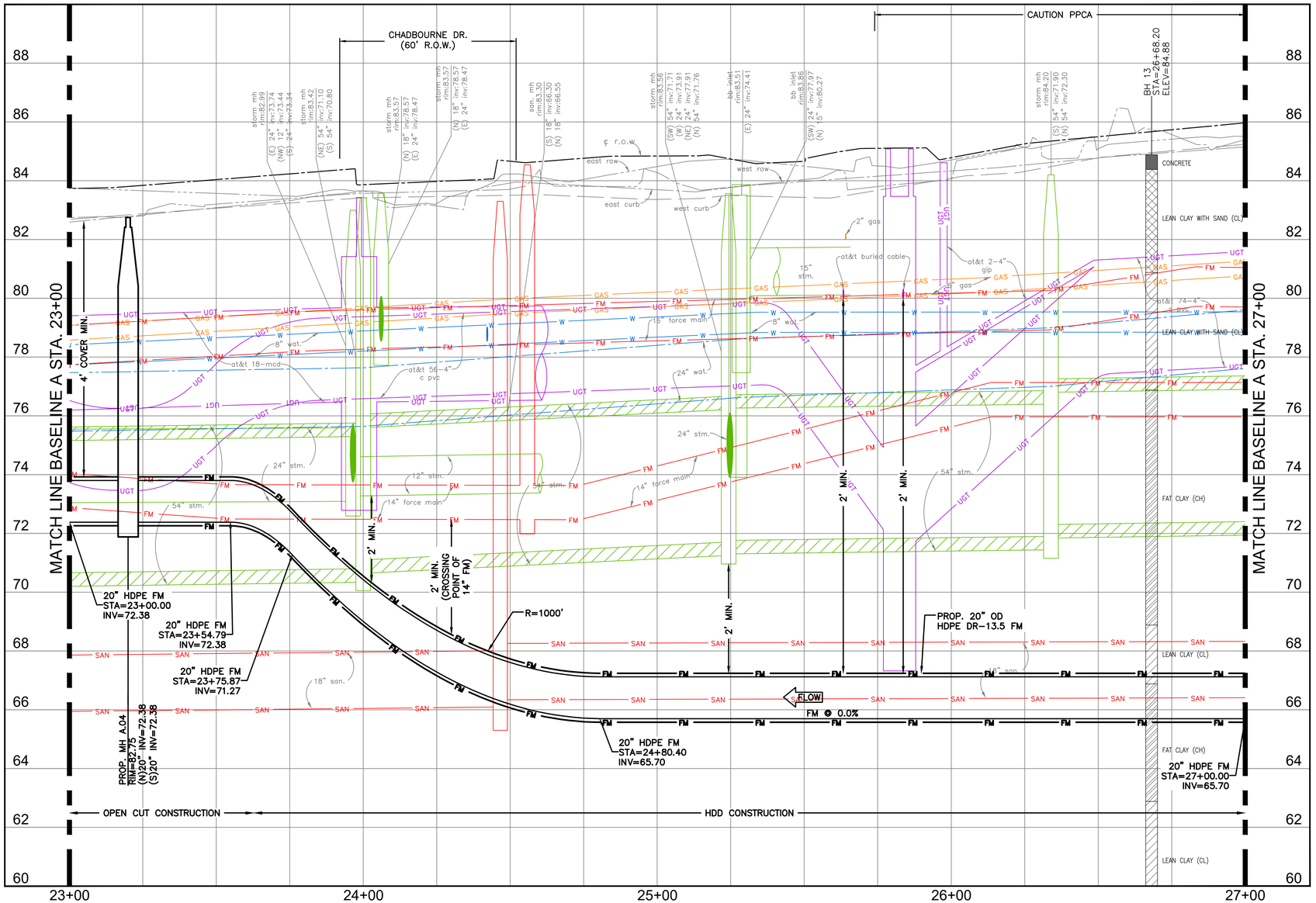
DRAWING SCALE: 1"=20'

SHEET NO. 38 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.15

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562–COHFM–oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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VERIFICATION OF PRIVATE UTILITY LINES

Date

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Signature valid for six months.

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Signature valid for six months.

Date

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Signature valid for one year.

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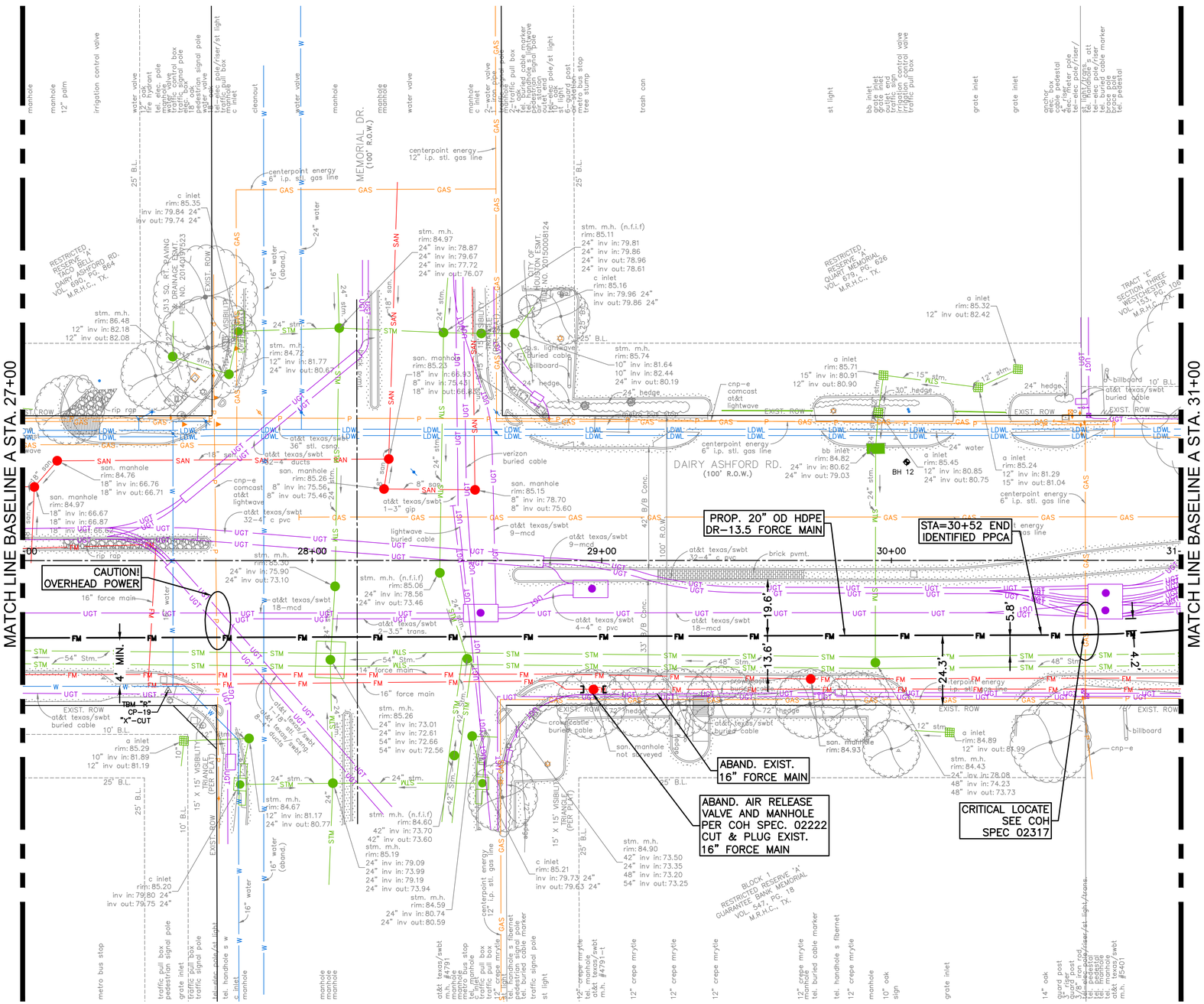
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

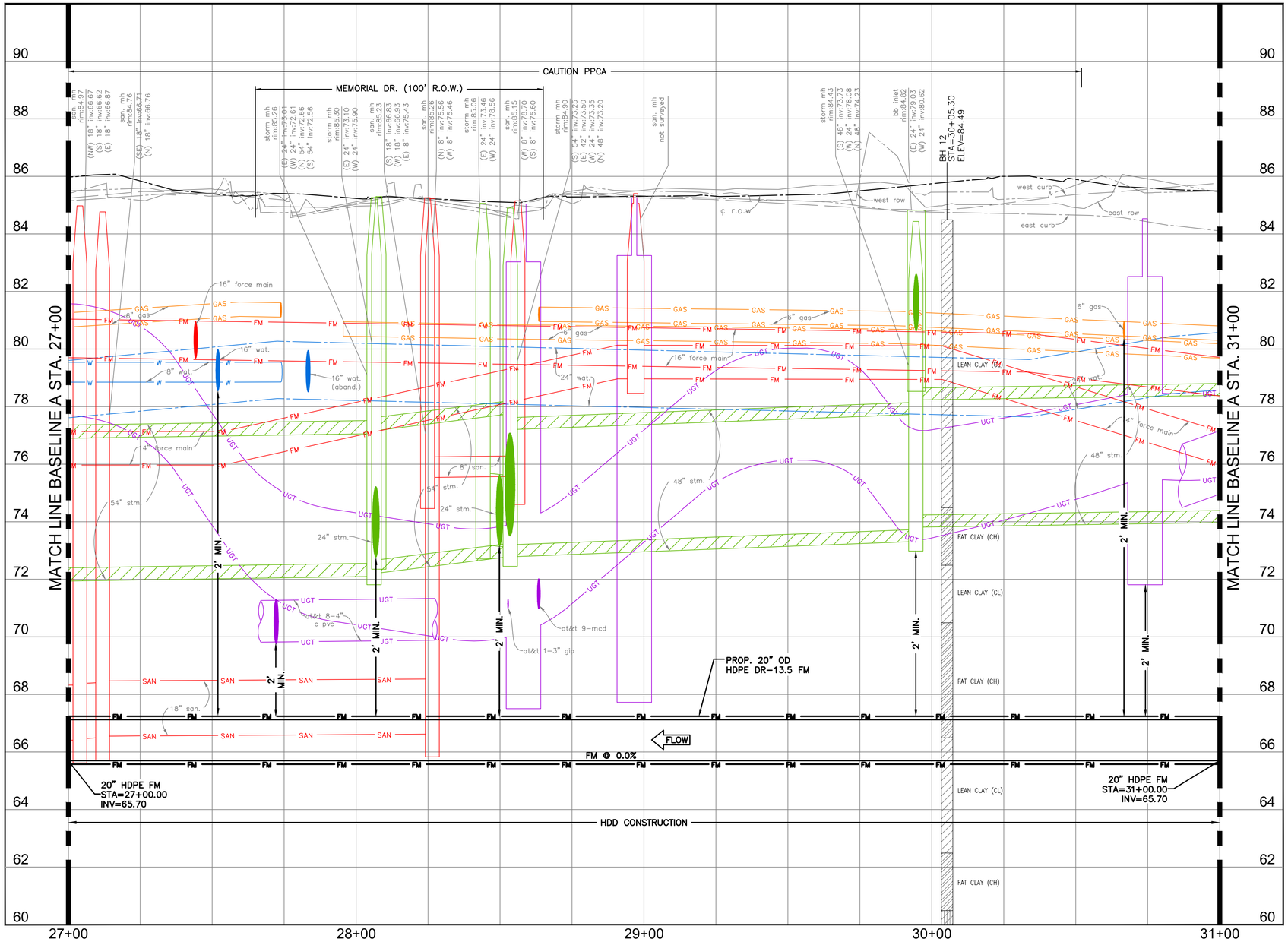
SHEET NO. 39 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.16

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg


MATCH LINE BASELINE A STA. 27+00
MATCH LINE BASELINE A STA. 31+00
MEMORIAL DR. (100' R.O.W.)
DAIRY ASHFORD RD. (100' R.O.W.)
PROP. 20" OD HDPE DR-13.5 FORCE MAIN
STA=30+52 END IDENTIFIED PPCA
CAUTION! OVERHEAD POWER
ABAND. EXIST. 16" FORCE MAIN
ABAND. AIR RELEASE VALVE AND MANHOLE PER COH SPEC. 02222 CUT & PLUG EXIST. 16" FORCE MAIN
CRITICAL LOCATE SEE COH SPEC 02317
TBM "S" CP-19 "X"-CUT
BH 12
28+00
29+00
30+00
31
19.6'
13.6'
5.8'
24.3'
4'
4.2'
RESTRICTED RESERVE 'A' RACO BELL DAIRY ASHFORD RD. VOL. 690, PG. 364 M.R.H.C., TX.
RESTRICTED RESERVE 'A' DAIRY ASHFORD MEMORIAL VOL. 679, PG. 626 M.R.H.C., TX.
TRACT 'E' SECTION THREE WESTCHESTER VOL. 157, PG. 106 M.R.H.C., TX.
BLOCK 1 RESTRICTED RESERVE 'A' GUARANTEE BANK MEMORIAL VOL. 547, PG. 18 M.R.H.C., TX.
CITY OF HOUSTON ESMT. CLERK'S FILE NO. 20150008124
313 SQ. FT. PAVING & DRAINAGE EASMT. FILE NO. 2014419523
stm. m.h. rim: 86.48 12" inv in: 82.18 12" inv out: 82.08
stm. m.h. rim: 84.72 12" inv in: 81.77 24" inv out: 80.67
stm. m.h. rim: 84.97 24" inv in: 78.87 24" inv in: 79.67 24" inv in: 77.72 24" inv out: 76.07
stm. m.h. (n.f.i.f) rim: 85.11 24" inv in: 79.81 24" inv in: 79.86 24" inv out: 78.96 24" inv out: 78.61
c inlet rim: 85.16 inv in: 79.96 24" inv out: 79.86 24"
stm. m.h. rim: 85.74 10" inv in: 81.64 10" inv in: 82.44 24" inv out: 80.19
c inlet rim: 85.35 inv in: 79.84 24" inv out: 79.74 24"
a inlet rim: 85.32 12" inv out: 82.42
a inlet rim: 85.71 15" inv in: 80.91 12" inv out: 80.90
a inlet rim: 85.24 12" inv in: 81.29 15" inv out: 81.04
a inlet rim: 85.45 12" inv in: 80.85 24" inv out: 80.75
bb inlet rim: 84.82 24" inv in: 80.62 24" inv out: 79.03
a inlet rim: 85.29 10" inv in: 81.89 12" inv out: 81.19
a inlet rim: 84.89 12" inv out: 81.99
stm. m.h. rim: 84.43 24" inv in: 78.08 48" inv in: 74.23 48" inv out: 73.73
stm. m.h. rim: 84.67 12" inv in: 81.17 24" inv out: 80.77
stm. m.h. rim: 85.26 24" inv in: 73.01 24" inv in: 72.61 54" inv in: 72.66 54" inv out: 72.56
stm. m.h. (n.f.i.f) rim: 84.60 42" inv in: 73.70 42" inv out: 73.60
stm. m.h. rim: 85.19 24" inv in: 79.09 24" inv in: 73.99 24" inv in: 79.19 24" inv out: 73.94
stm. m.h. rim: 84.59 24" inv in: 80.74 24" inv out: 80.59
c inlet rim: 85.20 inv in: 79.80 24" inv out: 79.75 24"
c inlet rim: 85.21 inv in: 79.75 24" inv out: 79.63 24"
stm. m.h. rim: 84.90 42" inv in: 73.50 24" inv in: 73.35 48" inv in: 73.20 54" inv out: 73.25
san. manhole rim: 85.23 18" inv in: 66.93 8" inv in: 75.43 18" inv out: 66.83
san. manhole rim: 84.76 18" inv in: 66.76 18" inv out: 66.71
san. manhole rim: 84.97 18" inv in: 66.67 18" inv in: 66.87 18" inv out: 66.62
san. manhole rim: 85.26 8" inv in: 75.56 8" inv out: 75.46
san. manhole rim: 85.15 8" inv in: 78.70 8" inv out: 75.60
stm. m.h. rim: 85.30 24" inv in: 75.90 24" inv out: 73.10
stm. m.h. (n.f.i.f) rim: 85.06 24" inv in: 78.56 24" inv out: 73.46
stm. m.h. rim: 85.26 24" inv in: 73.01 24" inv in: 72.61 54" inv in: 72.66 54" inv out: 72.56
stm. m.h. (n.f.i.f) rim: 84.60 42" inv in: 73.70 42" inv out: 73.60
stm. m.h. rim: 85.19 24" inv in: 79.09 24" inv in: 73.99 24" inv in: 79.19 24" inv out: 73.94
stm. m.h. rim: 84.59 24" inv in: 80.74 24" inv out: 80.59
manhole
12" palm
irrigation control valve
water valve
12" oak
fire hydrant
telephone pedestal
manhole
traffic control box
traffic signal pole
elec. box
pedestrian signal pole
water valve
tel-elec pole/riser/st light
manhole
traffic pull box
c inlet
cleanout
water valve
manhole
manhole
water valve
manhole
manhole
2-water valve
2" gas
tel. handhole
tel. buried cable marker
gas marker
tel. handhole s fibernet
gas valve
traffic signal pole
pedestrian signal pole
bbl station
tel. handhole s lightwave
tel-elec pole/st light
6" guard post
st light
metro bus stop
tree stump
trash can
st light
bb inlet
grate inlet
traffic sign
irrigation control valve
traffic pull box
grate inlet
grate inlet
anchor
elec. box
cable pedestal
4" riser
water pole
tel-elec pole/riser
tel-elec pole/riser/
st light/signs
tel-elec pole/st att
tel-elec pole/riser
tel. buried cable marker
tel. handhole
trace bore
tel. pedestal
tel. manhole
billboard
10' B.L.
EXIST. ROW
25' B.L.
15' X 15' VISIBILITY TRIANGLE (PER PLAT)
24" water
16" water (aband.)
16" force main
54" Stm.
48" Stm.
42" Stm.
24" stm.
12" stm.
15" stm.
30" hedge
72" hedge
24" hedge
at&t texas/swbt 36" stl. csng.
at&t texas/swbt 32-4" c pvc
at&t texas/swbt 9-mcd
at&t texas/swbt 18-mcd
at&t texas/swbt 4-4" c pvc
at&t texas/swbt 3-3.5" trans.
at&t texas/swbt 1-3" gip
at&t texas/swbt 2-18" stl. csng.
at&t texas/swbt 8-4" ducts
at&t texas/swbt buried cable
at&t texas/swbt 12-4" ducts
at&t texas/swbt 32-4" c pvc
at&t texas/swbt m.h. #4791-t
at&t texas/swbt m.h. #4791
at&t texas/swbt m.h. #3401
at&t texas/swbt m.h. #3401
at&t texas/swbt buried cable
at&t texas/swbt buried cable
at&t texas/swbt buried cable



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A	10/7/24	60% SUBMITTAL	MS

0' 10' 20' 40'

SCALE: 1"=20'

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Date

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 27+00 TO STA. 31+00

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

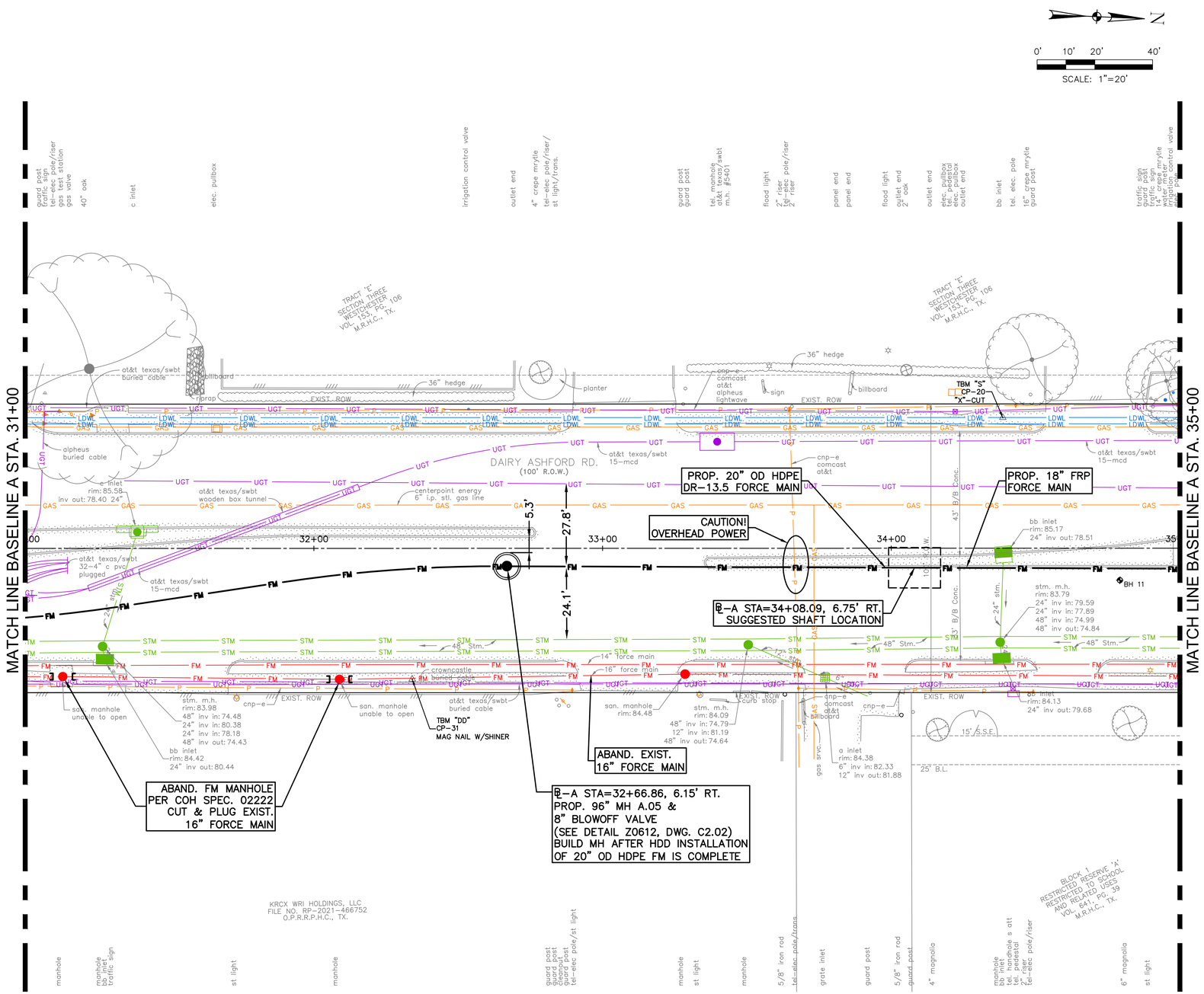
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 41 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.18

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



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BENCHMARK:

CP-31 AT STA. 32+34.06, 45.37' RT., EL=84.84'
CP-20 AT STA. 34+38.66, 45.26' LT., EL=86.26'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
4. SHAFT SHAPE AND SIZE ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR. THE CONTRACTOR MAY ADD/RELOCATE SHAFTS AT LOCATIONS NOT SHOWN ON THE PLANS AS LONG AS TWO 10-FOOT LANES ARE PROVIDED FOR NORTHBOUND TRAFFIC.
5. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

NO.	DATE	REVISION	APP.
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OLD KATY FORCE MAIN PLAN BASELINE A STA. 31+00 TO STA. 35+00

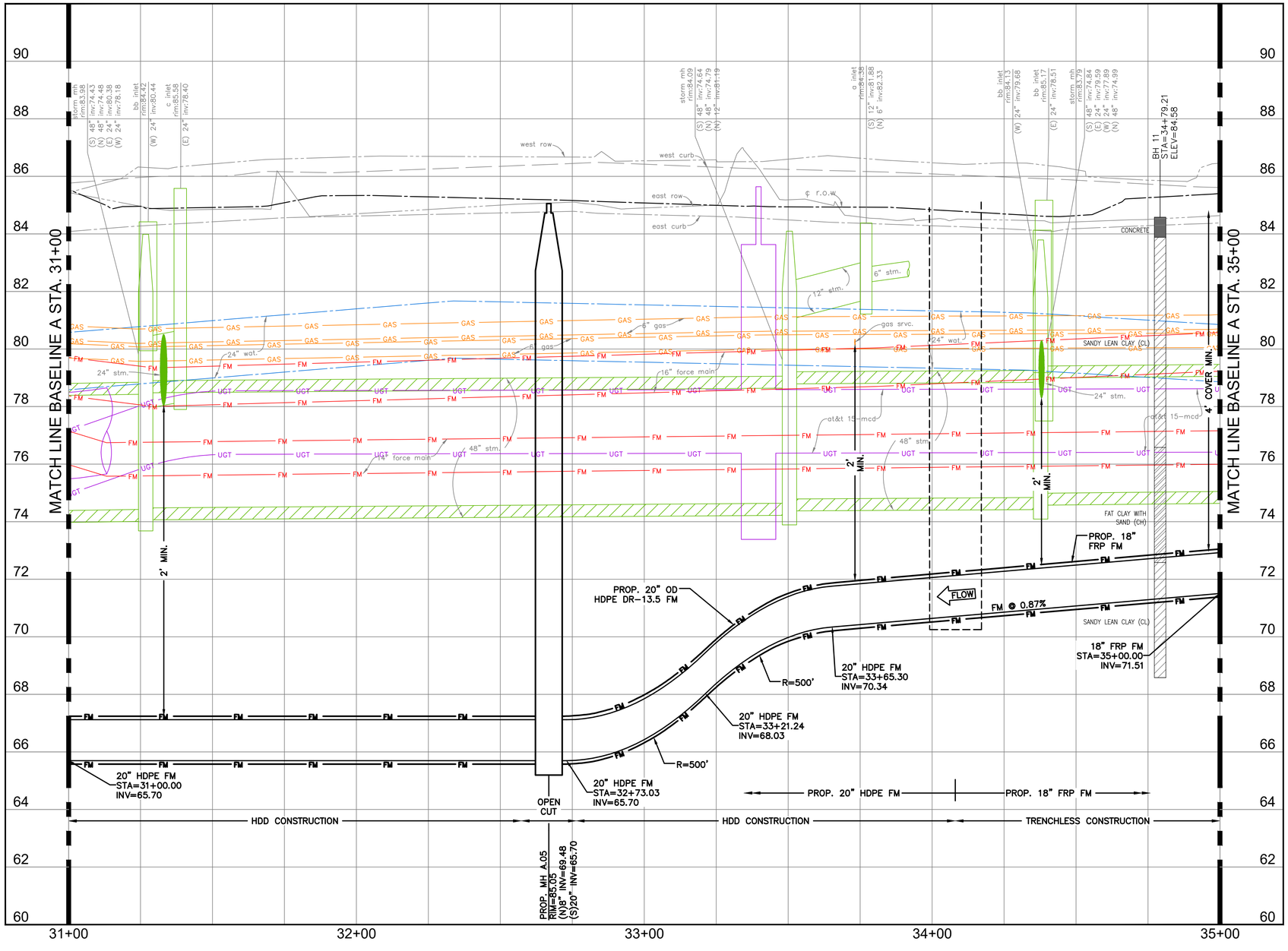
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 42 OF 192

FOR CITY OF HOUSTON USE ONLY



0' 10' 20' 40'

SCALE: 1"=20'

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HOUSTON PUBLIC WORKS

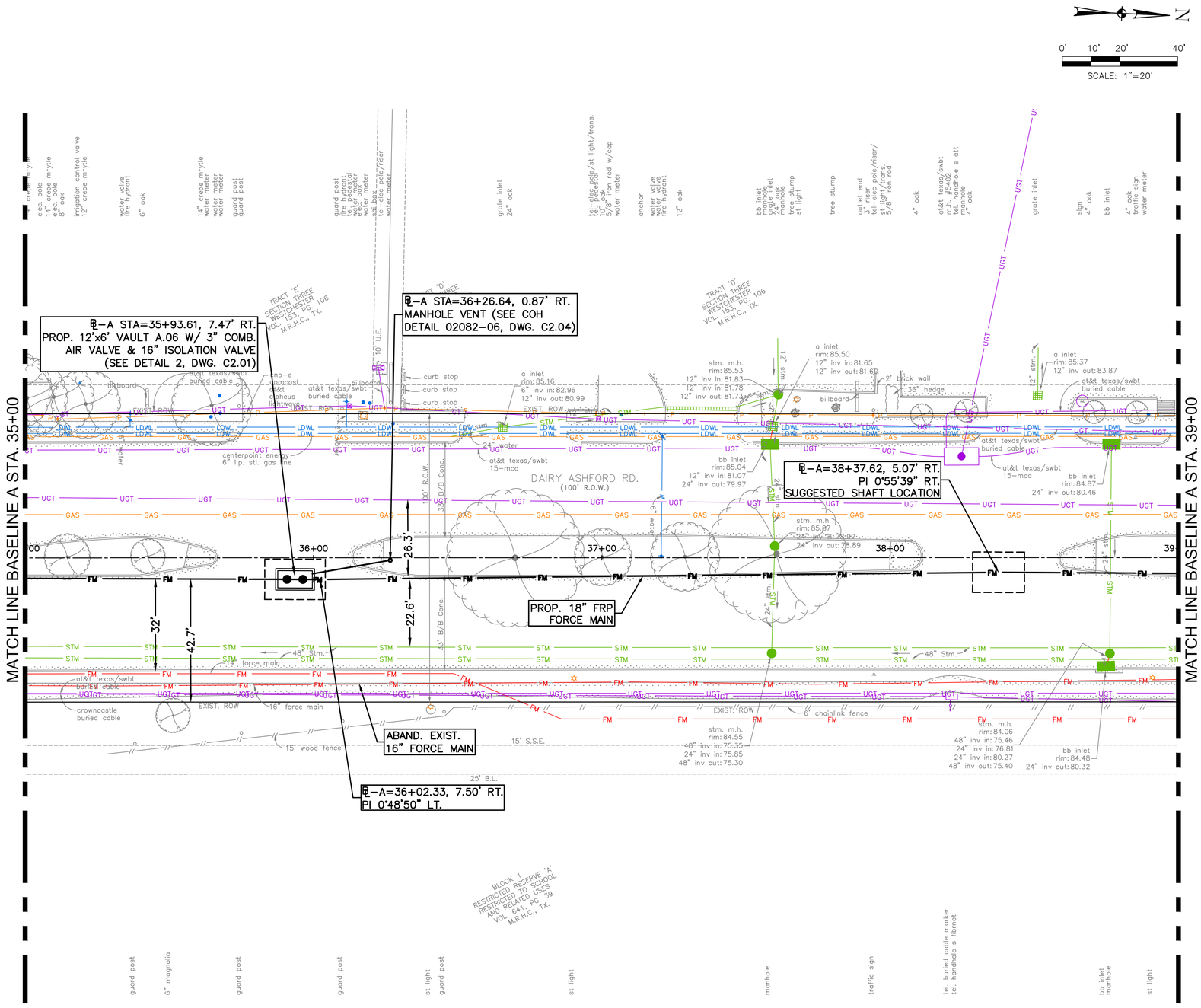
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SHEET NO. 43 OF 192

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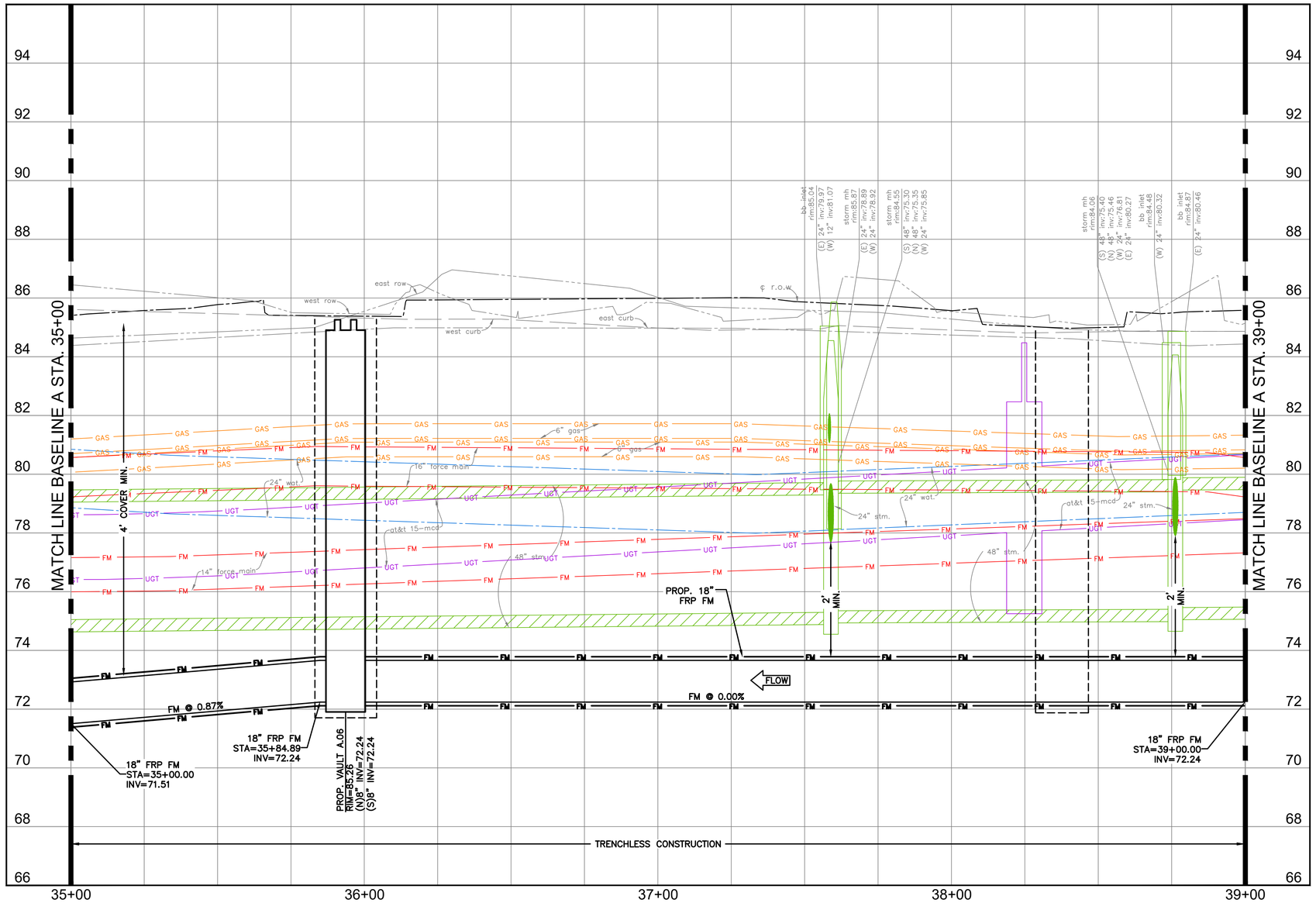
DRAWING SCALE: 1"=20'

SHEET NO. 44 OF 192

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C1.21

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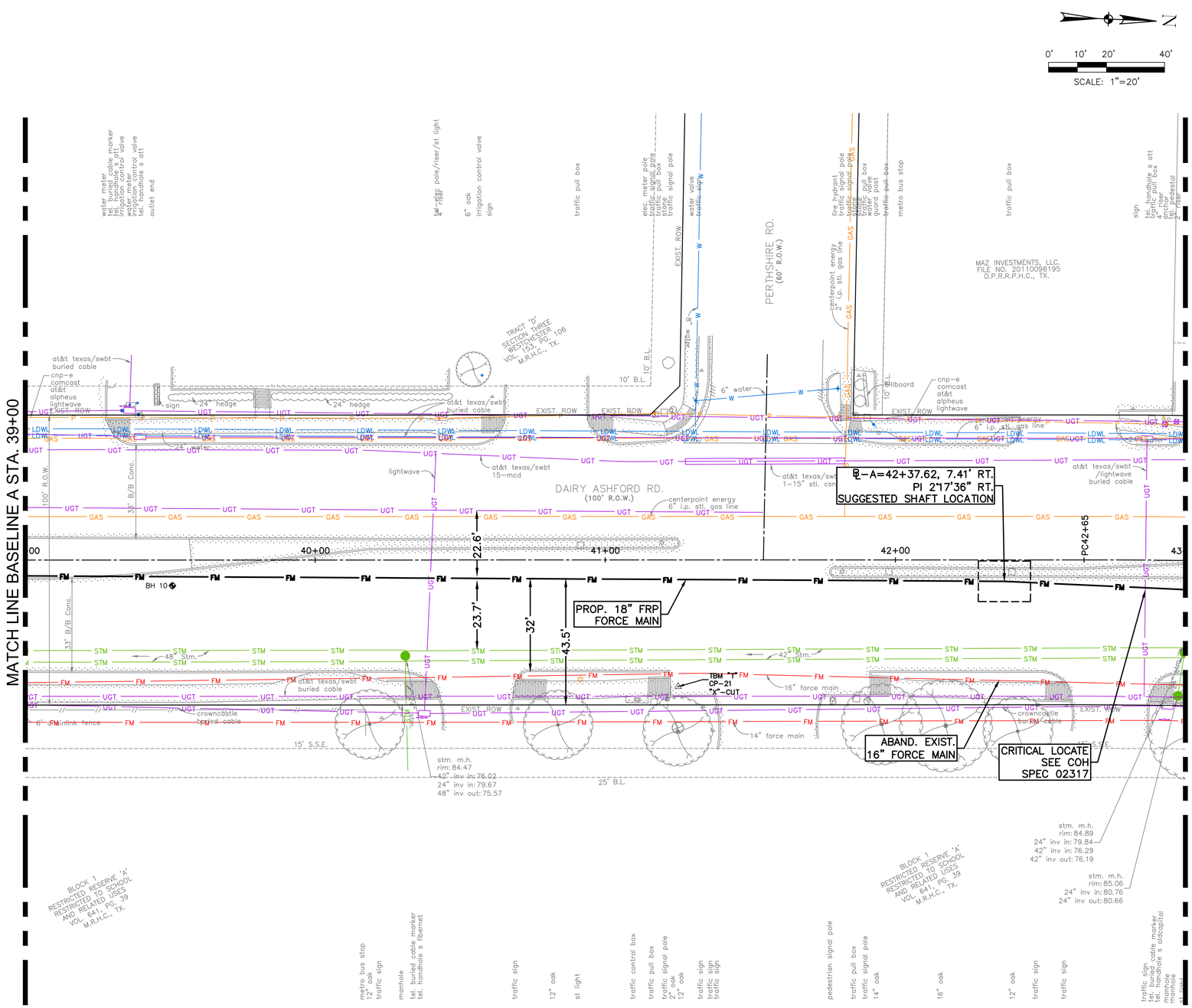
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 45 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP–21 AT STA. 41+25.12, 43.69 RT., EL=84.83'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
3. SHAFT SHAPE AND SIZE ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR. THE CONTRACTOR MAY ADD/RELOCATE SHAFTS AT LOCATIONS NOT SHOWN ON THE PLANS AS LONG AS TWO 10–FOOT LANES ARE PROVIDED FOR NORTHBOUND TRAFFIC.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.
5. WORK IN FRONT OF STRATFORD HIGH SCHOOL SHALL BE COMPLETED IN THE SUMMER MONTHS.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 39+00 TO STA. 43+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

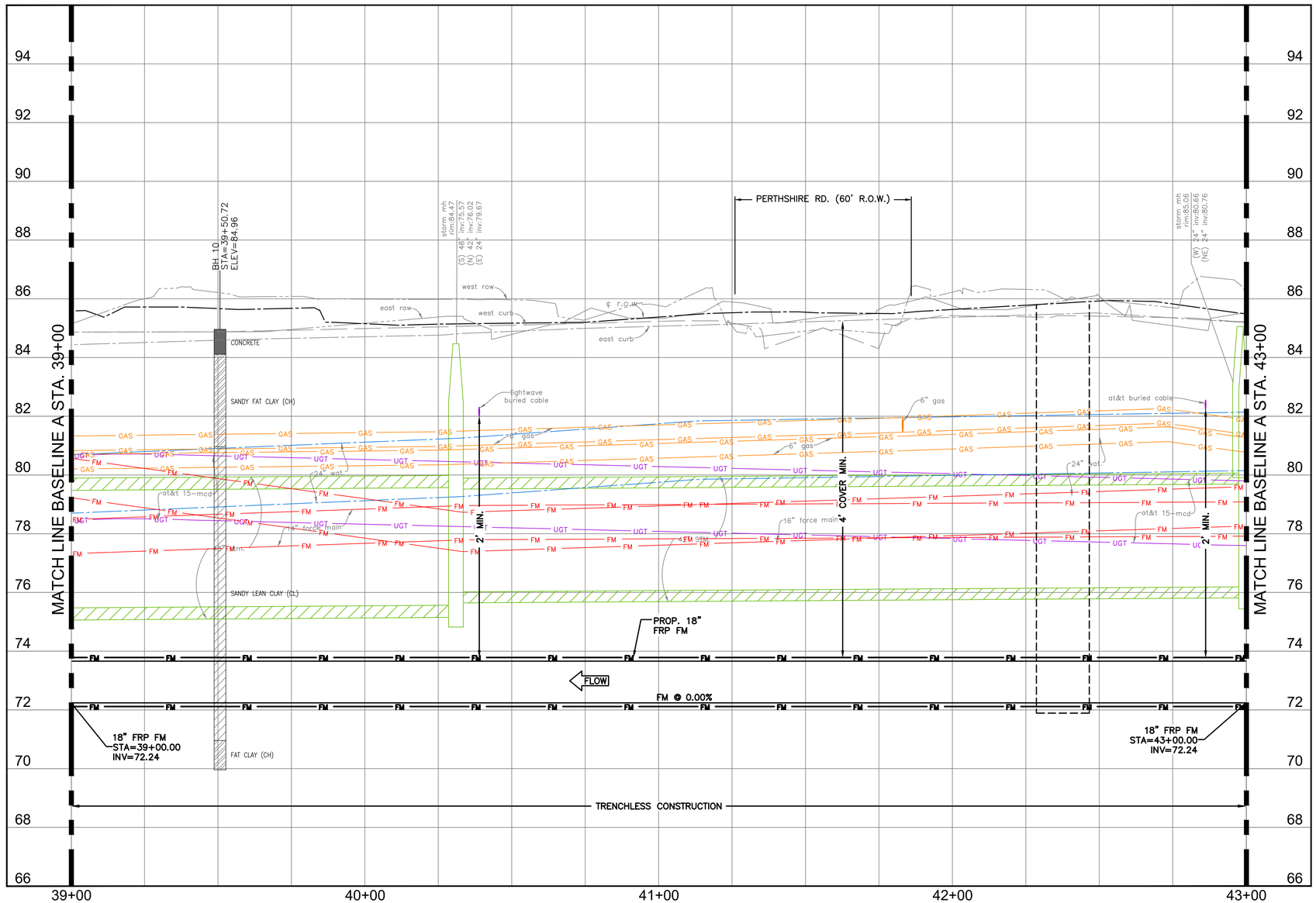
DRAWING SCALE: 1"=20'

SHEET NO. 46 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.23

FILE PATH: C:\Users\p003339\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 39+00 TO STA. 43+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

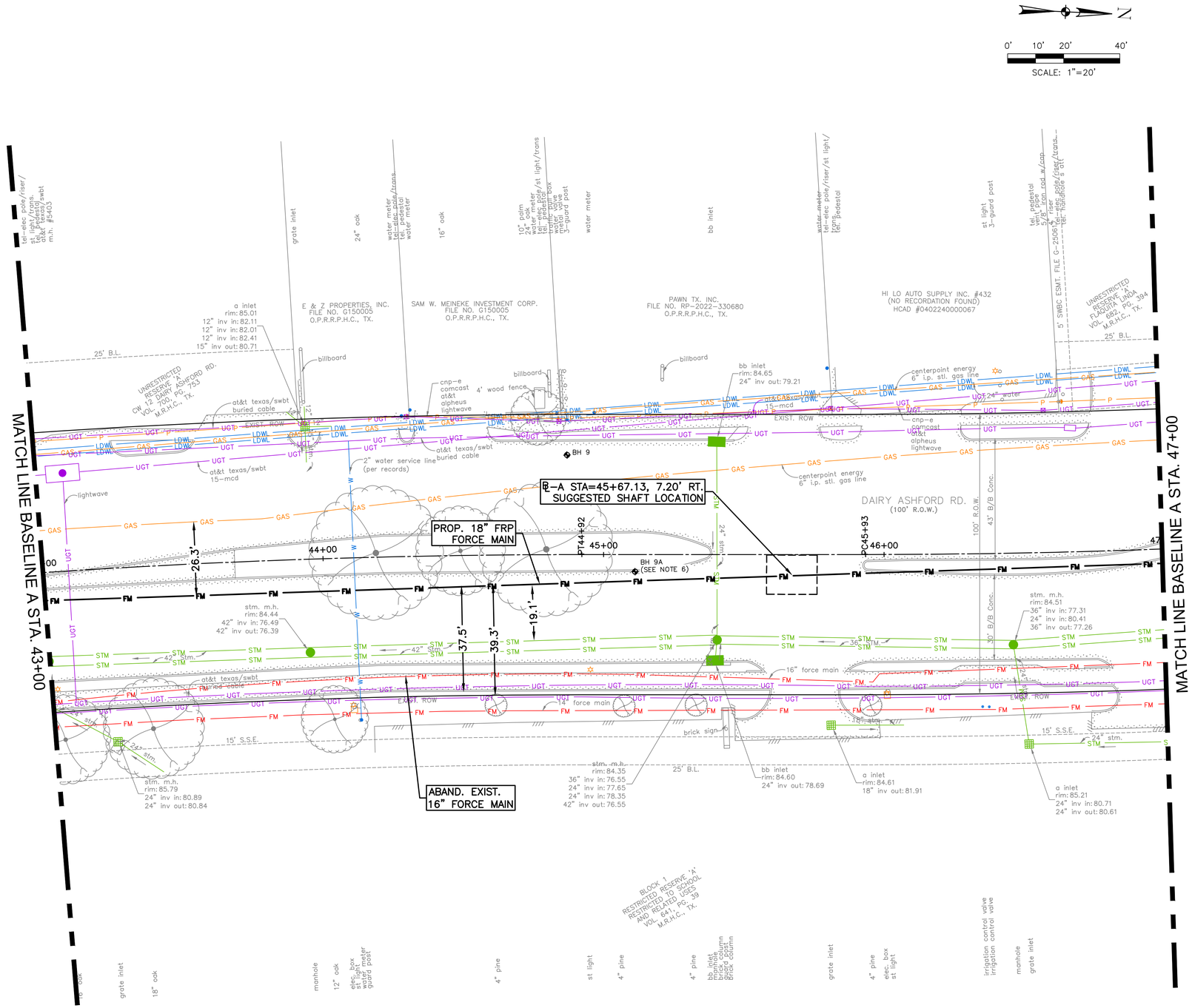
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 47 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.24

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP-21 AT STA. 41+25.12, 43.69 RT., EL=84.83'
CP-22 AT STA. 48+59.67, 47.81 LT., EL=85.98'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
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4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.
5. WORK IN FRONT OF STRATFORD HIGH SCHOOL SHALL BE COMPLETED IN THE SUMMER MONTHS.
6. SOIL BORING B-9A WAS NOT SURVEYED, LOCATION IS APPROXIMATE.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 43+00 TO STA. 47+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

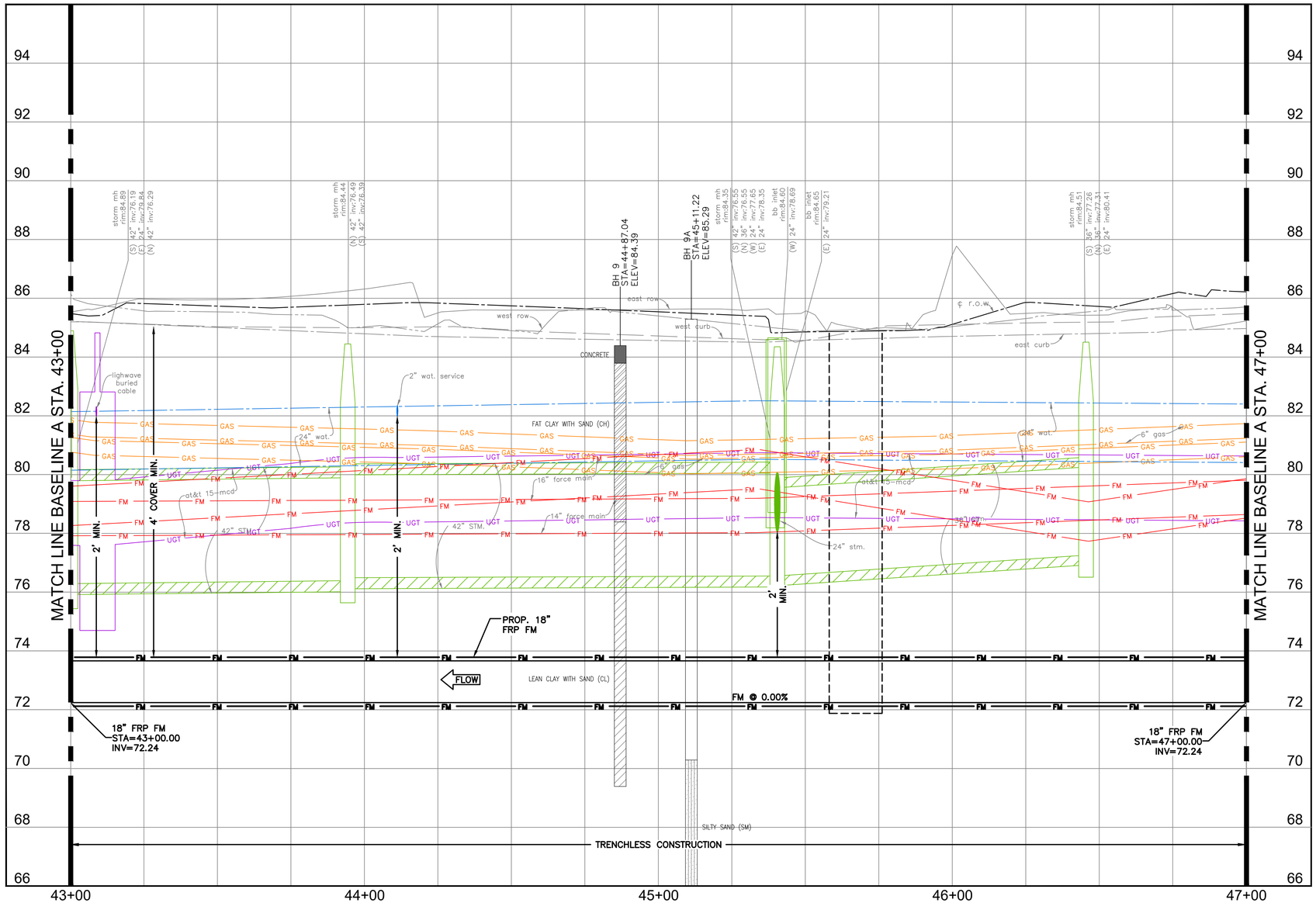
DRAWING SCALE: 1"=20'

SHEET NO. 48 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.25

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 43+00 TO STA. 47+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

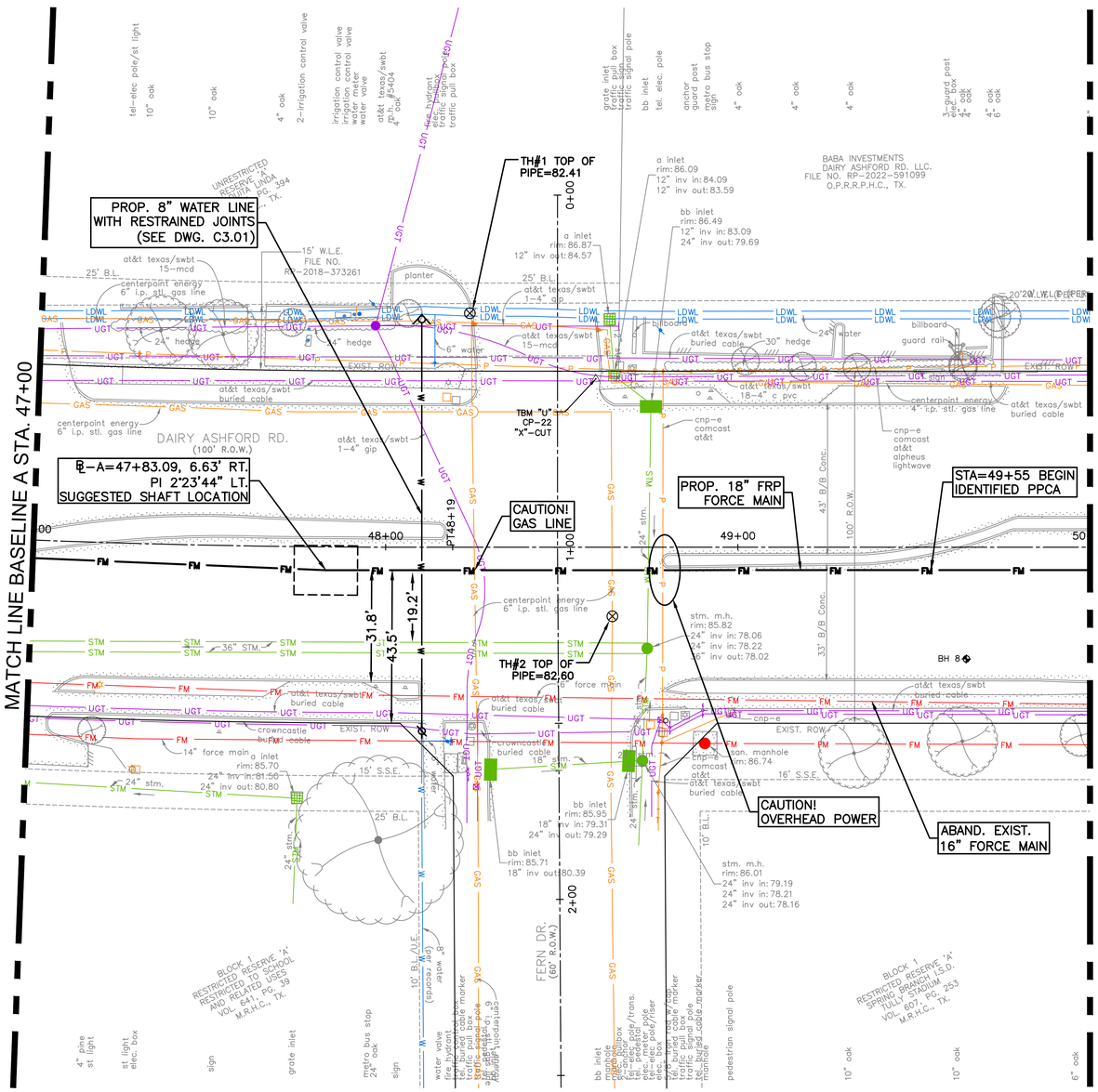
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 49 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.26

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP-22 AT STA. 48+59.67, 47.81 LT., EL=85.98'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
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Date

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Date

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Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 47+00 TO STA. 50+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

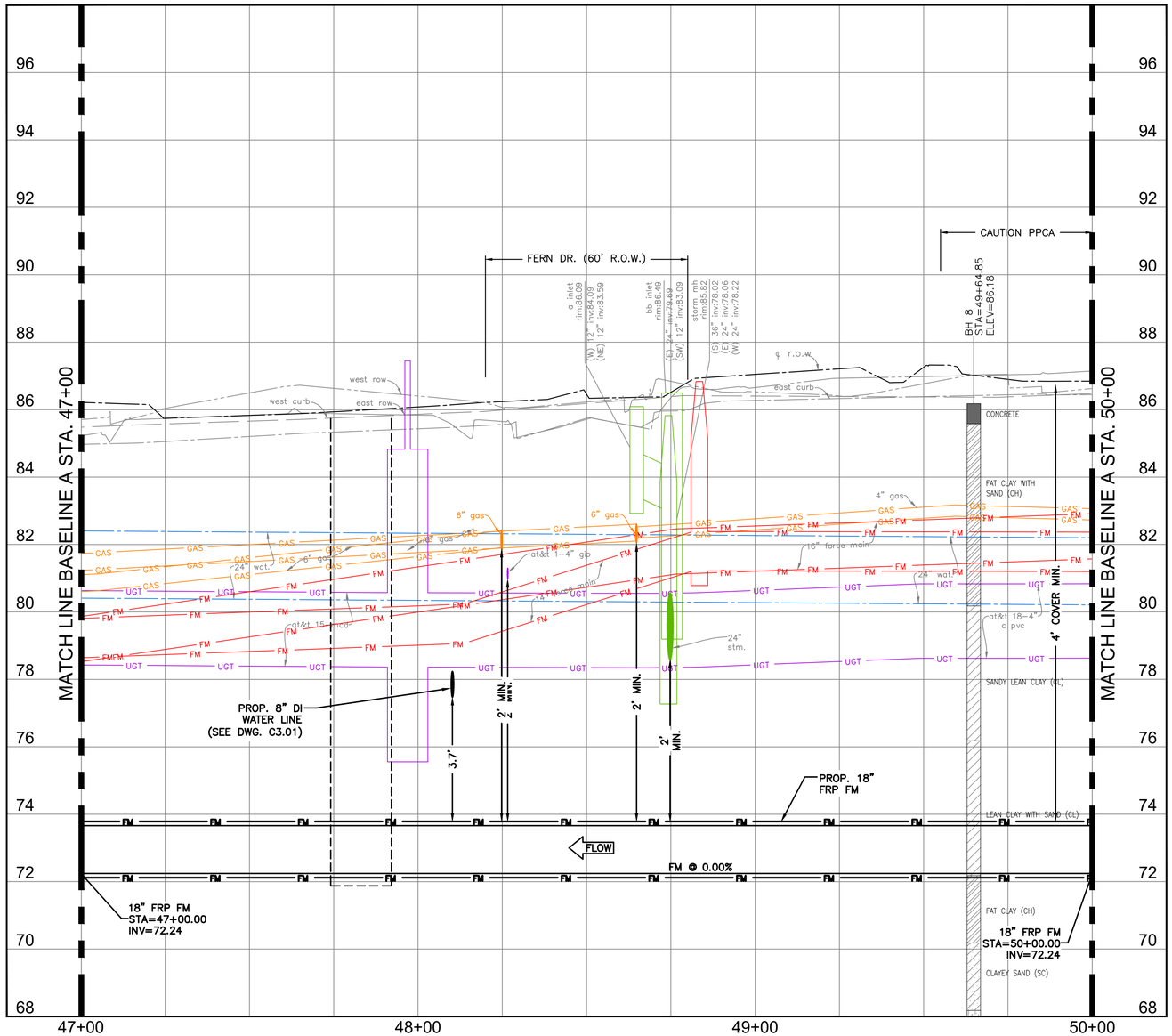
DRAWING SCALE: 1"=20'

SHEET NO. 50 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.27

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 47+00 TO STA. 50+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

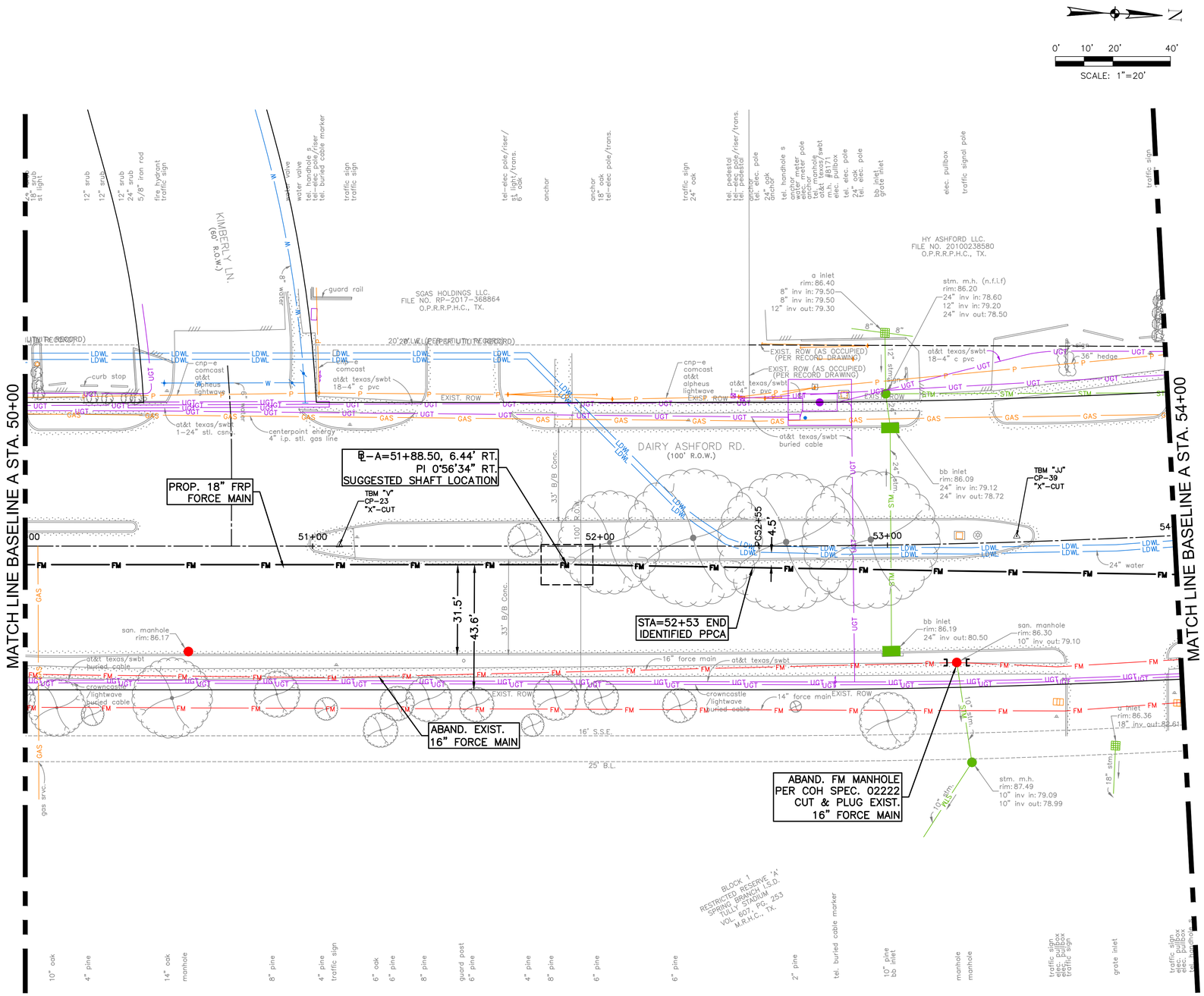
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 51 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP-23 AT STA. 51+09.30, 0.37' LT., EL=87.34'
CP-39 AT STA. 53+45.05, 2.04' LT., EL=87.02'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
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Date

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Date

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PARSONS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 50+00 TO STA. 54+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

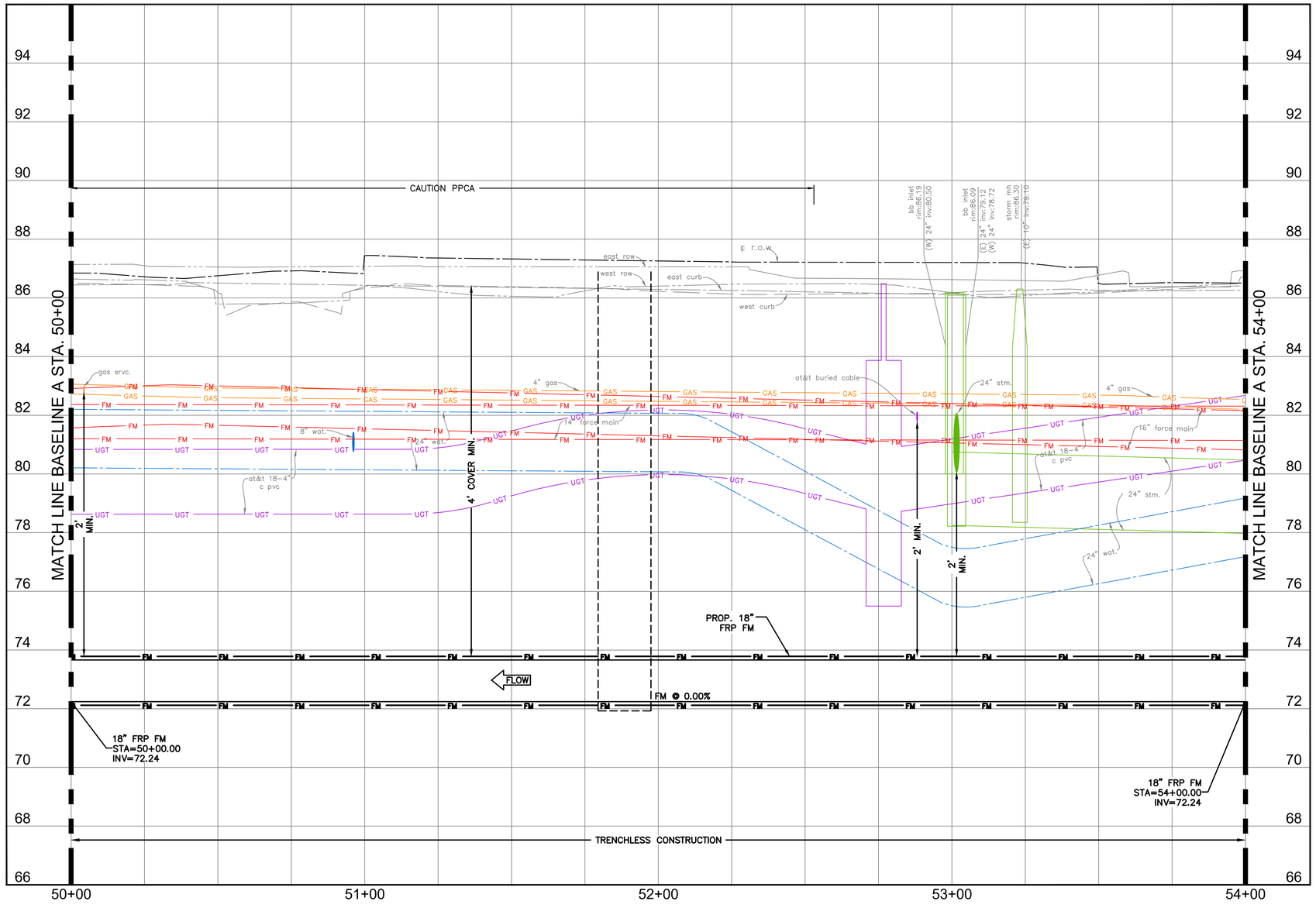
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 52 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 50+00 TO STA. 54+00

CITY OF HOUSTON

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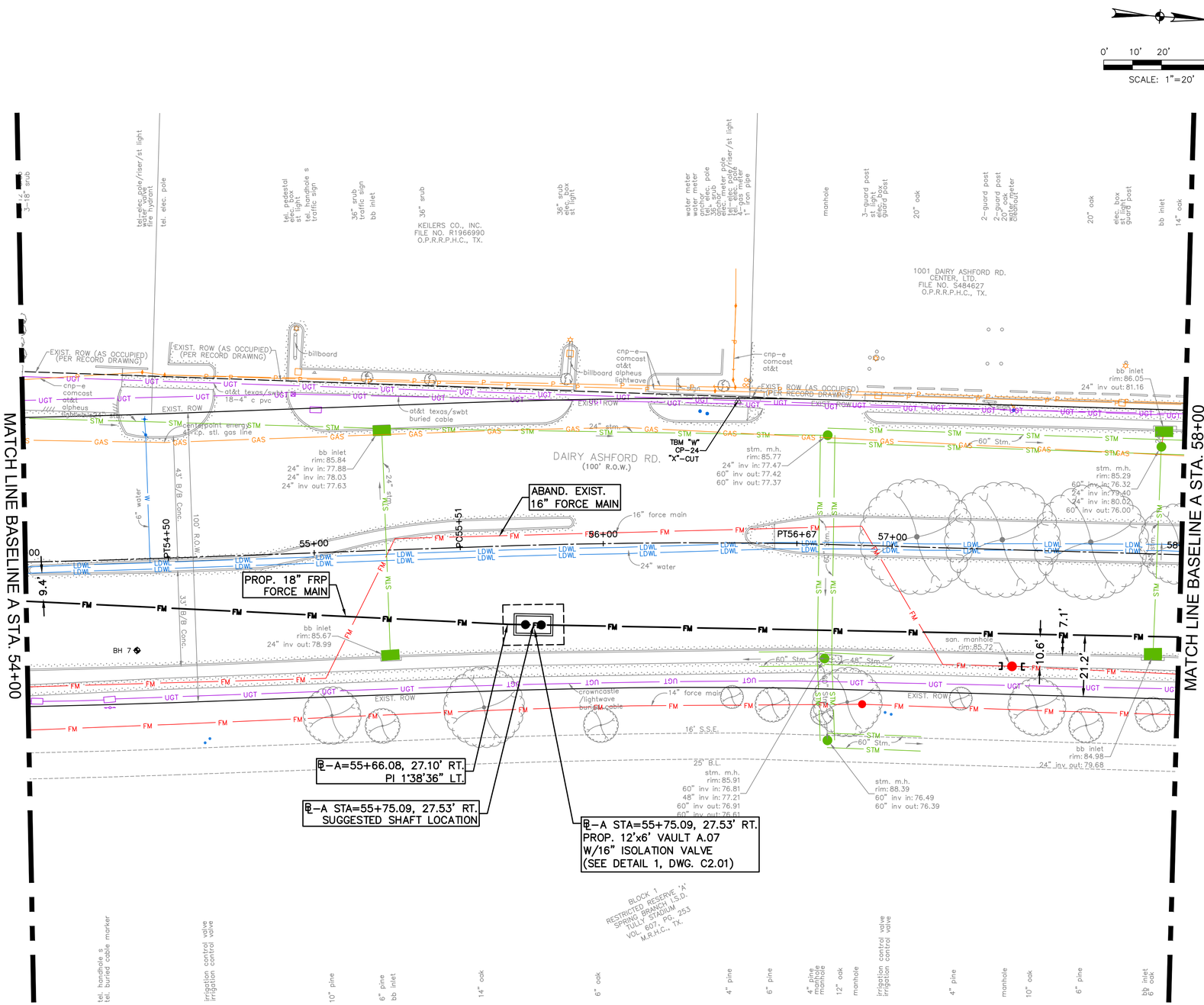
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 53 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP-24 AT STA. 56+46.33, 49.07' LT., EL=86.67'

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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 54+00 TO STA. 58+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

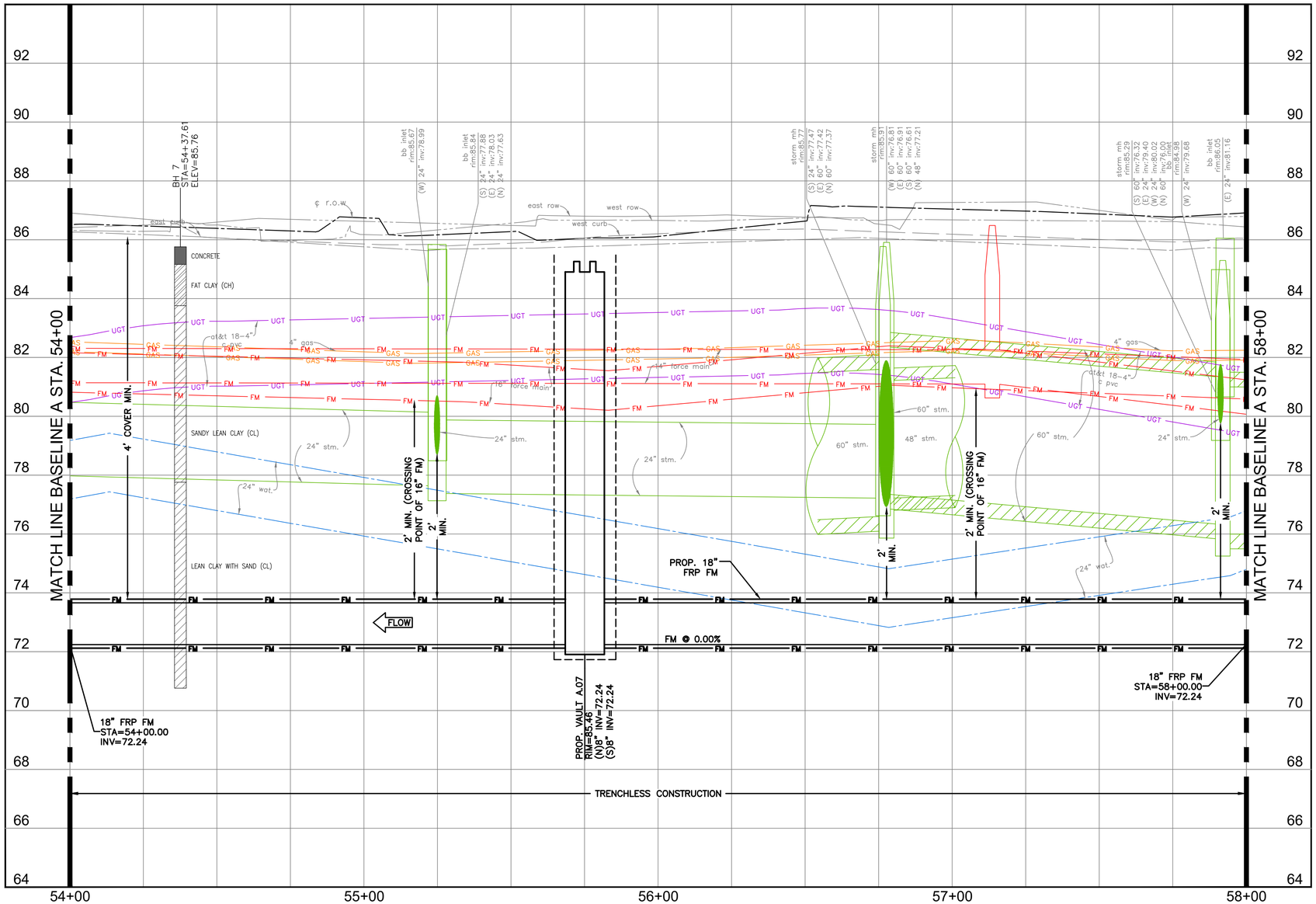
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 54 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:

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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 54+00 TO STA. 58+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

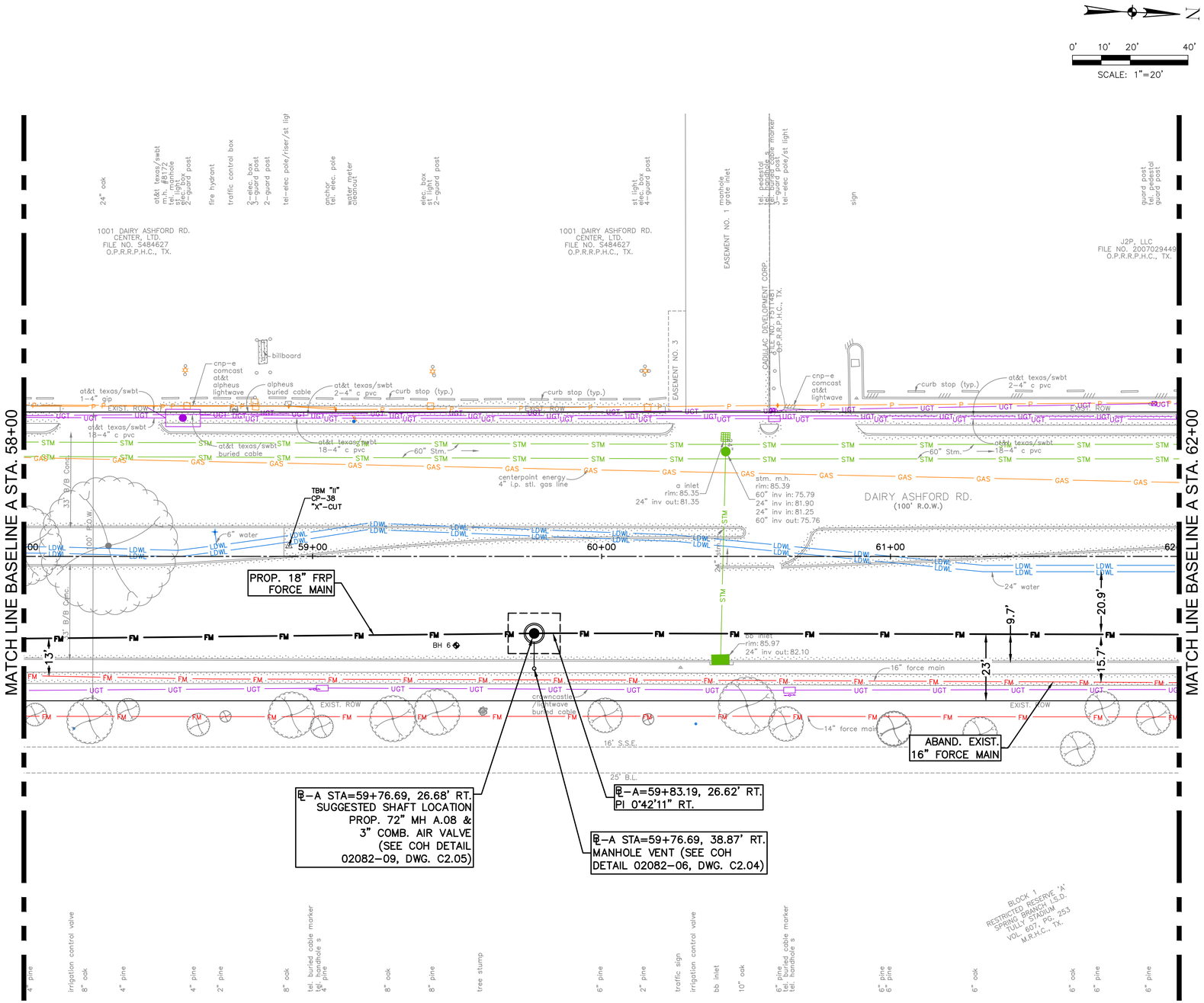
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 55 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP–38 AT STA. 58+91.79, 3.61' LT., EL=87.10'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
3. SHAFT SHAPE AND SIZE ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR. THE CONTRACTOR MAY ADD/RELOCATE SHAFTS AT LOCATIONS NOT SHOWN ON THE PLANS AS LONG AS TWO 10–FOOT LANES ARE PROVIDED FOR NORTHBOUND TRAFFIC.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

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Date

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 58+00 TO STA. 62+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

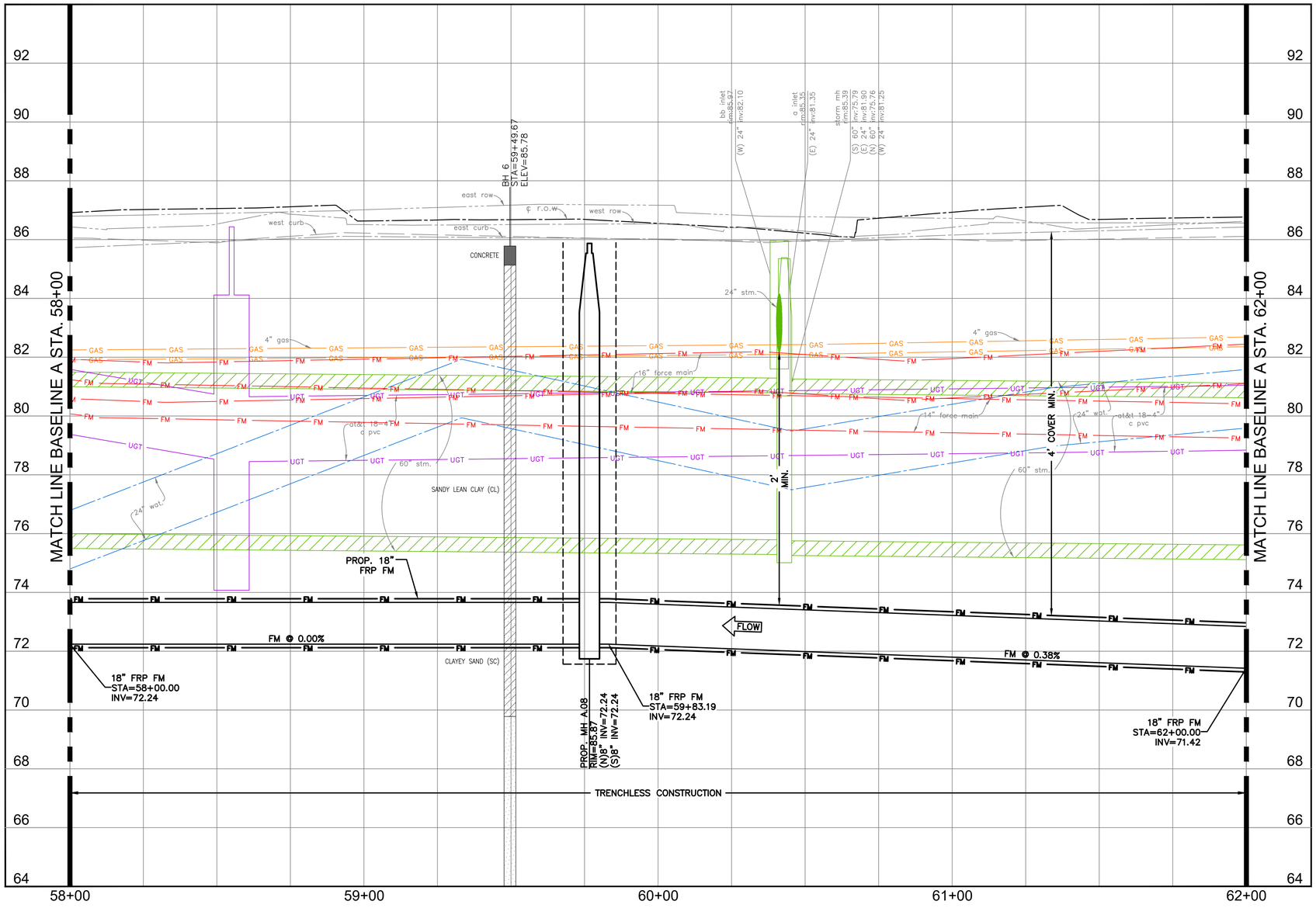
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 56 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562–COHFM–oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 58+00 TO STA. 62+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

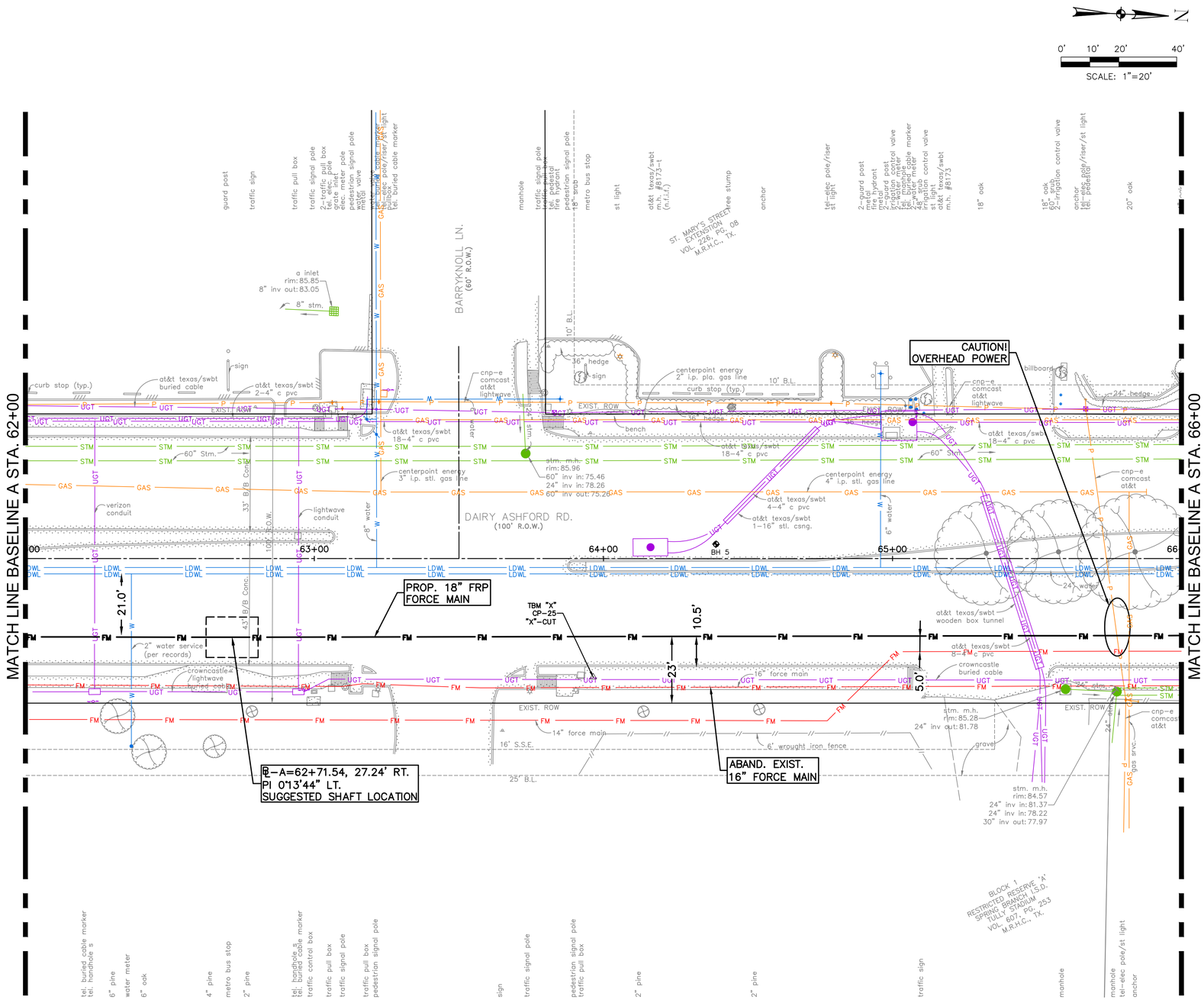
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 57 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP-25 AT STA. 63+96.45, 41.00 RT., EL=86.53'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
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PARSONS
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HOUSTON, TEXAS 77056
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 62+00 TO STA. 66+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

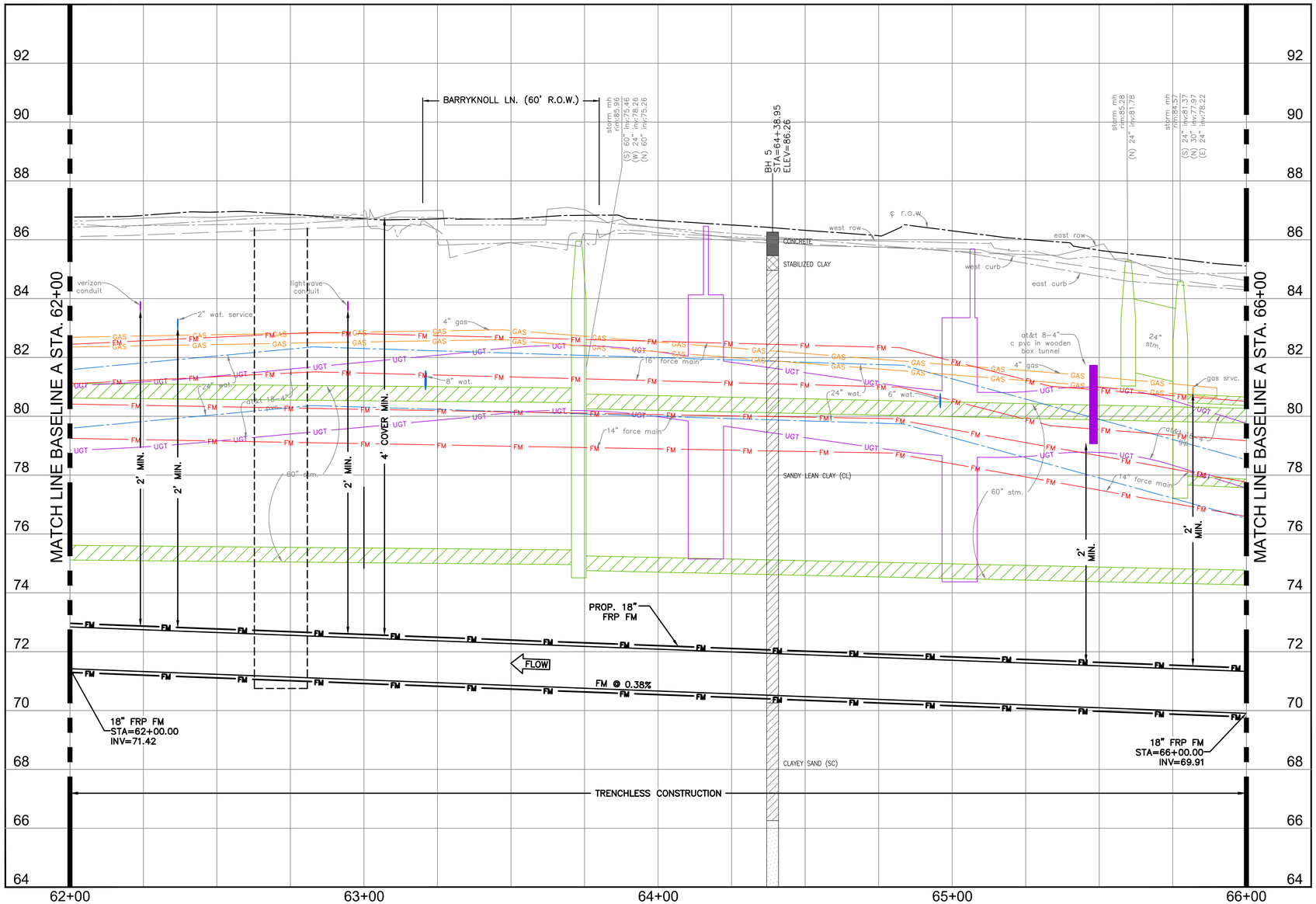
DRAWING SCALE: 1"=20'

SHEET NO. 58 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.35

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

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HOUSTON, TEXAS 77056
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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 62+00 TO STA. 66+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

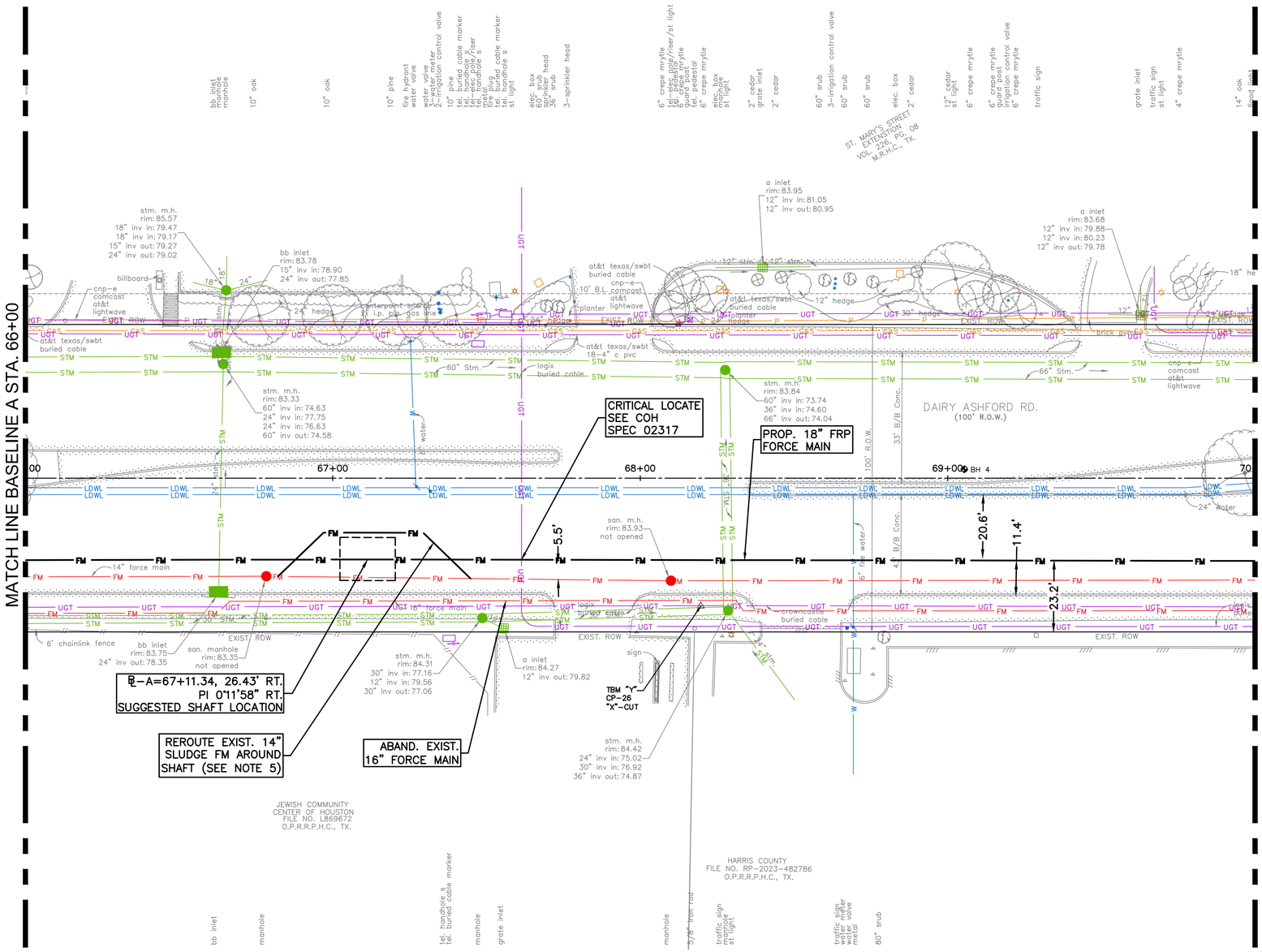
SHEET NO. 59 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg

BENCHMARK:

CP-26 AT STA. 68+19.71, 41.58 RT., EL=84.32'



0' 10' 20' 40'

SCALE: 1"=20'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
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4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.
5. CONTRACTOR SHALL COORDINATE TEMPORARY SHUT DOWN OF SLUDGE FORCE MAIN WITH CITY OPERATIONS STAFF VIA NOA AT LEAST TWO WEEKS PRIOR TO START OF RE-ROUTING ACTIVITIES.

