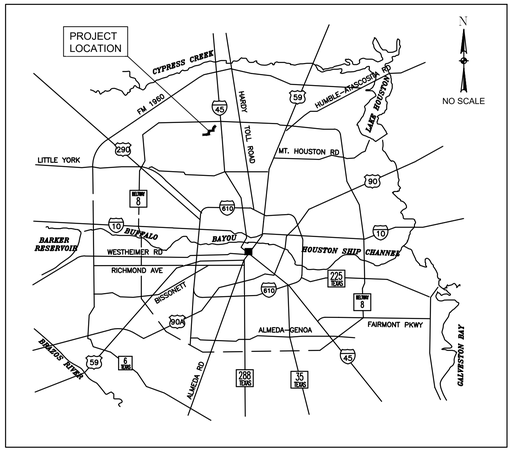
70% SUBMITTAL

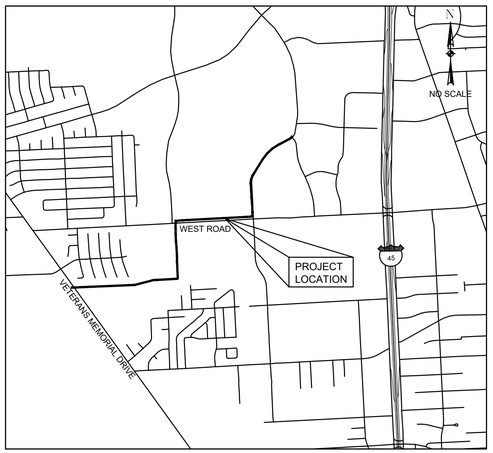
CITY OF HOUSTON

HOUSTON PUBLIC WORKS
CAPITAL PROJECTS
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

WBS NO. S-000900-0179-3



LOCATION MAP



VICINITY MAP
KEY MAP NOS 412A,
412B, 412C & 372Y
GIMS MAP NOS 5263A,
5264C & 5264D
COUNCIL DISTRICT B

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
LETITIA PLUMMER, POSITION 4
SALLIE ALCORN, POSITION 5

ILMS NO. ##-####
COH LOG NO. ##-####

NO.	DATE	REVISION	APP.
3	MM/DD/YY	BRIEF DESCRIPTION	XXX
2	MM/DD/YY	BRIEF DESCRIPTION	XXX
1	MM/DD/YY	BRIEF DESCRIPTION	XXX

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

WATER
WASTE WATER
STORM WATER
TRAFFIC SIGNAL
CITY ENGINEER DATE

STORM WATER QUALITY
FACILITIES
TRAFFIC & TRANSPORTATION/ STREET & BRIDGE
DIRECTOR OF HOUSTON PUBLIC WORKS DATE

SHEET NO 1 OF 157 SHEETS

FOR CITY OF HOUSTON USE ONLY

FILE PATH: C:\DC\ACCDocs\Black & Veatch Corp\401380 - CoH 66-inch Water Line\Project Files\5.0 Design Files_BV\5.0.3 AutoCAD\Gen\GRL_STYLE: Coh_ctb_230809.ctb PLOTTED: 7/11/2025 9:20 AM

SHEET NO.	SHEET TITLE
GENERAL	
1	COVER SHEET AND VICINITY MAP
2	INDEX OF SHEETS
3	ABBREVIATIONS
4	SYMBOLS
5	GENERAL NOTES 1
6	GENERAL NOTES 2
7	HARRIS COUNTY FLOOD CONTROL DISTRICT REVIEW SHEET
8	HARRIS COUNTY OFFICE OF THE COUNTY ENGINEER REVIEW SHEET
9	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 1 OF 10)
10	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 2 OF 10)
11	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 3 OF 10)
12	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 4 OF 10)
13	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 5 OF 10)
14	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 6 OF 10)
15	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 7 OF 10)
16	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 8 OF 10)
17	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 9 OF 10)
18	OVERALL PROJECT SHEETS LAYOUT & BORING LOCATIONS (SHEET 10 OF 10)
EXISTING CONDITIONS	
19	SURVEY CONTROL MAP SHEET 1 OF 3
20	SURVEY CONTROL MAP SHEET 2 OF 3
21	SURVEY CONTROL MAP SHEET 3 OF 3
22	SCM SWING TIES SHEET 1 OF 3
23	SCM SWING TIES SHEET 2 OF 3
24	SCM SWING TIES SHEET 3 OF 3
SITE PREPARATION	
25	STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 6)
26	STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 6)
27	STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 6)
28	STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 6)
29	STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 6)
30	STORM WATER POLLUTION PREVENTION PLAN (SHEET 6 OF 6)
31	STORM WATER POLLUTION PREVENTION PLAN DETAILS
32	CLEARING AND GRUBBING LAYOUT (SHEET 1 OF SHEET 2)
33	CLEARING AND GRUBBING LAYOUT (SHEET 2 OF SHEET 2)
34	TREE PROTECTION PLAN STA 10+00 TO STA 13+50
35	TREE PROTECTION PLAN STA 13+50 TO STA 18+50
36	TREE PROTECTION PLAN STA 18+50 TO STA 23+50
37	TREE PROTECTION PLAN STA 23+50 TO STA 28+50
38	TREE PROTECTION PLAN STA 28+50 TO STA 33+50
39	TREE REMOVAL SCHEDULE STA 28+50 TO STA 33+50
40	TREE PROTECTION PLAN STA 33+50 TO STA 38+50
41	TREE PROTECTION PLAN STA 38+50 TO STA 43+50
42	TREE REMOVAL SCHEDULE STA 38+50 TO STA 43+50
43	TREE PROTECTION PLAN STA 43+50 TO STA 48+50
44	TREE PROTECTION PLAN STA 48+50 TO STA 52+50
45	TREE PROTECTION PLAN STA 52+50 TO STA 62+50
46	TREE PROTECTION PLAN STA 62+50 TO STA 67+50
47	TREE PROTECTION PLAN STA 67+50 TO STA 72+50
48	TREE PROTECTION PLAN STA 72+50 TO STA 77+50
49	TREE PROTECTION PLAN STA 77+50 TO STA 82+50
50	TREE PROTECTION PLAN STA 90+00 TO STA 94+50
51	TREE PROTECTION PLAN STA 94+50 TO STA 99+50
52	TREE PROTECTION PLAN STA 99+50 TO STA 104+00
53	TREE PROTECTION PLAN STA 104+00 TO STA 109+00
54	TREE PROTECTION PLAN STA 109+00 TO STA 113+50
55	TREE PROTECTION PLAN STA 113+50 TO STA 118+00
56	TREE PROTECTION SCHEDULE
57	TREE PROTECTION SCHEDULE
58	TREE PROTECTION DETAILS
59	TREE PROTECTION DETAILS
60	OVERALL PLANTING PLAN
61	PLANTING PLAN STA 52+50 TO STA 62+50
62	PLANTING PLAN STA 62+50 TO STA 67+50
63	PLANTING PLAN STA 67+50 TO STA 72+50
64	PLANTING PLAN STA 72+50 TO STA 77+50
65	PLANTING PLAN STA 77+50 TO STA 82+50
66	PLANTING PLAN STA 90+00 TO STA 94+50
67	PLANTING PLAN STA 94+50 TO STA 99+50
68	PLANTING PLAN STA 99+50 TO STA 104+00
69	PLANTING DETAILS

SHEET NO.	SHEET TITLE
TRAFFIC CONTROL PLANS	
70	TRAFFIC CONTROL PLAN OVERALL LAYOUT AND CONSTRUCTION SEQUENCING (SHEET 1 OF 2)
71	TRAFFIC CONTROL PLAN OVERALL LAYOUT AND CONSTRUCTION SEQUENCING (SHEET 2 OF 2)
72	TRAFFIC CONTROL PLAN (SHEET 1 OF 6)
73	TRAFFIC CONTROL PLAN (SHEET 2 OF 6)
74	TRAFFIC CONTROL PLAN (SHEET 3 OF 6)
75	TRAFFIC CONTROL PLAN (SHEET 4 OF 6)
76	TRAFFIC CONTROL PLAN (SHEET 5 OF 6)
77	TRAFFIC CONTROL PLAN (SHEET 6 OF 6)
78	TCP NOTES CHANNELIZING DEVICES AND BARRICADES
79	TCP ONE LANE CLOSURE PHASE 1 AND 2
UTILITIES AND ROADWAY	
80	WEST RD AND DEER TRAIL DR TYPICAL SECTIONS
81	PLAN STA 10+00 TO STA 13+50
82	PROFILE STA 10+00 TO STA 13+50
83	PLAN STA 13+50 TO STA 18+50
84	PROFILE STA 13+50 TO STA 18+50
85	PLAN STA 18+50 TO STA 23+50
86	PROFILE STA 18+50 TO STA 23+50
87	PLAN STA 23+50 TO STA 28+50
88	PROFILE STA 23+50 TO STA 28+50
89	PLAN STA 28+50 TO STA 33+50
90	PROFILE STA 28+50 TO STA 33+50
91	PLAN STA 33+50 TO STA 38+50
92	PROFILE STA 33+50 TO STA 38+50
93	PLAN STA 38+50 TO STA 43+50
94	PROFILE STA 38+50 TO STA 43+50
95	PLAN STA 43+50 TO STA 48+50
96	PROFILE STA 43+50 TO STA 48+50
97	PLAN STA 48+50 TO STA 52+50
98	PROFILE STA 48+50 TO STA 52+50
99	PLAN STA 52+50 TO STA 62+50
100	PROFILE STA 52+50 TO STA 62+50
101	PLAN STA 62+50 TO STA 67+50
102	PROFILE STA 62+50 TO STA 67+50
103	PLAN STA 67+50 TO STA 72+50
104	PROFILE STA 67+50 TO STA 72+50
105	PLAN STA 72+50 TO STA 77+50
106	PROFILE STA 72+50 TO STA 77+50
107	PLAN STA 77+50 TO STA 82+50
108	PROFILE STA 77+50 TO STA 82+50
109	PLAN STA 90+00 TO STA 94+50
110	PROFILE STA 90+00 TO STA 94+50
111	PLAN STA 94+50 TO STA 99+50
112	PROFILE STA 94+50 TO STA 99+50
113	PLAN STA 99+50 TO STA 104+00
114	PROFILE STA 99+50 TO STA 104+00
115	PLAN STA 104+00 TO STA 109+00
116	PROFILE STA 104+00 TO STA 109+00
117	PLAN STA 109+00 TO STA 113+50
118	PROFILE STA 109+00 TO STA 113+50
119	PLAN STA 113+50 TO STA 118+00
120	PROFILE STA 113+50 TO STA 118+00
121	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 1 OF 12)
122	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 2 OF 12)
123	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 3 OF 12)
124	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 4 OF 12)
125	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 5 OF 12)
126	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 6 OF 12)
127	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 7 OF 12)
128	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 8 OF 12)
129	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 9 OF 12)
130	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 10 OF 12)
131	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 11 OF 12)
132	CROSS SECTIONS ALONG WATER ALIGNMENT (SHEET 12 OF 12)
133	WEST RD DRIVEWAYS REPLACEMENT
134	DEER TRAIL DR DRIVEWAYS REPLACEMENT
135	DRIVEWAY DETAIL WITH 6" CURBED STREETS
136	PAVEMENT MARKINGS (SHEET 1 OF 2)
137	PAVEMENT MARKINGS (SHEET 2 OF 2)
138	PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS
139	STANDARD PAVEMENT MARKING — (WORDS)
140	STANDARD PAVEMENT MARKING — SYMBOLS
141	STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE

SHEET NO.	SHEET TITLE
STANDARD DETAILS	
142	CONSTRUCTION SIGN BUILD HOUSTON FORWARD
143	STANDARD LDWL STEEL PIPE DETAIL (1 OF 2)
144	STANDARD LDWL STEEL PIPE DETAIL (2 OF 2)
145	STANDARD LDWL EXCAVATION AND BACKFILL DETAIL
146	STANDARD LDWL ACCESS MANHOLE DETAILS
147	STANDARD LDWL BUTTERFLY VALVE AND OPERATOR MANHOLE DETAILS
148	STANDARD LDWL DRAIN LINE VALVE DETAILS
149	AIR VALVE ASSEMBLY IN SERVICE MANHOLE DETAIL
150	LDWL TUNNEL AND CASING DETAILS FOR WATER LINES 24 INCH AND LARGER
151	RISER PIPE DETAIL
152	GENERAL STRUCTURAL DETAILS
153	CATHODIC PROTECTION 1 (TO BE ADDED IN 90% DESIGN SET)
154	CATHODIC PROTECTION 2 (TO BE ADDED IN 90% DESIGN SET)
155	CATHODIC PROTECTION 3 (TO BE ADDED IN 90% DESIGN SET)
156	CATHODIC PROTECTION 4 (TO BE ADDED IN 90% DESIGN SET)
157	CATHODIC PROTECTION 5 (TO BE ADDED IN 90% DESIGN SET)

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SHEET INDEX

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 2 OF 157	

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.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

ABBREVIATIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 3 OF 157	

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
- 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

MISC STANDARD ELEMENTS

- COH NORTH ARROW
- COH BAR SCALE (0' 10' 20' 40'; SCALE: 1"=20')
- REVISION CLOUD/DELTA
- DETAIL/SECTION TITLE (1 VIEW TITLE; SCALE: 1:1)
- SECTION CALLOUT (1 / XX)
- DETAIL CALLOUT (1 / XX)

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SYMBOLS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 4 OF 157	

GENERAL CONSTRUCTION NOTES

1. THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS UNLESS OTHERWISE SPECIFICALLY ESTABLISHED IN BID SECTION OF CONTRACT DOCUMENTS. INCLUDE COST OF THIS WORK IN CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL TO.
2. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF CONSTRUCTION OPERATIONS WILL BE REPAIRED AT CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL REMAIN FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO WATER MAINS, WASTEWATER COLLECTION SYSTEMS, AND STORM SEWERS, DURING CONSTRUCTION.
4. REMOVE EXISTING PLUGS AND CONNECT PROPOSED UTILITY LINES AS INDICATED ON PLANS.
5. VERIFY LOCATION OF UNDERGROUND UTILITIES AND NOTIFY THE FOLLOWING AGENCIES 48–HRS PRIOR TO EXCAVATING NEAR EXISTING FACILITIES:
   A) TEXAS 811 AT (800) 245–4545
   B) LONE STAR NOTIFICATION CENTER AT (800) 669–8344
   C) TEXAS EXCAVATION SAFETY SYSTEM INC. AT (800) 344–8377.
6. COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ALL REGULATIONS OF UTILITY COMPANIES CONCERNING SAFETY AND HEALTH PRACTICES.
7. INCLUDE PRICE OF ALL BEDDING AND BACKFILL OF TYPE REQUIRED IN PRICE BID PER LINEAR FOOT OF PIPE.
8. ALL SEWER TRENCHES UNDER OR WITHIN 1–FT OF PROPOSED AND/OR FUTURE PAVEMENT OR CURB SHALL BE BACKFILLED WITH 1–1/2 SACKS OF CEMENT PER CUBIC YARD CEMENT–STABILIZED SAND TO A POINT 1–FT BELOW PAVEMENT SUBGRADE. REMAINING BACKFILL SHALL BE MADE WITH COMPACTED SUITABLE MATERIAL PER SPECIFICATIONS.
9. OWNER WILL FURNISH INITIAL LABORATORY TESTS. SUBSEQUENT TESTING DUE TO FAILED TESTS SHALL BE AT CONTRACTOR'S EXPENSE. COPY OF ALL TEST RESULTS SHALL BE SUBMITTED TO ENGINEER.
10. DAILY REMOVE ALL MUD, DIRT, AND DEBRIS DEPOSITED OR DROPPED ON EXISTING PAVEMENT DUE TO CONSTRUCTION ACTIVITY. MATERIAL THAT IS HAZARDOUS TO TRAFFIC SHALL BE REMOVED IMMEDIATELY.
11. ALL TRAFFIC CONTROL AND WARNING SIGNS SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
12. WHEN TRENCH CONDITION WARRANTS USE OF DEWATERING SYSTEMS, THEIR USE SHALL BE REQUESTED BY CONTRACTOR AND APPROVED BY OWNER.
13. THESE PLANS DO NOT EXTEND OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. CONTRACTOR SHALL INDEPENDENTLY PREPARE AND/OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS.
14. PROTECT ALL TREES DURING CONSTRUCTION. NO TREES SHALL BE REMOVED WITHOUT OWNER'S PERMISSION, UNLESS OTHERWISE SPECIFIED IN PLANS.
15. GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY OPERATIONS PRIOR TO COMMENCEMENT OF WORK. OBTAIN ALL NECESSARY CONSTRUCTION PERMITS PRIOR TO STARTING CONSTRUCTION.
16. OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT PRIOR TO STARTING CONSTRUCTION.
17. OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY ROAD RIGHTS–OF–WAY, IF APPLICABLE.
18. NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT BY WRITTEN NOTIFICATION 48–HRS IN ADVANCE OF STARTING CONSTRUCTION, FOLLOWED BY TELEPHONE NOTIFICATION AT (713) 316–3561 24–HRS IN ADVANCE OF STARTING CONSTRUCTION. A COPY OF WRITTEN NOTIFICATION SHALL BE SENT TO ENGINEER.
19. ALL DISTURBED AREAS OR AREAS AFFECTED BY CONSTRUCTION IN BOTH PRIVATE AND PUBLIC PROPERTIES SHALL BE CLEANED AND RETURNED TO EXISTING OR BETTER CONDITIONS. DISTURBED VEGETATED AREAS SHALL BE HYDRO–MULCHED UNLESS OTHERWISE NOTED ON THE PLANS. DISTURBED SWALES AND OTHER DRAINAGE FACILITIES SHALL BE RESTORED AND REMAIN FUNCTIONAL AFTER CONSTRUCTION. DISTURBED AREAS WITHIN HCFCD RIGHTS–OF–WAY AND/OR EASEMENTS SHALL BE FULLY RESTORED IN ACCORDANCE WITH APPLICABLE HCFCD STANDARD CONSTRUCTION SPECIFICATIONS.
20. ALL OPEN TRENCHES, TUNNEL SHAFTS, OR OTHER EXCAVATIONS SHALL BE SECURED IN ACCORDANCE WITH OSHA REQUIREMENTS.
21. ALL OPEN CUTS ON PAVEMENTS SHALL BE REPLACED AND REPAIRED PER DETAILS. STEEL PLATES SHALL BE USED AS WARRANTED TO PROVIDE A CONTINUOUS TRAFFIC FLOW AFTER WORKING HOURS.
22. ALL HIKE AND BIKE TRAILS SHALL BE REPLACED IF DAMAGED OR REMOVED DURING CONSTRUCTION.
23. RESTORE ALL SPRINKLER AND/OR IRRIGATION SYSTEMS DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITION OR BETTER, NO SEPARATE PAY.

WATER MAIN CONSTRUCTION NOTES

1. ALL NEWLY INSTALLED PIPES, COATINGS, AND RELATED PRODUCTS SHALL CONFORM TO ANSI/NSF STANDARDS AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
2. ALL WATER MAIN TRENCHES SHALL BE BACKFILLED AS INDICATED ON DRAWING AND SPECIFICATIONS.
3. CONFIRM A MINIMUM OF 1–FT VERTICAL AND 4–FT HORIZONTAL CLEARANCE BETWEEN PROPOSED WATER MAINS AND OTHER EXISTING OR PROPOSED UTILITIES. WATER MAINS CROSSING STORM SEWERS SHALL HAVE A MINIMUM OF 1.5–FT VERTICAL CLEARANCE.
4. WHEN A WATER MAIN IS PLACED NEAR A SANITARY SEWER MANHOLE, IT SHALL HAVE A MINIMUM OF 9–FT WALL TO WALL SEPARATION. WHERE A WATER MAIN PARALLELS A SANITARY SEWER, 9–FT SEPARATION SHALL BE MAINTAINED IN ALL DIRECTIONS. IF THE 9–FT SEPARATION CANNOT BE ACHIEVED, BOTH SEWER PIPE AND JOINTS SHALL HAVE A MINIMUM PRESSURE RATING OF 150–PSI AND MANHOLES SHALL BE WATER TIGHT. VERTICAL SEPARATION SHALL BE A MINIMUM OF 2–FT BETWEEN OUTSIDE DIAMETERS AND HORIZONTAL SEPARATION SHALL BE A MINIMUM OF 4–FT BETWEEN OUTSIDE DIAMETERS.
5. WATER TRANSMISSION MAIN SHALL BE CONSTRUCTED TO ELEVATIONS AND GRADES SHOWN ON DRAWINGS. IN NO LOCATION SHALL THE MINIMUM COVER DEPTH BE LESS THAN 8–FT BELOW NATURAL GRADE.
6. UNLESS OTHERWISE SHOWN ON PLANS, CONSTRUCT WATER MAINS WITH ONE JOINT OF PIPE BEYOND PROPOSED VALVES AND PLUGS FOR FUTURE LINES.
7. INSTALL RESTRAINED JOINTS AS NECESSARY AND AS SHOWN TO ENSURE INTEGRITY OF THE WATER MAIN AT TEST PRESSURE. THIS WORK IS INCIDENTAL TO WATER MAIN INSTALLATION, NO SEPARATE PAY.
8. ALL WATER MAINS SHALL BE INSTALLED BY OPEN CUT METHODS UNLESS OTHERWISE INDICATED ON PLANS OR DIRECTED BY ENGINEER.
9. PROVIDE DETECTABLE WARNING TAPE FOR NON–METALLIC PIPING, PER SPECIFICATIONS.

WATER MAIN CONSTRUCTION NOTES (CONT)

10. WHEN CROSSING AN EXISTING STORM SEWER USING OPEN CUT METHODS, WATER MAIN TRENCH ZONE, AS DEFINED IN THE SPECIFICATIONS AND DETAILS, SHALL BE BACKFILLED FOR 3–FT TO 5–FT EITHER SIDE OF STORM SEWER WITH CEMENT STABILIZED SAND TO SPRING LINE OF STORM SEWER.
11. ALL WATER MAINS 24–IN AND LARGER IN DIAMETER SHALL BE STEEL PIPE (AWWA C200).
12. IDLED WHCRWA 6–INCH GAS LINE TO BE REMOVED AS NECESSARY FOR CONSTRUCTION, HAULED OFF, AND PROPERLY DISPOSED OF AT A LANDFILL.
13. ALL PROPOSED TUNNELS TO HAVE A MINIMUM VERTICAL CLEARANCE OF 4 FEET FROM NEAREST UTILITY. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE CERTIFIED BY THE CONTRACTOR PRIOR TO MOBILIZING FOR TUNNELING OPERATIONS. NOTIFY OWNER'S REPRESENTATIVE IF UTILITIES ARE FOUND OTHER THAN AS SHOWN IN THE DRAWINGS.
14. MAKE VERTICAL AND HORIZONTAL DEFLECTIONS THAT ARE SHOWN ON THE DRAWINGS TO BE 5 DEGREES OR LESS BY USING MITERED BELLS OR BY DEFLECTING JOINTS, OR BY COMBINATION OF TWO METHODS. JOINT DEFLECTION OR JOINT OFFSET ANGLE SHALL NOT EXCEED 75% OF THAT RECOMMENDED BY PIPE MANUFACTURER. MAKE PENETRATION OF SPIGOT INTO BELL AT ALL POINTS OF CIRCUMFERENCE AT LEAST EQUAL TO MINIMUM REQUIRED PENETRATION SHOWN ON DRAWINGS. MITERED PIPE SECTIONS USED IN CURVED ALIGNMENT TO BE OF STANDARD LENGTH EXCEPT WHEN SHORTER SECTIONS ARE REQUIRED TO LIMIT RADIUS OF CURVATURE, IN WHICH CASE ALL SECTIONS THROUGHOUT CURVE ARE TO BE OF EQUAL LENGTH. DO NOT ALLOW MITER TO EXCEED 5 DEGREES. VERTICAL AND HORIZONTAL DEFLECTIONS SHOWN ON DRAWINGS GREATER THAN 5 DEGREES SHALL BE MADE BY USING FABRICATED BENDS.
15. SHAFT SIZE AND DEPTH IS SHOWN AS CONCEPTUAL ONLY UNLESS OTHERWISE INDICATED ON DRAWINGS. CONTRACTOR SHALL DETERMINE APPROPRIATE DIMENSIONS OF EXCAVATION.

STANDARD HARRIS COUNTY NOTES FOR PLANS

1. AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHTS–OF–WAY. CONTACT HARRIS COUNTY PERMIT OFFICE (713) 956–3000.
2. AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE REQUIRED PRIOR TO CONSTRUCTION WITHIN HARRIS COUNTY FLOOD CONTROL RIGHT–OF–WAY. CONTACT HARRIS COUNTY PERMIT OFFICE (713) 956–3000.
3. VENT PIPES WITHIN HARRIS COUNTY RIGHTS–OF–WAY SHALL BE BREAKAWAY, PER DETAILS, UNLESS OTHERWISE INDICATED ON DRAWINGS AND APPROVED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT.
4. CONTRACTOR IS FULLY RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO START OF CONSTRUCTION.

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.ORG, 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.

SPECIAL HCFCD NOTES FOR PLANS

1. RESTORE ALL INTERCEPTOR STRUCTURES TO ORIGINAL CONDITION OR BETTER.
2. PLACE ALL VENT PIPES WITH BOLLARDS AT EXTREME EDGE OF HCFCD RIGHTS–OF–WAY FOR WATER LINES WITHIN THE HCFCD RIGHTS–OF–WAY. FUNCTION OF BACKSLOPE DRAINAGE SYSTEMS SHALL NOT BE INHIBITED BY PLACEMENT OF VENT PIPES WITH BOLLARDS AND OR PLACEMENT OF CATHODIC PROTECTION TEST STATIONS.
3. STOCKPILING MATERIALS NOT IMMEDIATELY BEING USED IS NOT PERMITTED WITHIN HCFCD EASEMENTS AND/OR RIGHTS–OF–WAY.
4. USE WOODEN MATS OR OTHER MEANS TO DISTRIBUTE LOADS FOR CONSTRUCTION EQUIPMENT SO AS TO NOT DISTURB SLOPE STABILITY OF BANK.
5. PROPOSED CONSTRUCTION WITHIN HCFCD RIGHTS–OF–WAY REQUIRES A SPECIFIC FLOOD CONTROL PERMIT ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE PER HCFCD CRITERIA AND PROCEDURE MANUAL, SECTION 1.1.4. CONTACT HARRIS COUNTY PERMIT OFFICE AT (713) 956–3000.
6. WHERE PROPOSED WATER LINE IS TO BE PLACED BETWEEN A BACKSLOPE SWALE AND TOP OF BANK, AND WHERE IDENTIFIED ON DRAWINGS, TOP 2–FT OF ALL EXCAVATIONS (INCLUDING TUNNEL PITS AND TRENCHES) SHALL BE BACKFILLED IN THE FOLLOWING MANNER:
   - BOTTOM 1.5–FT OF THIS AREA SHALL BE BACKFILLED WITH PROPERLY COMPACTED, THOROUGHLY MIXED, CLAYEY SOILS TREATED WITH LIME (3% LIME BY DRY WEIGHT)
   - TOP 0.5–FT SHALL BE BACKFILLED WITH PROPERLY COMPACTED NATIVE SOILS AND SODDED OR HYDROMULCHED IN ACCORDANCE WITH SPECIFICATIONS.

HCPID NOTES

1. WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM DRAINAGE SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON'S, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "DESIGN MANUAL, STANDARD CONSTRUCTION SPECIFICATIONS, AND DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING".
2. THE CONTRACTOR(S) SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT – PERMIT OFFICE TWENTY–FOUR (24) HOURS IN ADVANCE OF COMMENCING UTILITY AND/OR PAVING CONSTRUCTION AT (713) 274–3931 AND WRITTEN NOTIFICATION FORTY–EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION AT 10555 NORTHWEST FREEWAY, SUITE 144, HOUSTON, TX 77092.
3. PAVING SHALL BE IN ACCORDANCE WITH THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" AND/OR AMENDMENTS OF THE SAME.
4. GUIDELINES SET FORTH IN THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.
5. OWNER OR OWNER'S AGENT TO OBTAIN ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.
6. OWNER OR OWNER'S AGENT TO OBTAIN ALL NOTIFICATIONS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY AND HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHTS–OF–WAY.