   WWOPS CONTACT: NELSON MORALES, PE. 832-395-2311

   FORCE MAIN OFFSET TO BE 14-INCH EPOXY LINED DUCTILE IRON PIPE, CLASS 350, WITH RESTRAINED JOINTS. NO SEPARATE PAYMENT, COST IS SUBSIDIARY TO SHAFT EXCAVATION. CONTRACTOR SHALL DISPOSE OF ANY SLUDGE RESULTING FROM THIS TASK AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL AND TESTING REQUIRED BY STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITIES.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
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TBPE FIRM REGISTRATION NO. 8008

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 66+00 TO STA. 70+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

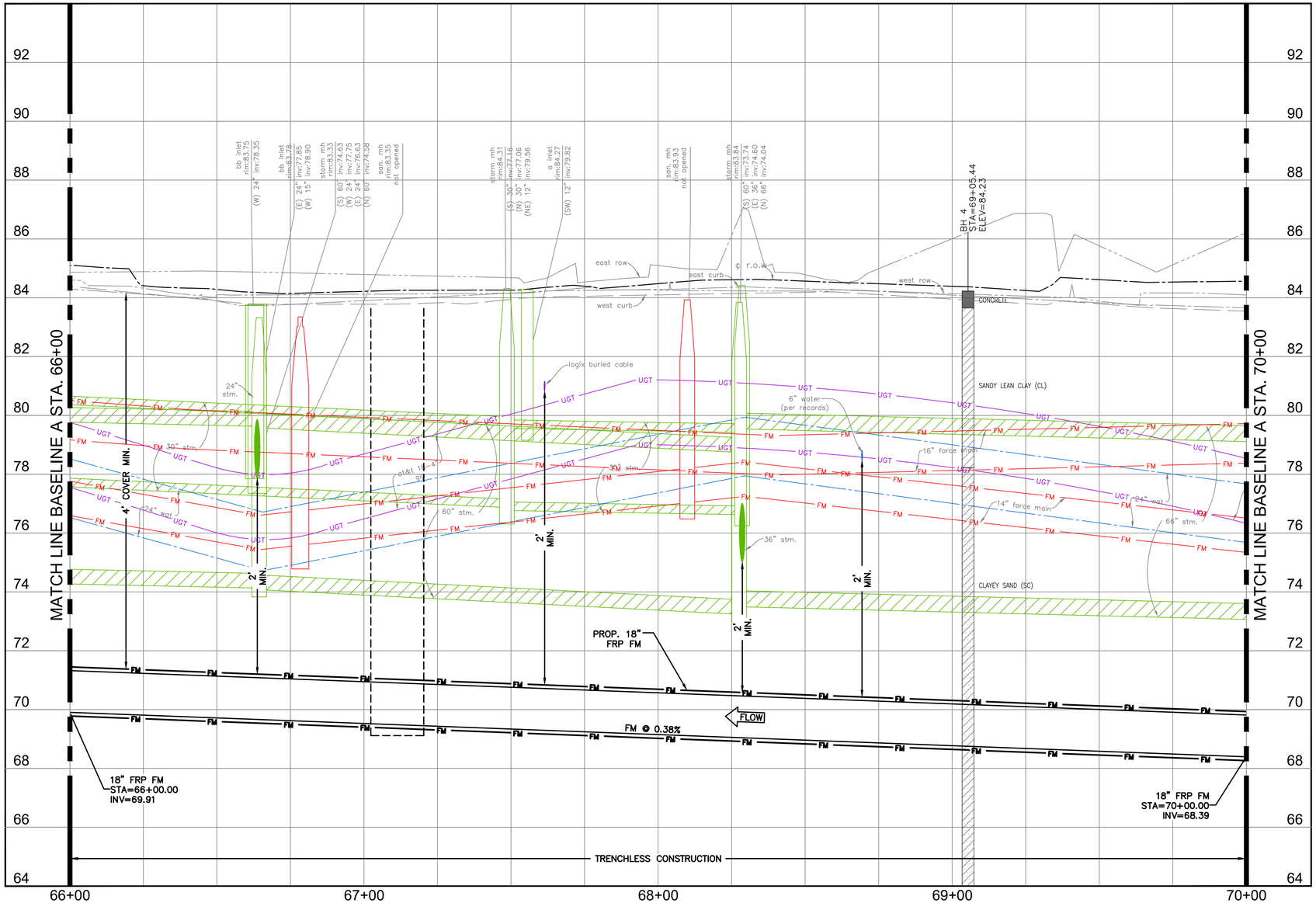
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 60 OF 192

FOR CITY OF HOUSTON USE ONLY

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0' 10' 20' 40'

SCALE: 1"=20'

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CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4

CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

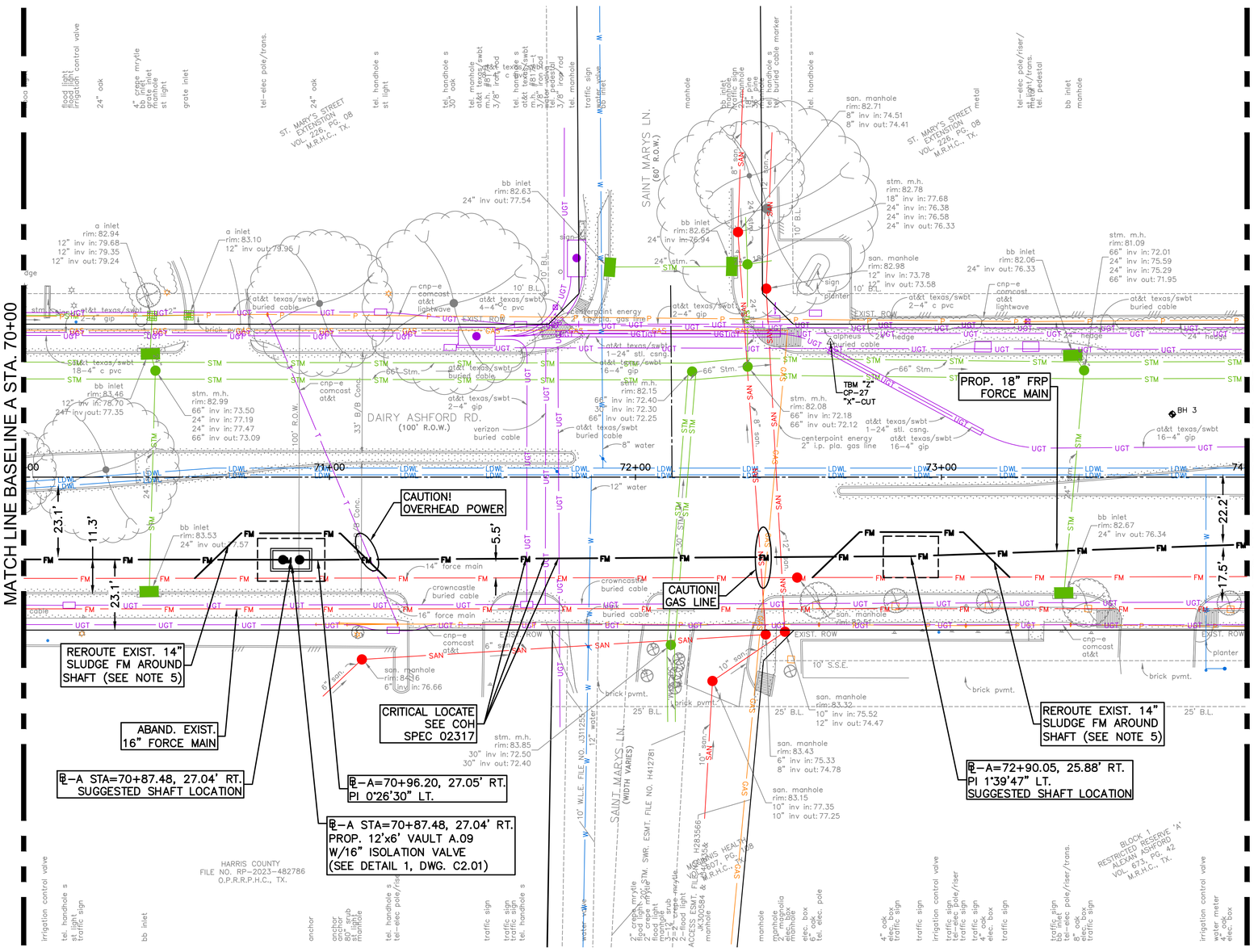
SHEET NO. 61 OF 192

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BENCHMARK:

CP-27 AT STA. 72+63.75, 44.13' LT., EL=82.43'



0' 10' 20' 40'

SCALE: 1"=20'

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   WWOPS CONTACT: NELSON MORALES, PE. 832-395-2311

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OLD KATY FORCE MAIN PLAN BASELINE A STA. 70+00 TO STA. 74+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

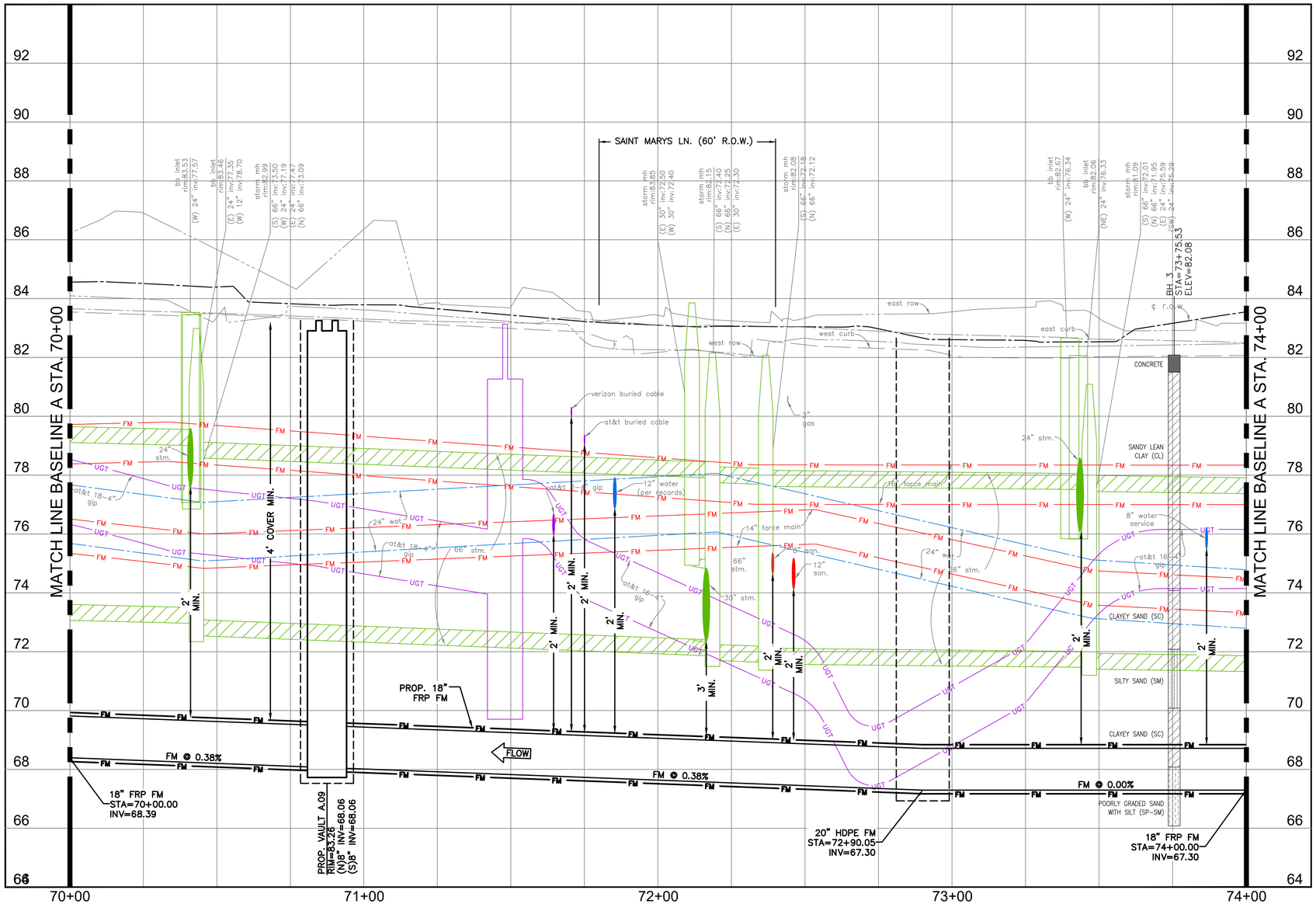
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 62 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 95458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE A STA. 70+00 TO STA. 74+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 63 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.40

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg

BENCHMARK:

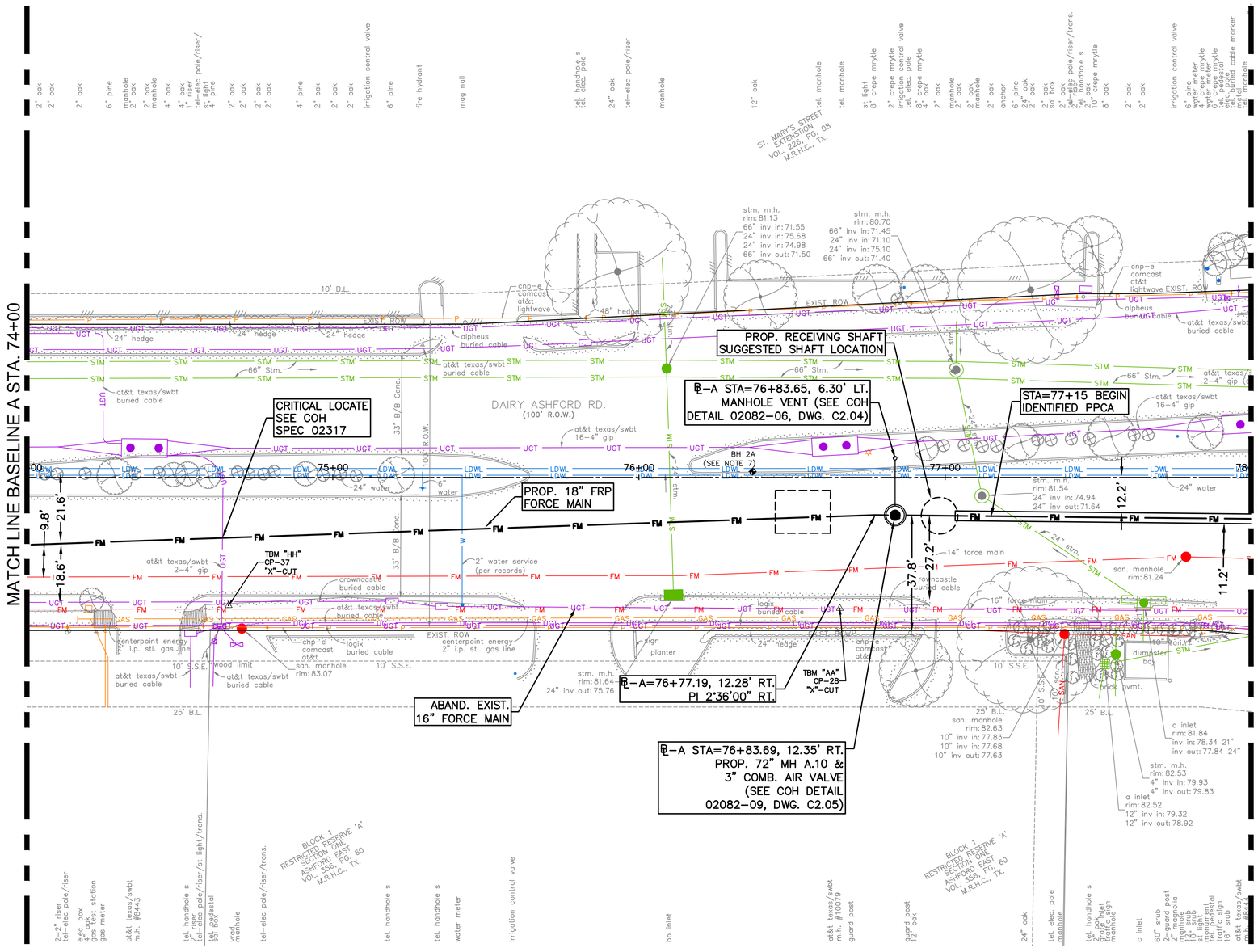
CP–37 AT STA. 74+65.90, 41.85' RT., EL=82.42'
CP–28 AT STA. 76+65.61, 42.77' RT., EL=81.81'

0' 10' 20' 40'
SCALE: 1"=20'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY TRENCHLESS METHODS SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 162 TON.
3. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY OPEN CUT CONSTRUCTION AND IN STEEL CASING SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 46 PSI, WITH RESTRAINED JOINTS.
4. SHAFT SHAPE AND SIZE ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR. THE CONTRACTOR MAY ADD/RELOCATE SHAFTS AT LOCATIONS NOT SHOWN ON THE PLANS AS LONG AS TWO 10–FOOT LANES ARE PROVIDED FOR NORTHBOUND TRAFFIC.
5. CONTRACTOR SHALL PROTECT AND SUPPORT EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
6. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.
7. SOIL BORING B–2A WAS NOT SURVEYED, LOCATION IS APPROXIMATE.

NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 74+00 TO STA. 78+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

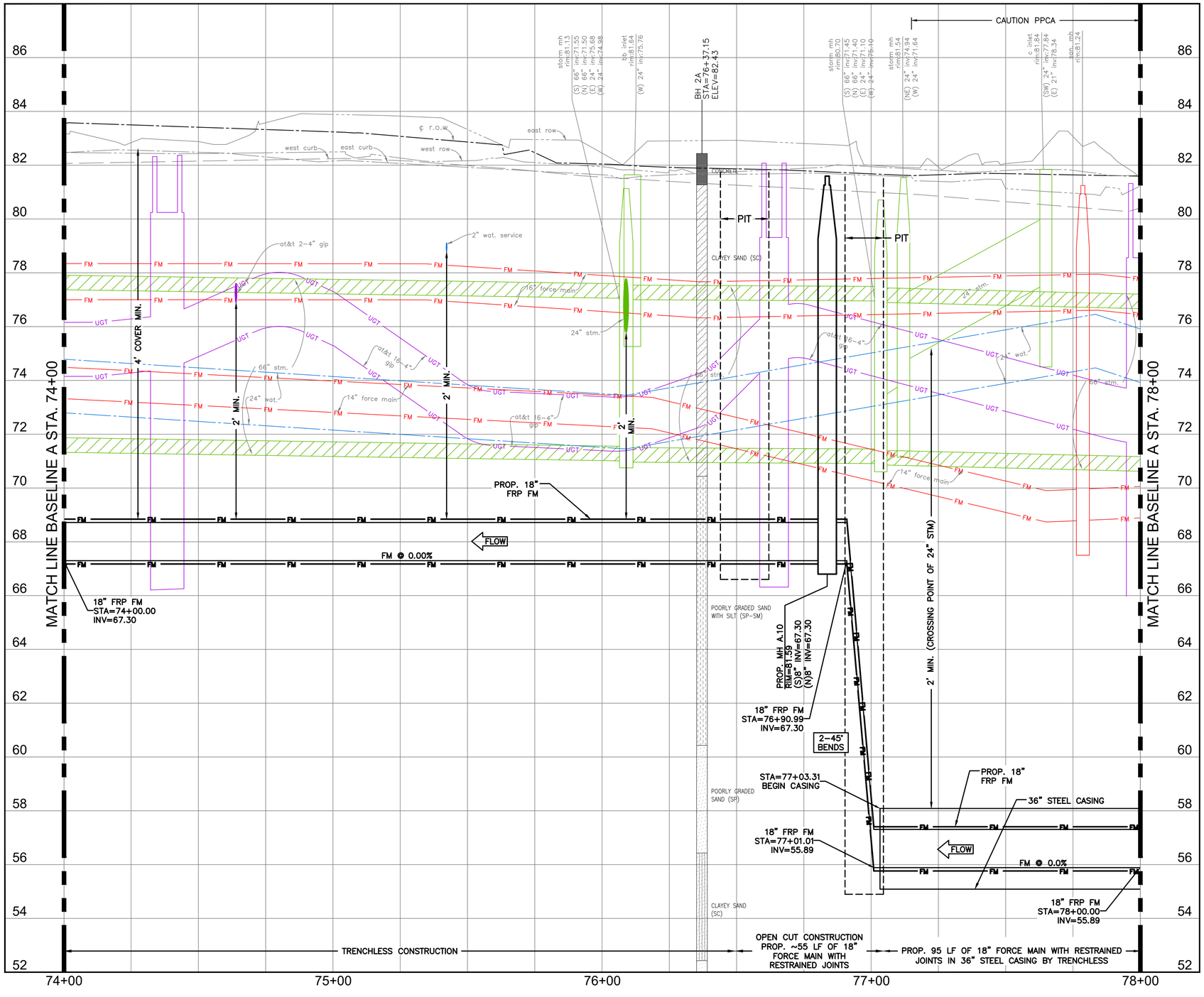
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 64 OF 192

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FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562–COHFM–oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

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B	2/24/25	90% SUBMITTAL	MS
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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 74+00 TO STA. 78+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

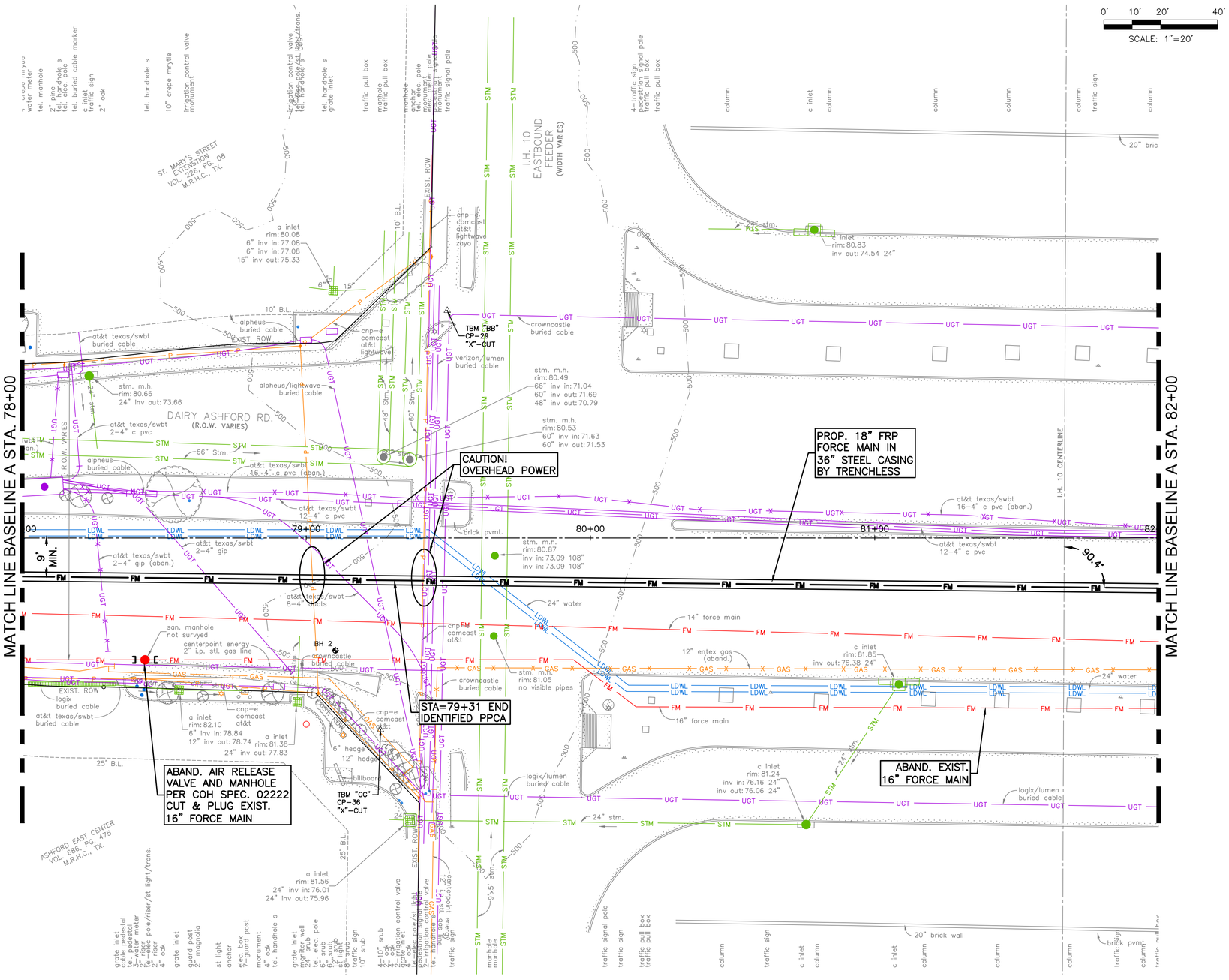
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 65 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003339\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP–36 AT STA. 79+26.14, 67.48' RT., EL=81.60'
CP–29 AT STA. 79+49.62, 79.95' LT., EL=80.58'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY OPEN CUT CONSTRUCTION AND IN STEEL CASING SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 46 PSI.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

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VERIFICATION OF PRIVATE UTILITY LINES

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Date

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TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 78+00 TO STA. 82+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

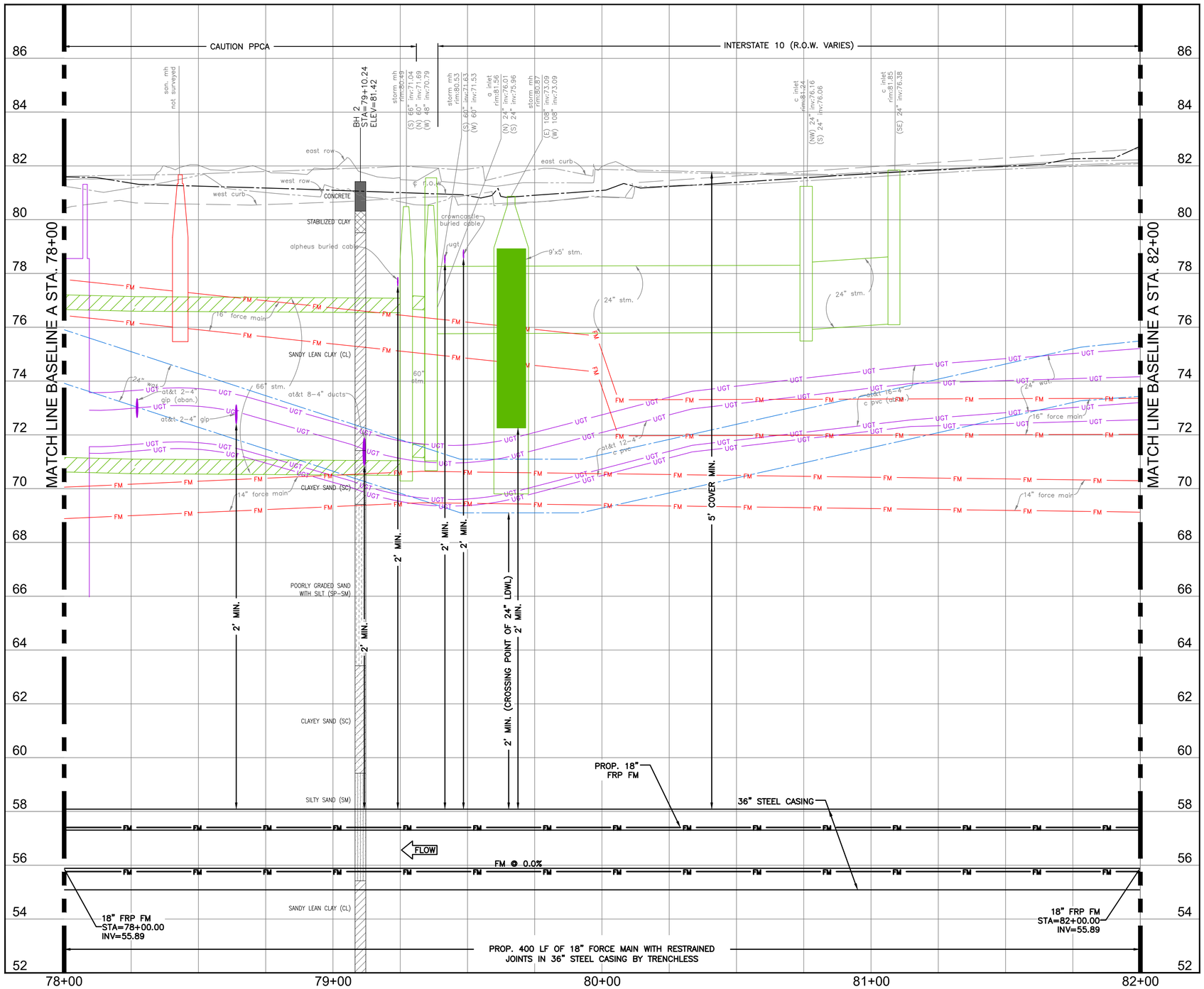
DRAWING SCALE: 1"=20'

SHEET NO. 66 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.43

FILE PATH: C:\Users\p003339\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562–COHFM–oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN & PROFILE BASELINE A STA. 78+00 TO STA. 82+00

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

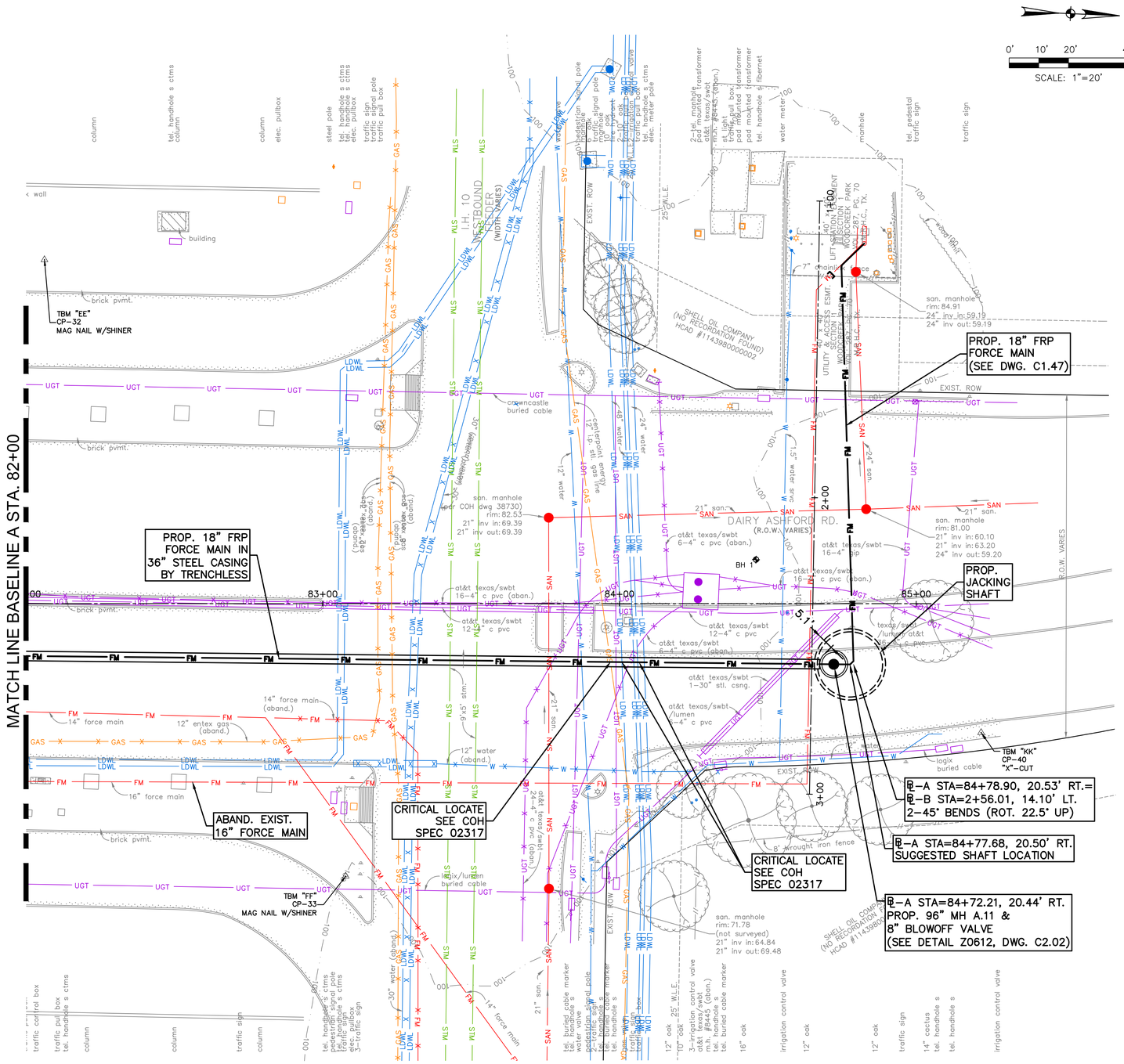
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 67 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



BENCHMARK:

CP-32 AT STA. 82+06.23, 115.92' LT., EL=81.79'
CP-33 AT STA. 83+07.76, 91.90' RT., EL=82.75'
CP-40 AT STA. 85+21.88, 43.48' RT., EL=81.71'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. FIBERGLASS REINFORCED PIPE (FRP) TO BE INSTALLED BY OPEN CUT CONSTRUCTION AND IN STEEL CASING SHALL BE CLASS (PN) 150 PSI, PIPE STIFFNESS (SN) 46 PSI.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AT CROSSINGS WITH THE FORCE MAIN.
4. SHAFT SHAPE AND SIZE ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR.
5. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STAINLESS STEEL COMBINATION AIR RELEASE VALVES.

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VERIFICATION OF PRIVATE UTILITY LINES

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Date

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PARSONS
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HOUSTON, TEXAS 77056
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE A STA. 82+00 TO END

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

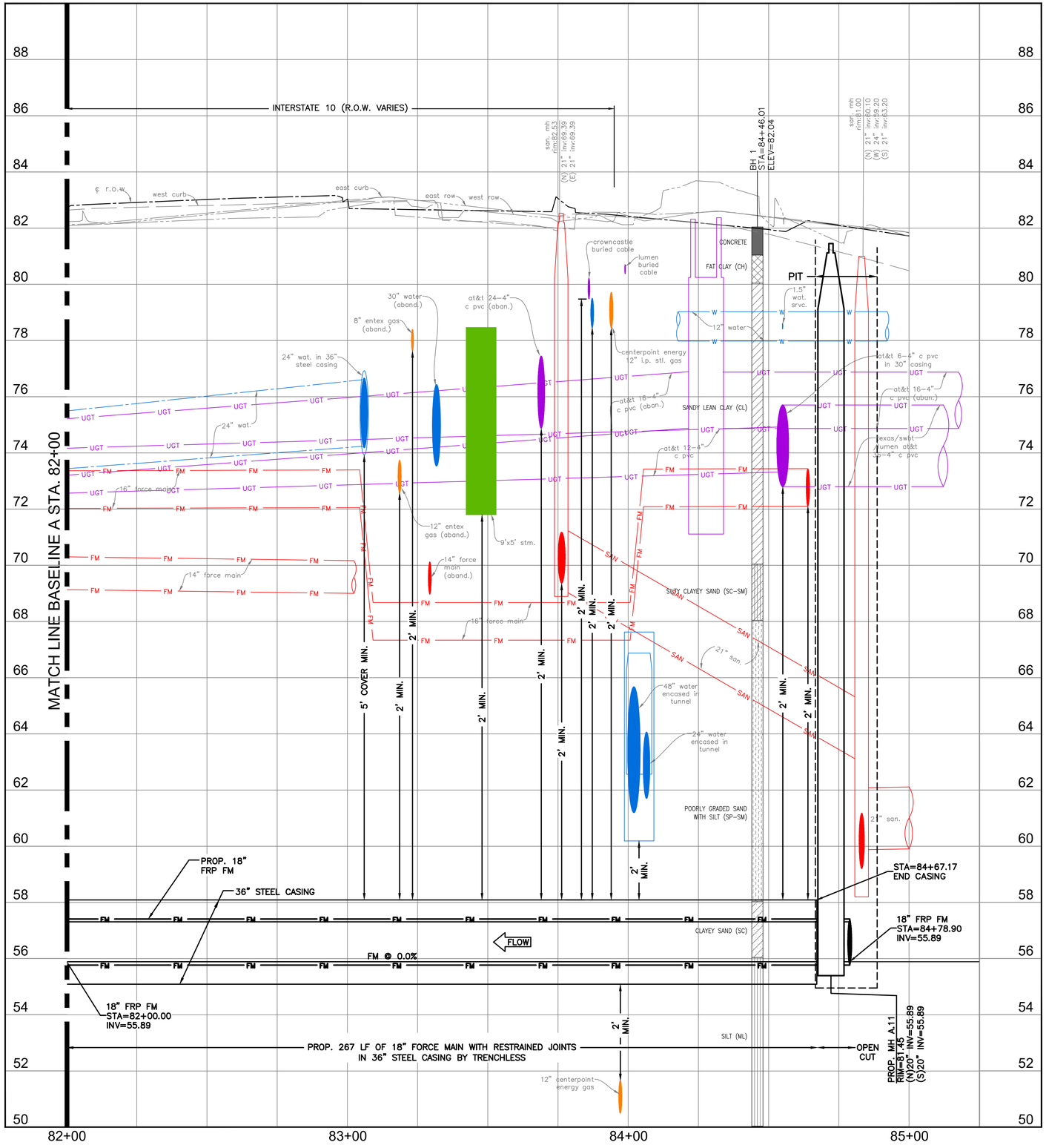
DRAWING SCALE: 1"=20'

SHEET NO. 68 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.45

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

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OLD KATY FORCE MAIN PROFILE BASELINE A STA. 82+00 TO END

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

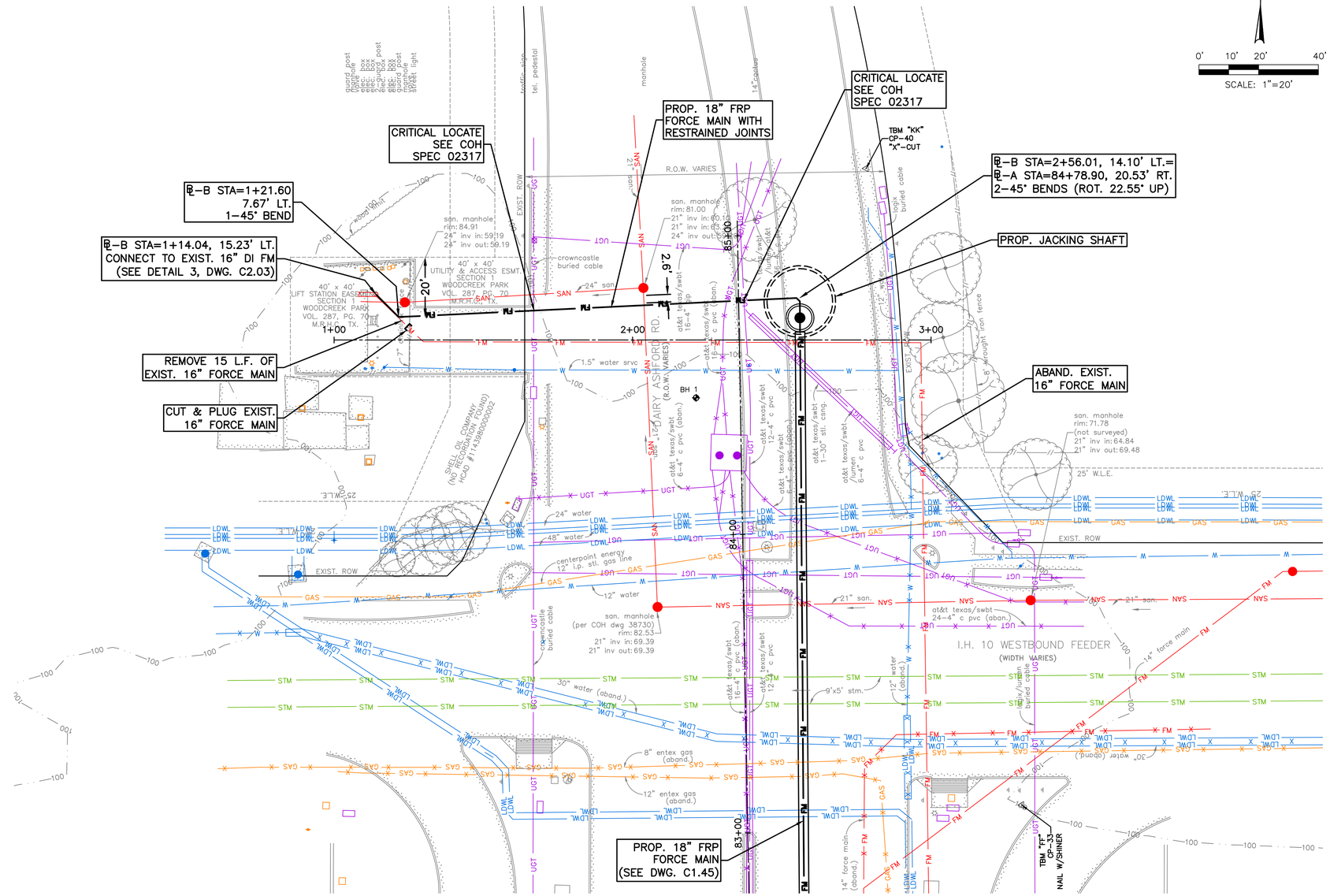
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SHEET NO. 69 OF 192

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BENCHMARK:

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PLAN BASELINE–B BEGIN TO END

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

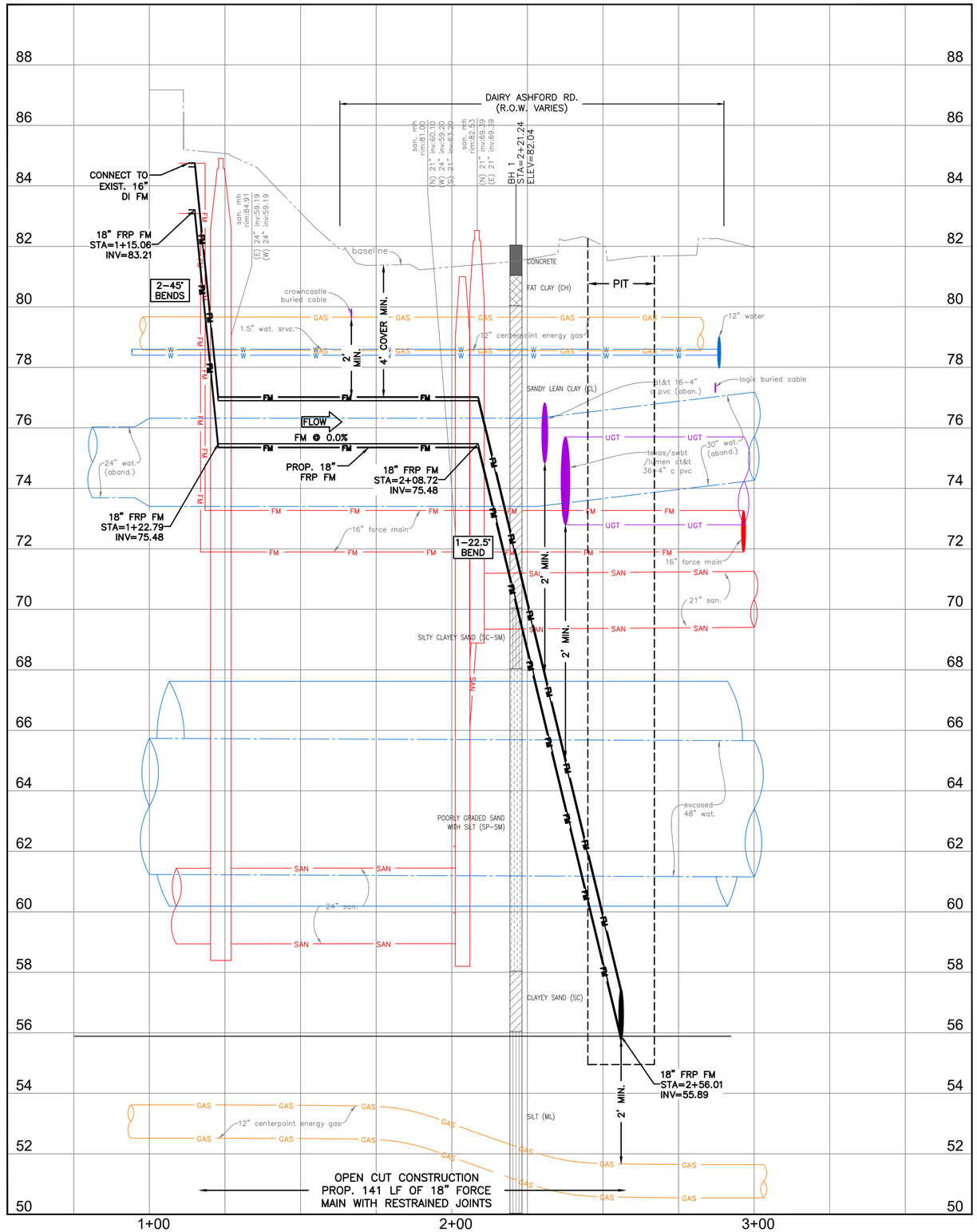
DRAWING SCALE: 1"=20'

SHEET NO. 70 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.47

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SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY FORCE MAIN PROFILE BASELINE-B BEGIN TO END

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

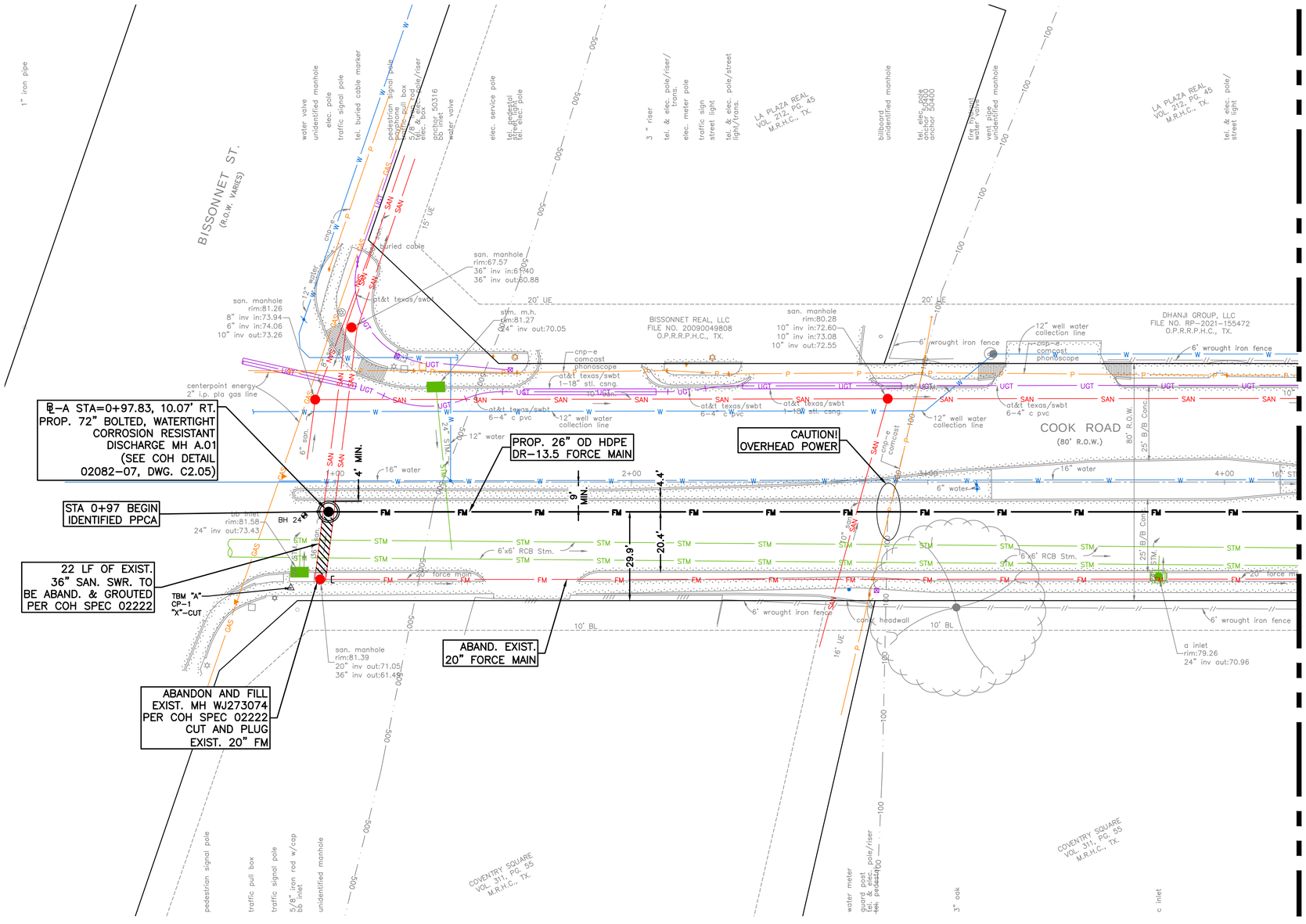
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

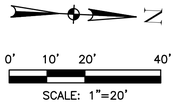
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 71 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg





NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

BENCHMARK:

CP–1 AT STA. 0+85.05, 35.70' RT., EL=81.49'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A BEGIN TO STA. 4+25

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

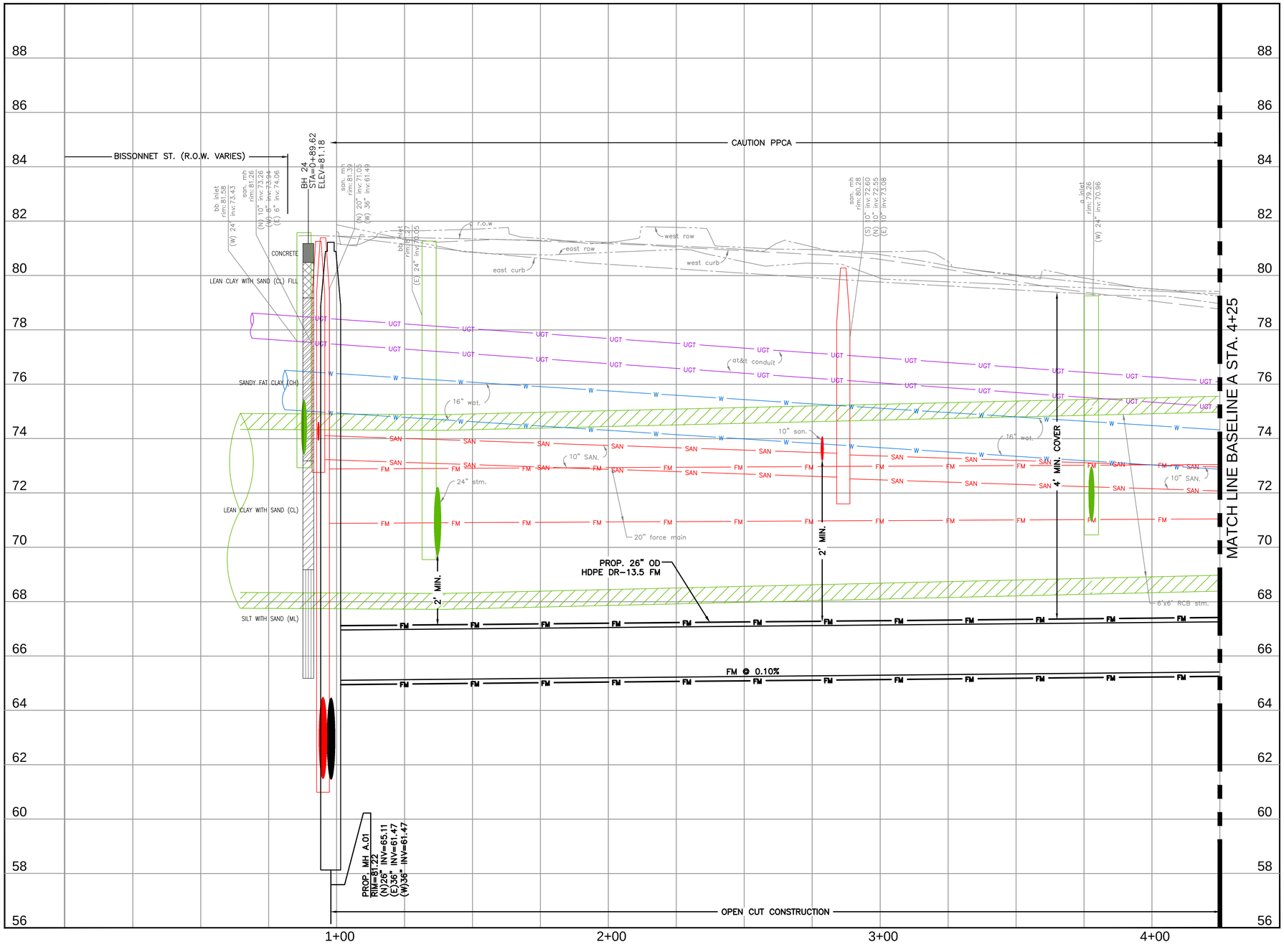
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 72 OF 192

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FILE PATH: C:\Users\p003391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562–COHFM–cookbase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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B	2/24/25	90% SUBMITTAL	MS
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PARSONS
1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A BEGIN TO STA. 4+25

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

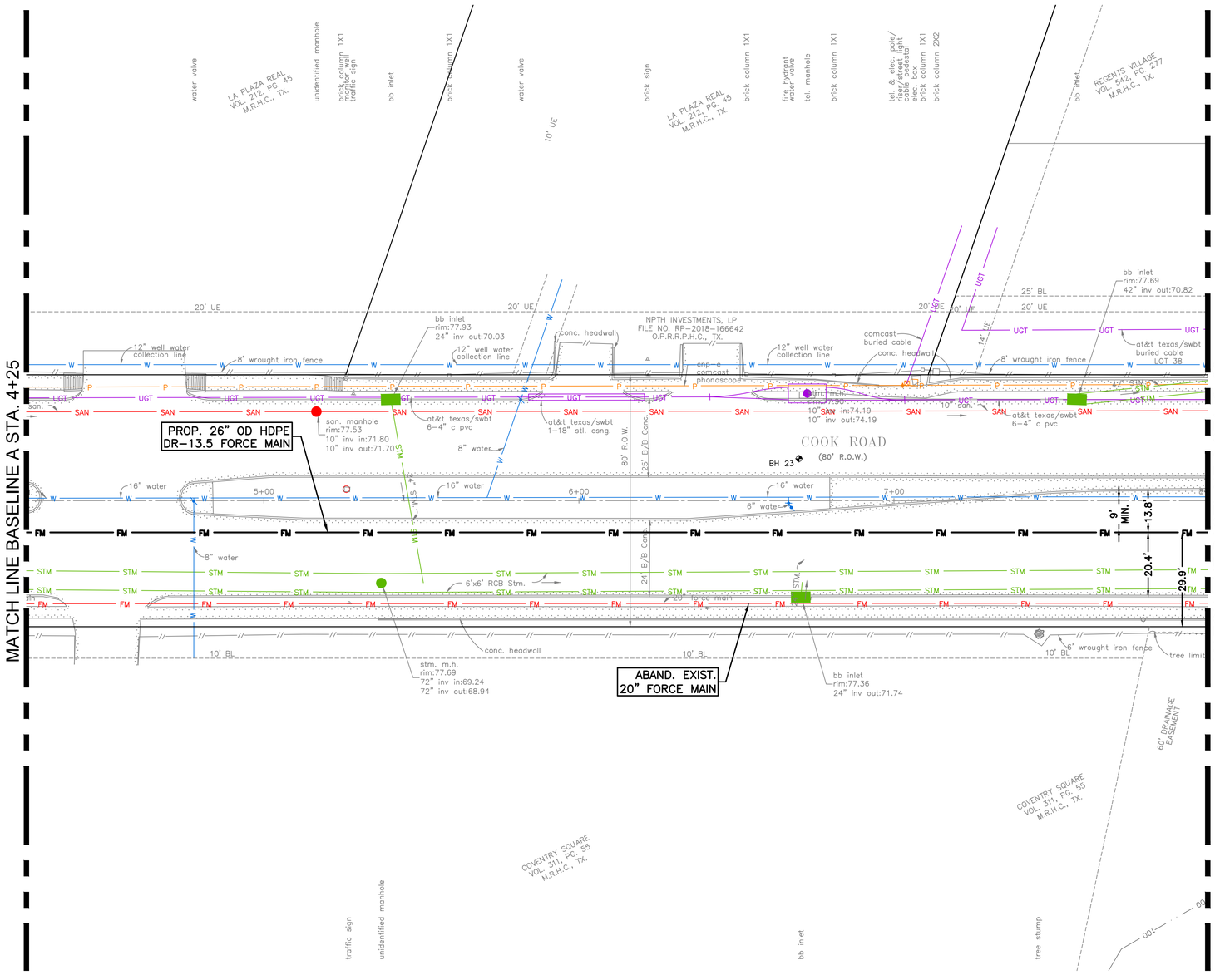
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

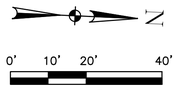
SHEET NO. 73 OF 192

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C1.50

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg





BENCHMARK:

CP-1 AT STA. 0+85.05, 35.70' RT., EL=81.49'
CP-2 AT STA. 9+25.38, 0.81' LT., EL=78.51'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

NO.	DATE	REVISION	APP.
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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
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TBPE FIRM REGISTRATION NO. 8008

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A STA. 4+25 TO STA. 8+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

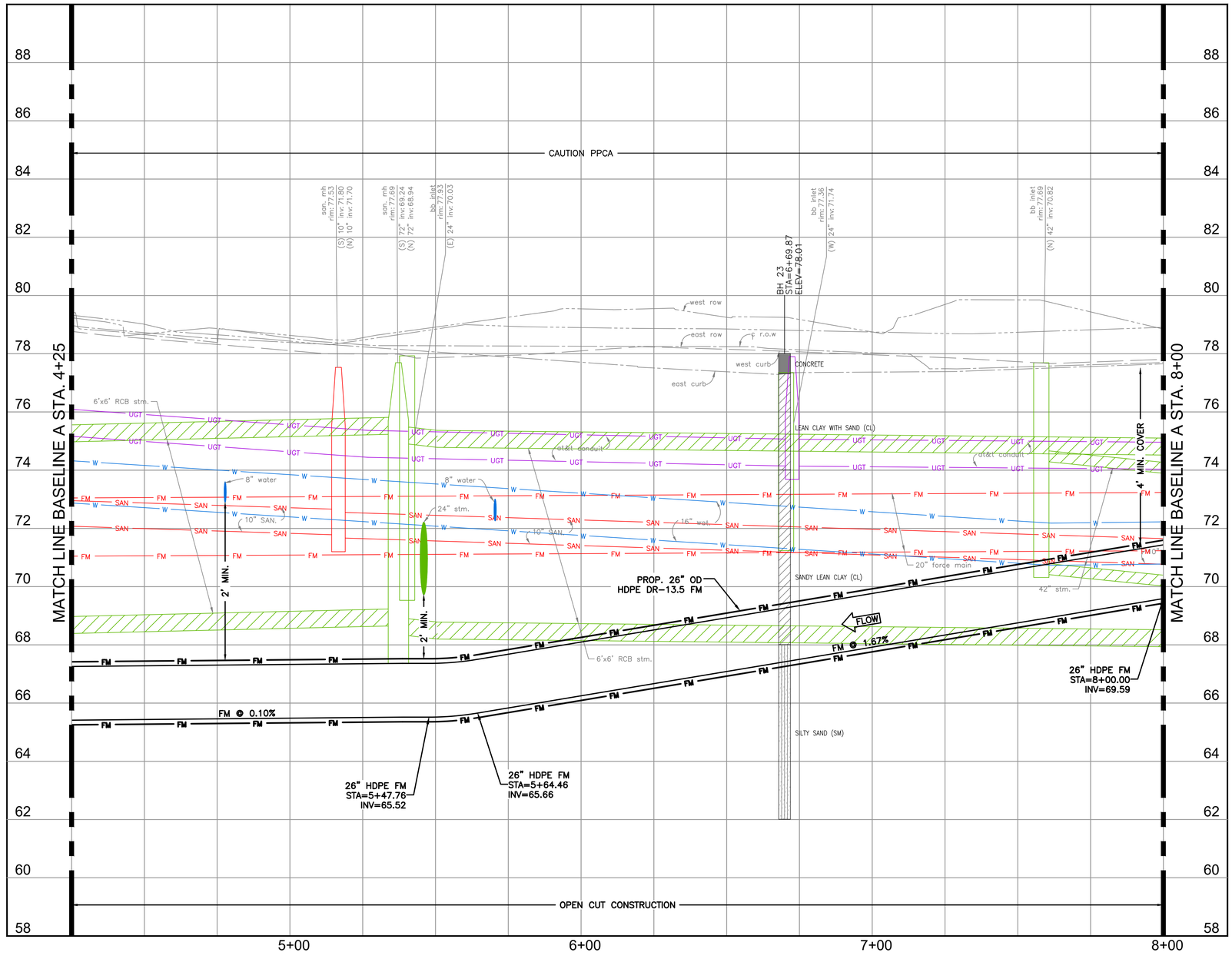
DRAWING SCALE: 1"=20'

SHEET NO. 74 OF 192

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C1.51

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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PARSONS
1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 4+25 TO STA. 8+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

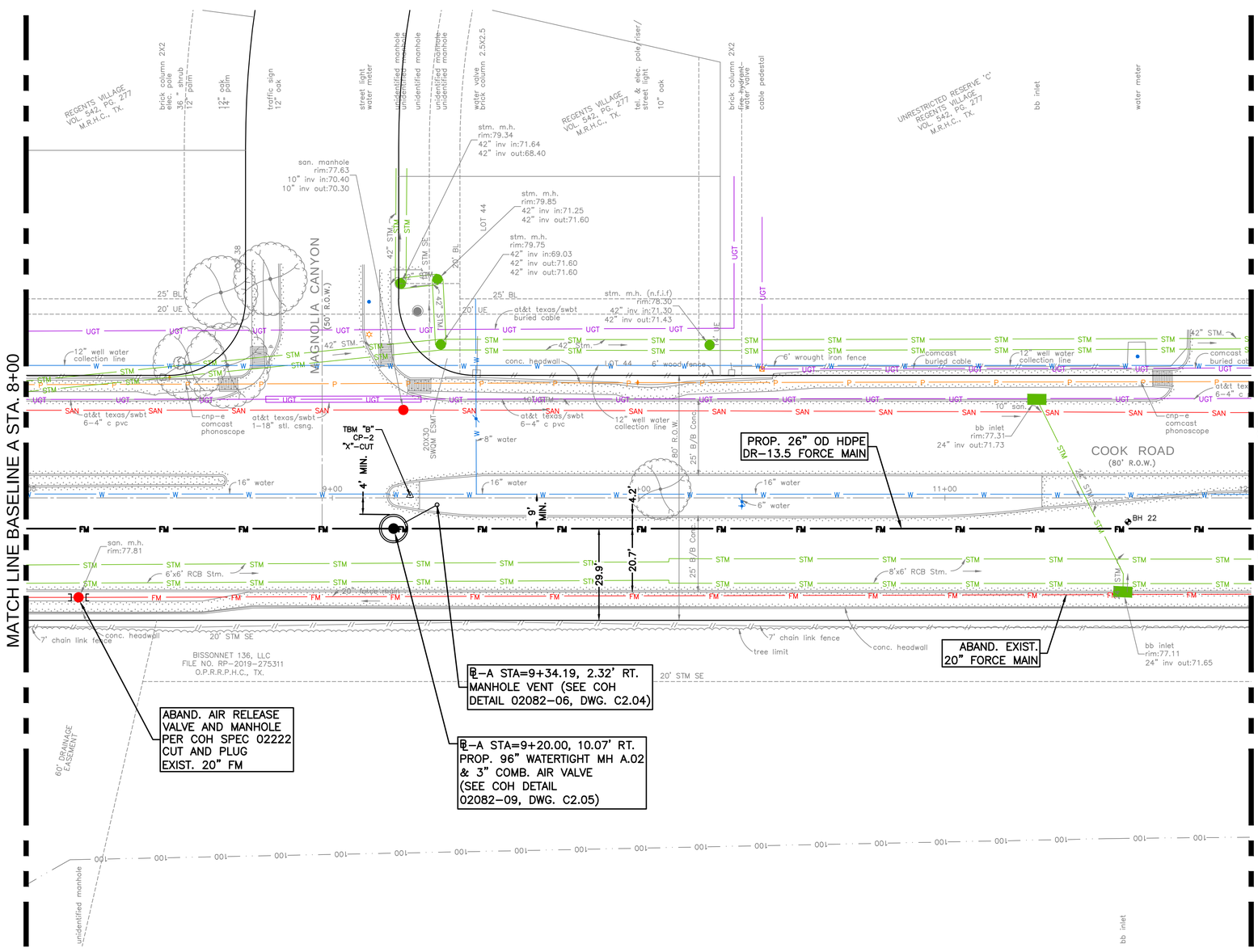
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SHEET NO. 75 OF 192

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C1.52

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg



FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

BENCHMARK:

CONTROL POINT CP-2 AT STA. 9+25.38, 0.81' LT., EL=78.51

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

PARSONS
1 RIVERWAY
SUITE 1100
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A STA. 8+00 TO STA. 12+00

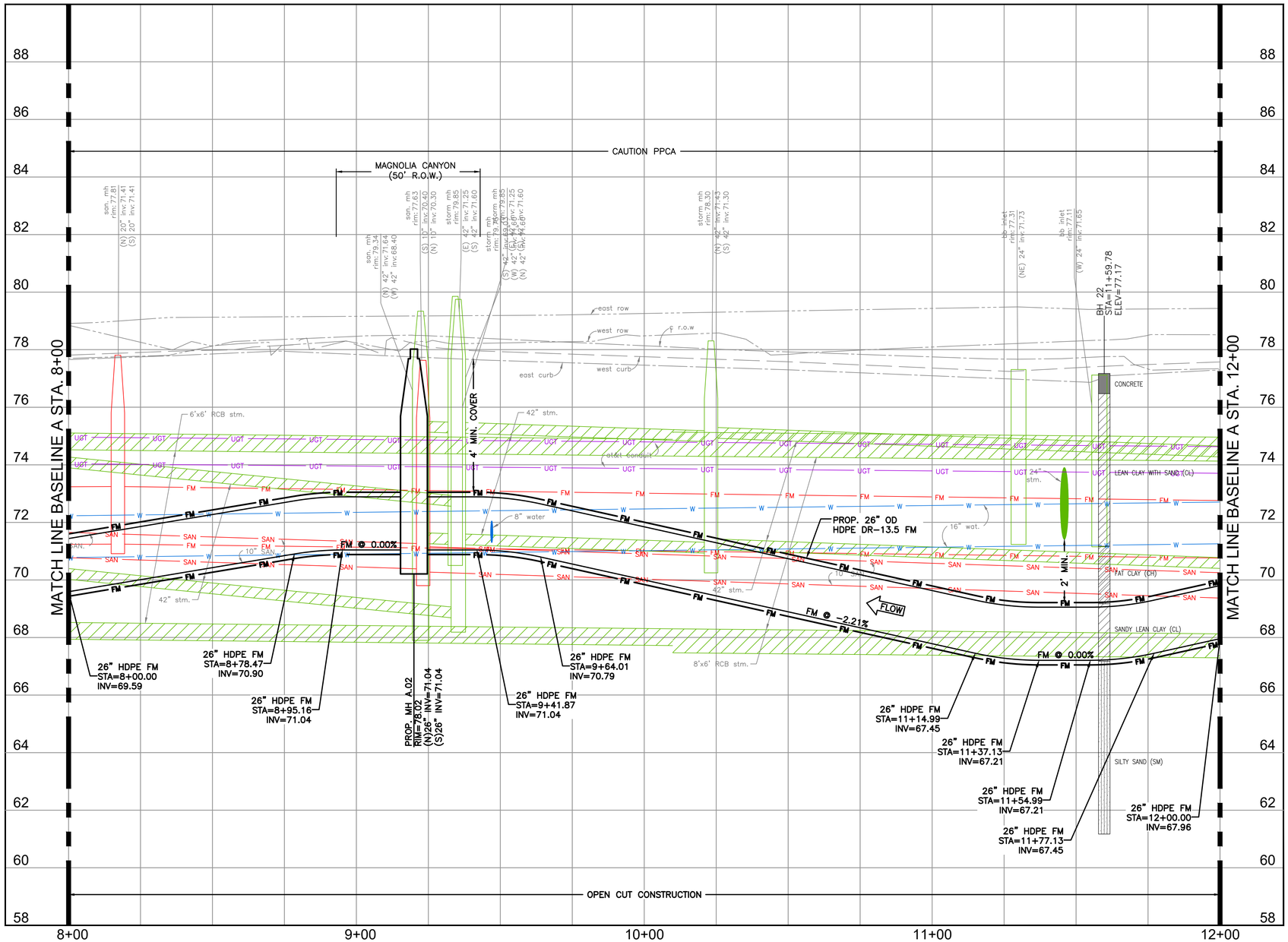
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 76 OF 192

FOR CITY OF HOUSTON USE ONLY



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 8+00 TO STA. 12+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

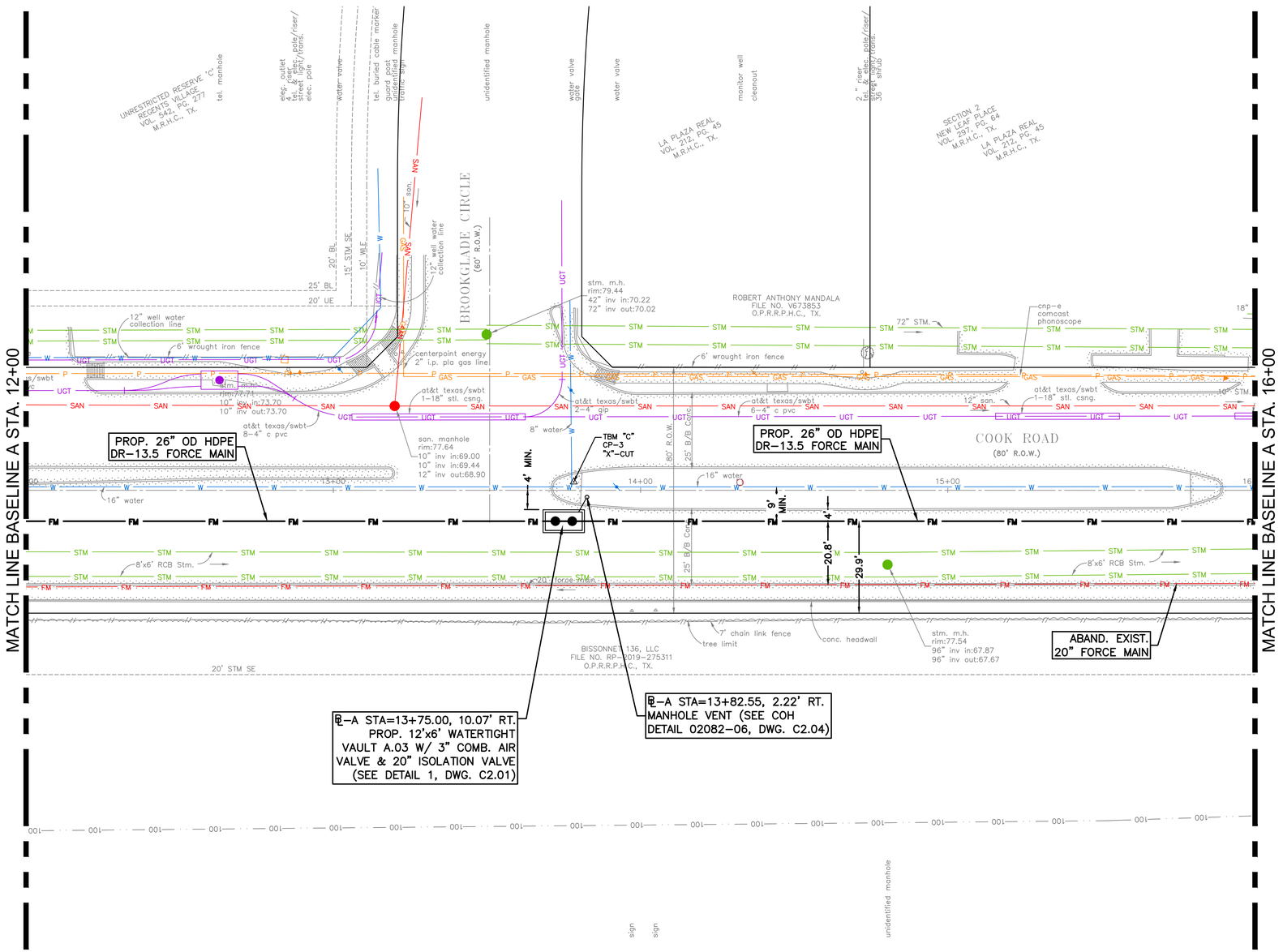
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CITY OF HOUSTON PM: MARIA GEORGE, PE

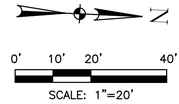
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 77 OF 192

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FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg





BENCHMARK:

CP-3 AT STA. 13+78.26, 2.72' LT., EL=78.55'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN & PROFILE BASELINE A STA. 12+00 TO STA. 16+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

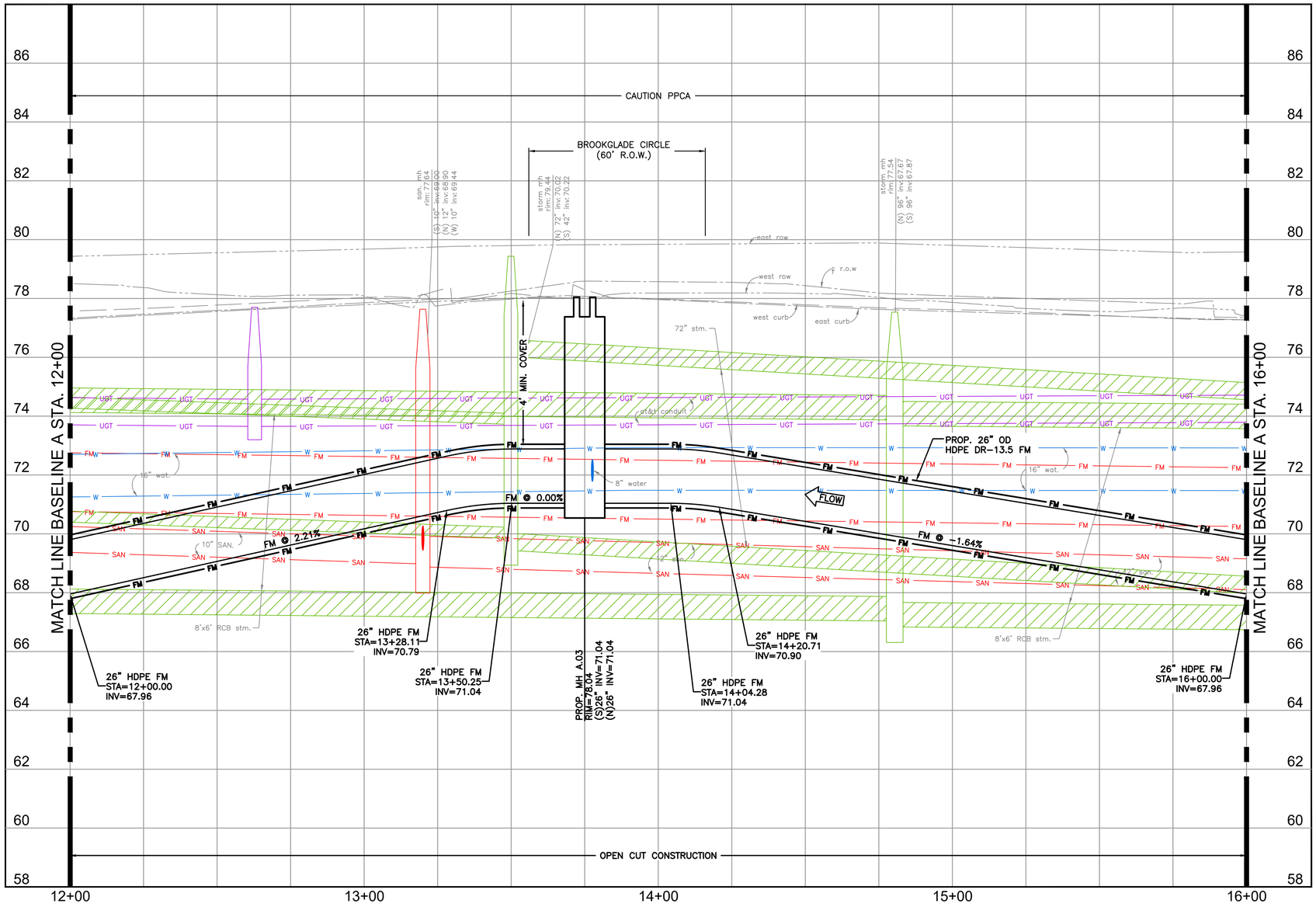
DRAWING SCALE: 1"=20'

SHEET NO. 78 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.55

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
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PARSONS
1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 12+00 TO STA. 16+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

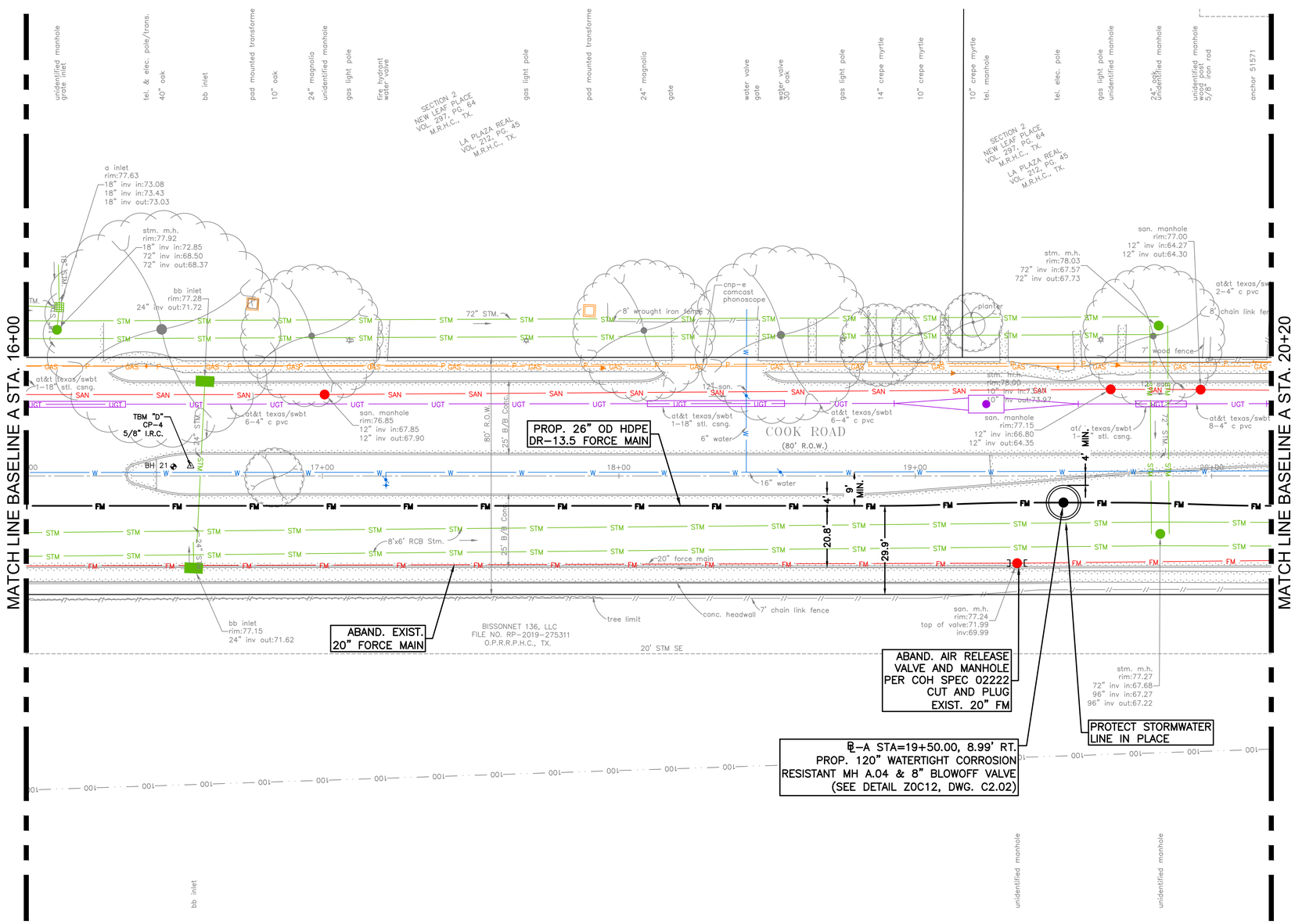
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 79 OF 192

FOR CITY OF HOUSTON USE ONLY

C1.56

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP-4 AT STA. 16+55.54, 3.36' LT., EL=77.53'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

NO.	DATE	REVISION	APP.
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A STA. 16+00 TO STA. 20+20

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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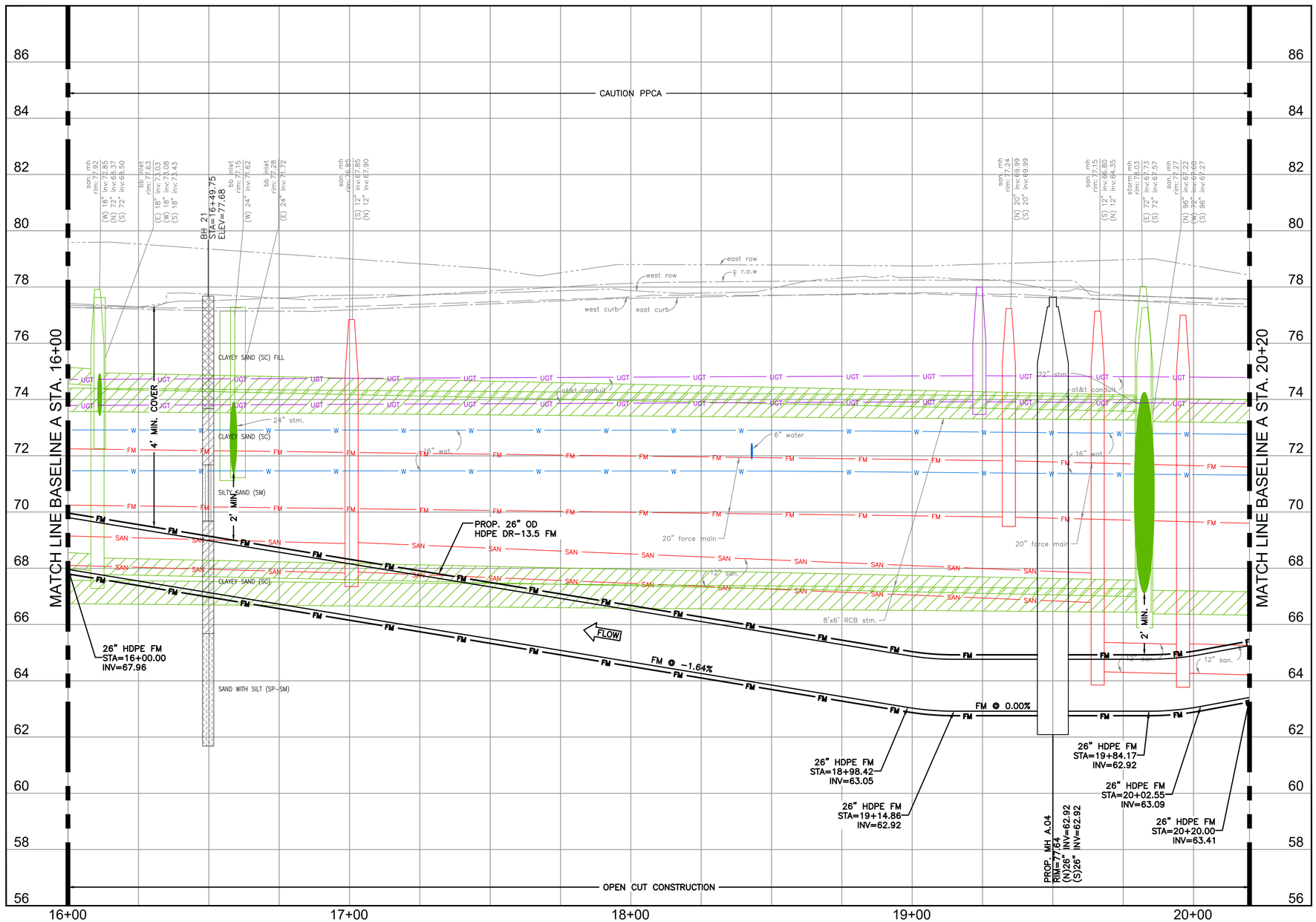
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SHEET NO. 80 OF 192

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C1.57

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-cookbase.dwg



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 16+00 TO STA. 20+20

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

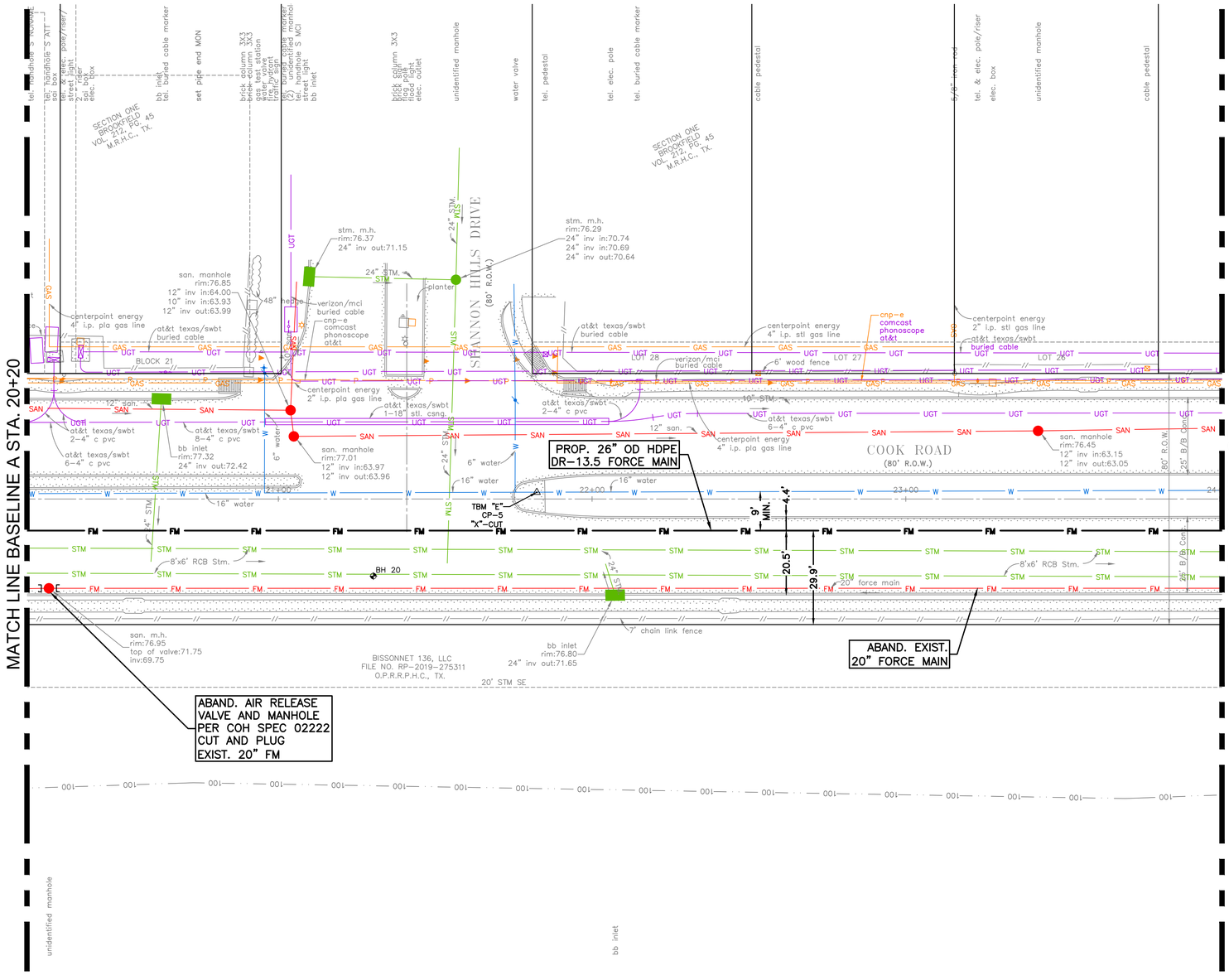
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CITY OF HOUSTON PM: MARIA GEORGE, PE

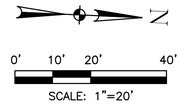
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 81 OF 192

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BENCHMARK:

CP-5 AT STA. 21+82.38, 2.14' LT., EL=77.80'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A STA. 20+20 TO STA. 24+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

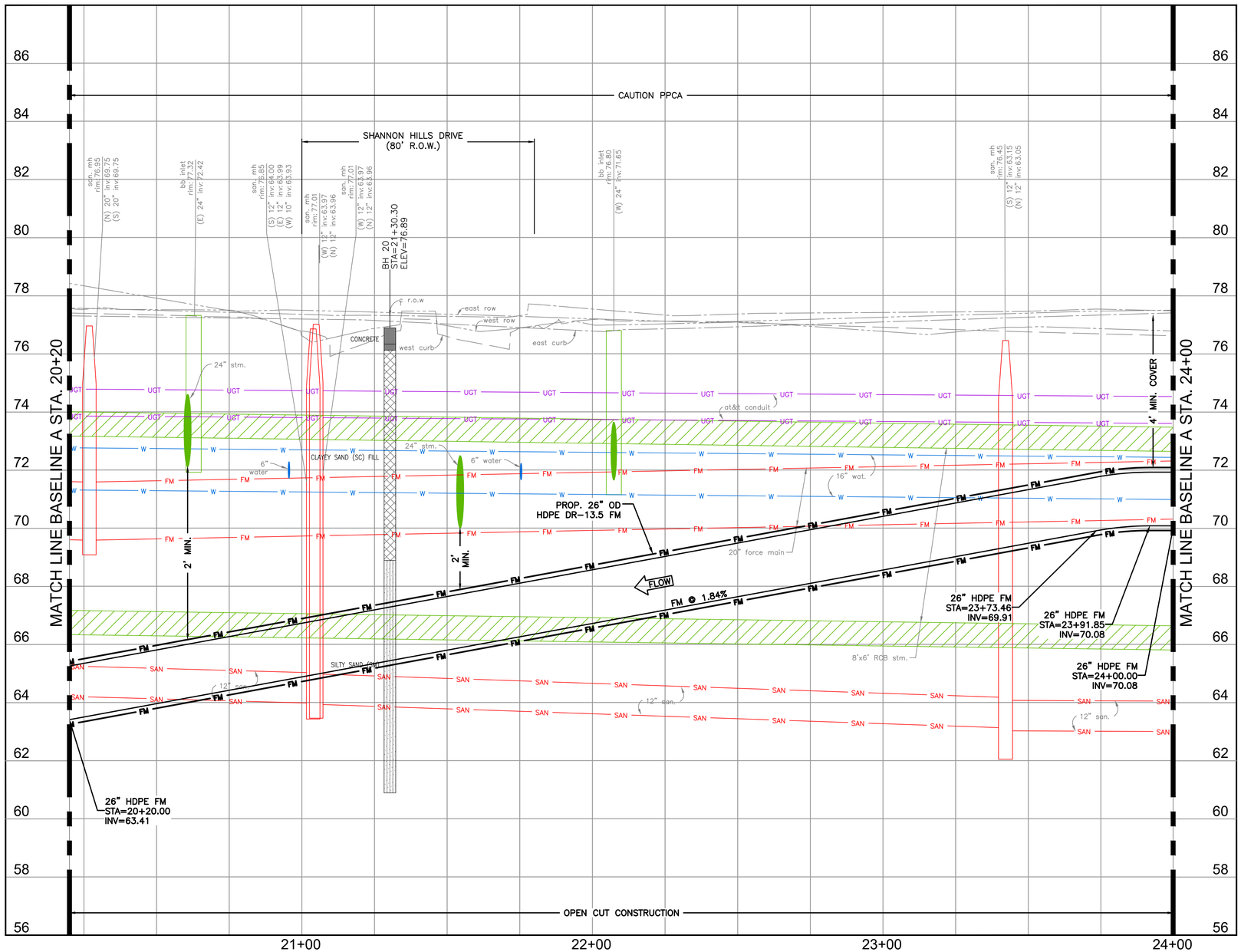
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CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 82 OF 192

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0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 20+20 TO STA. 24+00

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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CITY OF HOUSTON PM: MARIA GEORGE, PE

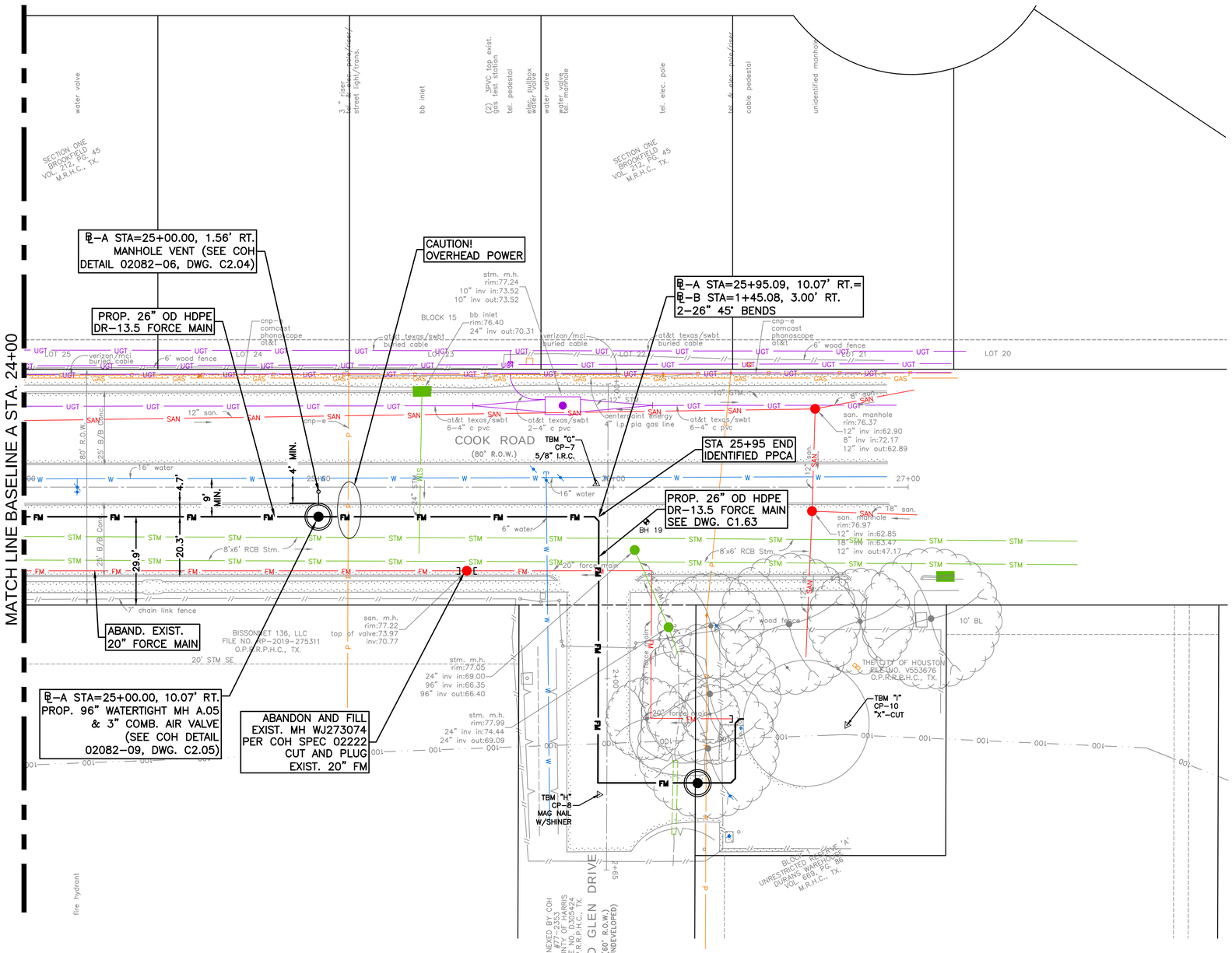
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0' 10' 20' 40'

SCALE: 1"=20'

BENCHMARK:

CP–7 AT STA. 25+94.23, 1.10' LT., EL=77.06'
CP–8 AT STA. 25+95.16, 104.33' RT., EL=80.08'
CP–10 AT STA. 26+79.26, 80.76' RT., EL=82.11'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE A STA. 24+00 TO END

CITY OF HOUSTON
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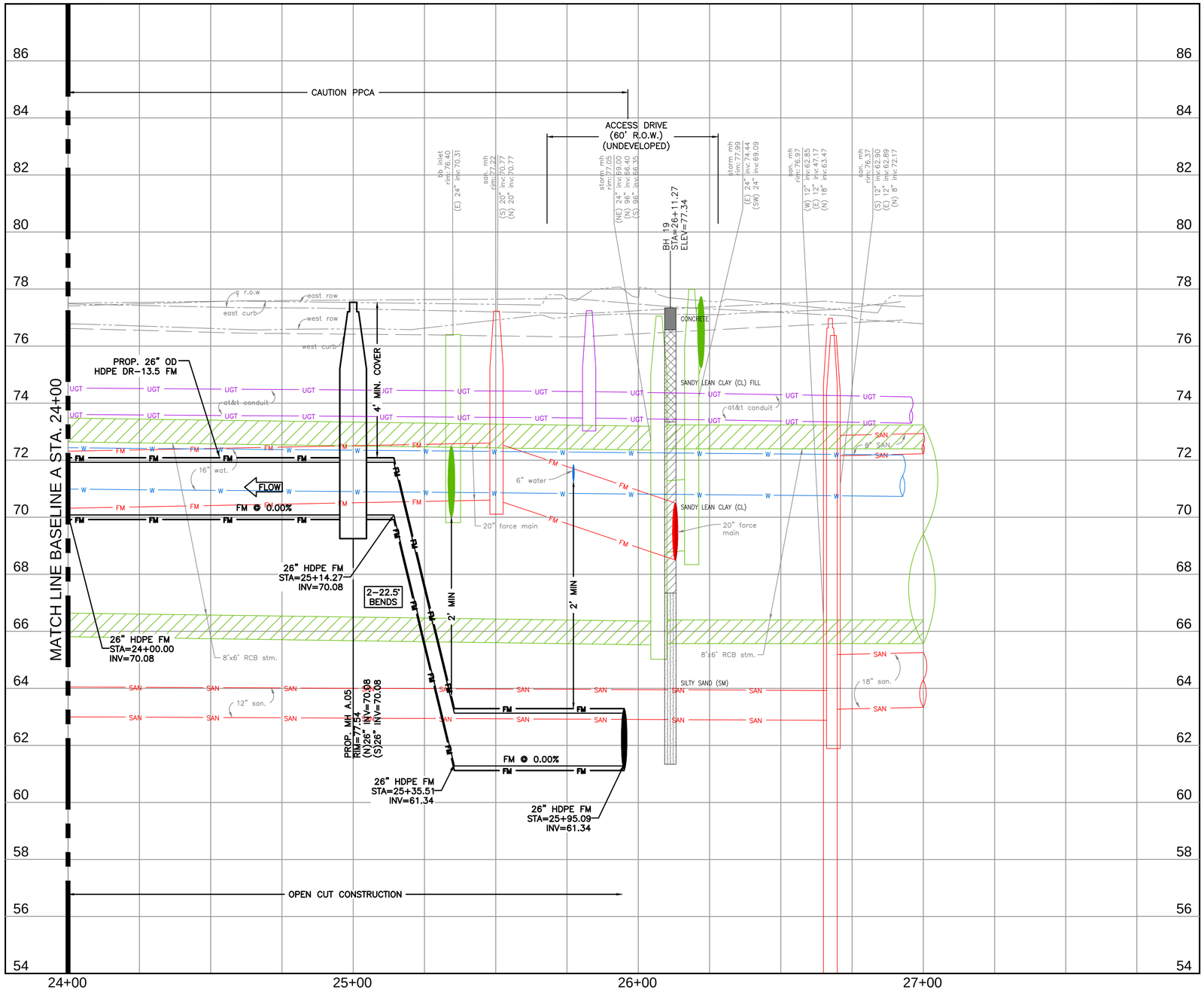
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0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE A STA. 24+00 TO END

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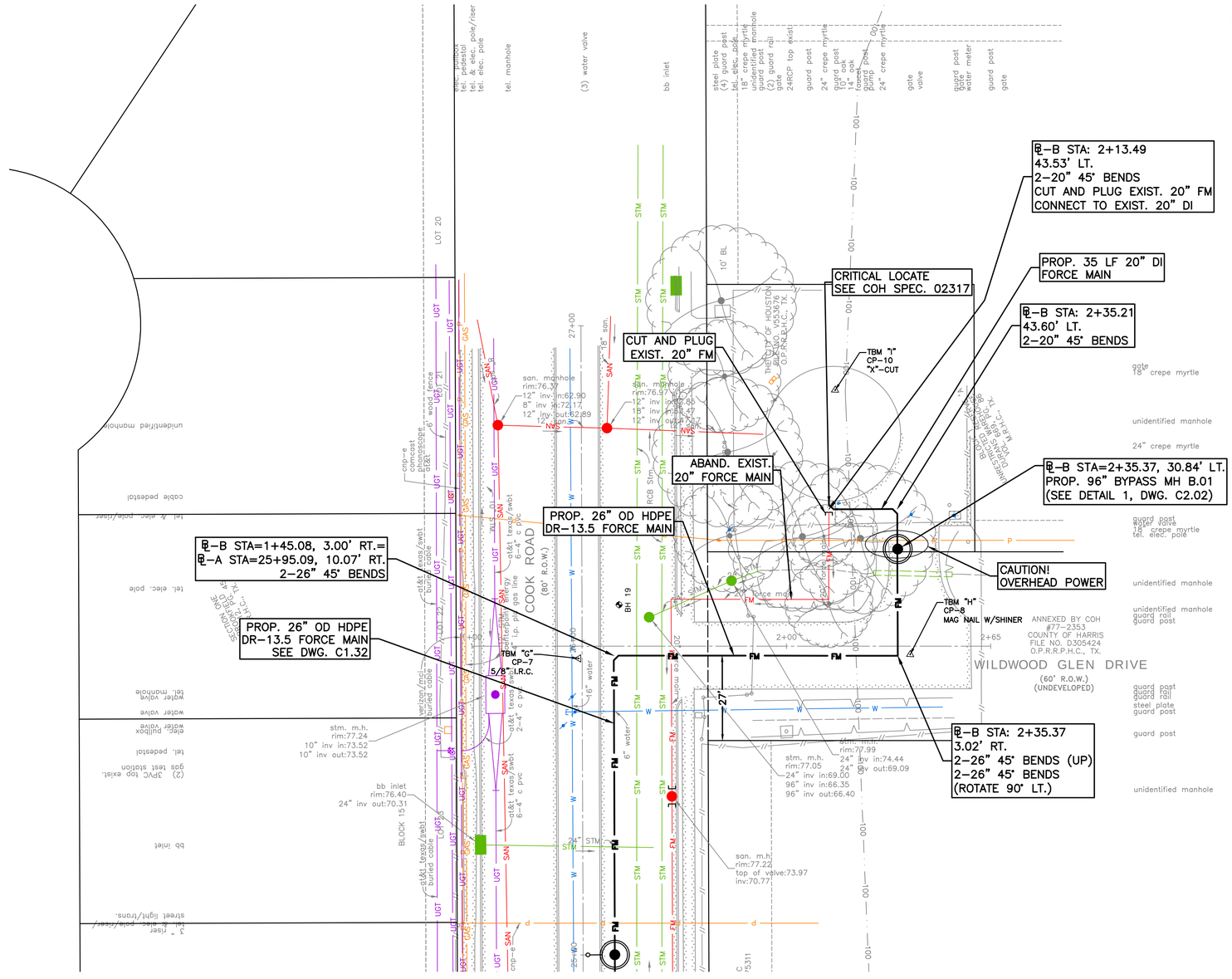
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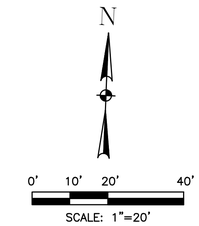
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BENCHMARK:

CP-7 AT STA. 1+33.91, 3.90' RT., EL=77.06'
CP-8 AT STA. 2+39.34, 2.61' RT., EL=80.08'
CP-10 AT STA. 2+15.48, 81.41' LT., EL=82.11'

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. HDPE PIPE TO BE HEAT FUSED CONFORMING TO ASTM D 2657.
3. CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES AS CROSSINGS WITH THE FORCE MAIN.
4. PAINT EXPOSED PIPE, FITTINGS, AND VALVES PER COH SECTION 09901. USE STANLESS STEEL COMBINATION AIR RELEASE VALVES.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PLAN BASELINE B BEGIN TO END

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

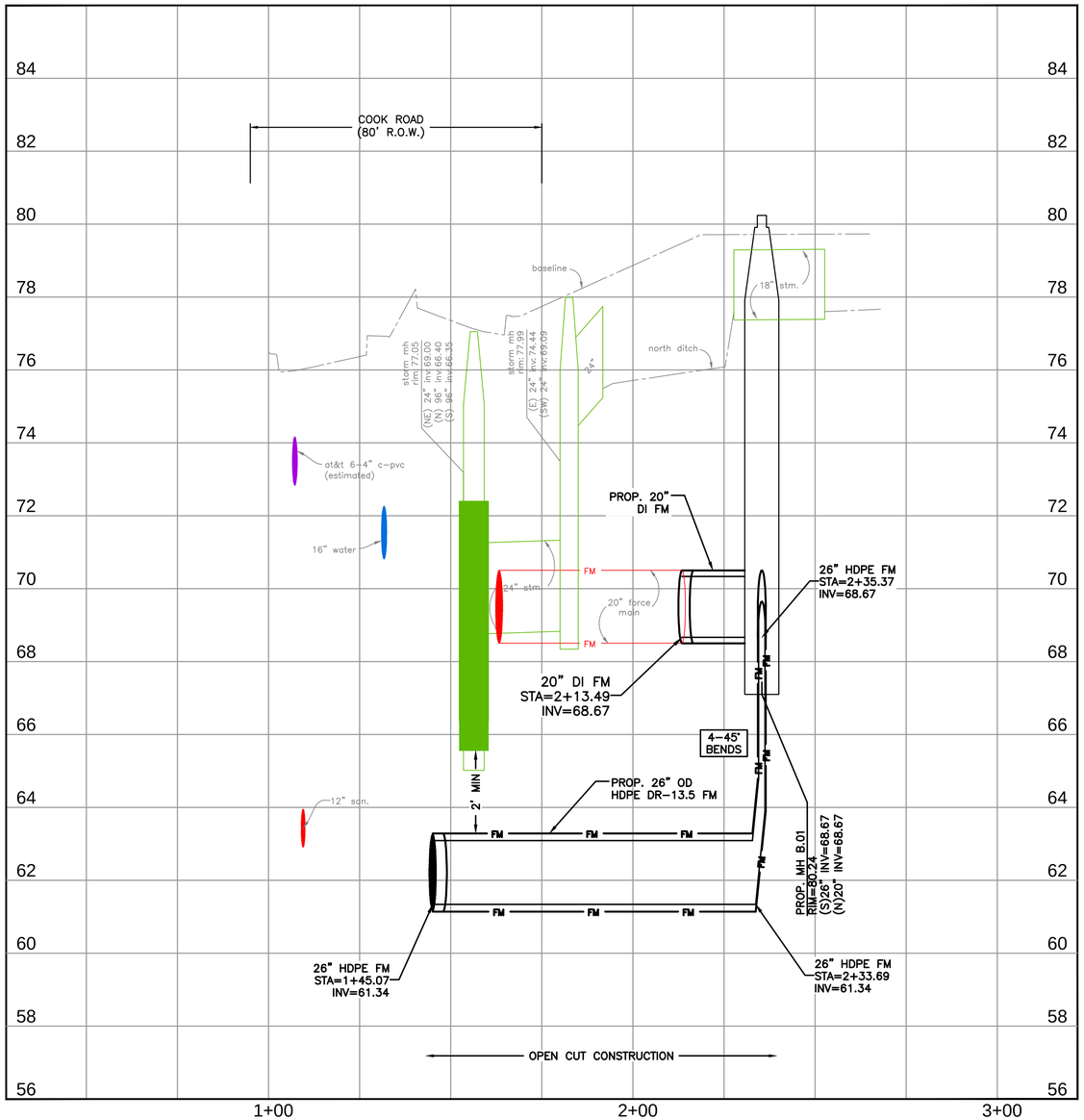
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 86 OF 192

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0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD FORCE MAIN PROFILE BASELINE B BEGIN TO END

CITY OF HOUSTON
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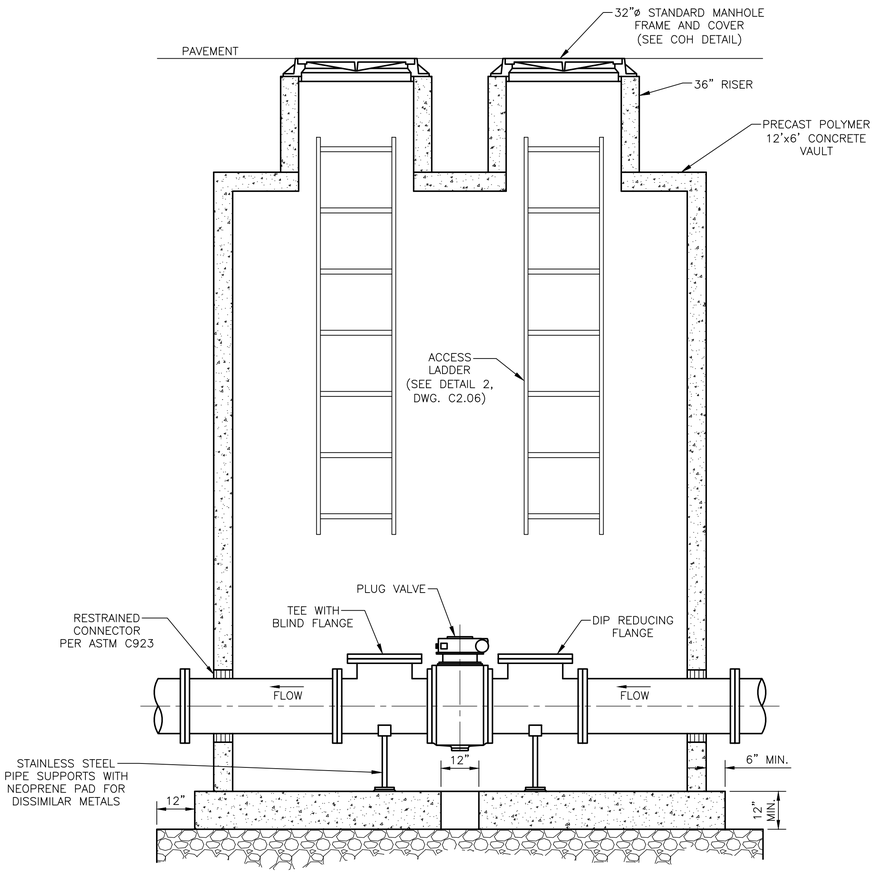
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

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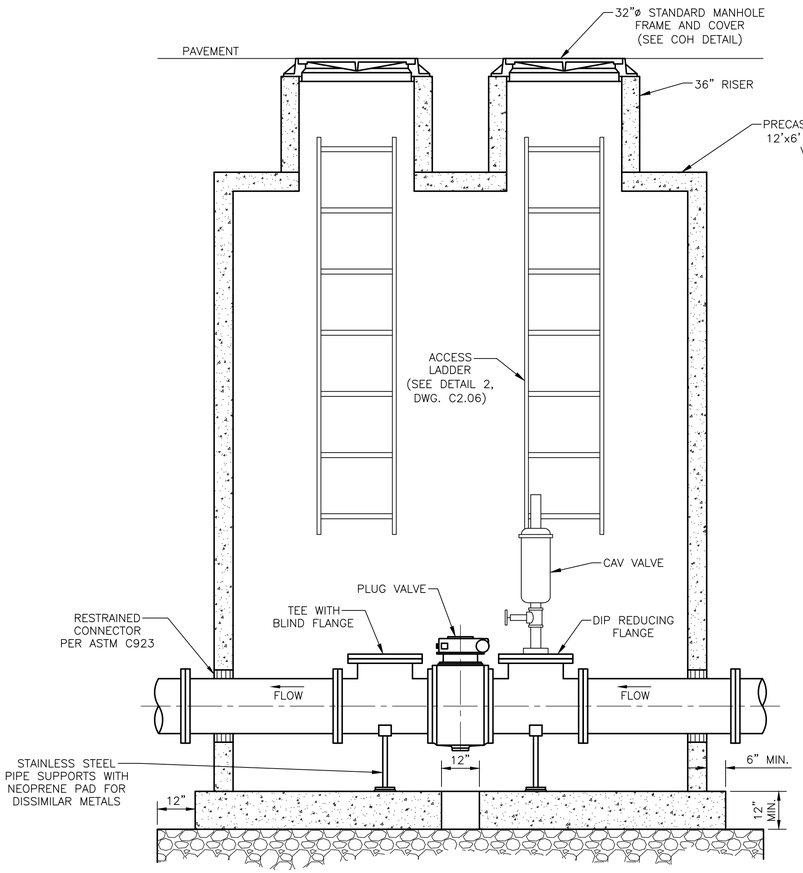


NOTES:
1. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITH 12" OF OUTSIDE FACE OF VAULT. JOINTS INSIDE VAULT SHALL BE FLANGED WITH 316 STAINLESS STEEL BOLTS.

2. PROVIDE PROTECTIVE RESISTANT COATINGS FOR ALL PIPE AND FITTINGS IN VAULTS IN ACCORDANCE WITH SPEC 09901.

ISOLATION VALVE VAULT — 1

NOT TO SCALE



NOTES:
1. PROVIDE LINES DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITH 12" OF OUTSIDE FACE OF VAULT. JOINTS INSIDE VAULT SHALL BE FLANGED WITH 316 STAINLESS STEEL BOLTS.

2. AIR VALVE SHOULD BE LOCATED ON THE HIGHEST POINT ALONG THE BYPASS LINE CONNECTED TO ISOLATION VALVE.

3. PROVIDE VENTED MANHOLE FOR AIR AND VACUUM RELEASE VALVE INSTALLATION.

4. PROVIDE PROTECTIVE RESISTANT COATINGS FOR ALL PIPE AND FITTINGS IN VAULTS IN ACCORDANCE WITH SPEC 09901.

ISOLATION/ARV VALVE VAULT — 2

NOT TO SCALE

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A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 1 OF 6)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: NOT TO SCALE

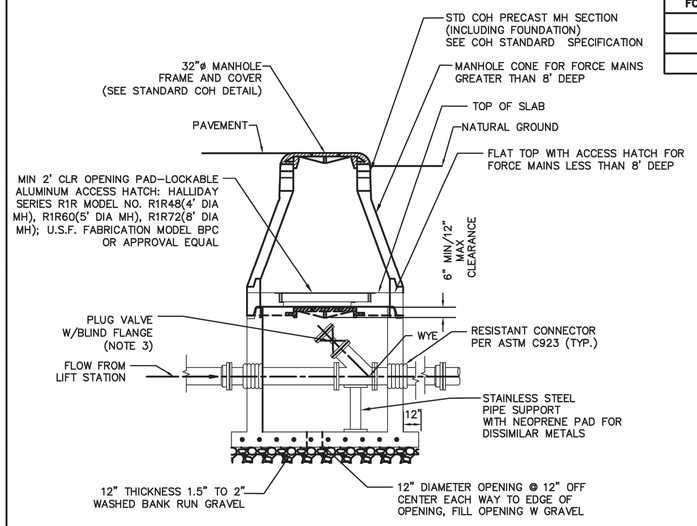
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MANHOLE SIZE	
FORCEMAIN DIAMETER	MANHOLE DIAMETER
8"	4'-0"
18"	5'-0"
30"	8'-0"



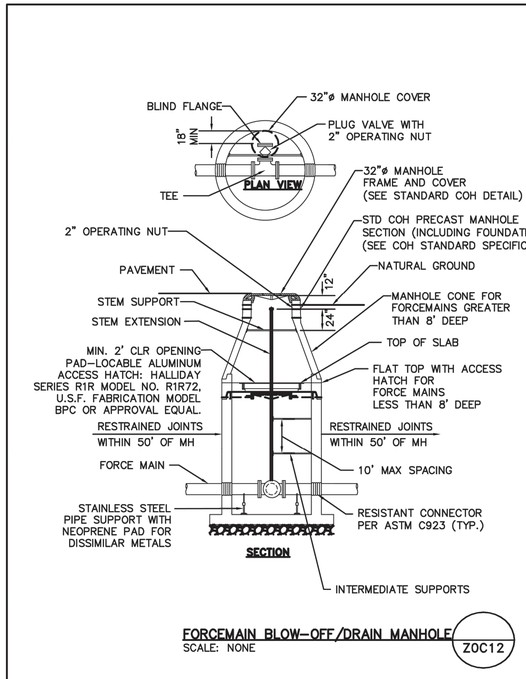
BELOW GROUND BYPASS DETAIL

NOTES:

1. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
2. MANHOLE TOP MAY BE CONCENTRIC CONE, OR FLAT TOP WITH ECCENTRIC OPENING. PROVIDE 32" FRAME AND COVER.
3. ENSURE MIN CLEARANCE OF 18" ON ALL SIDES. OFFSET VALVE ON HATCH/MH OPENING AS NEEDED TO OBTAIN CLEARANCE.

BYPASS MANHOLE DETAIL
SCALE: NONE

Z0C12

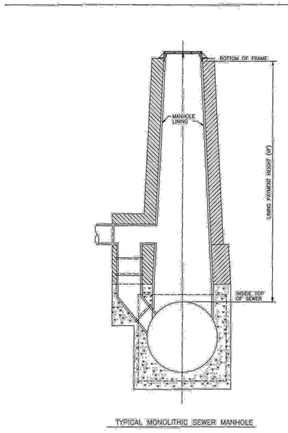


NOTES:

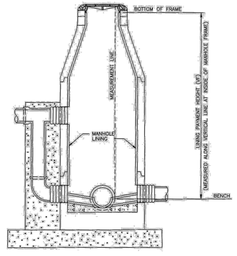
1. REFER TO PLAN AND PROFILE DRAWINGS FOR TEE AND VALVE SIZE.
2. PROVIDE ECCENTRIC CONE MANHOLE. ROTATE CONE SO THAT OPERATING NUT IS ACCESSIBLE FROM OPENING BUT DOES NOT LIMIT ACCESS.
3. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
4. ENSURE MIN CLEARANCE OF 18" ON ALL SIDES. OFFSET VALVE ON HATCH/MH OPENING AS NEEDED TO OBTAIN CLEARANCE.

FORCEMAIN BLOW-OFF/DRAIN MANHOLE
SCALE: NONE

Z0C12



TYPICAL MONOLITHIC SEWER MANHOLE



TYPICAL PIPE SEWER MANHOLE

THIS IS NOT A STANDARD DETAIL.
IT IS TO BE USED ONLY AS A GUIDE FOR MEASUREMENT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIV
SANITARY SEWER MANHOLE LINING PAYMENT LIMITS
(NOT TO SCALE)
APPROVED BY: Brandaris
CITY ENGINEER
DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: 001-01-2002 DWG NO: 02534

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 2 OF 6)

CITY OF HOUSTON
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CITY OF HOUSTON PM: MARIA GEORGE, PE

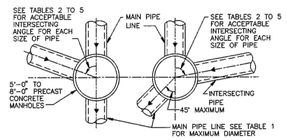
DRAWING SCALE: NOT TO SCALE

SHEET NO. 89 OF 192

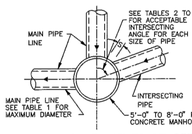
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NOTES ON USE OF STANDARD DETAIL 02082-03



FOR MAIN PIPES FROM STRAIGHT THROUGH TO 45° DEFLECTION



FOR MAIN PIPE WITH 45° TO 90° DEFLECTION

TABLE 1
MAXIMUM MAIN PIPE DIAMETER (I D) IN INCHES

MANHOLE DIAMETER (FT)	STRAIGHT THROUGH TO 45° DEFLECTION	WITH 90° DEFLECTION	TABLE TO BE USED
5	36	27	2
6	42	33	3
7	48	36	4
8	60	42	5

TABLE 2
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 5'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES											
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	
8	49	50	54	58	61	66	69	73	77	82	86	
10		53	57	61	64	68	71	76	79	84	88	
12			61	65	68	72	75	80	83	88	–	
15				68	71	75	79	83	87	–	–	
18					75	79	82	87	90	–	–	
21						83	86	90	–	–	–	
24							90	–	–	–	–	
27								–	–	–	–	
30									–	–	–	
33										–	–	
36											–	

TABLE 3
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 6'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES											
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"
8	40	42	45	49	51	54	57	61	63	67	70	78
10		44	47	50	53	56	59	62	65	69	72	79
12			50	54	56	60	62	66	68	72	75	83
15				57	59	62	65	69	71	75	78	85
18					62	65	68	71	74	78	81	88
21						68	71	74	77	81	84	–
24							74	77	80	84	87	–
27								83	85	89	–	–
30									–	–	–	–
33										–	–	–
36											–	–
42												–

TABLE 4
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 7'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES												
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"	48"
8	35	36	39	42	44	47	49	52	54	57	59	65	71
10		38	40	43	45	48	50	53	55	59	61	67	73
12			43	46	48	51	53	56	58	61	64	70	76
15				48	50	53	55	58	61	64	66	72	78
18					58	56	58	61	63	66	69	74	81
21						58	60	63	66	69	71	77	83
24							63	66	68	71	74	79	86
27								70	72	76	78	84	90
30									78	81	83	89	–
33										86	88	–	–
36											–	–	–
42												–	–
48													–

TABLE 5
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 8'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES														
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"	48"	54"	60"
8	30	32	34	36	38	41	43	45	47	50	52	56	61	67	74
10		33	35	38	40	42	44	46	48	51	53	58	63	68	77
12			38	40	42	44	46	49	51	53	55	60	65	71	79
15				42	44	47	48	51	53	56	58	62	67	73	81
18					46	49	51	53	55	58	60	64	70	75	83
21						51	53	55	57	60	62	67	72	77	85
24							55	57	59	62	64	69	74	79	89
27								61	63	66	68	73	78	83	–
30									67	70	72	77	82	87	–
33										74	76	81	86	–	–
36											81	86	–	–	–
42												–	–	–	–
48													–	–	–
54														–	–
60															–

* NOT APPLICABLE (INTERSECTING PIPE GREATER THAN MAIN PIPE)

NOTES TO SPECIFIER:

1. "–" INDICATES THAT A SPECIAL DESIGN OR THE NEXT LARGER MANHOLE SIZE SHALL BE USED.
2. TABLES 2 TO 5 ARE BASED ON A MIN SEPARATION DISTANCE "S" OF 15.5" OR INTERSECTION PIPE OD/2, WHICHEVER IS GREATER, BETWEEN MAIN AND INTERSECTING PIPES ALONG THE MANHOLE INSIDE WALL ARC.
3. PIPE WALL THICKNESS USED IN TABLES 2 TO 5 ARE BASED ON RCP. THE DESIGN ENGINEER MAY CALCULATE TO SEE IF THINNER WALL PIPES CAN MEET THE SEPARATION CRITERIA FOR ANGLES SMALLER THAN THE TABLES ALLOW.
4. LIMITATIONS TO BASE HEIGHT ARE BASED ON RESISTING BUOYANT UPLIFT FORCES BASED ON WATER AT GROUND SURFACE AND A SAFETY FACTOR OF 1.20.
5. A SPECIAL DESIGN IS REQUIRED IF MANHOLE ID IS GREATER THAN 8 FT.

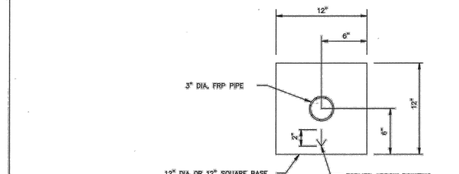
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP

SANITARY SEWER
5'-0" TO 8'-0" DIAMETER
PRECAST CONCRETE MANHOLE NOTES
(NOT TO SCALE)

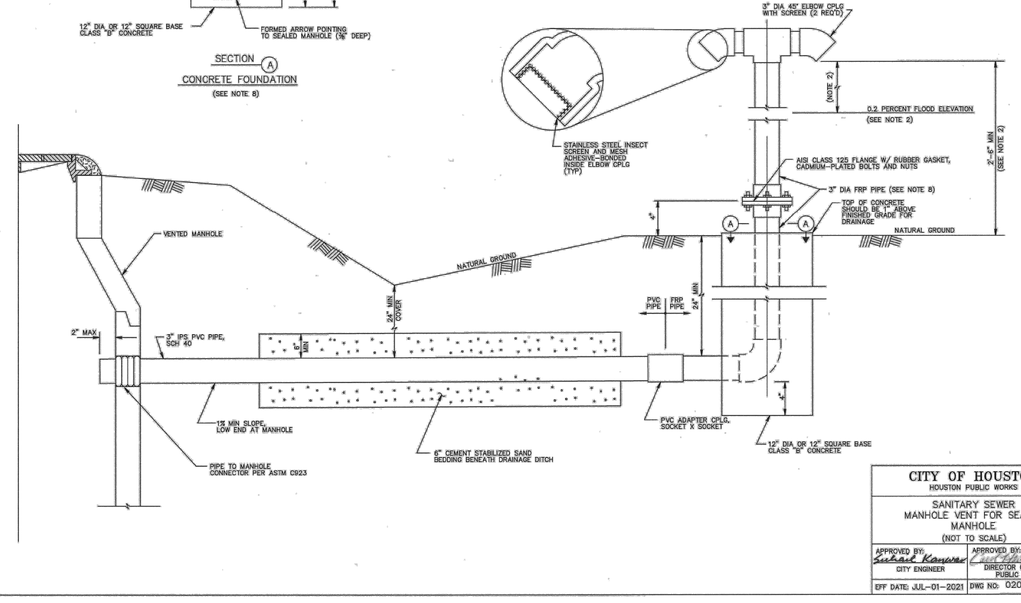
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082N-03

NOTES:

1. INSTALL AT LOCATION AND BASED ON 0.2 PERCENT FLOOD ELEVATION SHOWN ON PLAN AND PROFILE DWGS.
2. MINIMUM VENT HEIGHT ELEVATION IS TO BE 2'-6" ABOVE THE NATURAL GROUND OR AS REQUIRED BY CHAPTER 19 SECTION 19-33 OF THE CITY OF HOUSTON CODE OF ORDINANCES, WHICHEVER IS HIGHER.
3. WHEN FLOODPROOFED VENTS ARE SPECIFIED BY THE EOR, REFER TO THE CONTRACT DOCUMENTS FOR CONSTRUCTION REQUIREMENTS.
4. DRAIN TO VENTED (ADJACENT) MH AT MIN 1% SLOPE. CONNECT TO MANHOLE WITH SPECIFIED CONNECTOR.
5. WHEN VENT CROSSES DRAINAGE DITCH, PROVIDE CEMENT STABILIZED SAND BEDDING
6. THE VENT IS TO BE INSTALLED WITHIN THE RIGHT OF WAY.
7. SEE COH STANDARD SPECIFICATIONS FOR PROTECTIVE COATING REQUIREMENTS FOR EXPOSED FRP PIPE.
8. THIS STANDARD DETAIL SETS THE MINIMUM REQUIREMENTS FOR THE MANHOLE VENT'S CONCRETE FOUNDATION AND VENT PIPE SIZE. THE EOR IS RESPONSIBLE FOR THE ADEQUACY AND DESIGN OF THE CONCRETE FOUNDATION AND VENT PIPE SIZE AND SHALL PROVIDE CONSTRUCTION DETAILS IN THE DRAWINGS.



SECTION (A)
CONCRETE FOUNDATION
(SEE NOTE 8)



CITY OF HOUSTON
HOUSTON PUBLIC WORKS

SANITARY SEWER
MANHOLE VENT FOR SEALED MANHOLE
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 02082-06

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 3 OF 6)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

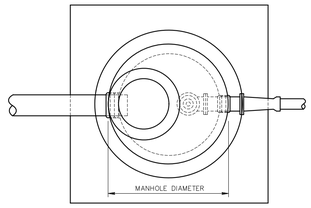
DRAWING SCALE: AS SHOWN

SHEET NO. 90 OF 192

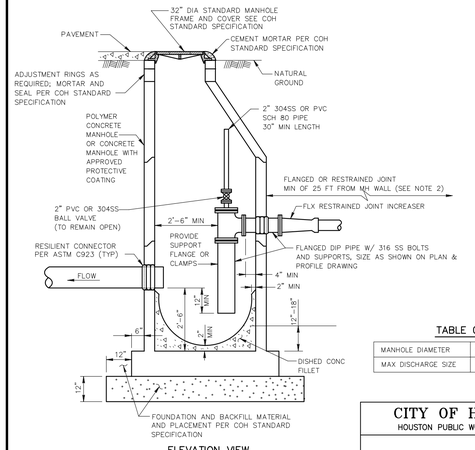
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C2.03

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PLAN VIEW



ELEVATION VIEW

NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 @ 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12", THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".

TABLE 02082-07

MANHOLE DIAMETER	4'-0"	5'-0"	6'-0"
MAX DISCHARGE SIZE	6"	14"	24"

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

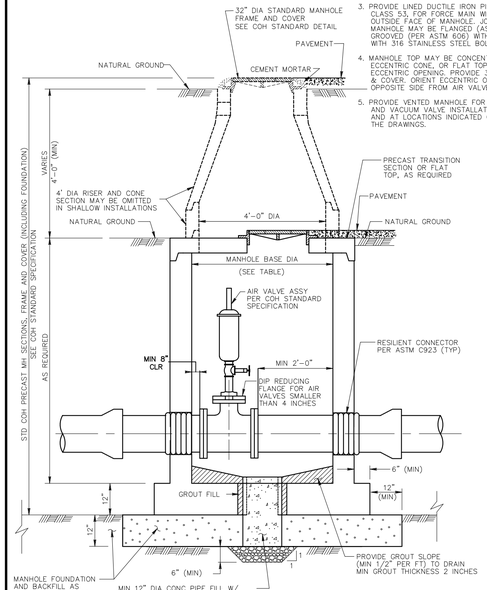
SANITARY SEWER
MANHOLE FOR FORCE MAIN DISCHARGE

(SCALE: NOT TO SCALE)

EFF DATE: OCT-01-2002 | DWG NO: 02082-07

NOTES:

1. AIR VALVE MAY BE AIR RELEASE OR AIR AND VACUUM RELEASE VALVE AS NOTED ON PLAN AND PROFILE SHEET.
2. SEE COH STANDARD SPECIFICATION FOR AIR VALVE ASSEMBLY REQUIREMENTS.
3. PROVIDE LINED DUCTILE IRON PIPE, THICK CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN) OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
4. MANHOLE TOP MAY BE CONCENTRIC CONE, ECCENTRIC CONE, OR FLAT TOP WITH ECCENTRIC OPENING. PROVIDE 32" FRAME & COVER. ORIENT ECCENTRIC OPENING OPPOSITE SIDE FROM AIR VALVE.
5. PROVIDE VENTED MANHOLE FOR AIR AND VACUUM VALVE INSTALLATIONS AND AT LOCATIONS INDICATED ON THE DRAWINGS.



ELEVATION VIEW

TABLE

MANHOLE BASE DIAMETER (FT)	MAX FORCE MAIN DIAMETER
5	4
6	16
8	36

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SANITARY SEWER
AIR RELEASE OR AIR/VACUUM
RELEASE VALVE MANHOLE

(SCALE: NOT TO SCALE)

EFF DATE: OCT-01-2002 | DWG NO: 02082-09

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
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A	10/7/24	60% SUBMITTAL	MS

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 4 OF 6)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

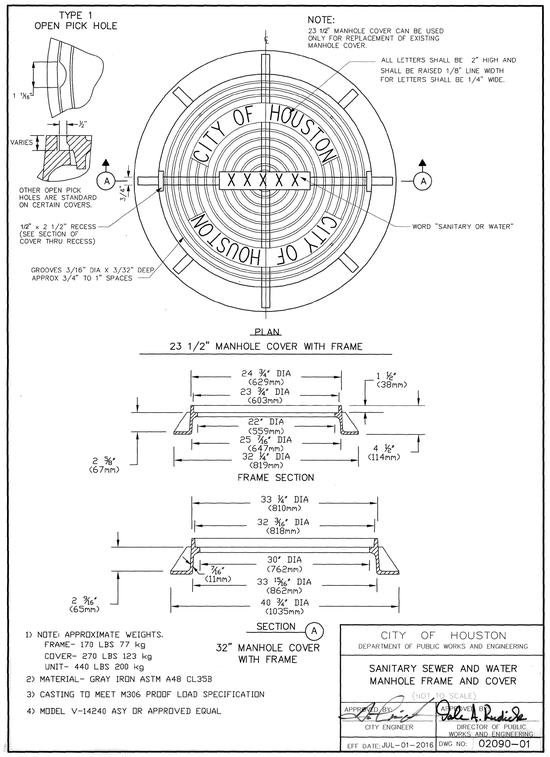
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: **MARIA GEORGE, PE**

DRAWING SCALE: AS SHOWN

SHEET NO. 91 OF 192

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1) NOTE: APPROXIMATE WEIGHTS.
FRAME- 170 LBS 77 kg
COVER- 270 LBS 123 kg
UNIT- 440 LBS 200 kg
2) MATERIAL- GRAY IRON ASTM A48 CL35B
3) CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4) MODEL V-14240 ASY OR APPROVED EQUAL

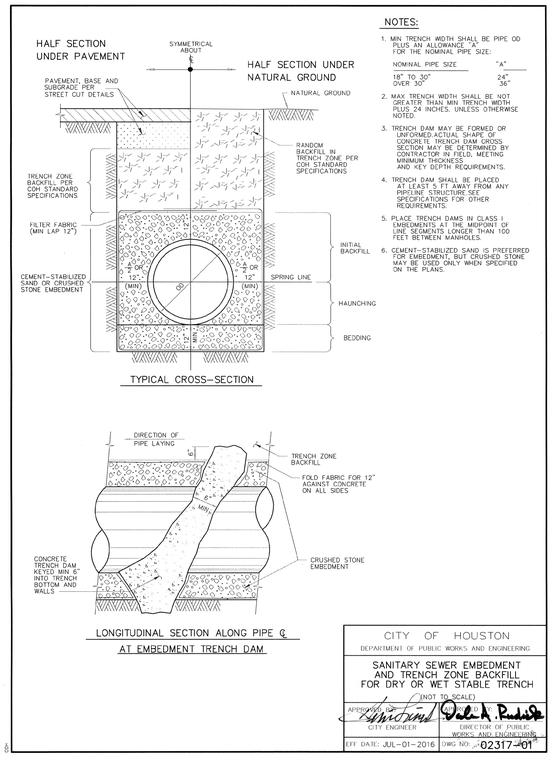
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER AND WATER MANHOLE FRAME AND COVER

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2016 DWG NO: 02090-01



NOTES:
1. MIN. TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

2. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
3. TRENCH DAM MAY BE FORMED OR UNFORMED.ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
4. TRENCH DAM SHALL BE PLACED AT LEAST 5 FT AWAY FROM ANY PIPELINE STRUCTURE SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
5. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
6. CEMENT-STABILIZED SAND IS PREFERRED FOR EMBEDMENT, BUT CRUSHED STONE MAY BE USED ONLY WHEN SPECIFIED ON THE PLANS.

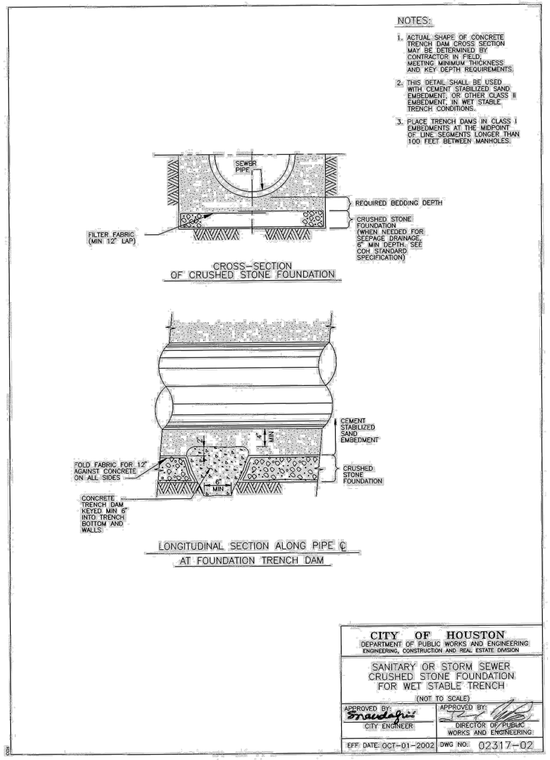
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER EMBEDMENT AND TRENCH ZONE BACKFILL FOR DRY OR WET STABLE TRENCH

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2016 DWG NO: 02317-01



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY OR STORM SEWER CRUSHED STONE FOUNDATION FOR WET STABLE TRENCH

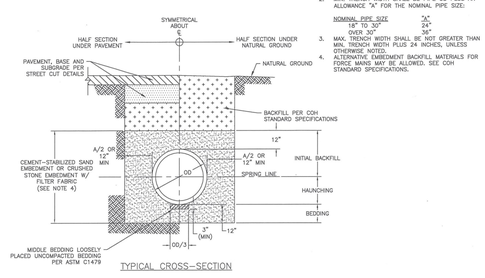
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EFF DATE: OCT-01-2002 DWG NO: 02317-02

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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

02317-03



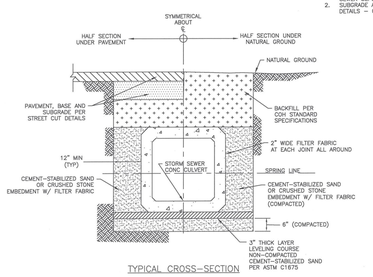
NOTES:
1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN. TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE.

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

3. MAX. TRENCH WIDTH SHALL BE NOT GREATER THAN MIN. TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED, SEE COH STANDARD SPECIFICATIONS.

SANITARY OR STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH
NTS

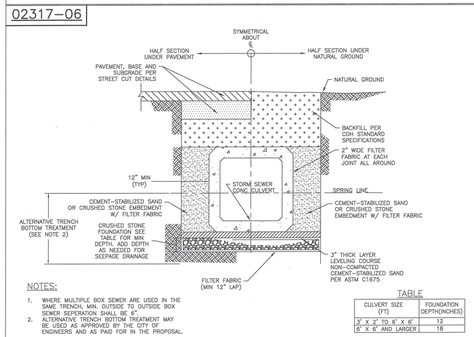
02317-05



NOTES:
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. SUBGRADE AND PAVEMENT FOR STREET CUT DETAILS = 02951.

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH
NTS

02317-06



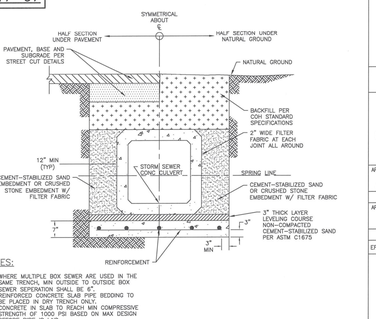
NOTES:
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. ALTERNATIVE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY OF ENGINEERS AND AS PAID FOR IN THE PROPOSAL.

TABLE

CULVERT SIZE (YT)	FOUNDATION DEPTH(INCHES)
3' X 2' TO 6' X 6'	12
6' X 6' AND LARGER	18

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR WET STABLE TRENCH
NTS

02317-07



NOTES:
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. REINFORCED CONCRETE SLAB PIPE BEDDING TO BE PLACED IN DRY TRENCH ONLY.
3. CONCRETE IN SLAB TO REACH MIN COMPRESSIVE STRENGTH OF 1000 PSI BASED ON MAX DESIGN BEFORE PIPE IS LAID.
4. PRECAST SEAL SLAB MAYBE USED AS APPROVED BY CITY ENGINEER.

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL WITH SEAL SLAB
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02317-03 THROUGH 07

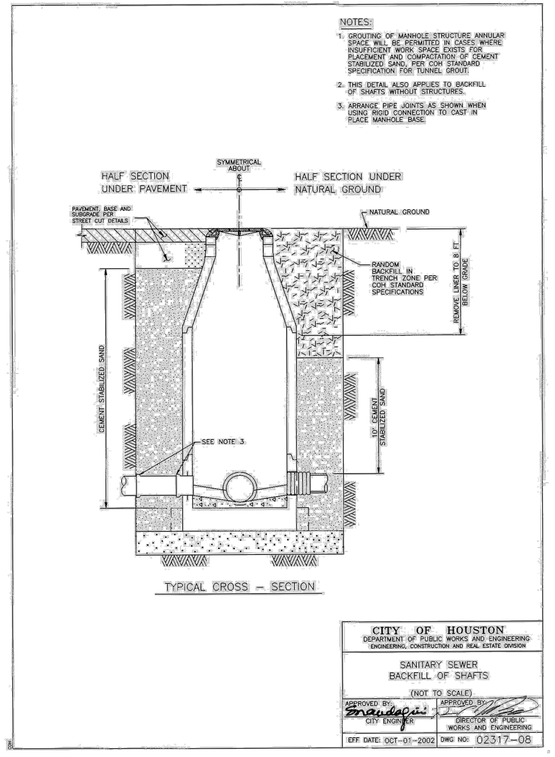
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APPROVED BY: DIRECTOR

EFFECTIVE DATE: JUL-01-2019

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER BACKFILL OF SHAFTS

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF. DATE: OCT-01-2002 DWG NO: 02317-08

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1 RIVERWAY
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TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 5 OF 6)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: **MARIA GEORGE, PE**

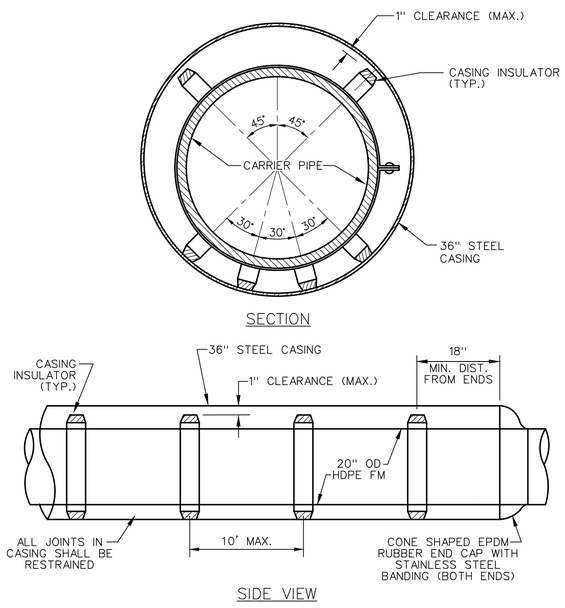
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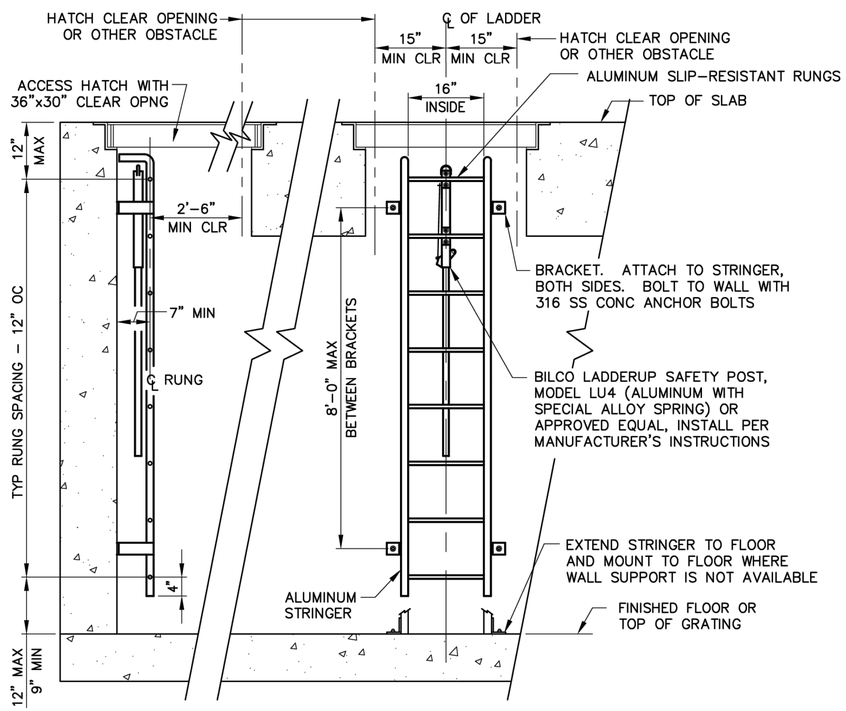
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ENCASEMENT DETAIL WITH CASING SPACERS 1

NOT TO SCALE



TYPICAL ENTRY ACCESS LADDER INSTALLATION 2

NOT TO SCALE

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WASTEWATER DETAILS (SHEET 6 OF 6)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

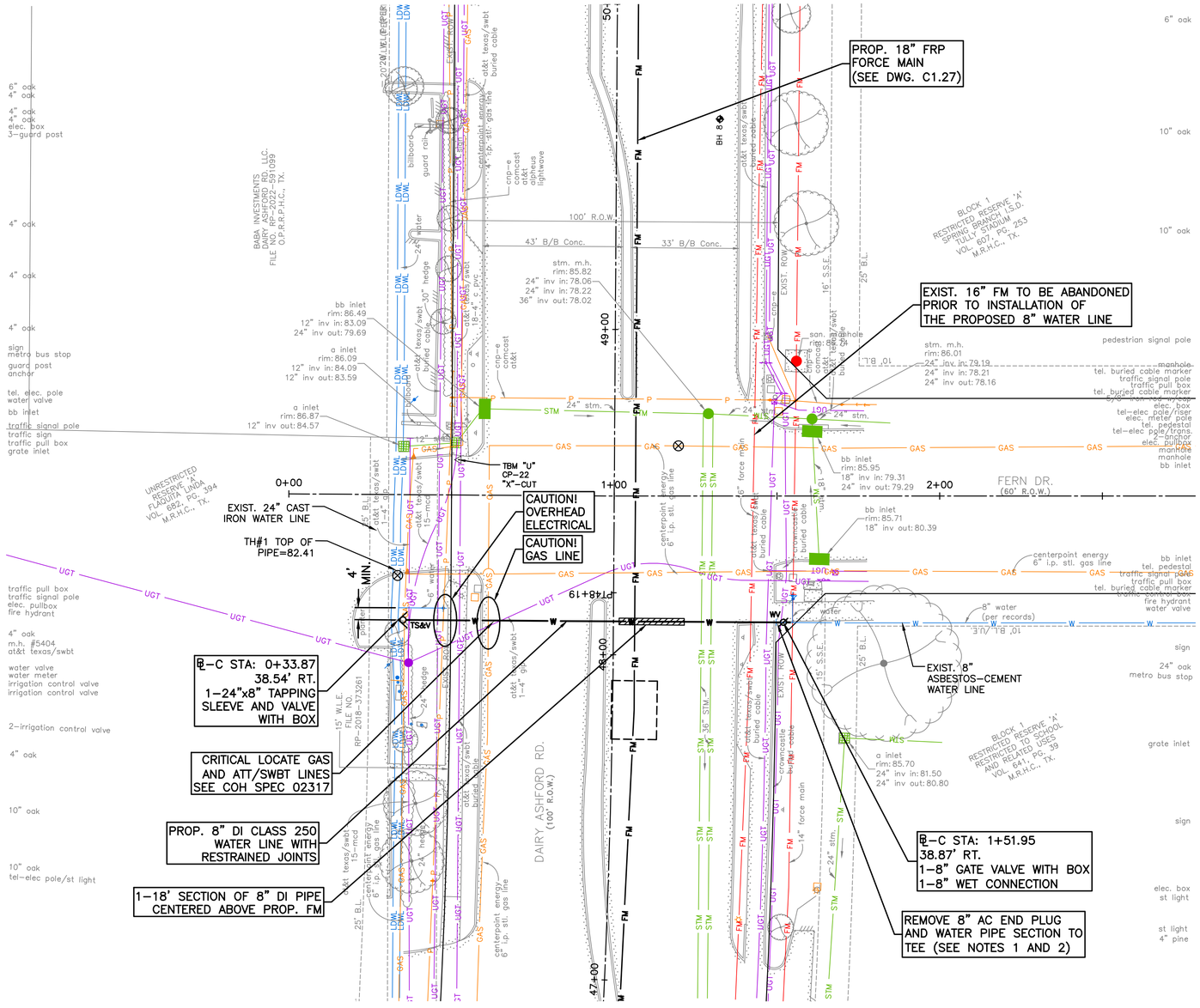
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CITY OF HOUSTON PM: MARIA GEORGE, PE

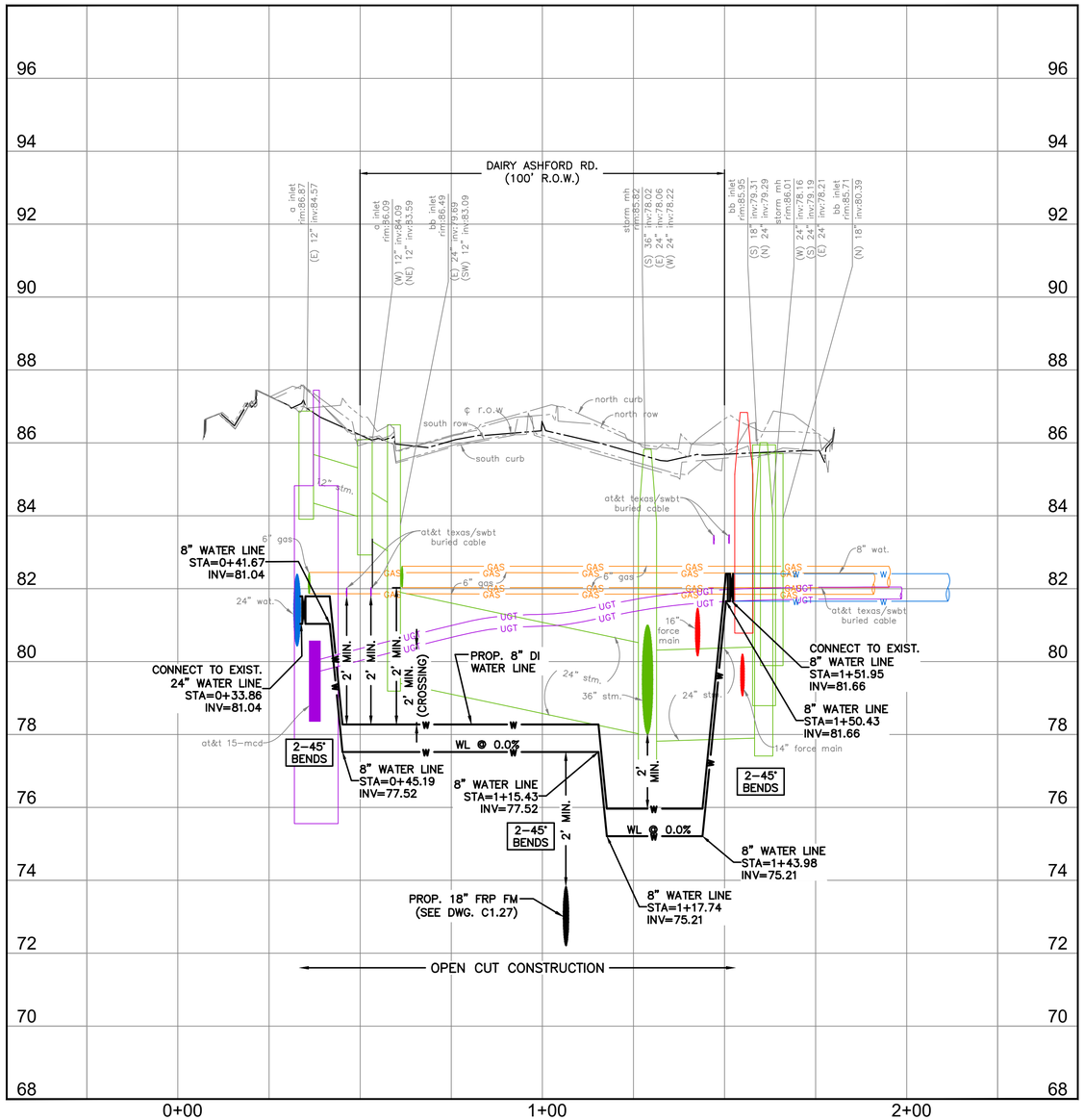
DRAWING SCALE: NOT TO SCALE

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PROP. 18" FRP FORCE MAIN (SEE DWG. C1.27)
EXIST. 16" FM TO BE ABANDONED PRIOR TO INSTALLATION OF THE PROPOSED 8" WATER LINE
EXIST. 24" CAST IRON WATER LINE
TH#1 TOP OF PIPE=82.41
CAUTION! OVERHEAD ELECTRICAL
CAUTION! GAS LINE
℄-C STA: 0+33.87 38.54' RT. 1-24"x8" TAPPING SLEEVE AND VALVE WITH BOX
CRITICAL LOCATE GAS AND ATT/SWBT LINES SEE COH SPEC 02317
PROP. 8" DI CLASS 250 WATER LINE WITH RESTRAINED JOINTS
1-18' SECTION OF 8" DI PIPE CENTERED ABOVE PROP. FM
EXIST. 8" ASBESTOS-CEMENT WATER LINE
℄-C STA: 1+51.95 38.87' RT. 1-8" GATE VALVE WITH BOX 1-8" WET CONNECTION
REMOVE 8" AC END PLUG AND WATER PIPE SECTION TO TEE (SEE NOTES 1 AND 2)
TBM "U" CP-22 "X"-CUT
BH 8
FERN DR. (60' R.O.W.)
DAIRY ASHFORD RD. (100' R.O.W.)
0+00
1+00
2+00
49+00
48+00
47+00
P148+19
100' R.O.W
43' B/B Conc.
33' B/B Conc.
16' S.S.E.
25' B.L.
10' B.L.
BABA INVESTMENTS DAIRY ASHFORD RD, LLC. FILE NO. RP-2022-591099 O.P.R.R.P.H.C., TX.
UNRESTRICTED RESERVE "A" PLAQUA LINDA VOL. 682, PG. 394 M.R.H.C., TX.
BLOCK 1 RESTRICTED RESERVE "A" SPRING BRANCH I.S.D. FULLY STADIUM VOL. 607, PG. 253 M.R.H.C., TX.
BLOCK 1 RESTRICTED RESERVE "A" RESTRICTED TO SCHOOL AND RELATED USES VOL. 641, PG. 59 M.R.H.C., TX.
15' W.L.E. FILE NO. RP-2018-373261
24" force main
14" force main
24" stm.
36" STM.
8" water (per records)
6" water
4" MIN.
6" oak
4" oak
10" oak
sign
metro bus stop
guard post
anchor
tel. elec. pole
water valve
bb inlet
traffic signal pole
traffic sign
traffic pull box
grate inlet
fire hydrant
water valve
elec. pullbox
irrigation control valve
2-irrigation control valve
tel-elec pole/st light
st light
4" pine
manhole
tel. buried cable marker
elec. box
tel-elec pole/riser
elec. meter pole
tel. pedestal
tel-elec pole/trans.
elec. pullbox
bb inlet
billboard
guard rail
centerpoint energy 6" i.p. stl. gas line
at&t texas/swbt buried cable
comcast buried cable
cnp-e comcast at&t buried cable
at&t texas/swbt 1.4" hdpe
at&t texas/swbt 1.4" hdpe/pvc
at&t texas/swbt 1.4" hdpe/pvc
at&t texas/swbt 1.4" hdpe
at&t texas/swbt 1.4" hdpe
at&t texas/swbt 1.4" hdpe



0' 10' 20' 40'

SCALE: 1"=20'

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NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

FERN DR. WATER LINE PROFILE BASELINE C BEGIN TO END

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

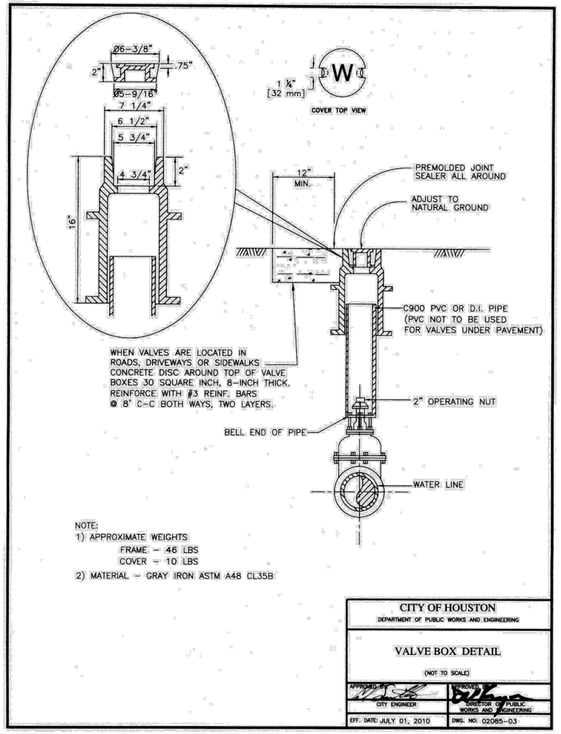
DRAWING SCALE: 1"=20' HORZ. 1"=2' VERT.

SHEET NO. 95 OF 192

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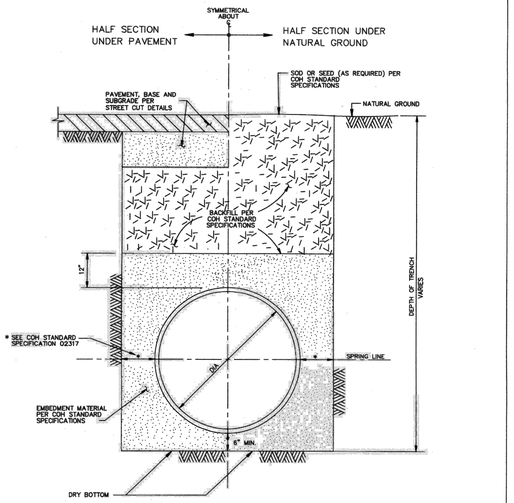
C3.02

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\BASES\453562-COHFM-oldkatybase.dwg



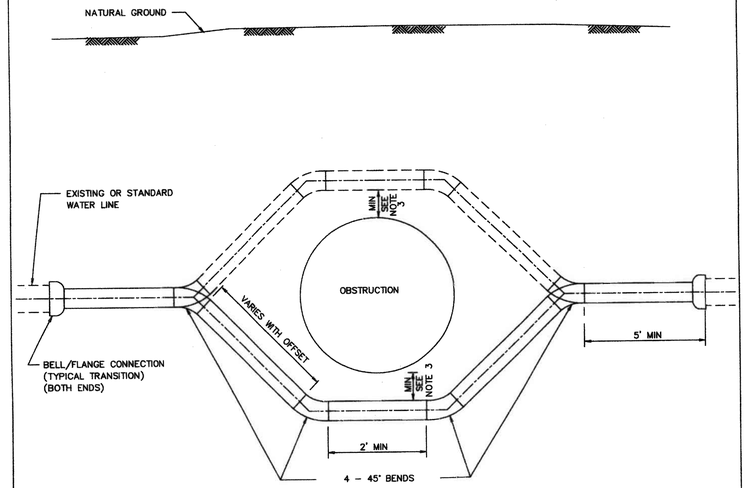
NOTE:
1) APPROXIMATE WEIGHTS:
FRAME – 46 LBS
COVER – 10 LBS
2) MATERIAL – GRAY IRON ASTM A48 CL35B

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
VALVE BOX DETAIL	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: JULY 01, 2010	DWG. NO: 02065-03



CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER DISTRIBUTION MAIN BEDDING AND BACKFILL FOR OPEN CUT TRENCHES	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02317-04

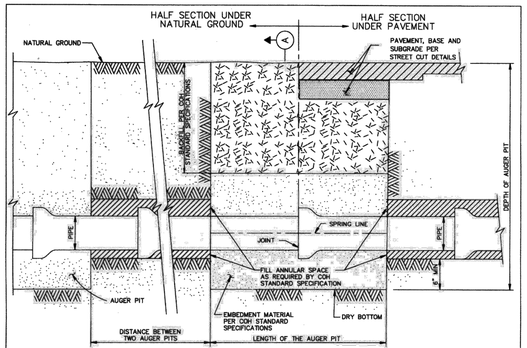
NOTE:
1. MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER LINE STANDARD SPECIFICATIONS.
2. RESTRAIN EXISTING PIPING BEYOND STEEL SECTION AS REQUIRED TO PREVENT MOVEMENT.
3. AS PER DESIGN GUIDELINE.

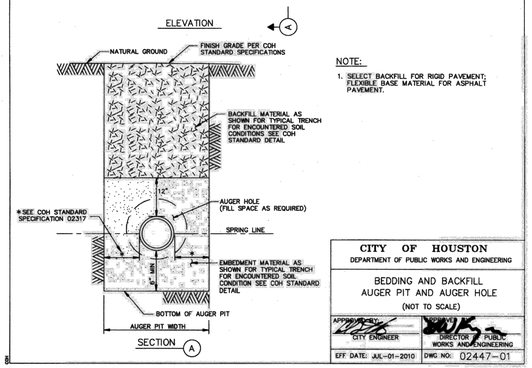


PIPE OFFSET ALTERNATES

1. DUCTILE IRON PIPE PRESSURE 250 PSI WITH APPROVED RESTRAINED JOINTS.
2. PVC PIPE WITH INTEGRAL RESTRAINED JOINT SYSTEM, OR DUCTILE – IRON RESTRINED JOINT FITTINGS, EPOXY LINED AND COATED. USE 250 PSI AWWA C900 DR 14 FOR PVC RESTRAINED JOINTS.
3. PVC NOT ALLOWED FOR GREATER THAN 20 FT OF COVER OR FOR DIAMETER LARGER THAN 20 IN.
4. USE ONLY DUCTILE IRON AND PVC PRODUCTS LISTED ON OCE DIVISION APPROVED PRODUCTS LIST AND IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

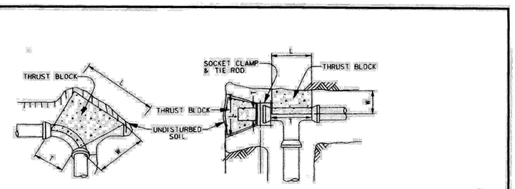
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
TYPICAL STEEL PIPE OFFSET SECTION FOR WATER LINES	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02511-01





NOTE:
1. SELECT BACKFILL FOR RIGID PAVEMENT; FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
BEDDING AND BACKFILL AUGER PIT AND AUGER HOLE	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02447-01



MINIMUM BLOCKING DIMENSION IN INCHES											
PIPE SIZE	90° BEND			45° BEND			TEE/PLUG		
	W	H	L	T	W	H	L	T	W	H	L	T
4"	6	12	14	10	6	8	11	8	6	10	12	12
6"	8	14	26	12	8	14	14	12	8	14	19	19
8"	10	16	40	16	10	18	20	16	10	18	26	26
10"	12	24	42	18	12	22	25	18	12	24	30	30
12"	14	36	40	30	14	26	30	22	14	26	40	40

CORRECTION FACTORS		
SOIL TYPE	SOIL BEARING STRENGTH S_b(lb/ft²)	MULTIPLY "L" AND "H" BY:
SOFT CLAY	1000	1.73
SILT	1500	1.41
SANDY SILT	3000	1.00
SAND	4000	0.87
SANDY CLAY	6000	0.71
HARD CLAY	9000	0.58

NOTES:
1. DEPTH "W" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE.
2. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH. WHERE THIS IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY.
3. PROVIDE CONCRETE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 03315 – CONCRETE FOR UTILITY CONSTRUCTION.
4. BLOCKING DIMENSIONS SHOWN ARE BASED ON 3000 PSI SOIL BEARING STRENGTH AND 125 PSI INTERNAL WATER PRESSURE. FOR OTHER SOIL CONDITIONS, MULTIPLY DIMENSIONS "L" AND "H" BY THE APPROPRIATE CORRECTION FACTOR.

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
THRUST BLOCK DETAIL FOR WATER LINES (4-INCH TO 12 INCH)	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02511-02

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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

WATER LINE DETAILS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

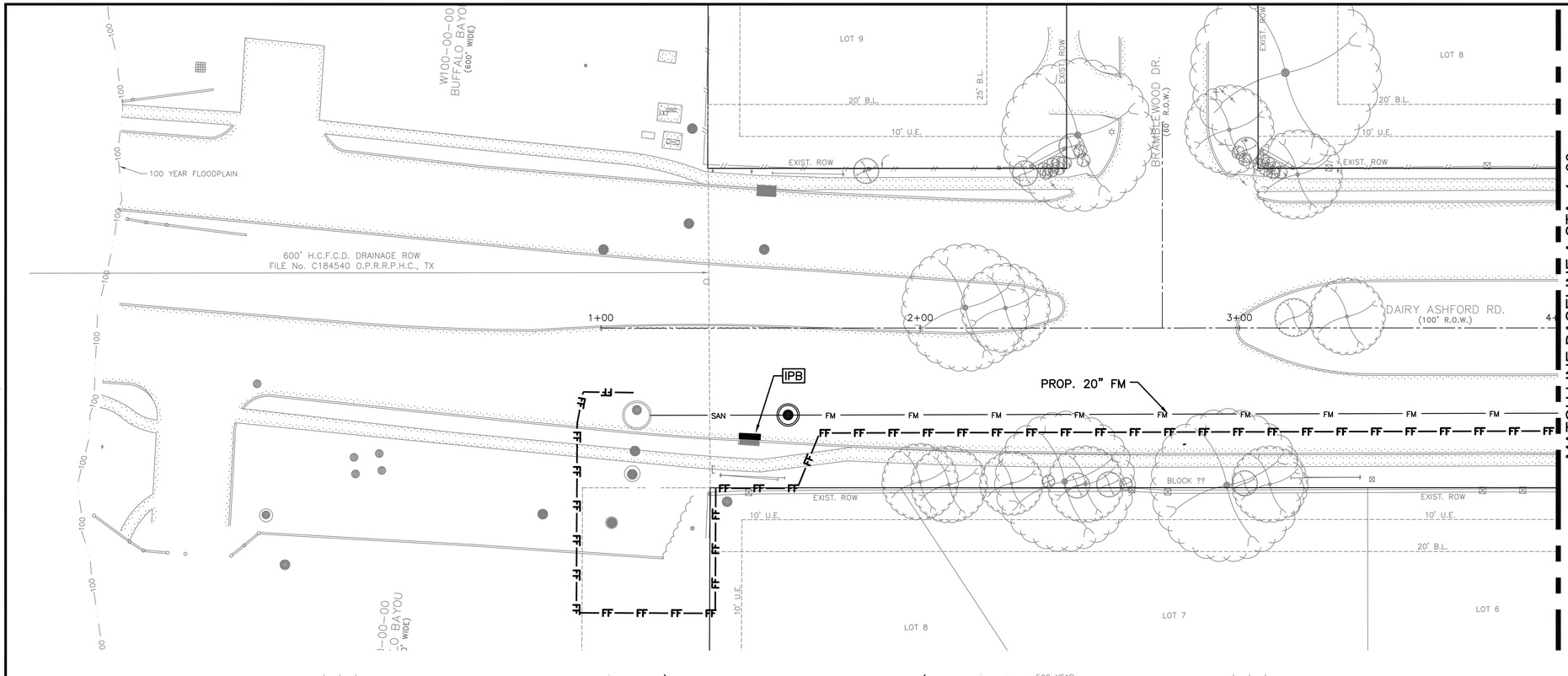
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

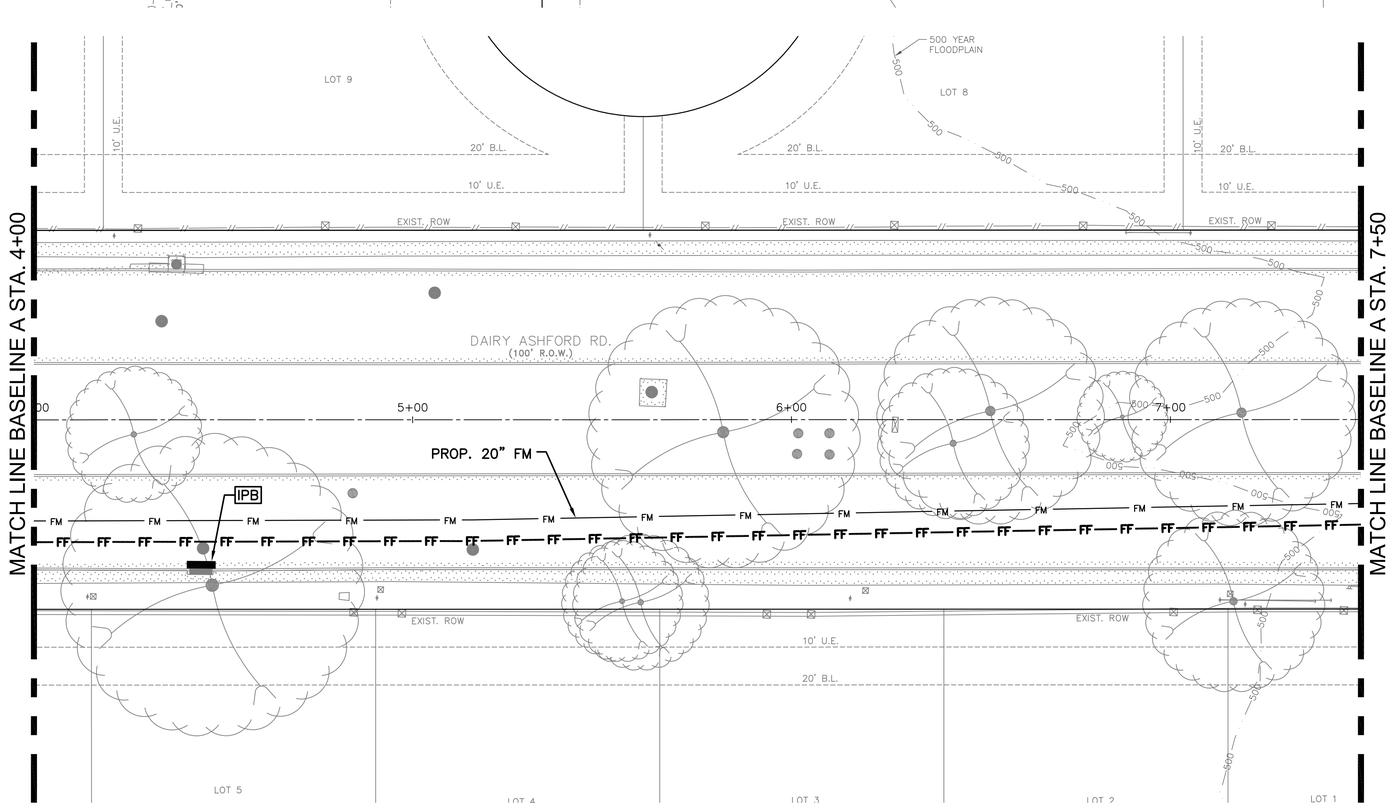
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SHEET NO. 96 OF 192

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N

0' 10' 20' 40'

SCALE: 1"=20'

THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X, (0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0640M, DATED NOVEMBER 15, 2019.
100 YEAR FLOOD ELEVATION IS 72 FEET.
500 YEAR FLOOD ELEVATION IS 75.1 FEET.
THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

NOTES:

1. SITE SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR BETTER. NO SEPARATE PAY ITEM.
2. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES.
3. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES SHALL BE SODDED.
4. CONTRACTOR TO CLEAN FILTER FABRIC FENCE AFTER EACH RAIN EVENT, IN ADDITION TO REGULAR MAINTENANCE ACTIVITIES.

LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

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D	3/23/26	100% SUBMITTAL	MS
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PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

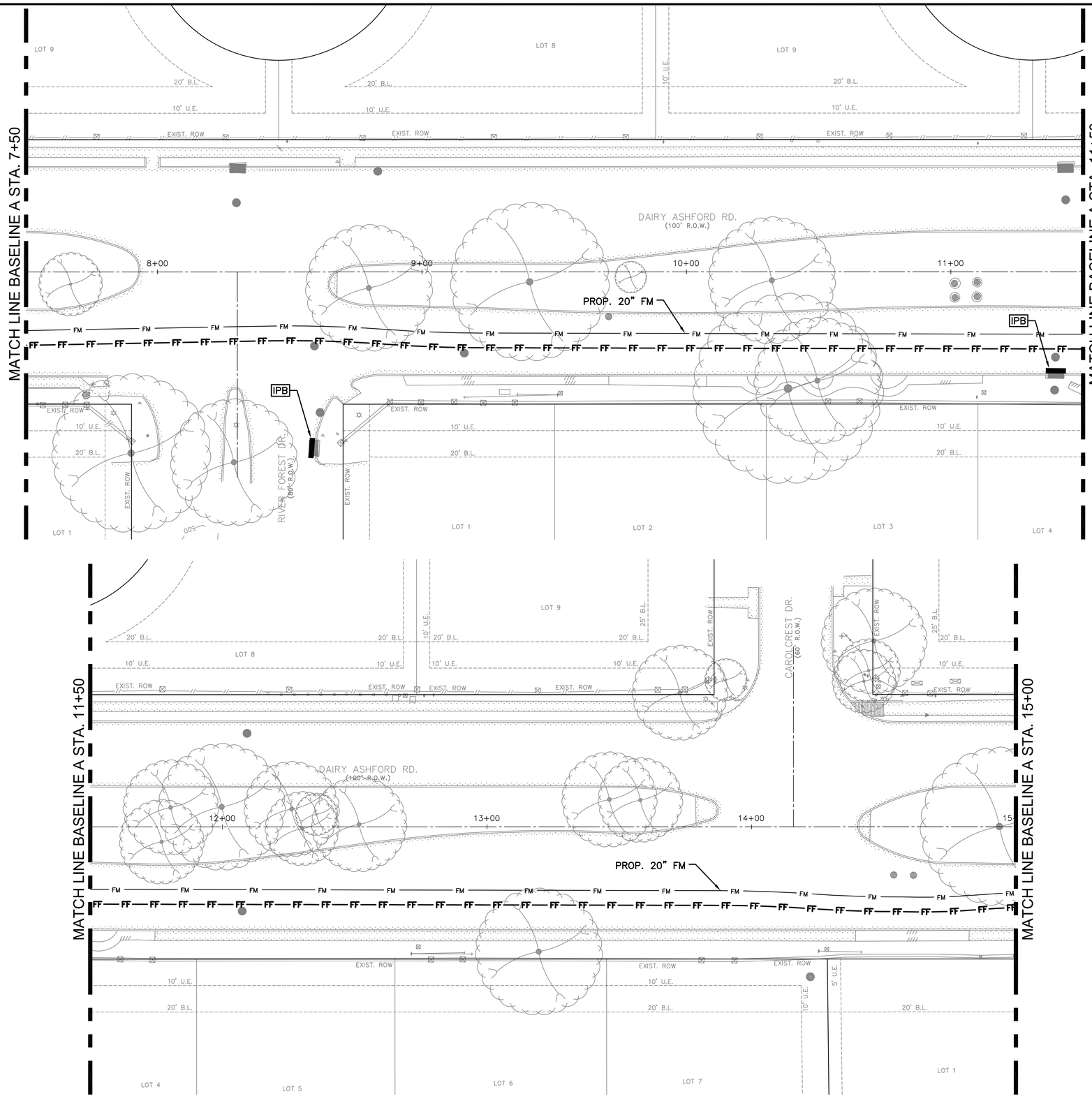
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SHEET NO. 97 OF 192

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SWP1.01

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PARSONS
1 RIVERWAY
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HOUSTON, TEXAS 77056
PH. 713 871-7000
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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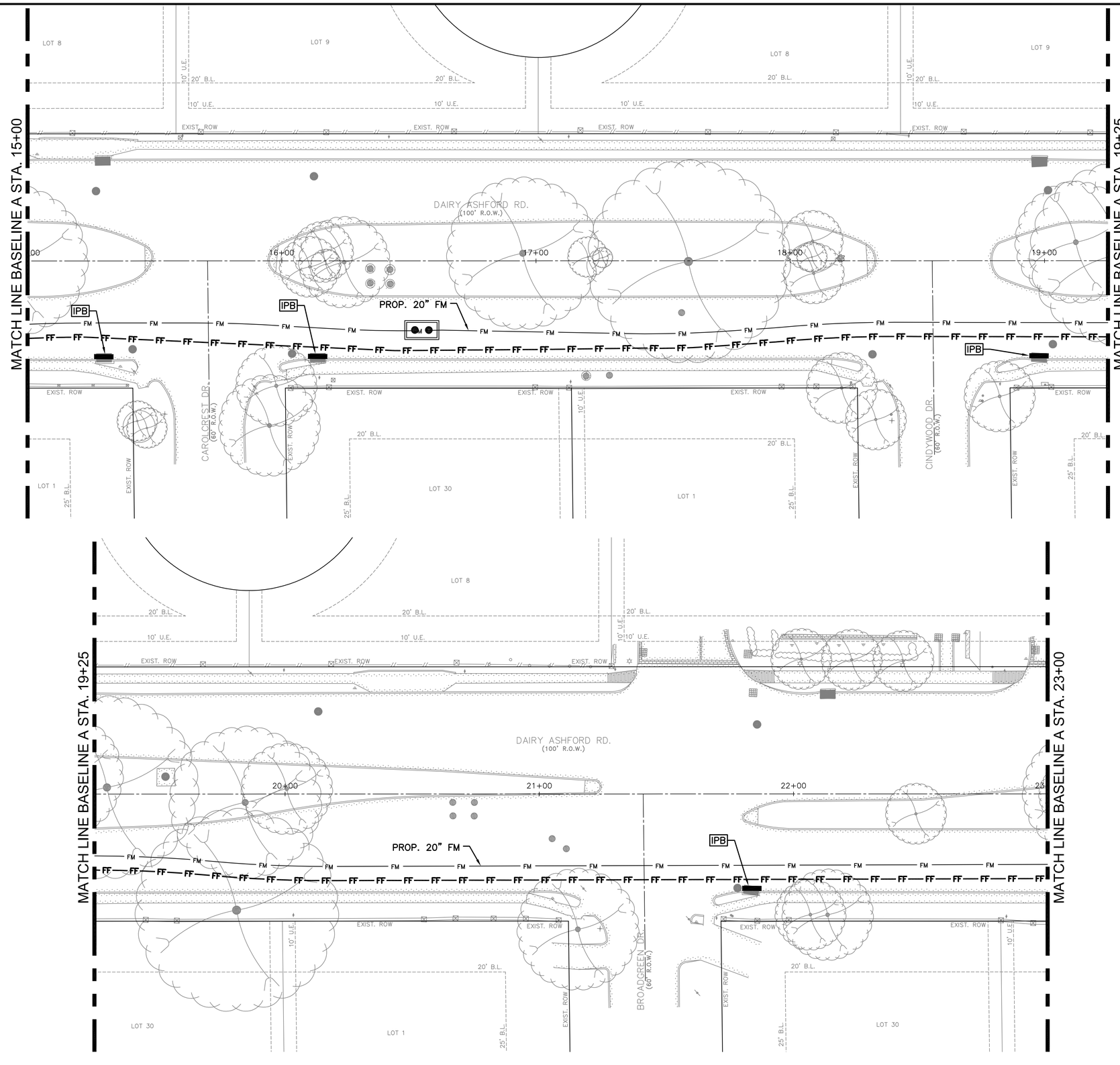
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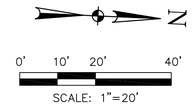
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LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

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PARSONS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 11)

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

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CITY OF HOUSTON PM: MARIA GEORGE, PE

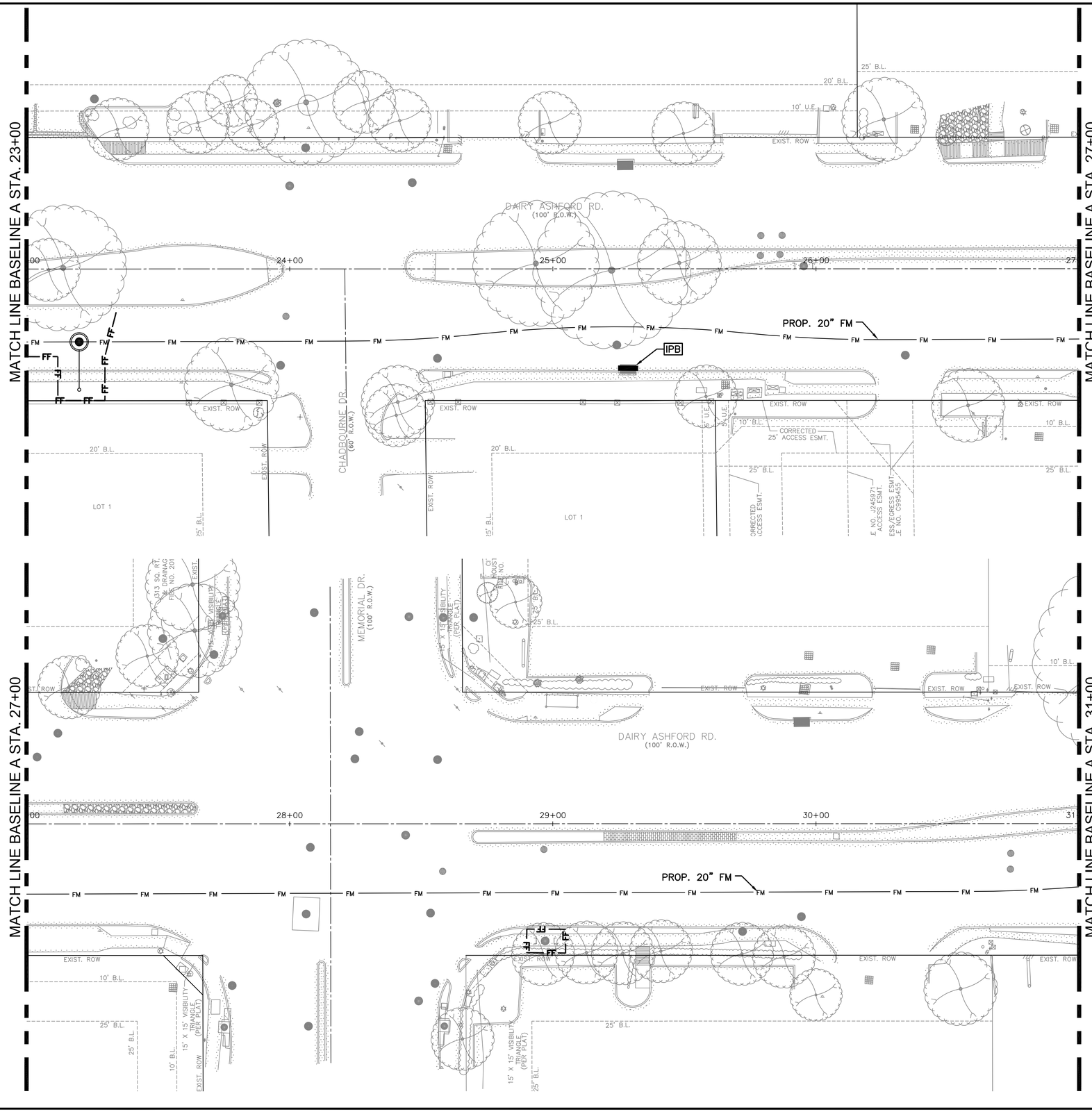
DRAWING SCALE: 1"=20'

SHEET NO. 99 OF 192

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SWP1.03

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N

0' 10' 20' 40'

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1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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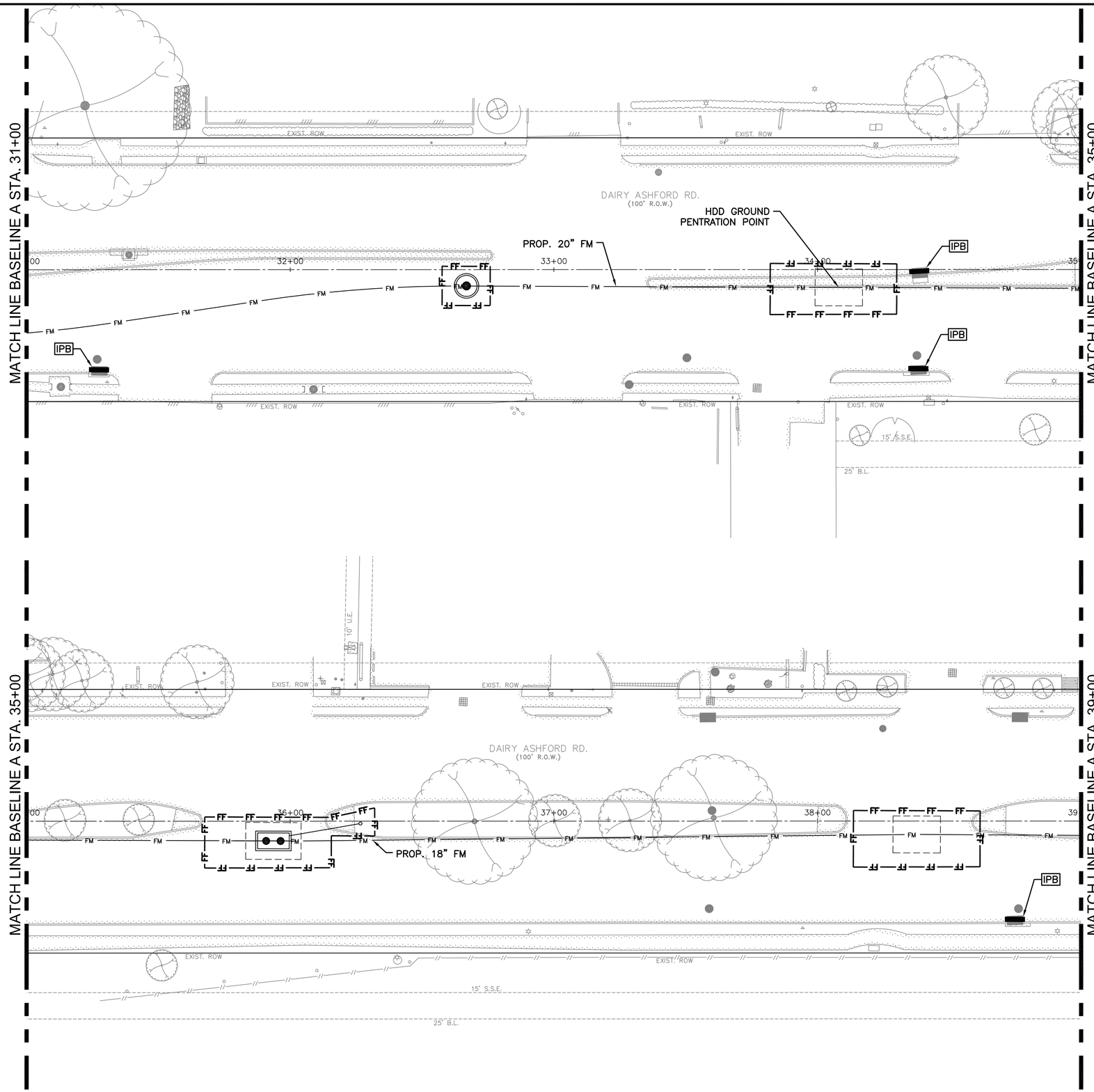
DRAWING SCALE: 1"=20'

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NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X, (0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0640M, DATED NOVEMBER 15, 2019.
100 YEAR FLOOD ELEVATION IS 72 FEET.
500 YEAR FLOOD ELEVATION IS 75.1 FEET.
THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

NOTES:

1. SITE SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR BETTER. NO SEPARATE PAY ITEM.
2. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES.
3. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES SHALL BE SODDED.
4. CONTRACTOR TO CLEAN FILTER FABRIC FENCE AFTER EACH RAIN EVENT, IN ADDITION TO REGULAR MAINTENANCE ACTIVITIES.

LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

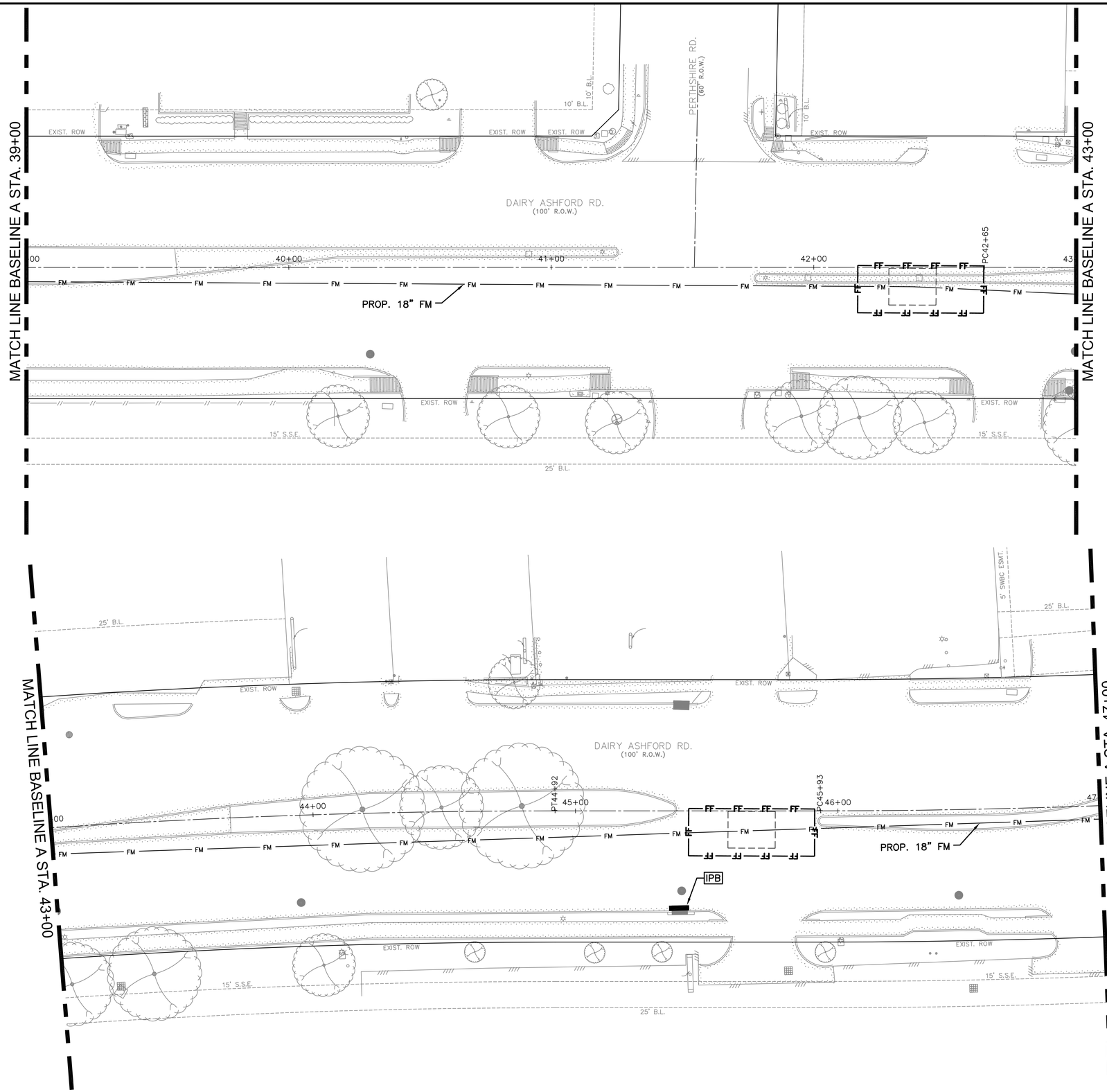
DRAWING SCALE: 1"=20'

SHEET NO. 101 OF 192

FOR CITY OF HOUSTON USE ONLY

SWP1.05

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Swppp.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

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500 YEAR FLOOD ELEVATION IS 75.1 FEET.
THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

NOTES:

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LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 6 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

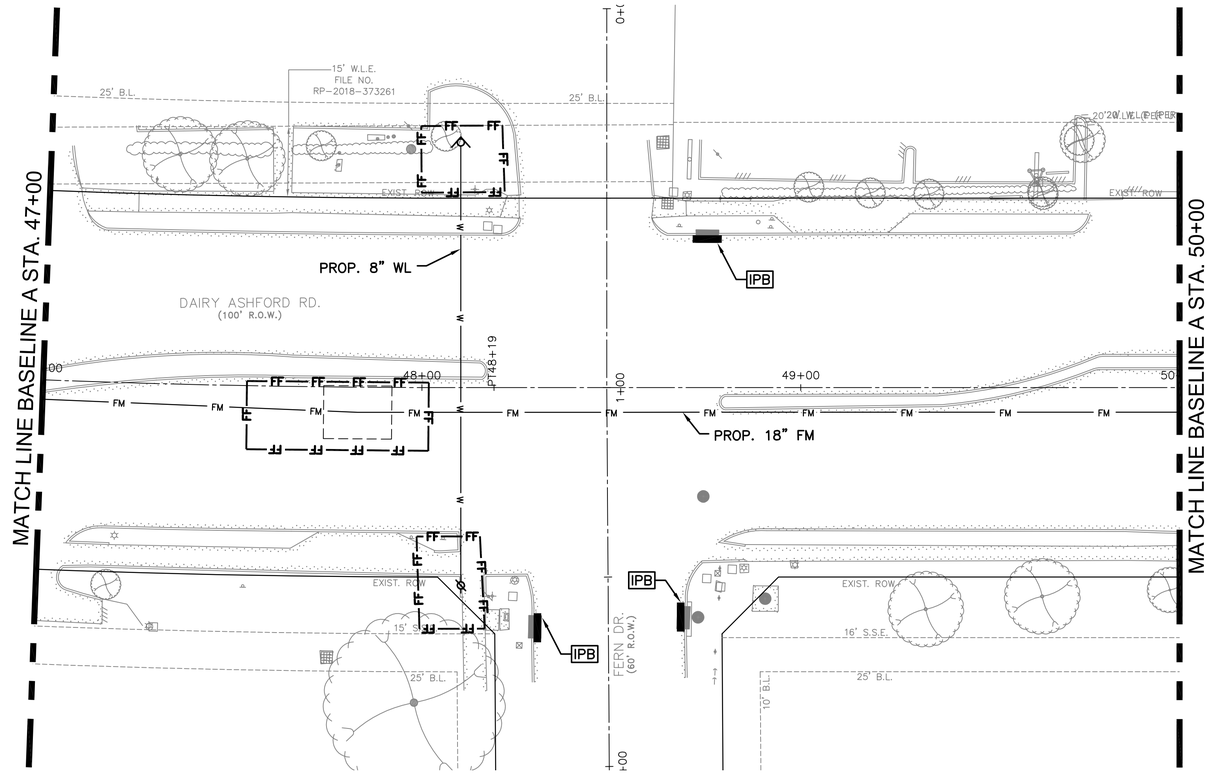
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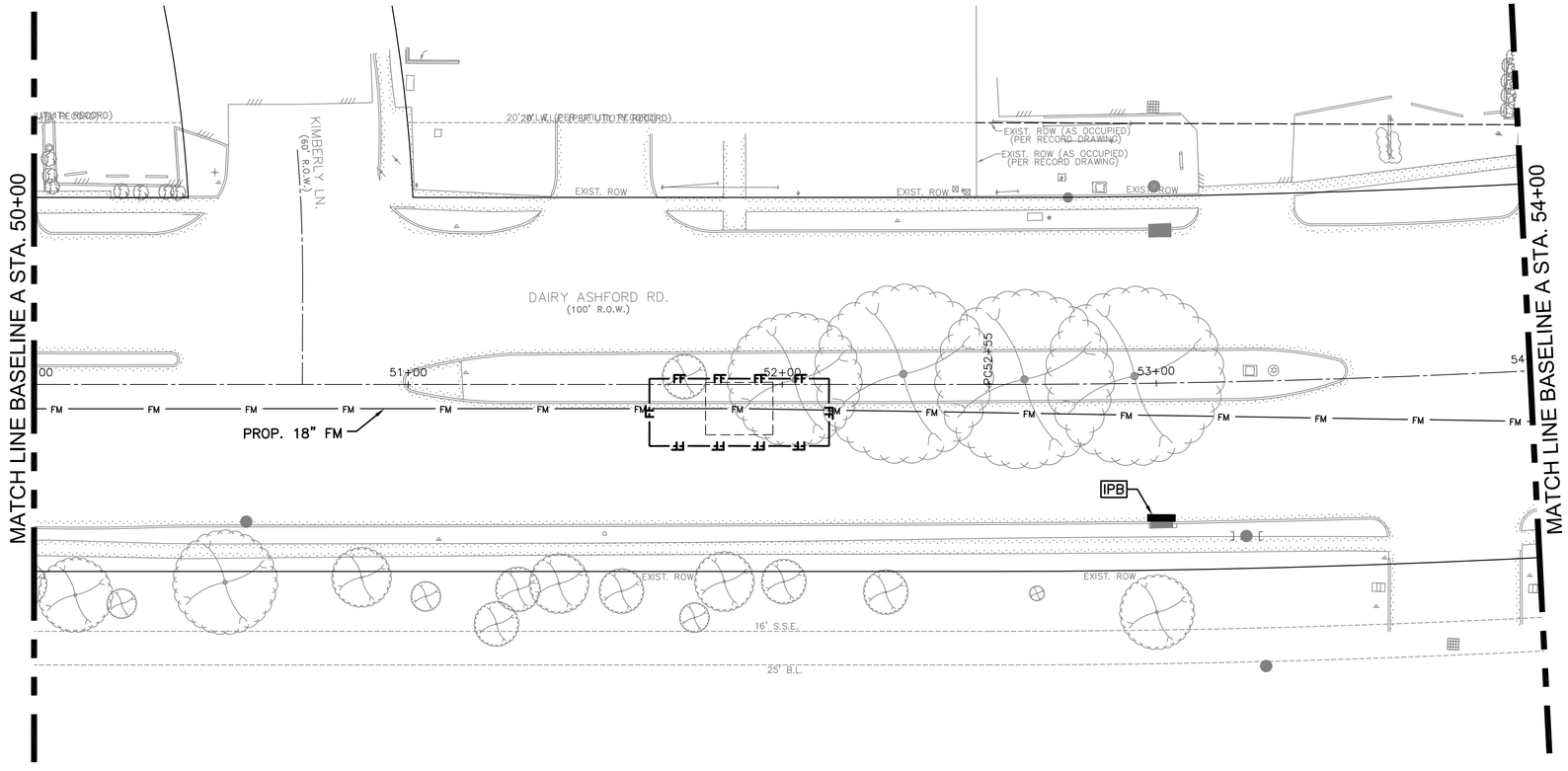
SHEET NO. 102 OF 192

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SWP1.06

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Swppp.dwg





N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
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500 YEAR FLOOD ELEVATION IS 75.1 FEET.
THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 7 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

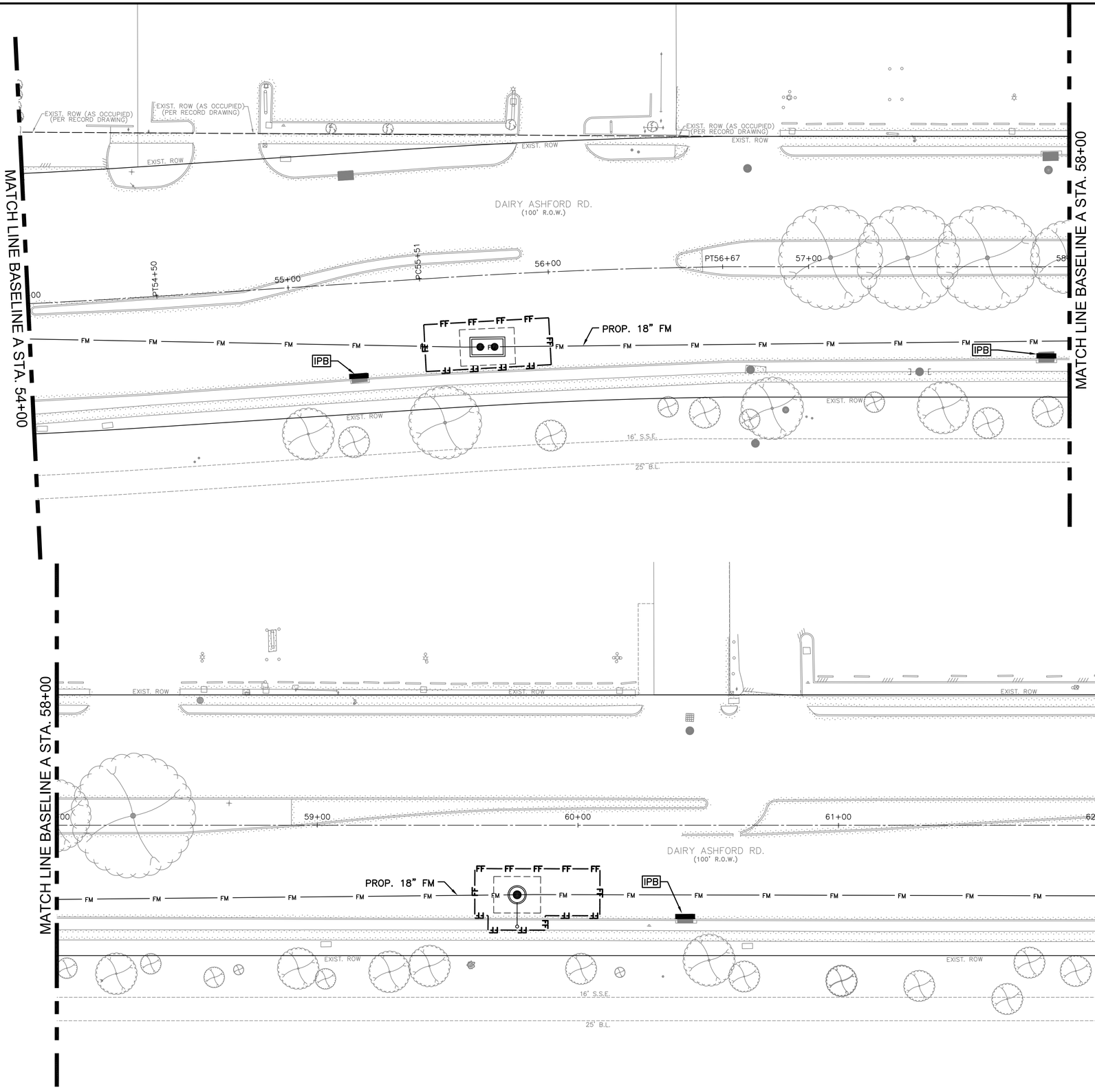
DRAWING SCALE: 1"=20'

SHEET NO. 103 OF 192

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SWP1.07

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Swppp.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

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NOTES:

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LEGEND:

FF — FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB INLET PROTECTION BARRIER

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 8 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

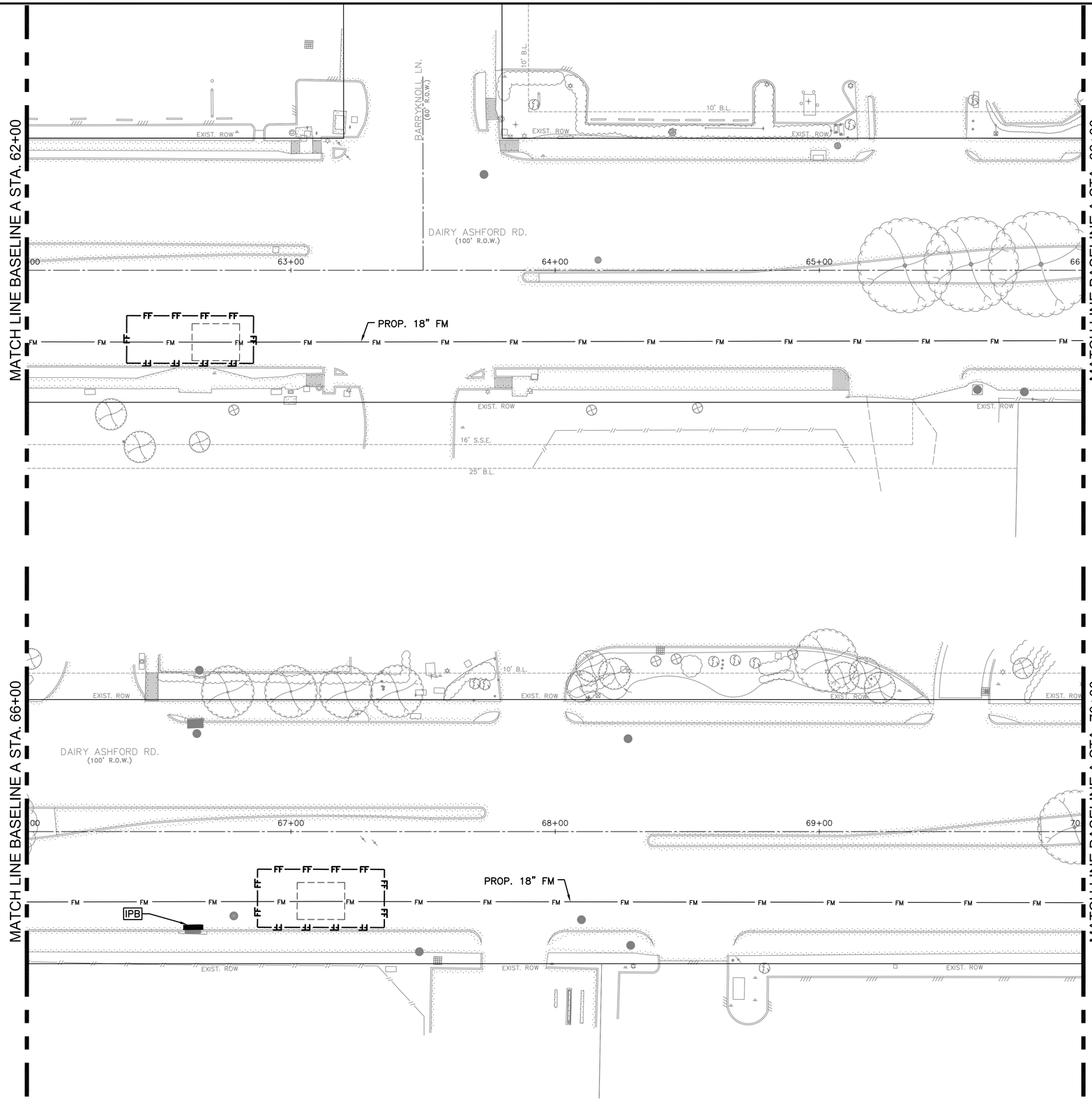
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SHEET NO. 104 OF 192

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SWP1.08

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N

0' 10' 20' 40'

SCALE: 1"=20'

THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X, (0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0640M, DATED NOVEMBER 15, 2019.
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THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

NOTES:

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LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 9 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

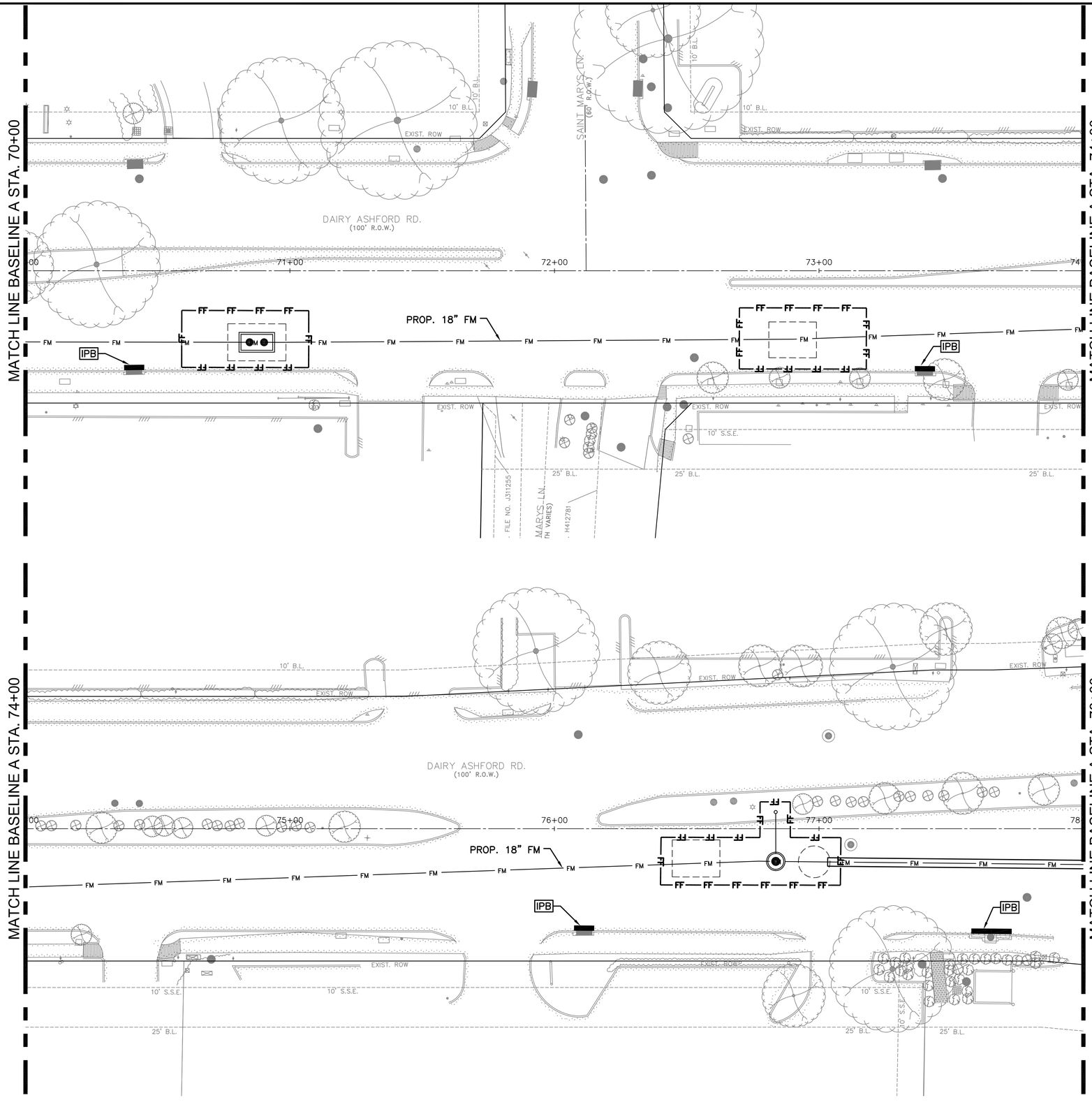
DRAWING SCALE: 1"=20'

SHEET NO. 105 OF 192

FOR CITY OF HOUSTON USE ONLY

SWP1.09

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Swppp.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X, (0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0640M, DATED NOVEMBER 15, 2019.
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500 YEAR FLOOD ELEVATION IS 75.1 FEET.
THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

NOTES:

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4. CONTRACTOR TO CLEAN FILTER FABRIC FENCE AFTER EACH RAIN EVENT, IN ADDITION TO REGULAR MAINTENANCE ACTIVITIES.

LEGEND:

FF — FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB INLET PROTECTION BARRIER

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 10 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

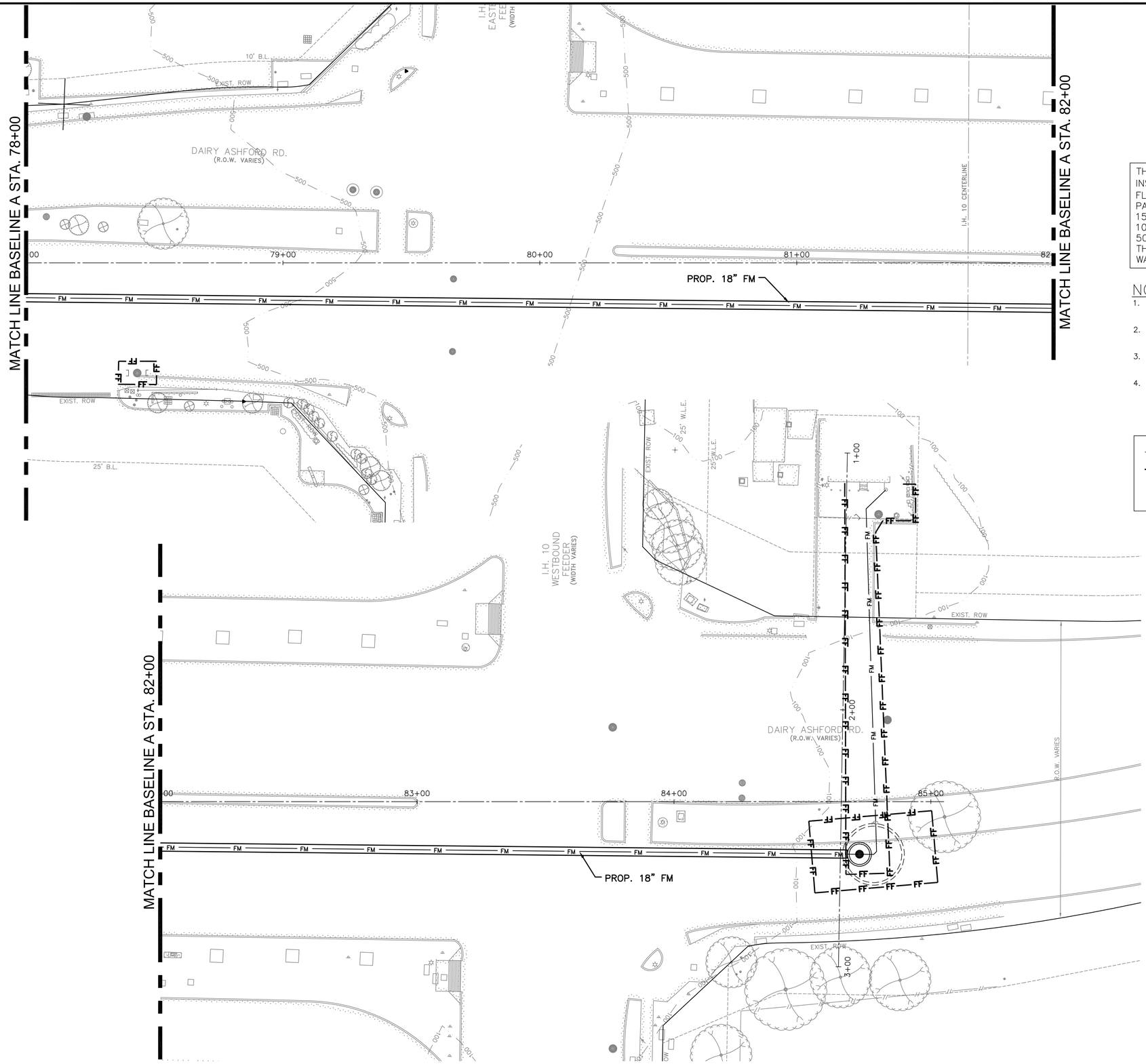
DRAWING SCALE: 1"=20'

SHEET NO. 106 OF 192

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SWP1.10

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Swppp.dwg



NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
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THIS PROJECT IS IN THE BUFFALO BAYOU WATERSHED.

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LEGEND:

FF — FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB INLET PROTECTION BARRIER

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY STORM WATER POLLUTION PREVENTION PLAN (SHEET 11 OF 11)

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

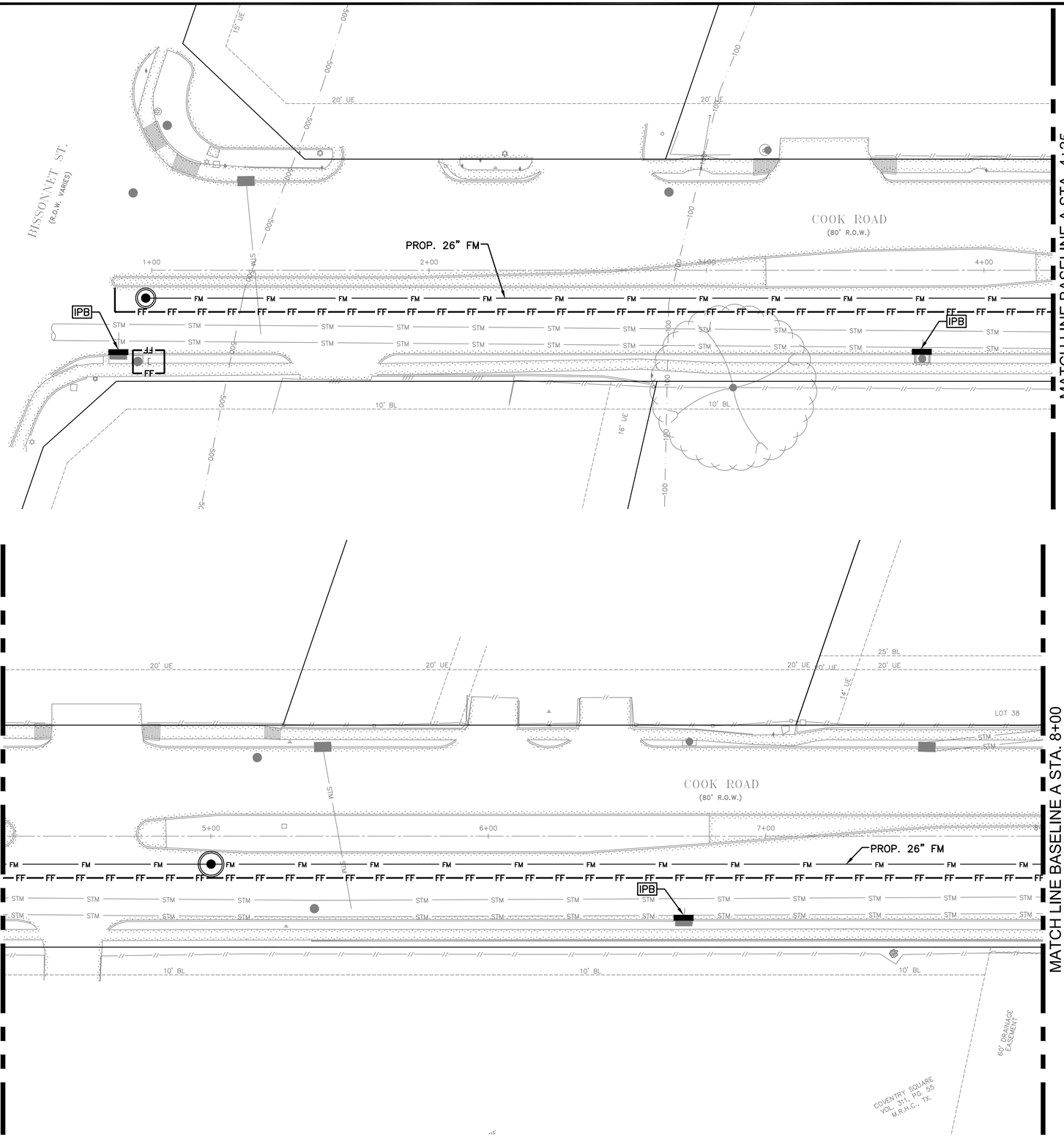
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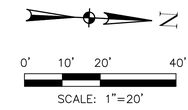
SHEET NO. 107 OF 192

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SWP1.11

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THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X (0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE AE (1% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0840L, DATED JUNE 18, 2007.

100 YEAR FLOOD ELEVATION IS 80.5 FEET FOR D120 (TRIBUTARY OF BRAYS BAYOU) AND 82.7 FEET FOR KEEGANS BAYOU. 500 YEAR FLOOD ELEVATION IS 81 FEET FOR D120 (TRIBUTARY OF BRAYS BAYOU) AND 83.43 FEET FOR KEEGANS BAYOU.

THIS PROJECT IS WITHIN THE 500-YR OF KEEGANS BAYOU FROM STA. 0+00 TO 1+36 AND THE 100-YR OF D120 (TRIBUTARY TO BRAYS BAYOU) FROM STA 2+33 ONWARDS.

NOTES:

1. SITE SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR BETTER. NO SEPARATE PAY ITEM.
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LEGEND:

FF — FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB INLET PROTECTION BARRIER

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D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
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SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD STORM WATER POLLUTUION PREVENTION PLAN (SHEET 1 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

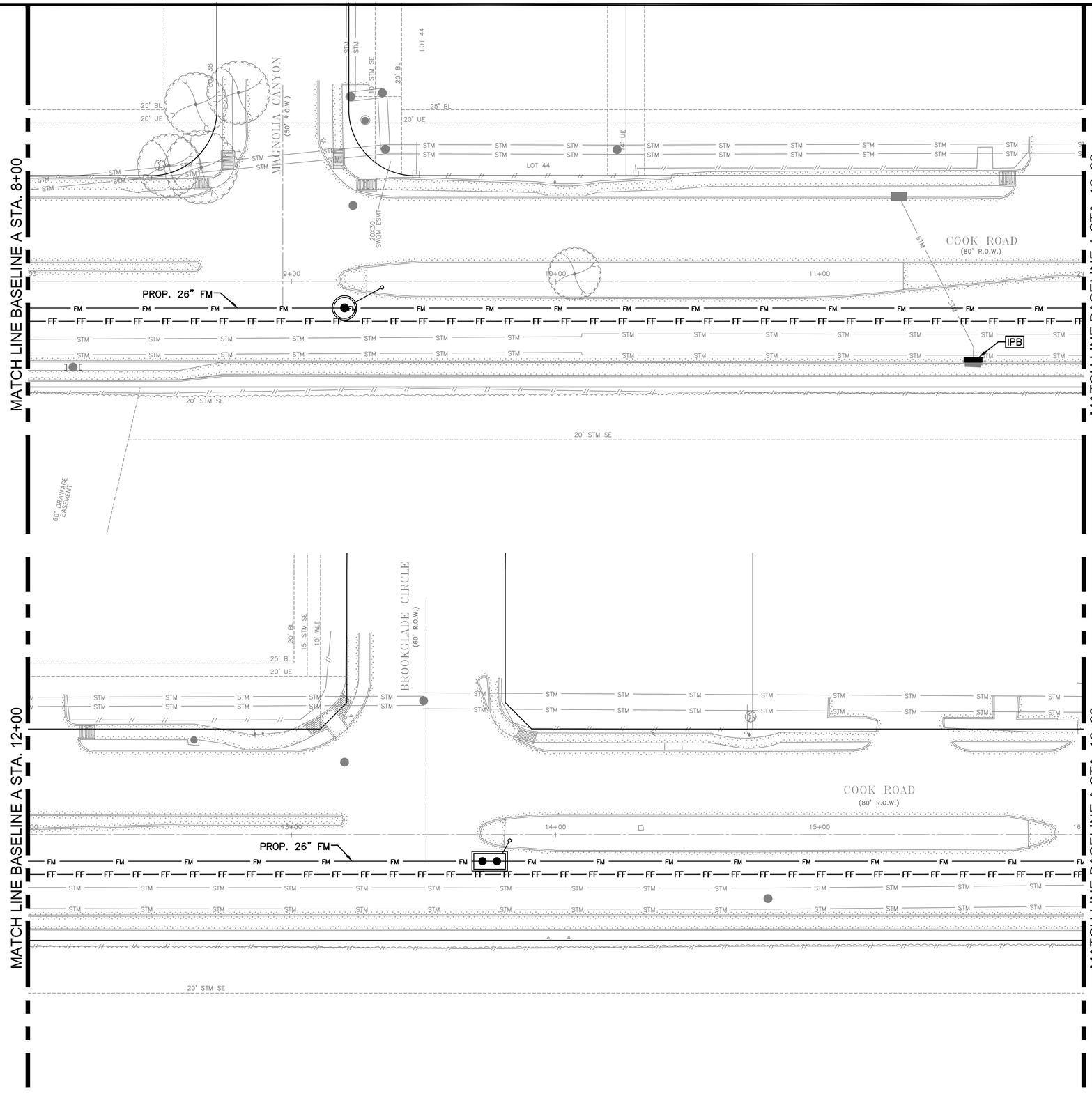
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 108 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Swppp.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
A	10/7/24	60% SUBMITTAL	MS
B	2/24/25	90% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
D	3/23/26	100% SUBMITTAL	MS

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LEGEND:

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IPB — INLET PROTECTION BARRIER

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD STORM WATER POLLUTUION PREVENTION PLAN (SHEET 2 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

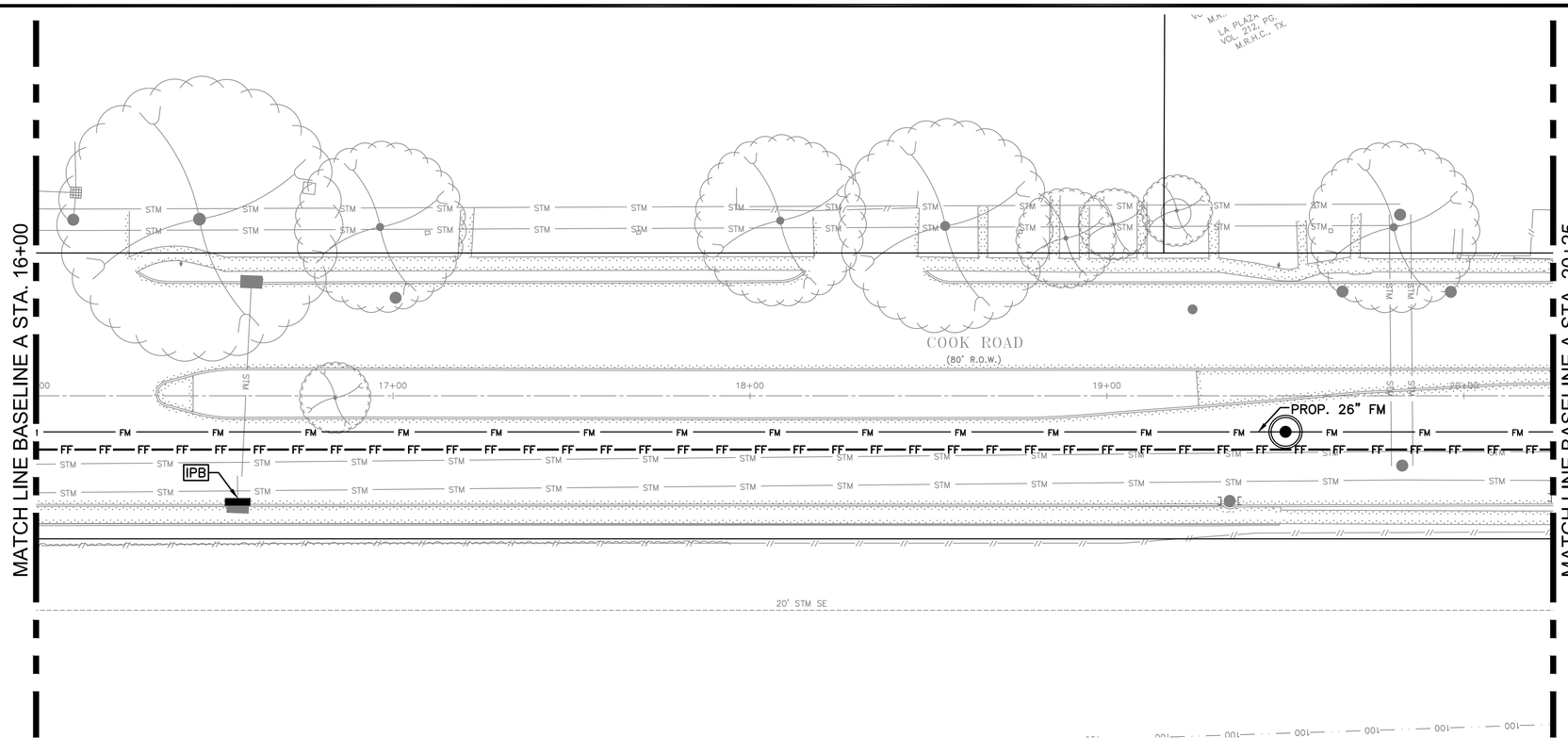
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

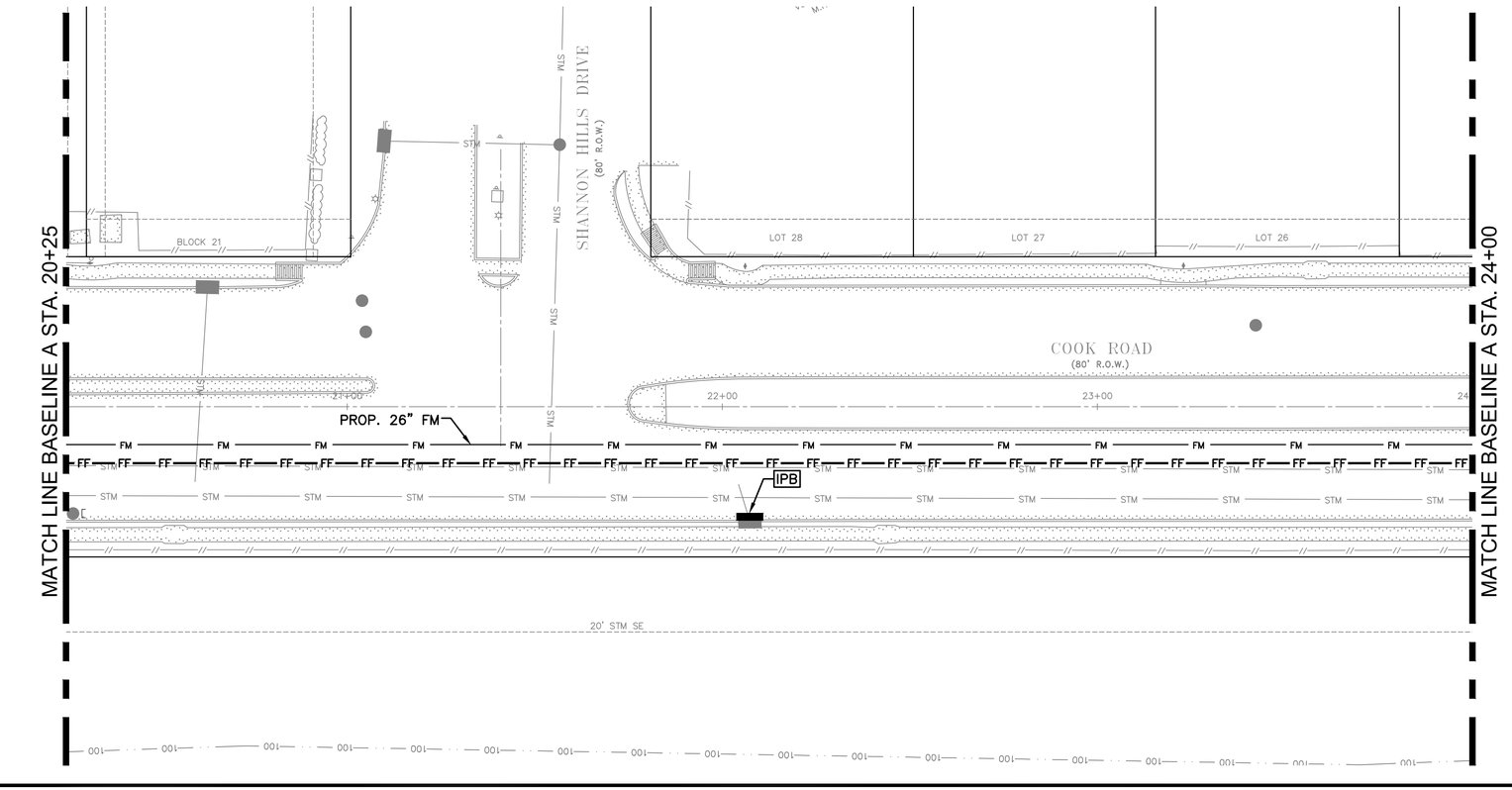
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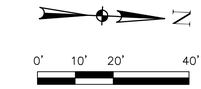
SHEET NO. 109 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Swppp.dwg







THIS PROJECT SITE IS PARTIALLY LOCATED INSIDE ZONE X (0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE AE (1% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP PANEL 48201C0840L, DATED JUNE 18, 2007.

100 YEAR FLOOD ELEVATION IS 80.5 FEET FOR D120 (TRIBUTARY OF BRAYS BAYOU) AND 82.7 FEET FOR KEEGANS BAYOU. 500 YEAR FLOOD ELEVATION IS 81 FEET FOR D120 (TRIBUTARY OF BRAYS BAYOU) AND 83.43 FEET FOR KEEGANS BAYOU.

THIS PROJECT IS WITHIN THE 500-YR OF KEEGANS BAYOU FROM STA. 0+00 TO 1+36 AND THE 100-YR OF D120 (TRIBUTARY TO BRAYS BAYOU) FROM STA 2+33 ONWARDS.

NOTES:

1. SITE SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR BETTER. NO SEPARATE PAY ITEM.
2. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES.
3. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES SHALL BE SODDED.
4. CONTRACTOR TO CLEAN FILTER FABRIC FENCE AFTER EACH RAIN EVENT, IN ADDITION TO REGULAR MAINTENANCE ACTIVITIES.

LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD STORM WATER POLLUTUION PREVENTION PLAN (SHEET 3 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

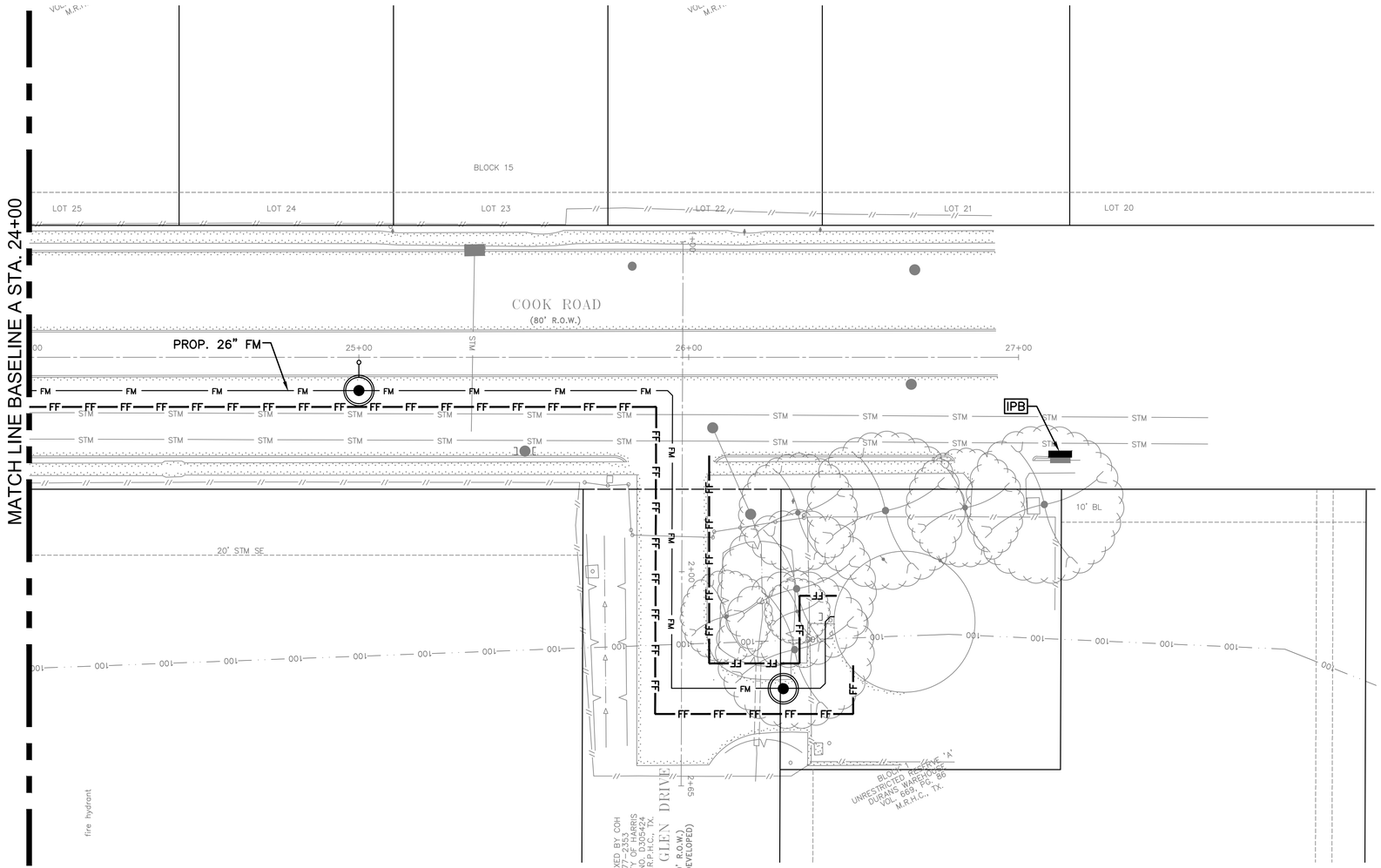
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SHEET NO. 110 OF 192

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SWP1.14

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0' 10' 20' 40'

SCALE: 1"=20'

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3. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURES SHALL BE SODDED.
4. CONTRACTOR TO CLEAN FILTER FABRIC FENCE AFTER EACH RAIN EVENT, IN ADDITION TO REGULAR MAINTENANCE ACTIVITIES.

LEGEND:

FF FF — TRIANGULAR FILTER FABRIC FENCE (TFF)

IPB — INLET PROTECTION BARRIER

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PARSONS
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD STORM WATER POLLUTUION PREVENTION PLAN (SHEET 4 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

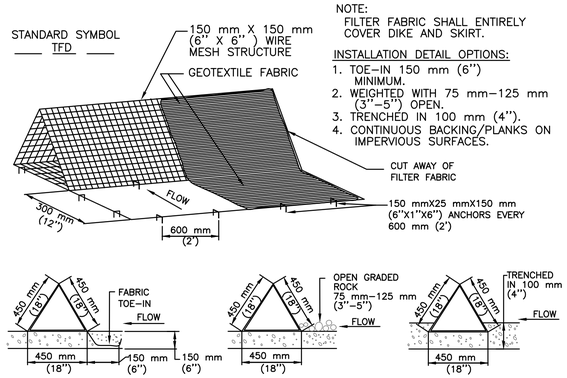
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 111 OF 192

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GENERAL NOTES

1. TRIANGULAR FILTER FABRICE FENCES (TFF) SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75-125 mm (3-5") OPEN GRADED ROCK OR TOED-IN 150 mm (6") WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100 mm (4").
4. TFF AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150 mm (6") WIRE STAPLES ON 600 mm (2') CENTERS ON BOTH EDGES AND SKIRT, OR STAKE USING 10M (3/8") DIAMETER RE-BAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150 mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE TFF STRUCTURE SHALL BE MW40-150 mmX150 mm (6 GA. 6"X6") WIRE MESH, 450 mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETLY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTE 8 ABOVE.

TRIANGULAR FILTER FABRIC FENCE (TFF) DETAIL — 1/–

NOT TO SCALE

POLLUTION PREVENTION NOTES/SWPPP NOTES:

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL POLLUTION PREVENTION SYSTEMS AT LOCATIONS SHOWN ON PLANS.
2. CONTRACTOR SHALL INSPECT ALL POLLUTION PREVENTION SYSTEMS SPECIFIED HEREIN, AS REQUIRED IN THE PERMIT.
3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEMS THROUGHOUT THE DURATION OF CONTRACT.
4. CONTRACTOR SHALL REMOVE/REPLACE INLET PROTECTION BARRIERS BEFORE AND AFTER A SEVERE WEATHER EVENT AT THE REQUEST OF THE CITY OF HOUSTON.
5. CONTRACTOR SHALL LOCATE PAL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE A LINER UNDER ABOVE GROUND STORAGE TANKS. CONTRACTOR SHALL USE FILTER FABRIC FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS.
6. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTIONS TAKEN TO REMEDY THE PROBLEM.
7. CONTRACTOR IS REPONSIBLE FOR DISPOSING OF THEIR FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING ON A DAILY BASIS ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO THIS CONSTRUCTION ACTIVITY.
11. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ACCESS IN THE CONTRACTOR'S LAY DOWN/STORAGE AREA.
12. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE HAS BEEN ESTABLISHED, STRUCTURAL CONTROLS WILL BE REMOVED AND DISTURBED AREAS WILL BE RE-ESTABLISHED.
13. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE AND THE CONTRACTOR SHALL EXAMINE THE POLLUTION PREVENTION SYSTEMS BEFORE RELIEVING CONTRACTOR OF THEIR MAINTENANCE RESPONSIBILITIES.

NO.	DATE	REVISION	APP.
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

STORM WATER POLLUTION PREVENTION DETAILS (SHEET 1 OF 2)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

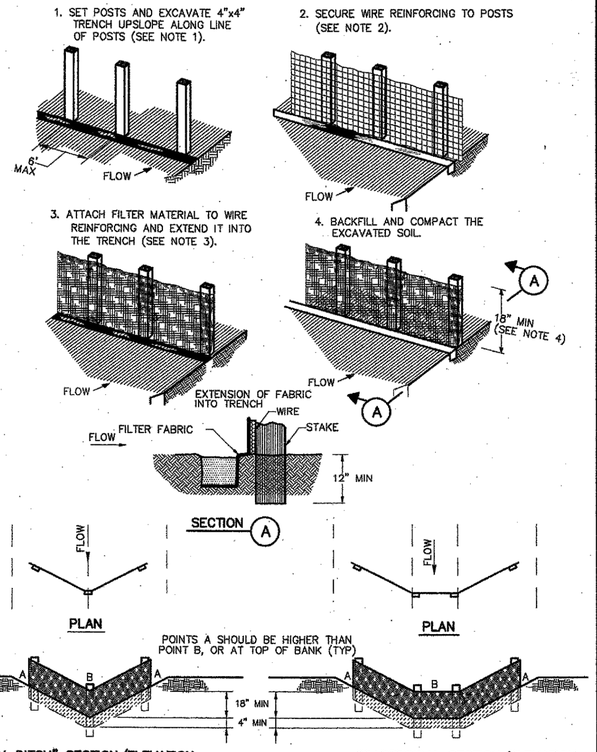
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

SHEET NO. 112 OF 192

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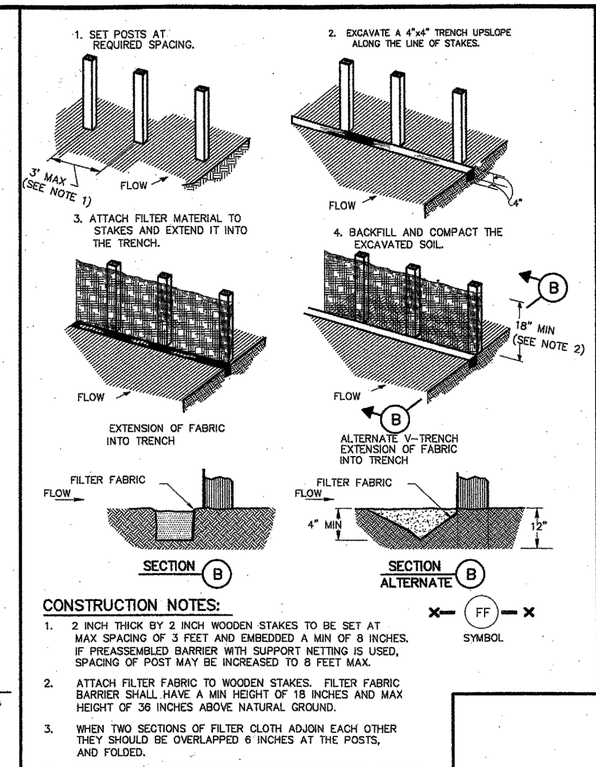


CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE REINFORCING TO BE FASTENED SECURELY TO BARRIER POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE REINFORCING, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
6. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

RFB SYMBOL

REINFORCED FILTER FABRIC BARRIER

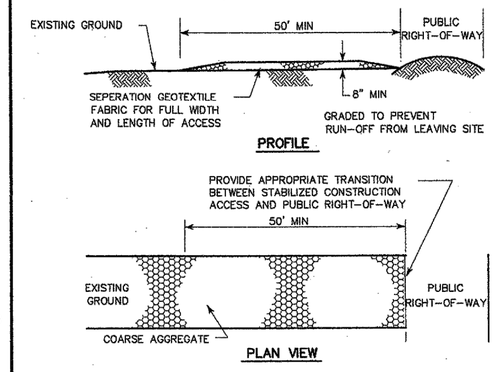


CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED BARRIER WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC BARRIER SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

FF SYMBOL

FILTER FABRIC BARRIER

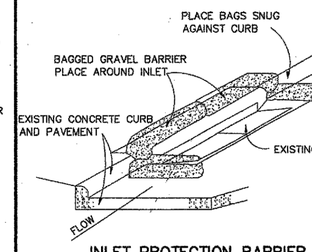


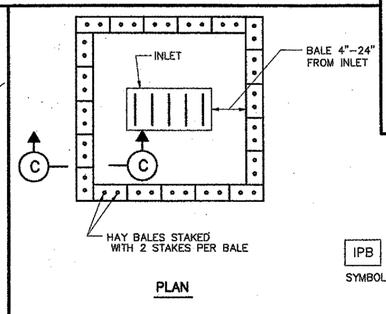
CONSTRUCTION NOTES:

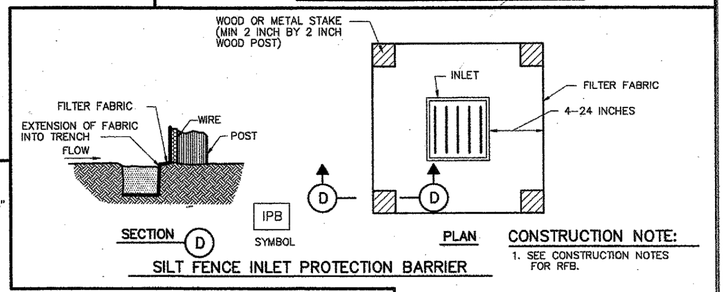
1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION ACCESS, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
6. COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
7. STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

SC SYMBOL

STABILIZED CONSTRUCTION ACCESS







CONSTRUCTION NOTE:

1. SEE CONSTRUCTION NOTES FOR RFB.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS
(NOT TO SCALE)

APPROVED: CITY ENGINEER
APPROVED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010
DWG NO: 01571-01

NO.	DATE	REVISION	APP.
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

STORM WATER POLLUTION PREVENTION DETAILS (SHEET 2 OF 2)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

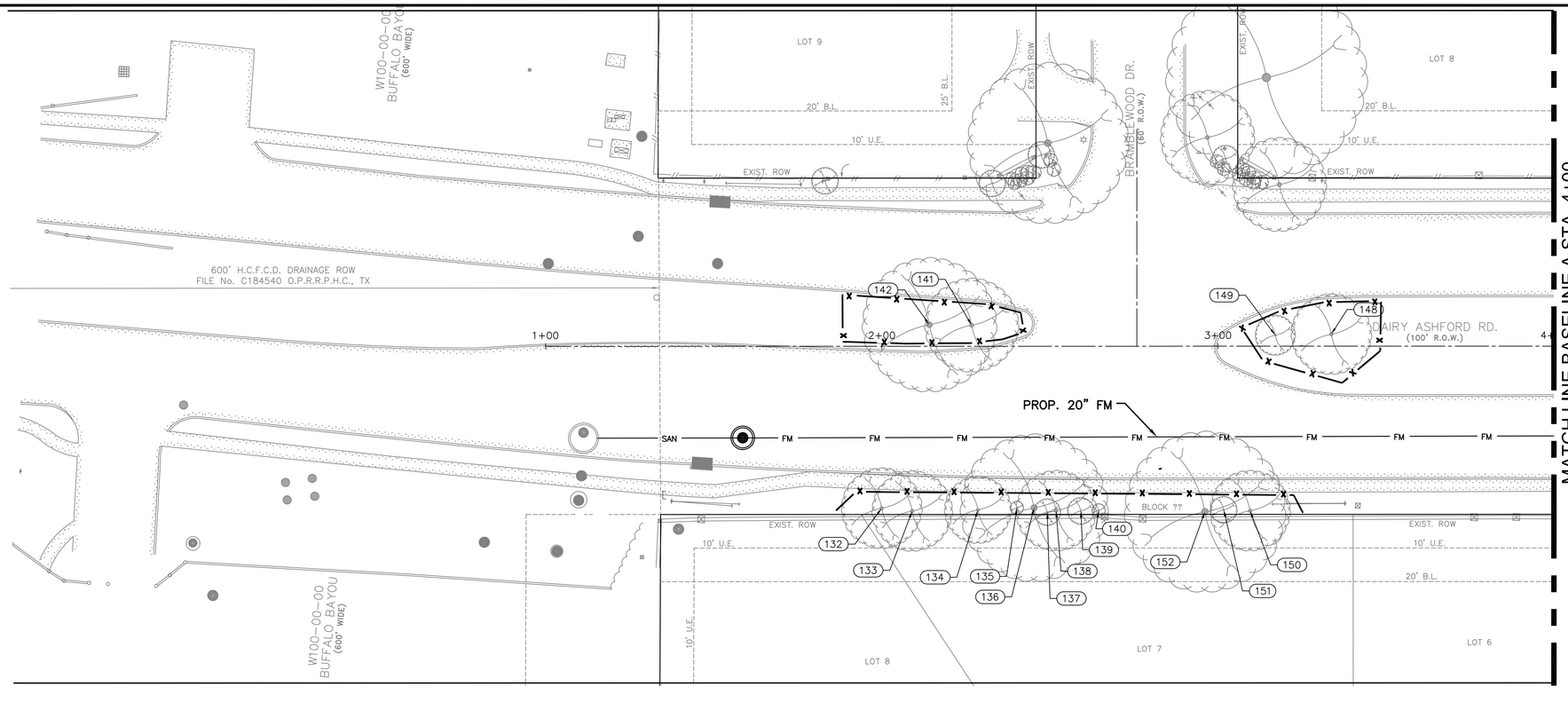
DRAWING SCALE: AS SHOWN

SHEET NO. 113 OF 192

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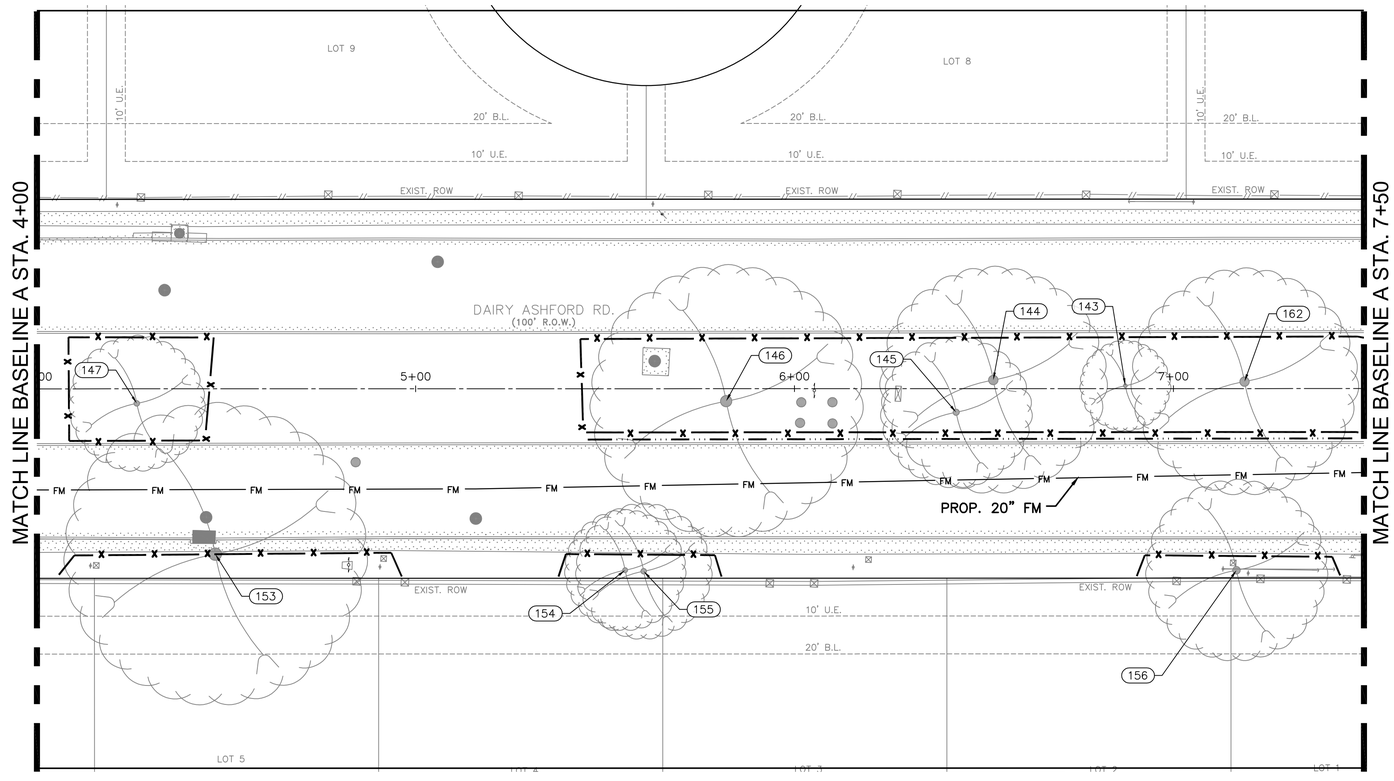
SWP2.02

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MATCH LINE BASELINE A STA. 4+00

MATCH LINE BASELINE A STA. 4+00



MATCH LINE BASELINE A STA. 7+50

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B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

0' 10' 20' 40'

SCALE: 1"=20'

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 1 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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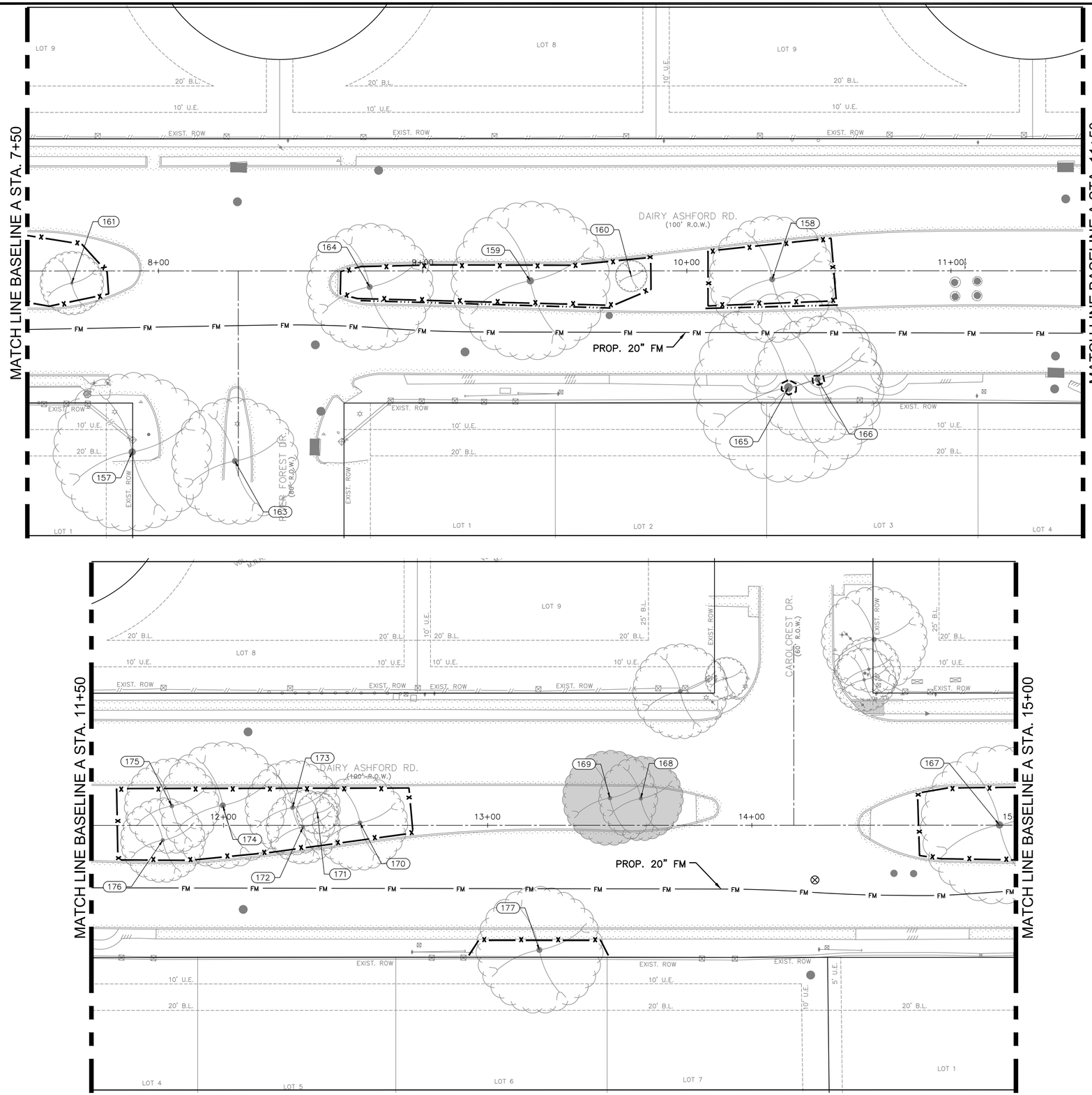
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SHEET NO. 114 OF 192

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TP1.01

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N

0' 10' 20' 40'

SCALE: 1"=20'

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LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

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OLD KATY TREE PROTECTION PLAN (SHEET 2 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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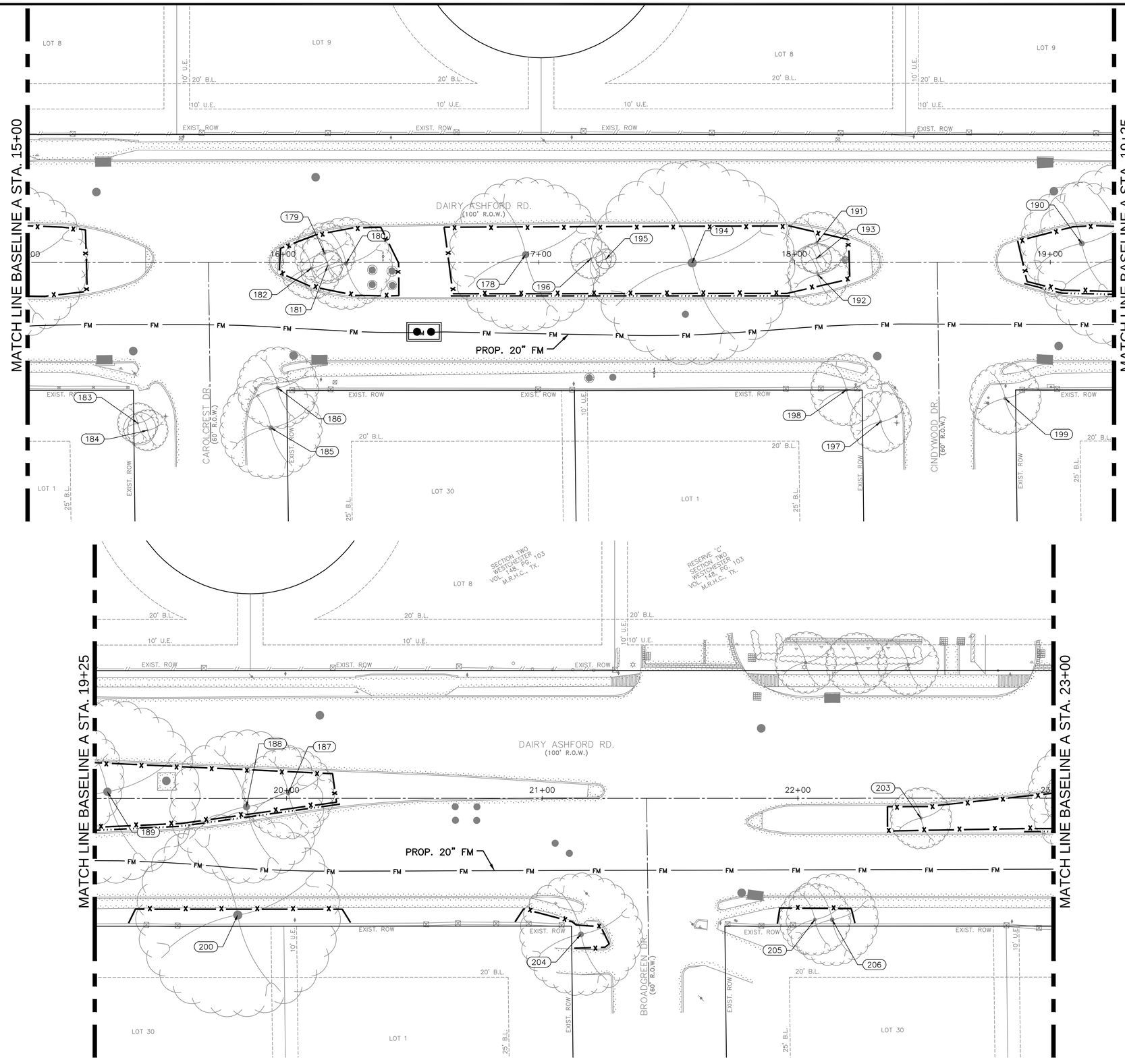
DRAWING SCALE: 1"=20'

SHEET NO. 115 OF 192

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TP1.02

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0' 10' 20' 40'

SCALE: 1"=20'

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A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 3 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

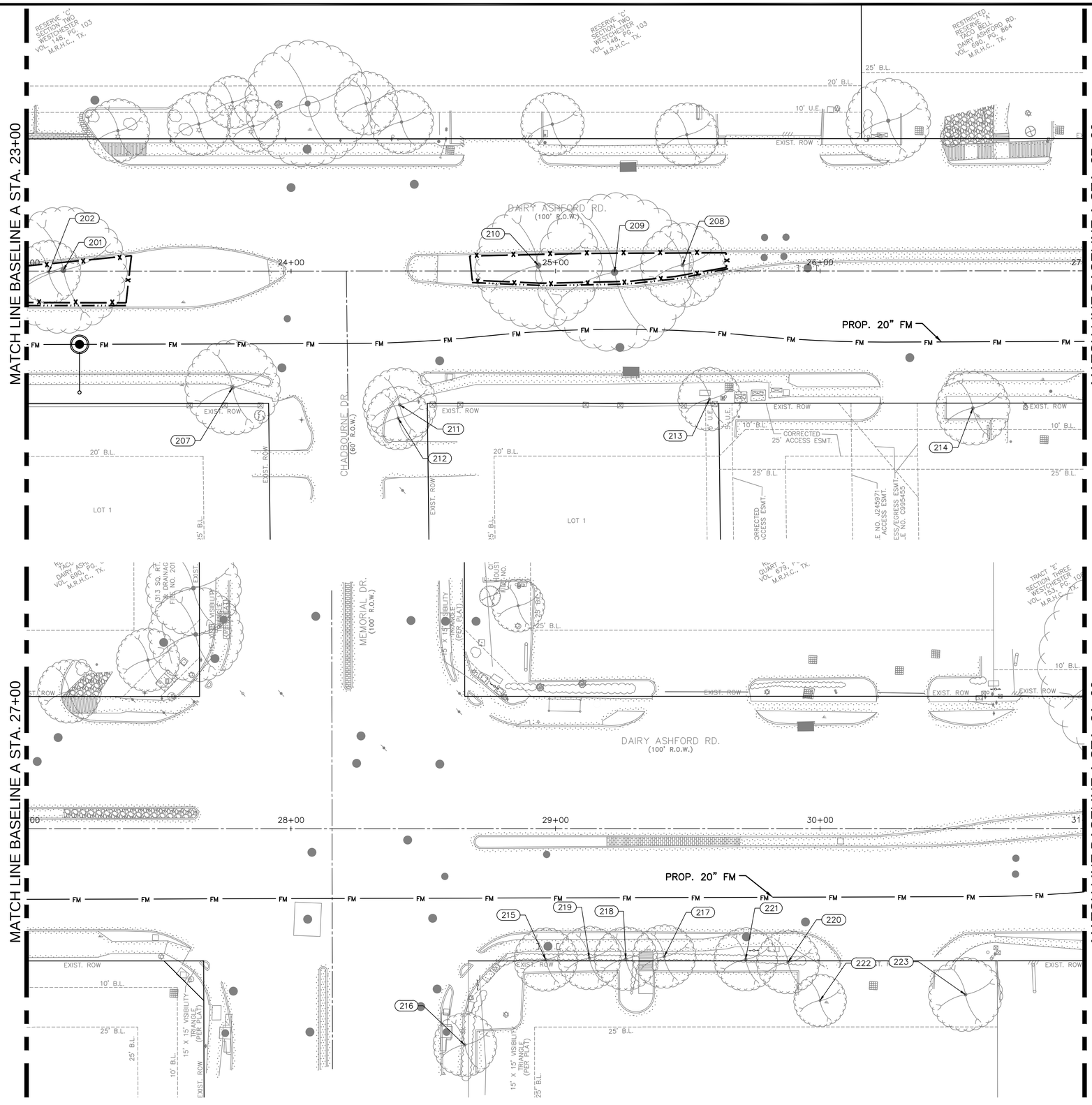
DRAWING SCALE: 1"=20'

SHEET NO. 116 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.03

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

N

0' 10' 20' 40'

SCALE: 1"=20'

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 4 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

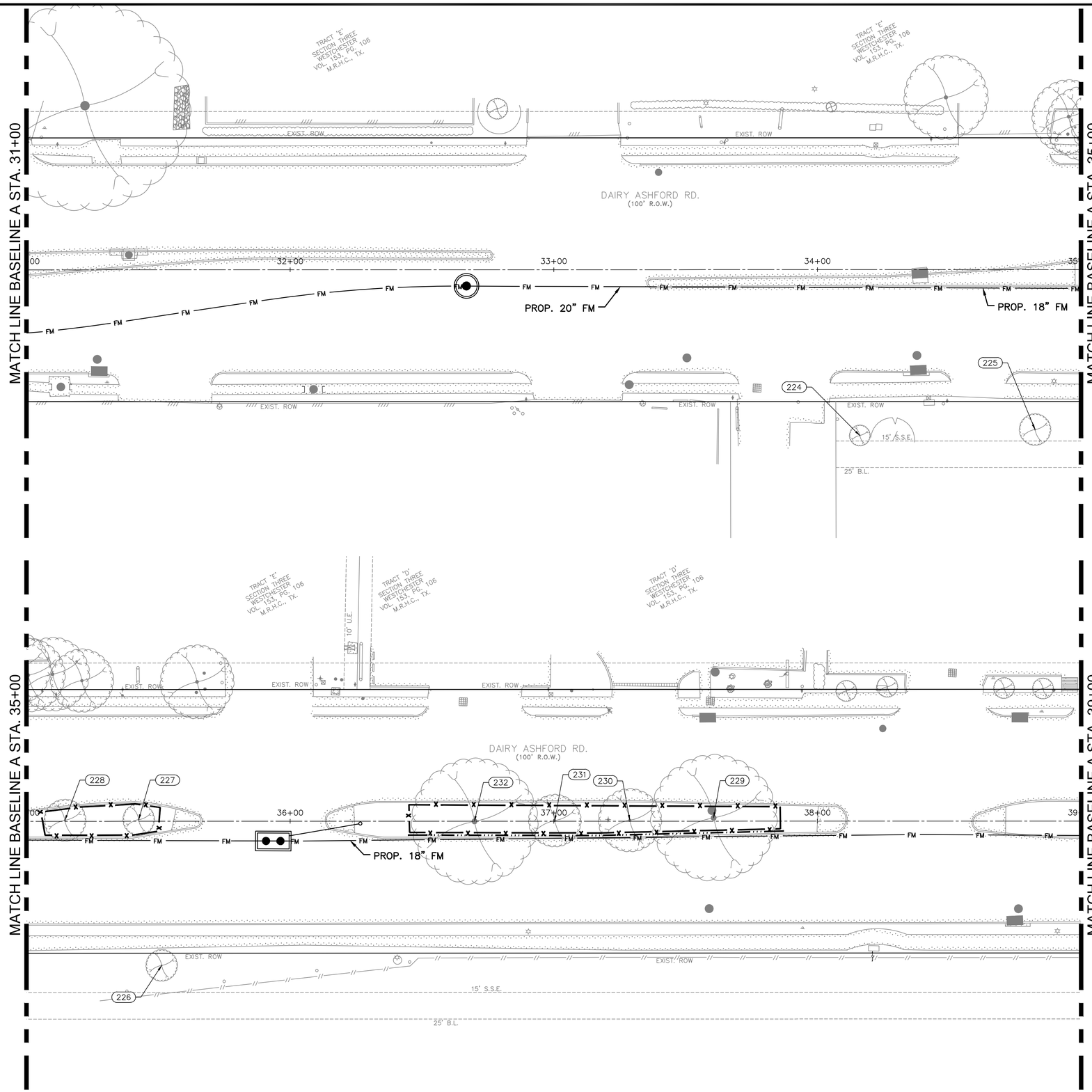
DRAWING SCALE: 1"=20'

SHEET NO. 117 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.04

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 5 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

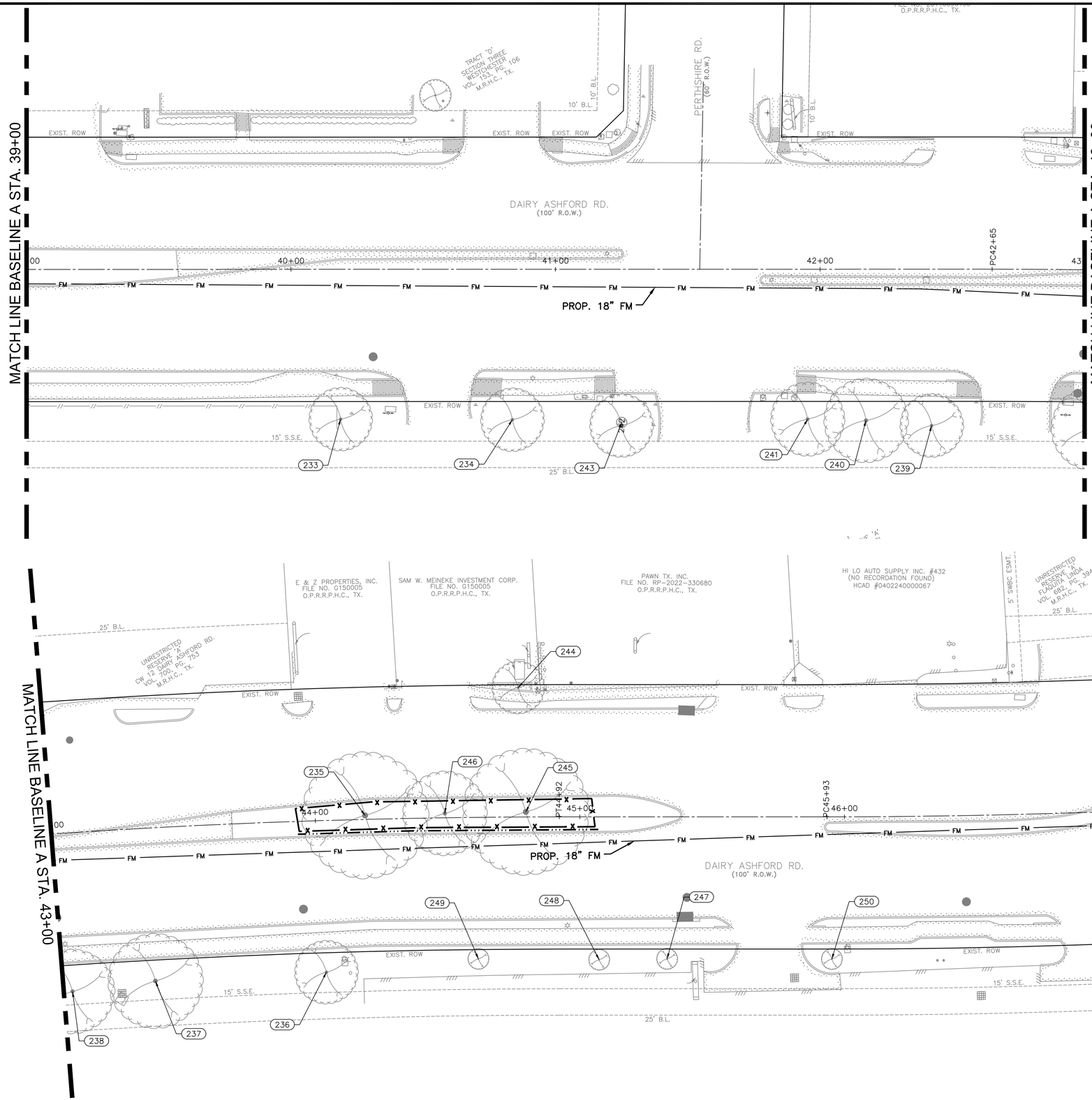
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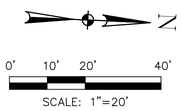
SHEET NO. 118 OF 192

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TP1.05

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NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 6 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