HCTRA NOTES

1. FIBER OPTIC DUCT BANKS OWNED BY TXDOT, HARRIS COUNTY, AND HCTRA MAY ALSO EXIST WITHIN THE PROJECT LIMITS. THESE FIBER DUCT BANKS ARE NOT PART OF THE TEXAS ONE CALL SYSTEM. THE CONTRACTOR SHALL CONTACT TXDOT, HARRIS COUNTY TRAFFIC, AND HCTRA TO OBTAIN FIBER OPTIC DUCT BANK LOCATES AT THE FOLLOWING NUMBERS:
   A) TXDOT – (512) 506–5125
   B) HARRIS COUNTY TRAFFIC SIGNAL HOTLINE – (713) 881–3210
   C) HCTRA MAINTENANCE DISPATCH – (832) 590–6936.

   IF THE CONTRACTOR DAMAGES ANY AND ALL FIBER OPTIC LINES IN THE DUCT BANK, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF PROPERLY REPAIRING OR REPLACING THE DAMAGED DUCT BANK AND FIBER TO THE ORIGINAL CONDITION. IN ADDITION, THE CONTRACTOR WILL BE LIABLE FOR THE LIQUIDATED DAMAGES OF $1,250 PER DAY FOR EACH DAY HARRIS COUNTY'S FIBER OPTIC LINES ARE INOPERABLE, WHICH AMOUNT THE PARTIES AGREE IS A REASONABLE ESTIMATE OF THE MINIMUM AMOUNT OF LOSS HARRIS COUNTY WILL INCUR IF FIBER OPTIC LINES ARE INOPERABLE. IF THE EXTENT OF HARRIS COUNTY'S CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF REVENUE, LOSS OF DATA, COSTS OF MITIGATION, AND ETC.) RESULTING FROM THE DAMAGED FIBER OPTIC LINES EXCEED THE AGREED UPON LIQUIDATED DAMAGES AMOUNT, THE CONTRACTOR WILL BE LIABLE FOR SUCH GREATER AMOUNT.
2. THE CONTRACTOR(S) SHALL CONTACT HCTRA MAINTENANCE DEPART AT (832) 590–6936 48 HOURS PRIOR TO STARTING CONSTRUCTION.
3. THE CONTRACTOR(S) SHALL RESTORE THE PROJECT SITE BACK TO ORIGINAL CONDITIONS OR BETTER.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

GENERAL NOTES 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 5 OF 157	

UTILITY 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 A.M. TO 4:30 P.M.) 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 PERSON 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.

3. ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769.

WARNING: UNDERGROUND ELECTRICAL UTILITIES

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.
   - ALL INFORMATION CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTORS ARE RESPONSIBLE MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND PIPELINES, CONDUITS, AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES OR BY EXCAVATING IN ADVANCE OF CONSTRUCTION.
   - THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES WHEN AND WHERE THEY FALL IN THE PATH OF CONSTRUCTION.
   - THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTACTING THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567 AND TEXAS ONE CALL AT 1-800-245-4545, FORTY-EIGHT (48) HOURS PRIOR TO ANY CONSTRUCTION.
   - THE LOCATION OF ANY CENTERPOINT ENERGY UTILITIES ARE SHOWN IN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. THEY AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
   - ALL PROPOSED FACILITIES SHALL MAINTAIN 12" CLEAR FROM ALL EXISTING UTILITIES.

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. HE 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 KEVIN RAY AT (713) 614- 1983 OR E-MAIL HIM AT KR7896@ATT.COM, IF CABLE LOCATE REQUESTS ARE NOT COMPLETED FOR OUR AT&T TEXAS/SWBT FACILITIES.

SUE NOTES

1. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. UNKNOWN (UNK) ELEVATION OF UTILITIES ARE SHOWN IN APPROXIMATE LOCATION ONLY BASED ON LEVEL D AND LEVEL B SUE.

SURVEY NOTES

1. ALL COORDINATES AND BEARINGS SHOWN HEREIN ARE SURFACE AND ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE FIPS 4204 (US Feet), NORTH AMERICAN DATUM OF 1983 (NAD 83), 2001 ADJUSTMENT. THE SURFACE TO GRID COMBINED ADJUSTMENT SCALE FACTOR IS 0.99990615.

2. UNITS FOR THIS PROJECT ARE U.S. SURVEY FEET.

3. ALL STATIONS, CURVE DATA AND LENGTHS ARE ALONG THE WATERLINE CENTERLINE. PROPOSED ELEVATIONS ARE TO TOP OF PIPELINE. SEE DETAILS FOR PIPELINE AND TUNNEL CLEARANCES. SEE SPECIFICATIONS FOR PIPELINE AND TUNNEL LINE AND GRADE TOLERANCES.

CONTRACTOR WORK ZONE NOTES

1. MAINTAIN TWO LANES OPEN WHEN WORKING IN BOULEVARD SECTIONS. RESIDENTIAL SECTIONS WILL MAINTAIN ONE LANE OPEN WITH ADEQUATE SIGNAGE AND/OR FLAGMEN TO FACILITATE USE OF LANE.

2. DRIVEWAY ACCESS SHALL BE MAINTAINED OPEN AFTER WORKING HOURS. A MINIMUM OF ONE DRIVEWAY ACCESS SHALL BE MAINTAINED OPEN AT ALL TIME TO COMMERCIAL, APARTMENT, AND/OR NON-RESIDENTIAL DEVELOPMENTS. SCHOOL DRIVEWAYS SHALL BE MAINTAINED OPEN WHERE PRACTICAL WHEN SCHOOL IS IN SESSION. IN THE EVENT THAT SCHOOL DRIVEWAYS WILL BE IMPACTED IN ANY WAY, COORDINATE ALL WORK WITH SCHOOL.

3. THE LENGTH OF WORK ZONE SHALL BE MINIMIZED WITHIN HARRIS COUNTY RIGHTS-OF-WAY AND/OR EASEMENTS. THERE SHALL NOT BE MORE THAN 200-FT OF TRENCH OPEN AT ANY ONE TIME. CONSTRUCTION ZONE SHALL BE A ROLLING CONSTRUCTION ZONE WITH APPROPRIATE TRANSITIONS ON EACH END.

4. LANES SHALL NOT BE CLOSED AT SIGNALIZED INTERSECTIONS UNLESS APPROVED BY HARRIS COUNTY ENGINEER. AN APPROPRIATE TRANSITION AS DEFINED IN TRAFFIC CONTROL PLAN SHALL BE PROVIDED AT SIGNALIZED INTERSECTIONS.

5. SEPARATION DISTANCES FOR INSTALLATION OF POTABLE WATER DISTRIBUTION LINES AND WASTEWATER COLLECTION LINES, WASTEWATER FORCE MAINS AND OTHER CONVEYANCES/APPURTENANCES IDENTIFIED AS POTENTIAL SOURCES OF CONTAMINATION MUST CONFORM TO TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES AND REGULATIONS.

6. TEMPORARY EPOXY-GLUED PAVEMENT BUTTONS OR "CONSTRUCTION GRADE" TAPE PAVEMENT MARKERS SHALL BE USED ON PERMANENT PAVEMENT TO REMAIN IN-PLACE TO ELIMINATE GRINDING AND SCARRING OF SURFACE.

7. CARE SHALL BE TAKEN TO PROVIDE FOR TEMPORARY PEDESTRIAN TRAFFIC AND CROSSING AT AREAS SUCH AS SCHOOLS, PARKS, AND SHOPPING AREAS.

8. WORK SHALL BE CONFINED TO WEST HARRIS COUNTY REGIONAL WATER AUTHORITY WATER MAIN OR CONSTRUCTION EASEMENTS OR TO AREAS IDENTIFIED ON PLANS.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

GENERAL NOTES 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 6 OF 157	

1. PROPERTY DESCRIPTION

I. LOCATION INFORMATION

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

B. KEY MAP: 412 A, B, C

C. ADDRESS: 9960 VETERANS MEMORIAL DR, HOUSTON, TX

II. LEGAL DESCRIPTION

A. ACREAGE: N/A

B. ☐ SUBDIVISION: N/A

☐ SURVEY & ABSTRACT: N/A

C. ADJACENT ROADS: VETERANS MEMORIAL DR, WEST RD, DEER TRAIL DR

III. PLATTING

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

PLAT NAME: N/A

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)

N/A

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 NONE

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) 25-30
☐ 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: HARRIS COUNTY
☐ 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) 25-30

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) PERTAINING TO PROPERTY: _____
FIRM PANEL(S) DATE: _____
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 (DRAINAGE LAYOUT PG. NO._____) (1% BASE FLOOD LEVEL_____) (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.) ____ CUBIC YARDS _____

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

C. FILL AREA & VOLUME CALCULATIONS ARE SHOWN ON SHEET _____

5. WORK IN HCFCD RIGHT-OF-WAY

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

A. BOND/NOTIFICATION INFORMATION
☐ HCFCD WATERSHED _____
☐ HCFCD UNIT No. _____
☐ NUMBER OF OUTFALLS _____
☐ UTILITY CROSSING
☒ ROADWAY BRIDGE/CULVERT CROSSING
☐ FILL ACTIVITY
☐ REHABILITATION OF CHANNEL
☐ MAINTENANCE
☐ TEMPORARY CROSSING
☐ TRAIL (LENGTH) _____
☐ OTHER _____
COST OF WORK IN HCFCD ROW _____

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:

III. REFERENCE / BASIS OF DETERMINATION

☐ 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 _____ OF THESE PLANS.

V. HCFCD STANDARD DETAILS: SEE SHEET _____ OF THESE PLANS.

VI. HCFCD ACCESS PLAN: SEE SHEET _____ OF THESE PLANS.

VII. REFER TO THE FOLLOWING PLAN SHEETS: _____
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 _____
DOCUMENT ID #_____
VARIANCE ACCEPTANCE DATE _____

II. AGREEMENT TYPE & No.;

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

HCFCD SIGNATURE BLOCK

PROJECT NAME: COH SWTP 66-INCH WATER LINE

ADDRESS: 9960 VETERANS MEMORIAL DR, HOUSTON, TX

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

HARRIS COUNTY FLOOD CONTROL DISTRICT

INTERPOSE NO OBJECTION

BY _____
FOR ITEMS LOCATED OUTSIDE OF HCFCD RIGHT-OF-WAY

APPROVED:

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

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, A SETAREHASEMAN , 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 157.

SEAL

_____ _____
SIGNATURE DATE

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 7 OF 157

HARRIS COUNTY
FLOOD CONTROL DISTRICT
REVIEW SHEET

VERSION 1.0 OCTOBER 2019

1. PAVING

(FOR EXISTING OR PROPOSED HC PUBLIC R.O.W.)

CONCRETE

DESIGN THICKNESS OF PAVING (IN.)	STABILIZED SUBGRADE DEPTH (IN.)	DESIGN STRENGTH OF CONCRETE (PSI)	STEEL SPACING LONG. (IN.)	STEEL SPACING TRANS. (IN.)	REINFORCE STEEL SIZE (#4 MIN.)

ASPHALT

DESIGN SURFACE COURSE THICKNESS (IN.)	DESIGN SURFACE COURSE TYPE (MATERIAL)	DESIGN BASE COURSE THICKNESS (IN.)	DESIGN BASE COURSE TYPE (MATERIAL)	STABILIZED SUBGRADE DEPTH (IN.)	STABILIZED SUBGRADE TYPE (MATERIAL)

DRIVEWAYS (IN EXISTING OR PROPOSED HC PUBLIC R.O.W.)

I. NUMBER OF DRIVEWAY APPROACHES PROPOSED INCLUDING WIDENING OR REPAVING EXISTING DRIVEWAYS

DRWY	WIDTH	MATERIAL	CULVERT (Y/N)	CULVERT LENGTH	NEAREST CROSS-STREET	DISTANCE TO CROSS-STREET
1						
2						
3						
4						
5						

II. HARRIS COUNTY STANDARD DRIVEWAY DETAIL APPEARS ON SHEET(S): _____

III. ADDITIONAL DRIVEWAY TABLE (AS APPLICABLE) APPEARS ON SHEET(S): _____

FIRE APPARATUS ACCESS ROAD

☐ REQUIRED AND SHOWN ON SHEET(S): _____

☐ NOT REQUIRED DUE TO: _____

CURBING

☐ STANDARD 6" CURBING PROPOSED

☐ 4" x 12" CURBING PROPOSED EXCEPT AT MEDIANS AND ISLANDS

2. TRAFFIC

I. MEDIAN CUTS

☐ MEDIAN MODIFICATIONS ARE SHOWN ON SHEET(S): _____

☒ NO MEDIAN CUT OR RELOCATION IS PROPOSED

II. LEFT / RIGHT TURN LANE

☐ LEFT / RIGHT TURN LANE IS SHOWN ON SHEET(S): _____

☒ NO LEFT / RIGHT TURN LANE IS PROPOSED

III. TRAFFIC CONTROL PLAN

☐ TRAFFIC CONTROL SHOWN ON SHEET(S): _____

☒ NO WORK IN HC RIGHT OF WAY

IV. TRAFFIC SIGNAL

☐ EXISTING TRAFFIC SIGNAL DEVICES (BOXES AND LOOPS) SHOWN ON SHEET(S): _____

☐ NEW ☐ REBUILT ☐ MODIFIED TRAFFIC SIGNAL SHOWN ON SHEET(S): _____

☐ HC FIBER PRESENT

☒ NO TRAFFIC SIGNAL

V. TRAFFIC IMPACT ANALYSIS

☐ TRAFFIC IMPACT ANALYSIS APPROVED ON DATE: _____ PROJECT NO.: _____

☒ NO TRAFFIC IMPACT ANALYSIS REQUIRED AND HC APPROVED

☐ NO NEW TRIPS GENERATED

VI. TRAFFIC VARIANCE

☐ TRAFFIC VARIANCE APPROVED ON DATE: _____ PROJECT NO.: _____

3. DESCRIPTION OF PROPERTY

I. LEGAL DESCRIPTION

A. ACREAGE: N/A

B. ☐ SUBDIVISION: N/A

☐ SURVEY & ABSTRACT: N/A

C. ADJACENT ROADS: VETERANS MEMORIAL DR, WEST RD, DEER TRAIL DR

II. PLATTING

A. SUBDIVISION PLAT (CHECK APPLICABLE)

☐ PROPOSED PLAT / REPLAT

☐ RECORDED PLAT / REPLAT

☐ EXEMPT FROM PLAT / REPLAT

B. STREETS PROPOSED

☐ PUBLIC

☐ PRIVATE

☐ PUBLIC & PRIVATE

☒ NONE

PLAT NAME: N/A

NOTE: FINAL CPC101 REQUIRED FOR PLAN APPROVAL, RECORDED PLAT REQUIRED FOR FINAL INSPECTION.

III. JURISDICTIONS

☐ CITY OF _____

☒ ETJ, CITY OF HOUSTON

☐ ETJ, CITY OF _____

☐ NO ETJ

IV. HCAD ACCOUNT NOS. (ALL)

N/A

V. UNOBSTRUCTED VISIBILITY EASEMENT (U.V.E.)

☐ REQUIRED PER PLANNING COMMISSION / HC REGULATIONS SHOWN ON SHEET(S): _____

☒ NOT REQUIRED PER PLANNING COMMISSION / HC REGULATIONS

4. RESIDENTIAL / SUBDIVISION / STREET DEDICATION DRAINAGE

I. PROPOSED DRAINAGE SYSTEM TYPE

☐ STORM SEWER

☐ ROADSIDE DITCH

☐ LOW IMPACT DEVELOPMENT (LID)

II. DESIGN METHOD USED

☐ CITY OF HOUSTON _____YEAR FREQUENCY

☐ OTHER: _____

III. DRAINAGE SYSTEM OUTFALLS DIRECTLY TO EXISTING

☐ DETENTION BASIN (APPROVED HC PROJECT NO.): _____

DETENTION BASIN MAINTAINED BY: _____

☐ HCFCD DRAINAGE DITCH UNIT NO.: _____

☐ HC ROADSIDE DITCH (ROAD NAME): _____

☐ HC STORM SEWER (APPROVED HC PROJECT NO.): _____

IV. HC OUTFALL CALCULATIONS

☐ROADSIDE DITCH OUTFALL:

ALLOWABLE OUTFALL RATE: 0.0027 x _____ LF FRONTAGE = _____ (CFS)

PROPOSED OUTFALL RATE: _____(CFS), CALCULATIONS PROVIDED ON SHEET(S): _____

☐STORM SEWER OUTFALL

CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: _____(CFS)

FROM DRAINAGE AREA MAP DATED: _____

PREPARED BY: _____

APPROVED HC PROJECT NO.: _____

ACTUAL OUTFALL RATE: _____(CFS), CALCULATIONS PROVIDED ON SHEET(S): _____

V. DETENTION PROVIDED BY

☐ DETENTION BASIN IS PART THIS PLAN SET. SERVICE AREA MAP IS ON SHEET(S): _____

☐ REGIONAL DETENTION BASIN SYSTEM (APPROVED HC PROJECT NO.): _____

PROPOSED STORM SEWER IS SUBMERGED (AGREEMENT MUST BE PROVIDED).

STATIC W.S.E. @ OUTFALL IS _____.

5. COMMERCIAL / OTHER SITE DRAINAGE

I. PROPOSED DRAINAGE AREA

☐ NEW DEVELOPMENT AREA: _____

☐ RE-DEVELOPMENT AREA (NET NEW DEVELOPED AREA): _____

☐ LOW IMPACT DEVELOPMENT (LID)

II. DETENTION VOLUME

NEW AREA _____ X * = _____ ACRE FEET DETENTION REQUIRED

*☐ .65 (CHANNEL)

*☐ .75 (STM. SWR)

*☐ 1.00 (RD. DITCH)

*☐ OTHER: _____

PROPOSED DETENTION VOLUME = _____ACRE FEET

PROPOSED DETENTION VOLUME CALCULATIONS ARE SHOWN ON SHEET(S): _____

DETENTION VOLUME PROVIDED BY EXISTING DETENTION BASIN

APPROVED HC PROJECT NO.: _____

DETENTION BASIN SERVICE AREA MAP IS PROVIDED ON SHEET(S): _____

III. OUTFALL

OUTFALL TO ☐ HC ROADSIDE DITCH ☐ EXISTING HC STORM SEWER ☐ OTHER _____

☐HC ROADSIDE DITCH OUTFALL:

PROPOSED OUTFALL RATE: _____ (CFS), CALCULATIONS PROVIDED ON SHEET(S): _____

ALLOWABLE OUTFALL RATE: 0.0027 x _____ LF FRONTAGE = _____(CFS)

☐HC STORM SEWER OUTFALL:

CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: _____(CFS)

FROM DRAINAGE AREA MAP DATED: _____

PREPARED BY: _____

APPROVED HC PROJECT NO.: _____

ACTUAL OUTFALL RATE: _____(CFS), CALCULATIONS PROVIDED ON SHEET(S): _____

IV. PUMPED DETENTION FACILITIES

VOLUME THAT GRAVITY FLOWS: _____ ACRE FEET

VOLUME THAT IS PUMPED: _____ ACRE FEET

ENTRANCE VELOCITY INTO ROADSIDE DITCH OR STORM SEWER: _____

PUMP SPECIFICATIONS AND AUTOMATIC SHUTOFF PLAN FOR ROADSIDE DITCH & STORM SEWER OUTFALLS APPEAR ON SHEET(S): _____

V. FLOW RESTRICTOR SIZE

OUTFALL PIPE SIZE: _____

RESTRICTOR PIPE SIZE: _____

ON SHEET(S): _____

6. OFFSITE SHEET FLOW (100 YEAR)

OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMMODATIONS ARE SHOWN ON SHEET(S): _____

TOTAL ACREAGE = _____ (AC.)

TOTAL DISCHARGE = _____ (CFS)

☐ ALL OFFSITE SHEET FLOW FROM ADJACENT PROPERTIES IDENTIFIED AND PROPERLY ACCOUNTED FOR IN THE PROJECT.

☐ SIGNING ENGINEER HEREBY CERTIFIES THAT THESE AREAS HAVE BEEN ADDRESSED.

7. STORMWATER QUALITY

I. SWPPP: CONSTRUCTION MEASURES (COMPLETE FOR ALL PROJECTS)

NUMBER OF ACRES DISTURBED: 8.26

☒ DISTURBS >1AC. SITE PLAN & DETAILS ON SHEET(S): 25-30

☐ DISTURBS <1AC. N/A

II. APPLICABILITY FOR PERMANENT FEATURES (COMPLETE FOR ALL PROJECTS)

EXEMPT NEW DEVELOPMENT:

☐ PROJECT IS ON A PARCEL, WITHIN A LARGER COMMON PLAN OF DEVELOPMENT OR SALE, LESS THAN 5 ACRES.
THIS EXEMPTION IS VERIFIED WITH THE PLAT AND/OR GENERAL PLAN ON THE PROPERTY.

EXEMPT REDEVELOPMENT:

☒ THE INCREASE IN THE TOTAL AMOUNT OF IMPERVIOUS SURFACE, CURRENT PROJECT AND ANY SINCE 10/01/2001, ON A PREVIOUSLY DEVELOPED 5 ACRE OR LARGER PARCEL, INDIVIDUALLY AND/OR CONTIGUOUSLY OWNED, IS LESS THAN 1 ACRE.

NEW IMPERVIOUS:

CURRENT PROJECT	PREVIOUS PROJECT(S) TOTAL	TOTAL (CURRENT+PREVIOUS)
N/A	N/A	N/A

EXEMPT GRANDFATHERED:

☐ DRAINAGE FROM THIS PROJECT OUTFALLS DIRECTLY INTO AN EXISTING AND APPROVED DRAINAGE SYSTEM PRIOR TO 10/01/2001 WITH NO NEW DETENTION REQUIREMENT. INCLUDE THE ORIGINAL DRAINAGE AREA MAP OF THAT SYSTEM FOR VERIFICATION.
D.A. MAP NAME: _____ DATE: _____ APPROVED HC PROJECT NO.: _____

III. GENERAL

☐ PROJECT'S SWQ REQUIREMENTS FALL WITHIN THE JURISDICTION OF: _____
(ONLY COMPLETE IF OUTSIDE OF UNINCORPORATED HARRIS COUNTY)

☒ STORMWATER QUALITY PERMIT REQUIREMENT IS COVERED BY:

☒ EXISTING SWQMP

PROJECT TITLE: COH SWTP 66-INCH WATER LINE

HC PROJECT NO.: N/A HC SWQ PERMIT NO.: N/A

SWQ SERVICE AREA MAP INCLUDED ON SHEET(S): N/A

☐ INDUSTRIAL PERMITTING. (IAC AND SUPPORTING DOCUMENTATION MUST BE SUBMITTED)

PERMIT NO: _____

IF THE PROJECT IS NOT EXEMPT, OUTSIDE OF HARRIS COUNTY'S JURISDICTION, OR COVERED BY AN EXISTING SWQMP, A STORMWATER QUALITY MANAGEMENT PLAN IS REQUIRED.

IV. PERMANENT SWQ FEATURES (COMPLETE IF NOT EXEMPT)

☐ SITE PLAN ON SHEET(S): _____

☐ VEGETATIVE CONTROLS USED: (FILTER STRIP, GRASSY SWALE, URBAN FORESTRY, LID)
DETAILS AND CALCULATIONS APPEAR ON SHEET(S): _____

☐ BASIN STRUCTURE USED (WET, DRY, WETLANDS)
STRUCTURAL CONTROL IN BASIN: _____
DETAILS/CALCULATIONS ON SHEET(S): _____

☐ HYDRODYNAMIC TYPE SEPARATOR MODEL: _____
DETAILS/CALCULATIONS ON SHEET(S): _____

☐ OTHER(S):
STRUCTURAL CONTROL(S): _____
DETAILS/CALCULATIONS ON SHEET(S): _____

8. FLOODPLAIN STATUS

I. GENERAL INFORMATION

FIRM PANEL(S) FOR PROPERTY: _____

FIRM PANEL(S) DATE: _____

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 (DRAINAGE LAYOUT PG. NO._____) (1% BASE FLOOD LEVEL_____)
(0.2% BASE FLOOD LEVEL_____)

☐ SITE REMOVED FROM FLOODPLAIN BY LOMR, LOMR-F, LOMA CASE NO._____ REVISED FLOODPLAIN IS SHOWN ON SHEET(S): _____

II. 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.) _____

III. FLOODPLAIN DETERMINATION BASED ON GROUND ELEVATION

☐ PROPERTY LIES ENTIRELY ABOVE THE 1% BASE FLOOD LEVEL AND IN SHADED ZONE X

☐ PROPERTY LIES PARTIALLY OR ENTIRELY BELOW THE 1% BASE FLOOD LEVEL

IV. FLOODPLAIN STORAGE SUMMARY (APPLIES ONLY TO PORTION OF LAND LOCATED WITHIN FLOODPLAIN AS DELINEATED BY FIRM PANEL)

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.)_____ CUBIC YARDS

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

C. FILL AREA & VOLUME CALCULATIONS ARE SHOWN ON SHEET(S): _____

9. WATER AND WASTEWATER

I. COMMERCIAL PROJECTS

DOES THE PROPERTY HAVE UTILITIES?

☐ PROPOSED ☒ EXISTING ☐ NO

CHECK APPLICABLE

☐ PUBLIC WATER & SANITARY

☐ PRIVATE WATER WELL & SEPTIC SYSTEM

☐ PUBLIC WATER & PRIVATE SEPTIC SYSTEM

☐ PRIVATE WATER WELL & PUBLIC SANITARY

☐ LETTER FROM THE DISTRICT / MUNICIPALITY AUTHORIZING MUNICIPALITY AUTHORIZING SERVICE & CONNECTION.
UTILITY DISTRICT / MUNICIPALITY NAME: _____

☐ PROPOSED OR EXISTING SEPTIC TANK(S) AND DISPOSAL AREA(S) SHOWN ON SHEET(S): _____

☐ ALL EXISTING AND PROPOSED UTILITIES ACCURATELY SHOWN & LABELED ON THE SITE PLANS.

NOTE: SEPTIC SYSTEMS REQUIRE HC WASTEWATER REVIEW

HC SEPTIC PERMIT/REQUEST NO. _____

NOTE: DEDICATED UNDERGROUND FIRE LINES MUST BE SUBMITTED TO THE HARRIS COUNTY FIRE PROTECTION GROUP FOR REVIEW AND PERMITTING BY THE UNDERGROUND FIRE LINE CONTRACTOR. CIVIL REVIEW DOES ***NOT*** REVIEW OR APPROVE UNDERGROUND FIRE LINES FOR THE FIRE PROTECTION SYSTEMS.

WASTEWATER TREATMENT PLANTS

HC WWTP REVIEW:

☐ NEW WWTP SITE OR REHAB / EXPANSION OF AN EXISTING WWTP SITE

☐ HARRIS COUNTY DOMESTIC WASTEWATER TREATMENT PLANT EXPRESS REVIEW SHEET ATTACHED AND COMPLETED ACCORDING TO INSTRUCTIONS

10. SIDEWALKS

☐ SIDEWALKS ARE PROPOSED IN THIS DEVELOPMENT

☒ NO SIDEWALKS ARE PROPOSED IN THIS DEVELOPMENT

11. LANDSCAPING

☐ COMMERCIAL BUILDING(S) PROPOSED AND LANDSCAPING SHOWN ON SHEET(S): _____

☒ NO COMMERCIAL BUILDING(S) PROPOSED

12. PERMITS REQUIRED

☒ STORM WATER QUALITY

☒ ORIGINAL ☐ AMENDMENT TO PERMIT NO.: _____

☐ SEPTIC (EXISTING) ☐ SEPTIC (PROPOSED)

☐ CIVIL SITE WORK (PHASE II PERMIT CLASS I (UNSHADED X ZONE))

☐ CIVIL SITE WORK (PHASE II PERMIT CLASS II (ALL OTHER ZONES))

☐ DRIVEWAY WITH CULVERT ☒ DRIVEWAY WITH CURB AND GUTTER

☐ BUILDING(S) IS A CRITICAL FACILITY

☐ BUILDING PERMITS (NO. OF BUILDINGS = _____)

☐ SUBDIVISION INFRASTRUCTURE PHASE II (NO. OF LOTS = _____)

☐ NOTICE OF DETENTION AFFIDAVIT REQUIRED

☐ MUD MAINTENANCE AGREEMENT REQUIRED

☐ STREET DEDICATION

WORK IN HARRIS COUNTY R.O.W.