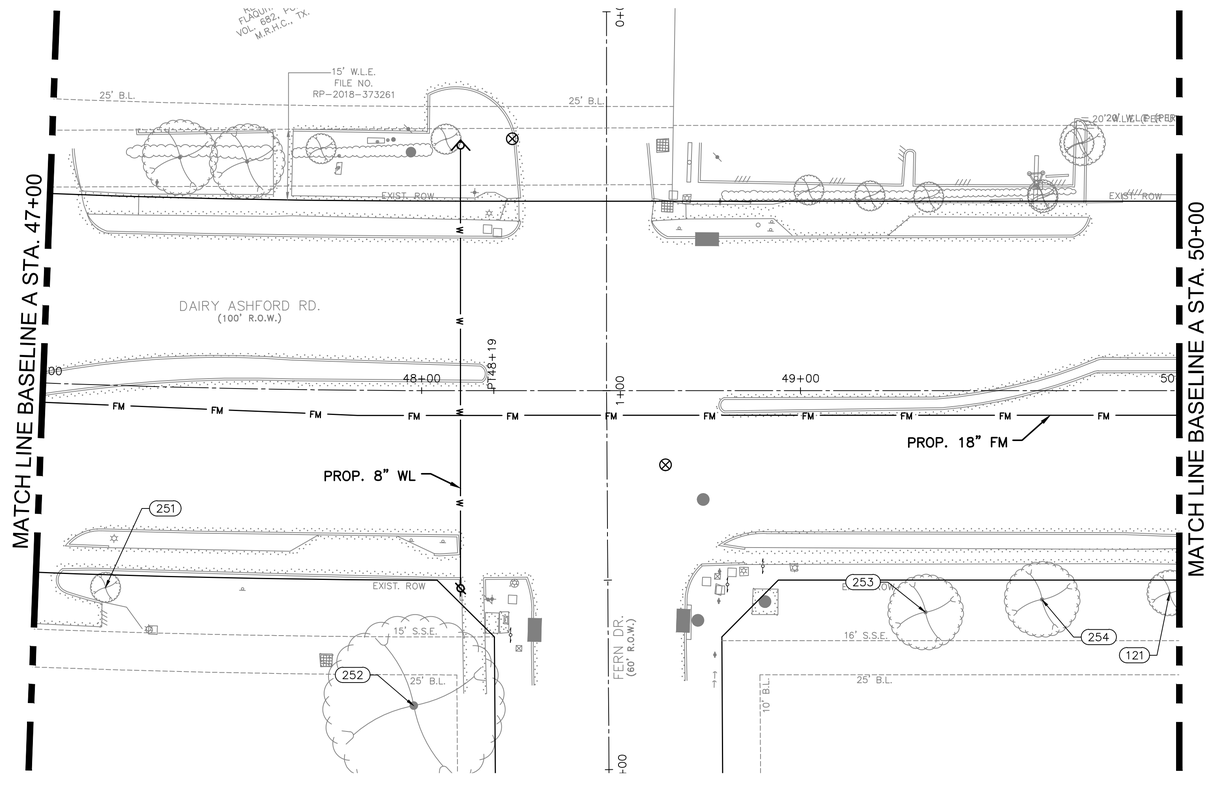
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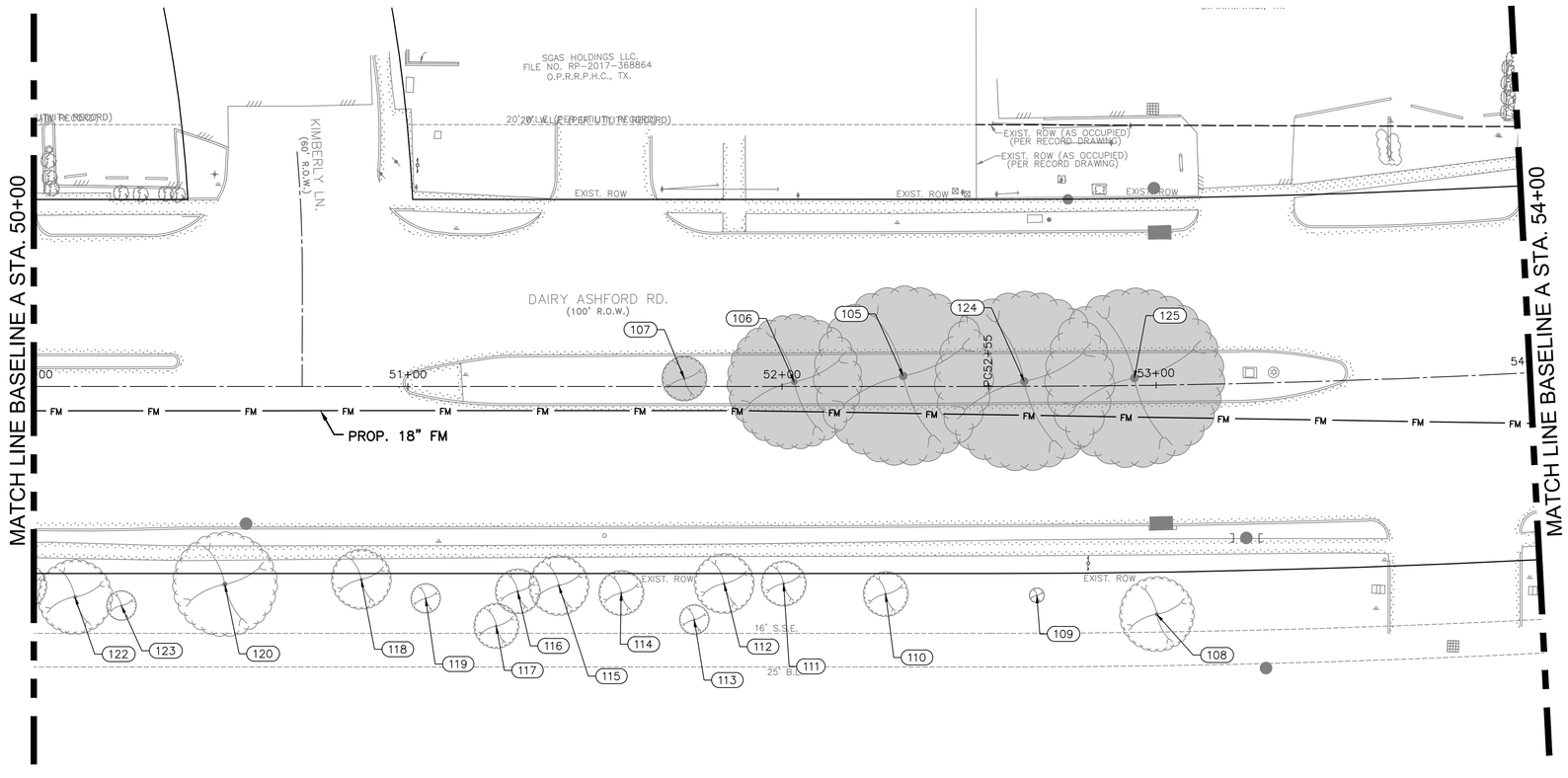
SHEET NO. 119 OF 192

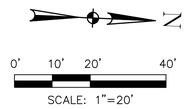
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TP1.06

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg







NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY
TREE PROTECTION PLAN
(SHEET 7 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

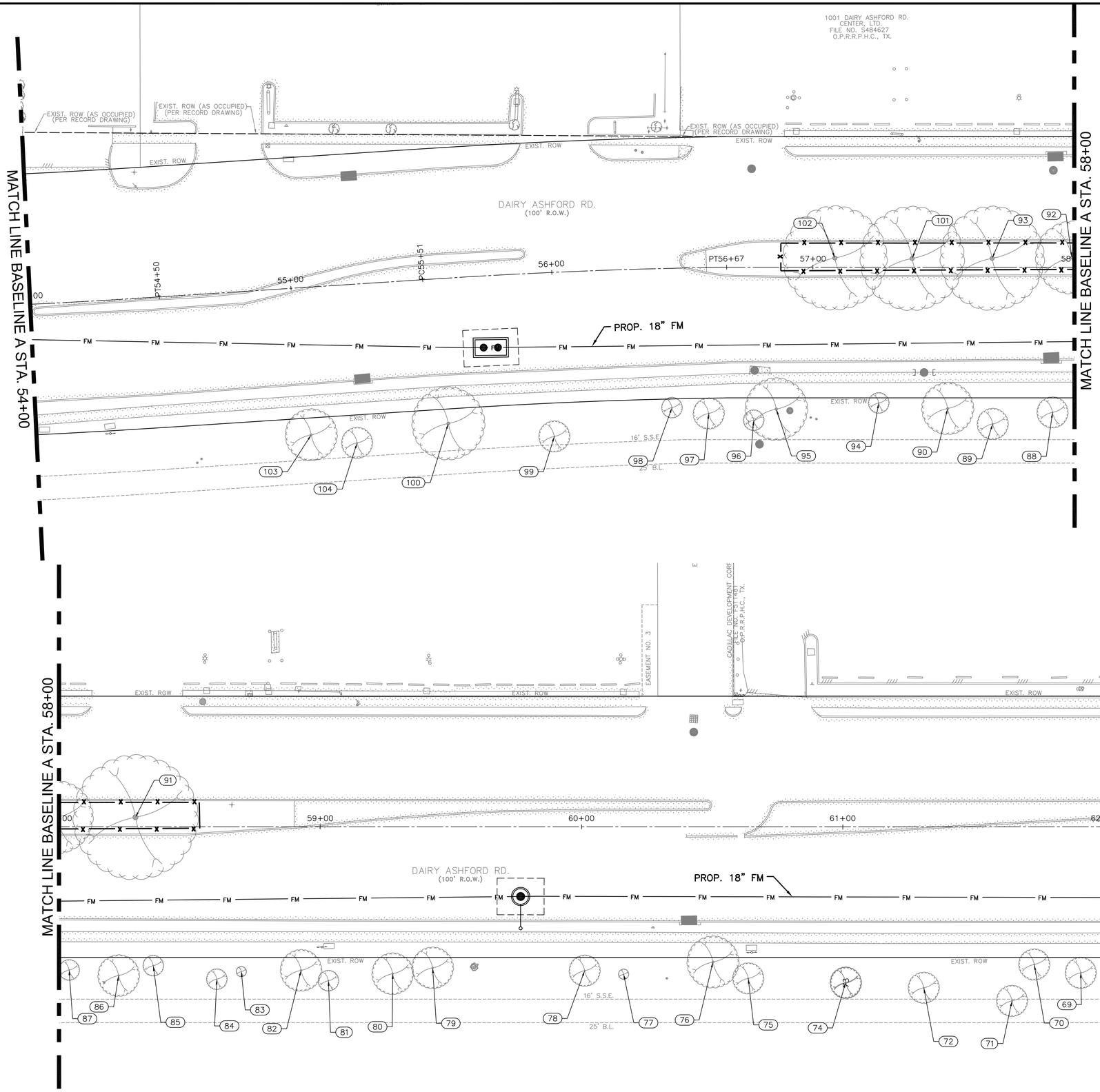
DRAWING SCALE: 1"=20'

SHEET NO. 120 OF 192

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TP1.07

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY
TREE PROTECTION PLAN
(SHEET 8 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

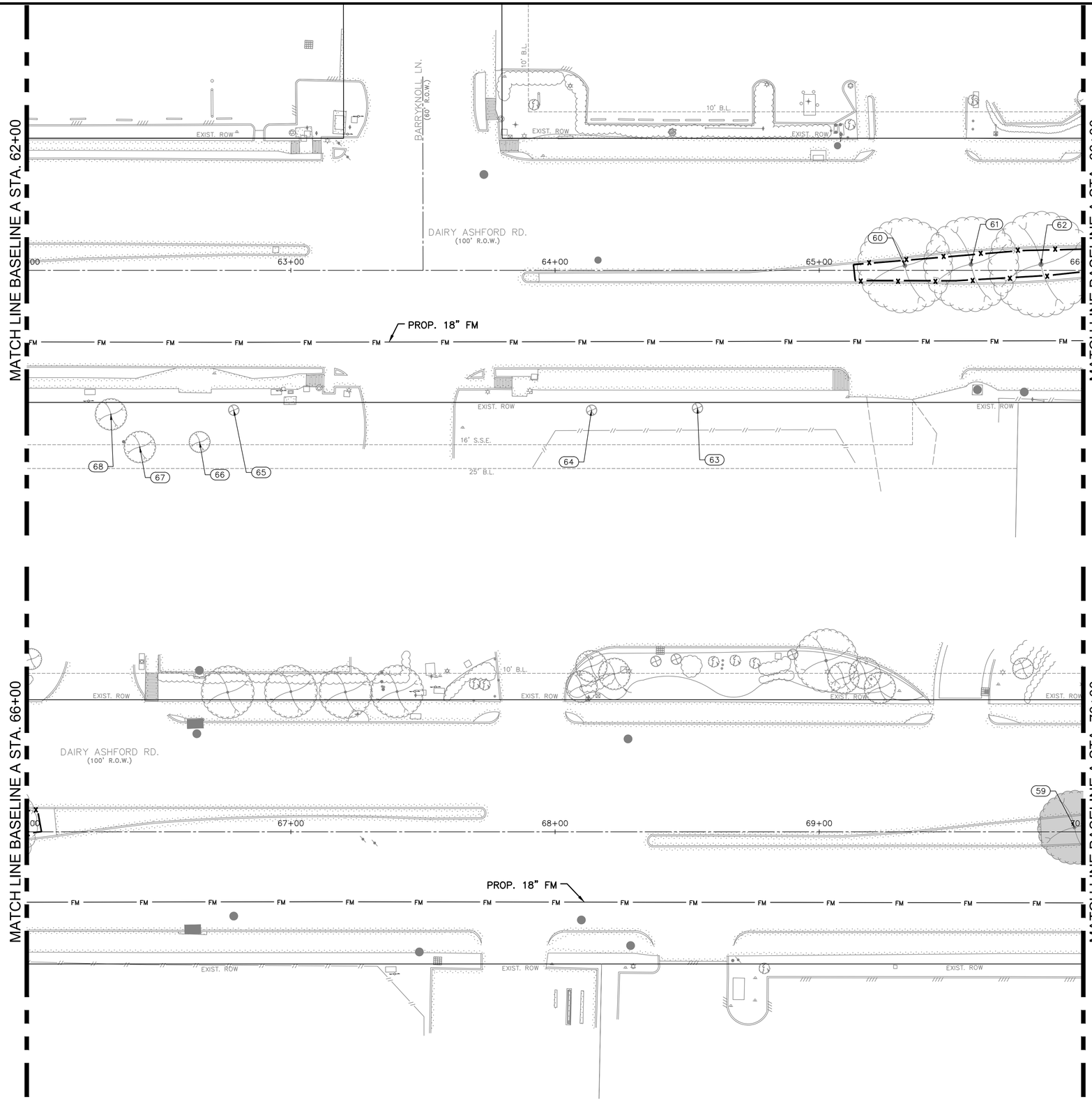
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SHEET NO. 121 OF 192

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TP1.08

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 9 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

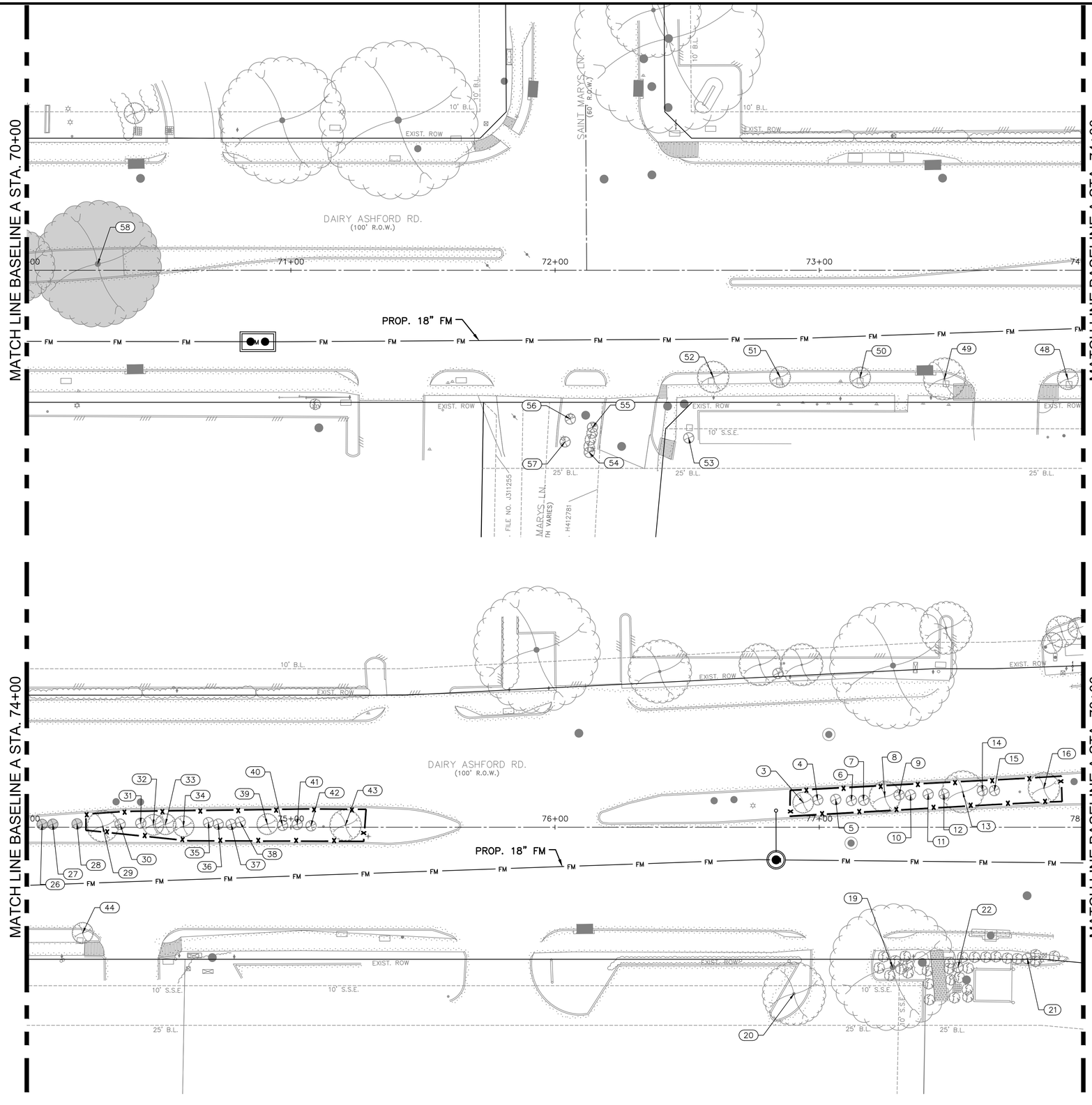
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SHEET NO. 122 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.09

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

N

0' 10' 20' 40'

SCALE: 1"=20'

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 10 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

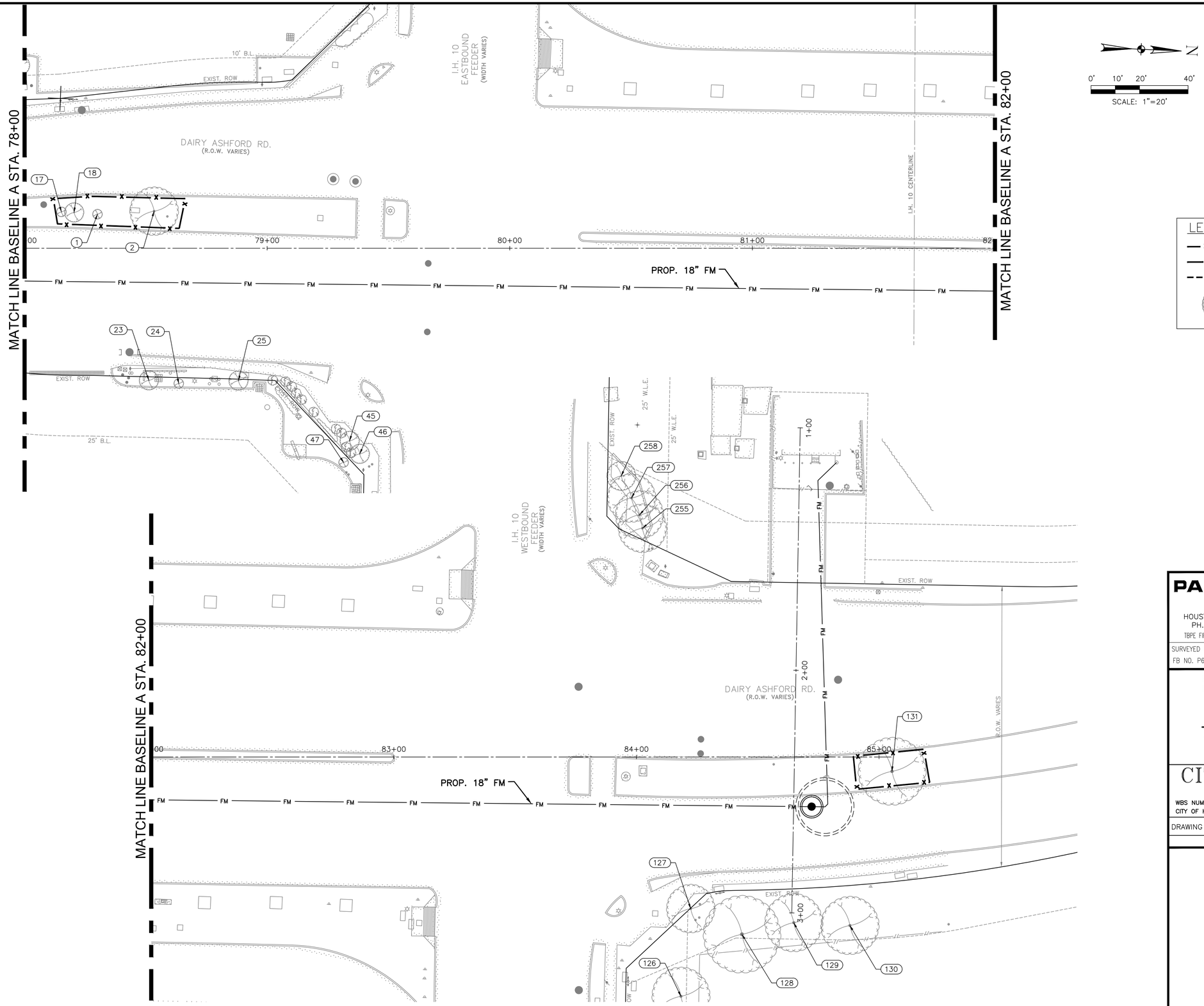
DRAWING SCALE: 1"=20'

SHEET NO. 123 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.10

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

- TREE PROTECTIVE FENCE
- ROOT PRUNING TRENCH
- TREE BOARDING
- TREE TO BE REMOVED

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

OLD KATY TREE PROTECTION PLAN (SHEET 11 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

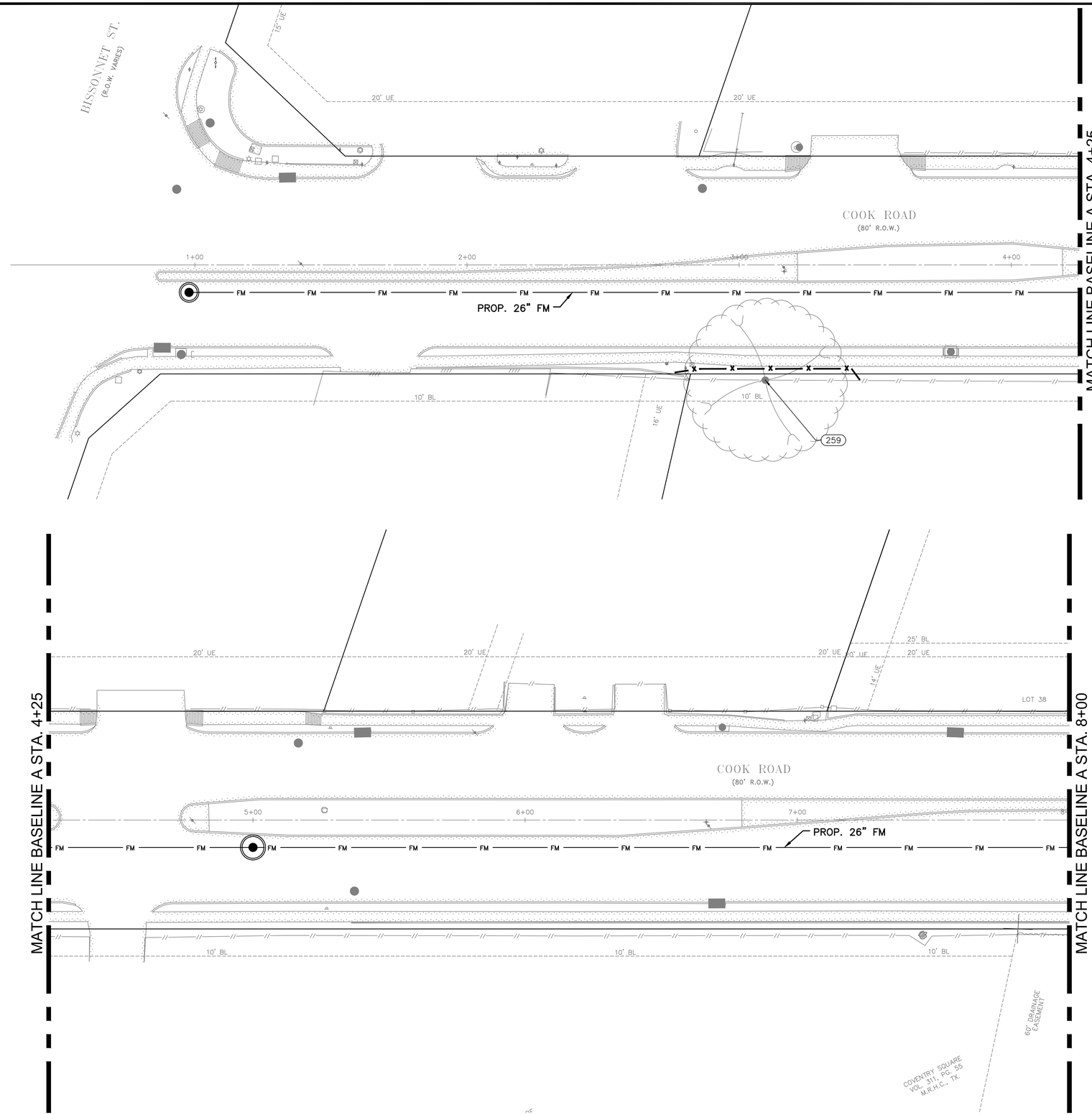
DRAWING SCALE: 1"=20'

SHEET NO. 124 OF 192

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TP1.11

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Treeprot.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

— x — x — TREE PROTECTIVE FENCE

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD TREE PROTECTION PLAN (SHEET 1 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

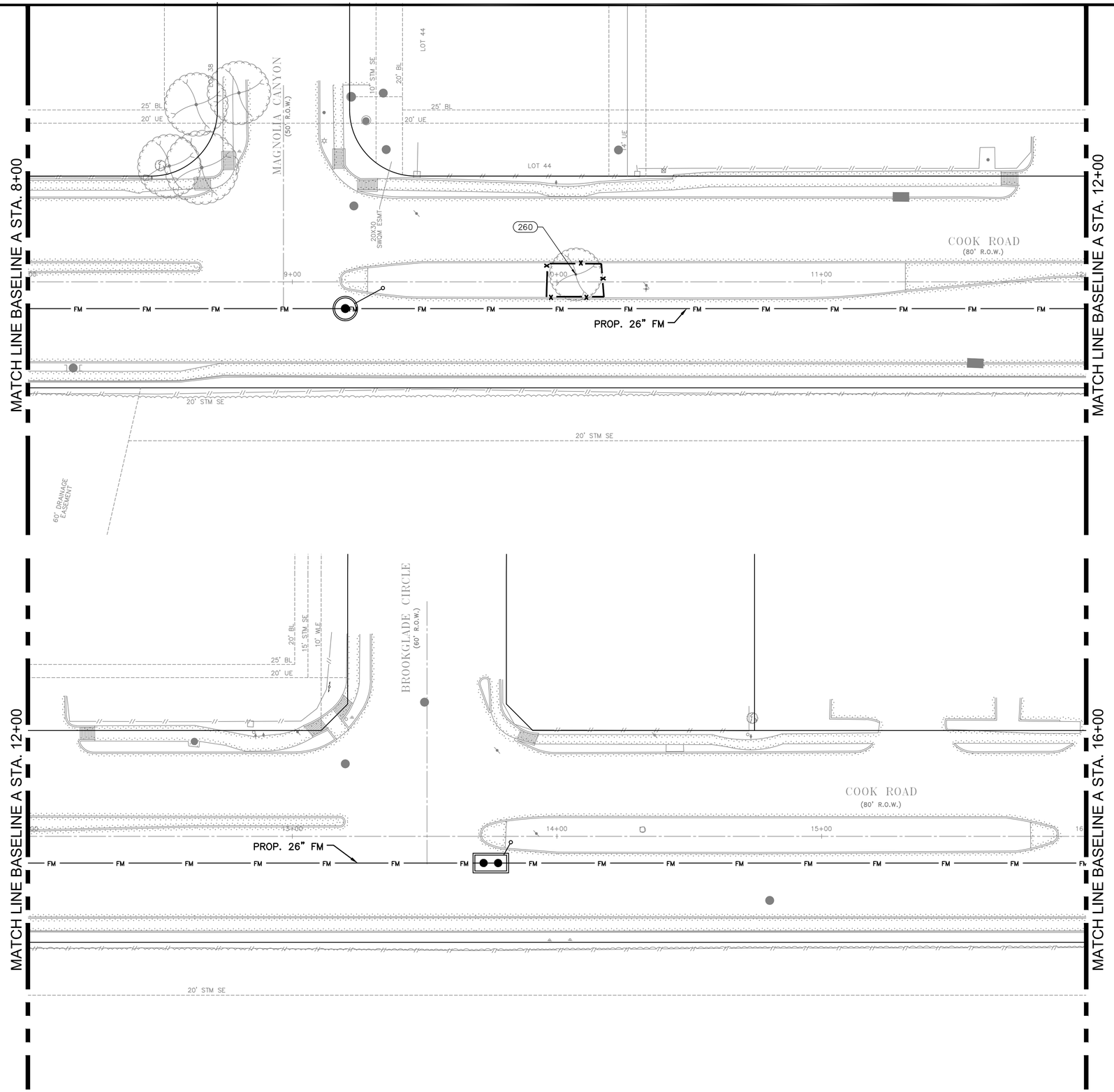
DRAWING SCALE: 1"=20'

SHEET NO. 125 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.12

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Treeprot.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

— x — x — TREE PROTECTIVE FENCE

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD TREE PROTECTION PLAN (SHEET 2 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

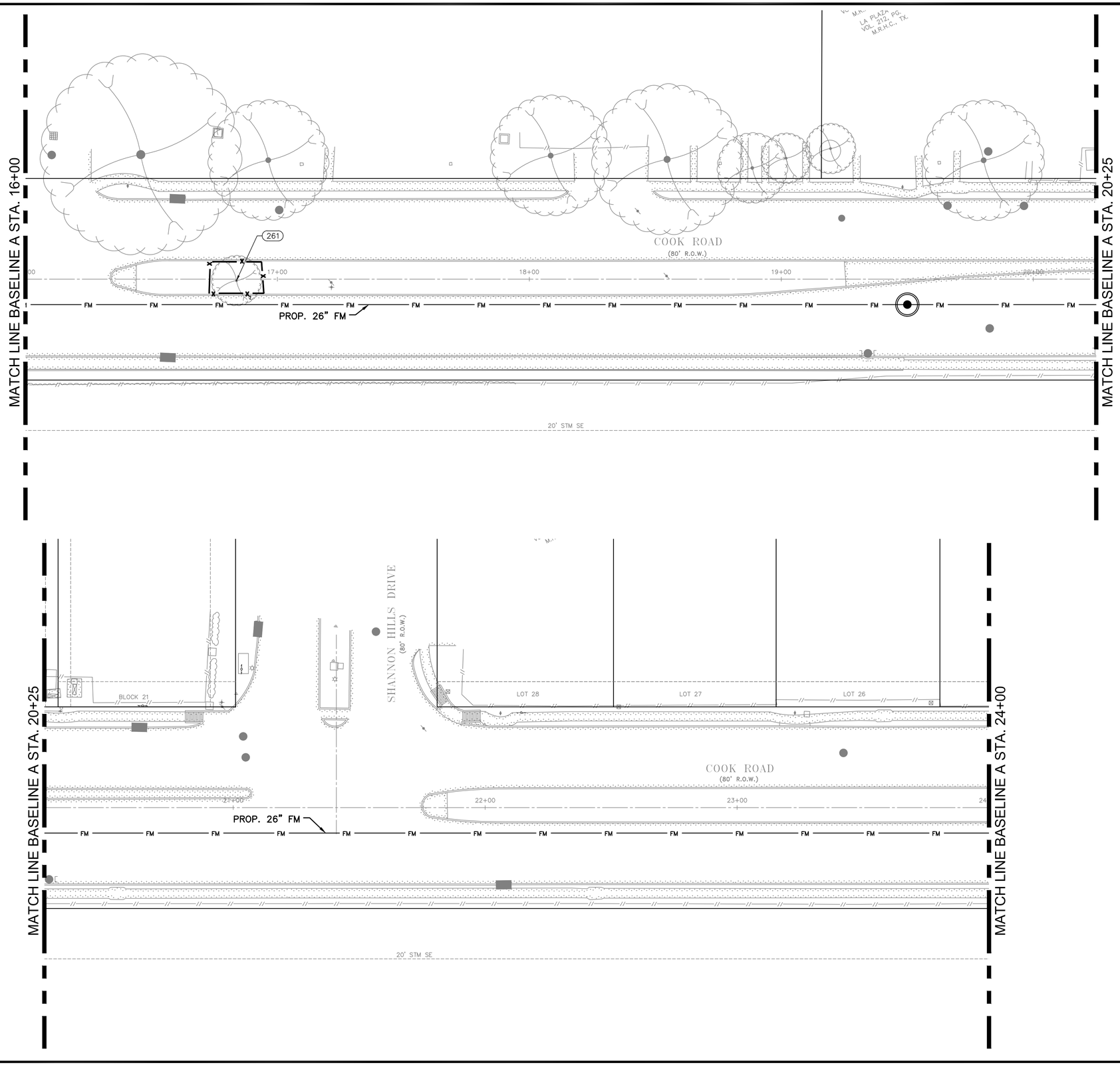
DRAWING SCALE: 1"=20'

SHEET NO. 126 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.13

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N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

LEGEND:

— x — x — TREE PROTECTIVE FENCE

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD TREE PROTECTION PLAN (SHEET 3 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

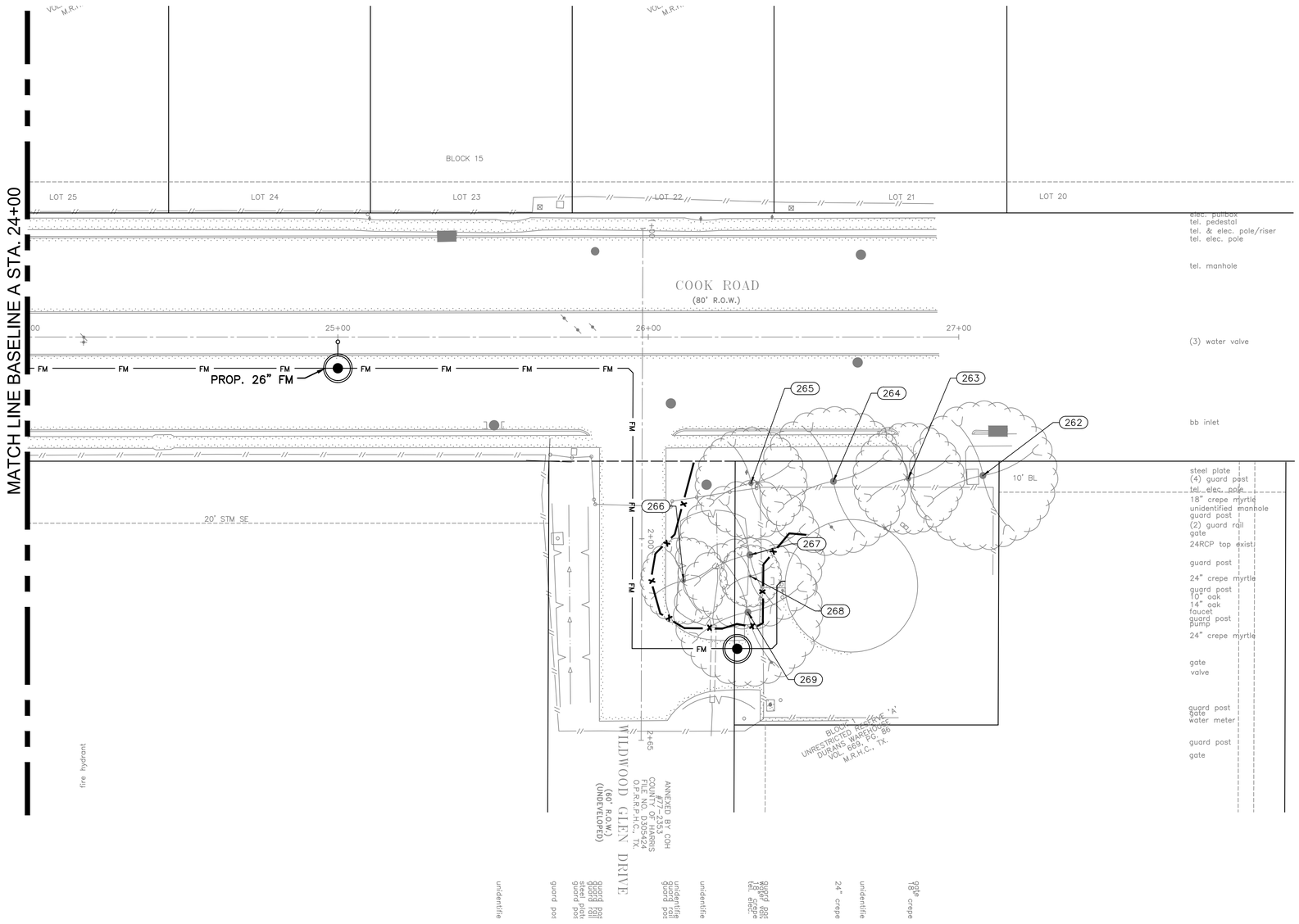
DRAWING SCALE: 1"=20'

SHEET NO. 127 OF 192

FOR CITY OF HOUSTON USE ONLY

TP1.14

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Treeprot.dwg


MATCH LINE BASELINE A STA. 24+00
BLOCK 15
LOT 25
LOT 24
LOT 23
LOT 22
LOT 21
LOT 20
COOK ROAD
(80' R.O.W.)
25+00
26+00
27+00
PROP. 26" FM
FM
20' STM SE
2+00
2+65
265
264
263
262
266
267
268
269
10' BL
WILDWOOD GLEN DRIVE
(60' R.O.W.)
(UNDEVELOPED)
ANNEXED BY COH
#77-2353
COUNTY OF HARRIS
FILE NO. D305424
O.P.R.R.P.H.C., TX.
UNRESTRICTED RESERVE "A"
DURANS WAREHOUSE
VOL. 66, PG. 86
M.R.H.C., TX.
fire hydrant
elec. pullbox
tel. pedestal
tel. & elec. pole/riser
tel. elec. pole
tel. manhole
(3) water valve
bb inlet
steel plate
(4) guard post
tel. elec. pole
18" crepe myrtle
unidentified manhoole
guard post
(2) guard rail
gate
24RCP top exist
guard post
24" crepe myrtle
guard post
10" oak
14" oak
faucet
guard post
pump
24" crepe myrtle
gate
valve
guard post
gate
water meter
guard post
gate
unidentifie
guard post
guard post
guard post

TREE NO.	LOCATION	DESCRIPTION	TREATMENT
1	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
2	DAIRY ASHFORD ROW	10" CREPE MYRTLE	TREE PROTECTION FENCE
3	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
4	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
5	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
6	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
7	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
8	DAIRY ASHFORD ROW	6" PINE	TREE PROTECTION FENCE
9	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
10	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
11	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
12	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
13	DAIRY ASHFORD ROW	8" OAK	TREE PROTECTION FENCE
14	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
15	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
16	DAIRY ASHFORD ROW	6" PINE	TREE PROTECTION FENCE
17	DAIRY ASHFORD ROW	2" PINE	TREE PROTECTION FENCE
18	DAIRY ASHFORD ROW	4" UNKOWN	TREE PROTECTION FENCE
19	DAIRY ASHFORD ROW	24" OAK	
20	DAIRY ASHFORD ROW	12" OAK	
21	DAIRY ASHFORD ROW	2" MAGNOLIA	
22	DAIRY ASHFORD ROW	2" OAK	
23	DAIRY ASHFORD ROW	4" OAK	
24	DAIRY ASHFORD ROW	2" MAGNOLIA	
25	DAIRY ASHFORD ROW	4" OAK	
26	DAIRY ASHFORD ROW	2" OAK	REMOVAL
27	DAIRY ASHFORD ROW	2" OAK	REMOVAL
28	DAIRY ASHFORD ROW	2" OAK	REMOVAL
29	DAIRY ASHFORD ROW	6" PINE	TREE PROTECTION FENCE
30	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
31	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
32	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
33	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
34	DAIRY ASHFORD ROW	4" PINE	TREE PROTECTION FENCE
35	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
36	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
37	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
38	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
39	DAIRY ASHFORD ROW	4" PINE	TREE PROTECTION FENCE
40	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
41	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
42	DAIRY ASHFORD ROW	2" OAK	TREE PROTECTION FENCE
43	DAIRY ASHFORD ROW	6" PINE	TREE PROTECTION FENCE
44	DAIRY ASHFORD ROW	4" OAK	
45	DAIRY ASHFORD ROW	4" OAK	
46	DAIRY ASHFORD ROW	4" OAK	
47	DAIRY ASHFORD ROW	2" OAK	
48	DAIRY ASHFORD ROW	4" OAK	
49	DAIRY ASHFORD ROW	8" OAK	
50	DAIRY ASHFORD ROW	4" OAK	
51	DAIRY ASHFORD ROW	4" OAK	
52	DAIRY ASHFORD ROW	6" OAK	
53	DAIRY ASHFORD ROW	2" MAGNOLIA	
54	DAIRY ASHFORD ROW	2" CREPE MYRTLE	
55	DAIRY ASHFORD ROW	2" CREPE MYRTLE	
56	DAIRY ASHFORD ROW	2" CREPE MYRTLE	
57	DAIRY ASHFORD ROW	2" CREPE MYRTLE	
58	DAIRY ASHFORD ROW	24" OAK	REMOVAL
59	DAIRY ASHFORD ROW	14" OAK	REMOVAL
60	DAIRY ASHFORD ROW	18" OAK	TREE PROTECTION FENCE
61	DAIRY ASHFORD ROW	18" OAK	TREE PROTECTION FENCE
62	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
63	DAIRY ASHFORD ROW	2" PINE	
64	DAIRY ASHFORD ROW	2" PINE	
65	DAIRY ASHFORD ROW	2" PINE	
66	DAIRY ASHFORD ROW	4" PINE	
67	DAIRY ASHFORD ROW	6" OAK	

TREE NO.	LOCATION	DESCRIPTION	TREATMENT
68	DAIRY ASHFORD ROW	6" PINE	
69	DAIRY ASHFORD ROW	6" PINE	
70	DAIRY ASHFORD ROW	6" PINE	
71	DAIRY ASHFORD ROW	6" OAK	
72	DAIRY ASHFORD ROW	6" OAK	
73	DAIRY ASHFORD ROW	6" PINE	
74	DAIRY ASHFORD ROW	6" PINE	
75	DAIRY ASHFORD ROW	6" PINE	
76	DAIRY ASHFORD ROW	10" OAK	
77	DAIRY ASHFORD ROW	2" PINE	
78	DAIRY ASHFORD ROW	6" PINE	
79	DAIRY ASHFORD ROW	8" PINE	
80	DAIRY ASHFORD ROW	8" OAK	
81	DAIRY ASHFORD ROW	4" PINE	
82	DAIRY ASHFORD ROW	8" OAK	
83	DAIRY ASHFORD ROW	2" PINE	
84	DAIRY ASHFORD ROW	4" PINE	
85	DAIRY ASHFORD ROW	4" PINE	
86	DAIRY ASHFORD ROW	8" OAK	
87	DAIRY ASHFORD ROW	4" PINE	
88	DAIRY ASHFORD ROW	6" OAK	
89	DAIRY ASHFORD ROW	6" PINE	
90	DAIRY ASHFORD ROW	10" OAK	
91	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE
92	DAIRY ASHFORD ROW	14" OAK	TREE PROTECTION FENCE
93	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
94	DAIRY ASHFORD ROW	4" PINE	
95	DAIRY ASHFORD ROW	12" OAK	
96	DAIRY ASHFORD ROW	4" PINE	
97	DAIRY ASHFORD ROW	6" PINE	
98	DAIRY ASHFORD ROW	4" PINE	
99	DAIRY ASHFORD ROW	6" OAK	
100	DAIRY ASHFORD ROW	14" OAK	
101	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
102	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
103	DAIRY ASHFORD ROW	10" PINE	
104	DAIRY ASHFORD ROW	6" PINE	
105	DAIRY ASHFORD ROW	24" OAK	REMOVAL
106	DAIRY ASHFORD ROW	18" OAK	REMOVAL
107	DAIRY ASHFORD ROW	6" OAK	REMOVAL
108	DAIRY ASHFORD ROW	10" PINE	
109	DAIRY ASHFORD ROW	2" PINE	
110	DAIRY ASHFORD ROW	6" PINE	
111	DAIRY ASHFORD ROW	6" PINE	
112	DAIRY ASHFORD ROW	8" PINE	
113	DAIRY ASHFORD ROW	4" PINE	
114	DAIRY ASHFORD ROW	6" PINE	
115	DAIRY ASHFORD ROW	8" PINE	
116	DAIRY ASHFORD ROW	6" PINE	
117	DAIRY ASHFORD ROW	6" OAK	
118	DAIRY ASHFORD ROW	8" PINE	
119	DAIRY ASHFORD ROW	4" PINE	
120	DAIRY ASHFORD ROW	14" OAK	
121	DAIRY ASHFORD ROW	6" OAK	
122	DAIRY ASHFORD ROW	10" OAK	
123	DAIRY ASHFORD ROW	4" PINE	
124	DAIRY ASHFORD ROW	24" OAK	REMOVAL
125	DAIRY ASHFORD ROW	24" OAK	REMOVAL
126	DAIRY ASHFORD ROW	12" OAK	
127	DAIRY ASHFORD ROW	10" OAK	
128	DAIRY ASHFORD ROW	16" OAK	
129	DAIRY ASHFORD ROW	12" OAK	
130	DAIRY ASHFORD ROW	12" OAK	
131	DAIRY ASHFORD ROW	14" CACTUS	TREE PROTECTION FENCE
132	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
133	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
134	DAIRY ASHFORD ROW	10" OAK	TREE PROTECTION FENCE

ARBORICULTURALLY SIGNIFICANT TREE LIST	
Tree No.	**Description**
19	24" OAK
58	24" OAK
91	24" OAK
105	24" OAK
124	24" OAK
125	24" OAK
152	24" OAK
156	24" OAK
158	24" OAK
163	24" OAK
166	24" OAK
177	24" OAK
190	24" OAK
204	24" OAK
210	24" OAK
229	24" OAK
232	24" OAK
235	24" OAK
245	24" OAK
252	24" OAK
144	30" OAK
157	30" OAK
159	30" OAK
162	30" OAK
167	30" OAK
178	30" OAK
188	30" OAK
209	30" OAK
146	36" OAK
165	36" OAK
189	36" OAK
153	40" OAK
194	40" OAK
200	40" OAK

Trees Identified by City of Houston Forestry/Parks & Recreation Department as Arboriculturally Significant are identified here and/or in treatment schedule included on TPP sheets. Arboriculturally Significant trees are to be pruned under direct supervision of City of Houston Forestry. Minimal pruning will be allowed for construction equipment access, and in some cases no pruning will be allowed. Contractor must review conditions around and/or under the canopy of Arboriculturally Significant trees and onsider restrictions when preparing cost estimate and planning construction equipment that will be necessary to accomplish design installation with minimal to no tree pruning.

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

LIST OF TREES (SHEET 1 OF 2)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

SHEET NO. 129 OF 192

FOR CITY OF HOUSTON USE ONLY

TP2.01

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-tree List.dwg

TREE NO.	LOCATION	DESCRIPTION	TREATMENT
135	DAIRY ASHFORD ROW	2" CREPE MYRTLE	TREE PROTECTION FENCE
136	DAIRY ASHFORD ROW	22" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
137	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
138	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
139	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
140	DAIRY ASHFORD ROW	2" CREPE MYRTLE	TREE PROTECTION FENCE
141	DAIRY ASHFORD ROW	14" OAK	TREE PROTECTION FENCE
142	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
143	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
144	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
145	DAIRY ASHFORD ROW	20" OAK	TREE PROTECTION FENCE
146	DAIRY ASHFORD ROW	36" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
147	DAIRY ASHFORD ROW	18" OAK	TREE PROTECTION FENCE
148	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
149	DAIRY ASHFORD ROW	6" OAK	TREE PROTECTION FENCE
150	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
151	DAIRY ASHFORD ROW	4" OAK	TREE PROTECTION FENCE
152	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
153	DAIRY ASHFORD ROW	40" OAK	TREE PROTECTION FENCE
154	DAIRY ASHFORD ROW	16" OAK	TREE PROTECTION FENCE
155	DAIRY ASHFORD ROW	18" OAK	TREE PROTECTION FENCE
156	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
157	DAIRY ASHFORD ROW	30" OAK	
158	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
159	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
160	DAIRY ASHFORD ROW	6" CREPE MYRTLE	TREE PROTECTION FENCE
161	DAIRY ASHFORD ROW	12" MAGNOLIA	TREE PROTECTION FENCE
162	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
163	DAIRY ASHFORD ROW	24" OAK	
164	DAIRY ASHFORD ROW	24" CREPE MYRTLE	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
165	DAIRY ASHFORD ROW	36" OAK	TREE BOARDING, CLEARANCE PRUNE
166	DAIRY ASHFORD ROW	24" OAK	TREE BOARDING, CLEARANCE PRUNE
167	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
168	DAIRY ASHFORD ROW	16" CREPE MYRTLE	REMOVAL
169	DAIRY ASHFORD ROW	18" CREPE MYRTLE	REMOVAL
170	DAIRY ASHFORD ROW	18" CREPE MYRTLE	TREE PROTECTION FENCE
171	DAIRY ASHFORD ROW	8" CREPE MYRTLE	TREE PROTECTION FENCE
172	DAIRY ASHFORD ROW	14" CACTUS	TREE PROTECTION FENCE
173	DAIRY ASHFORD ROW	18" CREPE MYRTLE	TREE PROTECTION FENCE
174	DAIRY ASHFORD ROW	24" CREPE MYRTLE	TREE PROTECTION FENCE
175	DAIRY ASHFORD ROW	18" CREPE MYRTLE	TREE PROTECTION FENCE
176	DAIRY ASHFORD ROW	16" CREPE MYRTLE	TREE PROTECTION FENCE
177	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
178	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
179	DAIRY ASHFORD ROW	12" CREPE MYRTLE	TREE PROTECTION FENCE
180	DAIRY ASHFORD ROW	18" CREPE MYRTLE	TREE PROTECTION FENCE
181	DAIRY ASHFORD ROW	6" CREPE MYRTLE	TREE PROTECTION FENCE
182	DAIRY ASHFORD ROW	12" CREPE MYRTLE	TREE PROTECTION FENCE
183	DAIRY ASHFORD ROW	8" CREPE MYRTLE	
184	DAIRY ASHFORD ROW	8" CREPE MYRTLE	
185	DAIRY ASHFORD ROW	20" PINE	
186	DAIRY ASHFORD ROW	16" MAGNOLIA	
187	DAIRY ASHFORD ROW	18" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
188	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
189	DAIRY ASHFORD ROW	36" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
190	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
191	DAIRY ASHFORD ROW	12" CREPE MYRTLE	TREE PROTECTION FENCE
192	DAIRY ASHFORD ROW	12" CREPE MYRTLE	TREE PROTECTION FENCE
193	DAIRY ASHFORD ROW	6" CREPE MYRTLE	TREE PROTECTION FENCE
194	DAIRY ASHFORD ROW	40" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
195	DAIRY ASHFORD ROW	4" CREPE MYRTLE	TREE PROTECTION FENCE
196	DAIRY ASHFORD ROW	8" CREPE MYRTLE	TREE PROTECTION FENCE
197	DAIRY ASHFORD ROW	12" OAK	
198	DAIRY ASHFORD ROW	14" CREPE MYRTLE	
199	DAIRY ASHFORD ROW	14" MAGNOLIA	
200	DAIRY ASHFORD ROW	40" OAK	TREE PROTECTION FENCE, CLEARANCE PRUNE
201	DAIRY ASHFORD ROW	24" CREPE MYRTLE	TREE PROTECTION FENCE, ROOT PRUNING TRENCH

TREE NO.	LOCATION	DESCRIPTION	TREATMENT
202	DAIRY ASHFORD ROW	12" CREPE MYRTLE	TREE PROTECTION FENCE, CLEARANCE PRUNE
203	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE
204	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE
205	DAIRY ASHFORD ROW	14" PINE	TREE PROTECTION FENCE
206	DAIRY ASHFORD ROW	18" PINE	TREE PROTECTION FENCE
207	DAIRY ASHFORD ROW	18" OAK	
208	DAIRY ASHFORD ROW	16" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
209	DAIRY ASHFORD ROW	30" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
210	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
211	DAIRY ASHFORD ROW	14" CEDAR	
212	DAIRY ASHFORD ROW	12" OAK	
213	DAIRY ASHFORD ROW	12" OAK	
214	DAIRY ASHFORD ROW	14" CREPE MYRTLE	
215	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
216	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
217	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
218	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
219	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
220	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
221	DAIRY ASHFORD ROW	12" CREPE MYRTLE	
222	DAIRY ASHFORD ROW	10" OAK	
223	DAIRY ASHFORD ROW	14" OAK	
224	DAIRY ASHFORD ROW	4" MAGNOLIA	
225	DAIRY ASHFORD ROW	6" MAGNOLIA	
226	DAIRY ASHFORD ROW	6" MAGNOLIA	
227	DAIRY ASHFORD ROW	6" OAK	TREE PROTECTION FENCE
228	DAIRY ASHFORD ROW	8" OAK	TREE PROTECTION FENCE
229	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
230	DAIRY ASHFORD ROW	12" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
231	DAIRY ASHFORD ROW	10" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
232	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
233	DAIRY ASHFORD ROW	12" OAK	
234	DAIRY ASHFORD ROW	12" OAK	
235	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
236	DAIRY ASHFORD ROW	12" OAK	
237	DAIRY ASHFORD ROW	18" OAK	
238	DAIRY ASHFORD ROW	16" OAK	
239	DAIRY ASHFORD ROW	12" OAK	
240	DAIRY ASHFORD ROW	16" OAK	
241	DAIRY ASHFORD ROW	14" OAK	
242	DAIRY ASHFORD ROW	12" OAK	
243	DAIRY ASHFORD ROW	2" OAK	
244	DAIRY ASHFORD ROW	10" PALM	
245	DAIRY ASHFORD ROW	24" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH, CLEARANCE PRUNE
246	DAIRY ASHFORD ROW	16" OAK	TREE PROTECTION FENCE, ROOT PRUNING TRENCH
247	DAIRY ASHFORD ROW	4" PINE	
248	DAIRY ASHFORD ROW	4" PINE	
249	DAIRY ASHFORD ROW	4" PINE	
250	DAIRY ASHFORD ROW	4" PINE	
251	DAIRY ASHFORD ROW	4" PINE	
252	DAIRY ASHFORD ROW	24" OAK	
253	DAIRY ASHFORD ROW	10" OAK	
254	DAIRY ASHFORD ROW	10" OAK	
255	DAIRY ASHFORD ROW	10" OAK	
256	DAIRY ASHFORD ROW	10" OAK	
257	DAIRY ASHFORD ROW	10" OAK	
258	DAIRY ASHFORD ROW	6" OAK	
259	COOK ROAD ROW	30" OAK	TREE PROTECTION FENCE
260	COOK ROAD ROW	10" OAK	TREE PROTECTION FENCE
261	COOK ROAD ROW	10" OAK	TREE PROTECTION FENCE
262	COOK ROAD LS SITE		
263	COOK ROAD LS SITE	18" CREPE MYRTLE	
264	COOK ROAD LS SITE	24" CREPE MYRTLE	
265	COOK ROAD LS SITE	18" CREPE MYRTLE	TREE PROTECTION FENCE
266	COOK ROAD LS SITE	14" OAK	TREE PROTECTION FENCE
267	COOK ROAD LS SITE	24" CREPE MYRTLE	TREE PROTECTION FENCE
268	COOK ROAD LS SITE	10" OAK	TREE PROTECTION FENCE
269	COOK ROAD LS SITE	24" CREPE MYRTLE	TREE PROTECTION FENCE

TREE REMOVAL LIST

Tree No.	Location	Description	Removal fee/inch	Removal Fee
26	Dairy Ashford Rd. ROW, Median	2" Oak	$ 297.88	$ 595.96
27	Dairy Ashford Rd. ROW, Median	2" Oak	$ 297.88	$ 595.96
28	Dairy Ashford Rd. ROW, Median	2" Oak	$ 297.88	$ 595.96
58	Dairy Ashford Rd. ROW, Median	24" Oak	$ 662.19	$ 15,892.56
59	Dairy Ashford Rd. ROW, Median	14" Oak	$ 662.19	$ 9,270.66
105	Dairy Ashford Rd. ROW, Median	24" Oak	$ 662.19	$ 15,892.56
106	Dairy Ashford Rd. ROW, Median	18" Oak	$ 662.19	$ 11,919.42
107	Dairy Ashford Rd. ROW, Median	6" Oak	$ 297.88	$ 1,787.88
124	Dairy Ashford Rd. ROW, Median	24" Oak	$ 662.19	$ 15,892.56
125	Dairy Ashford Rd. ROW, Median	24" Oak	$ 662.19	$ 15,892.56
168	Dairy Ashford Rd. ROW, Median	16" Crepe Myrtle	$ -	$ -
169	Dairy Ashford Rd. ROW, Median	18" Crepe Myrtle	$ -	$ -
TOTAL REMOVAL FEE				**$ 88,336.08**

Tree Replacement List

Quantity	Caliper Size	Species	Container/Tree Spade Size
A Removal Fee will be paid in lieu of Replacement			
TOTAL REPLACEMENT INCLUDED IN PLAN			**0**

NOTE: Tree replacement locations are not shown on plans. Contractor must coordinate with City of Houston Urban Forestry and Houston Public Works prior to PURCHASING trees. This project may not have adequate room for all required replacement trees without creating reulatory sign or traffic/pedestrian visibility issues. Number of trees and planting locations will be determined by City of Houston Urban Forestry in cosntruction phase. Trees that are planted are to be maintained and watered for 2 years following planting per standard specification 02915. Timing of planting may be delayed in periods of drought with mandatory water restrictions in place-timing to be coordinated with City of Houston Urban Forestry. Trees in esplanade groupings to be planted in common bed with 4" of hardwood mulch between trees.

Trees are to be maintained and watered for 2 years following planting per standard specification 02915. Timing of planting may be delayed in periods of drought with with mandatory water restrictions in place-timing to be coordinated with City of Houston Urban Forestry.

Tree replacement locations shall comply with Houston Public Works specification sections 02811, 02911, 02912, 02915, 02921 and 02922. In general, trees along sides of street right of ways shall be no closer than 3' to back of curb or 20' from another tree. Trees in medians shall be no closer than 6' to back of curb, 75' from an intersection, 50' to a median cut, or 20' from another tree. Contractor to coordinate locations with City of Houston Urban Forestry and HPW prior to PURCHASING trees. All replacement trees called out on plans may not be planted on project depending on coordination with listed parties.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

LIST OF TREES (SHEET 2 OF 2)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

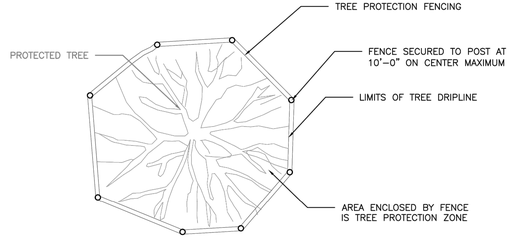
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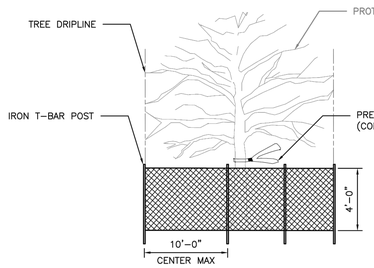
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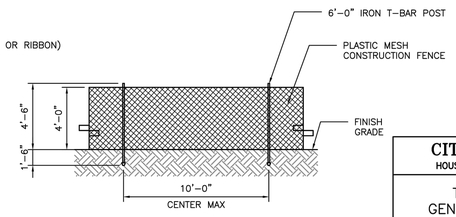
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PLAN VIEW
TREE PROTECTION FENCING DETAIL



FRONT VIEW
TREE PROTECTION FENCING DETAIL



DETAIL B–4
PROTECTIVE PLASTIC MESH FENCE

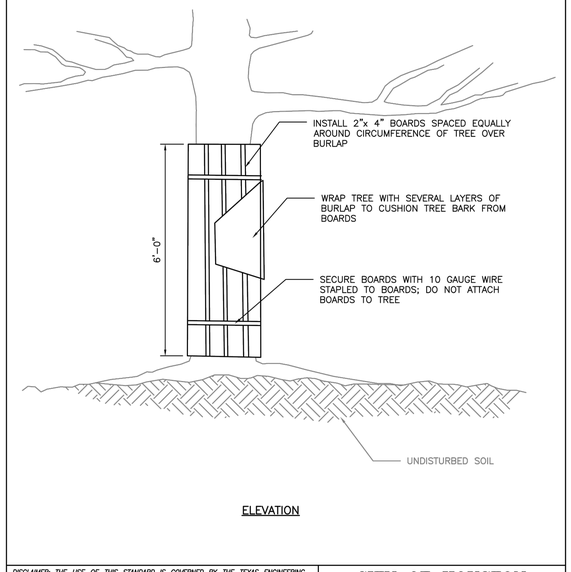
NOTES:

FENCE LOCATION MAY BE ADJUSTED TO ACTUAL SITE CONDITIONS.

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CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TREE PROTECTION GENERAL REQUIREMENTS (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: Suhail Kanwar CITY ENGINEER	DocuSigned by: Carl Stahlbock DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–01

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TREE PROTECTION DETAILS (SHEET 1 OF 2)

CITY OF HOUSTON
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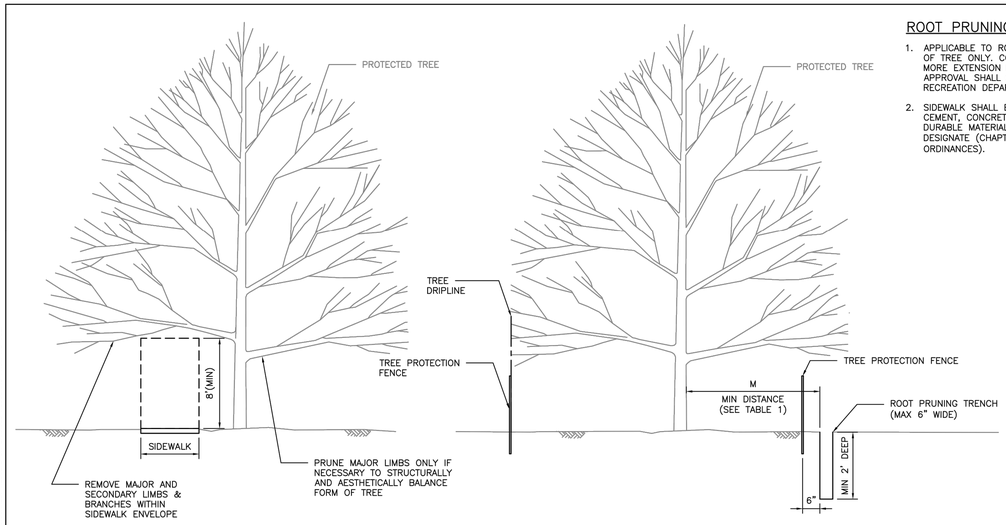
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TREE PRUNING

ROOT PRUNING DETAIL

ROOT PRUNING NOTE:

1. APPLICABLE TO ROOT PRUNING ON ONE SIDE OF TREE ONLY. CONSULT CITY ARBORIST FOR MORE EXTENSION ROOT PRUNING. FINAL APPROVAL SHALL COME FROM PARKS AND RECREATION DEPARTMENT.
2. SIDEWALK SHALL BE CONSTRUCTED OF EITHER CEMENT, CONCRETE, ASPHALT OR OTHER DURABLE MATERIAL AS THE COUNCIL MAY DESIGNATE (CHAPTER 40-91, CODE OF ORDINANCES).

TABLE 1
"M" DISTANCE TABLE

TREE TRUNK DIA. (IN)	*MINIMUM DISTANCE 'M'
< 6"	3 FEET
6" ≤ DIA. ≤ 20"	0.75 FEET PER DIA.-INCH
> 20"	CONSULT CITY ARBORIST

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
TREE AND ROOT PRUNING

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
Docusigned by: Sukut kanwar 9EF8B9C64F1F47B...	Docusigned by: Carl Haddock ABDC4158F2B1453...

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TREE PROTECTION DETAILS (SHEET 2 OF 2)

CITY OF HOUSTON
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GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITIH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM THE LATEST VERSION OF THE TMUTCD.
3. NO LANES SHALL BE CLOSED DURING THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM MONDAY THRU FRIDAY WITHOUT APPROVAL OF THE CITY TRAFFIC ENGINEER.
4. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00 PM TO 7:00 AM.
5. CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF THROUGH LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE–WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLIANT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO ALL THE BUS STOPS.
6. CONTRACTOR SHALL MAINTAIN TRAFFIC LANES AND DETOURS ACCORDING TO TRAFFIC CONTROL PLANS DURING WORKING HOURS.
7. CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON–WORKING HOURS, AND OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
8. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF TRAFFIC CONTROL PLANS TO THE CITY OF HOUSTON PROJECT MANAGER FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION. THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SHALL BE SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. OFFICE OF CITY ENGINEER, MOBILITY PERMITS SECTION REPRESENTATIVE APPROVAL IS REQUIRED TO ACCEPT THE PROPOSED CHANGES.
9. CONTRACTOR SHALL SECURE LANE/SIDEWALK/BICYCLE FACILITY CLOSURE PERMITS FROM OFFICE OF CITY ENGINEER (MOBILITY PERMIT SECTION AT https://geohub.houstontx.gov) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
10. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
11. DURING PAVEMENT SURFACE RESTORATION PROJECTS; THE CONTRACTOR SHALL NOT OPEN CLOSED LANES UNTIL THE PAVEMENT SURFACE HAS CURED ENOUGH TO ALLOW VEHICULAR TRAFFIC ACCORDING TO CITY OF HOUSTON STANDARD SPECIFICATIONS.
12. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL CONSTRUCTION ACTIVITIES WITH STAKE HOLDERS IN THE VICINITY INCLUDING EMERGENCY RESPONSE AGENCIES SUCH AS HOUSTON POLICE DEPARTMENT, HOUSTON FIRE DEPARTMENT, AND METROPOLITAN TRANSIT AUTHORITY.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ISSUING ALL WORK DIRECTIVES TO ALL SUB–CONTRACTORS, UTILITY COMPANIES, AND ALL OTHER ENTITIES PERFORMING CONSTRUCTION WORK ASSOCIATED WITH THE PROJECT.
14. NOTHING IN THESE NOTES OR PLANS SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT; INCLUDING SAFETY OF ALL MODES OF TRANSPORTATION, PERSONS, AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
15. THE OFFICE OF CITY ENGINEER (MOBILITY PERMITS GROUP) PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER HAVE THE RIGHT TO DEMAND THE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES OR MODIFICATIONS OF THESE PLANS AND NOTES, AS DEEMED NECESSARY TO PROMOTE THE SAFE AND ORDERLY FLOW OF TRAFFIC, INCLUDING PEDESTRIANS AND BICYCLES, THROUGH THE CONSTRUCTION WORK ZONE. THE CONTRACTOR SHALL COMPLY WITH THESE ADDITIONAL REQUESTS OR MODIFICATIONS WITH DUE DILIGENCE.
16. ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED IN VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER) ANY PAVEMENT MARKING OR SIGNING DAMAGE DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMS).
17. WHEN ENTERING OR LEAVING ROADWAYS CARRYING PUBLIC TRAFFIC, THE CONTRACTOR'S EQUIPMENT, WHETHER EMPTY OR LOADED SHALL IN ALL CASES YIELD TO PUBLIC TRAFFIC WITH THE ASSISTANCE OF CONTRACTOR PROVIDED CERTIFIED FLAGGER/PEACE OFFICER.
18. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER.
19. SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
20. THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR TEMPORARY PARKING RESTRICTIONS IF THERE ARE PARKING METERS LOCATED AT THE PROPOSED LANE CLOSURES FROM PARKING MANAGEMENT DIVISION (832–393–8690) AT LEAST TEN BUSINESS DAYS BEFORE IMPLEMENTATION OF LANE CLOSURES. IN ADDITION, TEMPORARY NO PARKING SIGNS SHALL BE POSTED 24 HOURS PRIOR TO COMMENCEMENT OF WORK.
21. ADDITIONAL OFF DUTY OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DISCRETION OF THE CITY PROJECT MANAGER EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.
22. THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
23. IN GENERAL, A SOLAR POWERED FLASHING ARROW BOARD SHALL BE REQUIRED ON ALL MAJOR THOROUGHFARE LANES CLOSURES. EXCEPTIONS TO FLASHING ARROW BOARDS AND/OR IMPLEMENTATION ON RESIDENTIAL LANE CLOSURES SHALL BE APPROVED BY CITY TRAFFIC ENGINEER.
24. APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
25. WATER FILLED BARRIERS CAN BE USED AS INSTRUCTED BY THE ENGINEER AND APPROVED BY THE CITY FOR PROJECTS WHERE SPACE IS LIMITED AND HEAVY EQUIPMENT TO PLACE CONCRETE BARRIERS IS NOT FEASIBLE. WATER FILLED BARRIERS SHALL NOT BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT MORE THAN 45 MPH.
26. WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
27. IF WATER FILLED BARRIER IS PROVIDED, USE ENVIRONMENTALLY SAFE ANTI–FREEZING AGENT IN THE WATER WHEN IT IS APPLICABLE PER MANUFACTURER SPECIFICATIONS AND RECOVER AGENT WHEN THE BARRIER IS DRAINED.
28. DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
29. PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
30. PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON–REDIRECTIVE END TREATMENT.
31. WHEN WATER FILLED BARRIERS ARE USED TO CHANNELIZE PEDESTRIANS, THEY MUST HAVE A CONTINUOUS DETECTABLE BOTTOM FOR USERS OF LONG CANES AND THE TOP OF THE UNIT SHALL NOT BE LESS THAN 32 INCHES IN HEIGHT.
32. ANY CLOSURE OF A PEDESTRIAN OR BICYCLE FACILITY SHALL REQUIRE THE SHORTEST DETOUR THAT MAINTAINS THE SAFETY OF PEDESTRIAN AND/OR BICYCLISTS.

SPACING FOR CHANNELIZING DEVICES

A. PLASTIC DRUMS ON MERGING TAPER @ 30' C – C WITH CHEVRON SIGN @ 60' C – C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.

B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 30' C – C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)

C. PLASTIC DRUMS ON RADII @ 35' C –C.

D. PLASTIC DRUMS ON TANGENT @ 35' C – C WITH VERTICAL PANEL AT 70' C – C AND APPROVED WARNING LIGHT @ 70' C – C (FOR OVERNIGHT CLOSURE).

E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C – C WITH VERTICAL PANEL AT 40' C – C AND APPROVED WARNING LIGHT @ 40' C – C (FOR OVERNIGHT CLOSURE).

F. CONCRETE TRAFFIC BARRIER (CTB) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB) WITH APPROVED REFLECTORS @ 10' C – C IF PAVEMENT DROP IS GREATER THAN 1 FOOT.

G. PLASTIC DRUMS W/GUARD RAIL MOUNTED.

H. SELF– RIGHTING VERTICAL PANEL SPACING.
– 4 LANES TO 2 LANES UNDIVIDED ROADWAY SECTION @ 20' C – C.
– 4 LANES DIVIDED ROADWAY TO ONE SIDE TWO WAY ROADWAY @ 20' C – C.
– LEFT LANE AND RIGHT LANE STORAGE BAYS @ 15' C – C.

I. SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.

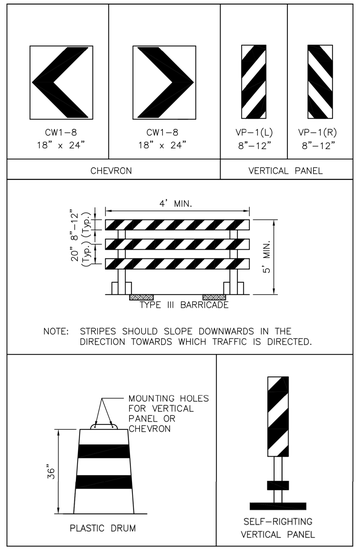
J. SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

TABLE C3 – TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES

POSTED SPEED (MPH)	SIGN SPACING "X" (FEET)	MIN. DESIRABLE TAPER LENGTH "L"			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	120'	150'	165'	180'	30'	60'–75'
35	160'	205'	225'	245'	35'	70'–90'
40	240'	265'	295'	320'	40'	80'–100'
45	320'	450'	495'	540'	45'	90'–110'
50	400'	500'	550'	600'	50'	100'–125'
55	500'	550'	605'	660'	55'	110'–140'

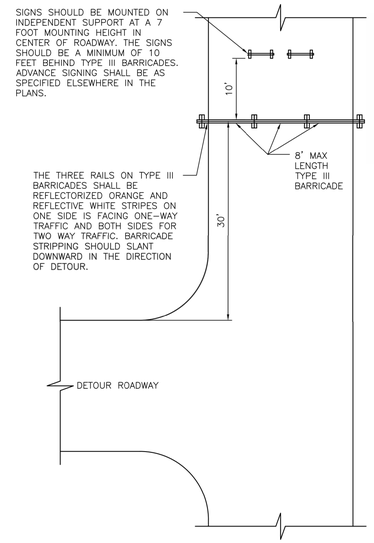
TABLE C4 – STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

POSTED SPEED (MPH)	DISTANCE "D" (FEET)
30	200
35	250
40	305
45	360
50	425
55	495



CHANNELIZATION AND BARRICADES

SIGNS SHOULD BE MOUNTED ON INDEPENDENT SUPPORT AT A 7 FOOT MOUNTING HEIGHT IN CENTER OF ROADWAY. THE SIGNS SHOULD BE A MINIMUM OF 10 FEET BEHIND TYPE III BARRICADES. ADVANCE SIGNING SHALL BE AS SPECIFIED ELSEWHERE IN THE PLANS.



PLAN VIEW
TYPE III BARRICADE (POST AND SKID)
TYPICAL APPLICATION

LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

APPROVED BY:	APPROVED BY:
Docusigned by: Sukal kanwar	Docusigned by: KEHING NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
Docusigned by: Carl Haddock
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023	DWG NO: 01555–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP NOTES CHANNELIZING DEVICES AND BARRICADES

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ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL GENERAL NOTES TCP SHEET 01 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: N/A

SHEET NO. 133 OF 192

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NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY IN PLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL ALSO MAINTAIN EXISTING COMMUNICATION. THE CONTRACTOR SHALL ALSO MAINTAIN PEDESTRIAN ACCESSIBILITY TO PUSH BUTTONS AND PROPER SIGNAL ALIGNMENT THROUGHOUT TCP STAGES, OTHERWISE BAG PEDESTRIAN SIGNAL HEADS AND INSTALL CROSSWALK CLOSED SIGNS AND PROVIDE PEDESTRIAN DETOUR.
3. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON TRAFFIC OPERATIONS FOR ANY SIGNAL TIMING MODIFICATIONS AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE TCP STAGES. THIS NOTE APPLIES TO ALL CONSTRUCTION PHASES AND STAGES.

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TRAFFIC CONTROL PHASING NARRATIVE – DAIRY ASHFORD ROAD

FOR ALL PHASES AND STEPS:

1. PLACE CONSTRUCTION ADVANCE WARNING SIGNS, DRUMS, LPCB, CHEVRON, BARRICADES, AND TRAFFIC CONTROL SIGNS PER TMUTCD AS NEEDED.
2. CONSECUTIVE INTERSECTION SHOULD NOT BE CONSTRUCTED TOGETHER. EXCEPTION WILL BE MADE FOR WORK NORTH OF MEMORIAL DR.
3. ACCESS TO DRIVEWAYS SHOULD BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION.

PHASE 1 STEPS 1–5 (PROPOSED 20–INCH SANITARY FORCE MAIN FROM BRAMBLEWOOD DRIVE AND CAROLCREST DRIVE)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT THE INTERSECTION OF DAIRY ASHFORD (STA 13+00) AND CAROLCREST DRIVE AS SHOWN ON THE TCP SHEETS.
- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME.
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- CLOSE ALL NORTHBOUND LANES ON DAIRY ASHFORD RD. NEAR THE INTERSECTION OF BRAMBLEWOOD DR. AND DIVERT THE TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD.
- SEE DETOUR PLAN ON TCP SHEET 22 FOR NORTHBOUND TRAFFIC TRYING TO GET ON THE EAST BOUND RIVERFOREST DRIVE
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 2 STEPS 1–4 (PROPOSED 20–INCH SANITARY FORCE MAIN FROM CAROLCREST DRIVE TO CHADBOURNE DRIVE)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT THE INTERSECTION OF DIARY ASHFORD ROAD AND CHADBOURNE DRIVE (STA. 23+00) AS SHOWN ON THE TCP SHEETS.
- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME.
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- CLOSE ALL NORTHBOUND LANES ON DAIRY ASHFORD RD. STARTING NEAR THE INTERSECTION OF CAROLCREST DR. (STA 14+00) AND DIVERT THE TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD.
- SEE DETOUR PLAN ON TCP SHEET 22.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 3 (PROPOSED 20–INCH SANITARY FORCE MAIN FROM THE INTERSECTION OF DAIRY ASHFORD ROAD (STA 23+50) AND CHADBOURNE DRIVE TO APPROXIMATELY 525–FEET NORTH OF MEMORIAL DRIVE (STA 33+80). THIS UTILITY INSTALLATION WILL BE PERFORMED USING TRENCHLESS CONSTRUCTION METHODS).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- CLOSE NORTHBOUND LANES ON DAIRY ASHFORD ROAD (STA. 21+50) FROM BROADGREEN DR. TO CHADBOURNE DR. FOR THE HORIZONTAL DIRECTIONAL DRILLING OF THE FORCEMAIN. DIVERT THE NORTHBOUND TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD. ALSO, TRANSITION THE NORTHBOUND TRAFFIC FROM A 3–LANE ROAD TO A 2–LANE ROAD AFTER MEMORIAL DR. TO CONSTRUCT THE RECEIVING PIT.
- SEE DETOUR PLAN ON TCP SHEET 23.
- INSTALL 1–MANHOLE AND 3" AIR VALVE AT STA 23+20.00.
- INSTALL 1–MANHOLE AND 3" BLOWOFF VALVE AT STA 32+66.86.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 4 STEPS 1–4 (PROPOSED SANITARY FORCE MAIN FROM APPROXIMATELY 525–FEET NORTH OF MEMORIAL DR. (STA 33+80) TO APPROXIMATELY 395 FEET NORTH OF PERTHSHIRE ROAD (STA 45+70). THIS UTILITY INSTALLATION WILL BE PERFORMED USING TRENCHLESS CONSTRUCTION METHODS).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- TRAFFIC WILL BE REDUCED TO TWO LANES FOR NORTHBOUND SIDE.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 5 STEPS 1–5 (PROPOSED 20–INCH SANITARY FORCE MAIN FROM APPROXIMATELY 395 FEET NORTH OF PERTHSHIRE ROAD (STA. 45+70) TO THE INTERSECTION OF DAIRY ASHFORD ROAD AND BARRYKNOLL LANE (STA. 62+70). THIS UTILITY INSTALLATION WILL BE PERFORMED USING TRENCHLESS CONSTRUCTION METHODS).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- TRAFFIC WILL BE REDUCED TO TWO LANES FOR THE NORTHBOUND SIDE. TO MAINTAIN TWO LANES, TEMPORARY ASPHALT AND CURB WILL BE REQUIRED WITHIN SOME OF THE EXISTING MEDIANS.
- SEE DETOUR PLAN ON TCP SHEET 24 FOR NORTHBOUND TRAFFIC ON DAIRY ASHFORD ROAD TO GET ONTO KIMBERLY LANE AND BARRYKNOLL LANE.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.
- PHASE 5 CONSTRUCTION ACTIVITIES SHALL BE PERFORMED ONLY WHEN SCHOOL IS NOT IN SESSION AND MUST BE COMPLETED DURING THE SUMMER BREAK

PHASE 6 STEPS 1–3 (PROPOSED SANITARY FORCE MAIN FROM THE INTERSECTION OF DAIRY ASHFORD ROAD AND BARRYKNOLL LANE (STA 62+70) TO NEAR THE INTERSECTION OF DAIRY ASHFORD ROAD AND SAINT MARY LANE (STA 73+00). THIS UTILITY INSTALLATION WILL BE PERFORMED USING TRENCHLESS CONSTRUCTION METHODS).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- CONTRACTOR TO ENSURE THAT WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- TRAFFIC WILL BE REDUCED TO TWO LANES FOR THE NORTHBOUND SIDE. TO MAINTAIN TWO LANES, TEMPORARY ASPHALT AND CURB WILL BE REQUIRED WITHIN SOME OF THE EXISTING MEDIANS.
- SEE DETOUR PLAN ON TCP SHEET 25 FOR NORTHBOUND TRAFFIC ON DAIRY ASHFORD ROAD TO ACCESS BARRYKNOLL LANE AND SAINT MARYS LANE. SOUTHBOUND TRAFFIC ON DAIRY ASHFORD ROAD SHALL TURN LEFT ONTO SAINT MARYS LANE.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 7 (PROPOSED SANITARY FORCE MAIN FROM NEAR THE INTRSECTION OF DAIRY ASHFORD ROAD AND SAINT MARYS LANE (STA. 73+00) TO 130–FT NORTH OF IH–10 (STA. 85+00). THIS UTILITY INSTALLATION WILL BE PERFORMED USING TRENCHLESS CONSTRUCTION METHODS)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- TRAFFIC WILL BE REDUCED TO TWO LANES FOR NORTHBOUND SIDE. TO MAINTAIN TWO LANES, TEMPORARY ASPHALT AND CURB WILL BE REQUIRED WITHIN SOME OF THE EXISTING MEDIANS.
- ALL LANES FOR NORTHBOUND TRAFFIC WILL BE REOPENED PRIOR TO REACHING IH–10. TRAFFIC WILL BE REDUCED TO ONE LANE ON THE NORTH SIDE OF IH–10. THE EXISTING BIKE LANE WILL BE TEMPORARILY CONVERTED TO TRAVEL LANE NORTH OF IH–10.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 8 & 9 (PROPOSED SANITARY FORCE MAIN FROM APPROXIMATELY 130–FT NORTH OF IH–10 (STA. 85+00) GOING TO THE WEST TOWARDS THE EXISTING OLD KATY LIFT STATION SITE).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- TEMPORARY PAVEMENT REPAIR (ASPHALT) SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN.
- ALL LANES FOR NORTHBOUND TRAFFIC WILL BE REOPENED PRIOR TO REACHING IH–10. TRAFFIC WILL BE REDUCED TO ONE LANE ON THE NORTH SIDE OF IH–10. THE EXISTING BIKE LANE WILL BE TEMPORARILY CONVERTED TO A TRAVEL LANE.
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REMOVED AND REPAIRED PRIOR TO OPENING NORMAL TRAFFIC. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS.

PHASE 10 STEP 1 (PROPOSED 8–INCH WATER LINE TO BE INSTALLED ACROSS DAIRY ASHFORD ROAD (STA. 48+10).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- APPROXIMATELY 31–FT OF THE WESTERN MOST PAVEMENT WILL BE SHUTDOWN TO INSTALL APPROXIMATELY 27–FT OF 8" WATER LINE.
- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT THE INTERSECTION OF DAIRY ASHFORD RD. AND FERN DRIVE (STA. 45+92 TO 50+39) AS SHOWN ON THE TCP SHEETS 15–17. PROVIDE (2) 10–FT SOUTHBOUND LANES USING THE MEDIAN AREA.

PHASE 10 STEP 2 (PROPOSED 8–INCH WATER LINE TO BE INSTALLED ACROSS DAIRY ASHFORD ROAD (STA. 48+10).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- PAVEMENT REPAIR SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF WATER LINE.
- APPROXIMATELY 36–FT OF THE EXISTING PAVEMENT SOUTH OF STEP 1 WILL BE SHUTDOWN (10–FT OF THIS PAVEMENT WILL OVERLAP WITH STEP 1 ROAD SHUTDOWN AREA) TO INSTALL APPROXIMATELY 27–FT OF 8" WATER LINE. THIS WILL EXPOSE APPROXIMATELY 3.5–FT OF THE NEWLY INSTALLED WATER LINE FROM STEP 1 TO CONNECT TO.

PHASE 10 STEP 3 (PROPOSED 8–INCH WATER LINE TO BE INSTALLED ACROSS DAIRY ASHFORD ROAD (STA. 48+10).

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- PAVEMENT REPAIR SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF WATER LINE.
- APPROXIMATELY 30–FT OF THE EXISTING PAVEMENT SOUTH OF STEP 2 WILL BE SHUTDOWN (8–FT OF THIS PAVEMENT WILL OVERLAP WITH STEP 2 ROAD SHUTDOWN AREA) TO INSTALL APPROXIMATELY 23–FT OF 8" WATER LINE. THIS WILL EXPOSE APPROXIMATELY 3.5–FT OF THE NEWLY INSTALLED WATER LINE FROM STEP 2 TO CONNECT TO.

TC1.02

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLANS CONSTRUCTION NARRATIVE DAIRY ASHFORD ROAD TCP SHEET 02 OF 31

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TRAFFIC CONTROL PHASING NARRATIVE – COOK ROAD

FOR ALL PHASES AND STEPS:

1. PLACE CONSTRUCTION ADVANCE WARNING SIGNS, DRUMS, LPCB, CHEVRON, BARRICADES, AND TRAFFIC CONTROL SIGNS PER TMUTCD AS NEEDED.
2. CONSECUTIVE INTERSECTION SHOULD NOT BE CONSTRUCTED TOGETHER.
3. ACCESS TO DRIVEWAYS SHOULD BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION UNLESS THERE IS ALTERNATE ACCESS.

PHASE 1 STEPS 1–3: (PROPOSED 20–INCH SANITARY FORCE MAIN FROM BISSONNET STREET TO MAGNOLIA CANYON)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT THE INTERSECTION OF COOK ROAD (STA 8+00) AND MAGNOLIA CANYON AS SHOWN ON THE TCP SHEETS.
- CONTRACTOR TO ENSURE THAT THE WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME.
- PAVEMENT REPAIR SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- CLOSE ALL NORTHBOUND LANES ON COOK ROAD AND DIVERT THE TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD.
- SEE DETOUR PLANS ON SHEET XX
- TEMPORARY STRIPING NO LONGER NEEDED SHOULD BE REPAIRED PRIOR TO OPENING NEXT PHASE

PHASE 2 STEPS 1–5: (PROPOSED 20–INCH SANITARY FORCE MAIN FROM MAGNOLIA CANYON TO SHANNON HILLS DRIVE)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT THE INTERSECTION OF COOK ROAD AND SHANNON HILLS DRIVE (STA. 20+00) AS SHOWN ON THE TCP SHEETS. UTILIZE PREVIOUSLY CONSTRUCTED ASPHALT IN PHASE 1.
- CONTRACTOR TO ENSURE THAT WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- PAVEMENT REPAIR SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN, BEFORE REMOVING PAVEMENT IN THE NEXT WORK ZONE SEGMENT.
- CLOSE ALL NORTHBOUND LANES ON COOK ROAD AND DIVERT THE TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD.
- SEE DETOUR PLANS ON SHEET XX
- TEMPORARY ASPHALT AND STRIPING THAT IS NO LONGER NEEDED SHOULD BE REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS NO LONGER NEEDED.

PHASE 3 STEPS 1–2: PROPOSED 20–INCH SANITARY FORCE MAIN FROM SHANNON HILLS DRIVE TO COOK ROAD LIFT STATION SITE (STA. 26+00)

CONSTRUCT THE FOLLOWING DURING THIS STEP:

- REMOVE CURB AND CONSTRUCT TEMPORARY ASPHALT ALONG THE MEDIAN AT COOK ROAD (STA. 27+00) AND NEWBROOK DRIVE AS SHOWN ON THE TCP SHEETS. UTILIZE PREVIOUSLY CONSTRUCTED ASPHALT IN PHASE 2.
- CONTRACTOR TO ENSURE THAT WORK ZONES ARE DIVIDED INTO SEGMENTS NOT GREATER THAN 300–FEET AT ONE TIME
- PAVEMENT REPAIR SHOULD BE PERFORMED FOR EACH WORK ZONE SEGMENT AFTER THE INSTALLATION OF FORCE MAIN.
- CLOSE ALL NORTHBOUND LANES ON COOK ROAD AND DIVERT THE TRAFFIC TOWARDS THE EXISTING SOUTHBOUND LANES UTILIZING THE NEWLY CONSTRUCTED TEMPORARY ASPHALT TO CREATE A TWO WAY TRAFFIC MOVEMENT ON THE WEST SIDE OF THE ROAD.
- REPLACE CURB, TEMPORARY ASPHALT AND STRIPING SHOULD BE REPAIRED PRIOR TO OPENING NEXT PHASE. REPLACE CURB AT MEDIANS WHERE TEMPORARY ASPHALT IS.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLANS CONSTRUCTION NARRATIVE COOK ROAD

TCP SHEET 03 OF 31

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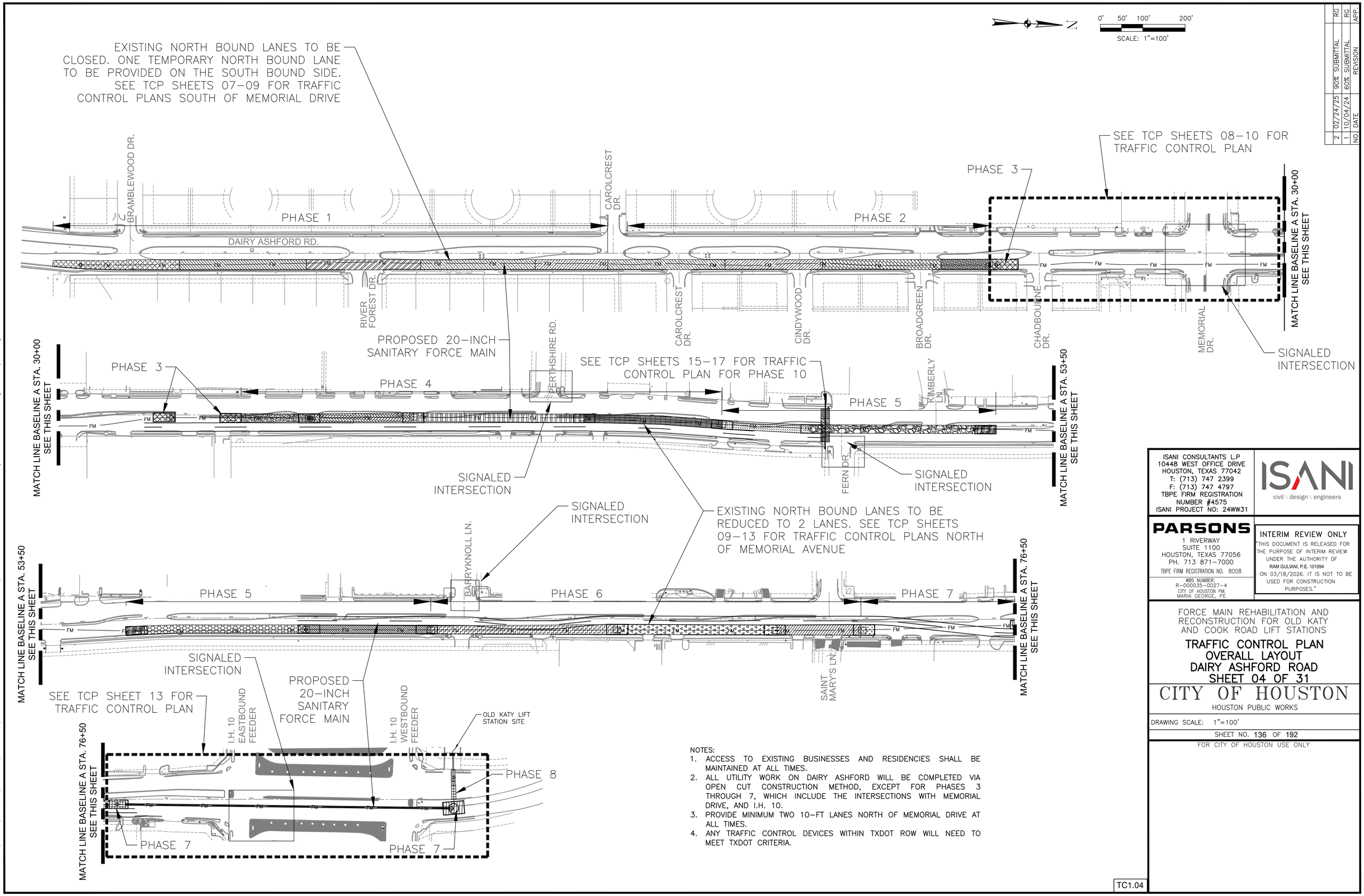
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NOTES:
1. ACCESS TO EXISTING BUSINESSES AND RESIDENCIES SHALL BE MAINTAINED AT ALL TIMES.
2. ALL UTILITY WORK ON DAIRY ASHFORD WILL BE COMPLETED VIA OPEN CUT CONSTRUCTION METHOD, EXCEPT FOR PHASES 3 THROUGH 7, WHICH INCLUDE THE INTERSECTIONS WITH MEMORIAL DRIVE, AND I.H. 10.
3. PROVIDE MINIMUM TWO 10–FT LANES NORTH OF MEMORIAL DRIVE AT ALL TIMES.
4. ANY TRAFFIC CONTROL DEVICES WITHIN TXDOT ROW WILL NEED TO MEET TXDOT CRITERIA.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN OVERALL LAYOUT DAIRY ASHFORD ROAD SHEET 04 OF 31

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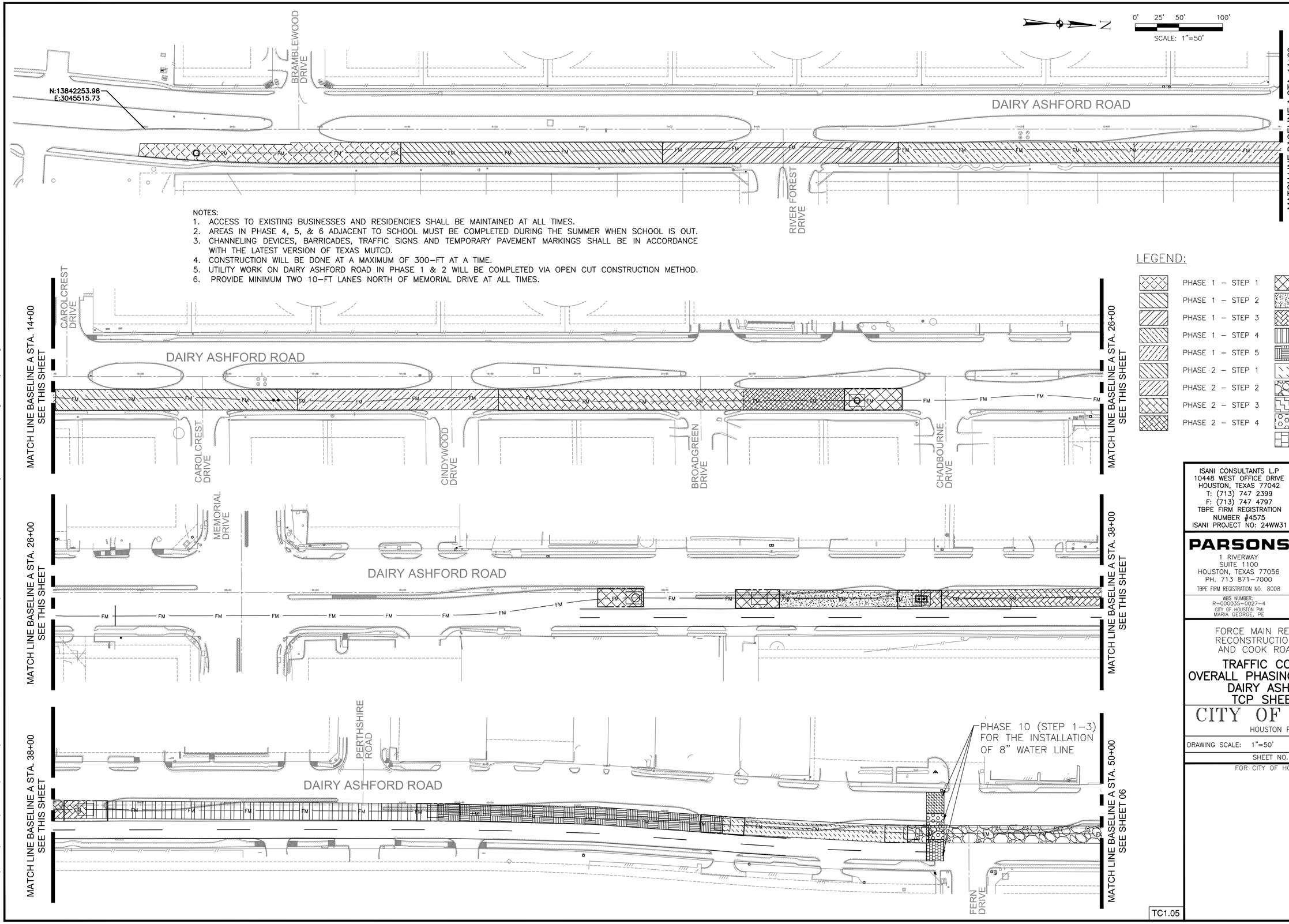
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LEGEND:

- PHASE 1 – STEP 1
- PHASE 1 – STEP 2
- PHASE 1 – STEP 3
- PHASE 1 – STEP 4
- PHASE 1 – STEP 5
- PHASE 2 – STEP 1
- PHASE 2 – STEP 2
- PHASE 2 – STEP 3
- PHASE 2 – STEP 4
- PHASE 3
- PHASE 4 – STEP 1
- PHASE 4 – STEP 2
- PHASE 4 – STEP 3
- PHASE 4 – STEP 4
- PHASE 5 – STEP 1
- PHASE 5 – STEP 2
- PHASE 10 – STEP 1
- PHASE 10 – STEP 2
- PHASE 10 – STEP 3

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT 1 OF 2 DAIRY ASHFORD ROAD TCP SHEET 05 OF 31

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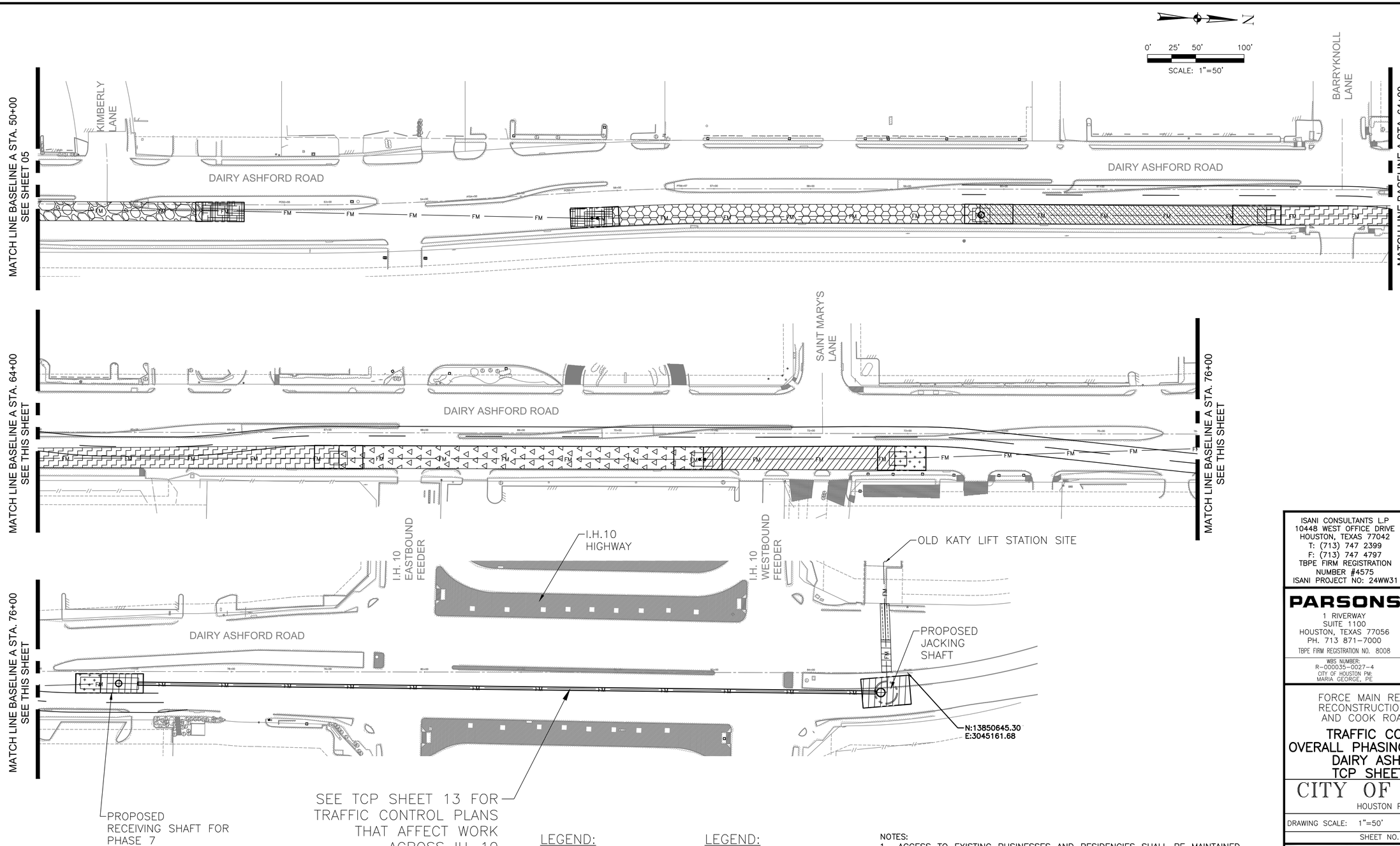
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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31 – 453562–COHFM–oldkaty TCP Overall Phasing And Layout.dwg



LEGEND:

- PHASE 5 – STEP 2
- PHASE 5 – STEP 3
- PHASE 5 – STEP 4
- PHASE 5 – STEP 5
- PHASE 6 – STEP 1
- PHASE 6 – STEP 2
- PHASE 6 – STEP 3
- PHASE 7 – STEP 1

LEGEND:

- PHASE 7 – STEP 2
- PHASE 8
- PHASE 9

NOTES:
1. ACCESS TO EXISTING BUSINESSES AND RESIDENCIES SHALL BE MAINTAINED AT ALL TIMES.
2. AREAS IN PHASE 4, 5, & 6 ADJACENT TO SCHOOL MUST BE COMPLETED DURING THE SUMMER WHEN SCHOOL IS OUT.
3. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF TEXAS MUTCD.
4. CONSTRUCTION WILL BE DONE AT A MAXIMUM OF 300-FT AT A TIME.
5. UTILITY WORK ON DAIRY ASHFORD ROAD IN PHASE 8 WILL BE COMPLETED VIA OPEN CUT CONSTRUCTION METHOD.
5. PROVIDE MINIMUM TWO 10-FT LANES NORTH OF MEMORIAL DRIVE AT ALL TIMES.

TC1.06

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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WBS NUMBER:
R-000035-0027-4
CITY OF HOUSTON PM:
MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT 2 OF 2 DAIRY ASHFORD ROAD TCP SHEET 06 OF 31

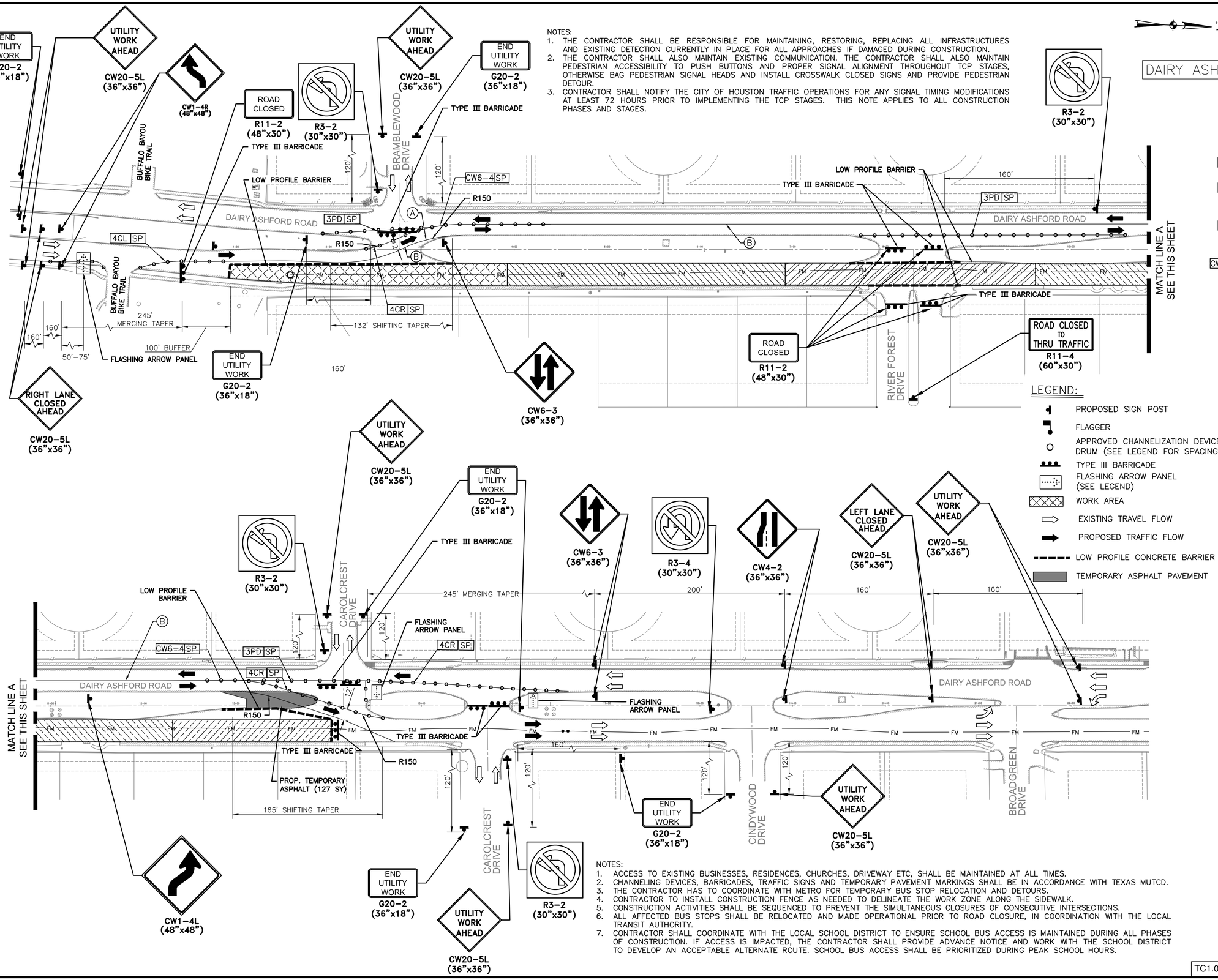
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DRAWING SCALE: 1"=50'

SHEET NO. 138 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31 - 453562-COHFM-oldkaty TCP Overall Phasing And Layout.dwg



NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY IN PLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL ALSO MAINTAIN EXISTING COMMUNICATION. THE CONTRACTOR SHALL ALSO MAINTAIN PEDESTRIAN ACCESSIBILITY TO PUSH BUTTONS AND PROPER SIGNAL ALIGNMENT THROUGHOUT TCP STAGES, OTHERWISE BAG PEDESTRIAN SIGNAL HEADS AND INSTALL CROSSWALK CLOSED SIGNS AND PROVIDE PEDESTRIAN DETOUR.
3. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON TRAFFIC OPERATIONS FOR ANY SIGNAL TIMING MODIFICATIONS AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE TCP STAGES. THIS NOTE APPLIES TO ALL CONSTRUCTION PHASES AND STAGES.

0' 25' 50' 100'
SCALE: 1"=50'

DAIRY ASHFORD RD. : 35 M.P.H.

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

LEGEND:

3PD	PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
4CL	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
4CR	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
CW6-4	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
SP	SPACED @ 20' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
7	TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
A	WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
B	WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

NOTES:
1. ACCESS TO EXISTING BUSINESSES, RESIDENCES, CHURCHES, DRIVEWAY ETC, SHALL BE MAINTAINED AT ALL TIMES.
2. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
3. THE CONTRACTOR HAS TO COORDINATE WITH METRO FOR TEMPORARY BUS STOP RELOCATION AND DETOURS.
4. CONTRACTOR TO INSTALL CONSTRUCTION FENCE AS NEEDED TO DELINEATE THE WORK ZONE ALONG THE SIDEWALK.
5. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO PREVENT THE SIMULTANEOUS CLOSURES OF CONSECUTIVE INTERSECTIONS.
6. ALL AFFECTED BUS STOPS SHALL BE RELOCATED AND MADE OPERATIONAL PRIOR TO ROAD CLOSURE, IN COORDINATION WITH THE LOCAL TRANSIT AUTHORITY.
7. CONTRACTOR SHALL COORDINATE WITH THE LOCAL SCHOOL DISTRICT TO ENSURE SCHOOL BUS ACCESS IS MAINTAINED DURING ALL PHASES OF CONSTRUCTION. IF ACCESS IS IMPACTED, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE AND WORK WITH THE SCHOOL DISTRICT TO DEVELOP AN ACCEPTABLE ALTERNATE ROUTE. SCHOOL BUS ACCESS SHALL BE PRIORITIZED DURING PEAK SCHOOL HOURS.

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 1

TCP SHEET 07 OF 31

CITY OF HOUSTON
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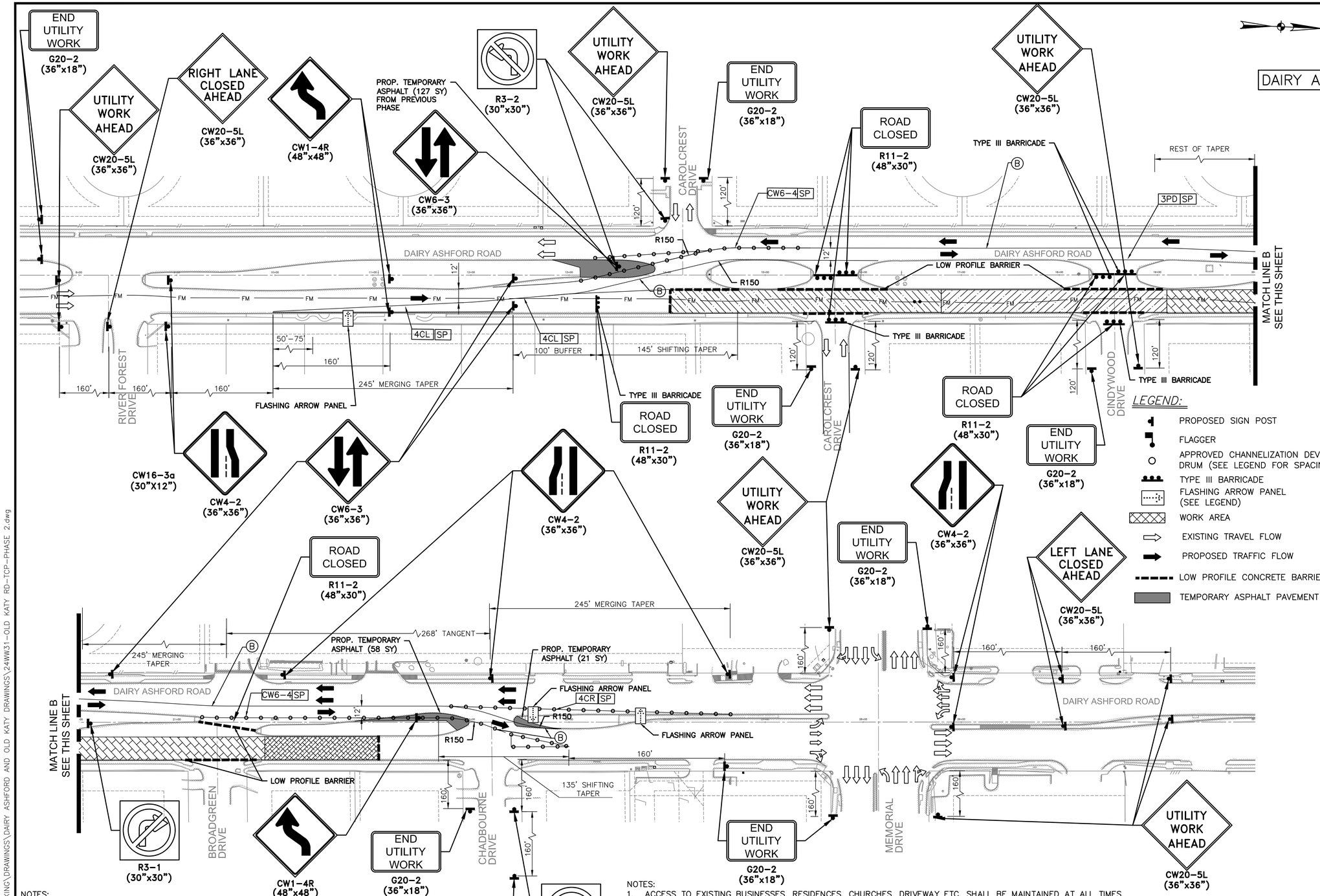
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NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

LEGEND:

- 3PD — PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
- 4CL — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
- 4CR — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- CW6-4 — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- SP — SPACED @ 20' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
- 7 — TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY IN PLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
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NOTES:
1. ACCESS TO EXISTING BUSINESSES, RESIDENCES, CHURCHES, DRIVEWAY ETC, SHALL BE MAINTAINED AT ALL TIMES.
2. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
3. THE CONTRACTOR HAS TO COORDINATE WITH METRO FOR TEMPORARY BUS STOP RELOCATION AND DETOURS.
4. CONTRACTOR TO INSTALL CONSTRUCTION FENCE AS NEEDED TO DELINEATE THE WORK ZONE ALONG THE SIDEWALK.
5. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO PREVENT THE SIMULTANEOUS CLOSURES OF CONSECUTIVE INTERSECTIONS.
6. ALL AFFECTED BUS STOPS SHALL BE RELOCATED AND MADE OPERATIONAL PRIOR TO ROAD CLOSURE, IN COORDINATION WITH THE LOCAL TRANSIT AUTHORITY.
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8. TRAFFIC CONTROL IN THIS AREA SHALL BE IN EFFECT ONLY DURING ACTIVE CONSTRUCTION/INSTALLATION OPERATIONS. AT ALL OTHER TIMES, THE AREA SHALL REMAIN OPEN TO NORMAL TRAFFIC CONDITIONS.

TC1.08

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WBS NUMBER:
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CITY OF HOUSTON PM:
MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 2 TCP SHEET 08 OF 31

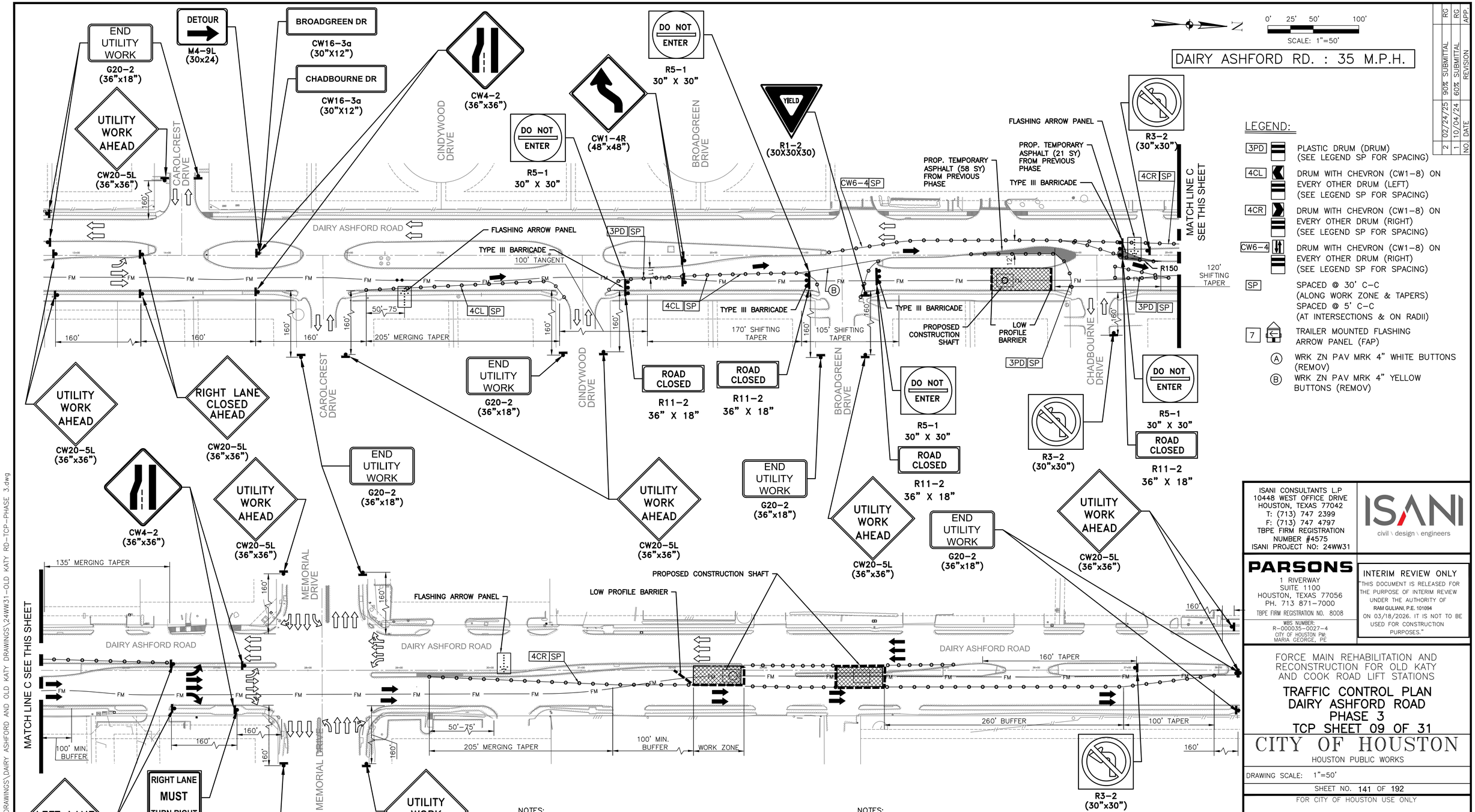
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: 1"=50'

SHEET NO. 140 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 2.dwg



LEGEND:

- 3PD — PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
- 4CL — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
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- 7 — TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

NOTES:
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NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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WBS NUMBER: R-000035-0027-4
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 3 TCP SHEET 09 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

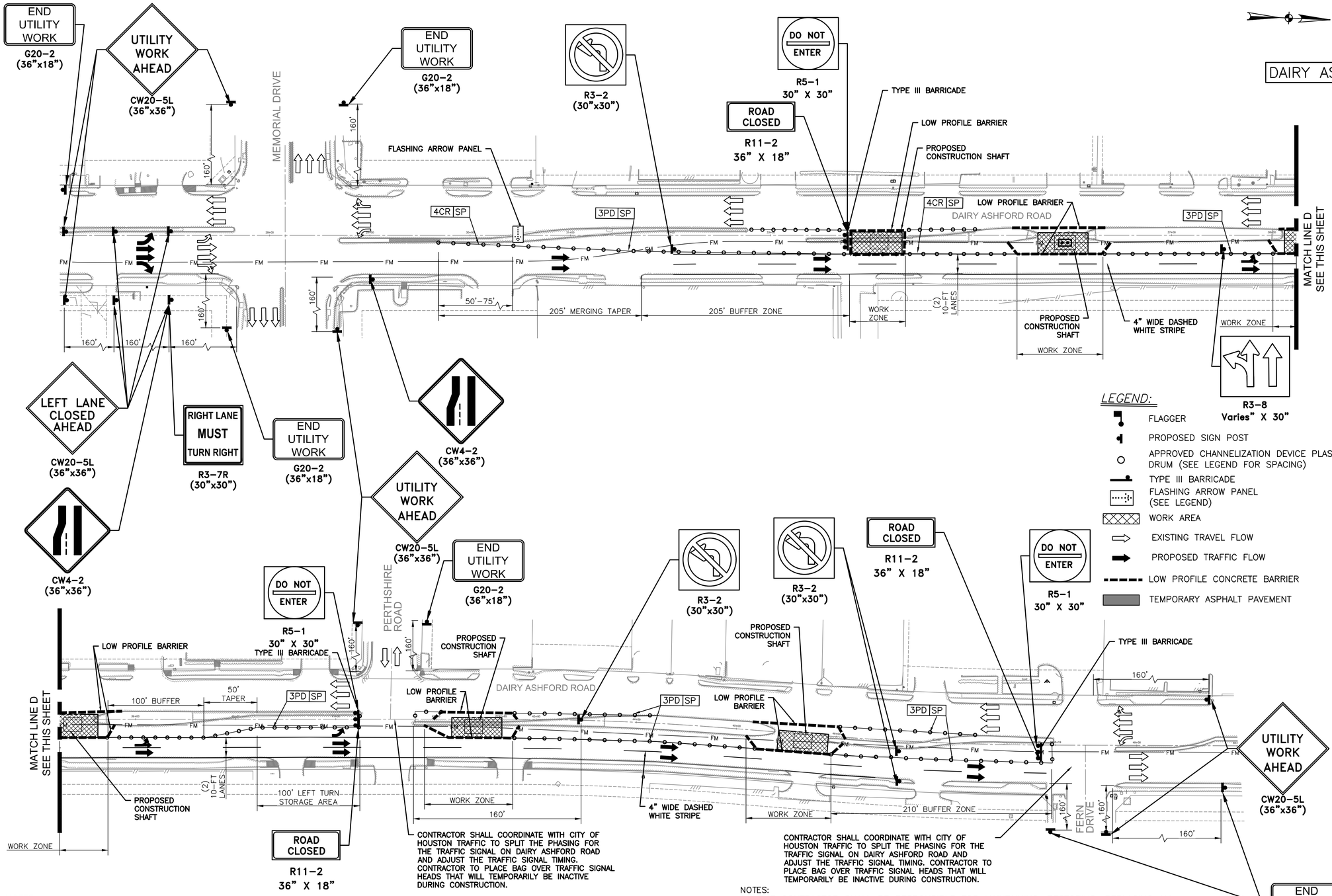
DRAWING SCALE: 1"=50'

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NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

LEGEND:

- 3PD — PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
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- SP — SPACED @ 30' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
- 7 — TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

LEGEND:

- FLAGGER
- PROPOSED SIGN POST
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

NOTES:
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7. CONTRACTOR SHALL COORDINATE WITH THE LOCAL SCHOOL DISTRICT TO ENSURE SCHOOL BUS ACCESS IS MAINTAINED DURING ALL PHASES OF CONSTRUCTION. IF ACCESS IS IMPACTED, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE AND WORK WITH THE SCHOOL DISTRICT TO DEVELOP AN ACCEPTABLE ALTERNATE ROUTE. SCHOOL BUS ACCESS SHALL BE PRIORITIZED DURING PEAK SCHOOL HOURS

NOTES:
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 4 TCP SHEET 10 OF 31

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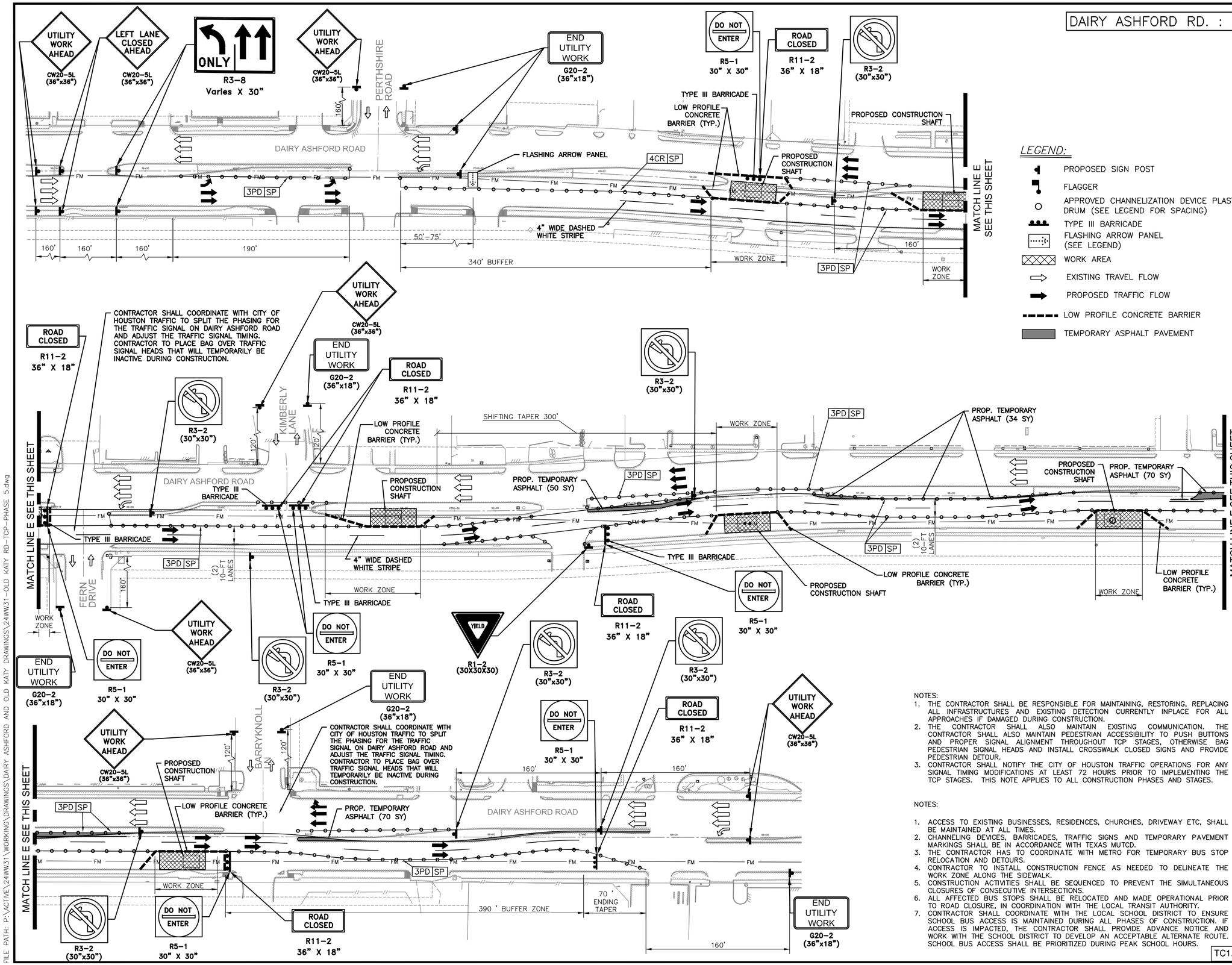
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LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
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NO.	DATE	REVISION	APP.
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1	10/04/24	60% SUBMITTAL	RG

NOTES:

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TBPE FIRM REGISTRATION NUMBER #4575
ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

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TBPE FIRM REGISTRATION NO. 8008

WBS NUMBER:
R-000035-0027-4
CITY OF HOUSTON PM:
MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 5

TCP SHEET 11 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

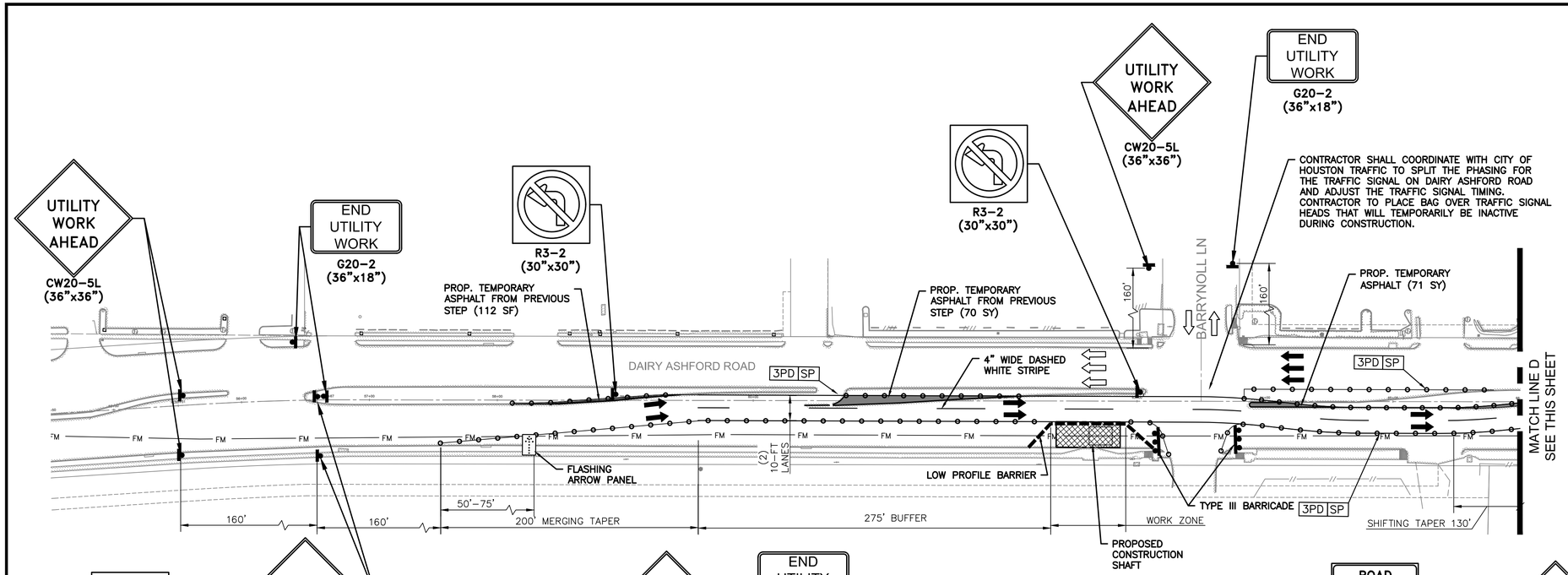
DRAWING SCALE: 1"=50'

SHEET NO. 143 OF 192

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TC1.11

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 5.dwg



0' 25' 50' 100'
SCALE: 1"=50'

DAIRY ASHFORD RD. : 35 M.P.H.

NO.	DATE		APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG
		REVISION	

LEGEND:

- 3PD — PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
- 4CL — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
- 4CR — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- CW6-4 — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- SP — SPACED @ 30' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
- 7 — TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

NOTES:
1. ACCESS TO EXISTING BUSINESSES, RESIDENCES, CHURCHES, DRIVEWAY ETC, SHALL BE MAINTAINED AT ALL TIMES.
2. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
3. THE CONTRACTOR HAS TO COORDINATE WITH METRO FOR TEMPORARY BUS STOP RELOCATION AND DETOURS.
4. CONTRACTOR TO INSTALL CONSTRUCTION FENCE AS NEEDED TO DELINEATE THE WORK ZONE ALONG THE SIDEWALK.
5. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO PREVENT THE SIMULTANEOUS CLOSURES OF CONSECUTIVE INTERSECTIONS.
6. ALL AFFECTED BUS STOPS SHALL BE RELOCATED AND MADE OPERATIONAL PRIOR TO ROAD CLOSURE, IN COORDINATION WITH THE LOCAL TRANSIT AUTHORITY.
7. CONTRACTOR SHALL COORDINATE WITH THE LOCAL SCHOOL DISTRICT TO ENSURE SCHOOL BUS ACCESS IS MAINTAINED DURING ALL PHASES OF CONSTRUCTION. IF ACCESS IS IMPACTED, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE AND WORK WITH THE SCHOOL DISTRICT TO DEVELOP AN ACCEPTABLE ALTERNATE ROUTE. SCHOOL BUS ACCESS SHALL BE PRIORITIZED DURING PEAK SCHOOL HOURS

NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY IN PLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
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3. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON TRAFFIC OPERATIONS FOR ANY SIGNAL TIMING MODIFICATIONS AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE TCP STAGES. THIS NOTE APPLIES TO ALL CONSTRUCTION PHASES AND STAGES.

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

TC1.12

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 6

TCP SHEET 12 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: 1"=50'

SHEET NO. 144 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 6.dwg

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0' 25' 50' 100'

SCALE: 1"=50'

DAIRY ASHFORD RD. : 35 M.P.H.

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

UTILITY WORK AHEAD
CW20-5L (36"x36")

END UTILITY WORK
G20-2 (36"x18")

CONTRACTOR SHALL COORDINATE WITH CITY OF HOUSTON TRAFFIC TO SPLIT THE PHASING FOR THE TRAFFIC SIGNAL ON DAIRY ASHFORD ROAD AND ADJUST THE TRAFFIC SIGNAL TIMING. CONTRACTOR TO PLACE BAG OVER TRAFFIC SIGNAL HEADS THAT WILL TEMPORARILY BE INACTIVE DURING CONSTRUCTION.

YIELD
R1-2 (30X30X30)

DAIRY ASHFORD ROAD

SAINT MARYS LANE

PROP. TEMPORARY ASPHALT (8.6 SY)

TYPE III BARRICADE

PROPOSED CONSTRUCTION SHAFT

LOW PROFILE BARRIER

PROP. TEMPORARY ASPHALT FROM PREVIOUS STEP (100 SY)

(2) 10-FT LANES

CW6-4 SP

3PD SP

100' BUFFER

FLASHING ARROW PANEL

160'

50'-75'

270' MERGING TAPER

WORK ZONE

4" WIDE DASHED WHITE STRIPE

300' SHIFTING TAPER

MATCH LINE H SEE THIS SHEET

RIGHT LANE CLOSED AHEAD
CW20-5L (36"x36")

DO NOT ENTER
R5-1 30" X 30"

ROAD CLOSED
R11-2 36" X 18"

INTERSTATE HIGHWAY 10 (IH 10)

PUMPING STATION

70' BUFFER

205' MERGING TAPER

LEFT LANE CLOSED AHEAD
CW20-5L (36"x36")

MATCH LINE H SEE THIS SHEET

LOW PROFILE BARRIER

PROPOSED CONSTRUCTION SHAFT

PROP. TEMPORARY ASPHALT (51 SY)

WORK ZONE

100' ENDING TAPER

110' ENDING TAPER

12' LANE

PROP. TEMPORARY ASPHALT (461 SF)

100' BUFFER ZONE

85' BUFFER

EXISTING BIKE LANE TO BE CLOSED AND USED AS A TEMPORARY TRAVEL LANE

I.H. 10 EAST BOUND SERVICE ROAD.

I.H. 10 WEST BOUND SERVICE ROAD

ONLY
R3-8 Varies X 30"

TRUCKS
R9-3b (30x36)

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

USED:

LEGEND:

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- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 7 & 8

TCP SHEET 13 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

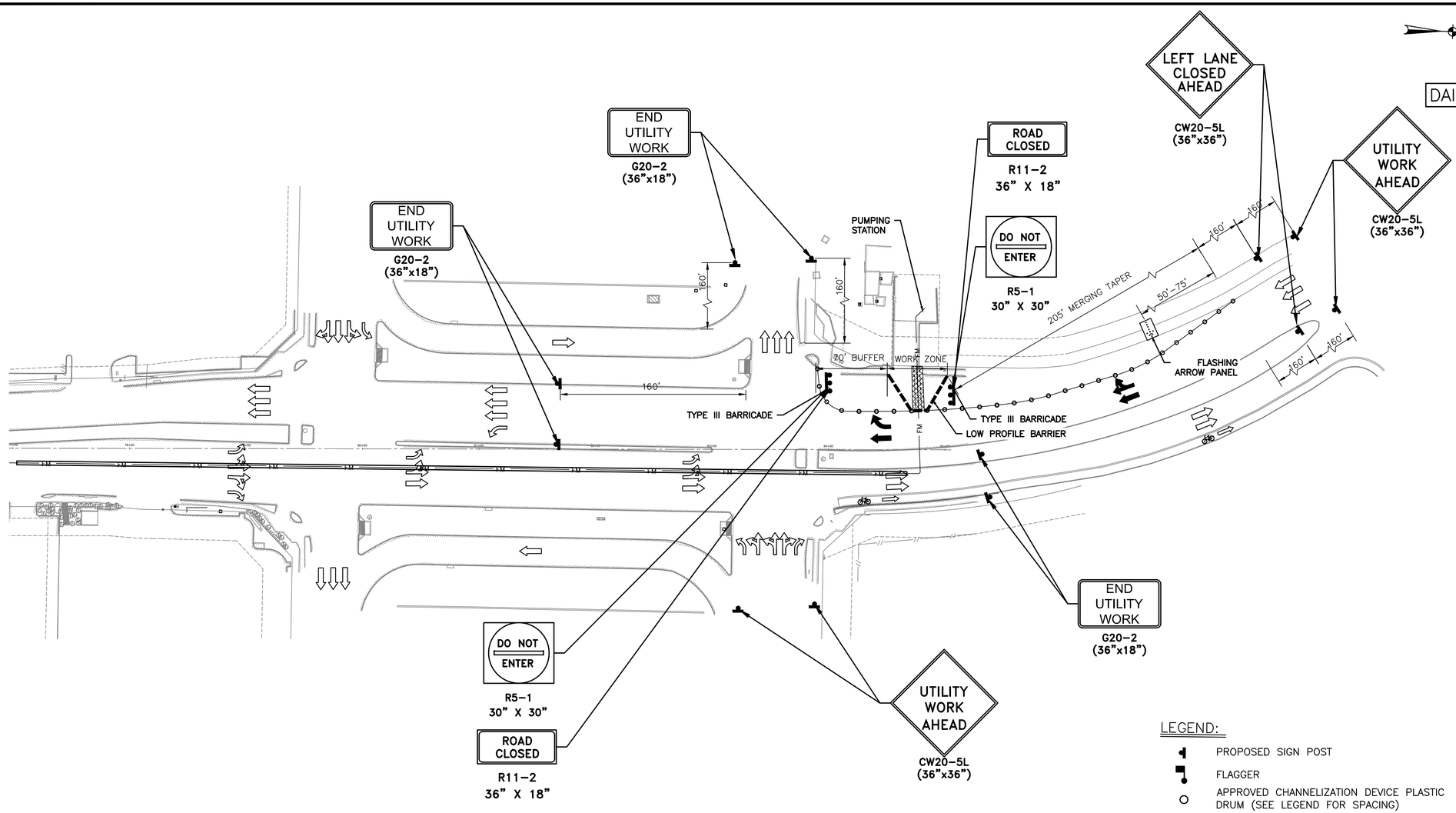
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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 7 & 8.dwg



NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

USED:

LEGEND:

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SP	SPACED @ 20' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
7	TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
A	WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
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LEGEND:

- PROPOSED SIGN POST
- FLAGGER
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- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
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NOTES:

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 9

TCP SHEET 14 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: 1"=50'

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 9.dwg

DAIRY ASHFORD RD. : 35 M.P.H.

0' 25' 50' 100'
SCALE: 1"=50'

N

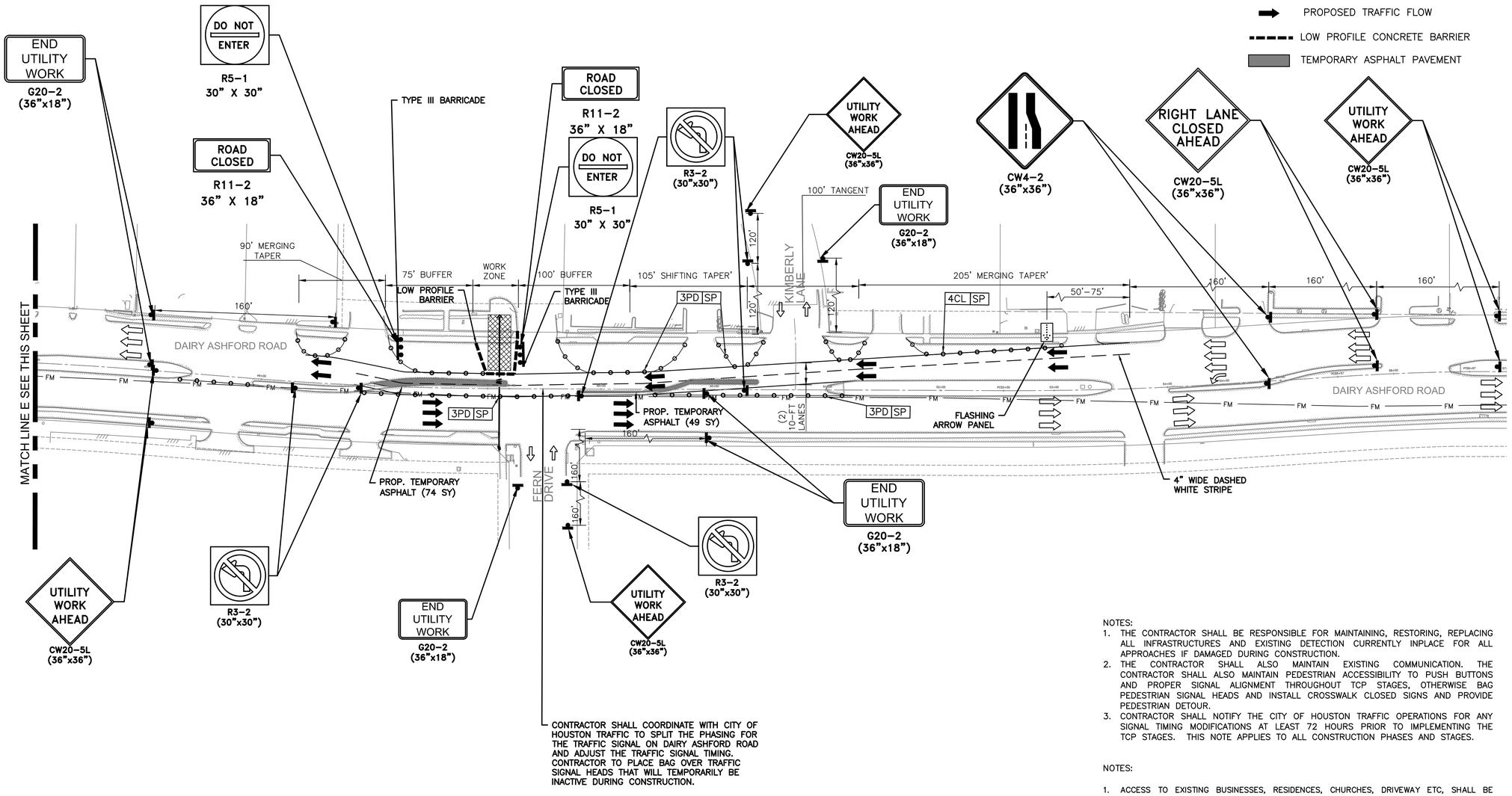
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1	10/04/24	60% SUBMITTAL	RG

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

LEGEND:

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- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)



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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 – STEP I TCP SHEET 15 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: 1"=50'

SHEET NO. 147 OF 192

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TC1.15

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31–OLD KATY RD–TCP–PHASE 10A.dwg

DAIRY ASHFORD RD. : 35 M.P.H.

0' 25' 50' 100'

SCALE: 1"=50'

N

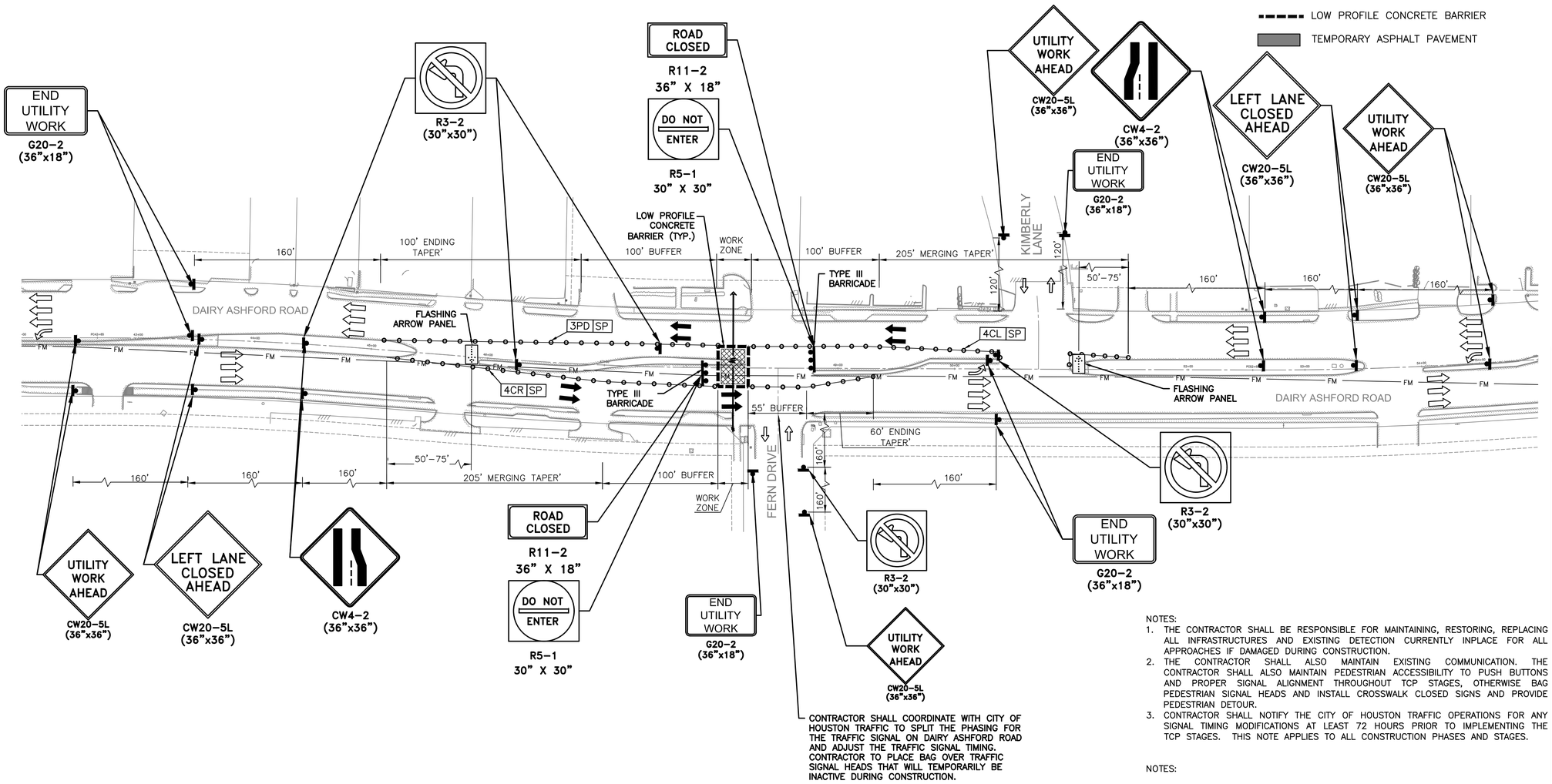
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- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT

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NOTES:

1. ACCESS TO EXISTING BUSINESSES, RESIDENCES, CHURCHES, DRIVEWAY ETC, SHALL BE MAINTAINED AT ALL TIMES.
2. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
3. THE CONTRACTOR HAS TO COORDINATE WITH METRO FOR TEMPORARY BUS STOP RELOCATION AND DETOURS.
4. CONTRACTOR TO INSTALL CONSTRUCTION FENCE AS NEEDED TO DELINEATE THE WORK ZONE ALONG THE SIDEWALK.
5. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO PREVENT THE SIMULTANEOUS CLOSURES OF CONSECUTIVE INTERSECTIONS.
6. ALL AFFECTED BUS STOPS SHALL BE RELOCATED AND MADE OPERATIONAL PRIOR TO ROAD CLOSURE, IN COORDINATION WITH THE LOCAL TRANSIT AUTHORITY.
7. CONTRACTOR SHALL COORDINATE WITH THE LOCAL SCHOOL DISTRICT TO ENSURE SCHOOL BUS ACCESS IS MAINTAINED DURING ALL PHASES OF CONSTRUCTION. IF ACCESS IS IMPACTED, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE AND WORK WITH THE SCHOOL DISTRICT TO DEVELOP AN ACCEPTABLE ALTERNATE ROUTE. SCHOOL BUS ACCESS SHALL BE PRIORITIZED DURING PEAK SCHOOL HOURS.

TC1.16

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ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

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WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 – STEP II TCP SHEET 16 OF 31

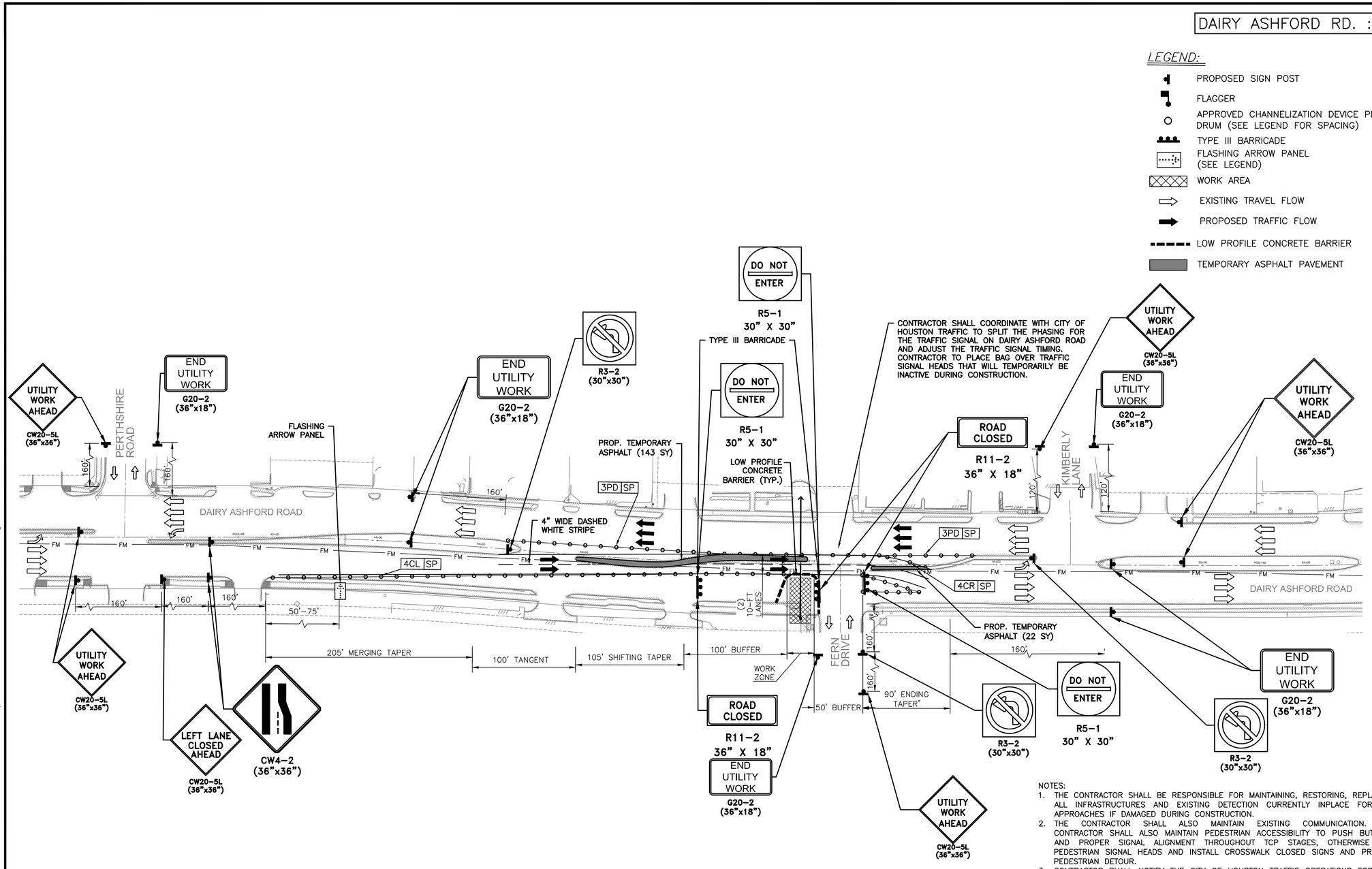
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HOUSTON PUBLIC WORKS

DRAWING SCALE: 1"=50'

SHEET NO. 148 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31–OLD KATY RD–TCP–PHASE 10B.dwg



NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY INPLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD ROAD PHASE 10 – STEP III TCP SHEET 17 OF 31

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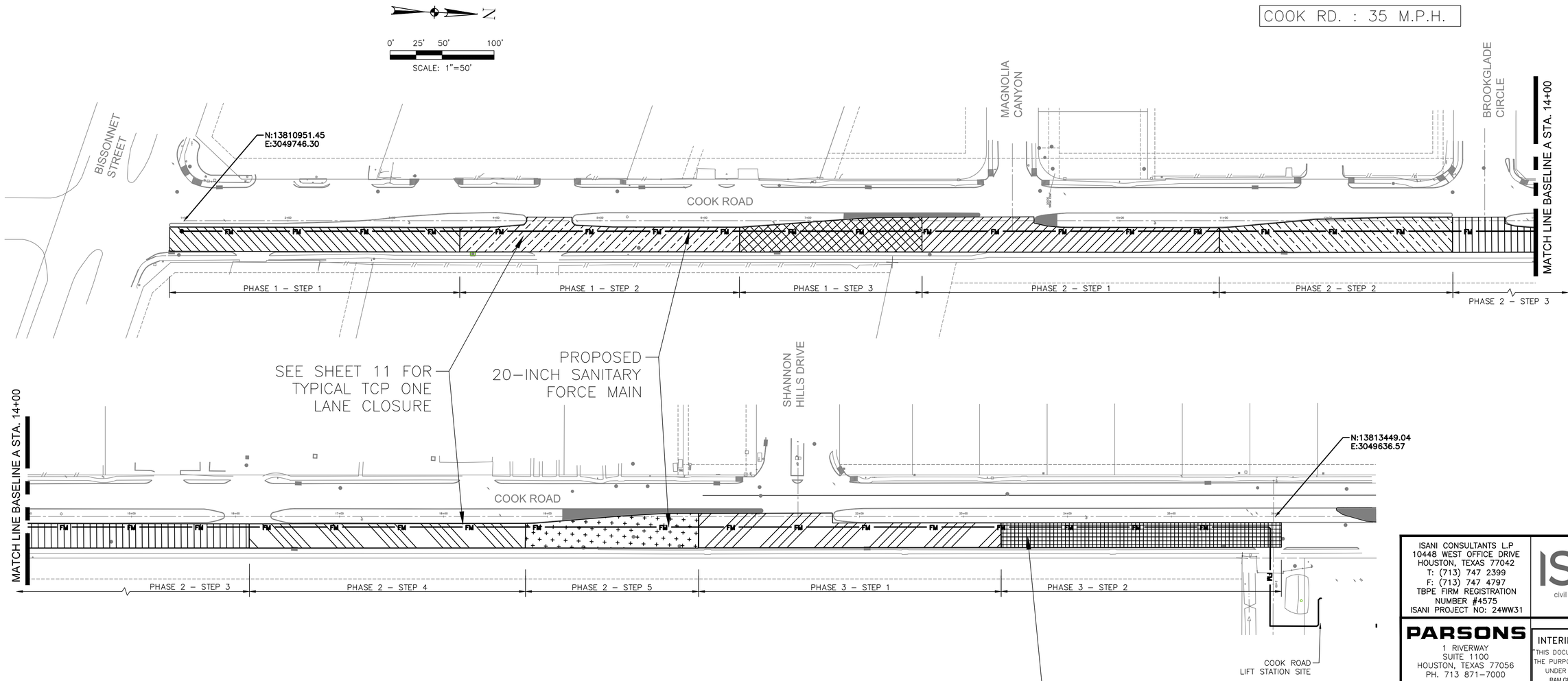
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TC1.17

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31-OLD KATY RD-TCP-PHASE 10C.dwg



NOTES:

1. WORK AT MEDIAN OPENINGS LOCATED AT INTERSECTIONS SHOULD BE SPLIT INTO DIFFERENT PHASES TO BE ABLE TO MAINTAIN ACCESS FOR ONE TRAVEL DIRECTION
2. CONSTRUCTION WILL BE DONE AT A MAXIMUM OF 300–FT AT A TIME
3. ACCESS TO EXISTING BUSINESSES, RESIDENCES, CHURCHES, DRIVEWAY ETC, SHALL BE MAINTAINED AT ALL TIMES.
4. CHANNELING DEVICES, BARRICADES, TRAFFIC SIGNS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
5. THE CONTRACTOR HAS TO COORDINATE WITH METRO FOR TEMPORARY BUS STOP RELOCATION AND DETOURS.
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11. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON TRAFFIC OPERATIONS FOR ANY SIGNAL TIMNING MODIFICATIONS AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE TCP STAGES. THIS NOTE APPLYS TO ALL CONSTRUCTION PHASES AND STAGES.

LEGEND:

- PHASE 1 – STEP 1
- PHASE 1 – STEP 2
- PHASE 1 – STEP 3
- PHASE 2 – STEP 1
- PHASE 2 – STEP 2
- PHASE 2 – STEP 3
- PHASE 2 – STEP 4
- PHASE 2 – STEP 5
- PHASE 3 – STEP 1
- PHASE 3 – STEP 2

TC1.18

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN OVERALL PHASING LAYOUT COOK ROAD TCP SHEET 18 OF 31

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DRAWING SCALE: 1"=50'

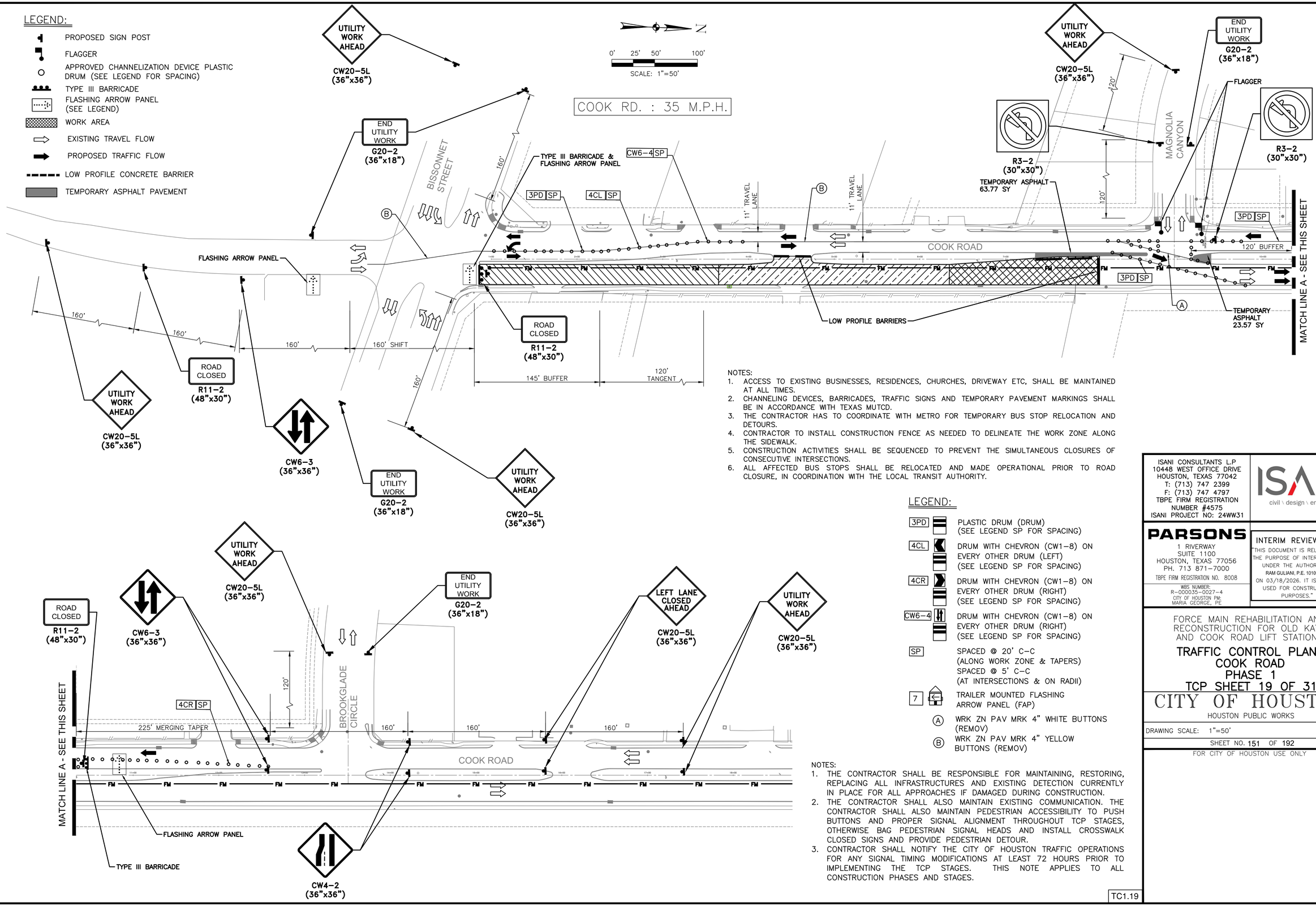
SHEET NO. 150 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\24WW31 – 453562–COHFM–cook TCP.dwg

LEGEND:

- PROPOSED SIGN POST
- FLAGGER
- APPROVED CHANNELIZATION DEVICE PLASTIC DRUM (SEE LEGEND FOR SPACING)
- TYPE III BARRICADE
- FLASHING ARROW PANEL (SEE LEGEND)
- WORK AREA
- EXISTING TRAVEL FLOW
- PROPOSED TRAFFIC FLOW
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY ASPHALT PAVEMENT



NOTES:
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LEGEND:

- 3PD — PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
- 4CL — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
- 4CR — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- CW6-4 — DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
- SP — SPACED @ 20' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
- 7 — TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
- (A) WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
- (B) WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, RESTORING, REPLACING ALL INFRASTRUCTURES AND EXISTING DETECTION CURRENTLY IN PLACE FOR ALL APPROACHES IF DAMAGED DURING CONSTRUCTION.
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NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLANS COOK ROAD PHASE 1 TCP SHEET 19 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

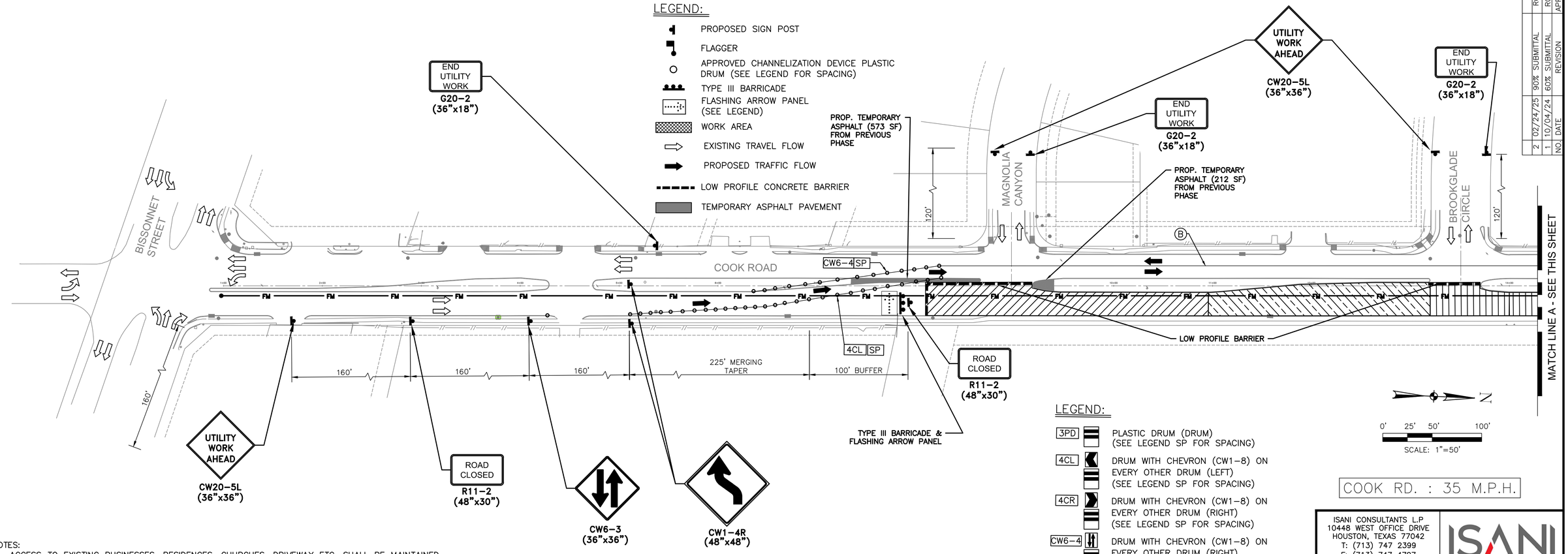
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SHEET NO. 151 OF 192

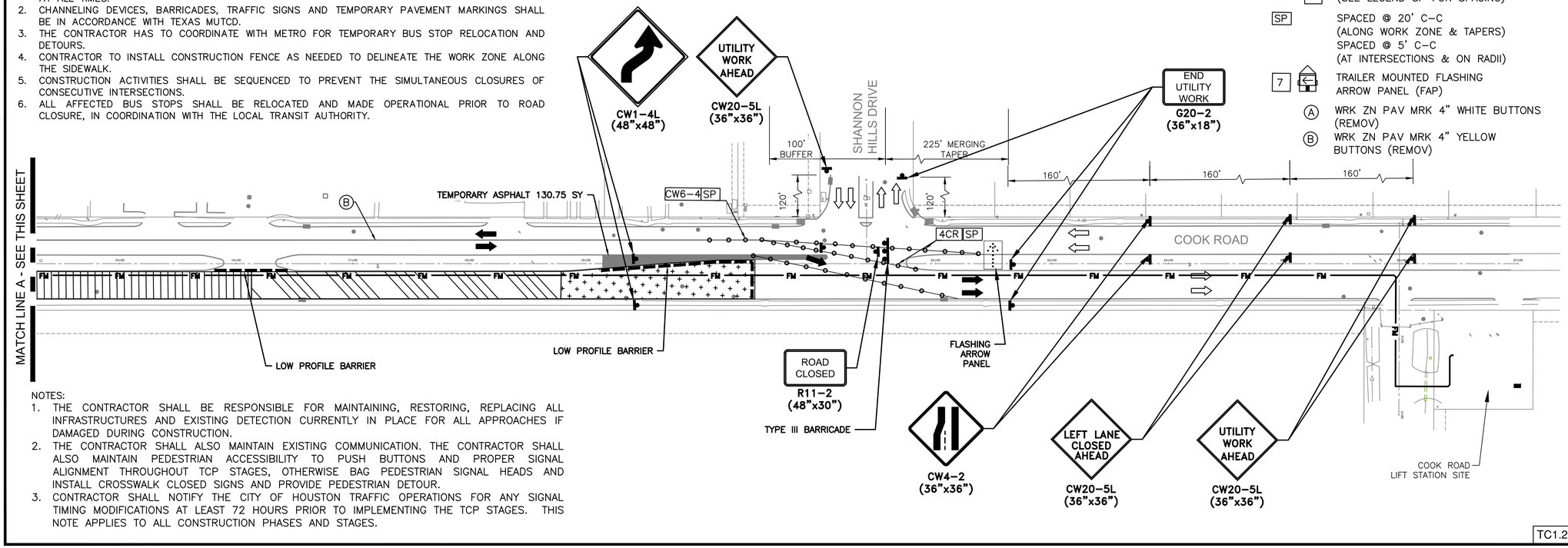
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TC1.19

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\24WW31 - 453562-COHFM-cook TCP.dwg



NOTES:
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1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLANS
COOK ROAD
PHASE 2
TCP SHEET 20 OF 31

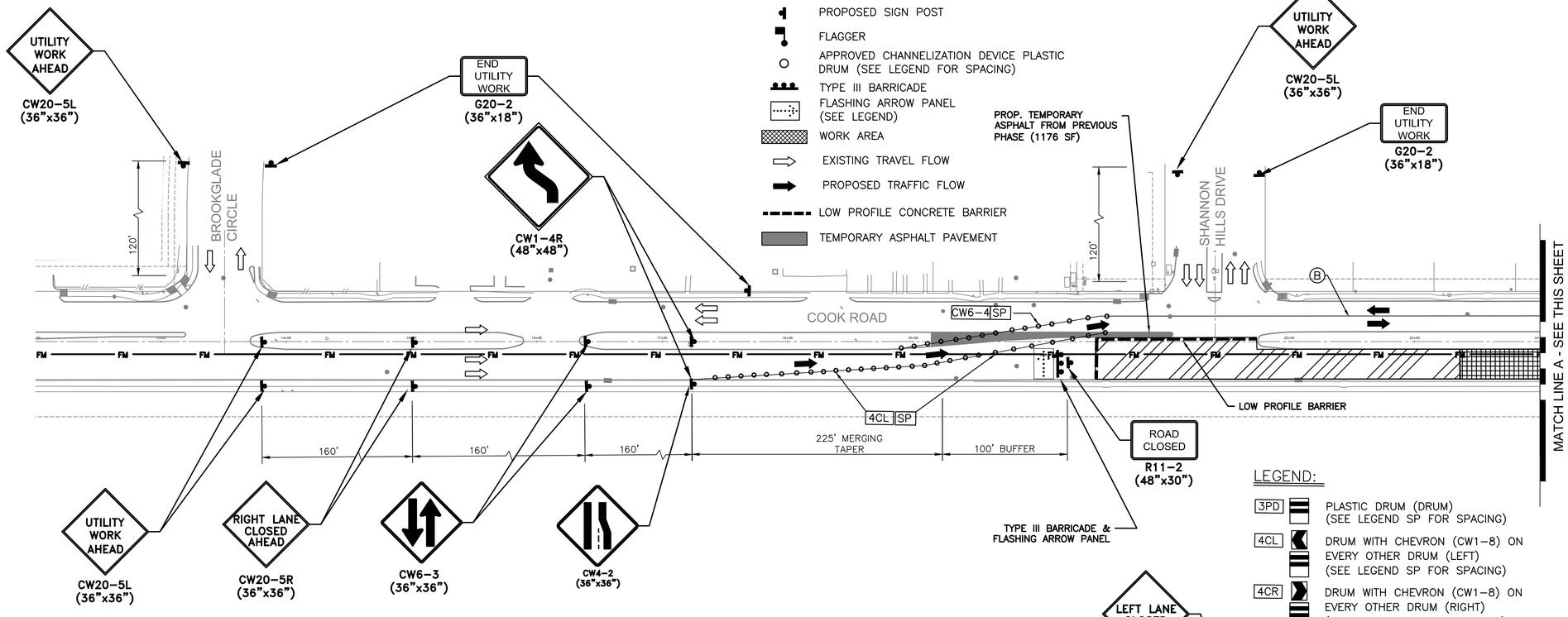
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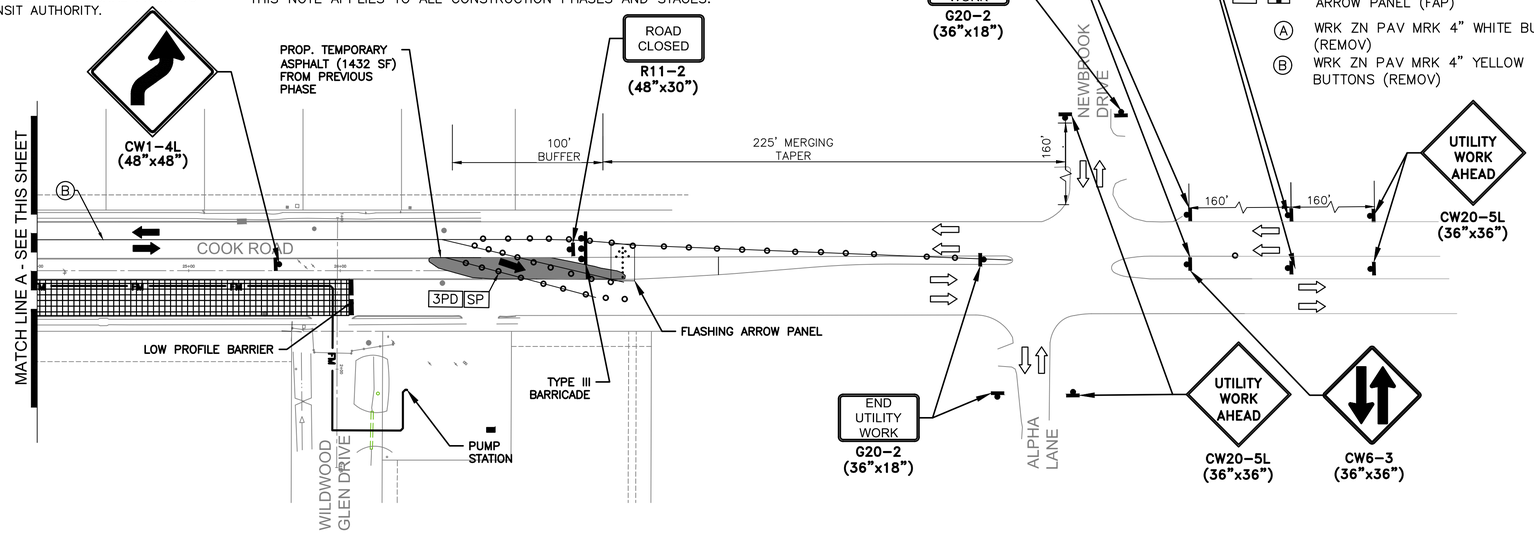
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SHEET NO. 152 OF 192
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TC1.20

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\24WW31 - 453562-COHFM-cook TCP.dwg





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LEGEND:

3PD	PLASTIC DRUM (DRUM) (SEE LEGEND SP FOR SPACING)
4CL	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (LEFT) (SEE LEGEND SP FOR SPACING)
4CR	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
CW6-4	DRUM WITH CHEVRON (CW1-8) ON EVERY OTHER DRUM (RIGHT) (SEE LEGEND SP FOR SPACING)
SP	SPACED @ 20' C-C (ALONG WORK ZONE & TAPERS) SPACED @ 5' C-C (AT INTERSECTIONS & ON RADII)
7	TRAILER MOUNTED FLASHING ARROW PANEL (FAP)
A	WRK ZN PAV MRK 4" WHITE BUTTONS (REMOV)
B	WRK ZN PAV MRK 4" YELLOW BUTTONS (REMOV)

0' 25' 50' 100'
SCALE: 1"=50'

COOK RD. : 35 M.P.H.

NO.	DATE	REVISION	APP.
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1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLANS
COOK ROAD
PHASE 3
TCP SHEET 21 OF 31

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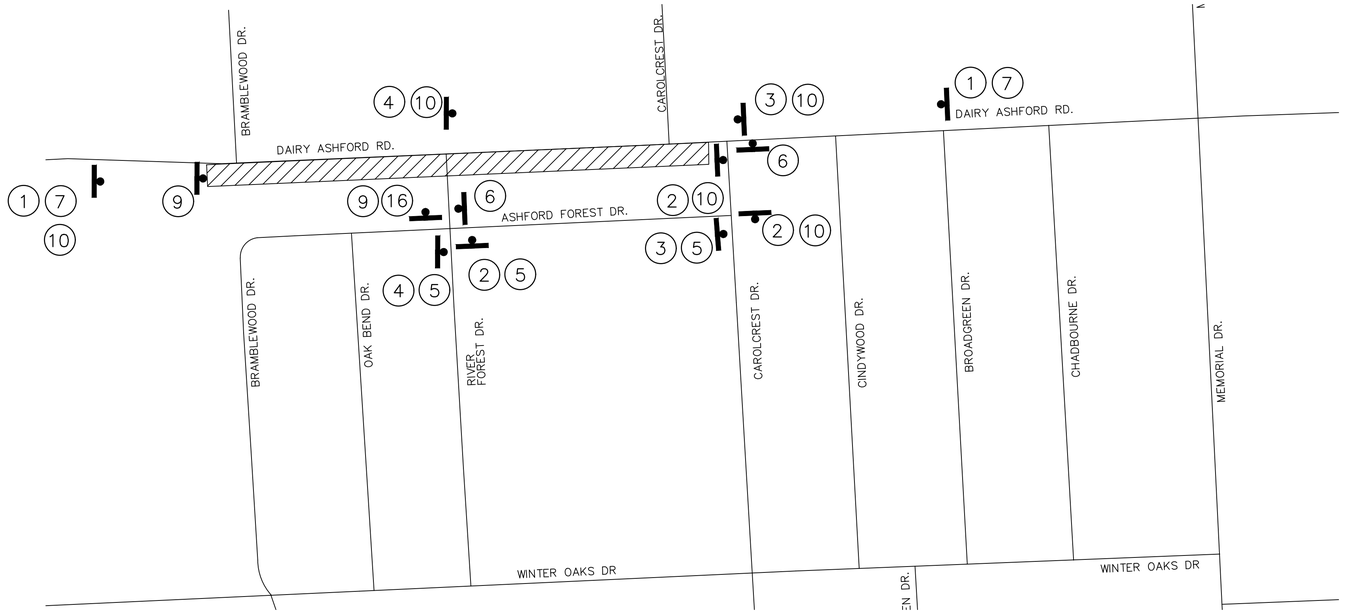
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SHEET NO. 153 OF 192

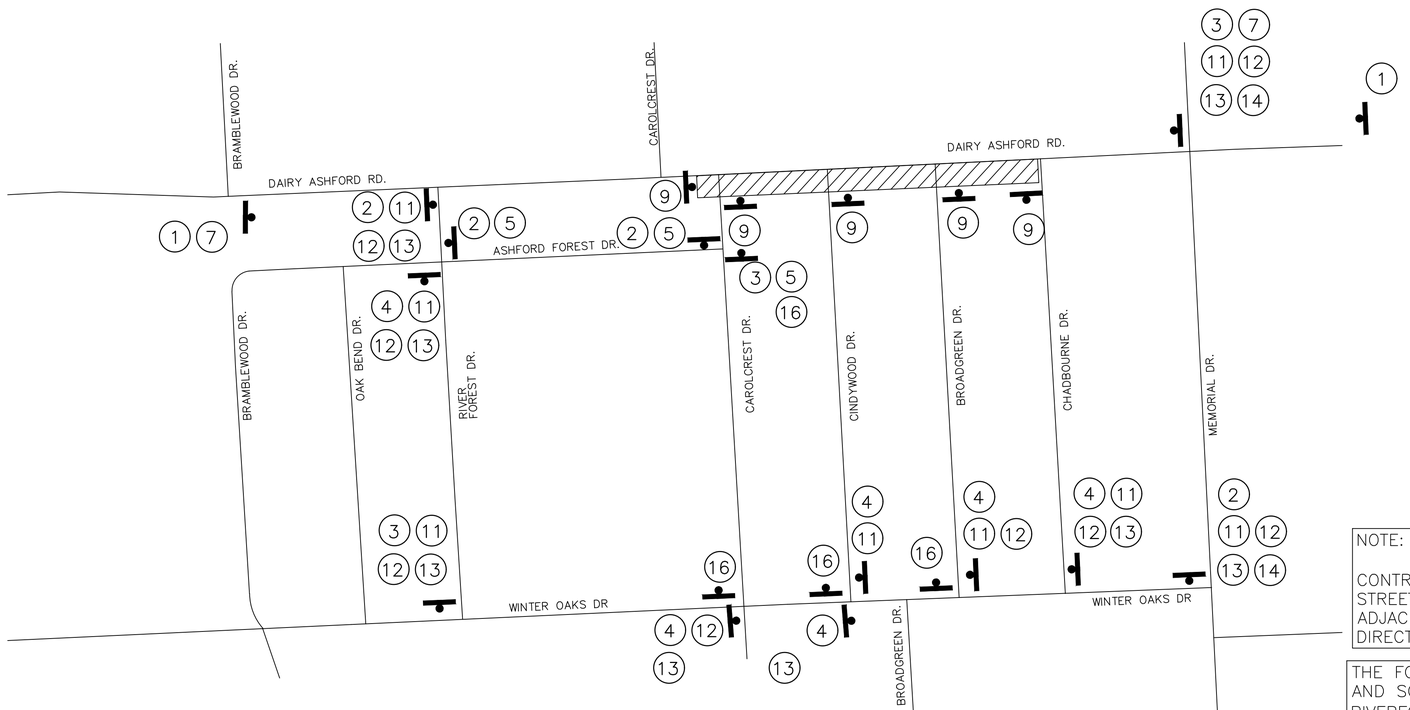
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DETOUR PLAN FOR PHASE 1



DETOUR PLAN FOR PHASE 2

N

0' 100' 200' 400'

SCALE: 1"=200'

LEGEND:

WORK ZONE

PROPOSED SIGN POST

1. DETOUR AHEAD — CW20-2D, 36 X 36
2. DETOUR → — M4-9R, 30 X 24
3. DETOUR ← — M4-9L, 30 X 24
4. DETOUR ↑ — M4-9S, 30 X 24
5. DAIRY ASHFORD RD — M4-9N, 30 X 12
6. END DETOUR — M4-8T, 24 X 18
7. UTILITY WORK AHEAD — CW21-7, 36 X 36
8. ROAD CLOSED AHEAD — CW20-3, 36 X 36
9. ROAD CLOSED — R11-2, 48 X 30
10. RIVER FOREST DR. — M4-9N, 30 X 12
11. CAROLCREST DR. — M4-9N, 30 X 12
12. CINDYWOOD DR. — M4-9N, 30 X 12
13. BROADGREEN DR. — M4-9N, 30 X 12
14. CHADBOURNE DR. — M4-9N, 30 X 12
15. MEMORIAL DR. — M4-9N, 30 X 12
16. ROAD CLOSED TO THRU TRAFFIC — R11-4, 30 X 24

NOTE:

CONTRACTOR TO CLOSE STREET(S) AND PROVIDE DETOUR FOR EACH STREET ONLY WHEN IMPACTED BY WORK IN A STEP DIRECTLY ADJACENT TO THE CROSS STREET. ALL OTHER CROSS STREETS NOT DIRECTLY IMPACTED BY A STEP SHOULD BE LEFT OPEN.