☒ UTILITY WORK 66-INCH WATER LINE

☐ TURN LANE _____

☐ OTHER CONSTRUCTION _____

VIOLATIONS

☐ EXISTING VIOLATIONS ON PROPERTY
VIOLATION NUMBER(S): _____

NOTES:

A PERMIT IS REQUIRED FOR EACH SCOPE OF WORK ON SITE.
A R.O.W. NOTIFICATION IS REQUIRED FOR EACH SCOPE OF WORK IN HC OR HCFCD R.O.W.

BENCHMARK REQUIREMENTS FOR PROPOSED BRIDGES AND OR NEW RESIDENTIAL SUBIDIVSIONS

When the County Engineer has determined that a new benchmark will be required to be established for the proposed project, the developer shall be required to install a benchmark per section 8.0, part 2 of the Harris County Infrastructure Regulations.

Is a new Benchmark required for this project? (*to be determined by Harris County*) [__] yes [X] no

If a new Benchmark is required, the proposed benchmark information is shown on sheet(s): ____

FOR PROJECTS LOCATED IN ANY FLOODPLAIN

Development constructed or placed in accordance with these plans will comply with all provisions of the Regulations of Harris County, Texas for Floodplain Management.

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

FOUNDATION NOTES: (*Applies to only buildings or building additions requiring a class II permit*)

All water heaters, furnaces, air conditioning units, electrical distribution panels, and any other mechanical or electrical equipment must be elevated in accordance with Section 4.05 of Harris County Floodplain regulations.

Any electrical circuit serving a light switch or outlet located below the base (100-year) flood elevation shall be dropped from above and be on a separate breaker.

All materials used below the (100-year) base flood elevation are on approved FEMA Technical Bulletin 2-08 as Class 5 water-resistant, and approved in accordance with FEMA Technical Bulletin 1-08 for foundation openings.

Critical facilities located in the 0.2% or 500yr floodplain or 1% or 100yr floodplain shall have the lowest floor elevated to 3 feet or more above the 0.2% flood elevation, or 24 inches above the crown of the adjacent road, which ever results in a higher elevation.

Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.

Access routes elevated to or above the level of the base flood shall be provided to all critical facilities to the extent possible.

A completed as-built certificate must be submitted after the structure is complete and before it is occupied.

The County Engineer's Office will post a final inspection notice on the structure once all requirements have been met.

No fill may be used to elevate structures in the 1% or 100yr flood plain. Structures may be constructed on an open foundation, such as piers, or on continuous foundation walls with properly sized and located openings. All foundations are required to be designed by a registered professional engineer.

All structures shall be designed to withstand a three second gust basic wind speed of 120mph.

*Completed ***Elevation Certificates** to be submitted: one at permitting, a second after the slab is poured or sub-floor is installed and before the framing starts, and a third is required once construction is finished. *(PER CURRENT FIRM PANEL)*

HARRIS COUNTY OFFICE OF THE COUNTY ENGINEER - PERMIT OFFICE NOTE:

THE PERMIT MANAGER SIGNATURE REPRESENTS THE FOLLOWING:

- THE COMPLETION OF REVIEW OF THESE PLANS
- INTERPOSE NO OBJECTION TO THE PROPOSED DESIGN ON PRIVATE PROPERTY
- APPROVAL OF WORK IN HARRIS COUNTY MAINTAINED RIGHT OF WAY
- APPROVAL OF WORK IN PROPOSED HARRIS COUNTY RIGHT OF WAY THAT IS TO BE ACCEPTED BY THE COUNTY

HCOCE SIGNATURE BLOCK:

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, A. SETAREHASEMAN, 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. I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE PLANS IN THEIR ENTIRETY ARE DESIGNED PER THE HARRIS COUNTY ENGINEERING STANDARDS, REGULATIONS, AND GUIDELINES UNLESS PROVIDED A VARIANCE BY THE COUNTY ENGINEER OR HIS DESIGNEE. SHOULD IT BE DEEMED BY HCED STAFF, THAT THE PLANS DO NOT MEET THE COUNTY'S STANDARDS, REGULATIONS AND GUIDELINES AND DID NOT RECEIVE AN APPROVED VARIANCE, THE APPROVAL OF SAID PLANS BECOMES NULL AND VOID AND THE DESIGN PLANS MUST BE CORRECTED AT NO CHARGE TO THE COUNTY.

SEAL

THE COMPLETED PROJECT CONSISTS OF DRAWING SHEETS 1 THRU 157

SIGNATURE _____ DATE _____

REVISIONS

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

REV. NO.	DATE	SHEET NO.	DESCRIPTION	P.E. INITIAL	HC APPROVED DATE	HC INITIAL

HC PROJECT NO. _____ HCFCD PROJECT NO. _____

HARRIS COUNTY
OFFICE OF THE COUNTY ENGINEER
REVIEW SHEET

SEE PLAN & PROFILE
SHEETS 81 & 82 OF 157

SEE PLAN & PROFILE
SHEETS 83 & 84 OF 157

STA 13+50.00

EXIST 12" WATER LINE

EXIST FIRE HYDRANT

10+00

BH-1

ACCESS MANWAY W/
ACCESS MH

AI/VR VALVE, VENT PIPING W/
3-BOLLARDS AND ACCESS MANWAY
W/ SERVICE MANHOLE

PROP 40' WL EASEMENT

SURVEY ℄

BH-2

BFV WL
OPERATOR MH

PROP 66" WATER LINE
BY OPEN CUT

PROP 66" WATER LINE
BY TUNNELING

VETERANS MEMORIAL DR

BH-22

ACCESS MANWAY W/
ACCESS MH

66' INTERNAL ELLIPTICAL
DISHED HEAD PLUG

MATCH LINE STA 15+00

SEE PLAN & PROFILE
SHEETS 83 & 84 OF 157

SEE PLAN & PROFILE
SHEETS 85 & 86 OF 157

STA 18+50.00

MATCH LINE STA 15+00

SURVEY ℄

BH-3

PROP 66" WATER LINE
BY OPEN CUT

PROP 40' WL EASEMENT

MATCH LINE STA 20+00

N

N

20 0 20 40

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

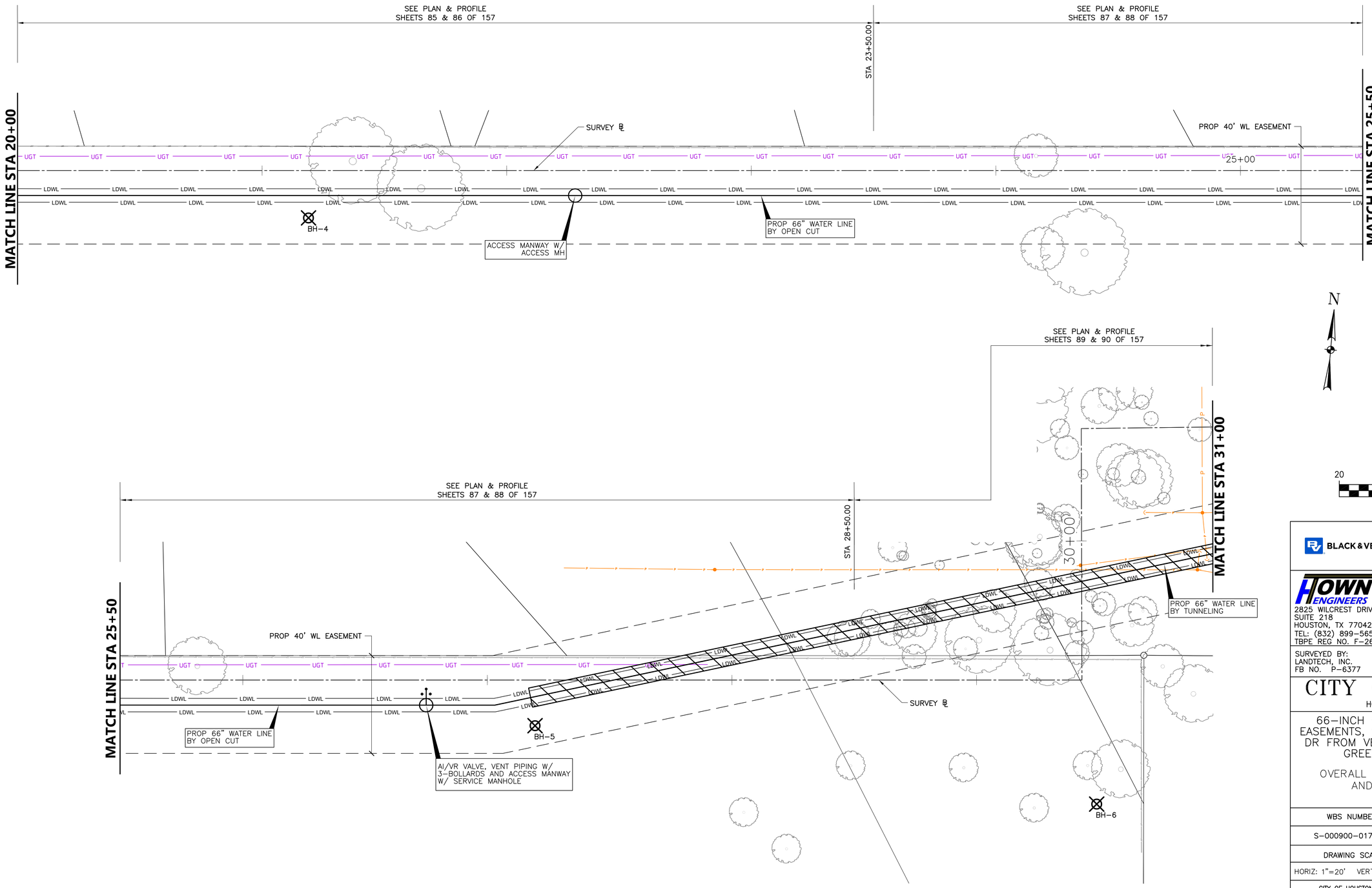
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 1 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 9 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\09_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_01.dwg



NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 2 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 10 OF 157	

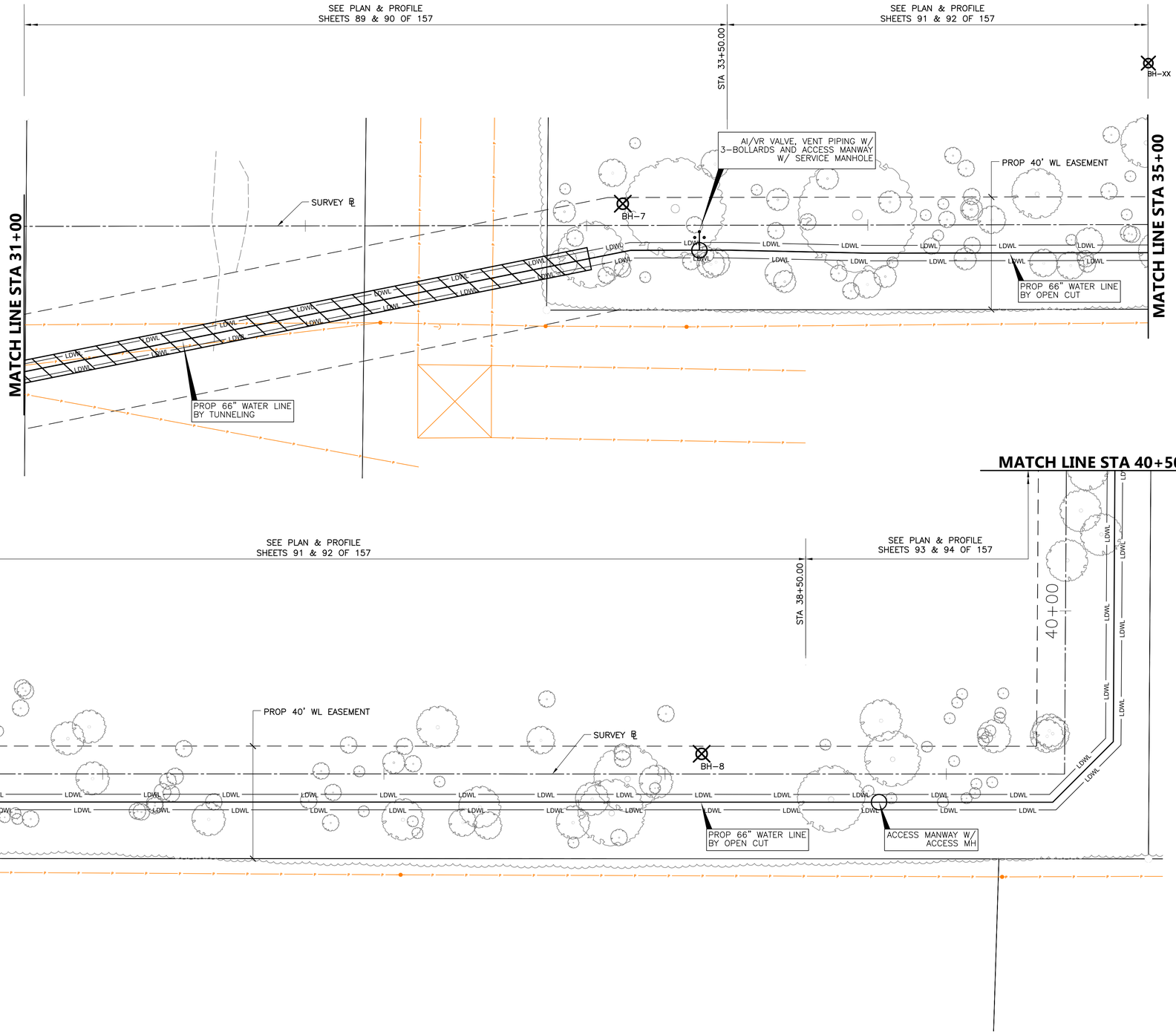
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\10_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_02.dwg

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.



20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 3 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 11 OF 157	

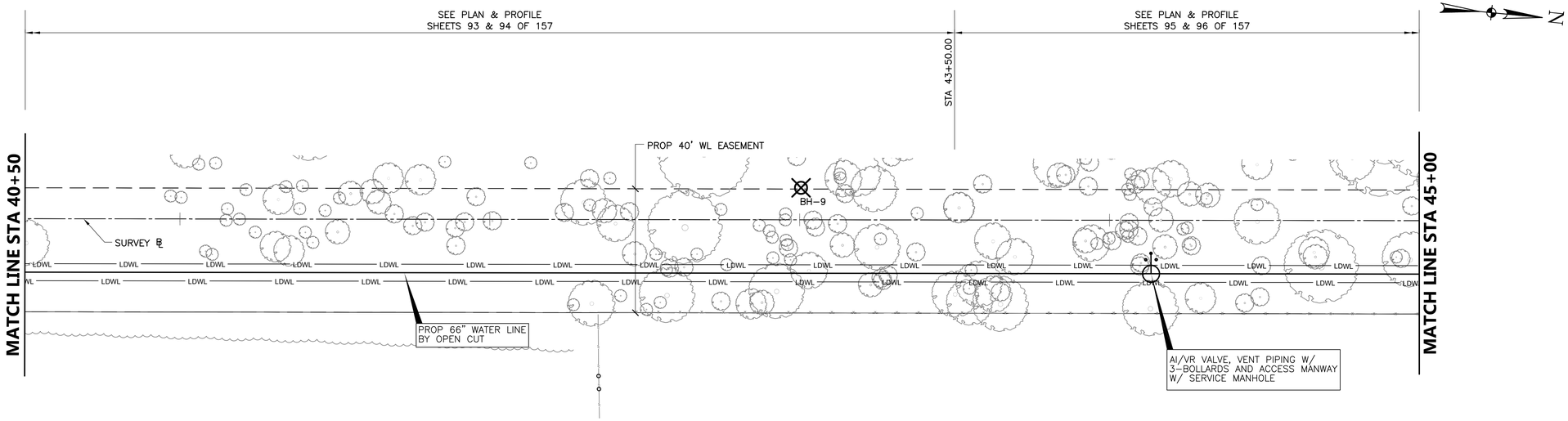
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\11_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_03.dwg

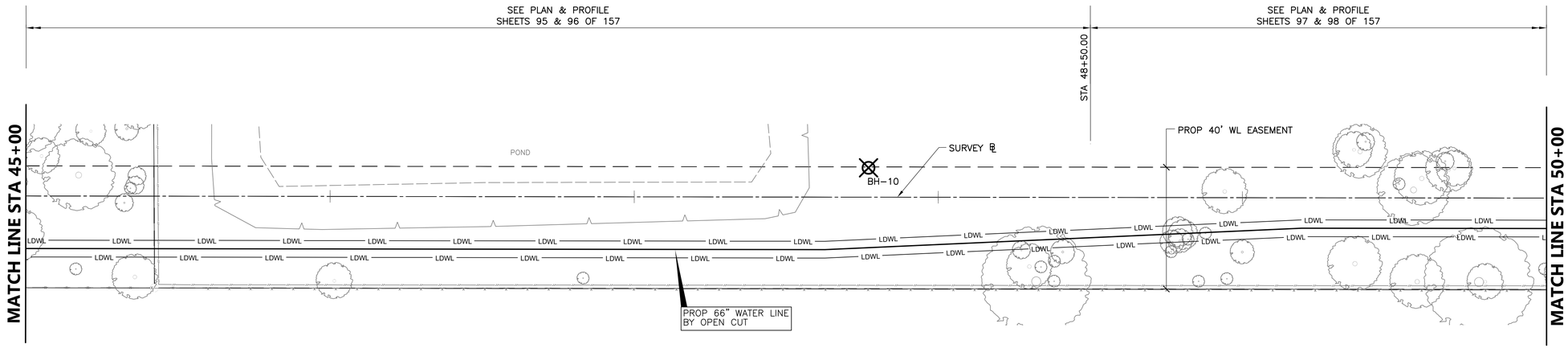
NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.





20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

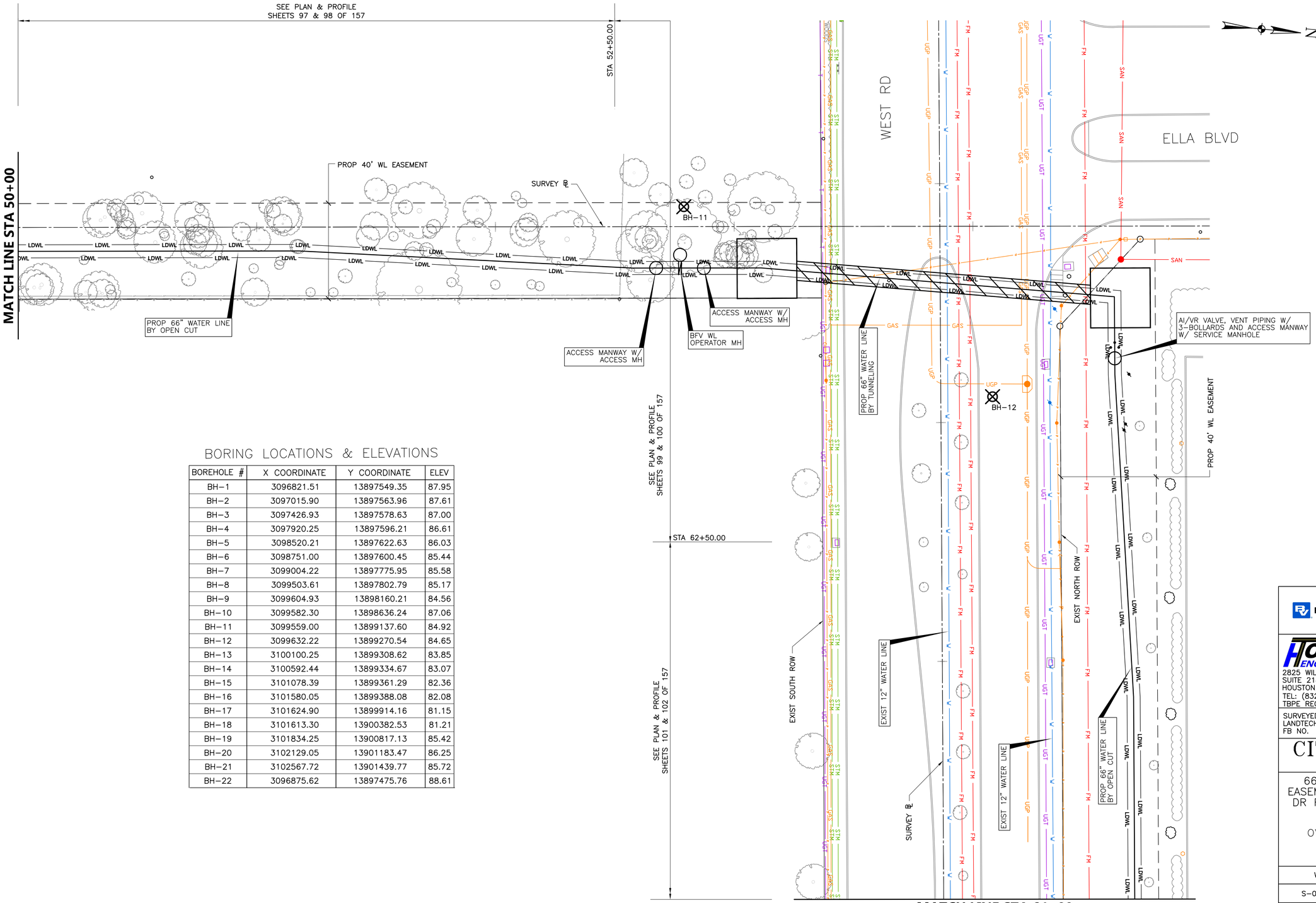
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 4 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 12 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\12_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_04.dwg



NOTES & LEGENDS:

BH-XX BORING NUMBERS

BORING LOCATIONS & ELEVATIONS

BOREHOLE #	X COORDINATE	Y COORDINATE	ELEV
BH-1	3096821.51	13897549.35	87.95
BH-2	3097015.90	13897563.96	87.61
BH-3	3097426.93	13897578.63	87.00
BH-4	3097920.25	13897596.21	86.61
BH-5	3098520.21	13897622.63	86.03
BH-6	3098751.00	13897600.45	85.44
BH-7	3099004.22	13897775.95	85.58
BH-8	3099503.61	13897802.79	85.17
BH-9	3099604.93	13898160.21	84.56
BH-10	3099582.30	13898636.24	87.06
BH-11	3099559.00	13899137.60	84.92
BH-12	3099632.22	13899270.54	84.65
BH-13	3100100.25	13899308.62	83.85
BH-14	3100592.44	13899334.67	83.07
BH-15	3101078.39	13899361.29	82.36
BH-16	3101580.05	13899388.08	82.08
BH-17	3101624.90	13899914.16	81.15
BH-18	3101613.30	13900382.53	81.21
BH-19	3101834.25	13900817.13	85.42
BH-20	3102129.05	13901183.47	86.25
BH-21	3102567.72	13901439.77	85.72
BH-22	3096875.62	13897475.76	88.61

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 5 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 13 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\13_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_05.dwg

SEE PLAN & PROFILE
SHEETS 101 & 102 OF 157

SEE PLAN & PROFILE
SHEETS 103 & 104 OF 157

STA 67+50.00

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-xx BORING NUMBERS

4" AI/VR VALVE, VENT PIPING W/ 3-BOLLARDS AND ACCESS MANWAY W/ SERVICE MANHOLE

PROP 66" WATER LINE BY OPEN CUT

PROP 40' WL EASEMENT

EXIST FIRE HYDRANT

EXIST NORTH ROW

EXIST 12" WATER LINE

BH-13

WEST RD

MATCH LINE STA 64+00

MATCH LINE STA 70+00

65+00

EXIST 12" WATER LINE

EXIST 8" WATER LINE

SURVEY

WEST RD

SEE PLAN & PROFILE
SHEETS 103 & 104 OF 157

SEE PLAN & PROFILE
SHEETS 105 & 106 OF 157

4" AI/VR VALVE, VENT PIPING W/ 3-BOLLARDS AND ACCESS MANWAY W/ SERVICE MANHOLE

STA 72+50.00

PROP 40' WL EASEMENT

PROP 66" WATER LINE BY OPEN CUT

EXIST NORTH ROW

EXIST NORTH ROW

EXIST 12" WATER LINE

BH-14

WEST RD

SURVEY

MATCH LINE STA 70+00

MATCH LINE STA 75+00

EXIST 12" WATER LINE

WOODS

WOODS

EXIST SOUTH ROW

N

20 0 20 40

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

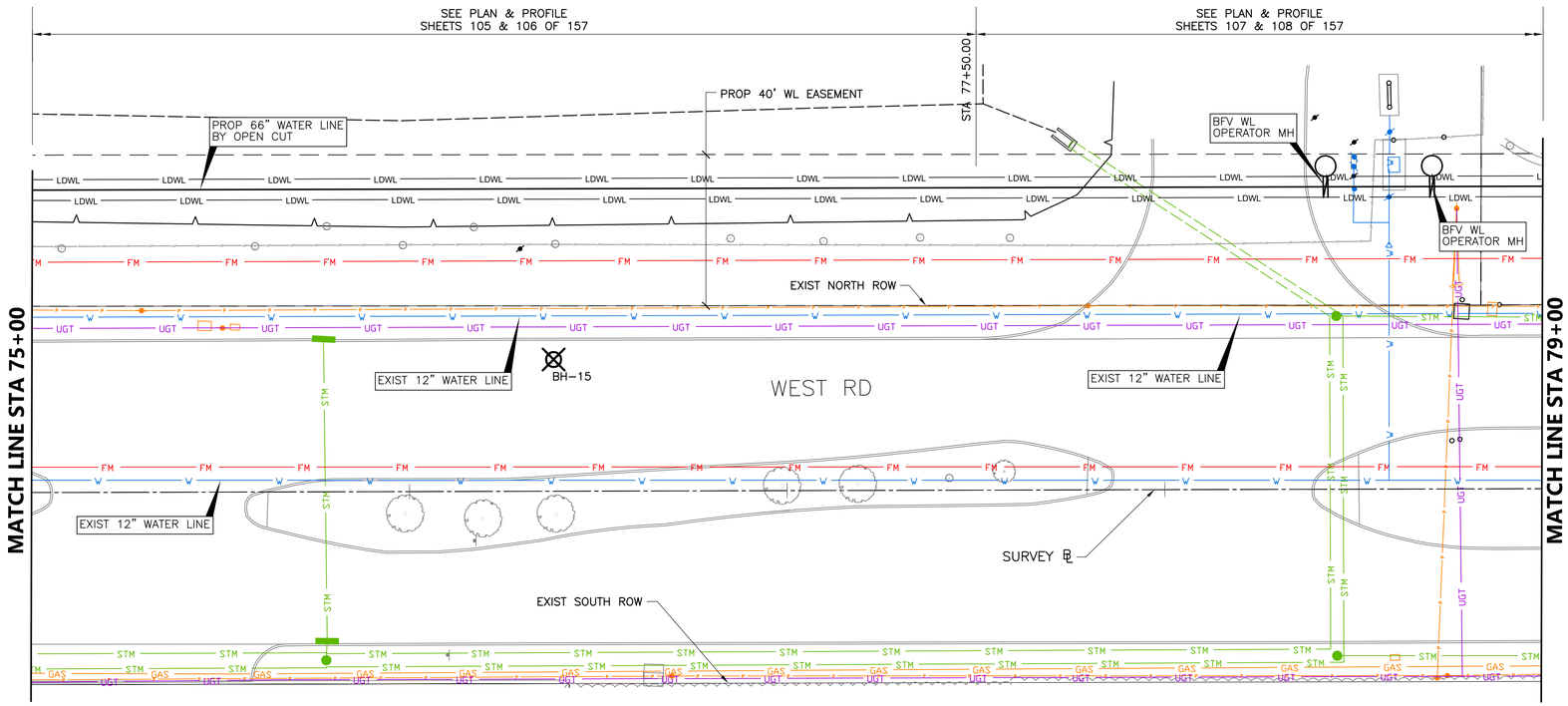
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

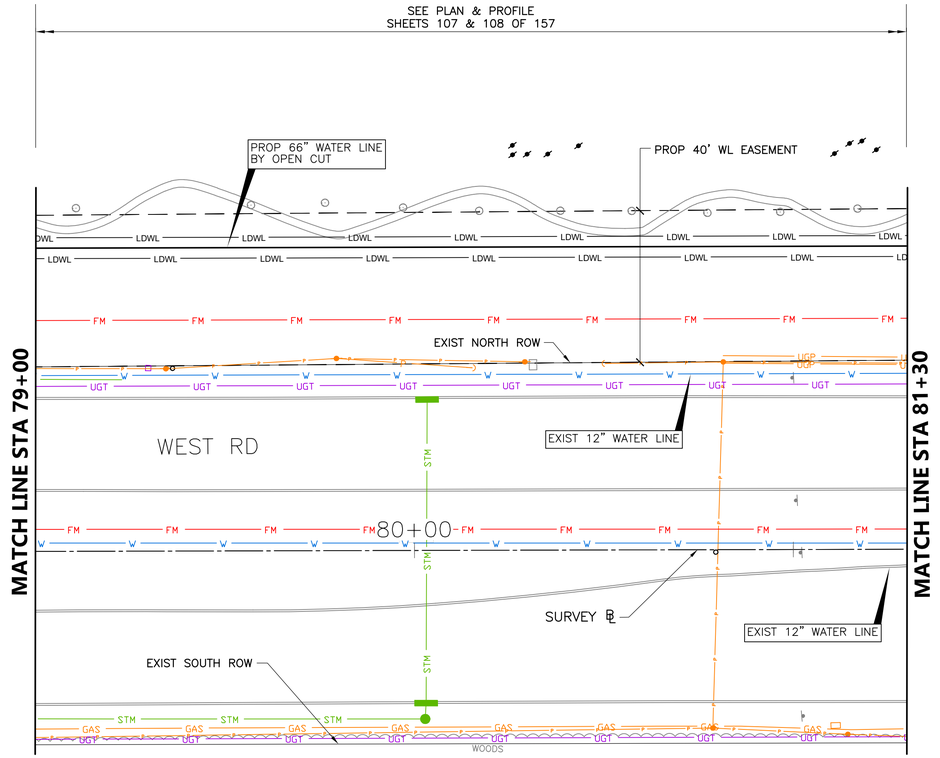
OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 6 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 14 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\14_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_06.dwg





NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.

N

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 7 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 15 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\15_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_07.dwg

SEE PLAN & PROFILE
SHEETS 109 & 110 OF 157

STA 90+00.00

MATCH LINE STA 81+30

SEE PLAN & PROFILE
SHEETS 107 & 108 OF 157

WEST RD

BH-16

EXIST 12" WATER LINE

EXIST WEST ROW

PROP 40' WL EASEMENT

4" AI/VR VALVE, VENT PIPING W/ 3-BOLLARDS AND ACCESS MANWAY W/ SERVICE MANHOLE

ACCESS MANWAY W/ ACCESS MH

66" BFV WL OPERATOR MH

EXIST FIRE HYDRANT

SURVEY ℄

EXIST EAST ROW

EXIST 12" WATER LINE

DEER TRAIL DR

STA 94+50.00

PROP 66" WATER LINE BY OPEN CUT

SEE PLAN & PROFILE
SHEETS 111 & 112 OF 157

MATCH LINE STA 95+00

N

SEE PLAN & PROFILE
SHEETS 111 & 112 OF 157

STA 99+50.00

SEE PLAN & PROFILE
SHEETS 113 & 114 OF 157

MATCH LINE STA 95+00

PROP 40' WL EASEMENT

EXIST WEST ROW

BH-17

EXIST FIRE HYDRANT

SURVEY ℄

EXIST EAST ROW

PROP 66" WATER LINE BY OPEN CUT

ACCESS MANWAY W/ ACCESS MH

DEER TRAIL DR

EXIST FIRE HYDRANT

EXIST 12" WATER LINE

MATCH LINE STA 100+00

N

20 0 20 40

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

⊗ BORING NUMBERS
BH-XX

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 8 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 16 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\16_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_08.dwg

SEE PLAN & PROFILE
SHEETS 113 & 114 OF 157

STA 104+00.00

SEE PLAN & PROFILE
SHEETS 115 & 116 OF 157

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BORING NUMBERS
BH–XX

NO.	DATE	REVISION	APP.

PROP 66" WATER LINE BY OPEN CUT

PROP 40' WL EASEMENT

EXIST WEST ROW

BH–18

SURVEY ℄

DEER TRAIL DR

EXIST FIRE HYDRANT

EXIST 12" WATER LINE

EXIST EAST ROW

EXIST FIRE HYDRANT

MATCH LINE STA 100+00

MATCH LINE STA 105+00

SEE PLAN & PROFILE
SHEETS 115 & 116 OF 157

PROP 66" WATER LINE BY OPEN CUT

PROP 40' WL EASEMENT

ACCESS MANWAY W/ ACCESS MH

BH–19

EXIST WEST ROW

SURVEY ℄

EXIST 12" WATER LINE

EXIST FIRE HYDRANT

DEER TRAIL DR

EXIST EAST ROW

MATCH LINE STA 105+00

MATCH LINE STA 109+00

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

SHEET 9 OF 10

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 17 OF 157	

FILE PATH: Z:\Active Projects\1003–02 COH SWTP 66–inch WL\Drawings\17_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_09.dwg

SEE PLAN & PROFILE
SHEETS 117 & 118 OF 157

PROP 40' WL EASEMENT

ACCESS MANWAY W/ ACCESS MH

PROP 66" WATER LINE BY OPEN CUT

MATCH LINE STA 109+00

BH-20

EXIST WEST ROW

DEER TRAIL DR

110+00

SURVEY ℄

EXIST FIRE HYDRANT

EXIST 12" WATER LINE

EXIST EAST ROW

MATCH LINE STA 113+00

SEE PLAN & PROFILE
SHEETS 117 & 118 OF 157

STA 113+50.00

SEE PLAN & PROFILE
SHEETS 119 & 120 OF 157

STA 118+00.00

PROP 66" WATER LINE BY OPEN CUT

PROP 40' WL EASEMENT

BFV WL OPERATOR MH

ACCESS MANWAY W/ ACCESS MH

ACCESS MANWAY W/ ACCESS MH

MATCH LINE STA 113+00

DEER TRAIL DR

115+00

BH-21

EXIST WEST ROW

EXIST FIRE HYDRANT

SURVEY ℄

EXIST 12" WATER LINE

EXIST EAST ROW

NOTES & LEGENDS:

1. SEE SHEET 5 OF 10 FOR BORING LOCATIONS.

BH-XX BORING NUMBERS

NO.	DATE	REVISION	APP.

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

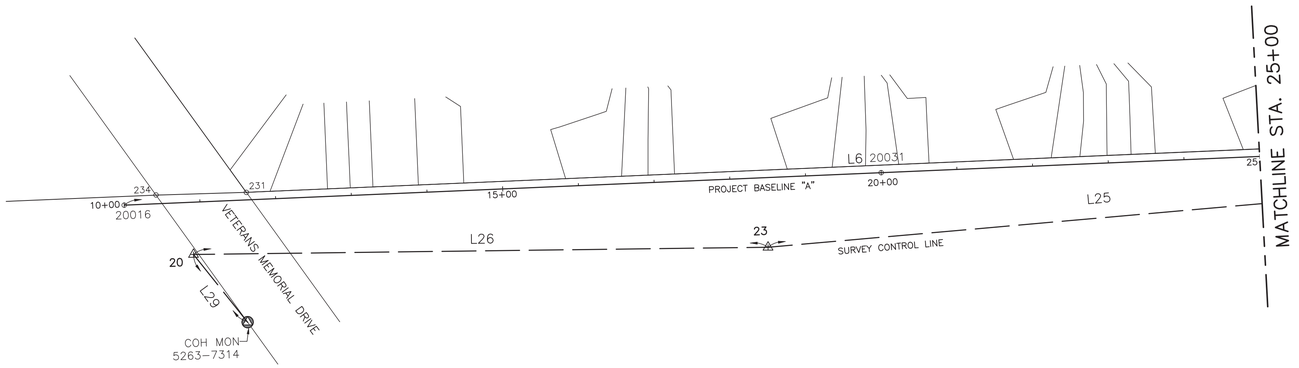
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

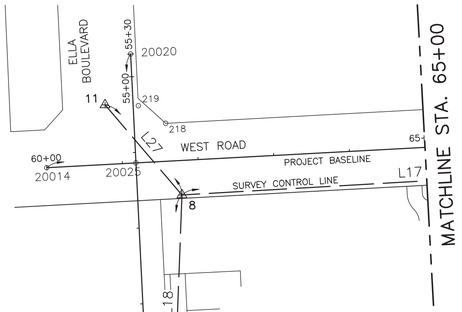
OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS

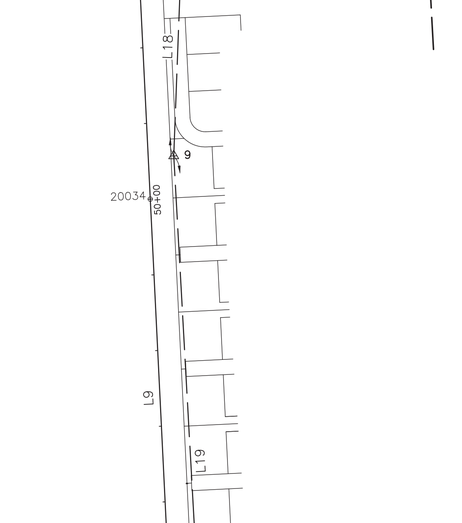
SHEET 10 OF 10

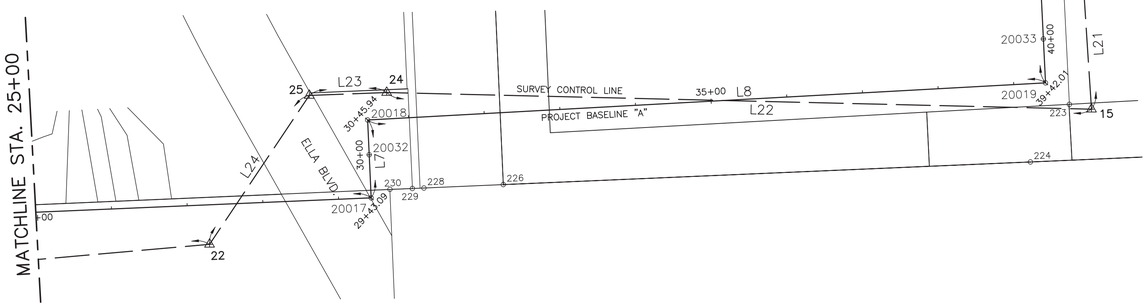
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 18 OF 157	

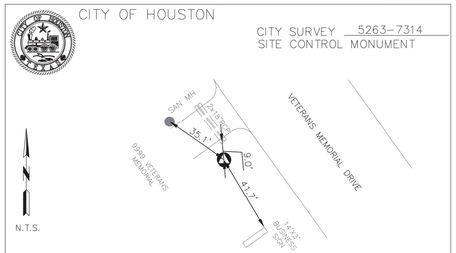
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\18_OVERALL PROJECT SHEETS LAYOUT AND BORING LOCATIONS_10.dwg











Project WBS# S–000900–0179–3

Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X=3,096,561.8355
Y=13,895606.7623

Lat.= 29° 54' 36.02977" (N)

Lon.= 95° 26' 19.66888" (W)

Reference Frame Used: NAD 83 (2011 Adj.)

Vertical Adjustment used: NAVD '88 (CORS '96)

Keymap Page: 412A

Orthometric Elevation= 86.30 FEET
Ellipsoid Height= –4.31 FEET
Geoid: 12A
Datum Source & Adjustment:
CONVENTIONAL LEVEL & GPS

General Location: 700 FEET SOUTH OF VETERANS MEMORIAL DRIVE AND STUEBUER PARK LANE INTERSECTION

Date Set: 12/07/2024 Type of Mark: 4A

3 Nearest project control points (bearings and distances stated below):
CP–20, SET 5/8" IR WITH CAP STAMPED "LANDTECH" – N 38°39'50" W 114.37'
CP–22, SET COTTON SPINDLE – N 83°34'09" E 1575.00'
CP–23, SET COTTON SPINDLE – N 81°48'35" E 693.87'

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

Surveyed By: LANDTECH , INC.
1315 W SAM HOUSTON PARKWAY N, SUITE 100
HOUSTON, TEXAS 77043
T: 713–861–7066 F: 713–861–4131
TBPELS REGISTRATION NO. 10019100

STATE OF TEXAS · REGISTERED · NHUY T. NGUYEN · 6409 · LICENSED PROFESSIONAL LAND SURVEYOR · SURVEYOR
7/1/2025

City of Houston, Harris County, Texas

LINE	BEARING	DISTANCE
L6	N87°32'30"E	1,943.09'
L7	N02°36'30"W	102.85'
L8	N86°51'40"E	896.07'
L9	N02°48'33"W	1,587.99'
L17	S86°41'00"W	634.32'
L18	S02°10'04"W	286.48'
L19	S03°10'57"E	812.44'
L20	S08°34'19"E	170.28'
L21	S03°42'33"E	169.41'
L22	N88°38'39"W	930.39'
L23	S87°50'29"W	102.30'
L24	S33°48'49"W	236.46'
L25	S84°57'13"W	881.71'
L26	S89°16'44"W	758.31'
L27	N40°29'32"W	156.28'
L29	S38°39'50"E	114.37'

TEMPORARY BENCHMARKS:

TBM–8
SET 5/8" IR W/ LANDTECH CAP AT WEST ROAD
STA. 53+40.92 OFFSET: 58.61 RT
ELEV.= 84.95 FEET

TBM–10
SET 5/8" IR W/ LANDTECH CAP AT WEST OF 118 SPOONHILL NEST LANE
STA. 42+43.10 OFFSET: 39.05 RT
ELEV.= 85.79 FEET

TBM–15
SET 5/8" IR W/ LANDTECH CAP AT SOUTHWEST CORNER OF WATERSIDE COURT
STA. 39+42.01 OFFSET: 69.86 RT
ELEV.= 85.01 FEET

TBM–20
SET 5/8" IR W/ LANDTECH CAP AT 9999 VETERANS MEMORIAL DR.
STA. 10+88.58 OFFSET: 68.91 RT
ELEV= 87.97 FEET

TBM–23
SET COTTON SPINDLE AT 9892 VETERANS MEMORIAL DR.
STA. 18+46.54 OFFSET: 91.90 RT
ELEV.= 86.91 FEET

TBM–25
SET 5/8" IR W/ LANDTECH CAP AT 811 WEST ROAD
STA. 28+67.25 OFFSET: 138.56 LT
ELEV.= 85.73 FEET

N

0 100 200 FEET(H)

SCALE : 1" = 100'

NO.	DATE	REVISION	APP.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264–8007: SET A BRASS DISK IN CONCRETE ON THE WEST SIDE OF DEER TRAIL DRIVE, APPROXIMATELY 400 FEET NORTH OF ITS INTERSECTION WITH GREENS LANDING DR.
ELEV 85.53' NAVD 1988 (CORS96, GEOID 12A)

NOTES:
1. BEARINGS AND COORDINATES ARE BASED ON TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL DISTANCES ARE IN SURFACE. SURFACE = GRID/0.999870017.
2. VERTICAL AND HORIZONTAL CONTROLS ARE BASED ON CITY OF HOUSTON PUBLIC WORKS CAPITAL PROJECT TITLE "108–INCH WATER LINE ALONG CITY EASEMENTS FROM IMPERIAL VALLEY DR. TO GREEN PLAZA DR." WBS NO. S–000900–0168–4, DRAWING NO. 64849, BY KUO & ASSOCIATES, INC. (713–975–8769) IN OCTOBER 2019; HOLDING CONTROLS: B–13, B–16
   B–13: FND. "X" CUT IN CONC.
   GRID N= 13,905,030.20
   GRID E= 3,104,555.16
   ELEV=87.76'
   B–16: FND. "X" CUT IN CONC.
   GRID N= 13,904,866.30
   GRID E= 3,105.502.84
   ELEV=86.81'
   BENCHMARK CITY OF HOUSTON MONUMENT 5264–8415 IS DESTROYED BY SURVEY DATE.
3. PROJECT LIMIT IS WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) NO. 48201C0470L, REVISED JUNE 18, 2007, CREATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (800–358–9616 AND WWW.FEMA.GOV/MSC)
4. ABSTRACT RESEARCH PERFORMED BY LANDTECH, INC. IN APRIL 2024
5. FIELD WORK COMPLETED IN JUNE 2025.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713–861–7043
F: 713–861–4131
TBPELS No. 10019100

SURVEYED BY: LANDTECH INC
FB NO. P–6377

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SURVEY CONTROL MAP
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 19 OF 157	

PLOTTED: 7/9/2025 1:45 PM

PLOT STYLE: COH.ctb

FILE PATH: S:\2024\2420076\CADD\COH 66–inch Pipeline – SCM.dwg

CITY OF HOUSTON

CITY SURVEY 5264–7702
SITE CONTROL MONUMENT
HCFP RM #150655

Project WBS# S–000900–0179–3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,099,848.6047
Y=13,897,475.2230

Lat.= 29° 54' 53.52603" (N)
Lon.= 95° 25' 41.68988" (W)

Reference Frame Used: NAD 83 (2011 Adj.)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: 0.8 MILE EAST OF VETERANS MEMORIAL DRIVE AND WEST ROAD INTERSECTION

Keymap Page: 412B
Orthometric Elevation =84.89 FEET
Ellipsoid Height= –5.66 FEET
Geoid: 12A
Datum Source & Adjustment:
CONVENTIONAL LEVEL & GPS

Date Set: 5/14/2003 Type of Mark: HCFP RM 150655

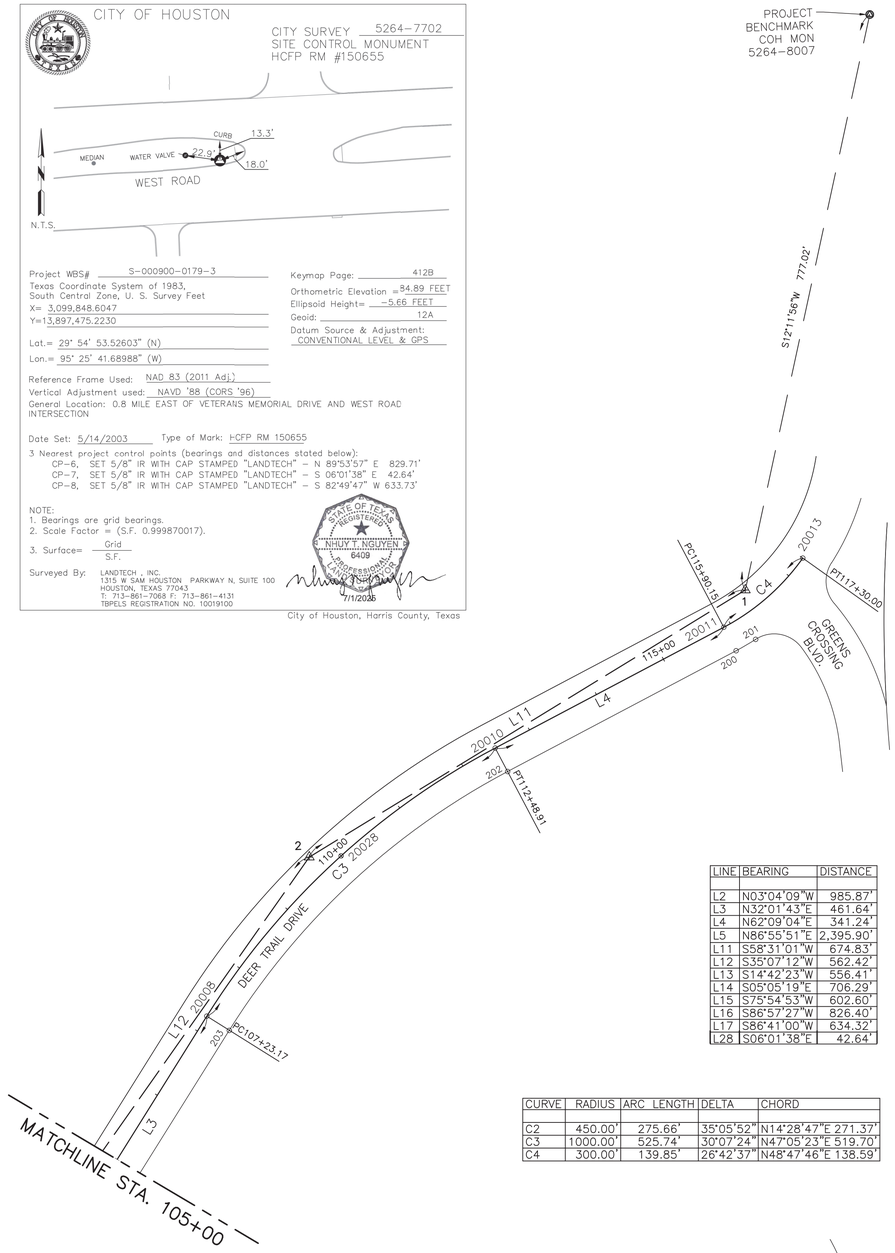
3 Nearest project control points (bearings and distances stated below):
CP–6, SET 5/8" IR WITH CAP STAMPED "LANDTECH" – N 89°53'57" E 829.71'
CP–7, SET 5/8" IR WITH CAP STAMPED "LANDTECH" – S 06°01'38" E 42.64'
CP–8, SET 5/8" IR WITH CAP STAMPED "LANDTECH" – S 82°49'47" W 633.73'

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

STATE OF TEXAS REGISTERED NHUY T. NGUYEN 6409 PROFESSIONAL SURVEYOR 7/11/2025

Surveyed By: LANDTECH , INC.
1315 W SAM HOUSTON PARKWAY N, SUITE 100
HOUSTON, TEXAS 77043
T: 713–861–7068 F: 713–861–4131
TBPELS REGISTRATION NO. 10019100

City of Houston, Harris County, Texas

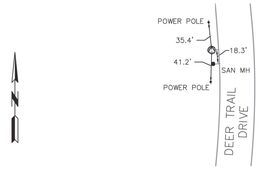


LINE	BEARING	DISTANCE
L2	N03°04'09"W	985.87'
L3	N32°01'43"E	461.64'
L4	N62°09'04"E	341.24'
L5	N86°55'51"E	2,395.90'
L11	S58°31'01"W	674.83'
L12	S35°07'12"W	562.42'
L13	S14°42'23"W	556.41'
L14	S05°05'19"E	706.29'
L15	S75°54'53"W	602.60'
L16	S86°57'27"W	826.40'
L17	S86°41'00"W	634.32'
L28	S06°01'38"E	42.64'

CURVE	RADIUS	ARC LENGTH	DELTA	CHORD
C2	450.00'	275.66'	35°05'52"	N14°28'47"E 271.37'
C3	1000.00'	525.74'	30°07'24"	N47°05'23"E 519.70'
C4	300.00'	139.85'	26°42'37"	N48°47'46"E 138.59'

CITY OF HOUSTON

CITY SURVEY 5264–8007
SITE CONTROL MONUMENT



Project WBS# S–000900–0178–3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,102,404.2979
Y= 13,900,436.5652

Lat.= 29° 55' 22.05481" (N)
Lon.= 95° 25' 11.63136" (W)

Reference Frame Used: NAD 83 (CORS 96)
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: 400 FEET NORTH OF THE INTERSECTION OF DEER TRAIL DRIVE WITH GREENS LANDING DRIVE

Keymap Page: 372Y
Orthometric Elevation = 85.53 FEET
Ellipsoid Height= –4.54 FEET
Geoid: 12A
Datum Source & Adjustment:
CONVENTIONAL LEVEL

Date Set: NOV 23, 2024 Type of Mark: 4A

3 Nearest project control points (bearings and distances stated below):
CP–11, SET 3/8" IR WITH CAP STAMPED "LANDTECH" – N 01°23'55" W ~ 943.79'
CP–12, SET 3/8" IR WITH CAP STAMPED "LANDTECH" – N 38°03'11" E ~ 90.74'
CP–13, SET 3/8" IR WITH CAP STAMPED "LANDTECH" – S 04°32'13" W ~ 730.30'

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

STATE OF TEXAS REGISTERED NHUY T. NGUYEN 6409 PROFESSIONAL SURVEYOR 7/9/2025

Surveyed By: LANDTECH , INC.
1315 W SAM HOUSTON PARKWAY N, SUITE 100
HOUSTON, TEXAS 77043
T: 713–861–7068 F: 713–861–4131
TBPELS REGISTRATION NO. 10019100

City of Houston, Harris County, Texas

TEMPORARY BENCHMARKS:

TBM–1
SET 5/8" IR W/ LANDTECH CAP AT DEER TRAIL DR. AND GREEN CROSSING BLVD. INTERSECTION
STA. 116+43.04 OFFSET: 25.94 LT
ELEV.= 86.21 FEET

TBM–2
SET 5/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 109+68.70 OFFSET: 27.49 LT
ELEV.= 85.79 FEET

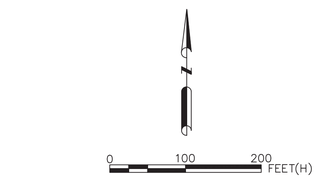
TBM–3
SET 5/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 104+11.32 OFFSET: 27.00 LT
ELEV.= 82.82 FEET

TBM–4
SET 5/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 98+52.85 OFFSET: 24.01 LT
ELEV.= 82.54 FEET

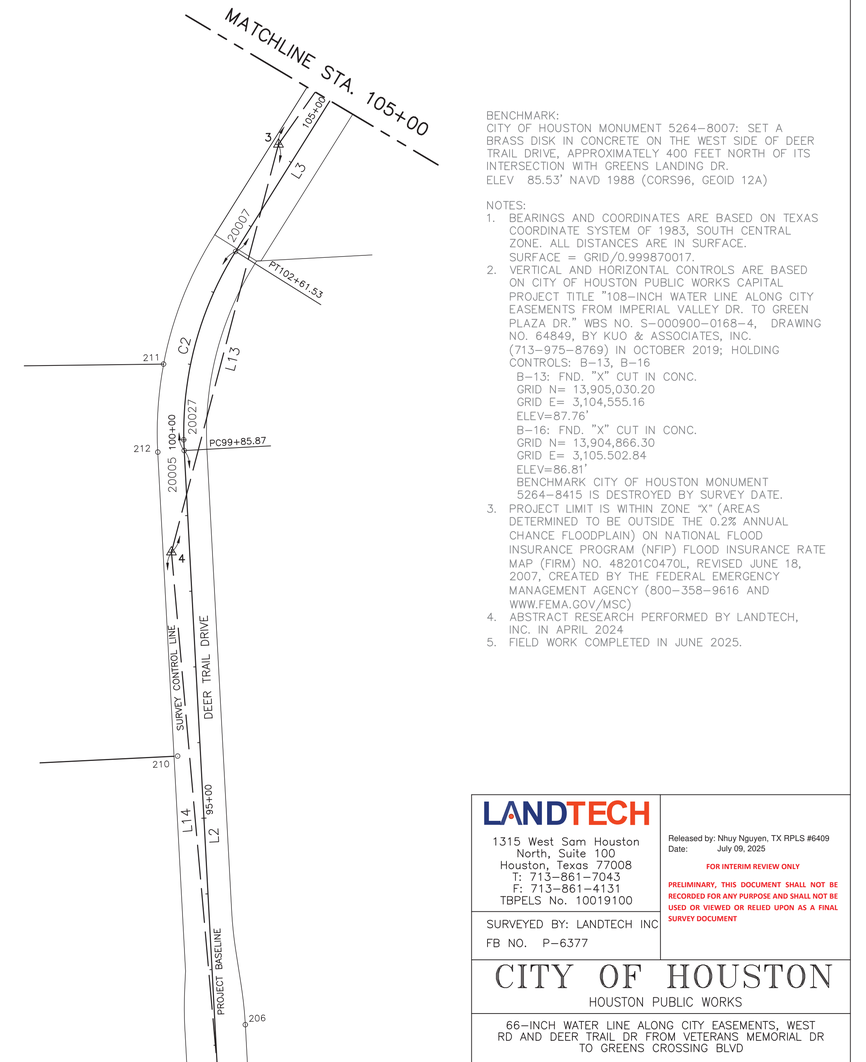
TBM–5
SET 5/8" IR W/ LANDTECH CAP AT DEER TRAIL DR. AND WEST ROAD INTERSECTION
STA. 91+47.00 OFFSET: 0.88 RT
ELEV.= 83.50 FEET

TBM–6
SET 5/8" IR W/ LANDTECH CAP AT WEST ROAD
STA. 76+36.98 OFFSET: 43.13 RT
ELEV.= 83.03 FEET

TBM–7
SET 5/8" IR W/ LANDTECH CAP AT WEST ROAD
STA. 68+10.59 OFFSET: 42.75 RT
ELEV.= 84.68 FEET



NO.	DATE	REVISION	APP.