THE FOLLOWING STREETS WILL BE CLOSED FOR BOTH NORTHBOUND AND SOUTHBOUND TRAFFIC DURING THE INDICATED STEPS:
RIVERFOREST DR. – PHASE 1 (STEP 3)
CAROLCREST DR. – PHASE 2 (STEP 1)
CINDYWOOD DR. – PHASE 2 (STEP 2)
BROADGREEN DR. – PHASE 2 (STEP 3)

TC1.22

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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TBPE FIRM REGISTRATION NUMBER #4575
ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

WBS NUMBER:
R-000035-0027-4
CITY OF HOUSTON PM:
MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DETOUR PLAN – DAIRY ASHFORD PHASE 1 & 2

TCP SHEET 22 OF 31

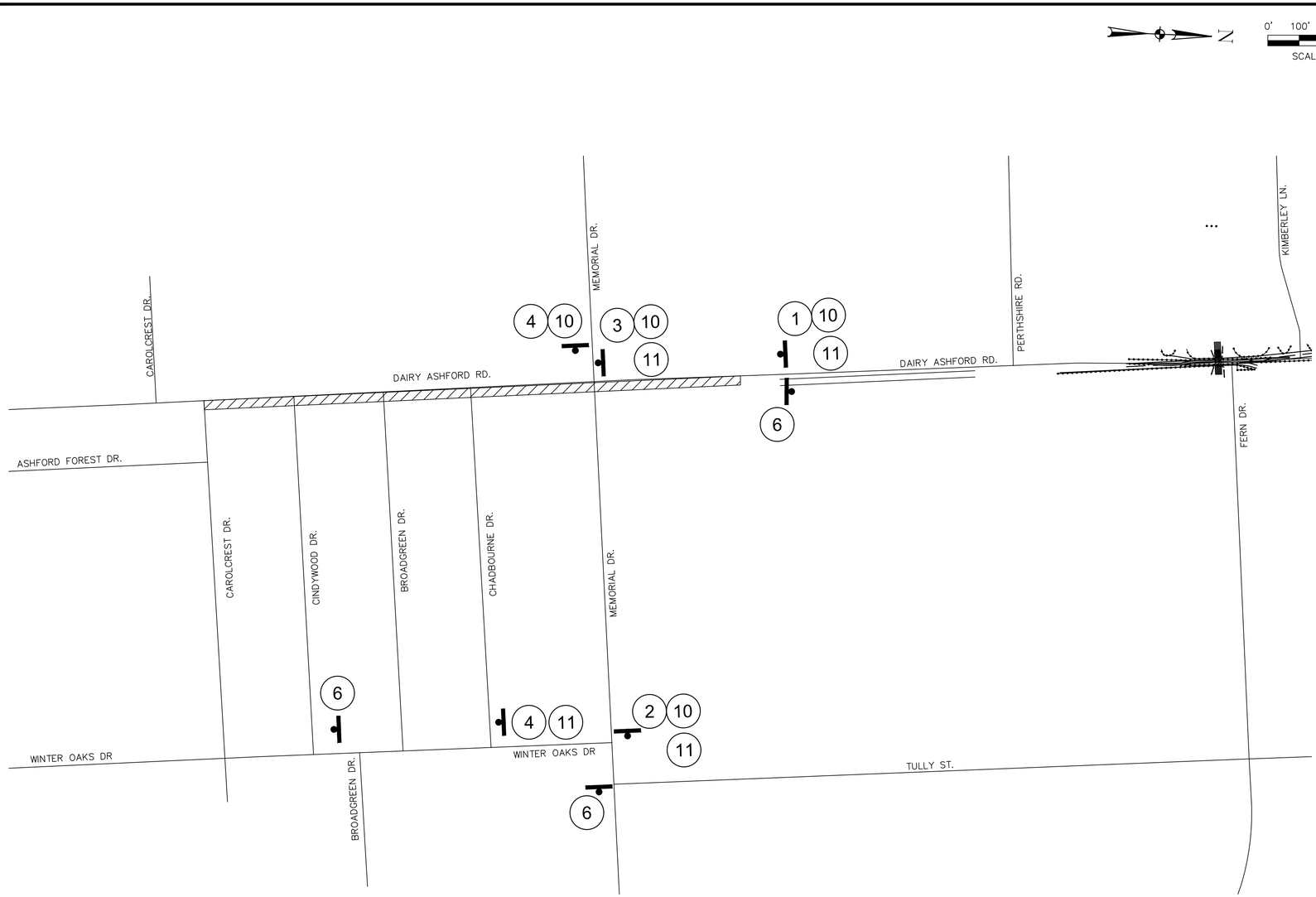
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DRAWING SCALE: 1"=200'

SHEET NO. 154 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31 – 453562-COHFM-oldkaty – DETOUR PLAN.dwg



DETOUR PLAN FOR PHASE 3

LEGEND:

WORK ZONE

PROPOSED SIGN POST

1 — DETOUR AHEAD — CW20-2D 36 X 36

2 — DETOUR → — M4-9R 30 X 24

3 — DETOUR ← — M4-9L 30 X 24

4 — DETOUR ↑ — M4-9S 30 X 24

5 — DAIRY ASHFORD RD — M4-9N 30 X 12

6 — END DETOUR — M4-8T 24 X 18

7 — UTILITY WORK AHEAD — CW21-7 36 X 36

8 — ROAD CLOSED AHEAD — CW20-3 36 X 36

9 — ROAD CLOSED — R11-2 48 X 30

10 — CHADBOURNE DR. — M4-9N 30 X 12

11 — BROADGREEN DR. — M4-9N 30 X 12

12 — ROAD CLOSED TO THRU TRAFFIC — R11-4 30 X 24

SOUTHBOUND TRAFFIC ON DAIRY ASHFORD RD. WILL NOT HAVE ACCESS TO CHADBOURNE DRIVE DURING PHASE 3

TC1.23

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DETOUR PLAN – DAIRY ASHFORD PHASE 3

TCP SHEET 23 OF 31

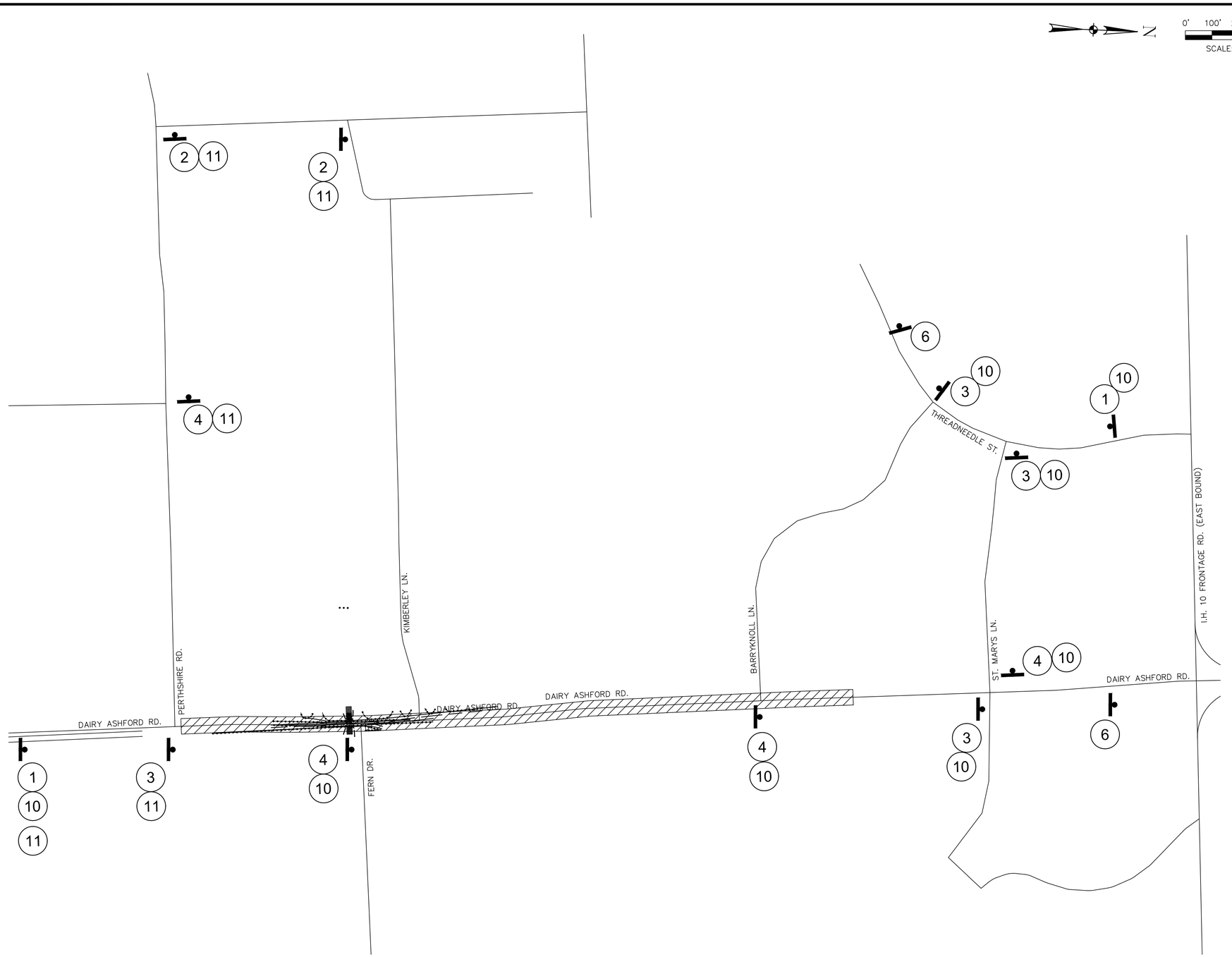
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DRAWING SCALE: 1"=200'

SHEET NO. 155 OF 192

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FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31 - 453562-COHFM-oldkaty - DETOUR PLAN.dwg



LEGEND:

WORK ZONE

PROPOSED SIGN POST

1 — DETOUR AHEAD — CW20-2D 36 X 36

2 — DETOUR — M4-9R 30 X 24

3 — DETOUR — M4-9L 30 X 24

4 — DETOUR — M4-9S 30 X 24

5 — DAIRY ASHFORD RD — M4-9N 30 X 12

6 — END DETOUR — M4-8T 24 X 18

7 — UTILITY WORK AHEAD — CW21-7 36 X 36

8 — ROAD CLOSED AHEAD — CW20-3 36 X 36

9 — ROAD CLOSED — R11-2 48 X 30

10 — BARRYKNOLL LN — M4-9N 30 X 12

11 — KIMBERLY LN — M4-9N 30 X 12

NO.	DATE	REVISION	APP.
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1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DETOUR PLAN – DAIRY ASHFORD PHASE 5
TCP SHEET 24 OF 31

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DRAWING SCALE: 1"=200'

SHEET NO. 156 OF 192

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DETOUR PLAN FOR PHASE 5

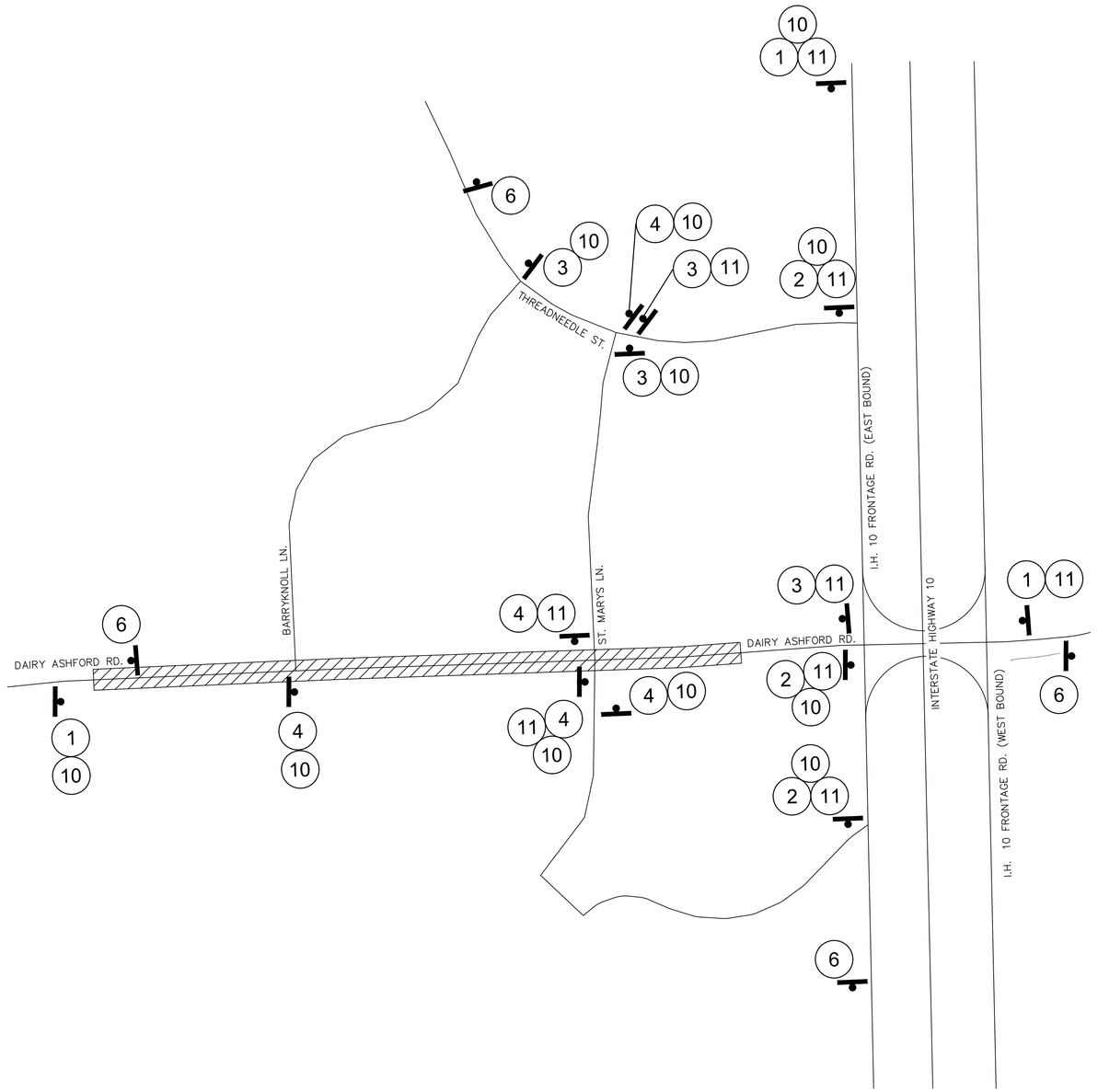
NOTE:

CONTRACTOR TO CLOSE ACCESS TO STREET(S) AND PROVIDE DETOUR FOR NORTHBOUND TRAFFIC WHEN AREA IN BETWEEN MEDIANS ARE IMPACTED BY WORK IN A STEP DIRECTLY ADJACENT TO THE CROSS STREET. ALL OTHER ACCESS TO CROSS STREETS NOT DIRECTLY IMPACTED BY A STEP SHOULD BE LEFT OPEN.

ACCESS TO THE FOLLOWING STREETS WILL BE CLOSED FOR NORTHBOUND TRAFFIC DURING THE INDICATED STEPS:
KIMBERLY LN. – PHASE 5 (STEP 2 & 3)
BARRYKNOLL LN. – PHASE 5 (STEP 5)

TC1.24

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\DAIRY ASHFORD AND OLD KATY DRAWINGS\24WW31 – 453562-COHFM-oldkaty – DETOUR PLAN.dwg



0' 100' 200' 400'

SCALE: 1"=200'

LEGEND:

WORK ZONE

PROPOSED SIGN POST

1 — DETOUR AHEAD — CW20-2D 36 X 36

2 — DETOUR — M4-9R 30 X 24

3 — DETOUR — M4-9L 30 X 24

4 — DETOUR — M4-9S 30 X 24

5 — DAIRY ASHFORD RD — M4-9N 30 X 12

6 — END DETOUR — M4-8T 24 X 18

7 — UTILITY WORK AHEAD — CW21-7 36 X 36

8 — ROAD CLOSED AHEAD — CW20-3 36 X 36

9 — ROAD CLOSED — R11-2 48 X 30

10 — BARRYKNOLL LN — M4-9N 30 X 12

11 — ST. MARYS LN — M4-9N 30 X 12

NO.	DATE	REVISION	APP.
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1	10/04/24	60% SUBMITTAL	RG

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DETOUR PLAN – DAIRY ASHFORD PHASE 6 & 7

TCP SHEET 25 OF 31

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SHEET NO. 157 OF 192

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DETOUR PLAN FOR PHASE 6 & 7

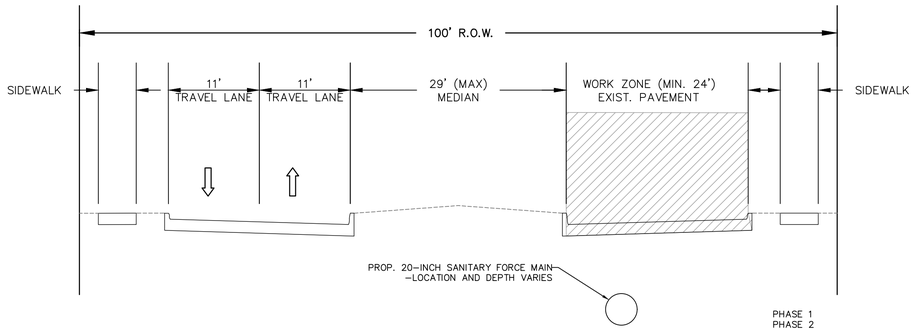
NOTE:

CONTRACTOR TO CLOSE ACCESS TO STREET(S) AND PROVIDE DETOUR FOR NORTHBOUND TRAFFIC WHEN AREA IN BETWEEN MEDIANS ARE IMPACTED BY WORK IN A STEP DIRECTLY ADJACENT TO THE CROSS STREET. ALL OTHER ACCESS TO CROSS STREETS NOT DIRECTLY IMPACTED BY A STEP SHOULD BE LEFT OPEN.

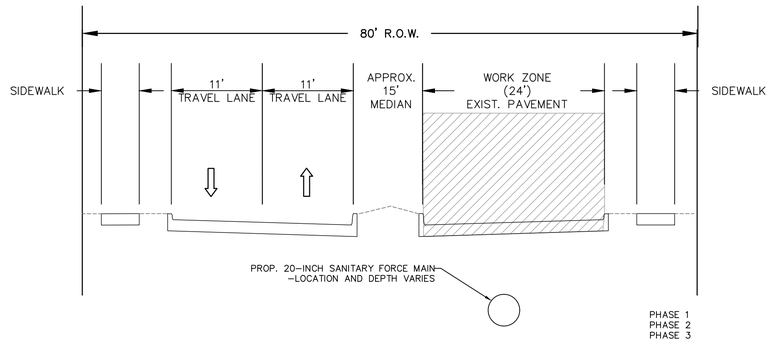
ACCESS TO THE FOLLOWING STREETS WILL BE CLOSED FOR NORTHBOUND TRAFFIC DURING THE INDICATED STEPS:
BARRYKNOLL LN. – PHASE 6 (STEP 1)
ST MARYS LN. – PHASE 6 & 7 (ALL STEPS)

TC1.25

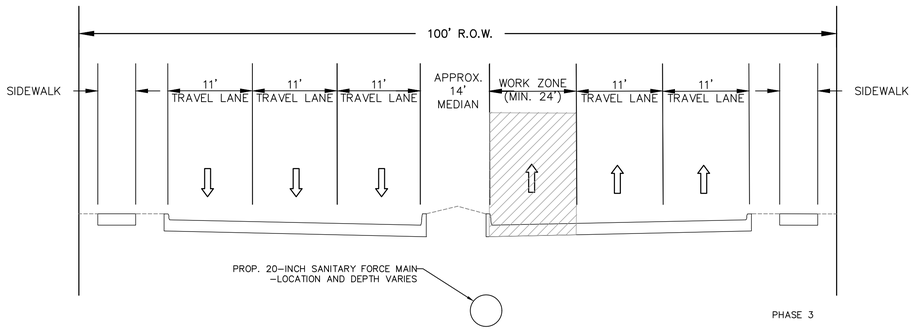
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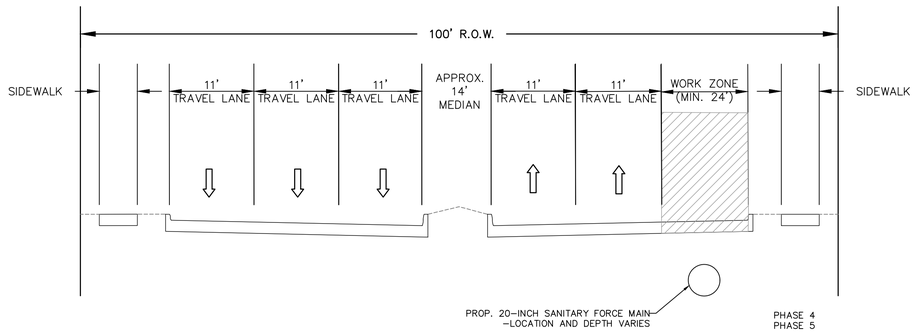
TYPICAL SECTION FOR CONSTRUCTION OF
20-INCH SANITARY FORCE MAIN
STREET NAME
DAIRY ASHFORD ROAD



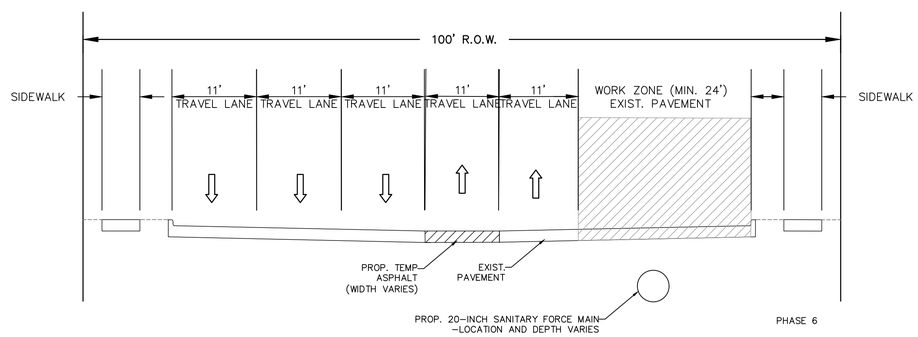
TYPICAL SECTION FOR CONSTRUCTION OF
20-INCH SANITARY FORCE MAIN
STREET NAME
COOK RD



TYPICAL SECTION FOR CONSTRUCTION OF
20-INCH SANITARY FORCE MAIN
STREET NAME
DAIRY ASHFORD ROAD



TYPICAL SECTION FOR CONSTRUCTION OF
20-INCH SANITARY FORCE MAIN
STREET NAME
DAIRY ASHFORD ROAD



TYPICAL SECTION FOR CONSTRUCTION OF
20-INCH SANITARY FORCE MAIN
STREET NAME
DAIRY ASHFORD ROAD

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1	10/04/24	60% SUBMITTAL	RG

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ISANI PROJECT NO: 24WW31

civil \ design \ engineers

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PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN DAIRY ASHFORD & COOK ROAD TYPICAL SECTIONS TCP SHEET 26 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: NTS

SHEET NO. 158 OF 192

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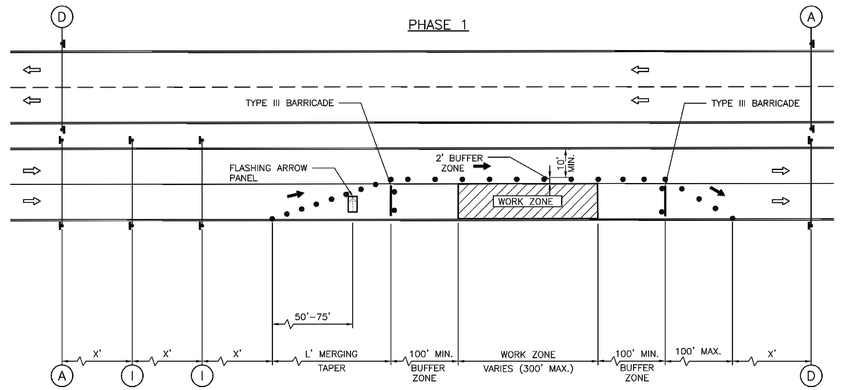
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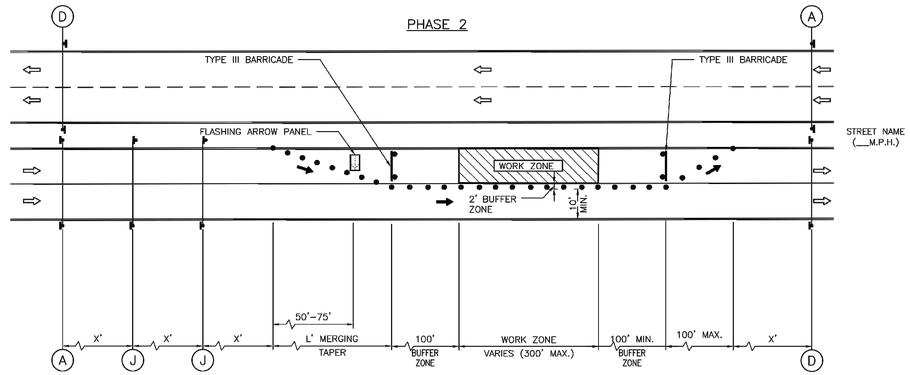
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A	D	I	J
			
CW20-1	G20-2	AHEAD CW20-5(2) CW16-3	AHEAD CW20-5(1) CW16-3

PHASE 1



PHASE 2



LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. RETURN TAPERS AND DOWNSTREAM BARRICADES ARE OPTIONAL ON A DIVIDED ROADWAY SECTION.
2. DOUBLE SIGNS SHALL BE USED ONLY ON ROADWAYS WITH MEDIANS.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

APPROVED BY:	APPROVED BY:
DocuSigned by: Sukul Tanwar	DocuSigned by: HANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Stahlbush
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023	DWG NO: 01555-04

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP ONE LANE CLOSURE
PHASE 1 & 2

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DRAWING SCALE	
NOT TO SCALE	

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL
TYPICAL ONE LANE CLOSURE
TCP SHEET 27 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: N/A

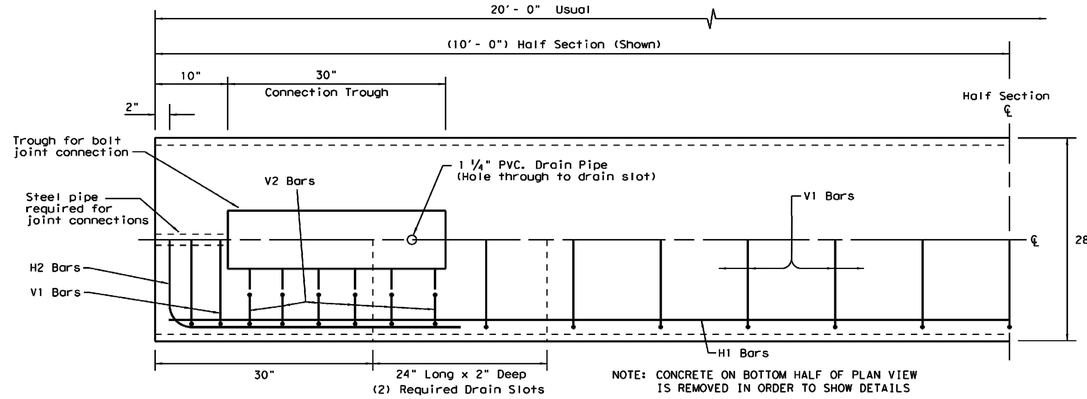
SHEET NO. 159 OF 192

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TC1.27

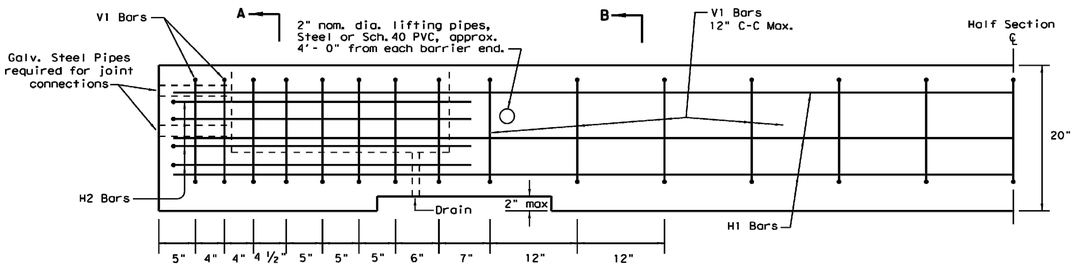
DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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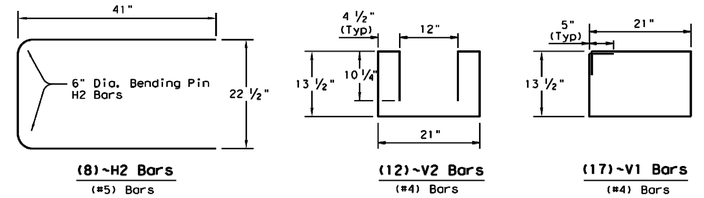


NOTE: CONCRETE ON BOTTOM HALF OF PLAN VIEW IS REMOVED IN ORDER TO SHOW DETAILS

PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



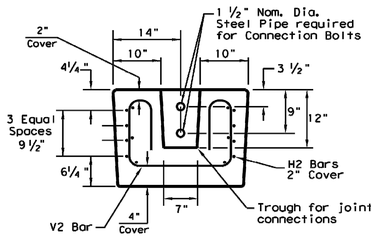
(8)~H2 Bars (#5) Bars

(12)~V2 Bars (#4) Bars

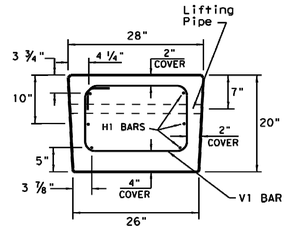
(17)~V1 Bars (#4) Bars

REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT

Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



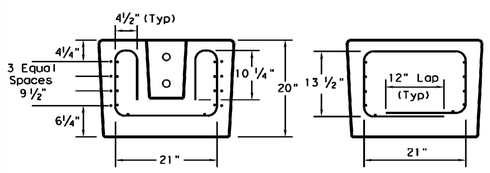
SECTION B-B

GENERAL NOTES

1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
4. Precast LPCB barrier length shall be 20 ft.
5. All barrier edges shall have ¾" chamfer or a tooled radius.
6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445, "Galvanizing."
8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



SECTION A-A
SECTION B-B

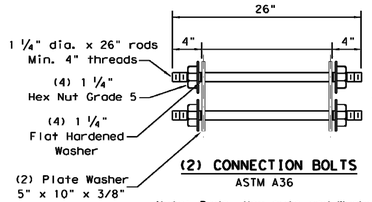
(WWR) GENERAL NOTES

1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

8 ~ (D31) Horizontal Wires (Equally spaced)
10 ~ (D20) Horizontal Wires (Equally spaced)
29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)

WELDED WIRE REINFORCEMENT (WWR)- OPTIONAL REINFORCING



(2) CONNECTION BOLTS
ASTM A36

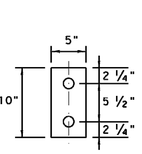


PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

SHEET 1 OF 2

Texas Department of Transportation — Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

NO.	DATE	REVISION	APP.
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1	10/04/24	60% SUBMITTAL	RG

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TBPE FIRM REGISTRATION NUMBER #4575
ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

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TBPE FIRM REGISTRATION NO. 8008

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN
LOW PROFILE CONCRETE BARRIER
DETAIL 1
TCP SHEET 28 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

DRAWING SCALE: N/A

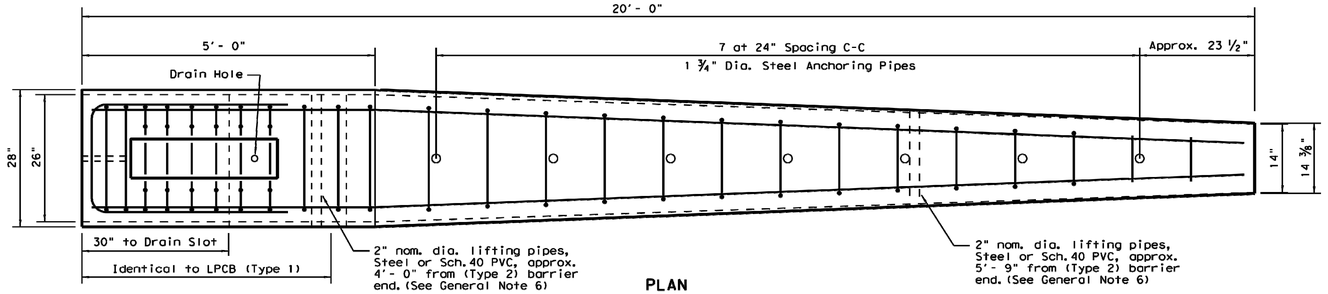
SHEET NO. 160 OF 192

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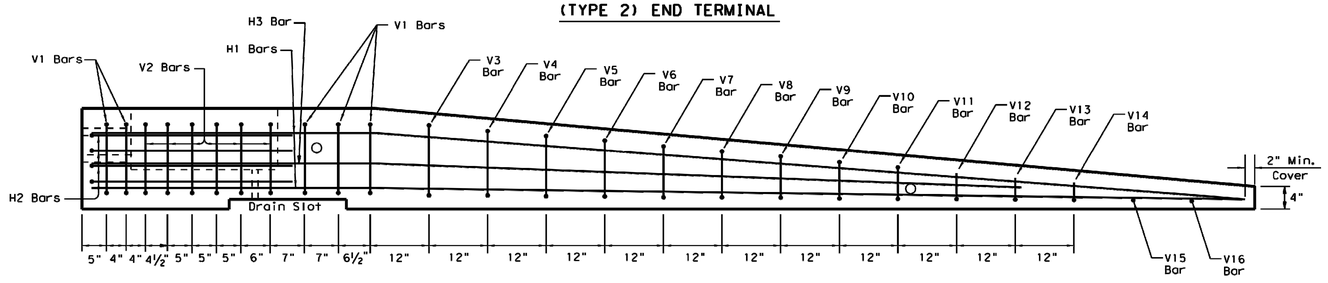
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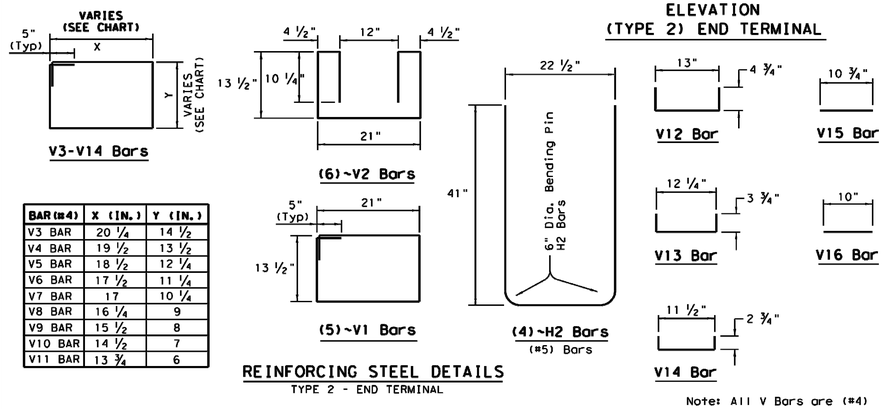
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PLAN
(TYPE 2) END TERMINAL



ELEVATION
(TYPE 2) END TERMINAL

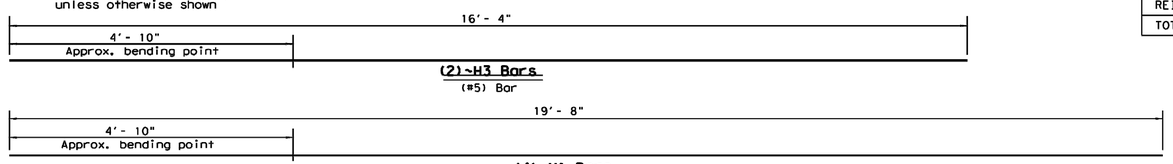


Note: All V Bars are (#4)

REINFORCING STEEL DETAILS
TYPE 2 - END TERMINAL

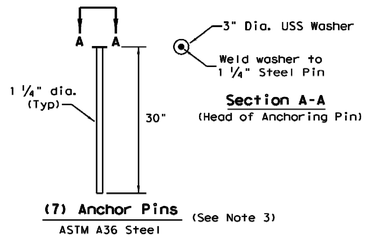
BAR (#4)	X (IN.)	Y (IN.)
V3 BAR	20 ¼	14 ½
V4 BAR	19 ½	13 ½
V5 BAR	18 ½	12 ¼
V6 BAR	17 ½	11 ¼
V7 BAR	17	10 ¼
V8 BAR	16 ¼	9
V9 BAR	15 ½	8
V10 BAR	14 ½	7
V11 BAR	13 ¾	6

Note: Use 2" Dia. Bending Pin, unless otherwise shown



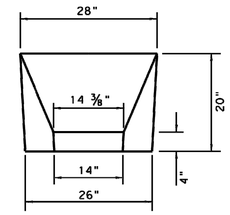
Note: Bends on H1 and H3 bars are slight and do not require formal bends.

Note: Anchoring pipes not shown in Elevation View



Section A-A
(Head of Anchoring Pin)

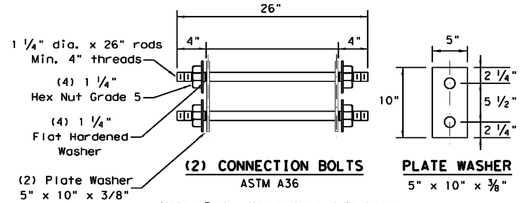
(7) Anchor Pins (See Note 3)
ASTM A36 Steel



APPROACH VIEW

TYPE 2 - NOTES

1. Welded wire reinforcement (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.



(2) CONNECTION BOLTS
ASTM A36

PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 2) APPROX. QUANTITIES		20 FT. SECTION
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000

SHEET 2 OF 2

Texas Department of Transportation — Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER
(TYPE 2)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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TRAFFIC CONTROL PLAN
LOW PROFILE CONCRETE BARRIER
DETAIL 2
TCP SHEET 29 OF 31

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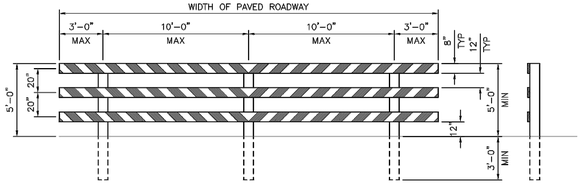
DRAWING SCALE: 1"=20'

SHEET NO. 161 OF 192

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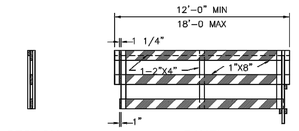
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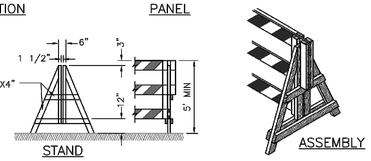
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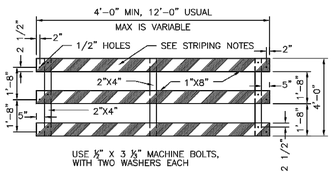
TYPE III BARRICADE
FOR END OF ROAD

FOR TYPE III BARRICADE FOR END OF ROAD, THE THREE (3) RAILS SHALL BE REFLECTIVE RED AND REFLECTIVE WHITE STRIPES ON SIDE FACING TRAFFIC

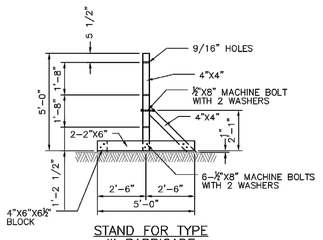




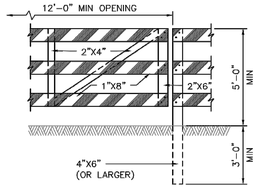
DEMOUNTABLE TYPE III BARRICADE



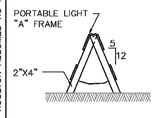
PANEL FOR TYPE III BARRICADE



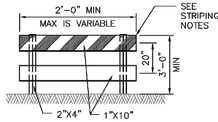
STAND FOR TYPE III BARRICADE



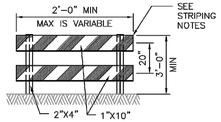
GATE FOR TYPE III BARRICADE



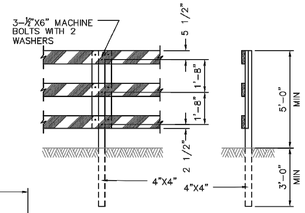
"A" FRAME



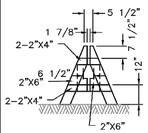
TYPE I



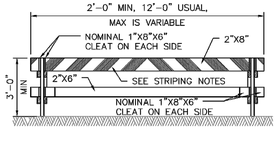
TYPE II



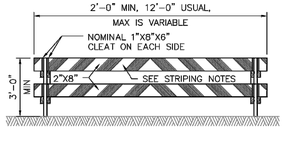
POST FOR TYPE III BARRICADE



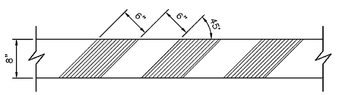
DEMOUNTABLE



TYPE I



TYPE II

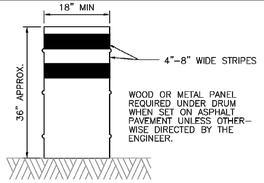


STRIPING FOR BARRICADE

BARRICADE NOTES:

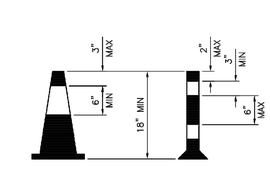
1. THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND IT'S REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.
2. CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.
3. BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS, SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.
4. BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL APPROVED BY THE TMUTCD. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL AND ARE SUGGESTED DETAILS FOR WOOD SUPPORT SYSTEMS FOR BARRICADES. THE DETAILS OF RAIL WIDTH AND STRIPING, NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.
5. BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.
6. THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF HIGH INTESITY SHEETING AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOTT.
7. THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.
8. BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.

1. FOR ALL TYPES OF BARRICADES WITH RAILS LESS THAN 3'-0" LONG, STRIPES 4" WIDE SHALL BE USED. IDENTIFICATION MARKINGS MAY BE SHOWN ONLY ON BACK SIDE OF BARRICADE RAILS.
2. STRIPING SHOULD COVER THE FULL WIDTH OF THE RAIL. STRIPING OF RAILS, PANELS, ETC, SHOULD SLOPE DOWNWARD AT AN ANGLE OF 45° DEGREES IN DIRECTIONS TRAFFIC IS TO PASS.
3. WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, IT IS DESIRABLE THAT THE STRIPES SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING. WHEN BOTH RIGHT AND LEFT TURNS ARE PROVIDED FOR, THE CHEVRON STRIPING MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE.



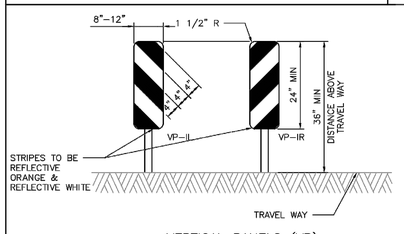
DRUMS

1. DRUMS, SET ON END, AND USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE APPROX 36" IN HEIGHT AND A MIN OF 18" IN DIAMETER. THE CONTRACTOR, AT HIS OPTION, MAY USE DRUMS MADE FROM STEEL BARRELS OR BLACK POLYETHYLENE PLASTIC DRUM LINERS WEIGHING APPROX EIGHT POUNDS EACH. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL CIRCUMFERENTIAL REFLECTORIZED ORANGE AND REFLECTORIZED WHITE STRIPES, 4" TO 8 INCHES WIDE. THE FIRST REFLECTORIZED STRIPE SHOULD START WITHIN TWO (2) INCHES OF THE TOP OF THE DRUM. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE STRIPES ON EACH DRUM. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, THEY SHALL BE NO MORE THAN 2 INCHES WIDE. METAL DRUMS SHALL BE PAINTED BLACK OR ORANGE BEFORE REFLECTORIZED STRIPES ARE ADDED. ALL DRUMS ON PROJECT WILL BE THE SAME COLOR. WHEN DRUMS ARE PLACED IN THE ROADWAY, APPROPIATE WARNING SIGNS SHOULD BE USED. DURING HOURS OF DARKNESS, A FLASHING WARNING LIGHT SHOULD BE PLACED ON DRUMS USED SINGLY AS A WARNING DEVICE. STEADY BURN ELECTRIC LIGHTS OR DELINEATORS SHOULD BE PLACED ON DRUMS USED IN SERIES FOR TRAFFIC CHANNELIZATION. DRUMS SHALL BE WEIGHTED WITH SAND TO THE EXTENT INDICATED IN THE PLANS.
2. CWI-8 CHEVRON SIGNS, CWI-6A ARROW SIGNS OR VP-1 VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.



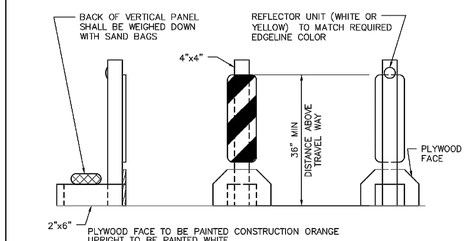
CONES

1. TRAFFIC CONES AND TUBULAR MARKERS SHALL BE A MIN OF 18" INCHES IN HEIGHT WITH A BROADENED BASE AND MAY BE MADE OF VARIOUS MATERIALS TO WITHSTAND IMPACT WITHOUT DAMAGE TO THEMSELVES OR TO VEHICLES. LARGER SIZES SHOULD BE USED ON FREEWAYS AND OTHER ROADWAYS WHERE SPEED ARE RELATIVELY HIGH OR WHERE EVER MORE CONSPICUOUS GUIDANCE IS NEEDED. ORANGE SHALL BE THE PREDOMINANT COLOR ON CONES AND TUBULAR MARKERS. THEY SHOULD BE KEPT CLEAN AND BRIGHT FOR MAX TARGET VALUE. FOR NIGHT TIME USE THEY SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAX VISIBILITY. REFLECTORIZED MATERIAL SHALL HAVE A SMOOTH, SEALED OUTER SURFACE WHICH WILL DISPLAY THE SAME APPROX COLOR DAY AND NIGHT.
2. REFLECTORIZATION OF TUBULAR MARKERS SHALL BE A MIN OF TWO THREE-INCH BANDS PLACED A MAX OF 2" FROM THE TOP WITH A MAX OF 6" BETWEEN THE BANDS. REFLECTORIZATION OF CONES SHALL BE PROVIDED BY A MIN 6" BAND PLACED A MAX OF 3" FROM THE TOP.
3. CONES OR TUBULAR MARKERS ARE GENERALLY ONLY SUITABLE FOR TEMPORARY USAGE (UP TO 8 HOURS) WITH OTHER CHANNELIZATION DEVICES SUCH AS VERTICAL PANELS OR BARRICADES PREFERRED FOR LONGER TERM USAGE. CARE SHOULD BE TAKEN TO INSURE THAT THEY REMAIN IN THEIR PROPER LOCATION AND IN AN UPRIGHT POSITION.



VERTICAL PANELS (VP)

VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE GOOD TARGET VALUE OF A DEVICE IS NEEDED IN DAYTIME AS WELL AS THE NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



TYPICAL PORTABLE VERTICAL PANEL OR DELINEATOR

OTHER SIMILAR SUPPORTS MAY BE USED WHEN APPROVED BY TMUTCD AND DIRECTED BY THE CITY OF HOUSTON.

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

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DocuSigned by: Sulaal Rauwat	DocuSigned by: Hanif Nasiken
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-14

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BARRICADE AND CHANNELIZING DEVICES

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TRAFFIC CONTROL PLAN
BARRICADE DETAIL
TCP SHEET 30 OF 31

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DRAWING SCALE: N/A

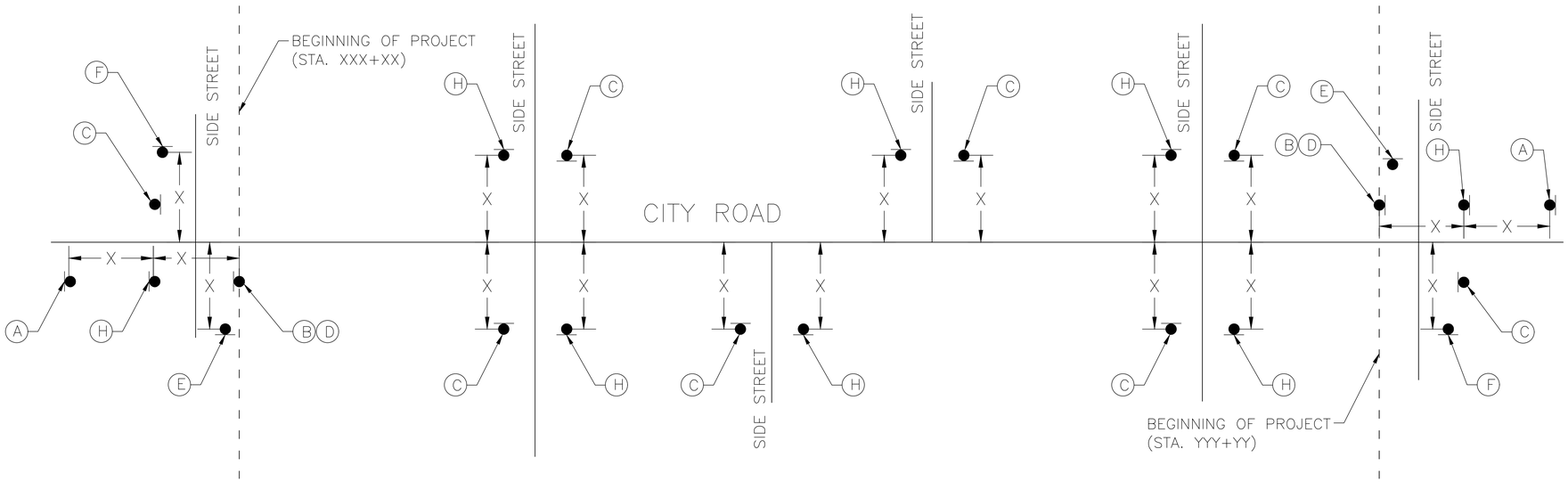
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TC1.30

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THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE. IT IS THE RESPONSIBILITY OF THE ENGINEER OF RECORD TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY AND SAFETY. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE. WHETHER USED AS PREPARED OR ALTERED. USE OF THIS STANDARD IS AT THE SOLE RISK OF THE ENGINEER OF RECORD AND THERE IS NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON

FILE PATH: P:\ACTIVE\24WW31\WORKING\DRAWINGS\24WW31 - 453562-COHFM-cook Details.dwg



WORK ZONE SIGNS

(A) OBEY WARNING SIGNS STATE LAW — R20-3T

(B) ROAD WORK NEXT YY MILES — G20-1

(C) END ROAD WORK — G20-2

(D) NAME ADDRESS CITY STATE CONTRACTOR — G20-6

(E) ROAD WORK NEXT YY MILES → — G20-1br

(F) ROAD WORK ← NEXT YY MILES — G20-1bl

(G) ROAD WORK ← NEXT XX MILES NEXT YY MILES → — G20-1a

(H) ROAD WORK AHEAD — CW20-1D

XX MPH — CW13-1P (SEE NOTE 2)

NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD – LATEST EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. NO LANES SHALL BE BLOCKED FROM 7AM TO 9AM AND 4PM TO 6:30PM MONDAY THRU FRIDAY.

NO.	DATE	REVISION	APP.
2	02/24/25	90% SUBMITTAL	RG
1	10/04/24	60% SUBMITTAL	RG

ISANI CONSULTANTS L.P
10448 WEST OFFICE DRIVE
HOUSTON, TEXAS 77042
T: (713) 747 2399
F: (713) 747 4797
TBPE FIRM REGISTRATION NUMBER #4575
ISANI PROJECT NO: 24WW31

ISANI civil \ design \ engineers

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

WBS NUMBER:
R-000035-0027-4
CITY OF HOUSTON PM:
MARIA GEORGE, PE

INTERIM REVIEW ONLY
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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

TRAFFIC CONTROL PLAN PROJECT APPROACH SIGNING DETAIL TCP SHEET 31 OF 31

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

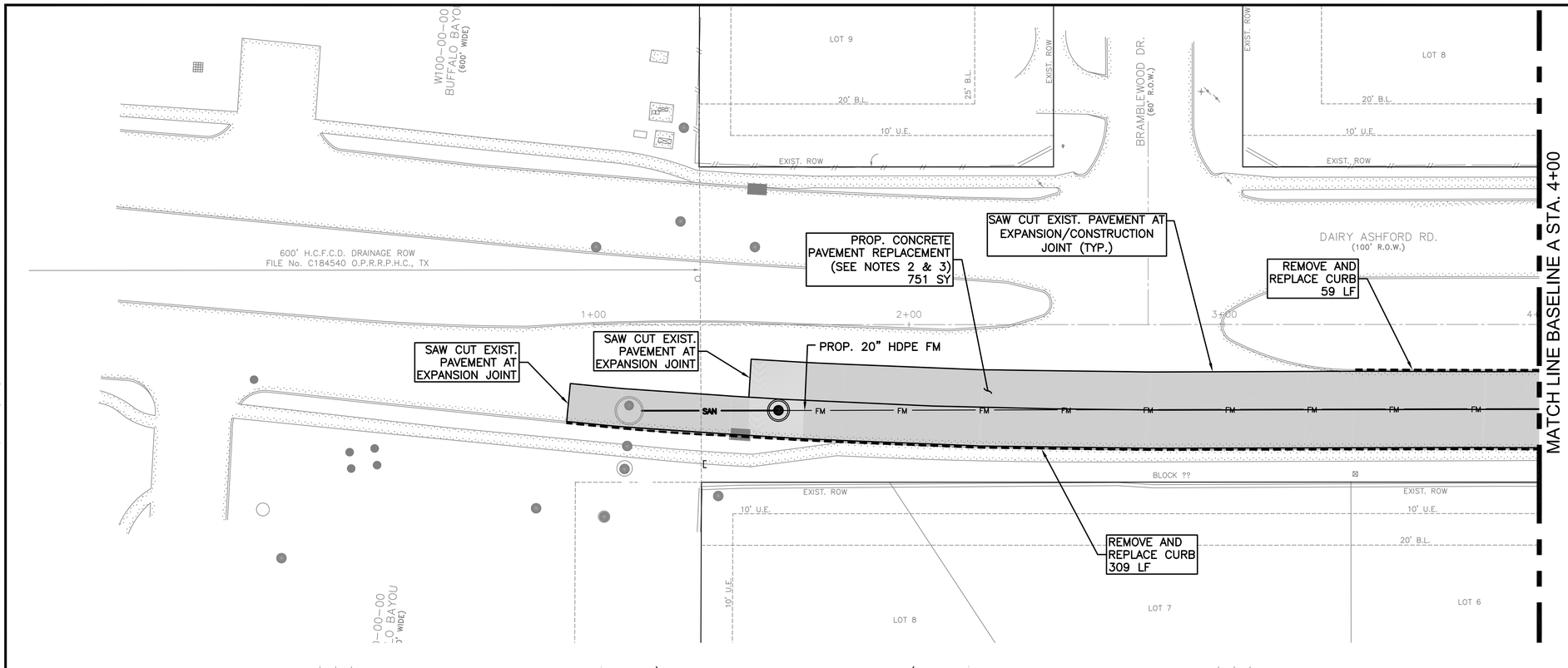
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SHEET NO. 163 OF 192

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TC1.31

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SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. 11-INCH CONCRETE PAVEMENT WITH 8-INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771-01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.

PARSONS
1 RIVERWAY
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FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 1 OF 11)

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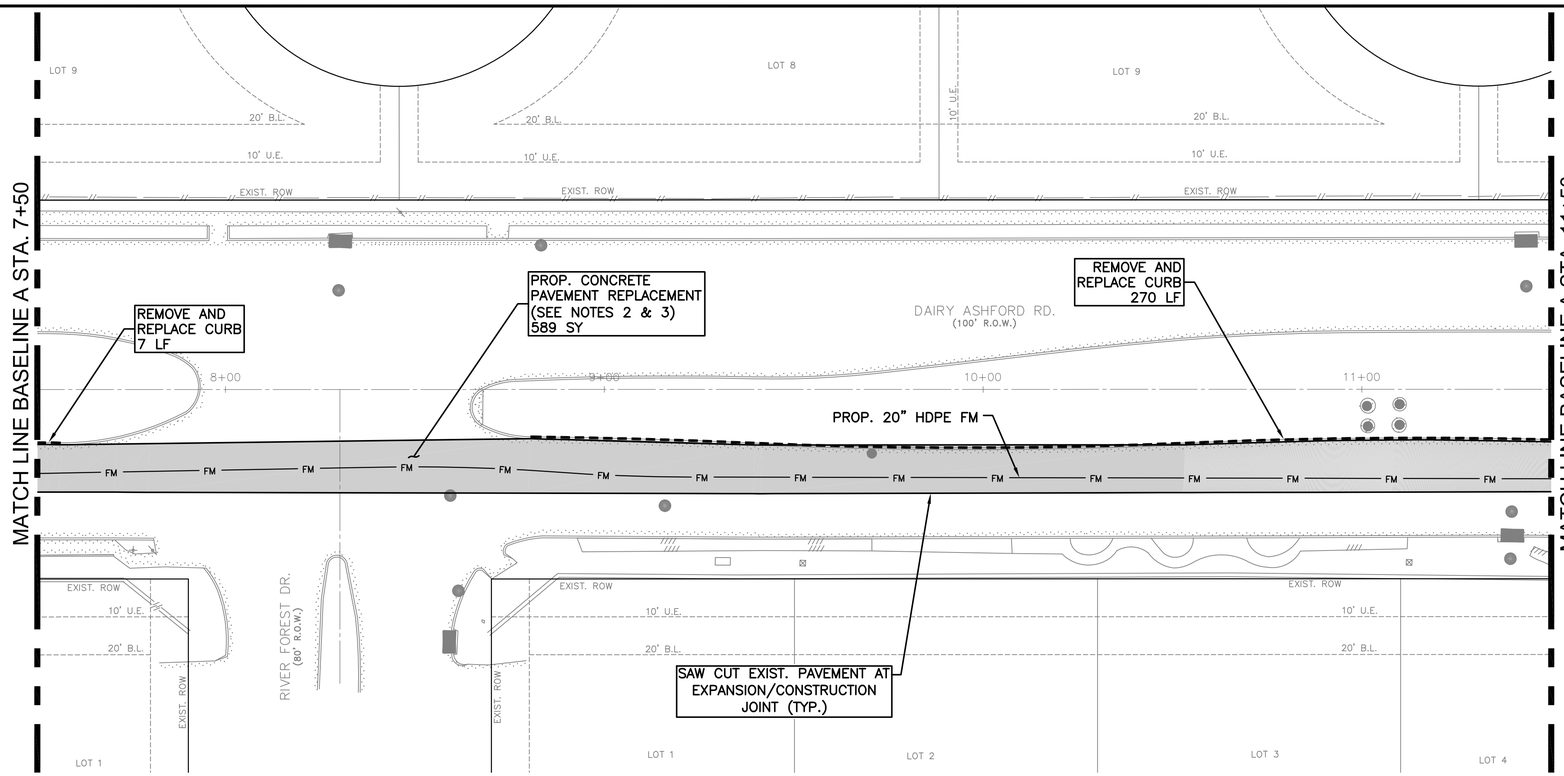
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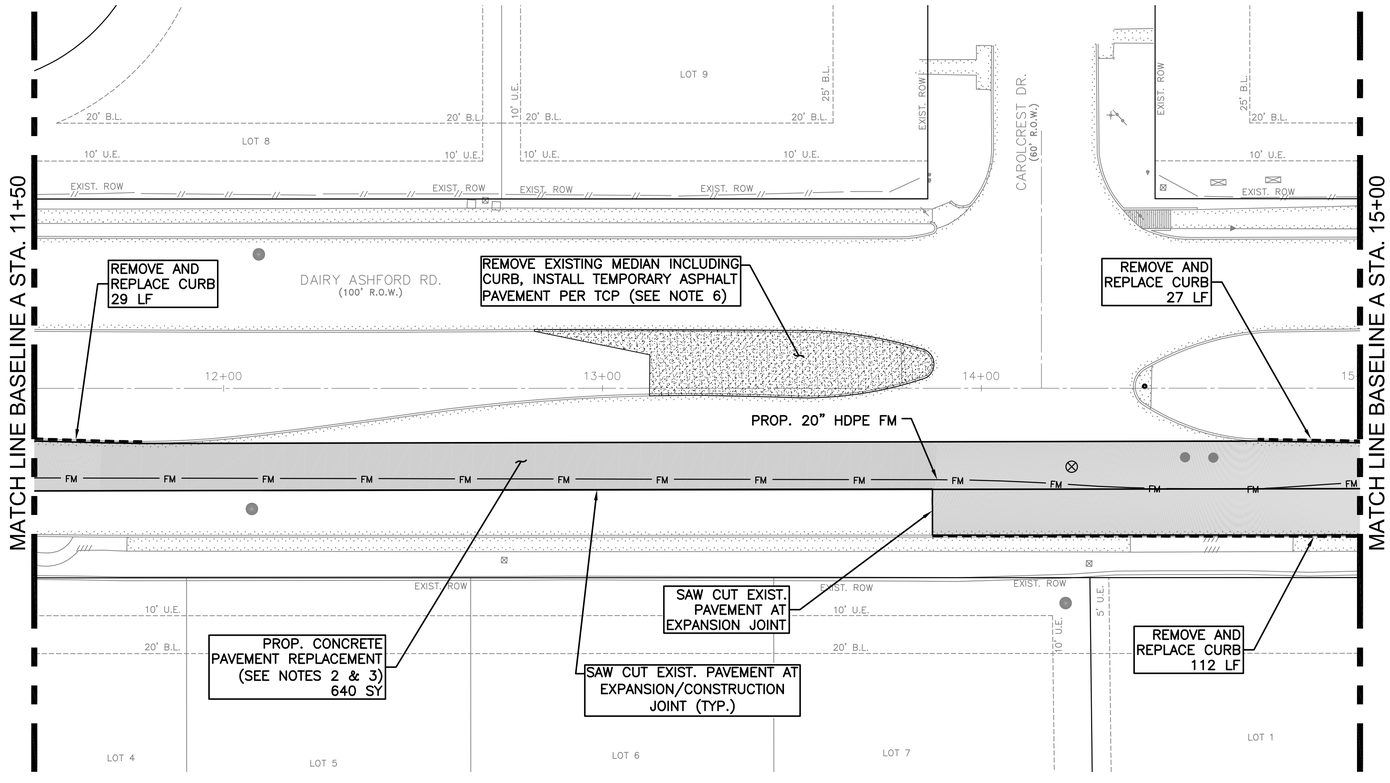
SHEET NO. 164 OF 192

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P1.01

FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Paving.dwg





N

0' 10' 20' 40'

SCALE: 1"=20'

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5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.
6. AFTER REMOVING TEMPORARY ASPHALT RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITIONS. RESTORE UNPAVED AREAS WITH HYDROMULCH SEEDING. NO SEPARATE PAY ITEM FOR REMOVAL AND DISPOSAL OR RESTORATION OF MEDIAN, INCLUDE PRICE IN UNIT PRICE FOR TEMPORARY PAVEMENT.

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FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 2 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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CITY OF HOUSTON PM: MARIA GEORGE, PE

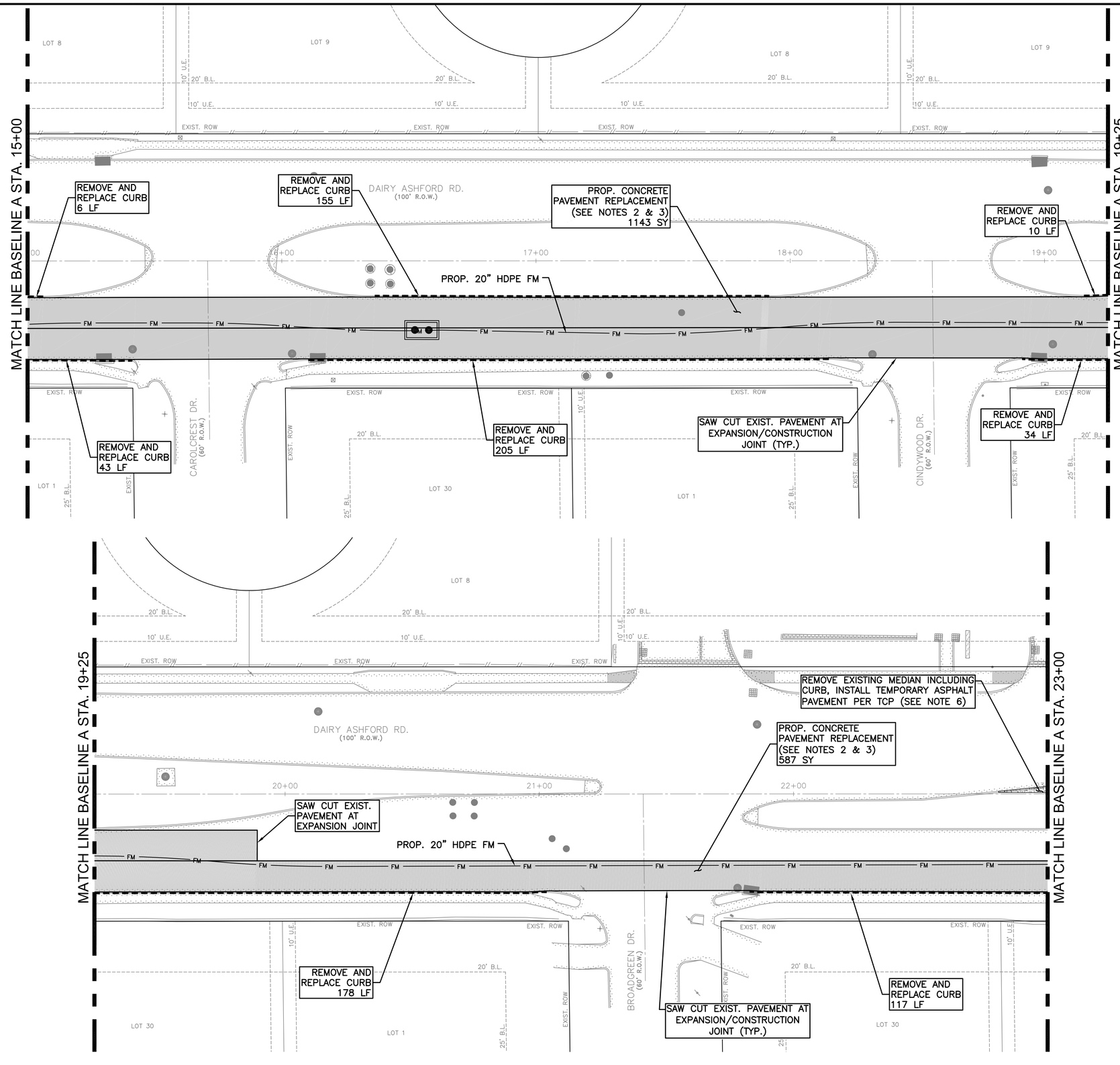
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SHEET NO. 165 OF 192

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P1.02

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0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 3 OF 11)

CITY OF HOUSTON
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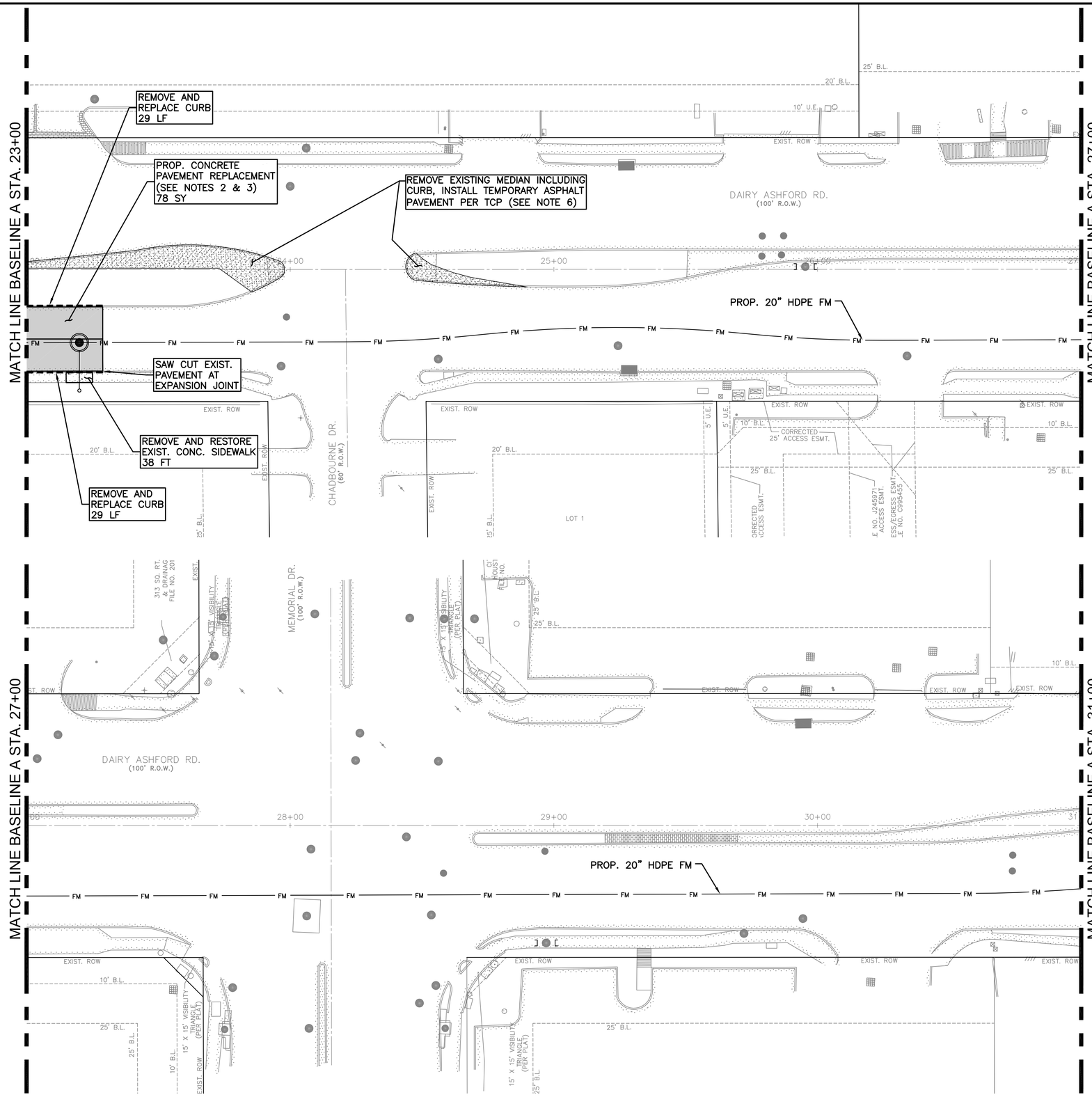
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P1.03

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N

0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 4 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

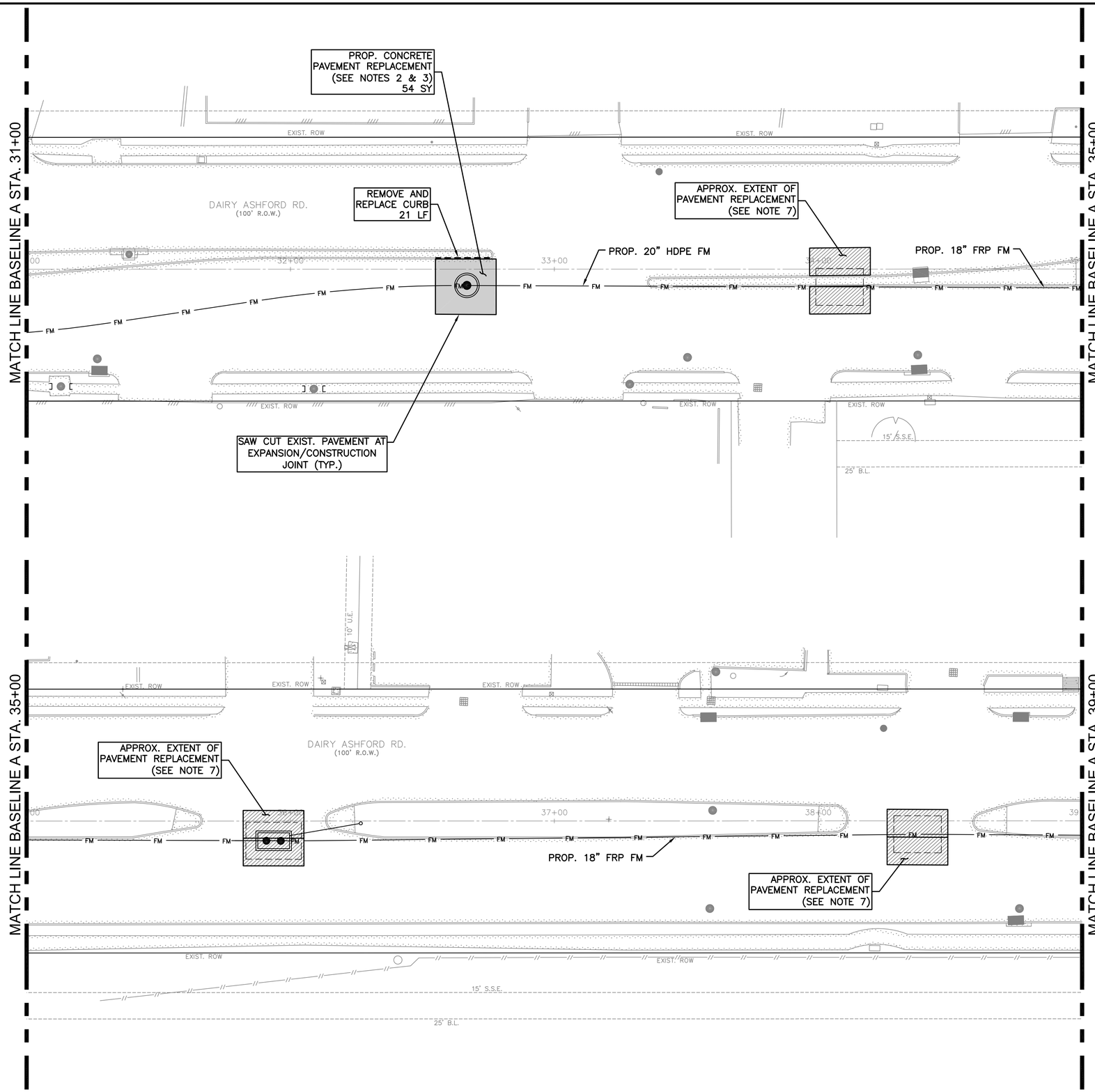
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0' 10' 20' 40'

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PARSONS
1 RIVERWAY
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HOUSTON, TEXAS 77056
PH. 713 871–7000
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FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 5 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R–000035–0027–4
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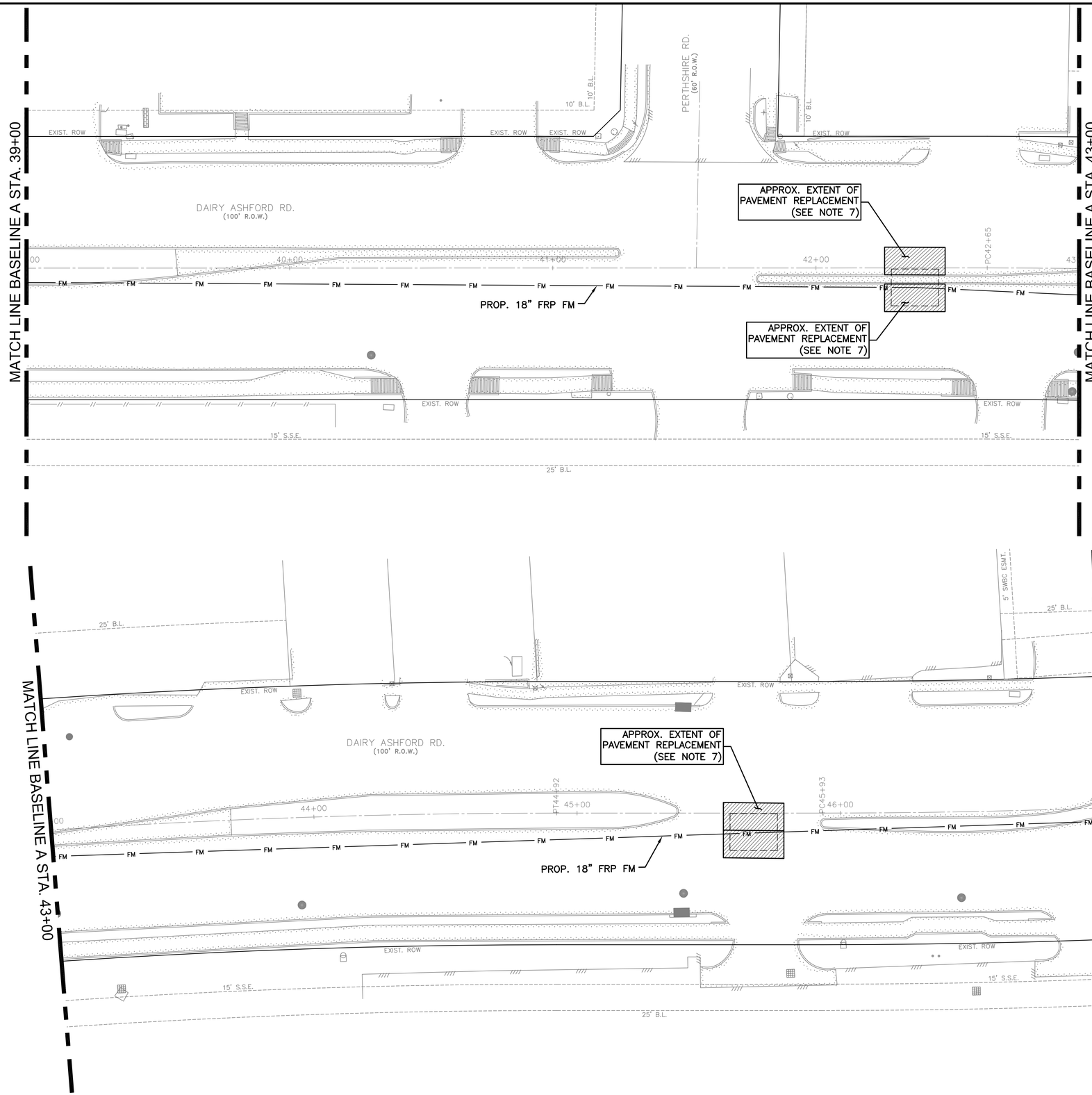
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SHEET NO. 168 OF 192

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P1.05

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0' 10' 20' 40'
SCALE: 1"=20'

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1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
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FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 6 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

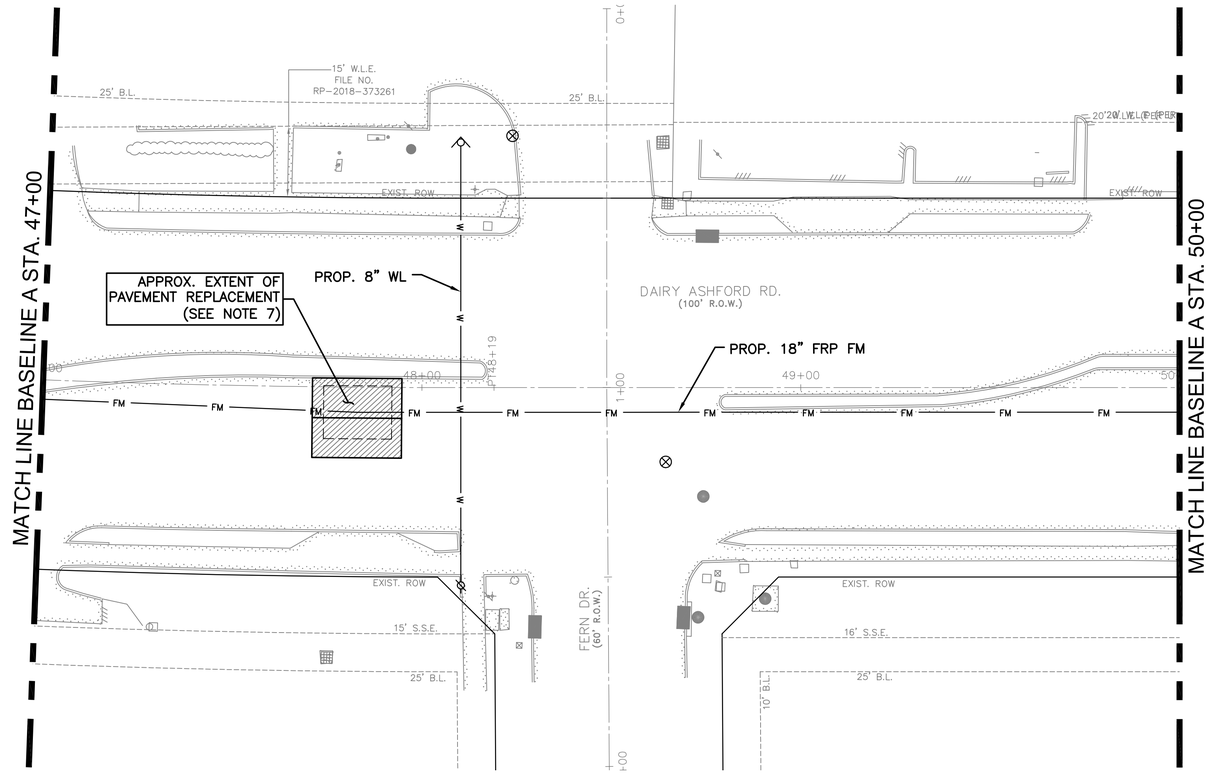
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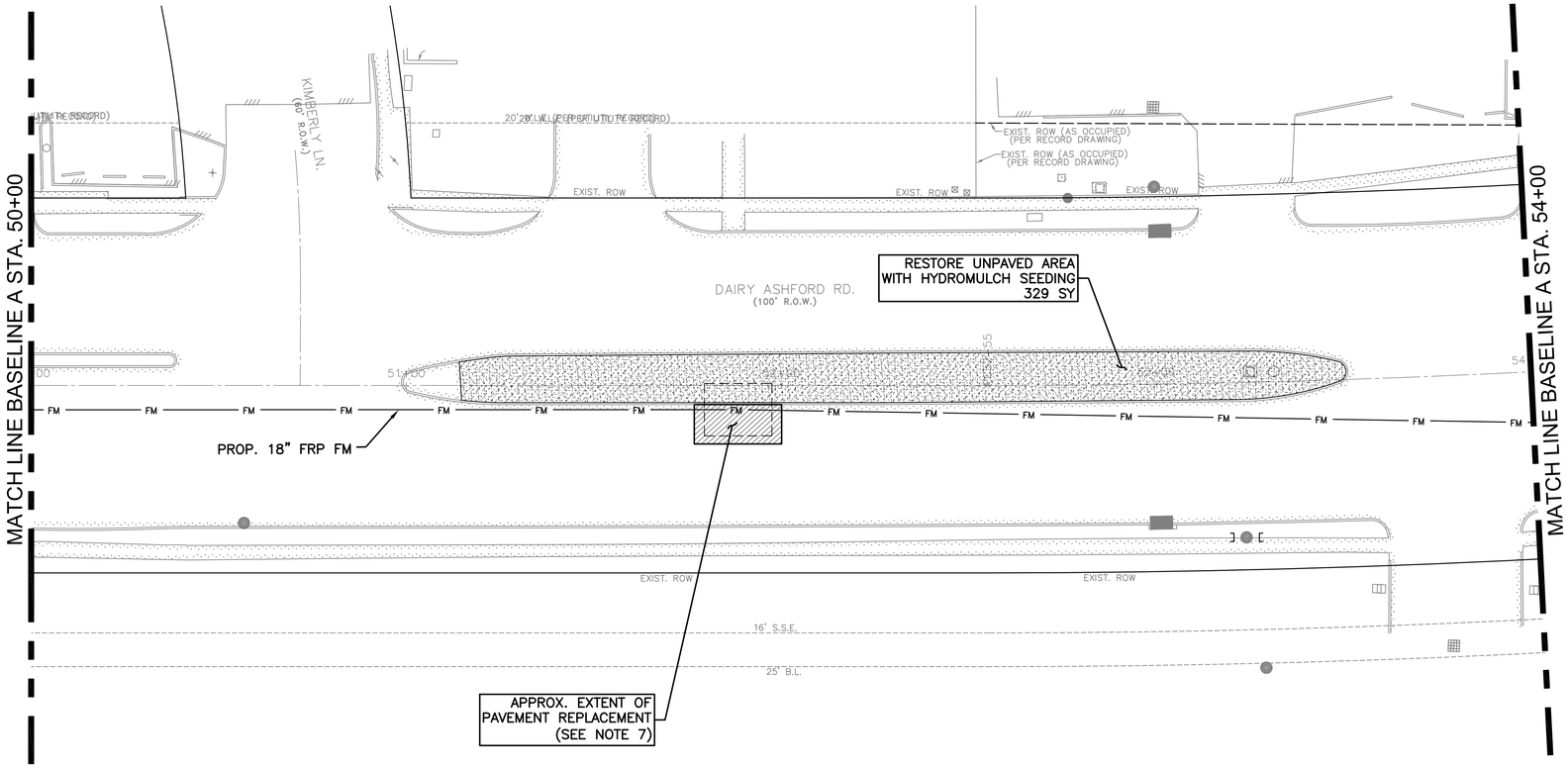
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N

0' 10' 20' 40'

SCALE: 1"=20'

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 7 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

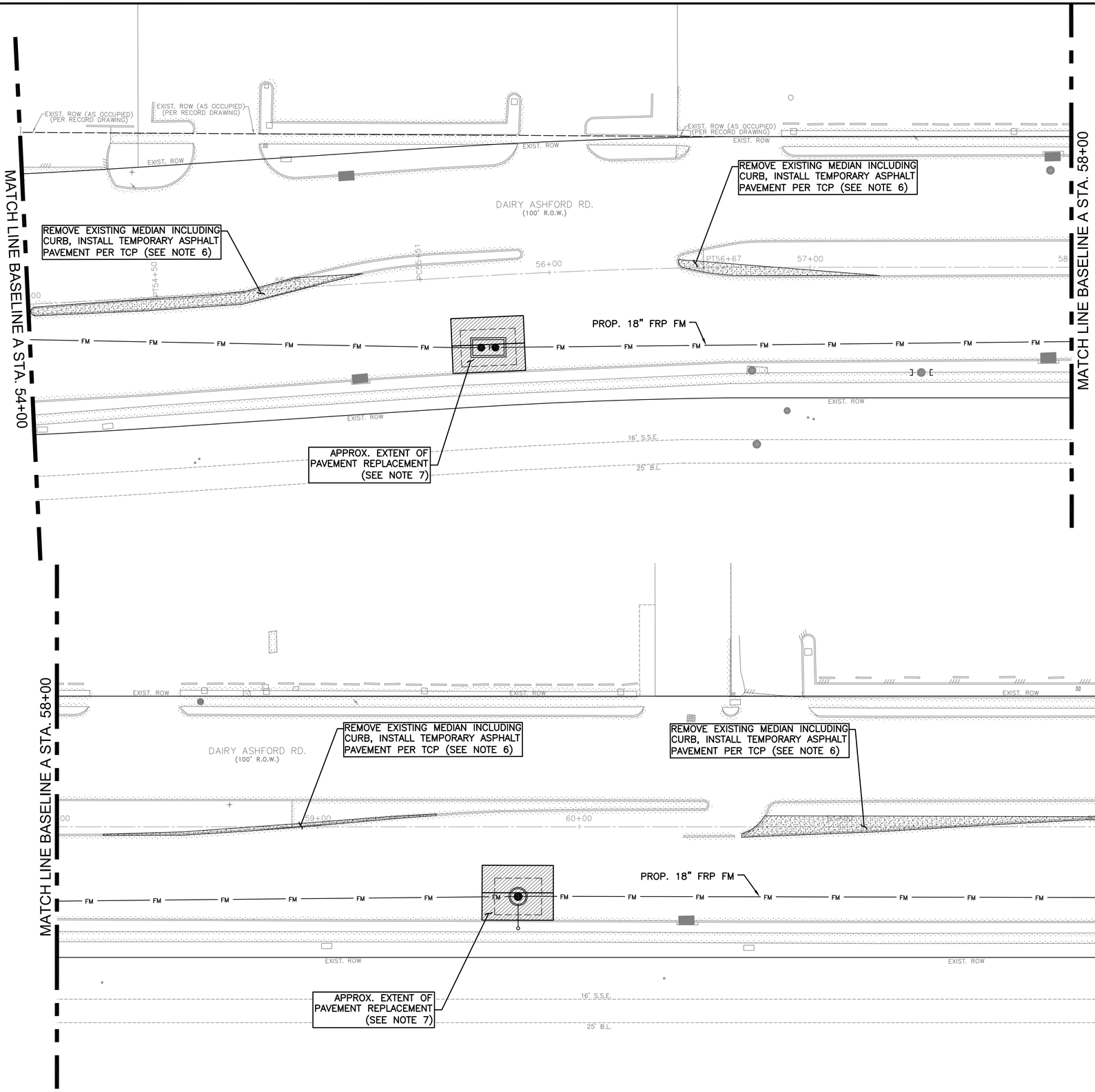
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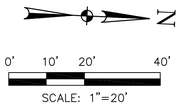
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SHEET NO. 170 OF 192

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 8 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

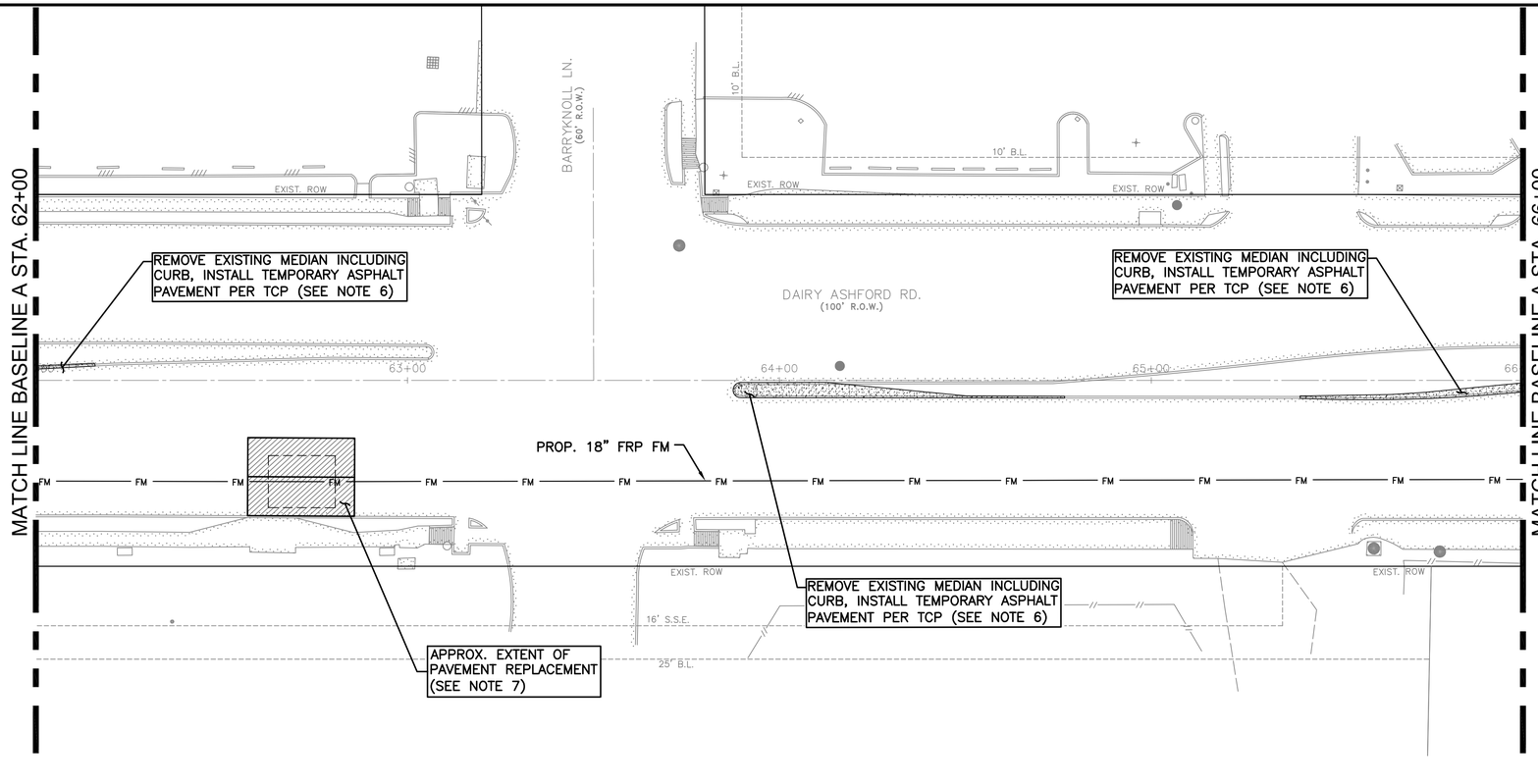
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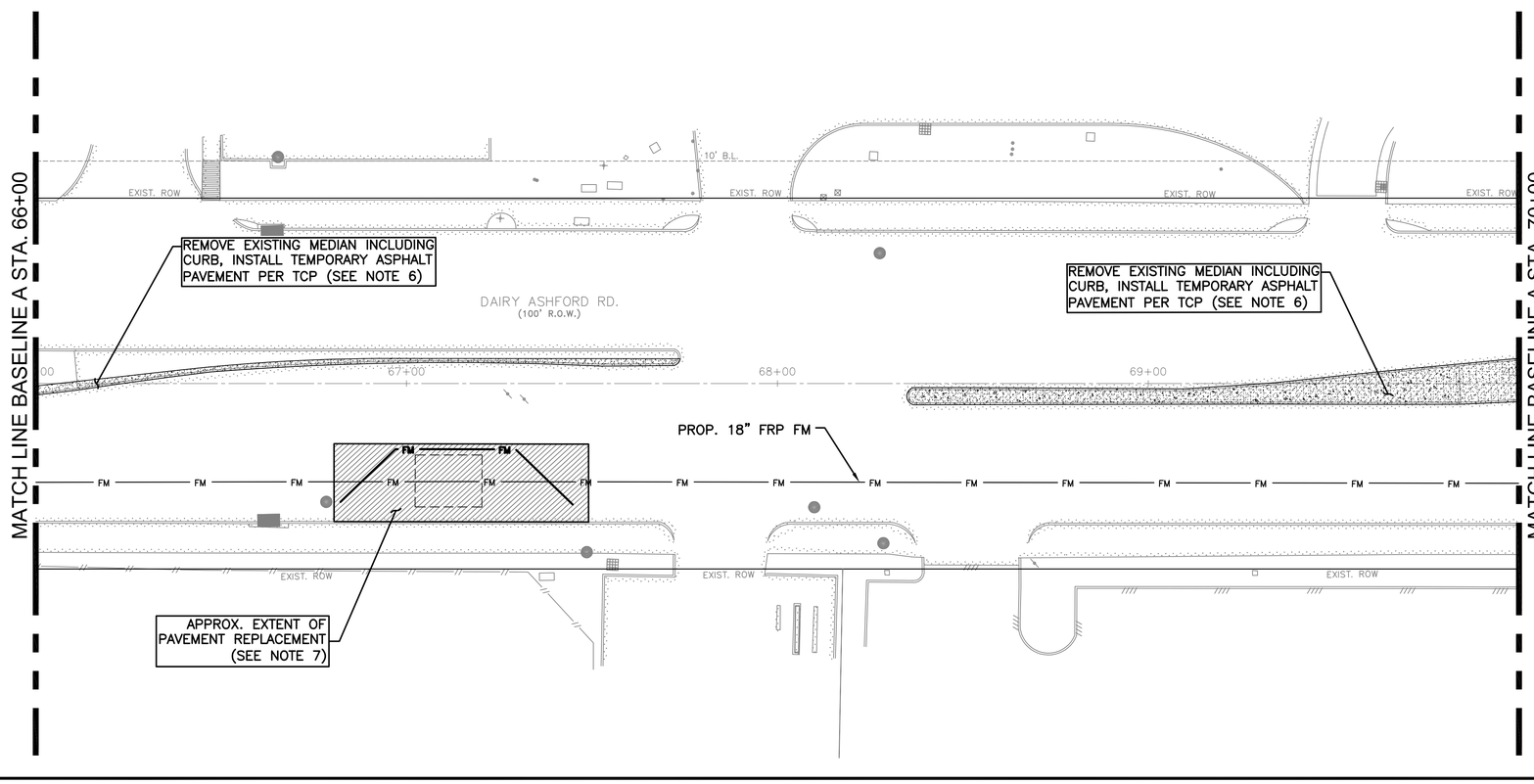
SHEET NO. 171 OF 192

FOR CITY OF HOUSTON USE ONLY

P1.08

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562–COHFM–oldkaty Paving.dwg





N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. 11–INCH CONCRETE PAVEMENT WITH 8–INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771–01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.
6. AFTER REMOVING TEMPORARY ASPHALT RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITIONS. RESTORE UNPAVED AREAS WITH HYDROMULCH SEEDING. NO SEPARATE PAY ITEM FOR REMOVAL AND DISPOSAL OR RESTORATION OF MEDIAN, INCLUDE PRICE IN UNIT PRICE FOR TEMPORARY PAVEMENT.
7. THE LIMITS OF PAVEMENT AND CURB REPLACEMENT SHOWN AT SHAFT LOCATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ANY PAVEMENT REMOVED IN THE COURSE OF SHAFT EXCAVATION, AND ANY PAVEMENT DAMAGE BY CONTRACTOR'S OPERATIONS. REPLACEMENT OF PAVEMENT SHALL BE FULL PANEL, IN ACCORDANCE WITH THE CITY OF HOUSTON'S STANDARDS, MATCHING THE THICKNESS AND STRENGTH OF EXISTING PAVEMENT, AND INCLUDING CURBS AND RAMPS THAT ARE REMOVED OR DAMAGED. NO SEPARATE PAYMENT, COST ARE SUBSIDIARY TO SHAFT EXCAVATION.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 9 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

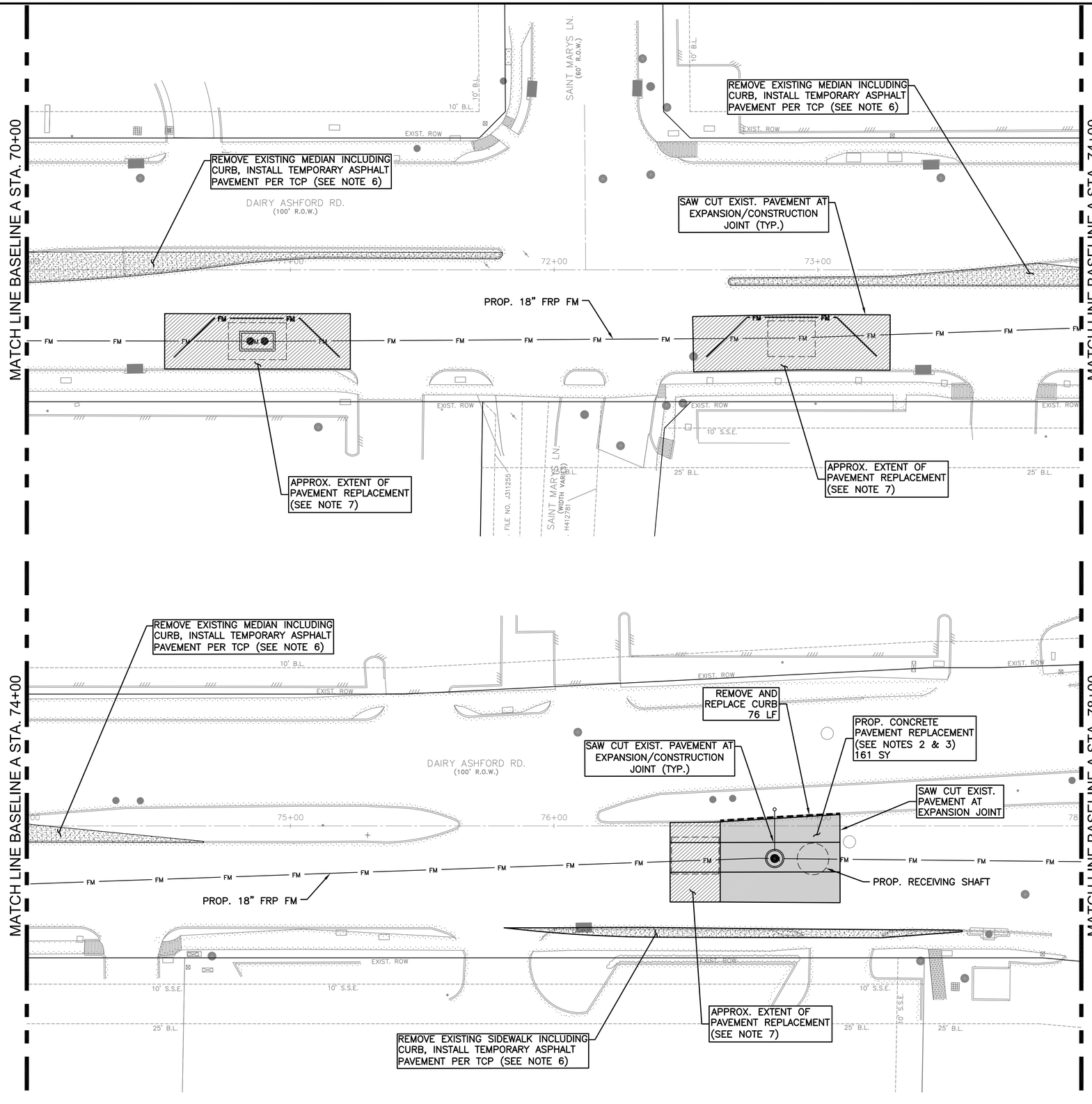
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 172 OF 192

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FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562–COHFM–oldkaty Paving.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. 11–INCH CONCRETE PAVEMENT WITH 8–INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771–01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.
6. AFTER REMOVING TEMPORARY ASPHALT RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITIONS. RESTORE UNPAVED AREAS WITH HYDROMULCH SEEDING. NO SEPARATE PAY ITEM FOR REMOVAL AND DISPOSAL OR RESTORATION OF MEDIAN, INCLUDE PRICE IN UNIT PRICE FOR TEMPORARY PAVEMENT.
7. THE LIMITS OF PAVEMENT AND CURB REPLACEMENT SHOWN AT SHAFT LOCATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ANY PAVEMENT REMOVED IN THE COURSE OF SHAFT EXCAVATION, AND ANY PAVEMENT DAMAGE BY CONTRACTOR'S OPERATIONS. REPLACEMENT OF PAVEMENT SHALL BE FULL PANEL, IN ACCORDANCE WITH THE CITY OF HOUSTON'S STANDARDS, MATCHING THE THICKNESS AND STRENGTH OF EXISTING PAVEMENT, AND INCLUDING CURBS AND RAMPS THAT ARE REMOVED OR DAMAGED. NO SEPARATE PAYMENT, COST ARE SUBSIDIARY TO SHAFT EXCAVATION.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 10 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

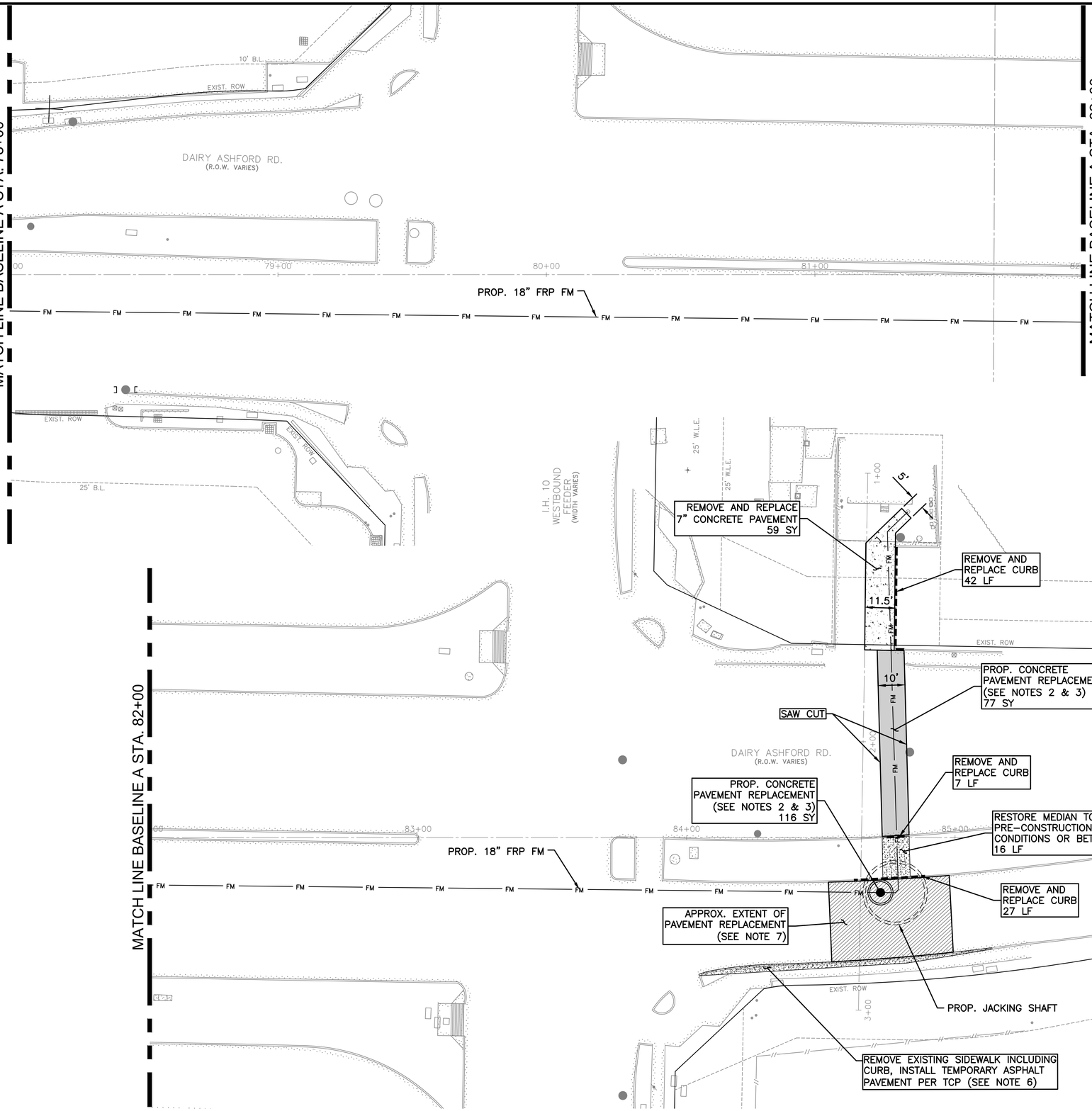
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 173 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p0033391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562–COHFM–oldkaty Paving.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. 11-INCH CONCRETE PAVEMENT WITH 8-INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771-01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.
6. AFTER BACKFILLING TRENCH, RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITIONS.
6. AFTER REMOVING TEMPORARY ASPHALT RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITIONS. RESTORE UNPAVED AREAS WITH HYDROMULCH SEEDING. NO SEPARATE PAY ITEM FOR REMOVAL AND DISPOSAL OR RESTORATION OF SIDEWALK, CURB, AND DRIVEWAY. INCLUDE PRICE IN UNIT PRICE FOR TEMPORARY PAVEMENT.
7. THE LIMITS OF PAVEMENT AND CURB REPLACEMENT SHOWN AT SHAFT LOCATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ANY PAVEMENT REMOVED IN THE COURSE OF SHAFT EXCAVATION, AND ANY PAVEMENT DAMAGE BY CONTRACTOR'S OPERATIONS. REPLACEMENT OF PAVEMENT SHALL BE FULL PANEL, IN ACCORDANCE WITH THE CITY OF HOUSTON'S STANDARDS, MATCHING THE THICKNESS AND STRENGTH OF EXISTING PAVEMENT, AND INCLUDING CURBS AND RAMPS THAT ARE REMOVED OR DAMAGED. NO SEPARATE PAYMENT, COST ARE SUBSIDIARY TO SHAFT EXCAVATION.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

DAIRY ASHFORD ROAD PAVING AND RESTORATION PLAN (SHEET 11 OF 11)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

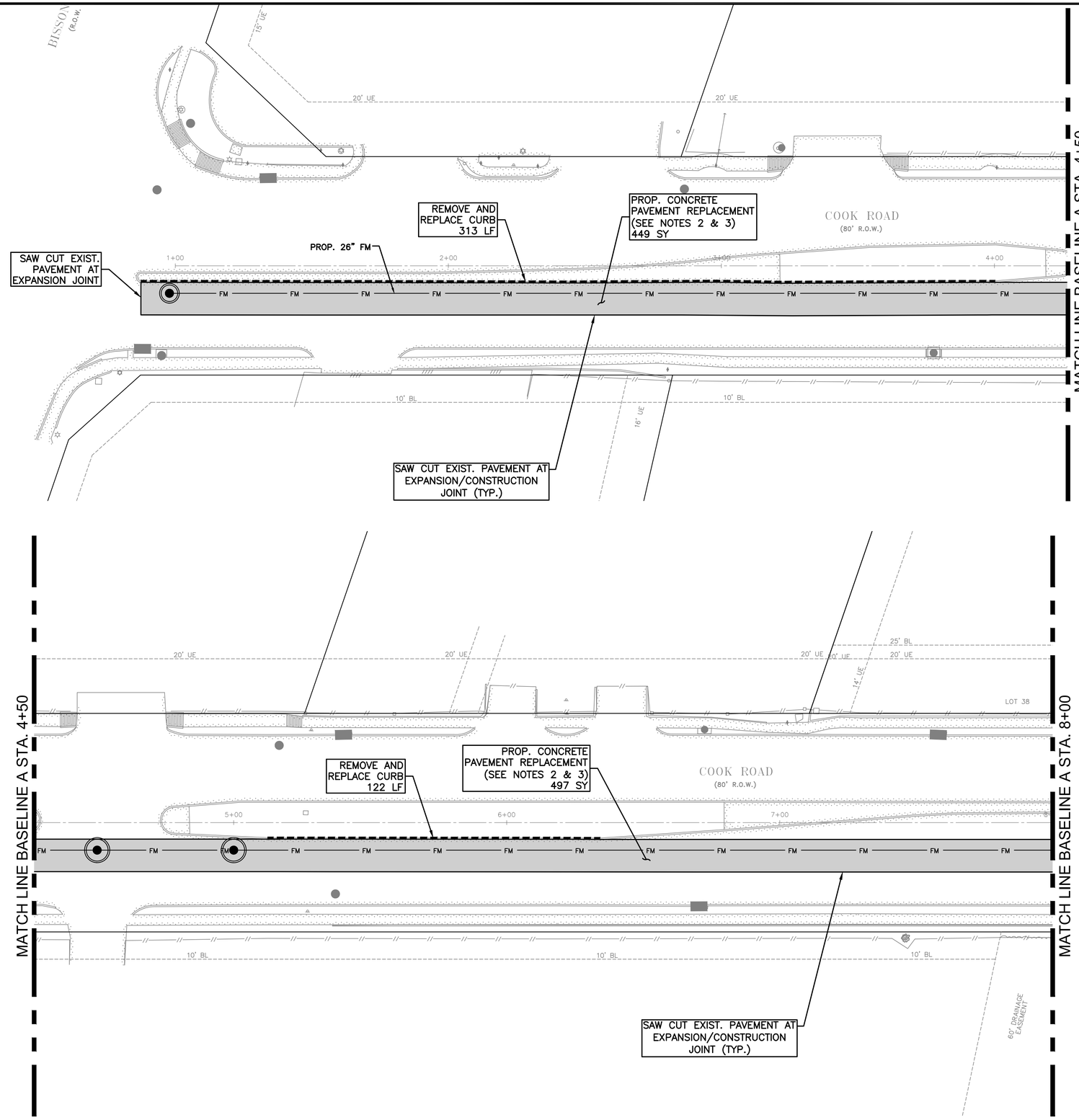
WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 174 OF 192

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\Users\p003391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-oldkaty Paving.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

1. MANHOLE RIM ELEVATIONS TO MATCH EXISTING GRADE.
2. 9–INCH CONCRETE PAVEMENT WITH 6–INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771–01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MONICA PATRICIA SUAREZ, P.E. LIC. # 99458 3/23/2026

IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD PAVING PLAN (SHEET 1 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

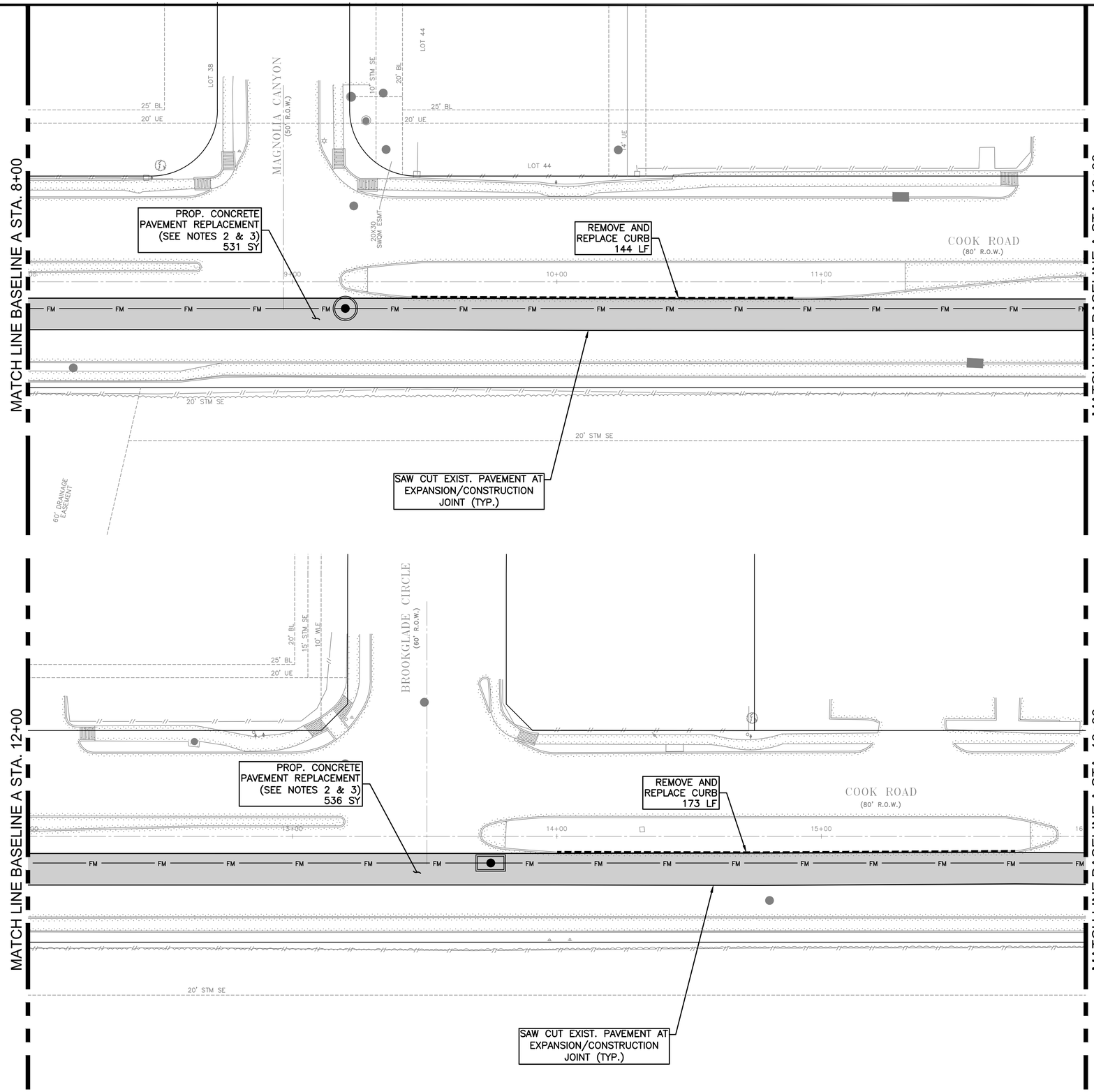
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 175 OF 192

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FILE PATH: C:\Users\p003391\OneDrive – Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562–COHFM–cook Paving.dwg



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

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2. 9-INCH CONCRETE PAVEMENT WITH 6-INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
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4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771-01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD PAVING PLAN (SHEET 2 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

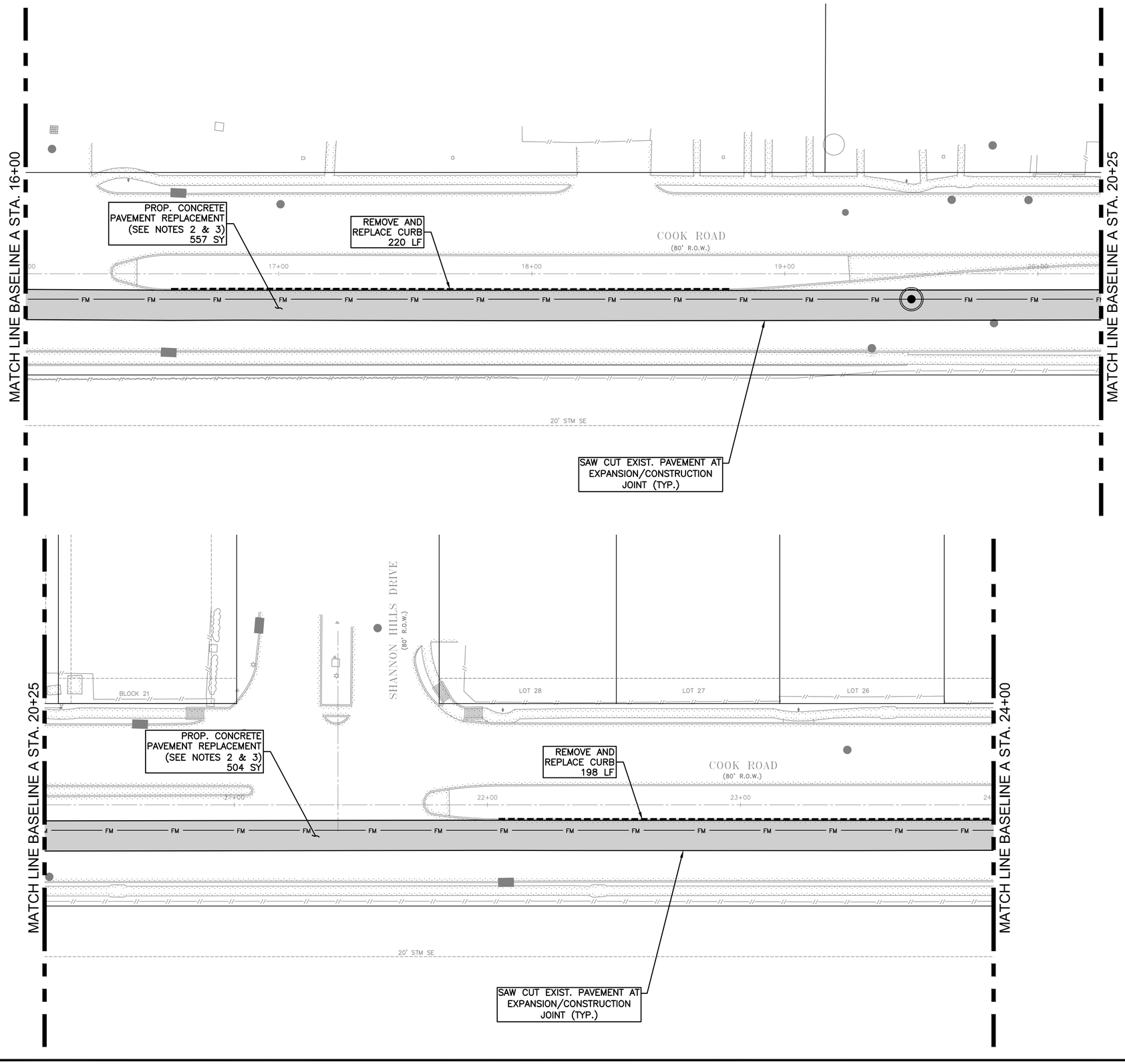
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CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: 1"=20'

SHEET NO. 176 OF 192

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N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.
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C	5/1/25	90% REVISED	MS
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A	10/7/24	60% SUBMITTAL	MS

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4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771–01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. P6417

100% SUBMITTAL

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD PAVING PLAN (SHEET 3 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

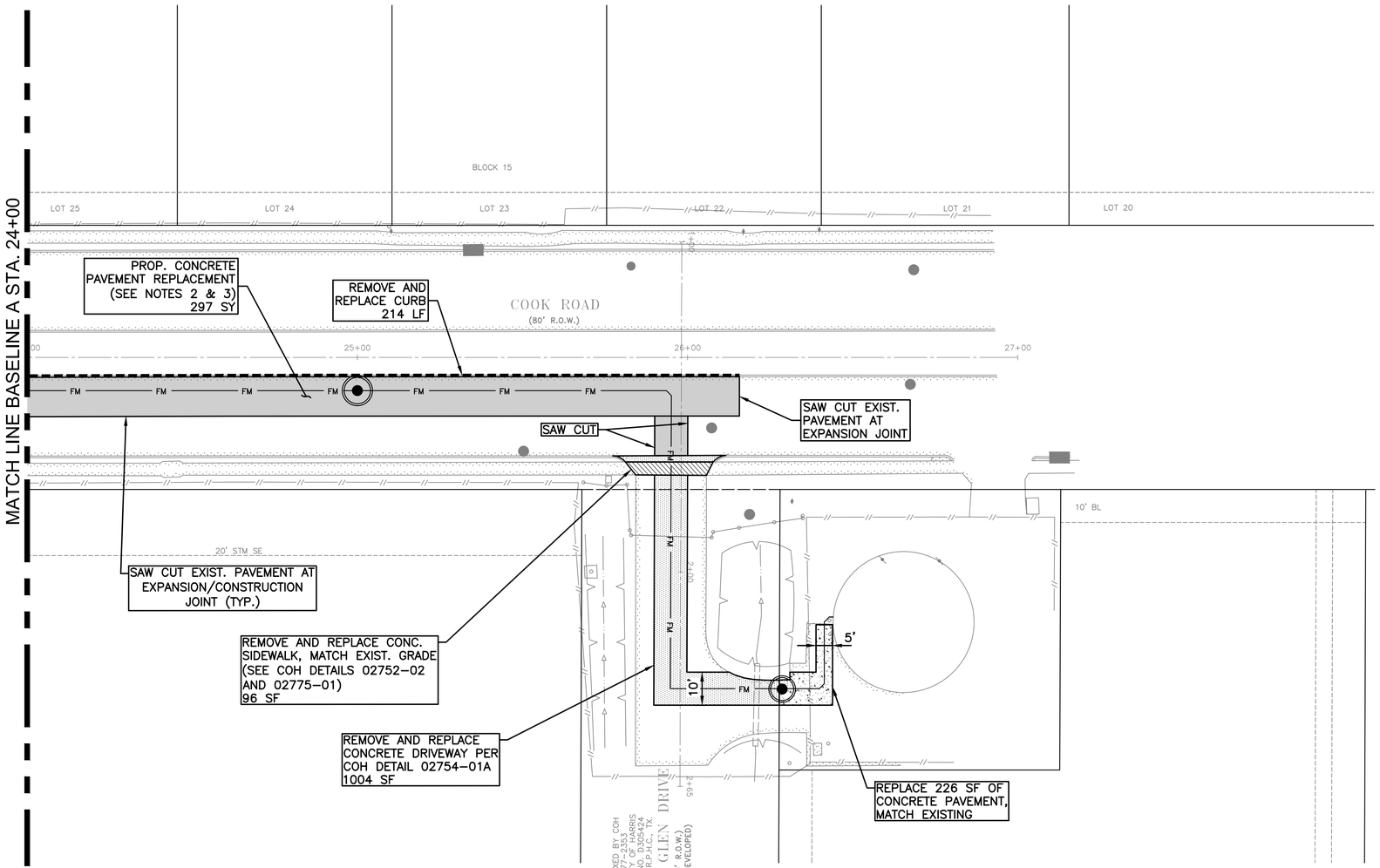
WBS NUMBER: R–000035–0027–4
CITY OF HOUSTON PM: MARIA GEORGE, PE

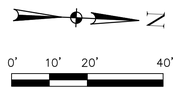
DRAWING SCALE: 1"=20'

SHEET NO. 177 OF 192

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NO.	DATE	REVISION	APP.
D	3/23/26	100% SUBMITTAL	MS
C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

NOTES:

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2. 9–INCH CONCRETE PAVEMENT WITH 6–INCH STABILIZED SUBGRADE. MATCH EXISTING GRADE.
3. PAVEMENT REPAIR SHALL FOLLOW COH STANDARD DETAILS (SEE DWGS. P2.01 TO P2.14).
4. CURB REPLACEMENT SHALL FOLLOW COH STANDARD DETAIL 02771–01 (SEE DWG. P2.08).
5. RESTORE ALL PAVEMENT MARKINGS AFTER PAVEMENT REPLACEMENT.

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

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FB NO. P6417

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

COOK ROAD PAVING PLAN (SHEET 4 OF 4)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

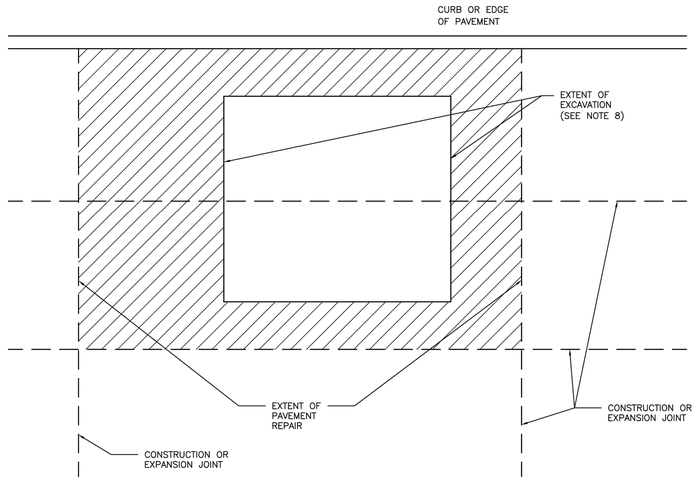
DRAWING SCALE: 1"=20'

SHEET NO. 178 OF 192

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FILE PATH: C:\Users\p0033391\OneDrive - Parsons Corp\Documents\Jobs\453\453562 FM Replacement For Old Katy And Cook Rd LSs\ENGR\CAD\Civil\453562-COHFM-cook Paving.dwg

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6



NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. REPLACE ENTIRE PANEL WIDTH AND LENGTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL WITHIN EXISTING PAVEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951—PAVEMENT REPAIR AND RESTORATION) IF EXISTING REINFORCING IS BROKEN OFF.
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
6. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
7. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764—RAISED PAVEMENT MARKERS AND 02767—THERMOPLASTIC PAVEMENT MARKINGS.
8. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951—04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX—BASE PAVEMENT & CONCRETE PAVEMENT).

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT ≤ 5YRS
(SCALE: NOT TO SCALE)

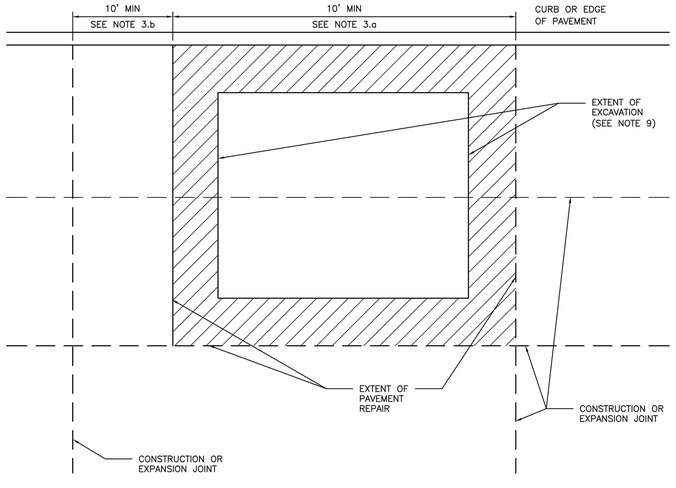
APPROVED BY:

DocuSigned by: Suhail Tanwar — CITY ENGINEER
DocuSigned by: Carl Haddock — DIRECTOR OF HPW
DocuSigned by: LONG NGUYEN — CITY TRAFFIC ENGINEER

EFF DATE: NOV—27—2023 | DWG NO: 02951—01

DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY PROBLEMS ASSOCIATED WITH ITS USE OR ANY OPERATION OR EQUIPMENT TO BE USED IN ITS APPLICATION. THE ENGINEER USING THIS STANDARD IN DESIGN DOCUMENTS IS RESPONSIBLE FOR THE SAFE DESIGN OF THE ITEMS COVERED BY THIS STANDARD AND SHALL DETERMINE THE APPROPRIATENESS OF THE STANDARD FOR EACH USE. ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. WIDTH:
   REPLACE PANEL WIDTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. LENGTH:
   a. MINIMUM LENGTH OF PAVEMENT REPAIR ALONG TRAVEL WAY IS 10' FROM THE NEAREST JOINT.
   b. IF EXTENT OF PAVEMENT REPAIR IS LESS THAN 10' FROM EXISTING CONSTRUCTION OR EXPANSION JOINT, EXTEND PAVEMENT REPAIR TO EXISTING JOINT.
4. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF PANEL REPLACEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951—PAVEMENT REPAIR AND RESTORATION) IF REINFORCING IS BROKEN OFF OR DOES NOT EXIST.
5. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
6. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
7. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
8. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764—RAISED PAVEMENT MARKERS AND 02767—THERMOPLASTIC PAVEMENT MARKINGS.
9. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951—04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX—BASE PAVEMENT & CONCRETE PAVEMENT).

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT > 5YRS
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Tanwar — CITY ENGINEER
DocuSigned by: Carl Haddock — DIRECTOR OF HPW
DocuSigned by: LONG NGUYEN — CITY TRAFFIC ENGINEER

EFF DATE: NOV—27—2023 | DWG NO: 02951—02

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

PAVING AND STREET REPAIR DETAILS (SHEET 1 OF 14)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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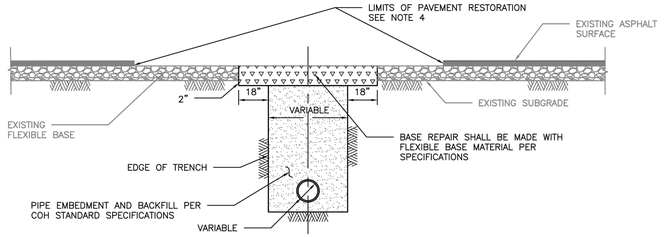
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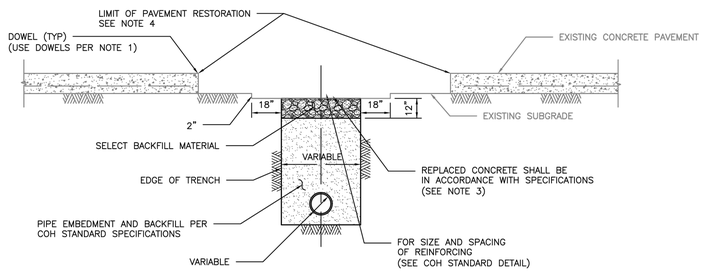
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ELEVATION A
REPAIR OF FLEXIBLE BASE PAVEMENT



ELEVATION B
REPAIR OF REINFORCED CONCRETE PAVEMENT

NOTES:

1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BAR, 24" LONG, 24" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENTS.
4. REFER TO STANDARD DETAIL 02951-01 THROUGH 03 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT REPAIR DETAIL
FOR STREET CUTS
(FLEX-BASE PAVEMENT & CONCRETE PAVEMENT)
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar — CITY ENGINEER
DocuSigned by: Khang Nguyen — CITY TRAFFIC ENGINEER
DocuSigned by: Carl Haddock — DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | DWG NO: 02951-04

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

PAVING AND STREET REPAIR DETAILS (SHEET 2 OF 14)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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CITY OF HOUSTON PM: MARIA GEORGE, PE

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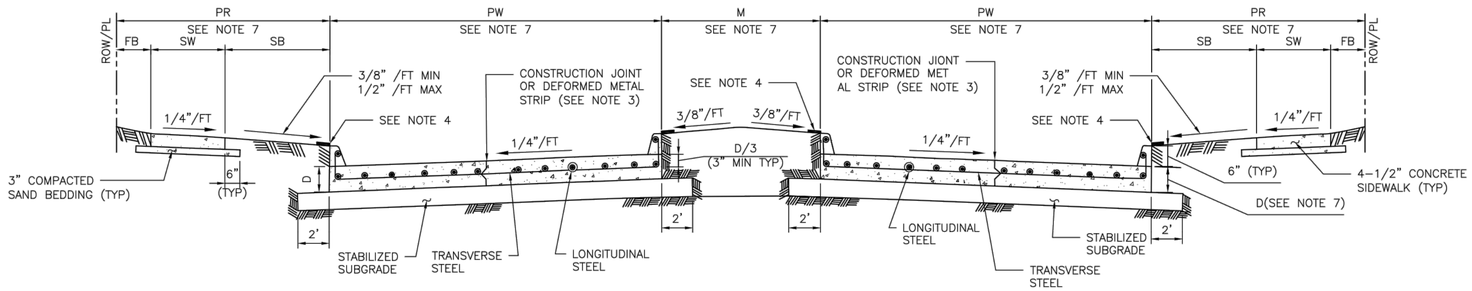
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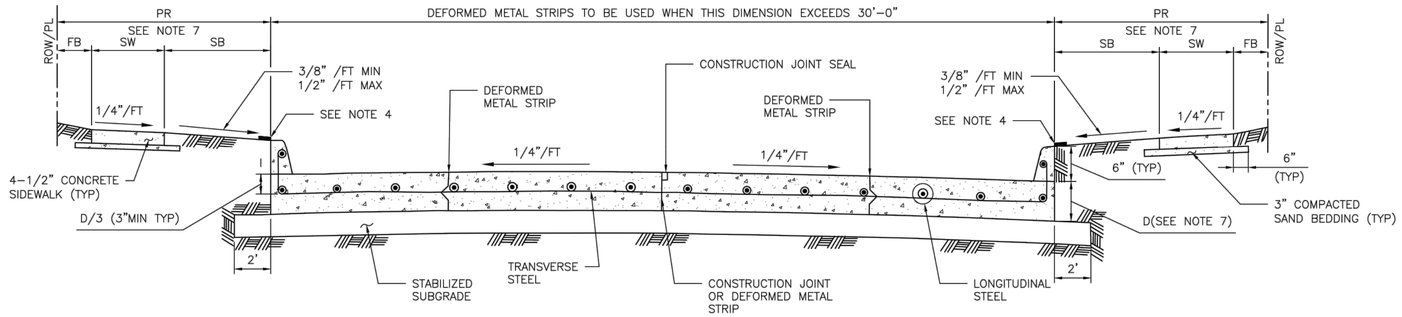
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TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

TABLE 1

REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH: MAXIMUM TRANSVERSE CONTROL JOINT SPACING = 20'–0"
MAXIMUM EXPANSION JOINT SPACING = 80'–0"
fc' = 4,000 PSI/28 DAYS AND FY = 60,000 PSI

PAVEMENT THICKNESS 'D' (IN)	PAVEMENT WIDTH 'PW' (FT)	LONGITUDINAL STEEL									TRAVERSE STEEL		
		#4 BARS			#5 BARS			#6 BARS			#4 BARS	#5 BARS	#6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	20.50	4.00	–	–	–	–	–	–	36	–	–
7	25	17	18.25	4.00	–	–	–	–	–	–	36	–	–
7	35	24	18.00	3.00	–	–	–	–	–	–	36	–	–
7	36	25	17.75	3.00	–	–	–	–	–	–	36	–	–
7	37	25	18.25	3.00	–	–	–	–	–	–	36	–	–
7	41	28	18.00	3.00	–	–	–	–	–	–	36	–	–
7	45	31	17.75	3.75	–	–	–	–	–	–	36	–	–
8	25	20	15.50	2.75	13	24.50	3.0	–	–	–	36	36	–
8	34	27	15.50	2.50	17	25.00	4.0	–	–	–	36	36	–
8	35	27	16.00	2.00	18	24.25	4.0	–	–	–	36	36	–
8	36	28	15.75	3.25	18	25.00	3.0	–	–	–	30	36	–
8	44	24	15.75	4.00	22	24.75	4.0	–	–	–	30	36	–
8	45	35	15.75	2.25	23	24.25	3.0	–	–	–	30	36	–
9	25	22	14.00	3.00	14	22.50	4.0	–	–	–	36	36	–
9	34	31	13.50	2.00	19	22.25	3.5	–	–	–	30	36	–
9	35	31	13.75	3.75	20	21.75	3.5	–	–	–	30	36	–
9	36	32	13.75	3.00	21	21.25	3.5	–	–	–	30	36	–
9	44	39	13.75	2.75	25	21.75	3.0	–	–	–	24	36	–
9	45	39	14.00	4.00	26	21.25	4.5	–	–	–	24	36	–
10	25	24	12.75	3.50	17	18.25	4.0	–	–	–	36	36	36
10	34	33	12.50	4.00	21	20.00	4.0	–	–	–	30	36	36
10	35	34	12.50	3.75	23	18.75	4.0	–	–	–	30	36	36
10	36	35	12.50	3.50	24	18.50	3.0	–	–	–	30	36	36
10	44	44	12.00	4.00	29	18.50	4.5	–	–	–	24	36	36
10	45	44	12.50	3.00	29	19.00	3.0	–	–	–	24	36	36
11	25	27	11.25	3.00	17	18.25	4.0	12	26.75	3	36	36	36
11	34	36	11.50	2.75	24	17.50	2.5	17	25.00	4	24	36	36
11	35	37	11.50	3.00	24	18.00	3.0	17	25.75	4	24	36	36
11	36	40	11.00	2.00	25	17.75	3.0	17	26.50	4	24	36	36
11	44	48	11.125	2.50	30	18.00	3.0	21	26.00	4	24	36	36
11	45	49	11.125	3.00	31	17.75	4.0	22	25.50	3	24	36	36
12	25	–	–	–	19	16.25	4.0	13	24.50	3	36	36	36
12	34	–	–	–	26	16.00	4.0	18	23.50	4	24	36	36
12	35	–	–	–	26	16.50	4.0	19	23.00	3	24	36	36
12	36	–	–	–	27	16.25	4.5	20	22.25	4.5	24	36	36
12	44	–	–	–	33	16.25	4.0	24	22.50	5	24	30	36
12	45	–	–	–	35	15.75	3.0	25	22.25	3	24	30	36

MINIMUM LAP LENGTH (L):
A. # 4 BARS ; L = 22 INCHES
B. # 5 BARS ; L = 27 INCHES
C. # 6 BARS ; L = 32 INCHES

NOTES:

1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'–0".
2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
4. USE STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.
5. AN EQUAL OR LARGER AREA OF WELDED REINFORCEMENT BAR CONFORMING TO ASTM A497, MAY BE SUBSTITUTED FOR REBARS LISTED IN TABLE 1.
6. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.
7. REFER TO CONTRACT DRAWINGS FOR PAVEMENT WIDTH (PW) AND PAVEMENT THICKNESS (D), MEDIAN (M), PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

APPROVED BY:	APPROVED BY:
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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A93C41087283455...
DIRECTOR OF HOUSTON PUBLIC WORKS

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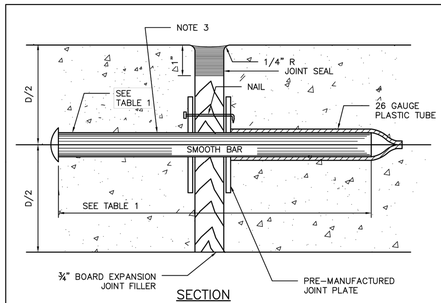
PAVING AND STREET REPAIR DETAILS (SHEET 3 OF 14)

CONCRETE PAVEMENT DETAILS

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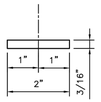
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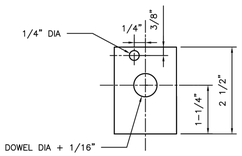
SECTION

DOWEL TYPE EXPANSION JOINT



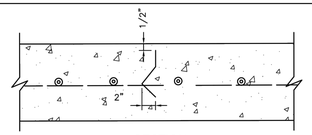
PLAN VIEW

JOINT PLATE



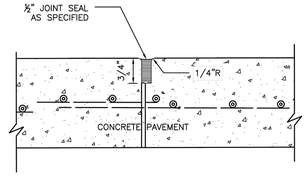
ELEVATION VIEW

JOINT PLATE



SECTION

DEFORMED METAL STRIP



SECTION

CONSTRUCTION JOINT SEAL

TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED 12" CENTER ON CENTER.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN COVER.
5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

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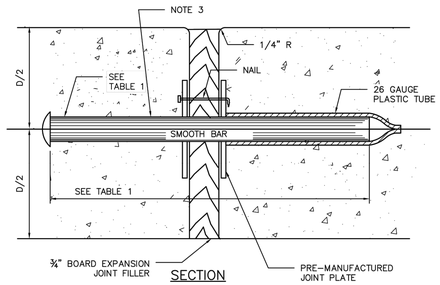
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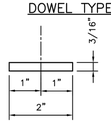
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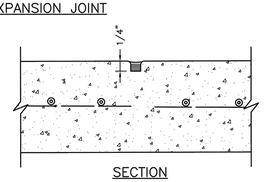
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DOWEL TYPE EXPANSION JOINT



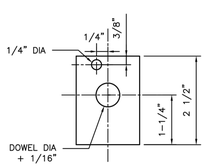
PLAN VIEW

JOINT PLATE



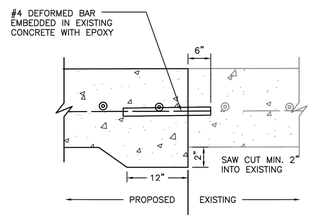
SECTION

CONTROL JOINT



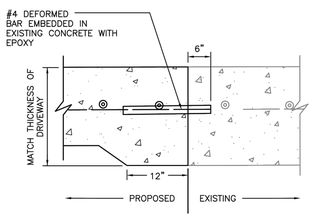
ELEVATION VIEW

JOINT PLATE



SECTION

SIDEWALK TO EXISTING SIDEWALK



SECTION

SIDEWALK TO EXISTING DRIVEWAY

TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 3 FEET MAXIMUM SPACING FOR CONTROL JOINTS SHALL BE 5 FEET.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN A 2 INCH MINIMUM COVER.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Sukut kanwar — CITY ENGINEER

DocuSigned by: HANG NGUYEN — CITY TRAFFIC ENGINEER

DocuSigned by: Carl Haddock — DIRECTOR OF HPW

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

PAVING AND STREET REPAIR DETAILS (SHEET 4 OF 14)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WBS NUMBER: R-000035-0027-4
CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

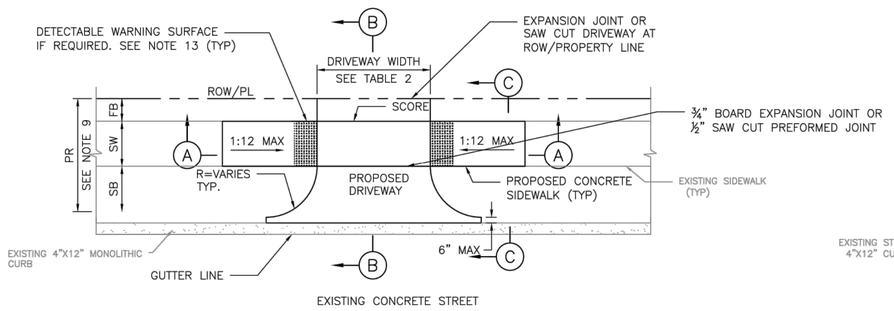
SHEET NO. 182 OF 192

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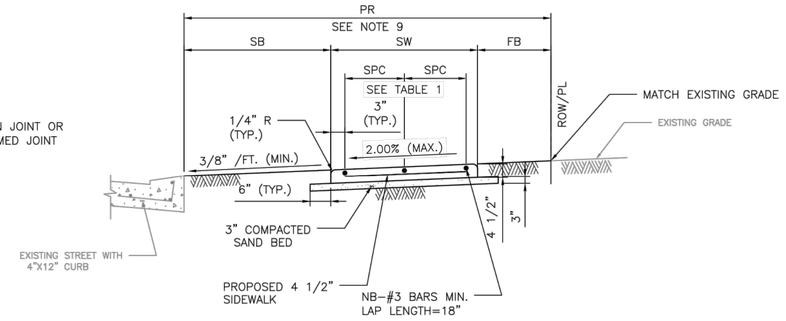
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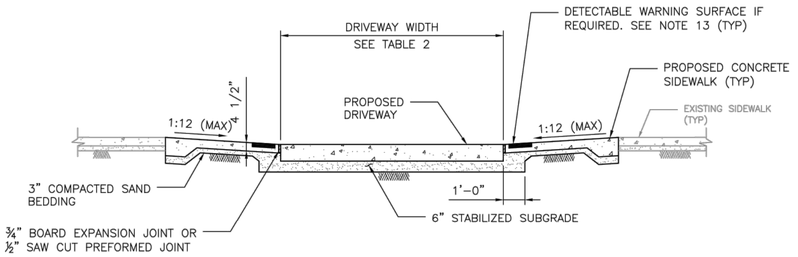
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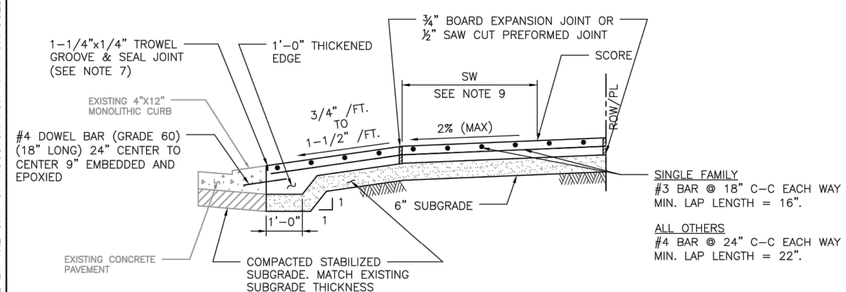
PLAN VIEW
DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION



SECTION A–A
PROPOSED SIDEWALK, THROUGH DRIVEWAY WITH EXCESSIVE GRADES



SECTION B–B
TYPICAL DRIVEWAY SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.
4. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY OR DUPLEXES.
5. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
6. THE OUTER DOWEL BARS ARE TO BE LOCATED 12" FROM END OF PROPOSED EDGE OF DRIVEWAY RETURN. EXTEND DOWEL 3" INCHES INTO PROPOSED DRIVEWAY AND BEND REMAINING BAR TO EXTEND TO RADIUS RETURN BOTH SIDES.
7. TROWEL GROOVE SEALANT SHALL BE LOW MODULUS SILICONE OR POLYURETHANE SEALANT.
8. ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752–02 AND SPECIFICATION 02752.
9. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
10. CEMENT STABILIZED SAND 1.5 SACKS OF CEMENT PER TON OF DRY SAND.
11. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
12. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
13. DETECTABLE WARNING SURFACES:
    - 13.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
      - 13.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD OR TRAFFIC SIGNAL CONTROLLED; OR
      - 13.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
    - 13.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
    - 13.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL #3 BARS NO. OF BARS "NB"	LONGITUDINAL STEEL #3 BARS SPACING "SPC" (IN)	LONGITUDINAL STEEL #3 BARS END BAR SPACING (IN)	TRANSVERSE STEEL #3 BARS SPACING (IN)
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
(3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
(4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
(5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE–WAY DRIVEWAYS.
(6) REFER TO CHAPTER 42, SECTION 42–146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...
CITY ENGINEER

APPROVED BY:
DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A83C41687283465...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 02754–01A

PARSONS
1 RIVERWAY
SUITE 1100
HOUSTON, TEXAS 77056
PH. 713 871–7000
TBPE FIRM REGISTRATION NO. 8008

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

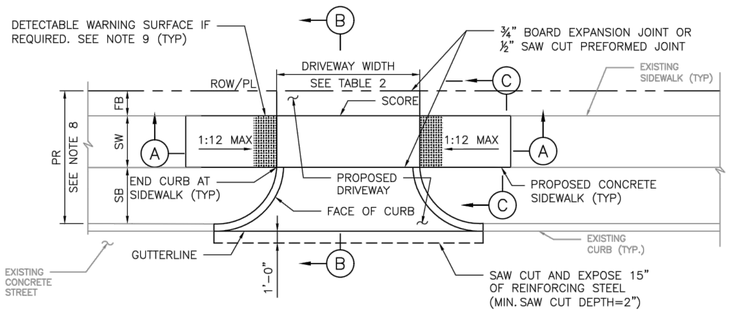
PAVING AND STREET REPAIR DETAILS (SHEET 5 OF 14)

DRIVEWAY DETAIL WITH 4"x12" CURB FOR LOCAL RESIDENTIAL STREETS

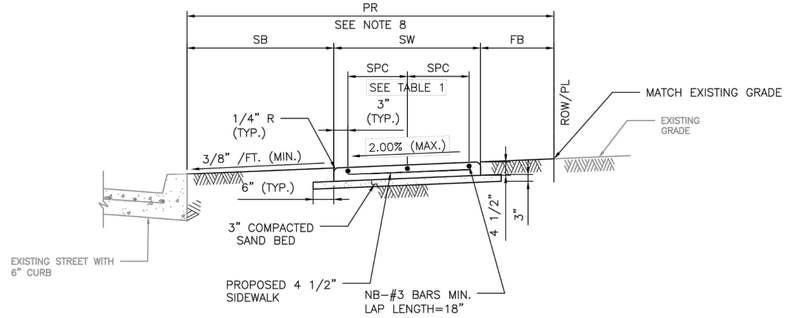
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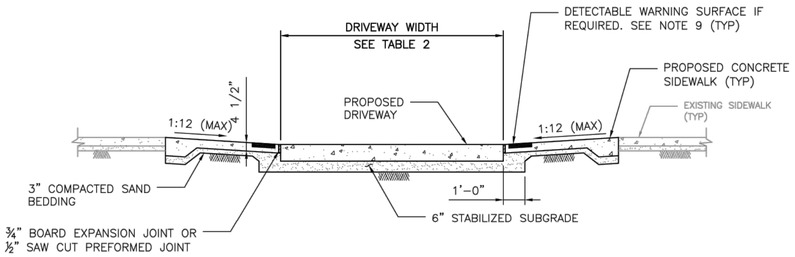
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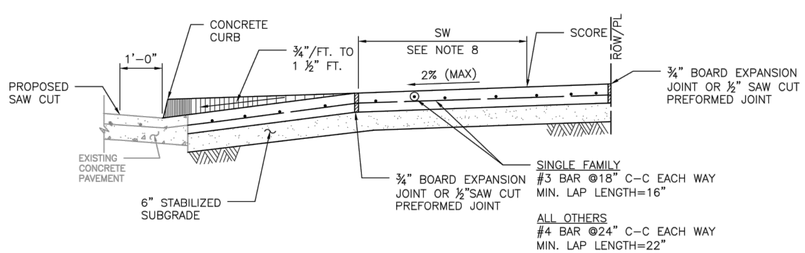
PLAN VIEW
DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION



SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY
WITH EXCESSIVE ELEVATION DIFFERENCE
WITH EXISTING SIDEWALK



SECTION B–B
TYPICAL DRIVEWAY SECTION

NOTES:

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     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752–02 AND SPECIFICATION 02752.
4. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
5. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
6. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
7. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
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   - 9.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
     - 9.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
     - 9.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
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REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
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fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL #3 BARS			TRANSVERSE STEEL #3 BARS SPACING (IN)
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEPT PATH ANALYSIS.
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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A63C4168728D455...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023 | DWG NO: 02754–01B

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HOUSTON PUBLIC WORKS STANDARD

PAVING AND STREET REPAIR DETAILS (SHEET 6 OF 14)

DRIVEWAY DETAIL WITH 6" CURBED STREETS

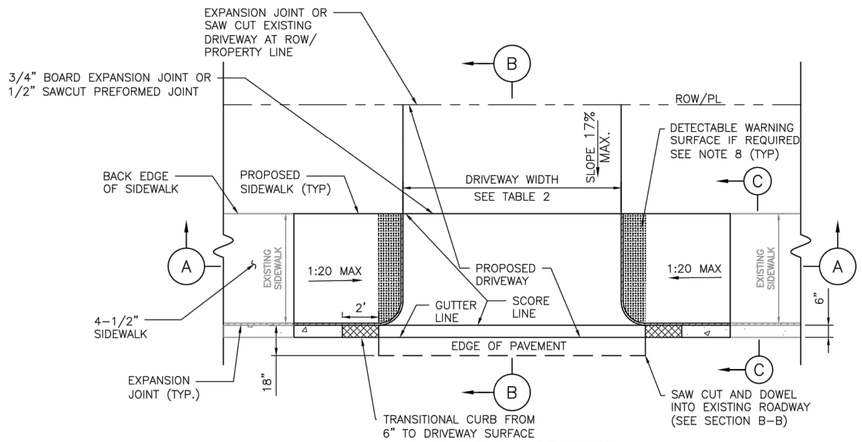
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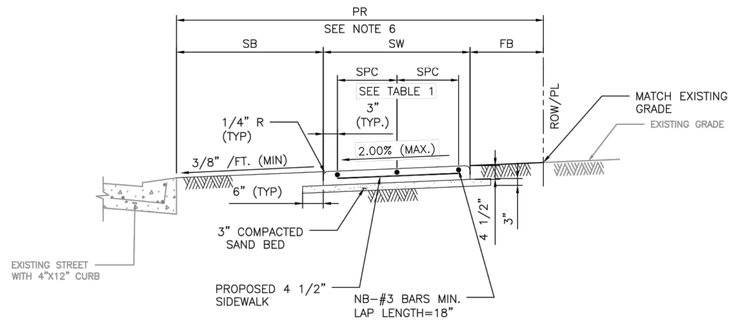
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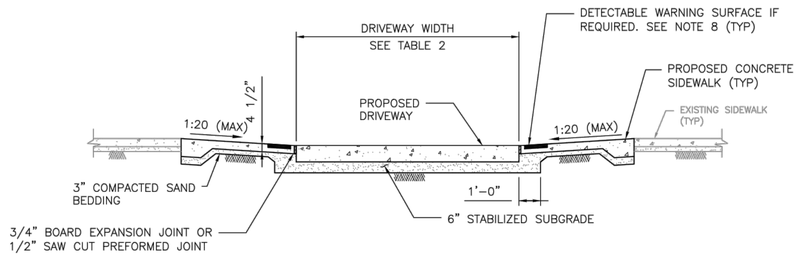
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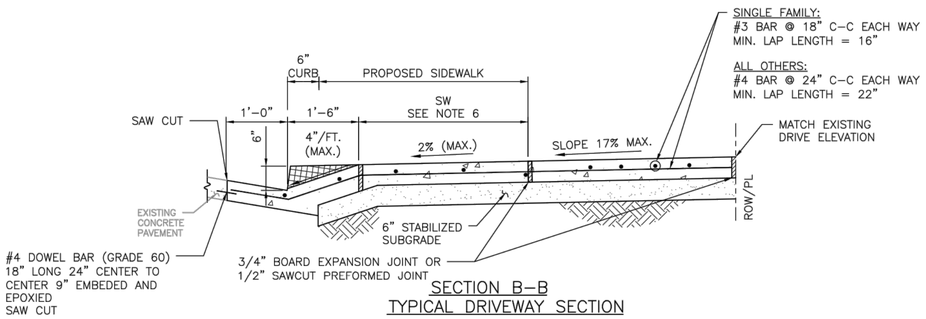
PLAN VIEW – DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION



SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY



SECTION B–B
TYPICAL DRIVEWAY SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
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   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. PROPOSED SIDEWALKS THAT DO NOT FALL WITHIN THE SCOPE DEFINED IN NOTE 2 SHALL BE DESIGNED ACCORDING TO IDM REQUIREMENTS AND CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS.
4. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
5. CURB RAMPS THAT ARE STEEPER THAN A 1:20 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
6. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
7. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
8. DETECTABLE WARNING SURFACES:
   - 8.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED.
   - 8.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
   - 8.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		#3 BARS			
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
(3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
(4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
(5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE–WAY DRIVEWAYS.
(6) REFER TO CHAPTER 42, SECTION 42–146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023 | DWG NO: 02754–04

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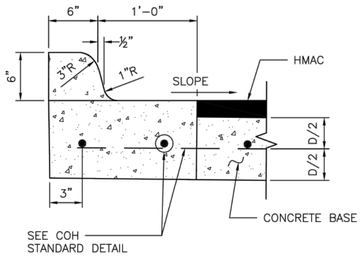
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PAVING AND STREET REPAIR DETAILS (SHEET 7 OF 14)

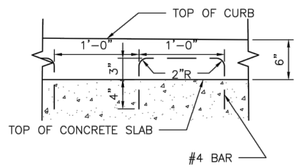
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH MINIMAL ELEVATION DIFFERENCE

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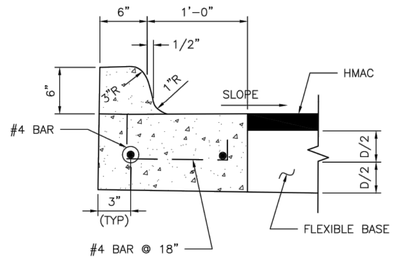
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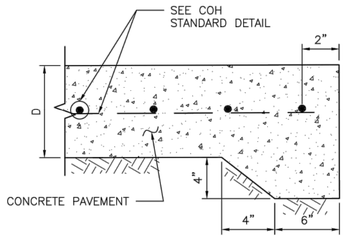
ESPLANADE CURB CONNECTED TO CONCRETE BASE



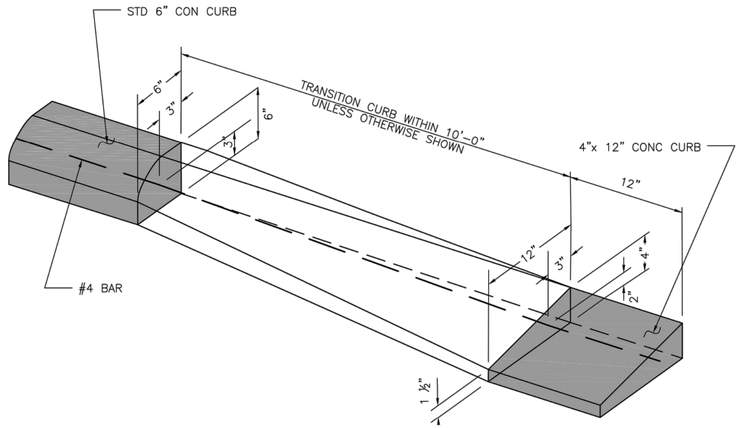
ALTERNATE CONCRETE CURB REINFORCEMENT



ESPLANADE CURB CONNECTED TO FLEXIBLE BASE



STANDARD CONCRETE PAVING HEADER

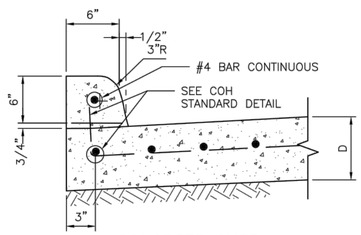


CURB TRANSITION

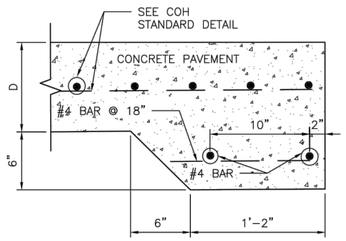
(SEE NOTES)

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

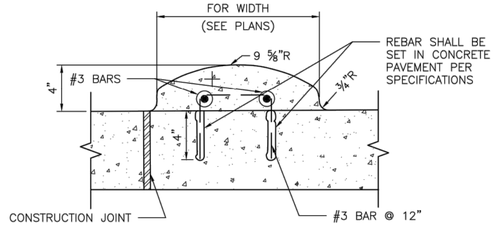
1. 6–INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS, NON–RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
2. TRANSITIONS FROM 6– INCH CONCRETE CURB TO 4–INCH x 12–INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10–FEET TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4–INCH x 12–INCH TRANSITION CURB" IS TO BE INSTALLED.



CONCRETE CURB

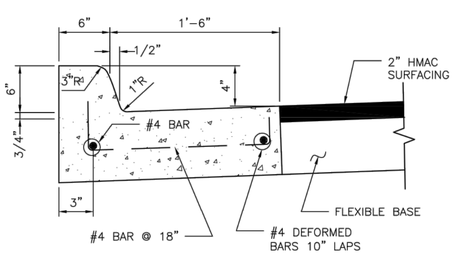


STANDARD RAILROAD HEADER

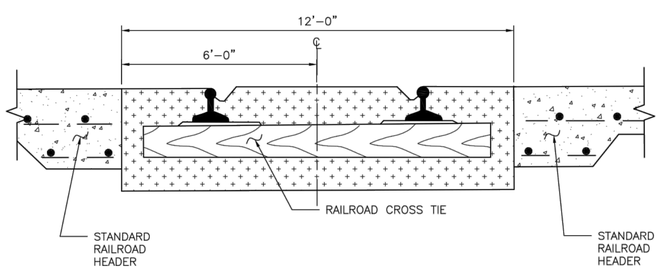


MOUNTABLE CURB

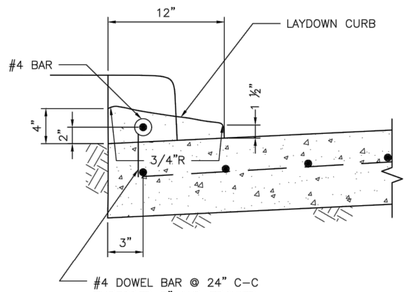
WHEN CONCRETE CURB IS TO BE PLACED EXISTING CONCRETE USE BASE
#4 BAR @ 18x10" LONG, DOWELED AND SET IN EPOXY GROUT.
SET #4 DOWEL BARS, 25" LONG AT 12" C–C WHEN PAVEMENT SECTION POURED.



MONOLITHIC CURB AND GUTTER

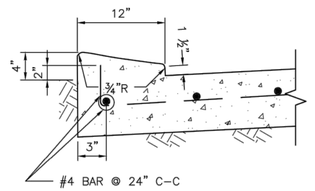


STANDARD RAILROAD CROSSING – SINGLE TRACK



4–INCH x 12–INCH TRANSITION CURB

(SEE NOTES)



4–INCH x 12–INCH MONOLITHIC CURB

(SEE NOTES)

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock A3DC4160B7DE4B5...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVING AND STREET REPAIR DETAILS (SHEET 8 OF 14)

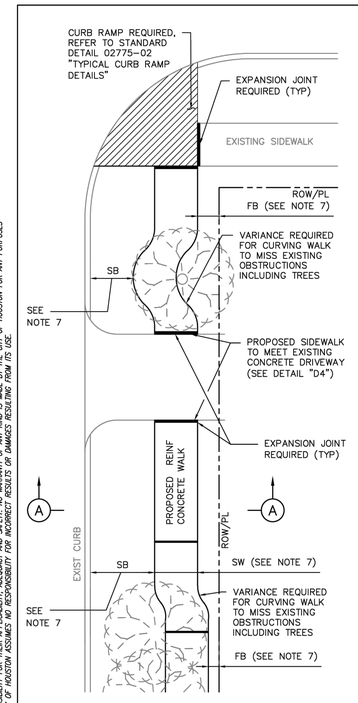
CURB, CURB AND GUTTER AND HEADER DETAILS

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SHEET 186 OF 192	

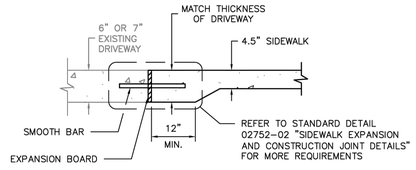
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PLAN VIEW

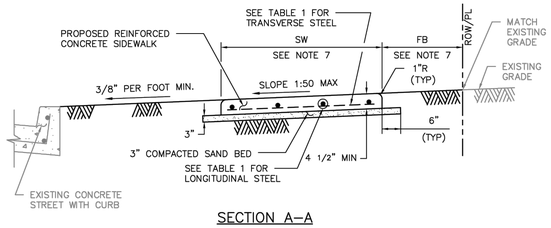


DETAIL D4
DRIVEWAY/SIDEWALK HEADER

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		#3 BARS			
		NO. OF BARS	SPACING (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48



SECTION A–A

NOTES:

1. 6X6 – W2.9XW2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL GIVEN IN TABLE 1.
2. REINFORCED CONCRETE SIDEWALKS THRU DRIVEWAYS OPENINGS SHALL BE EITHER 6" THICK OR 7" THICK AS SPECIFIED ON 6" STABILIZED SUBGRADE. FOR THE REINFORCING STEEL REQUIREMENTS, SEE CITY OF HOUSTON STANDARD DETAILS 02754-01A, 02754-01B, 02754-03, AND 02754-04.
3. MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.
4. CONTRACTOR SHALL CONSTRUCT SIDEWALK IN A MANNER NOT TO BLOCK THE NATURAL DRAINAGE FROM ADJACENT PROPERTY.
5. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
6. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
7. REFER TO CONTRACT DRAWINGS FOR SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIDEWALK LAYOUT AND DETAILS FOR STREETS WITH CURBS
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Sulaiman — CITY ENGINEER
DocuSigned by: KHANG NGUYEN — CITY TRAFFIC ENGINEER
DocuSigned by: Carl Haddock — DIRECTOR OF HPW

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C	5/1/25	90% REVISED	MS
B	2/24/25	90% SUBMITTAL	MS
A	10/7/24	60% SUBMITTAL	MS

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FORCE MAIN REHABILITATION AND RECONSTRUCTION FOR OLD KATY AND COOK ROAD LIFT STATIONS

PAVING AND STREET REPAIR DETAILS (SHEET 9 OF 14)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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CITY OF HOUSTON PM: MARIA GEORGE, PE

DRAWING SCALE: AS SHOWN

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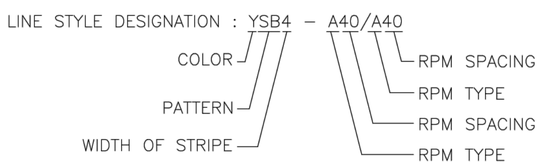
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DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES

LINE SERIES	COLOR	DESCRIPTION	WIDTH (INCHES)	TYPICAL APPLICATIONS
WB	WHITE	BROKEN (10' STRIPE W/30' GAP)	4"	LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS PERMITTED.
WS	WHITE	SOLID	4"	EDGE LINES TO DELINEATE THE RIGHT EDGE OF THE ROADWAY.
			6"	LEFT EDGE OF BICYCLE LANE AND LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS DISCOURAGED.
			12"	PERPENDICULAR CROSSWALK LINES.
			24"	STOP BARS AT INTERSECTIONS (SIGNALIZED AND UNSIGNALIZED).
				HATCHING AT HIGH VISIBILITY CROSSWALKS.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN SAME DIRECTION OF TRAVEL LANES.
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	GUIDE LINES THROUGH INTERSECTIONS.
				TAPER LINES FOR TURN LANES.
				GUIDE LINES FOR BICYCLE LANES.
YS	YELLOW	SOLID	4"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
			6"	BIDIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDS	YELLOW	DOUBLE SOLID	4" – (4") – 4" (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YDB	YELLOW	DOUBLE BROKEN	4" – (4") – 4" (GAP)	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLS DURING INTERMITTENT PERIODS.
YB	YELLOW	BROKEN (10' STRIPE W/30' GAP)	4"	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YB (BIKE)	YELLOW	BROKEN (3' STRIPE W/9' GAP)	4"	SEPARATES BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YSB	YELLOW	SOLID & BROKEN BROKEN (10' STRIPE W/30' GAP)	4" – (4") – 4" (GAP)	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
				USED FOR EDGE OF TWO-WAY LEFT TURN LANES (TWLTL).
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	PED/BIKE CROSSING
				VEHICLE / BIKE/ CONFLICT AREA
YIELD LINE	WHITE	TRIANGLE	16" x 24"	MID-BLOCK CROSSING.

DESCRIPTION AND APPLICATION OF REFLECTIVE RAISED PAVEMENT MARKERS (RPM)

RRPM TYPES	COLOR	COH SPEC. SEC. 02764 EQUIVALENT	DESCRIPTION
C	CLEAR	TYPE I-C	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE DOES NOT REFLECT.
R	CLEAR & RED	TYPE II-C-R	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE REFLECTS RED LIGHT.
A	AMBER & AMBER	TYPE II-A-A	APPROACH FACE AND THE OTHER SIDE BOTH REFLECT AMBER LIGHT.



GENERAL PAVEMENT MARKING NOTES:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE DUPLICATED AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECT'S COMPLETION.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
4. THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC PLACED OVER THE TEMPORARY STRIPING WITHIN 14 TO 30 CALENDAR DAYS AFTER COMPLETION OF THE FINAL PAVEMENT SURFACE, OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER. ALL OTHER PAVEMENT MARKINGS SHALL BE APPLIED AT THE SAME TIME. TEMPORARY STRIPING SHALL BE WATER BASED PAINT.
8. ALL FINAL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. ALL PAVEMENT ARROWS AND LEGENDS SHALL ALSO BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. PREFORMED THERMOPLASTIC APPLICATIONS MAY BE USED IF ONLY APPROVED BY THE CITY TRAFFIC ENGINEER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
14. BLUE RPMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVING AND STREET REPAIR DETAILS (SHEET 10 OF 14)

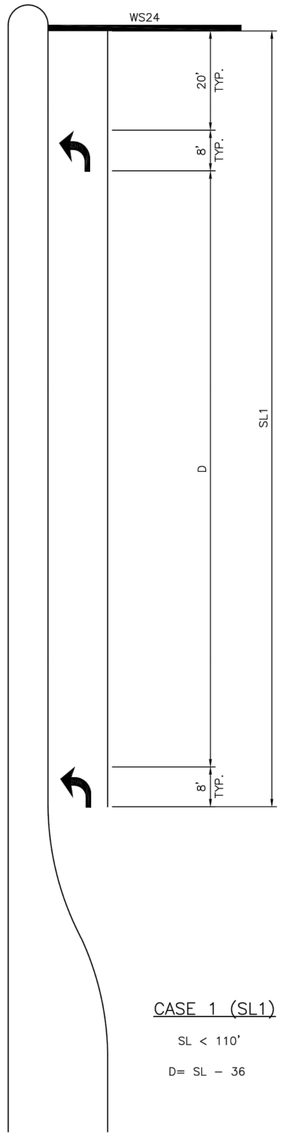
PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS

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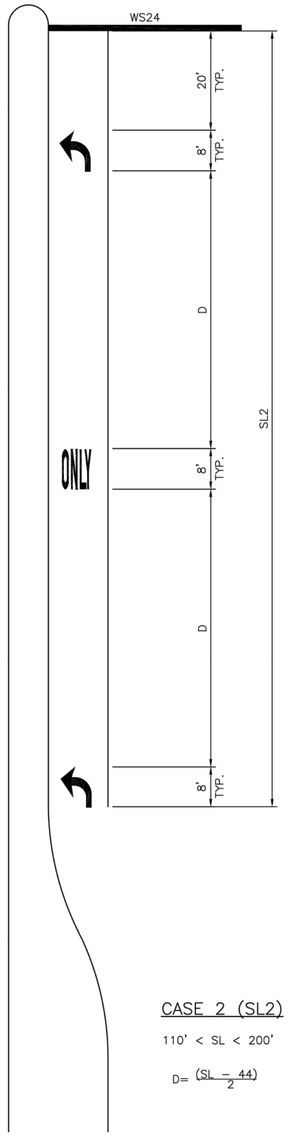
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CASE 1 (SL1)

SL < 110'

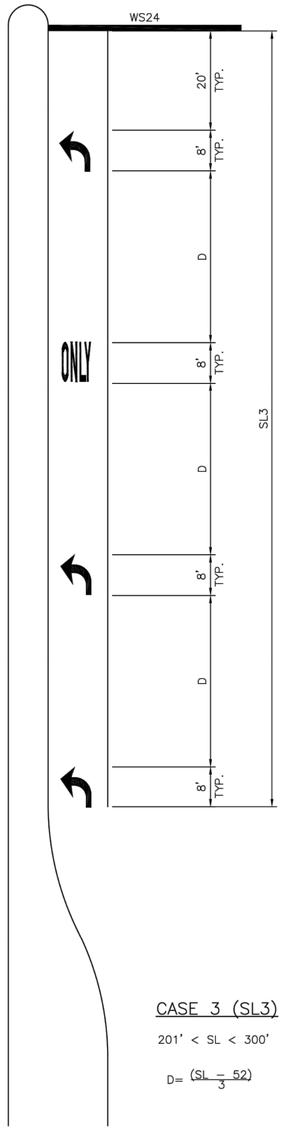
D= SL – 36



CASE 2 (SL2)

110' < SL < 200'

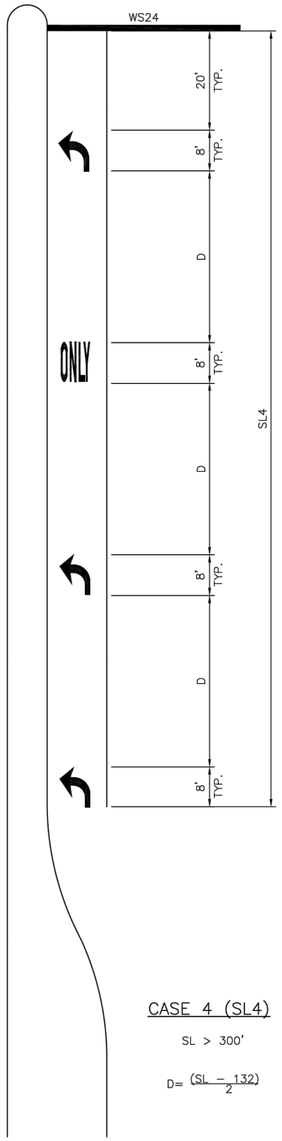
$D = \frac{(SL - 44)}{2}$



CASE 3 (SL3)

201' < SL < 300'

$D = \frac{(SL - 52)}{3}$



CASE 4 (SL4)

SL > 300'

$D = \frac{(SL - 132)}{2}$

KEY (FOR TURN LANES ONLY):

SL – STORAGE LENGTH (FEET)

D – DISTANCE BETWEEN ARROWS AND/OR WORDS (FEET)

GENERAL NOTES:

1. ALL CASES AND DETAILS ALSO APPLY TO RIGHT–TURN LANES.
2. FOR DUAL–TURN LANES, DIMENSIONS SHALL BE THE SAME FOR EACH LANE.
3. SL DIMENSION IS FROM BACK OF STOP LINE TO END OF TURN LANE.
   NOTE: DO NOT INCLUDE TAPER LENGTH.
4. PAVEMENT ARROWS AND "ONLY" LEGEND MARKINGS ARE TYPICALLY USED AT ALL SIGNALIZED INTERSECTIONS AND AT ALL UNSIGNALIZED INTERSECTIONS THAT HAVE TURN LANES.
5. MINIMUM SL= 100'. SL MAY BE LESS THAN 100 FEET ONLY BY APPROVAL OF THE CITY TRAFFIC ENGINEER.

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DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A28EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A83C4168728D455...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023 | DWG NO: 02760–02

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SUITE 1100
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PH. 713 871–7000
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVING AND STREET REPAIR DETAILS (SHEET 11 OF 14)

LEFT/RIGHT–TURN "ONLY" AND ARROW SPACING

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SHEET 189 OF 192	

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CITY ENGINEER	CITY TRAFFIC ENGINEER

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EFF DATE: NOV-27-2023 | DWG NO: 02760-03

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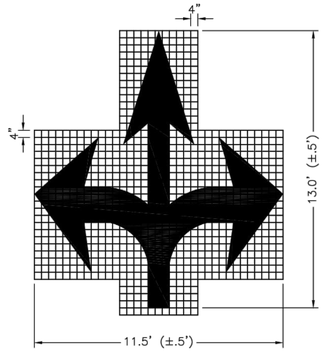
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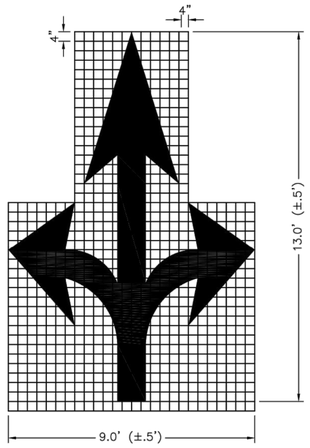
CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

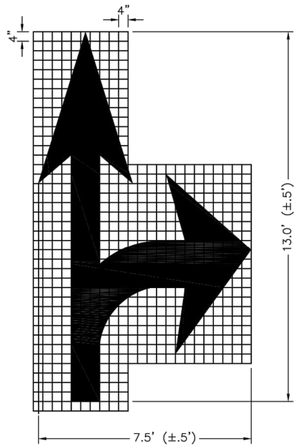
PAVING AND STREET REPAIR DETAILS (SHEET 12 OF 14)
STANDARD PAVEMENT MARKING - (WORDS)

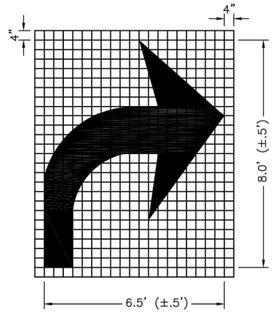
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SHEET 190 OF 192	

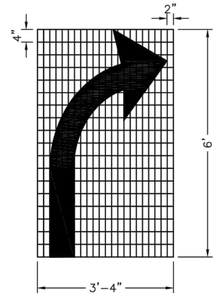
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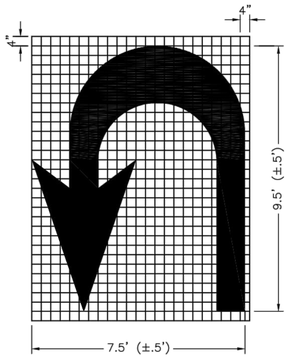


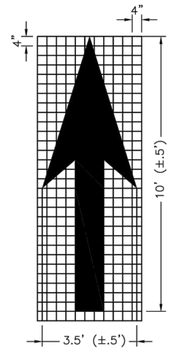


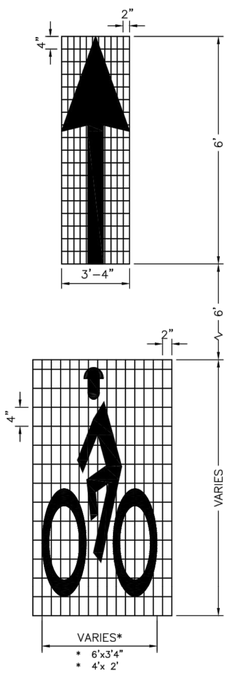


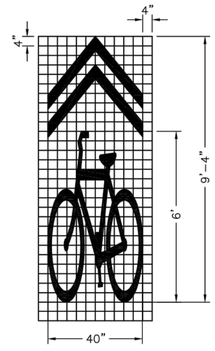


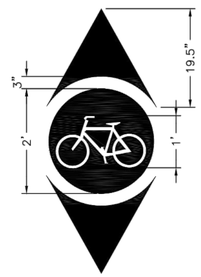


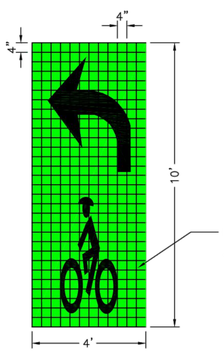


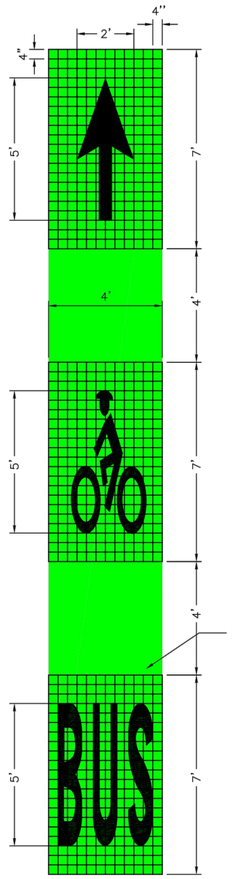


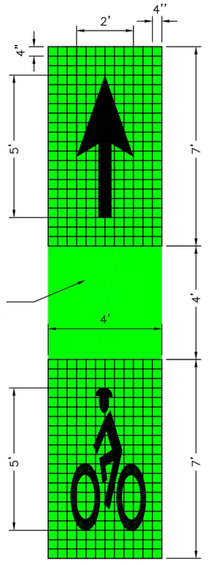


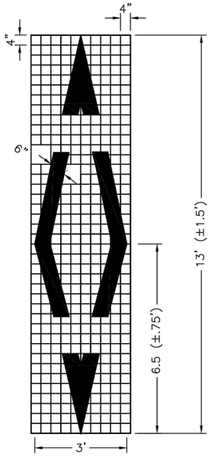


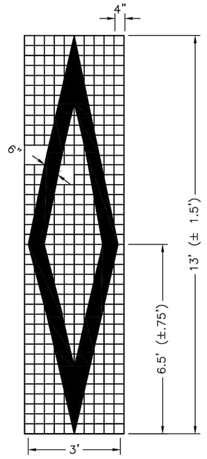












NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":

1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.

2. THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE–THIRD DEPENDING ON CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR REDUCTION BELOW ONE–THIRD OF STANDARD SIZES.

3. THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET, OR AS INDICATED ON THE PLANS.

4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:

   A. REGULATOR
      STOP
      RIGHT (LEFT) TURN ONLY, SYMBOL ARROWS.

   B. WARNING
      STOP AHEAD
      SIGNAL AHEAD
      SCHOOL
      SCHOOL X–ING
      PED X–ING
      R X R (SEE SHEET 02760–08 DETAILS
      OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER CERTAIN CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR SPECIAL CONDITIONS.

5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.

6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES (ALL–WAY STOP).

7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION. FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

8. SPACING BETWEEN STANDARD SIZE LETTERS SHOULD BE 4 INCHES (MIN). THE WIDTH OF NON–STANDARD SIZE LETTERS MAY VARY DEPENDING ON THE WIDTH OF THE TRAVEL LANES. APPROVAL BY CITY TRAFFIC ENGINEER. SPECIAL PERMISSION NEEDED FOR NON–STANDARD SIZE "LETTER" AND/OR "ARROWS".

9. LANE–USE ARROW MARKINGS MAY BE USED TO CONVEY EITHER GUIDANCE OR MANDATORY MESSAGES. SINGLE TURN ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".

10. PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED IN THE DESIGN PLANS.

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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
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PAVING AND STREET REPAIR DETAILS (SHEET 13 OF 14)

STANDARD PAVEMENT MARKING – SYMBOLS

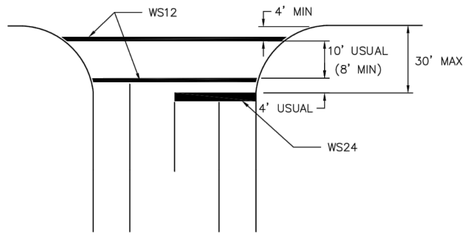
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SHEET 191 OF 192	

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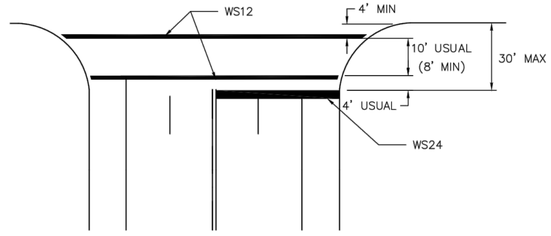
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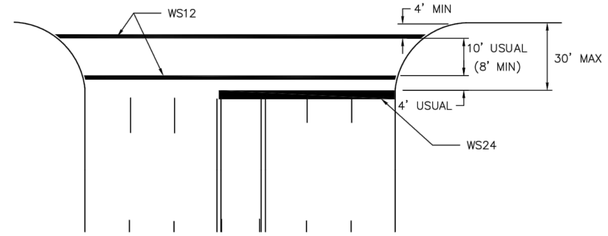
TWO LANES WITH SHOULDERS



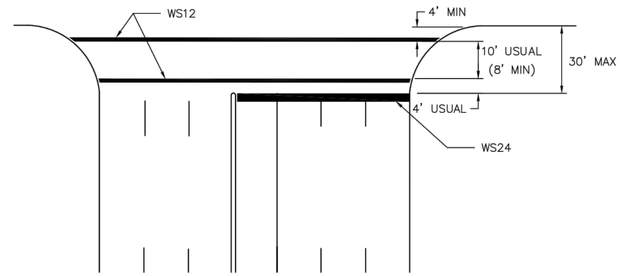
FOUR LANES WITH SHOULDERS



MULTI – LANES



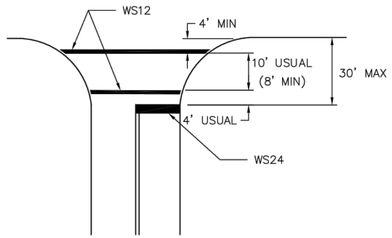
MULTI – LANE WITH MEDIAN



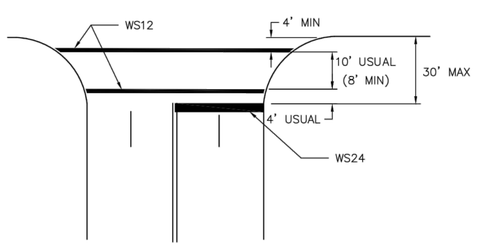
NOTES:

1. CROSSWALKS AND STOP LINES SHALL BE WHITE.
2. "D" IS EQUAL TO ONE HALF THE WIDTH OF TRAVEL LANE.

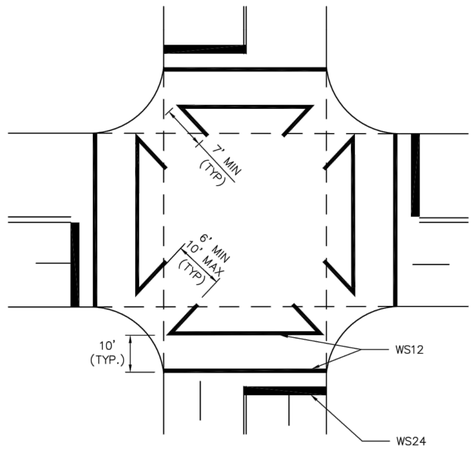
TWO LANES



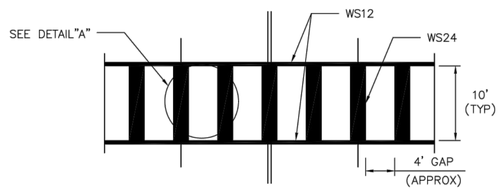
FOUR LANES



EXCLUSIVE PEDESTRIAN PHASE

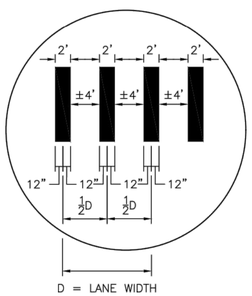


HIGH VISIBILITY CROSSWALK DETAIL



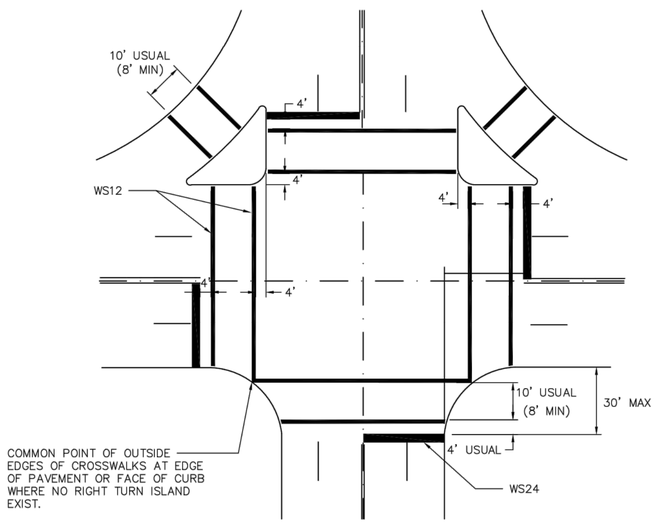
TYPICALLY USED AT SIGNALIZED AND NON–SIGNALIZED CROSSINGS ON COLLECTOR AND ARTERIAL ROADWAYS AND AT LOCATIONS REQUIRING EXTRA EMPHASIS.

DETAIL "A"



D = LANE WIDTH

INTERSECTION WITH RIGHT – TURN ISLANDS



COMMON POINT OF OUTSIDE EDGES OF CROSSWALKS AT EDGE OF PAVEMENT OR FACE OF CURB WHERE NO RIGHT TURN ISLAND EXIST.

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CITY ENGINEER	CITY TRAFFIC ENGINEER

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DIRECTOR OF HOUSTON PUBLIC WORKS

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CITY OF HOUSTON
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PAVING AND STREET REPAIR DETAILS (SHEET 14 OF 14)
TYPICAL CROSSWALK DETAILS

WBS NUMBER: R–000035–0027–4	FOR CITY OF HOUSTON USE ONLY
CITY OF HOUSTON PM: SABEEN SHAIKH, PE	
DRAWING SCALE	
NOT TO SCALE	