BENCHMARK:
CITY OF HOUSTON MONUMENT 5264–8007: SET A BRASS DISK IN CONCRETE ON THE WEST SIDE OF DEER TRAIL DRIVE, APPROXIMATELY 400 FEET NORTH OF ITS INTERSECTION WITH GREENS LANDING DR.
ELEV 85.53' NAVD 1988 (CORS96, GEOID 12A)

NOTES:
1. BEARINGS AND COORDINATES ARE BASED ON TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL DISTANCES ARE IN SURFACE. SURFACE = GRID/0.999870017.
2. VERTICAL AND HORIZONTAL CONTROLS ARE BASED ON CITY OF HOUSTON PUBLIC WORKS CAPITAL PROJECT TITLE "108–INCH WATER LINE ALONG CITY EASEMENTS FROM IMPERIAL VALLEY DR. TO GREEN PLAZA DR." WBS NO. S–000900–0168–4, DRAWING NO. 64849, BY KUO & ASSOCIATES, INC. (713–975–8769) IN OCTOBER 2019; HOLDING CONTROLS: B–13, B–16
   B–13: FND. "X" CUT IN CONC.
   GRID N= 13,905,030.20
   GRID E= 3,104,555.16
   ELEV=87.76'
   B–16: FND. "X" CUT IN CONC.
   GRID N= 13,904,866.30
   GRID E= 3,105.502.84
   ELEV=86.81'
   BENCHMARK CITY OF HOUSTON MONUMENT 5264–8415 IS DESTROYED BY SURVEY DATE.
3. PROJECT LIMIT IS WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) NO. 48201C0470L, REVISED JUNE 18, 2007, CREATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (800–358–9616 AND WWW.FEMA.GOV/MSC)
4. ABSTRACT RESEARCH PERFORMED BY LANDTECH, INC. IN APRIL 2024
5. FIELD WORK COMPLETED IN JUNE 2025.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713–861–7043
F: 713–861–4131
TBPELS No. 10019100

SURVEYED BY: LANDTECH INC
FB NO. P–6377

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SURVEY CONTROL MAP
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 20 OF 157	

PLOTTED: 7/9/2025 1:47 PM
PLOT STYLE: COH.ctb
FILE PATH: S:\2024\2420076\CADD\COH 66–inch Pipeline – SCM.dwg

SURVEY CONTROL TABLE (TEMPORARY BENCHMARK)								
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION
1	120+00.00	46.67 RT	13,901,484.15	3,102,643.42	13,899,677.19	3,102,240.13	86.21	SET 5/8" IR W/ LANDTECH CAP
2	109+68.70	27.49 LT	13,901,131.72	3,102,067.93	13,899,324.81	3,101,664.72	85.79	SET 5/8" IR W/ LANDTECH CAP
3	104+11.32	27.00 LT	13,900,671.69	3,101,744.38	13,898,864.84	3,101,341.21	82.82	SET 5/8" IR W/ LANDTECH CAP
4	98+52.85	24.01 LT	13,900,133.51	3,101,603.13	13,898,326.73	3,101,199.97	82.54	SET 5/8" IR W/ LANDTECH CAP
5	91+47.00	0.88 RT	13,899,430.01	3,101,665.77	13,897,623.32	3,101,262.61	83.50	SET 5/8" IR W/ LANDTECH CAP
6	76+36.98	43.13 RT	13,899,283.35	3,101,081.30	13,897,476.68	3,100,678.21	83.03	SET 5/8" IR W/ LANDTECH CAP
7	68+10.59	42.75 RT	13,899,239.49	3,100,256.06	13,897,432.83	3,099,853.08	84.68	SET 5/8" IR W/ LANDTECH CAP
8	61+76.28	45.49 RT	13,899,202.79	3,099,622.81	13,897,396.13	3,099,219.91	84.95	SET 5/8" IR W/ LANDTECH CAP
9	50+55.52	33.75 RT	13,898,916.52	3,099,611.97	13,897,109.90	3,099,209.08	85.30	SET 5/8" IR W/ LANDTECH CAP
10	42+43.10	39.05 RT	13,898,105.33	3,099,657.08	13,896,298.82	3,099,254.17	85.79	SET 5/8" IR W/ LANDTECH CAP
11	54+64.60	36.93 LT	13,899,321.64	3,099,521.33	13,897,514.97	3,099,118.44	86.45	SET 5/8" IR W/ LANDTECH CAP
14	40+73.68	56.14 RT	13,897,936.95	3,099,682.46	13,896,130.46	3,099,279.55	85.25	SET 5/8" IR W/ LANDTECH CAP
15	39+42.01	69.86 RT	13,897,767.90	3,099,693.42	13,895,961.42	3,099,290.51	85.01	SET 5/8" IR W/ LANDTECH CAP
20	10+88.58	68.91 RT	13,897,502.50	3,096,892.93	13,895,696.06	3,096,490.39	87.97	SET 5/8" IR W/ LANDTECH CAP
22	27+27.35	52.08 RT	13,897,589.60	3,098,529.48	13,895,783.15	3,098,126.72	86.12	SET COTTON SPINDLE
23	18+46.54	91.90 RT	13,897,512.04	3,097,651.18	13,895,705.60	3,097,248.54	86.91	SET COTTON SPINDLE
24	30+73.07	34.86 LT	13,897,789.91	3,098,763.29	13,895,983.44	3,098,360.50	85.98	SET 5/8" IR W/ LANDTECH CAP
25	28+67.25	138.56 LT	13,897,786.06	3,098,661.07	13,895,979.59	3,098,258.29	85.73	SET 5/8" IR W/ LANDTECH CAP
5264-7702	68+08.39	0.16 RT	13,899,281.89	3,100,251.58	13,897,475.22	3,099,848.60	84.89	RM 150655
5263-7314			13,897,413.19	3,096,964.39	13,895,606.76	3,096,561.84	86.30	SET 5/8" IR W/CAP IN CONC

DESIGN BASELINE TABLE						
POINT	STATION	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	DESCRIPTION
20004	90+00.00	13,899,283.17	3,101,672.77	13,897,476.50	3,101,269.60	SET "X" CUT IN CONCRETE
20005	99+85.87	13,900,267.63	3,101,619.98	13,898,460.83	3,101,216.82	SET "X" CUT IN CONCRETE
20007	102+61.53	13,900,530.38	3,101,687.83	13,898,723.54	3,101,284.67	SET "X" CUT IN CONCRETE
20008	107+23.17	13,900,921.75	3,101,932.66	13,899,114.86	3,101,529.46	SET "X" CUT IN CONCRETE
20010	112+48.91	13,901,275.59	3,102,313.30	13,899,468.66	3,101,910.05	SET "X" CUT IN CONCRETE
20011	115+90.15	13,901,435.00	3,102,615.02	13,899,628.05	3,102,211.73	SET COTTON SPINDLE
20013	117+30.00	13,901,526.29	3,102,719.29	13,899,719.33	3,102,315.99	BASELINE, NOT SET
20014	60+00.00	13,899,238.78	3,099,444.35	13,897,432.11	3,099,041.47	SET 3/8" IR W/ LANDTECH CAP
20015	83+95.90	13,899,367.06	3,101,836.82	13,897,560.37	3,101,433.63	SET 3/8" IR W/ LANDTECH CAP
20016	10+00.00	13,897,567.54	3,096,801.48	13,895,761.09	3,096,398.95	SET 3/8" IR W/ LANDTECH CAP
20017	29+43.09	13,897,650.88	3,098,742.79	13,895,844.43	3,098,340.00	SET 3/8" IR W/ LANDTECH CAP
20018	30+45.94	13,897,753.63	3,098,738.11	13,895,947.15	3,098,335.32	SET 3/8" IR W/ LANDTECH CAP
20019	39+42.01	13,897,802.69	3,099,632.83	13,895,996.21	3,099,229.93	SET 3/8" IR W/ LANDTECH CAP
20020	55+30.00	13,899,388.77	3,099,555.01	13,897,582.09	3,099,152.12	SET 3/8" IR W/ LANDTECH CAP
20024	90+74.98	13,899,358.04	3,101,668.75	13,897,551.36	3,101,265.59	SET "X" CUT IN CONCRETE
20025	61+17.88	13,899,245.09	3,099,562.06	13,897,438.42	3,099,159.17	SET "X" CUT IN CONCRETE
20027	100+00.00	13,900,281.75	3,101,619.45	13,898,474.95	3,101,216.29	SET "X" CUT IN CONCRETE
20028	110+00.00	13,901,133.26	3,102,109.88	13,899,326.35	3,101,706.66	SET "X" CUT IN CONCRETE
20029	70+00.00	13,899,292.32	3,100,442.92	13,897,485.64	3,100,039.91	SET 3/8" IR W/ LANDTECH CAP
20030	80+00.00	13,899,345.86	3,101,441.48	13,897,539.18	3,101,038.35	BASELINE, NOT SET
20031	20+00.00	13,897,610.43	3,097,800.56	13,895,803.98	3,097,397.90	SET 3/8" IR W/ LANDTECH CAP
20032	30+00.00	13,897,707.73	3,098,740.20	13,895,901.27	3,098,337.41	SET 3/8" IR W/ LANDTECH CAP
20033	40+00.00	13,897,860.61	3,099,629.99	13,896,054.13	3,099,227.09	SET 3/8" IR W/ LANDTECH CAP
20034	50+00.00	13,898,859.41	3,099,580.98	13,897,052.79	3,099,178.09	SET 3/8" IR W/ LANDTECH CAP

FOUND PROPERTY CORNERS TABLE			
POINT	STATION	OFFSET	
200	115+90.05	35.02 RT	FND 1/2" IP W/CAP B&G ENG
201	116+16.77	35.12 RT	FND 1/2" IP W/CAP B&G ENG
202	112+48.94	35.10 RT	FND 1/2" IP
203	107+22.98	35.20 RT	FND 1/2" IP W/CAP B&G ENG
204	90+04.51	44.70 RT	FND 5/8" IR
205	91+49.82	40.10 RT	FND 5/8" IR
206	92+24.87	40.00 RT	FND 5/8" IR
207	91+49.90	39.95 LT	FND 5/8" IR
208	81+62.47	50.05 RT	FND 5/8" IR
209	90+00.00	40.35 LT	FND 5/8" IR
210	95+83.68	30.19 LT	FND 3/4" IR
211	100+93.91	35.04 LT	FND 5/8" IR W/CAP GBI PARTNERS
212	99+85.68	34.90 LT	FND 5/8" IR W/CAP GBI PARTNERS
213	76+41.84	50.18 RT	FND 5/8" IR W/ COTTON SURV. CAP
215	73+41.50	49.99 RT	FND 5/8" IR
216	70+40.74	51.39 LT	FND 5/8" IR
217	69+00.76	49.69 RT	FND 5/8" IR RODS SURV. CAP
218	54+36.39	41.79 RT	FND 1/2" IP
219	54+61.28	6.96 RT	FND 1/2" IP
223	39+42.01	42.37 RT	FND 5/8" IR
224	39+16.36	103.19 RT	FND 5/8" IR
225	32+85.62	30.09 RT	FND 5/8" IR
226	29+52.68	174.99 RT	FND 5/8" IR W/ TSC SURV. CAP
228	29+52.85	70.14 RT	FND 3/8" IR
229	29+52.93	54.88 RT	FND 5/8" IR W/ CAP NOT LEGIBLE
230	29+53.19	25.32 RT	FND 1/2" IR W/ CAP NOT LEGIBLE
231	11+61.81	9.98 LT	FND 5/8" IR
234	10+42.50	11.61 LT	FND 5/8" IR
12954	81+62.38	50.14 RT	FND 5/8" IR
13092	78+78.91	50.06 LT	FND 5/8" IR

NO.	DATE	REVISION	APP.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8007: SET A BRASS DISK IN CONCRETE ON THE WEST SIDE OF DEER TRAIL DRIVE, APPROXIMATELY 400 FEET NORTH OF ITS INTERSECTION WITH GREENS LANDING DR.
ELEV 85.53' NAVD 1988 (CORS96, GEOID 12A)

NOTES:
1. BEARINGS AND COORDINATES ARE BASED ON TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL DISTANCES ARE IN SURFACE. SURFACE = GRID/0.999870017.
2. VERTICAL AND HORIZONTAL CONTROLS ARE BASED ON CITY OF HOUSTON PUBLIC WORKS CAPITAL PROJECT TITLE "108-INCH WATER LINE ALONG CITY EASEMENTS FROM IMPERIAL VALLEY DR. TO GREEN PLAZA DR." WBS NO. S-000900-0168-4, DRAWING NO. 64849, BY KUO & ASSOCIATES, INC. (713-975-8769) IN OCTOBER 2019; HOLDING CONTROLS: B-13, B-16
   B-13: FND. "X" CUT IN CONC.
   GRID N= 13,905,030.20
   GRID E= 3,104,555.16
   ELEV=87.76'
   B-16: FND. "X" CUT IN CONC.
   GRID N= 13,904,866.30
   GRID E= 3,105.502.84
   ELEV=86.81'
   BENCHMARK CITY OF HOUSTON MONUMENT 5264-8415 IS DESTROYED BY SURVEY DATE.
3. PROJECT LIMIT IS WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) NO. 48201C0470L, REVISED JUNE 18, 2007, CREATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (800-358-9616 AND WWW.FEMA.GOV/MSC)
4. ABSTRACT RESEARCH PERFORMED BY LANDTECH, INC. IN APRIL 2024
5. FIELD WORK COMPLETED IN JUNE 2025.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713-861-7043
F: 713-861-4131
TBPELS No. 10019100

SURVEYED BY: LANDTECH INC
FB NO. P-6377

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

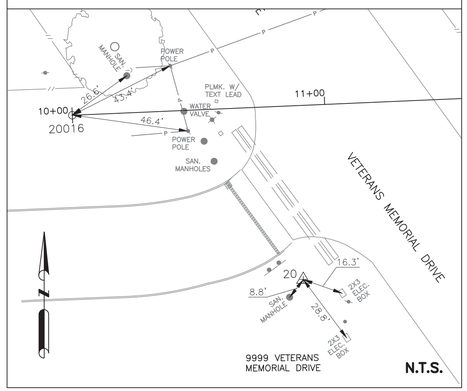
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SURVEY CONTROL MAP
SHEET 3 OF 3

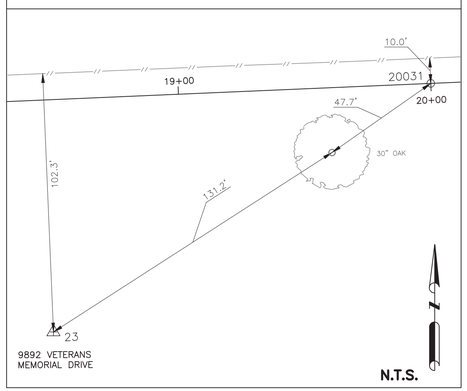
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 21 OF 157	

PLOTTED: 7/9/2025 1:45 PM
PLOT STYLE: COH.ctb
FILE PATH: S:\2024\2420076\CADD\COH 66-inch Pipeline - SCM.dwg

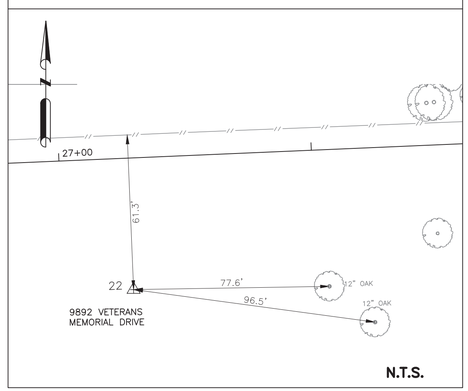
CP 20 AND PT 20016



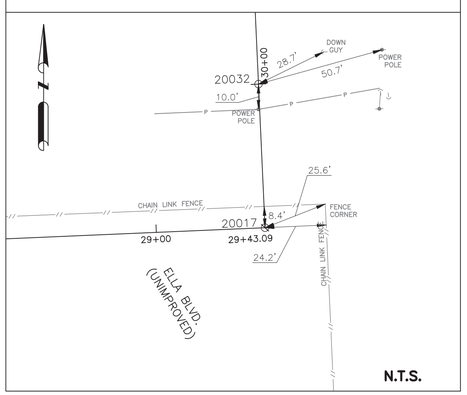
CP–23 AND PT 20031



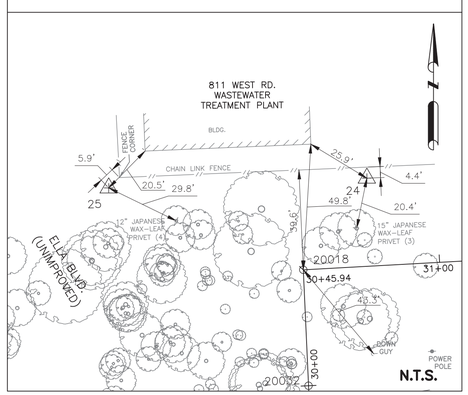
CP–22



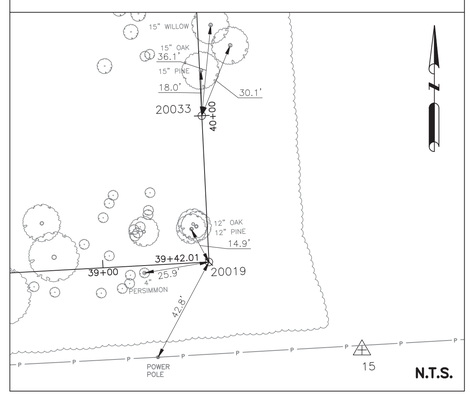
PT 20017 AND PT 20032



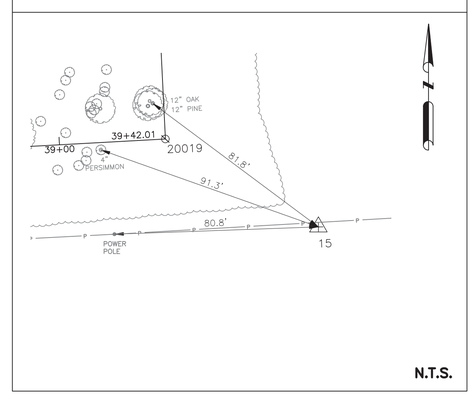
CP24, CP 25 AND PT 20018



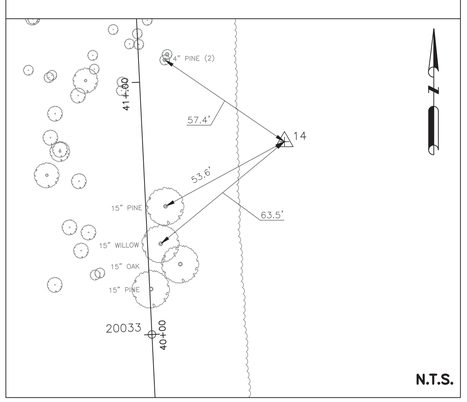
PT 20019 AND PT 20033



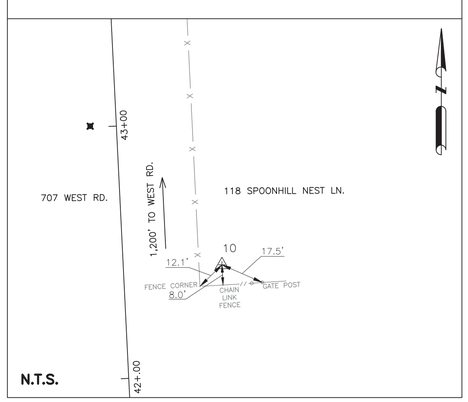
CP 15



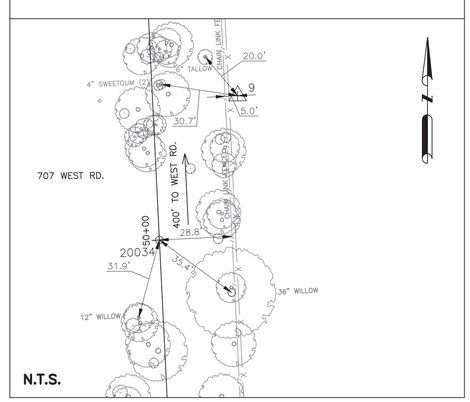
CP 14



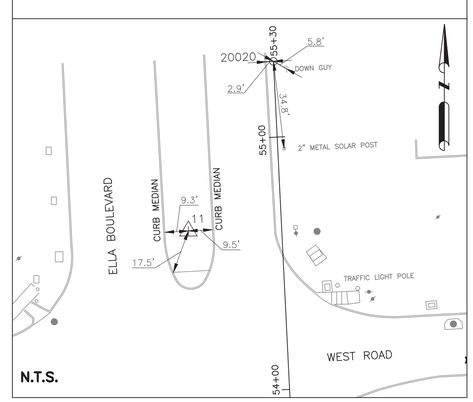
CP 10



PT 20034 AND CP 9



CP 11 AND PT 20020



NO.	DATE	REVISION	APP.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713-861-7043
F: 713-861-4131
TBPELS No. 10019100

SURVEYED BY: LANDTECH INC
FB NO. P-6377

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SWING TIES
SHEET 1 OF 3

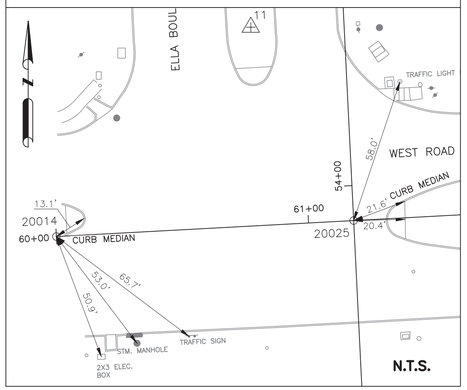
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 22 OF 157	

PLOTTED: 7/9/2025 1:47 PM

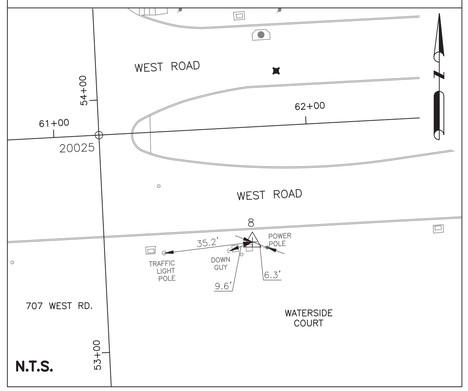
PLOT STYLE: COH.ctb

FILE PATH: S:\2024\2420076\CADD\COH 66-inch Pipeline - SCM Swing Tie.dwg

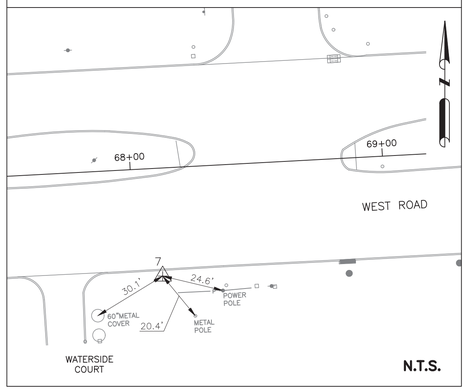
PT 20014 AND PT 20025



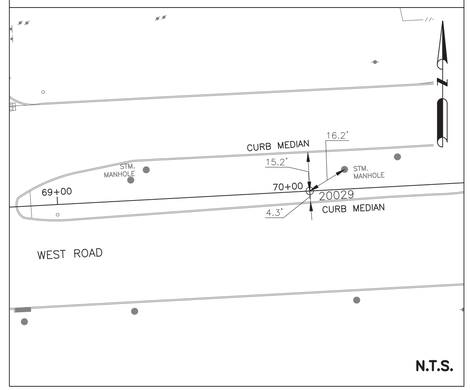
CP 8



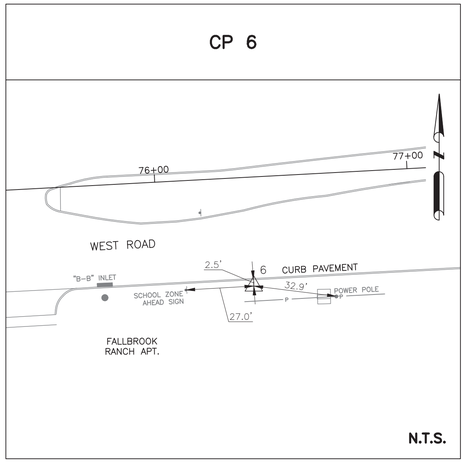
CP-7



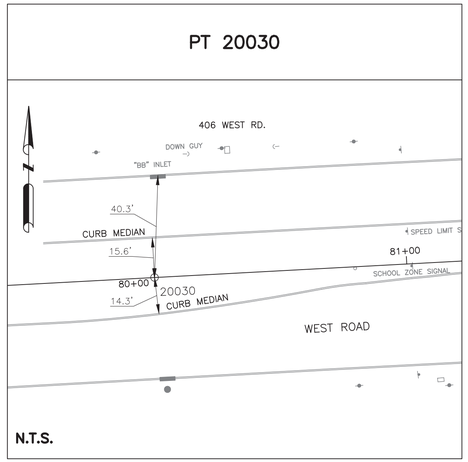
PT 20029



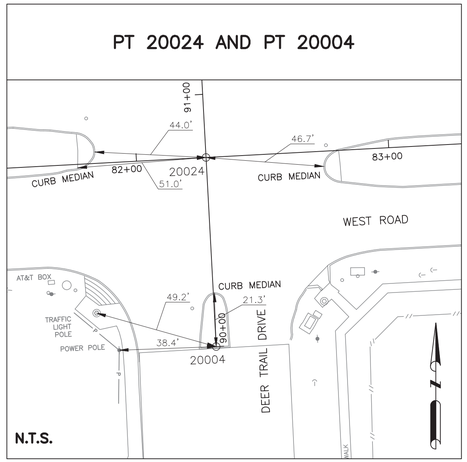
CP 6



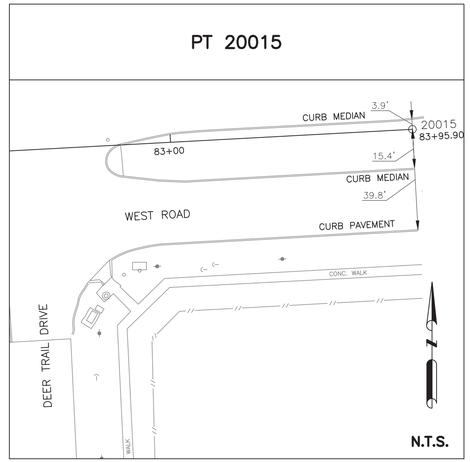
PT 20030



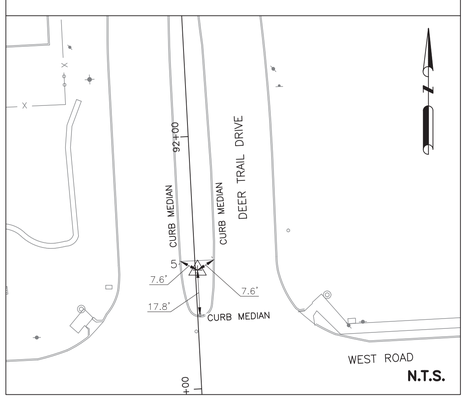
PT 20024 AND PT 20004



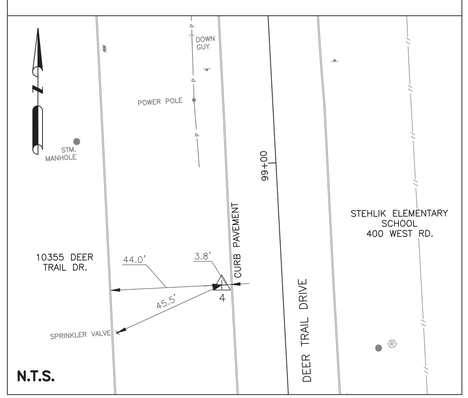
PT 20015



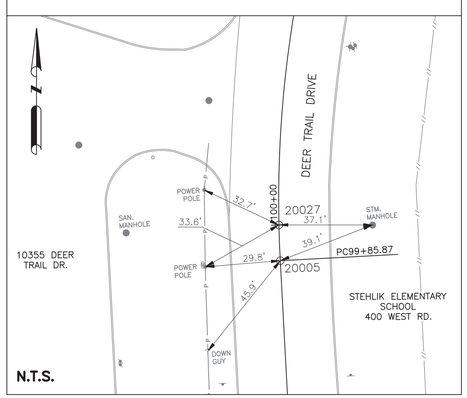
CP 5



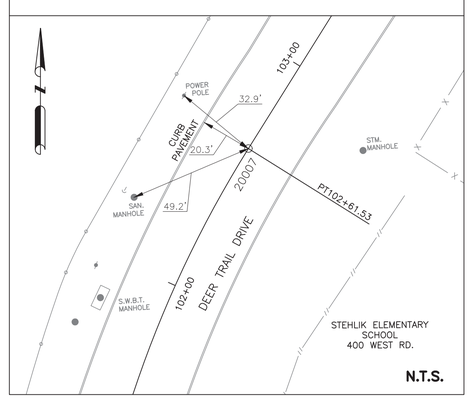
CP 4



PT 20005 AND PT 20027



PT 20007



NO.	DATE	REVISION	APP.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713-861-7043
F: 713-861-4131
TBPELS No. 10019100

SURVEYED BY: LANDTECH INC
FB NO. P-6377

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

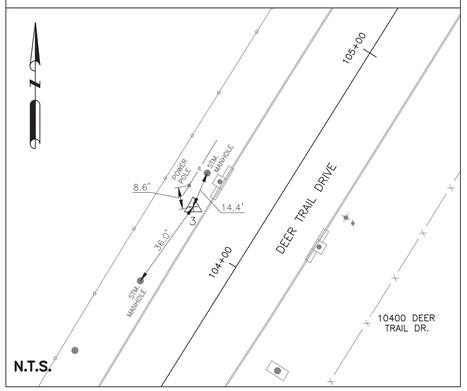
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SWING TIES
SHEET 2 OF 3

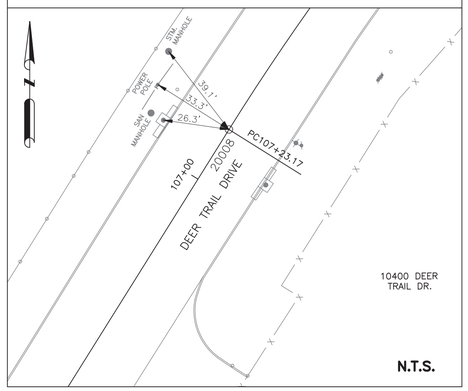
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 23 OF 157	

PLOTTED: 7/9/2025 1:46 PM
PLOT STYLE: COH.ctb
FILE PATH: S:\2024\2420076\CADD\COH 66-inch Pipeline - SCM Swing Tie.dwg

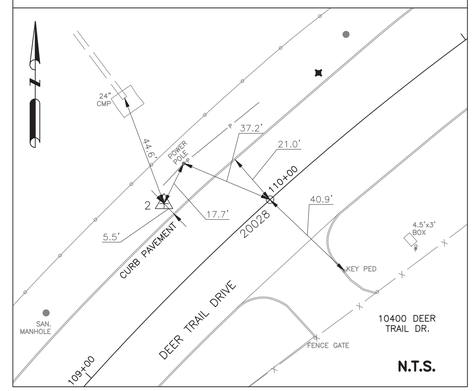
CP 3



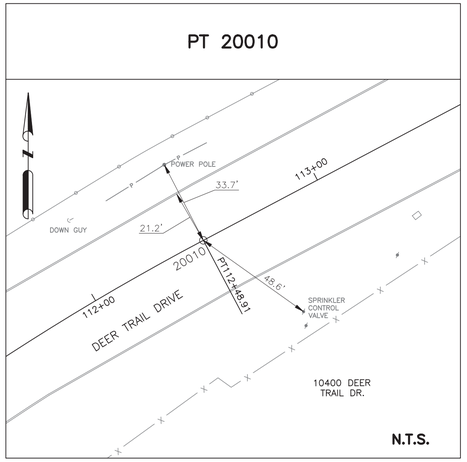
PT 20008



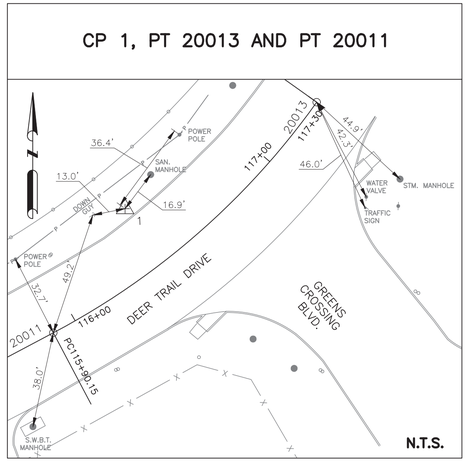
CP 2 AND PT 20028



PT 20010



CP 1, PT 20013 AND PT 20011



NO.	DATE	REVISION	APP.

LANDTECH
1315 West Sam Houston North, Suite 100
Houston, Texas 77008
T: 713-861-7043
F: 713-861-4131
TBPELS No. 10019100

Released by: Nhuy Nguyen, TX RPLS #6409
Date: July 09, 2025

FOR INTERIM REVIEW ONLY

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

SURVEYED BY: LANDTECH INC
FB NO. P-6377

CITY OF HOUSTON

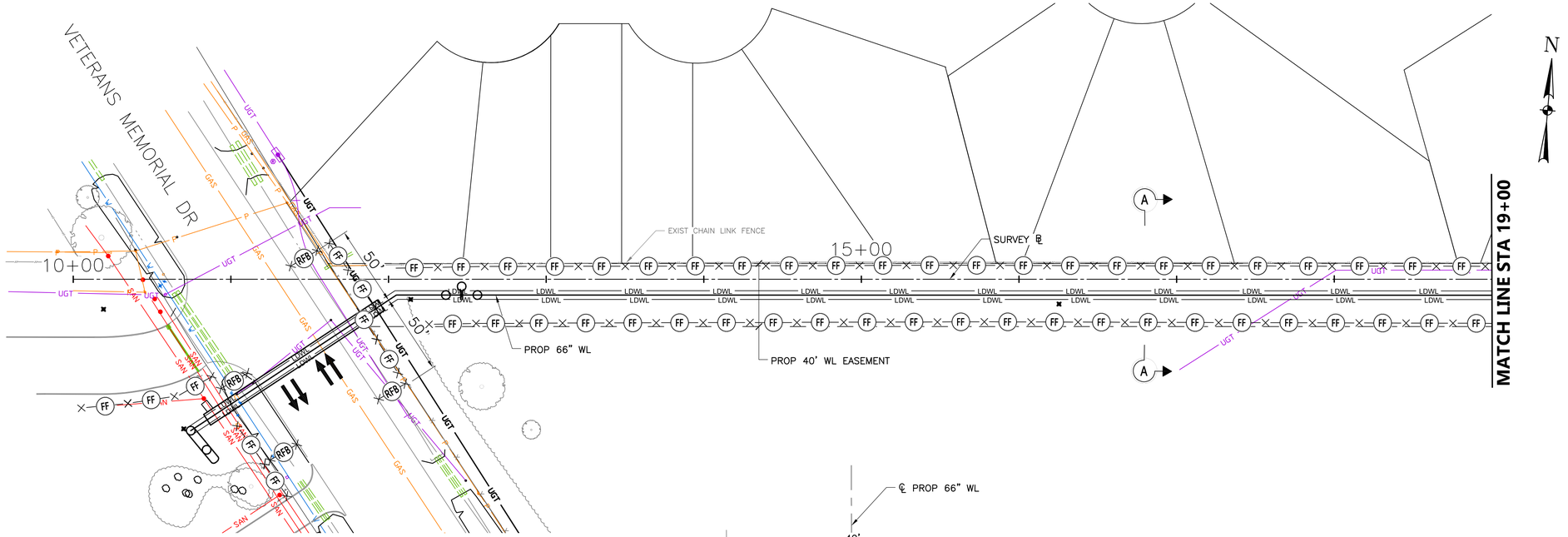
HOUSTON PUBLIC WORKS

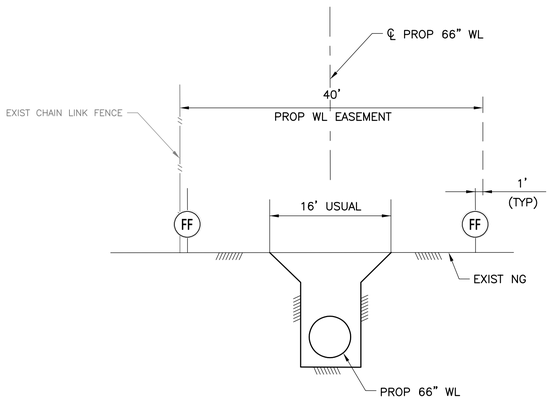
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

SWING TIES
SHEET 3 OF 3

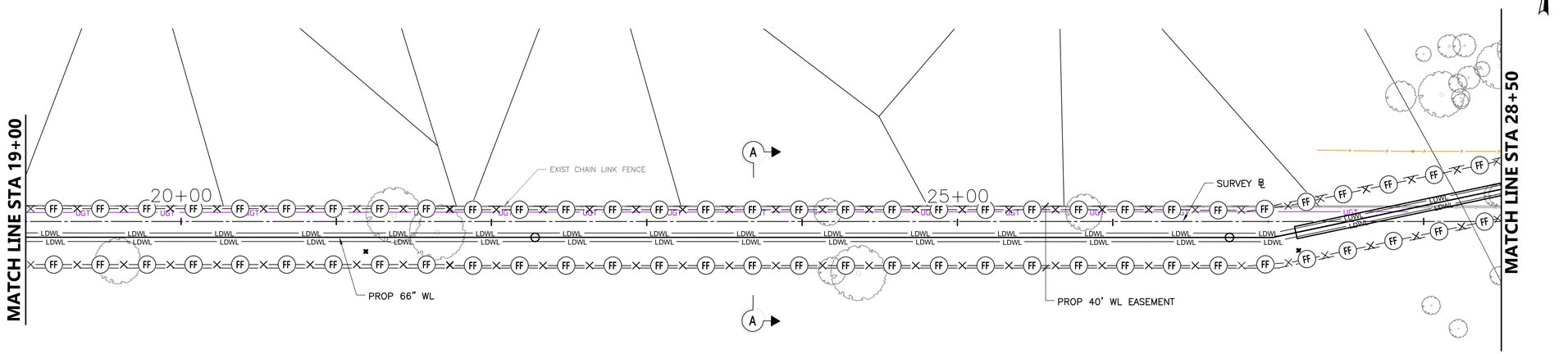
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 24 OF 157	

PLOTTED: 7/9/2025 1:45 PM
PLOT STYLE: COH.ctb
FILE PATH: S:\2024\2420076\CADD\COH 66-inch Pipeline - SCM Swing Tie.dwg





SECTION A–A
NTS



NOTES & LEGENDS:

- I P B — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- FF — FILTER FABRIC BARRIER
- SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

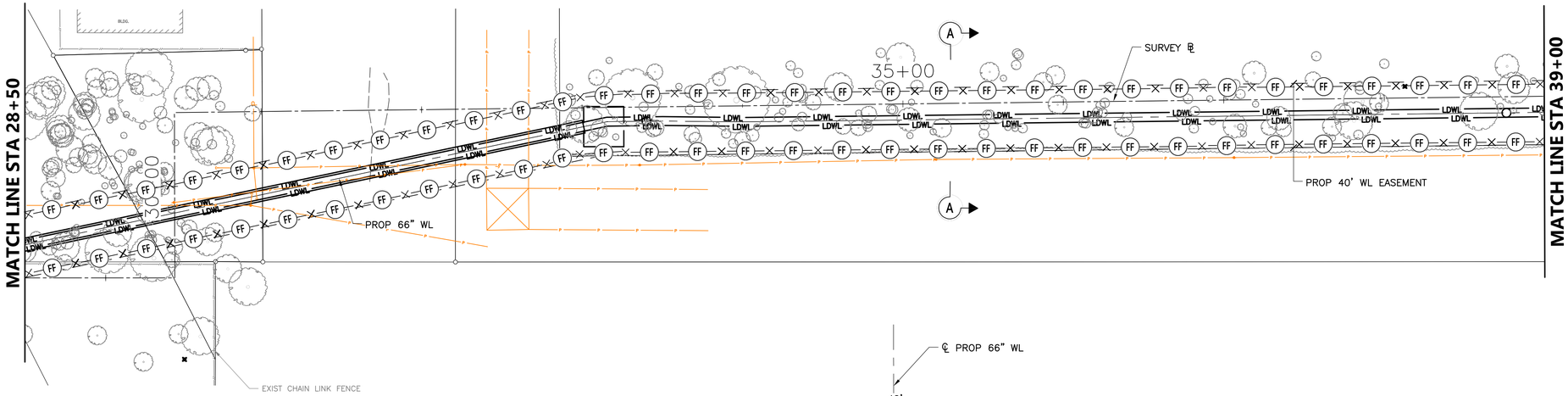
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

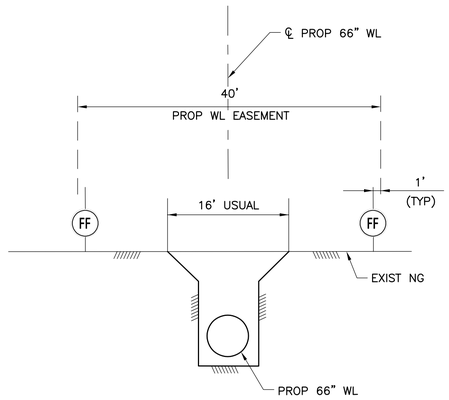
STORM WATER POLLUTION PREVENTION PLAN

SHEET 1 OF 6

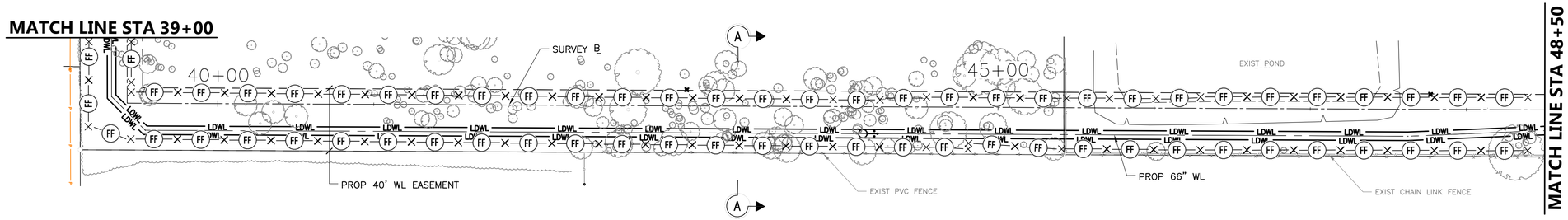
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 25 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\25_STORM WATER POLLUTION PREVENTION PLAN_01.dwg





SECTION A–A
NTS



N

NOTES & LEGENDS:

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- FF — FILTER FABRIC BARRIER
- SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

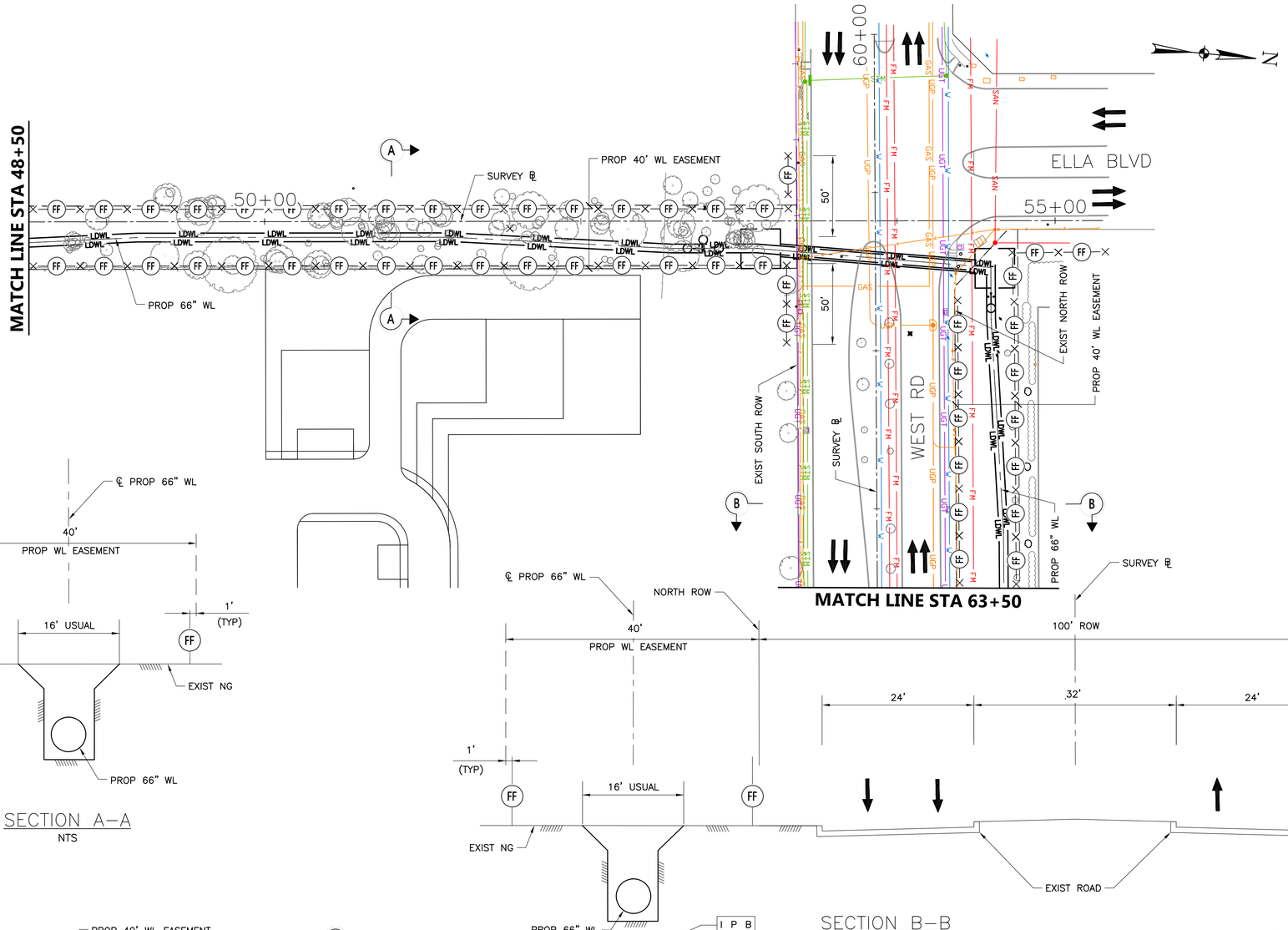
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

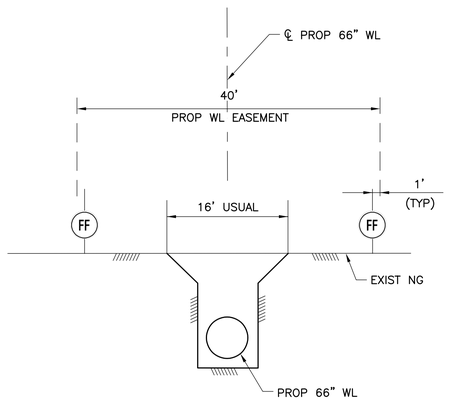
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STORM WATER POLLUTION PREVENTION PLAN

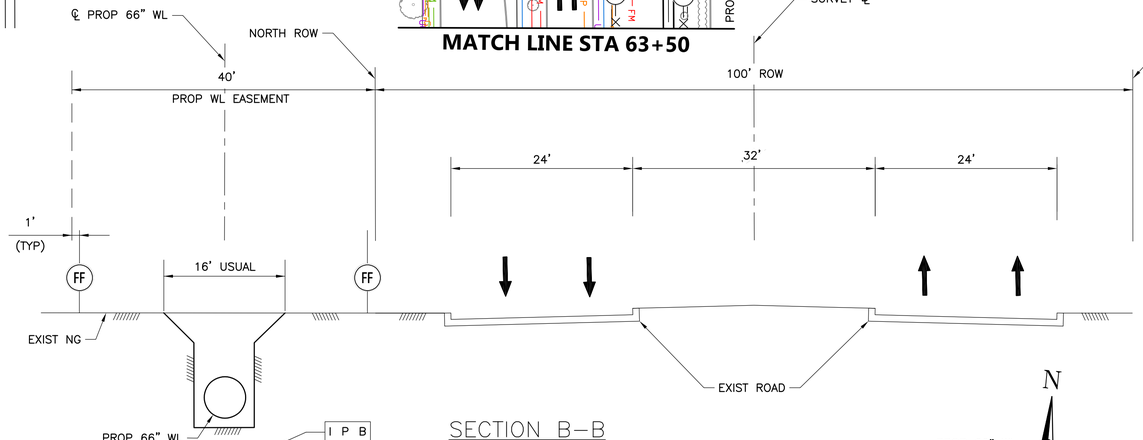
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 26 OF 157	

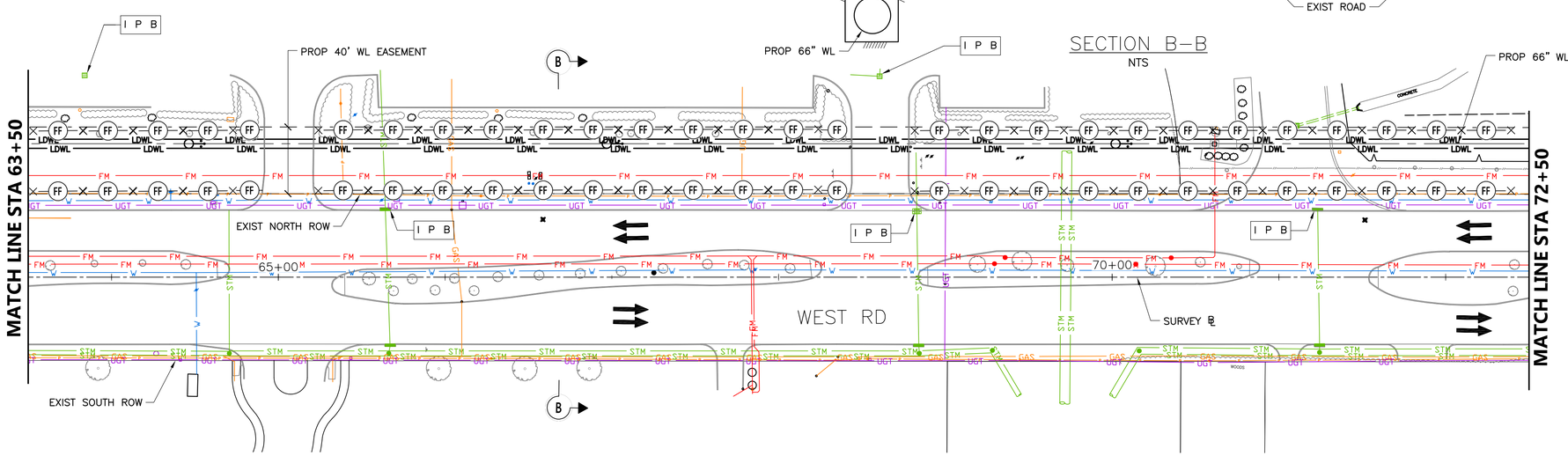
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\26_STORM WATER POLLUTION PREVENTION PLAN_02.dwg





SECTION A–A
NTS





SECTION B–B
NTS

NOTES & LEGENDS:

- I P B — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- FF — FILTER FABRIC BARRIER
- SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

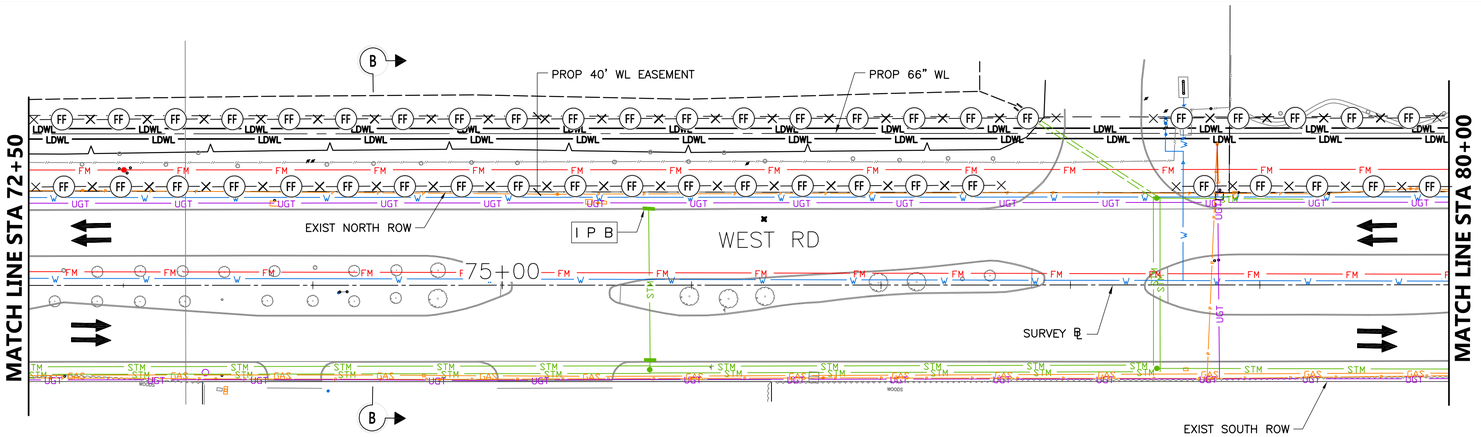
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

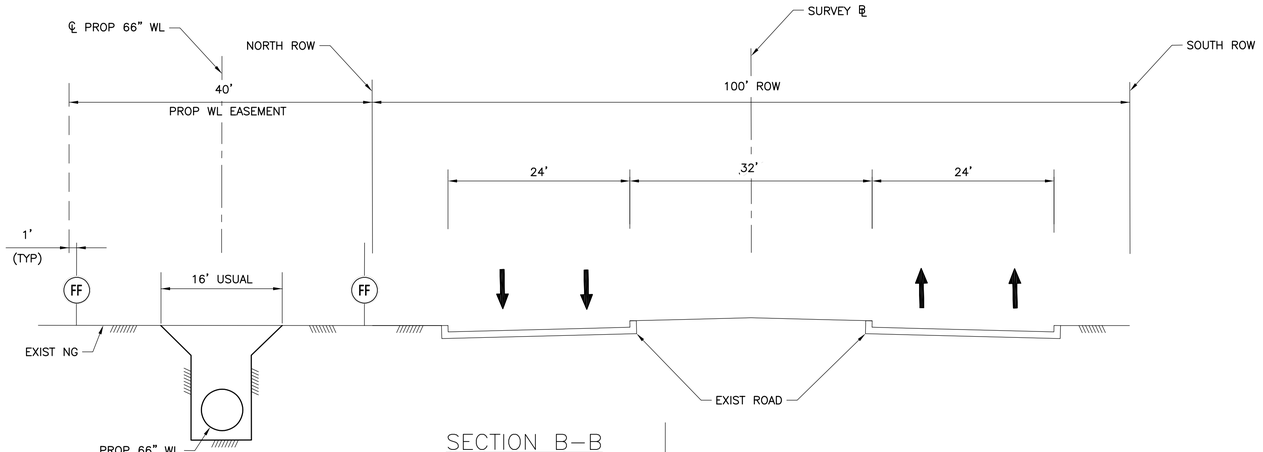
STORM WATER POLLUTION PREVENTION PLAN

SHEET 3 OF 6

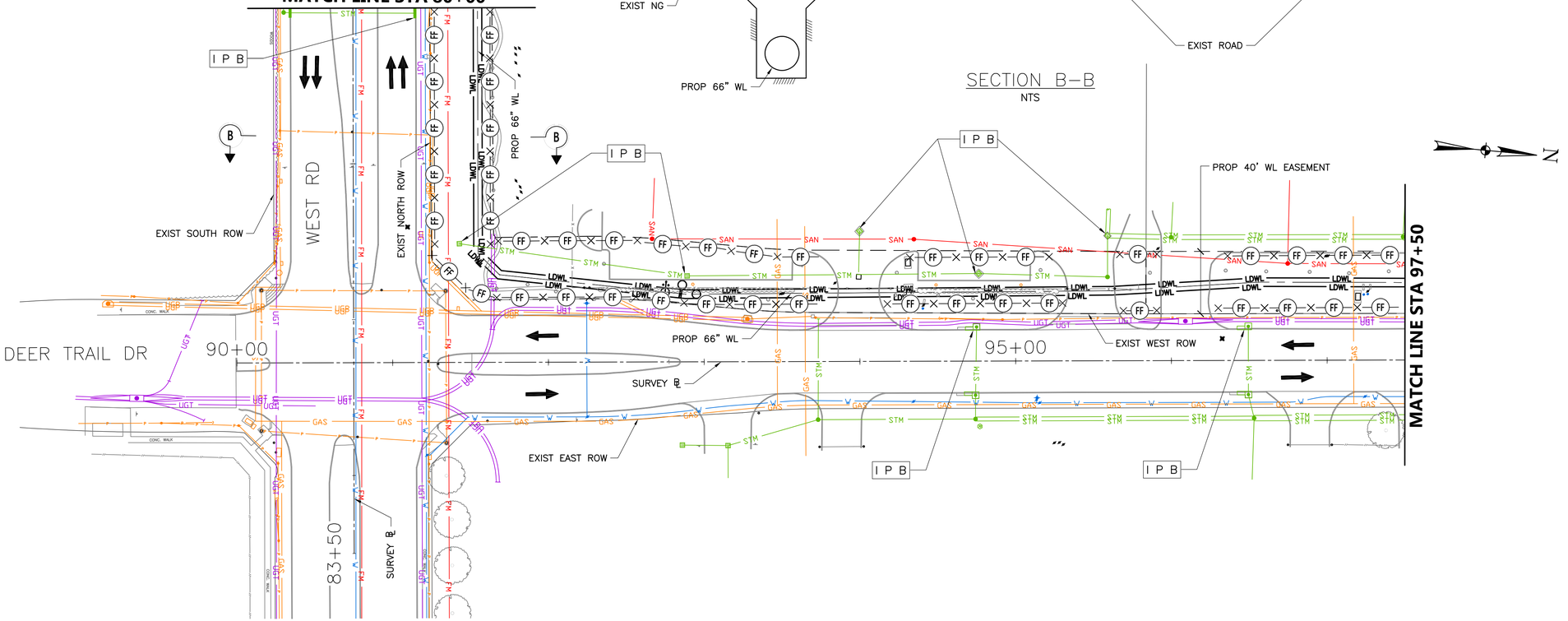
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 27 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\27_STORM WATER POLLUTION PREVENTION PLAN_03.dwg





SECTION B–B
NTS



N

NOTES & LEGENDS:

- I P B — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- FF — FILTER FABRIC BARRIER
- SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

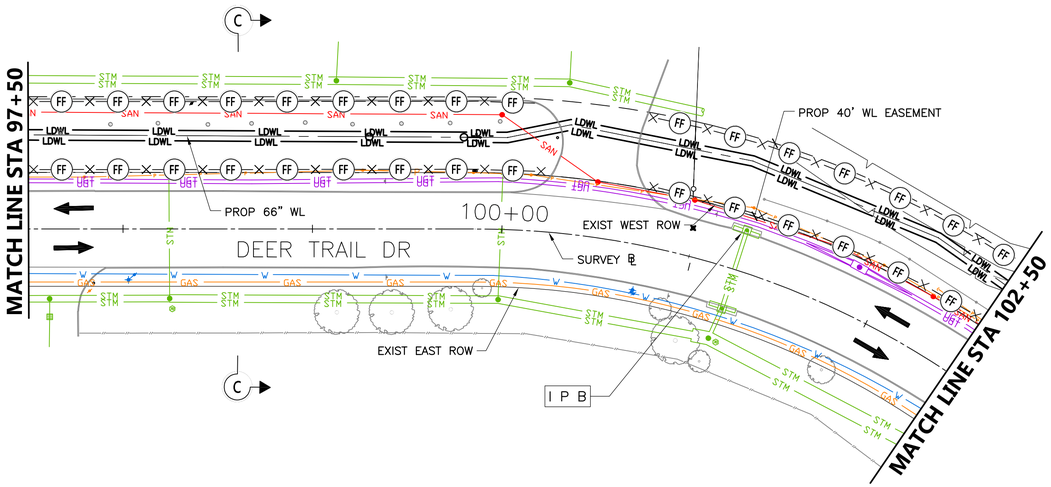
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

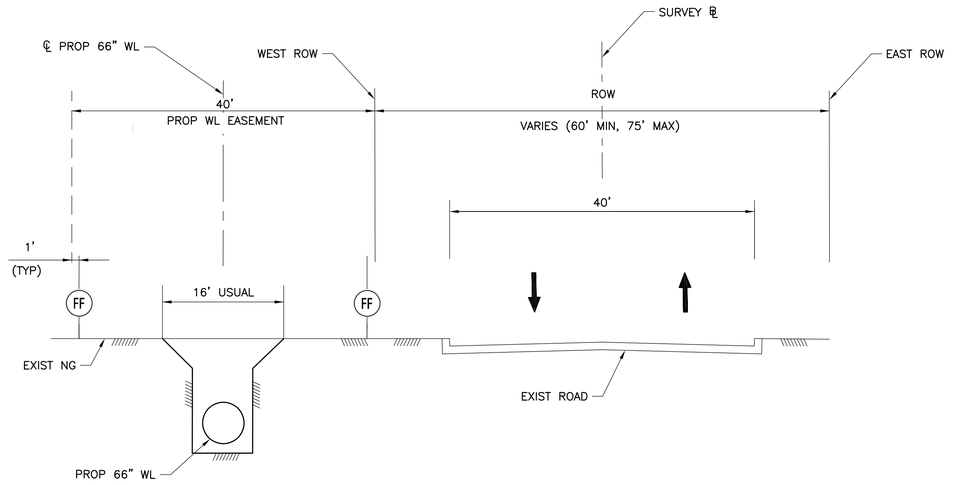
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STORM WATER POLLUTION PREVENTION PLAN

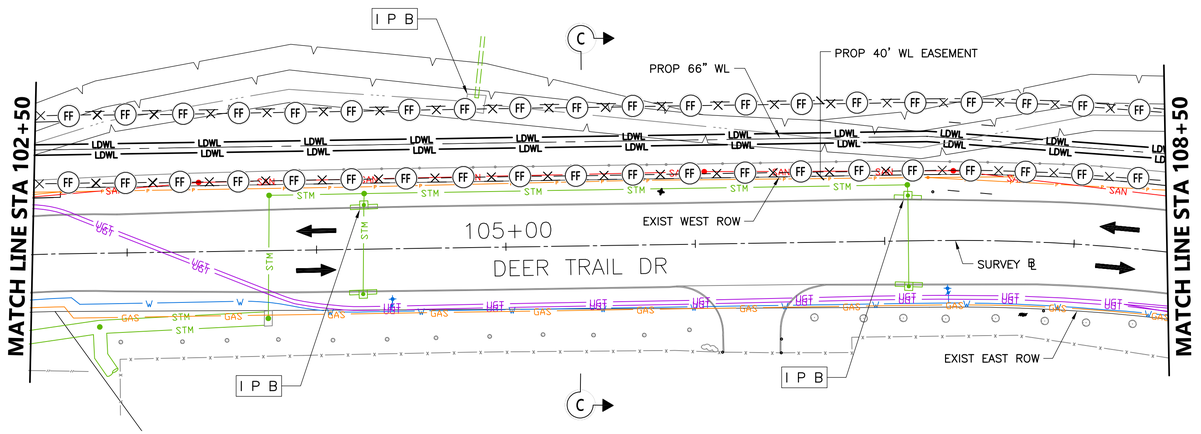
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 28 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\28_STORM WATER POLLUTION PREVENTION PLAN_04.dwg





SECTION C–C
NTS



NOTES & LEGENDS:

- I P B — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- FF — FILTER FABRIC BARRIER
- SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

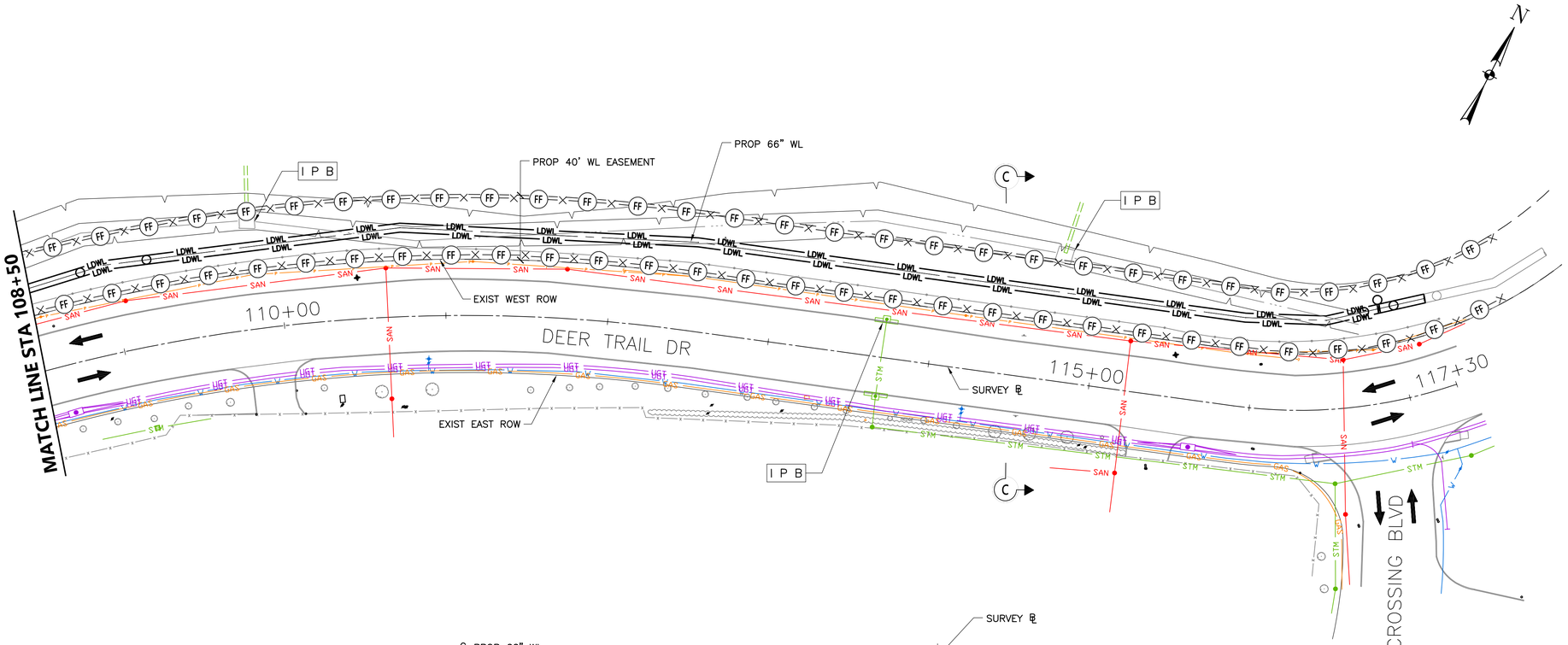
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

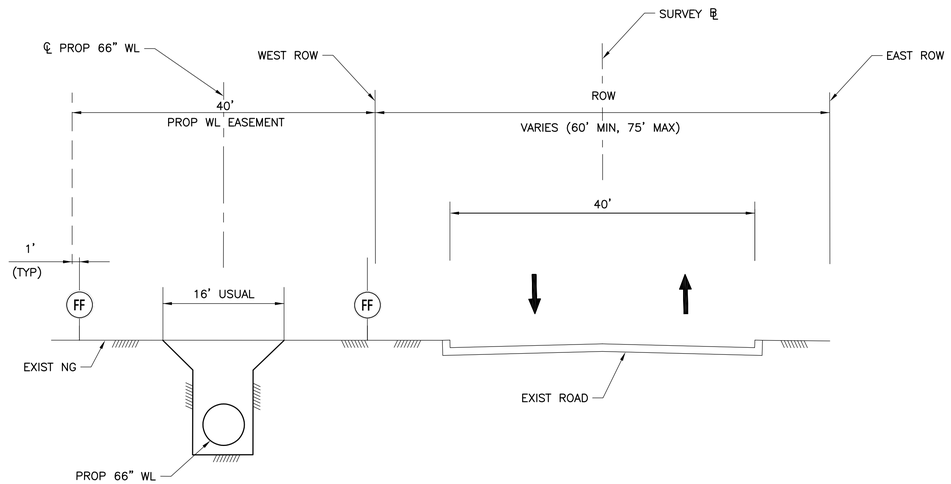
STORM WATER POLLUTION PREVENTION PLAN

SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 29 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\29_STORM WATER POLLUTION PREVENTION PLAN_05.dwg





SECTION C–C
NTS

NOTES & LEGENDS:

I P B — INLET PROTECTION BARRIER

RFB — REINFORCED FILTER FABRIC BARRIER

FF — FILTER FABRIC BARRIER

SC — STABILIZED CONSTRUCTION ACCESS

1. STORM WATER POLLUTION PREVENTION DEVICES SHOULD BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. CONTRACTOR IS RESPONSIBLE FOR SEDIMENT ENTERING ANY DRAINAGE SYSTEMS.
3. CONTRACTOR SHALL REMOVE ALL DIRT DEPOSITS DAILY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLES, AND PIPE STUBS DURING CONSTRUCTION.
5. IN SOME AREAS, IF NEEDED, THE INSTALLATION OF SILT FENCE NEEDS TO BE MODIFIED. ANCHOR SILT FENCE WITH ROCKS, AND/OR GRAVEL BAGS.
6. ALL AREAS INCLUDING TEMPORARY CONSTRUCTION PREVIOUSLY DISTURBED THAT ARE NOT TO BE PAVED, SHALL BE STABILIZED BY SODDING OR SEEDING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
7. ONCE DISTURBED AREAS ARE STABILIZED AND REVEGETATION HAS BEGUN TO AN ACCEPTABLE LEVEL TO THE OWNER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POLLUTION PREVENTION DEVICES.
8. DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER OPERATION OF ALL POLLUTION PREVENTION DEVICES.
9. CONTRACTOR TO REMOVE, RELOCATE AND INSTALL FILTER FABRIC BARRIER AS REQUIRED IN FIELD TO PREVENT WASHOUT FROM CONSTRUCTION ACTIVITIES TO EXISTING/PROPOSED ROADWAY/INLETS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

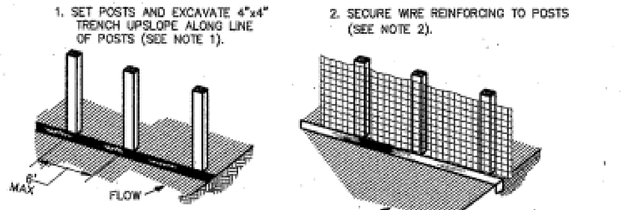
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STORM WATER POLLUTION PREVENTION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 30 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\30_STORM WATER POLLUTION PREVENTION PLAN_06.dwg

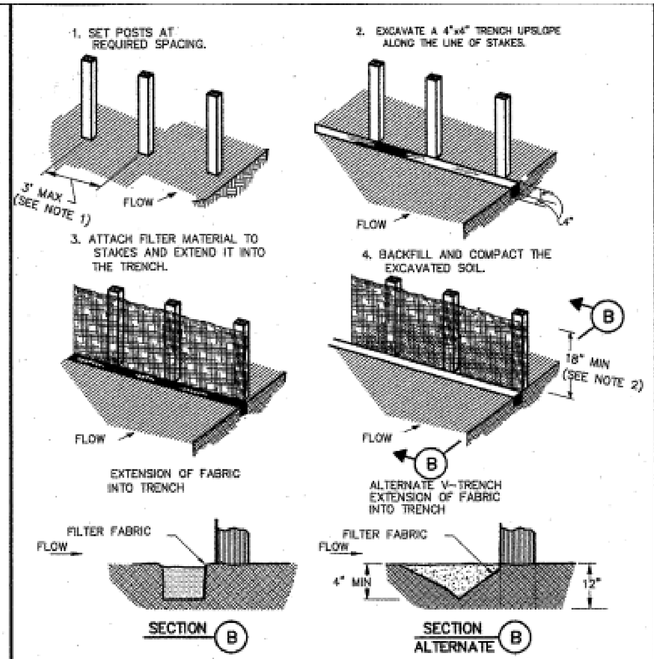


CONSTRUCTION NOTES:

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.

SYMBOL

REINFORCED FILTER FABRIC BARRIER

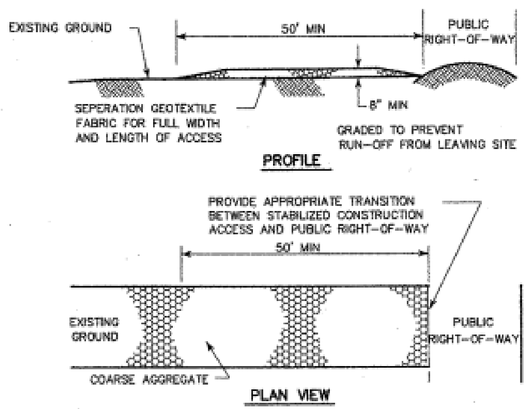


CONSTRUCTION NOTES:

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.

SYMBOL

FILTER FABRIC BARRIER

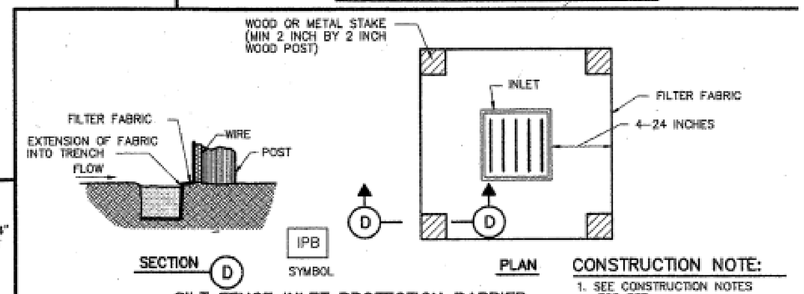


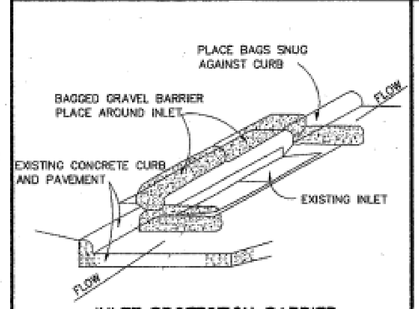
CONSTRUCTION NOTES:

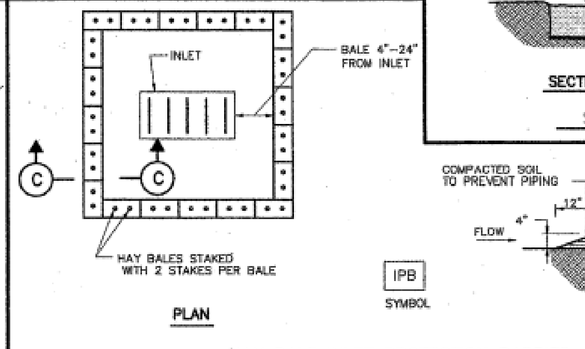
1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS 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







CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS

(NOT TO SCALE)

APPROVED	APPROVED
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 01571-01

NO.	DATE	REVISION	APP.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF880C541F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA7584CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Haddock A50CA1597DE34D3...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 | DWG NO: 01571-01

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STORM WATER POLLUTION PREVENTION PLAN DETAILS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 31 OF 157	

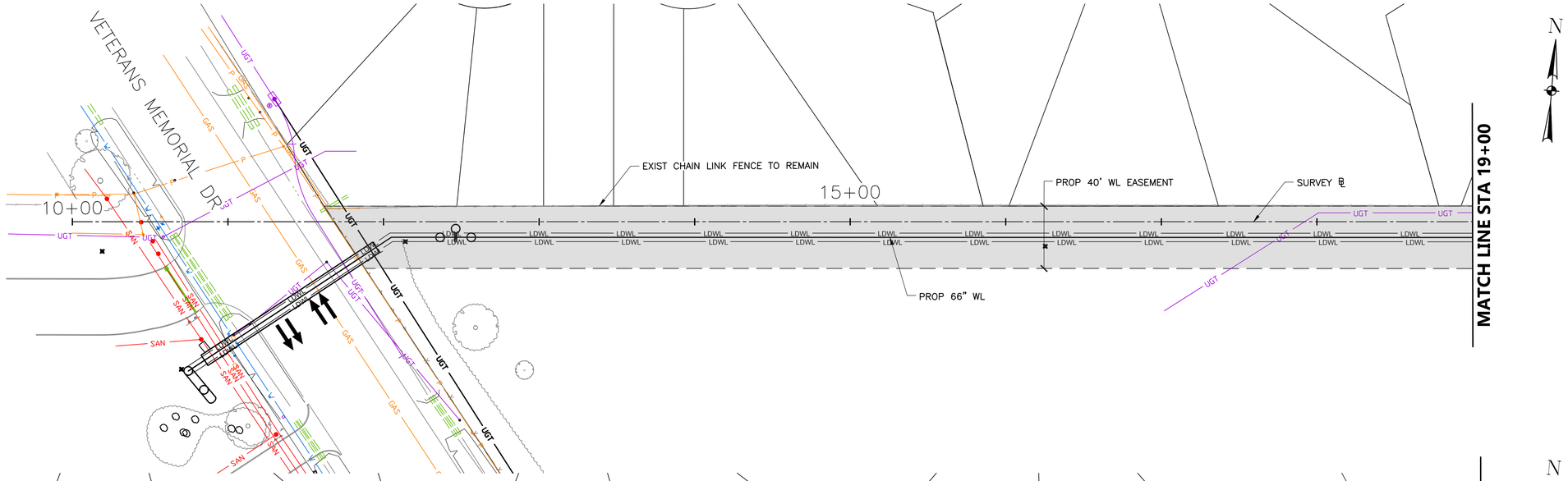
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\STANDARDS\COH\31_01571-01_2023_11_MOD.dwg

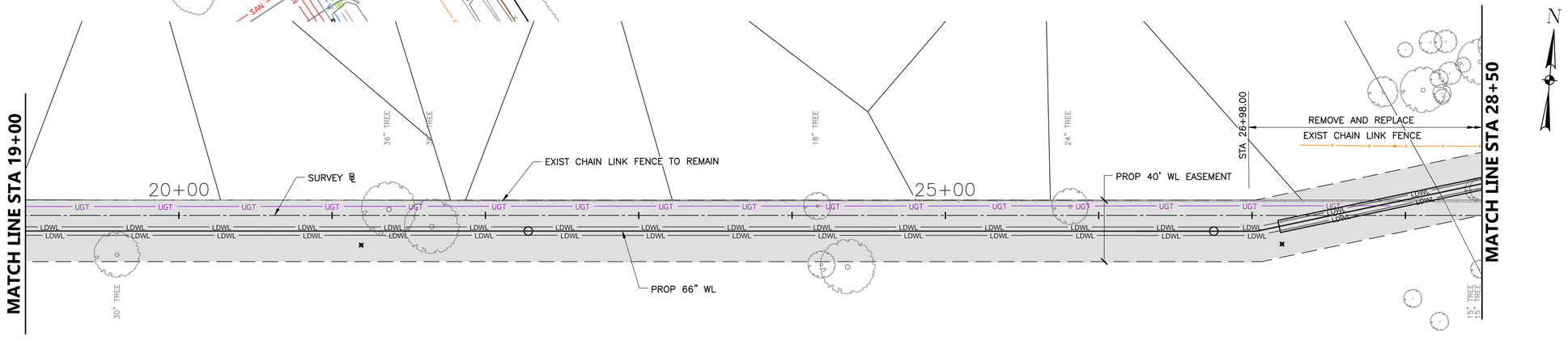
NOTES AND LEGENDS:

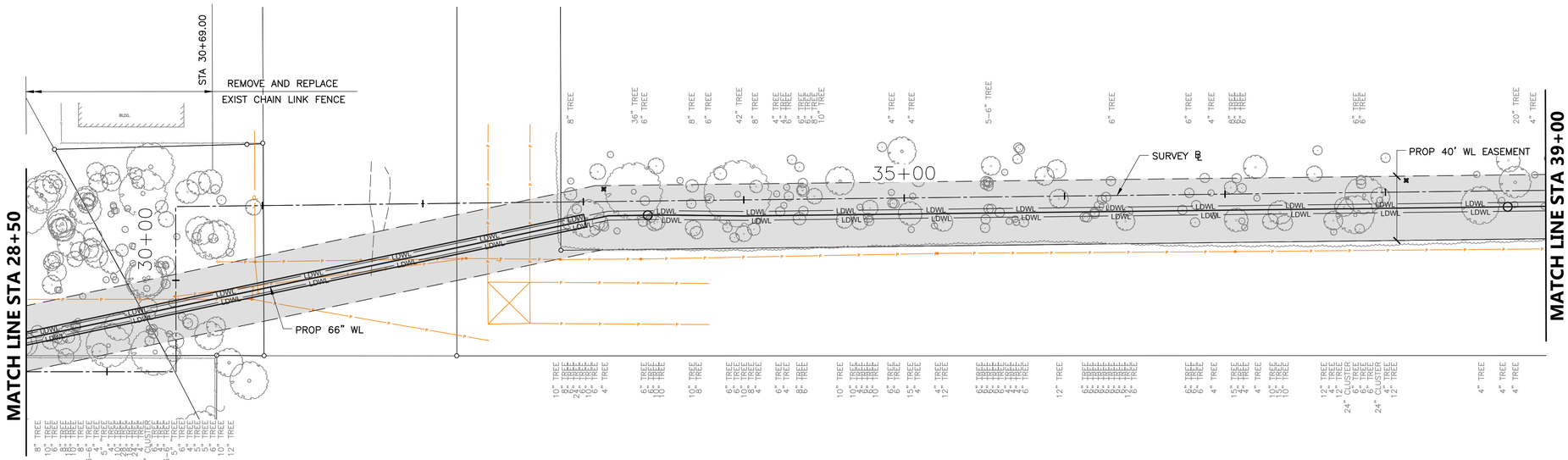
1. SEE "TREE PROTECTION PLAN" SHEETS FOR MORE INFORMATION.

CLEARING AND GRUBBING AREA

NO.	DATE	REVISION	APP.







N

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CLEARING AND GRUBBING LAYOUT

SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 32 OF 157	

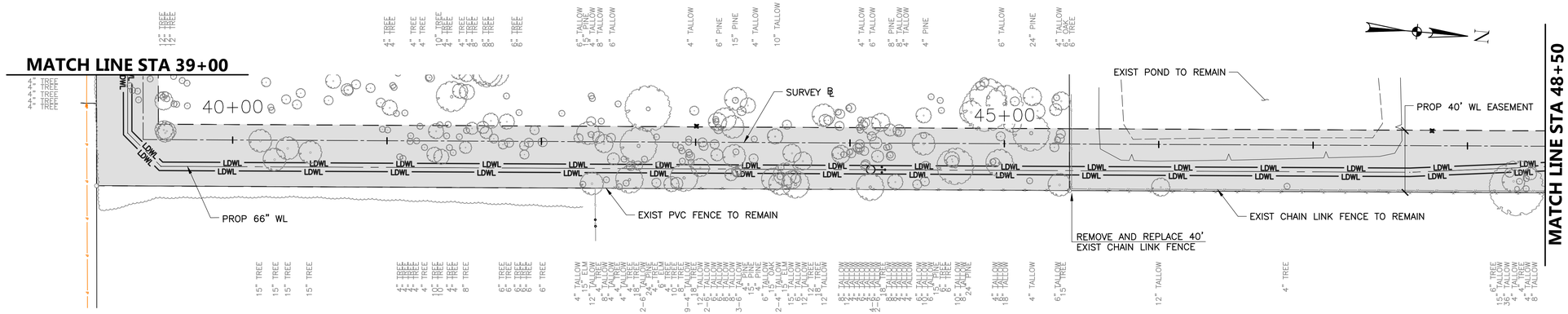
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\32_CLEARING AND GRUBBING LAYOUT.dwg

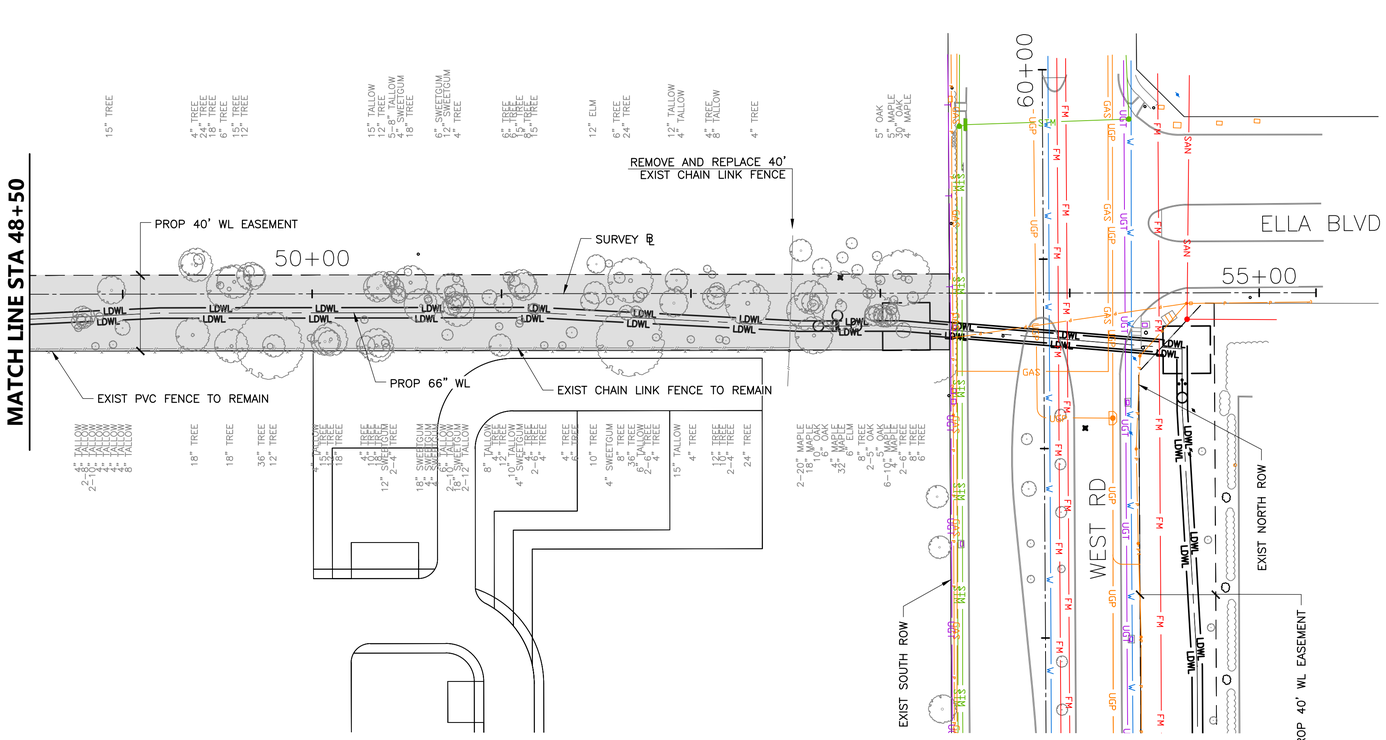
NOTES AND LEGENDS:

1. SEE "TREE PROTECTION PLAN" SHEETS FOR MORE INFORMATION.

CLEARING AND GRUBBING AREA

NO.	DATE	REVISION	APP.





20 0 20 40

BLACK & VEATCH	920 MEMORIAL CITY WAY, SUITE 600 HOUSTON, TX 77024 TEL: (713) 961-1100 TBPE REG NO 258
HOWN ENGINEERS 2825 WILCREST DRIVE, SUITE 218 HOUSTON, TX 77042 TEL: (832) 899-5657 TBPE REG NO. F-26176	DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.
SURVEYED BY: LANDTECH, INC. FB NO. P-6377	

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CLEARING AND GRUBBING LAYOUT

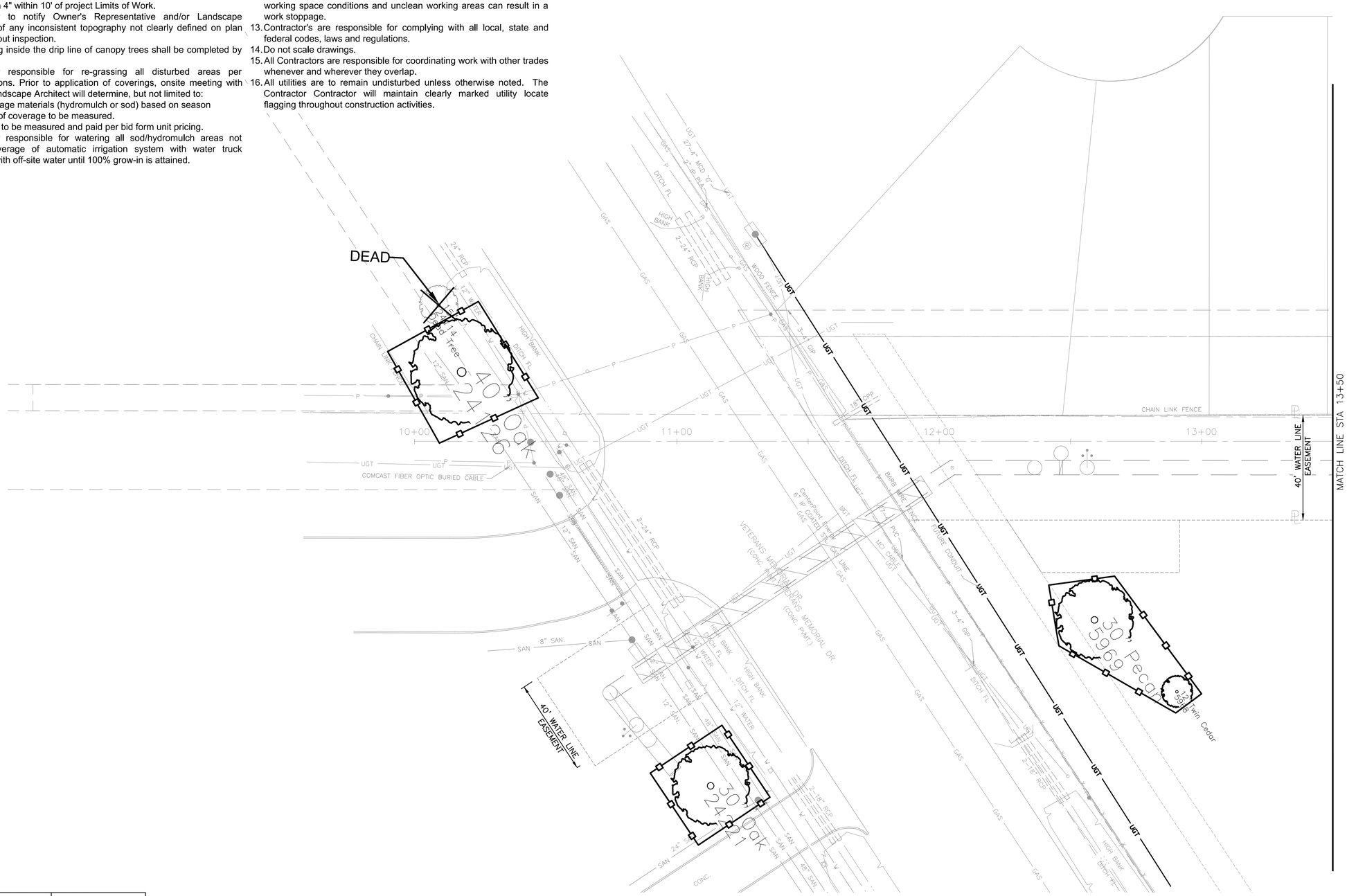
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 33 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\33_CLEARING AND GRUBBING LAYOUT_2.dwg

TREE PROTECTION NOTES:

1. All trees to be protected unless specifically tagged for removal by Landscape Architect and/or Owner's Representative.
2. Contractor shall identify any existing tree lacking protective fencing and request specific instructions regarding additional protection or removal.
3. Contractor shall maintain fencing during construction, repairing or replacing as needed.
4. All trees may not be shown. Contractor to identify all trees on site larger than 4" within 10' of project Limits of Work.
5. Contractor to notify Owner's Representative and/or Landscape Architect of any inconsistent topography not clearly defined on plan during layout inspection.
6. All clearing inside the drip line of canopy trees shall be completed by hand.
7. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   7.1. coverage materials (hydromulch or sod) based on season
   7.2. area of coverage to be measured.
   7.3. items to be measured and paid per bid form unit pricing.
8. Contractor responsible for watering all sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
9. Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
10. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
11. The General Contractor is responsible for all materials, construction methods and craftsmanship.
12. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
13. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
14. Do not scale drawings.
15. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
16. All utilities are to remain undisturbed unless otherwise noted. The Contractor Contractor will maintain clearly marked utility locate flagging throughout construction activities.



ID#	SIZE	SPECIES	REMARKS
5961	60"	Oak	PROTECT WITH FENCE
5968	12"	Twin Cedar	PROTECT WITH FENCE
5969	30"	Pecan	PROTECT WITH FENCE
24114	15"	Dead Tree	DEAD, REMOVE
24126	40"	Oak	PROTECT WITH FENCE
24221	30"	Oak	PROTECT WITH FENCE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

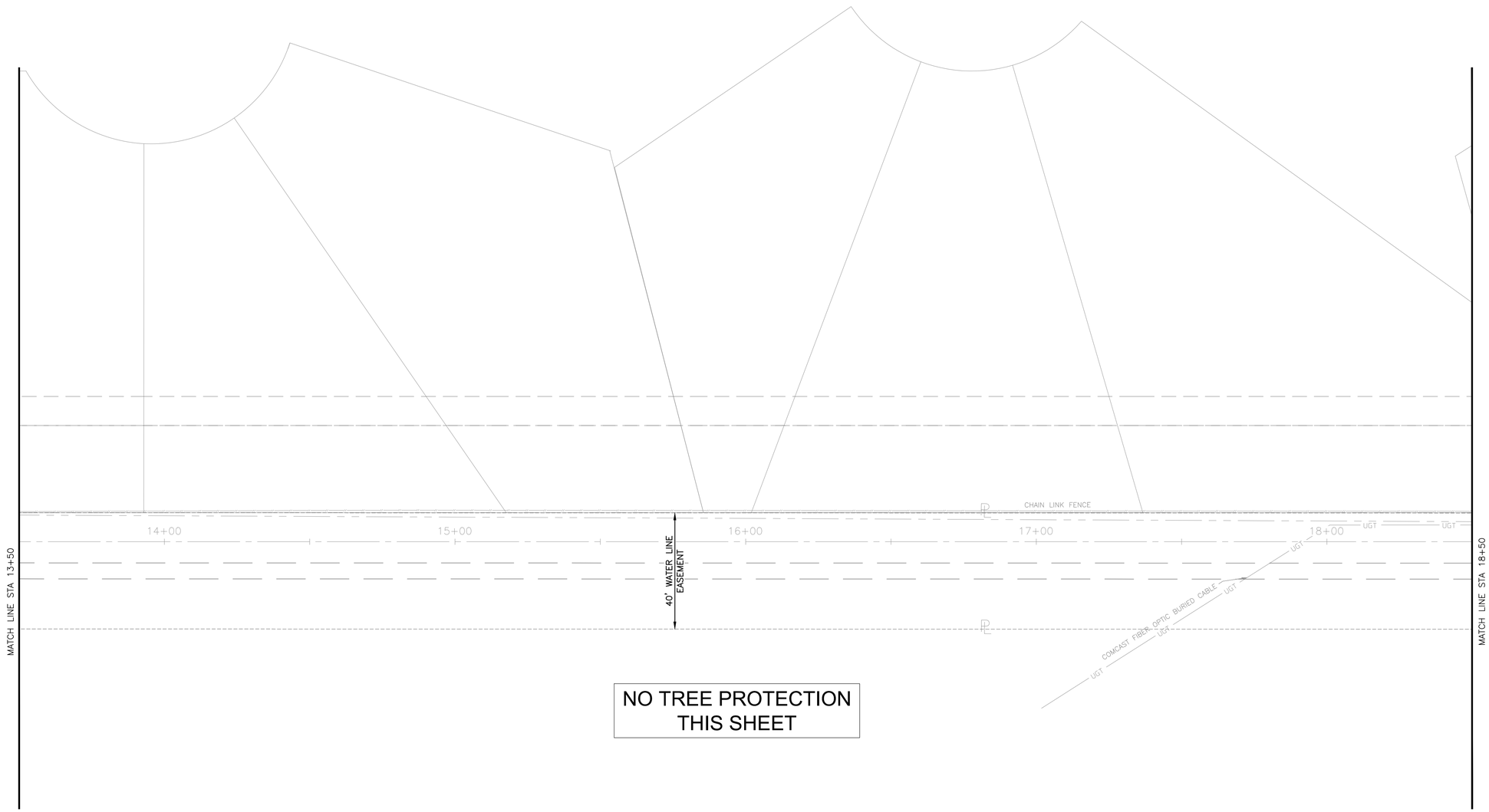
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 10+00 TO STA 13+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 34 OF 157	



NO TREE PROTECTION THIS SHEET

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

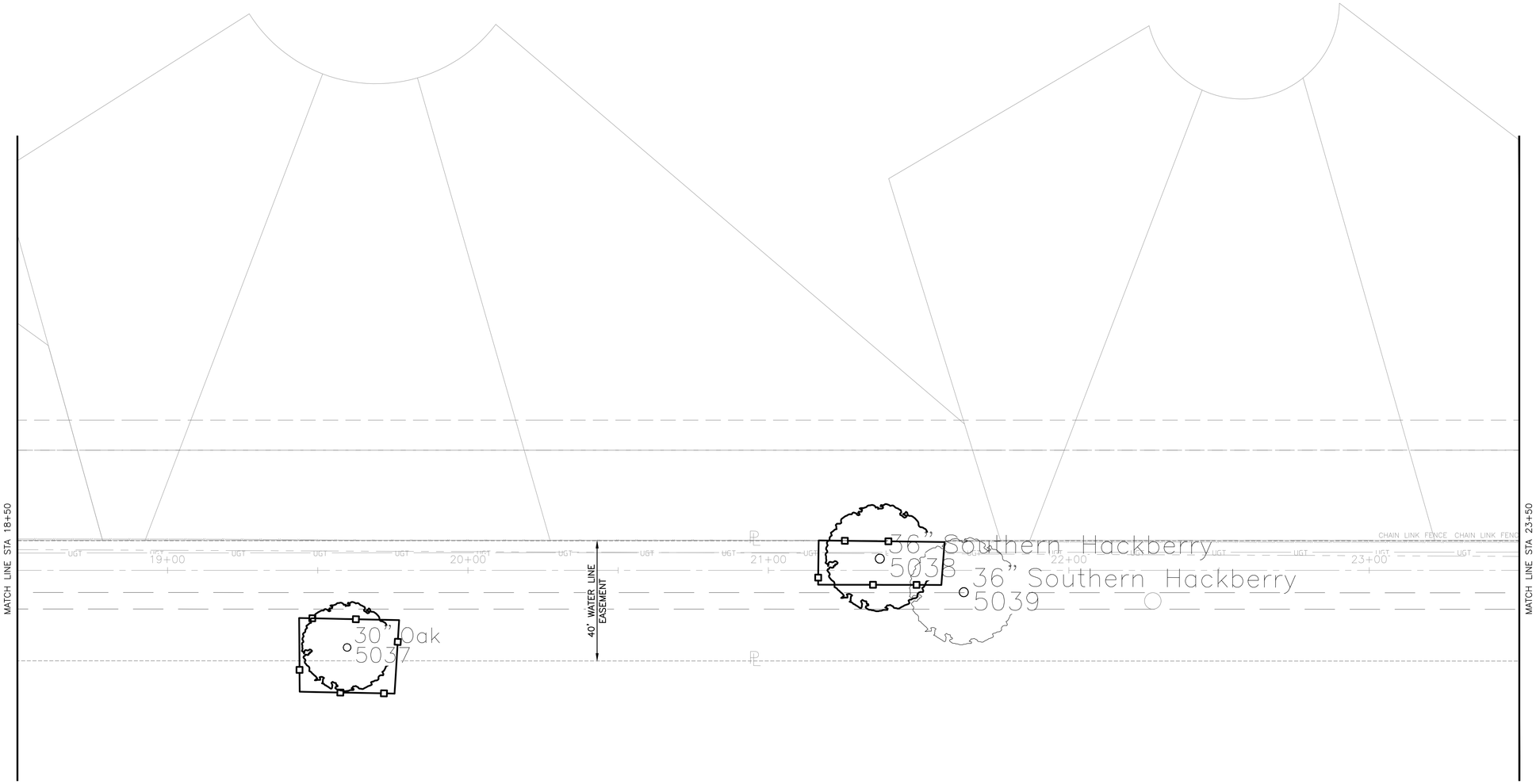
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 13+50 TO STA 18+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 35 OF 157	



ID#	SIZE	SPECIES	REMARKS
5037	30"	Oak	PROTECT WITH FENCE
5038	36"	Southern Hackberry	PROTECT WITH FENCE
5039	36"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

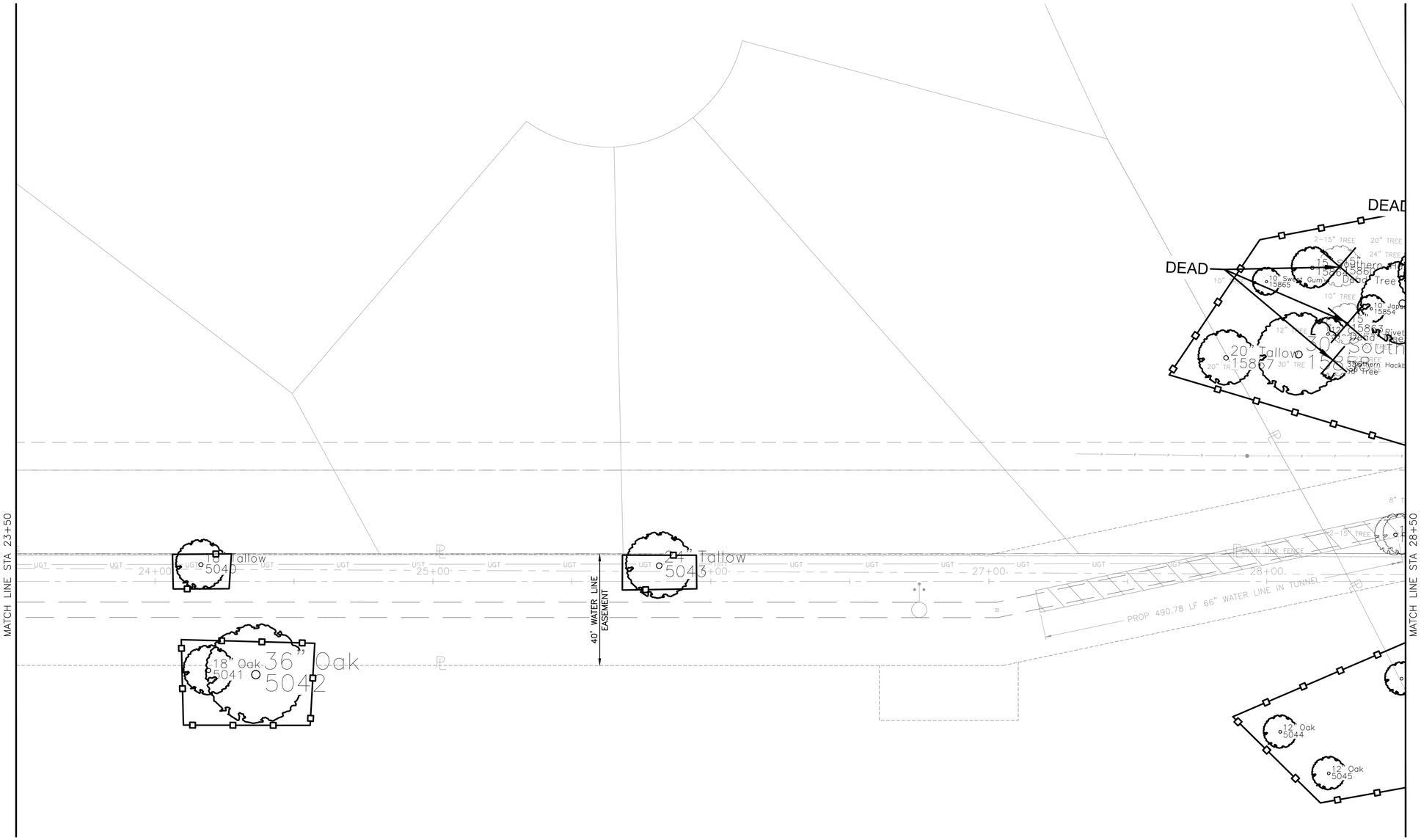
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 18+50 TO STA 23+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 36 OF 157	



ID#	SIZE	SPECIES	REMARKS
5040	18"	Tallow	PROTECT WITH FENCE
5041	18"	Oak	PROTECT WITH FENCE
5042	36"	Oak	PROTECT WITH FENCE
5043	24"	Tallow	PROTECT WITH FENCE
5044	12"	Oak	PROTECT WITH FENCE
5045	12"	Oak	PROTECT WITH FENCE
5046	12"	Oak	PROTECT WITH FENCE
15848	15"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15849	15"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15854	10"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15855	10"	Southern Hackberry	PROTECT WITH FENCE
15856	12"	Dead Tree	DEAD, REMOVE
15857	12"	Chinese Rivet	PROTECT WITH FENCE
15858	30"	Southern Hackberry	PROTECT WITH FENCE
15859	30"	Sweet Gum	PROTECT WITH FENCE
15860	15"	Dead Tree	DEAD, REMOVE
15863	15"	Dead Tree	DEAD, REMOVE
15864	15"	Southern Hackberry	PROTECT WITH FENCE
15865	10"	Sweet Gum	PROTECT WITH FENCE
15867	20"	Tallow	PROTECT WITH FENCE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

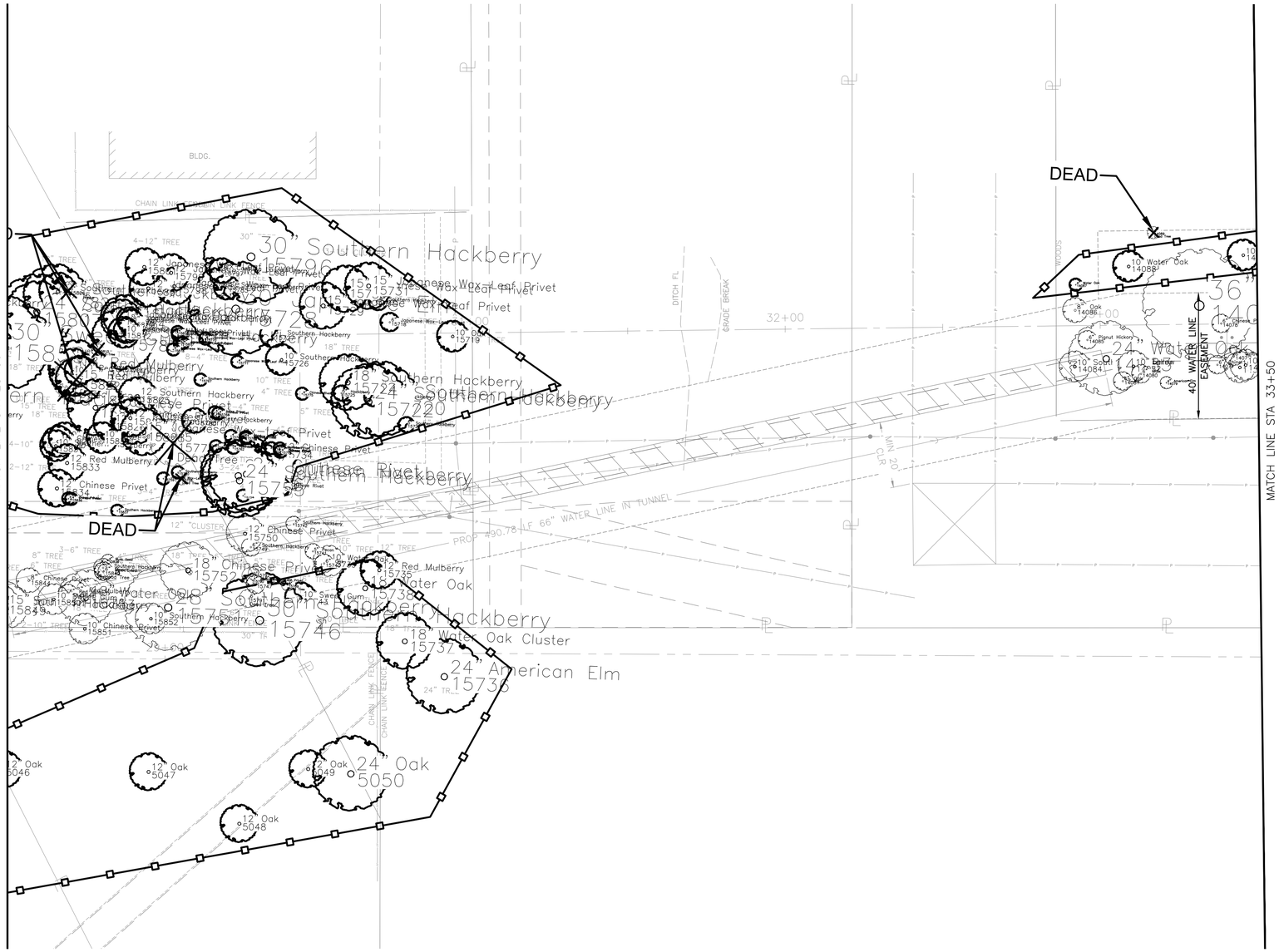
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN STA 23+50 TO STA 28+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 37 OF 157	



SEE TREE TABLE
NEXT SHEET

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 28+50 TO STA 33+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 38 OF 157	

ID#	SIZE	SPECIES	REMARKS
5047	12"	Oak	PROTECT WITH FENCE
5048	12"	Oak	PROTECT WITH FENCE
5049	12"	Oak	PROTECT WITH FENCE
5050	24"	Oak	PROTECT WITH FENCE
14074	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
14075	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
14076	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14077	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14078	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14079	4"	American Elm	REMOVE, PROPOSED WATER EASEMENT
14080	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
14081	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
14082	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14083	24"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14084	10"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
14085	6"	Pignut Hickory	REMOVE, PROPOSED WATER EASEMENT
14086	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
14087	4"	Water Oak	PROTECT WITH FENCE
14088	10"	Water Oak	PROTECT WITH FENCE
14089	4"	Dead Tree	DEAD, REMOVE
14090	10"	Oak	PROTECT WITH FENCE
14091	36"	Pecan	REMOVE, PROPOSED WATER EASEMENT
15717	6"	Southern Hackberry	PROTECT WITH FENCE
15718	6"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15719	10"	Oak	PROTECT WITH FENCE
15720	24"	Southern Hackberry	PROTECT WITH FENCE
15721	6"	Southern Hackberry	PROTECT WITH FENCE
15722	24"	Southern Hackberry	PROTECT WITH FENCE
15723	5"	Southern Hackberry	PROTECT WITH FENCE
15724	18"	Southern Hackberry	PROTECT WITH FENCE
15725	5"	Hackberry	PROTECT WITH FENCE
15726	10"	Southern Hackberry	PROTECT WITH FENCE
15727	8"	Southern Hackberry	PROTECT WITH FENCE
15728	30"	Japanese Elm	PROTECT WITH FENCE
15729	15"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15730	15"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15731	15"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15734	12"	Chinese Privet	PROTECT WITH FENCE
15735	12"	Red Mulberry	PROTECT WITH FENCE
15736	24"	American Elm	PROTECT WITH FENCE
15737	18"	Water Oak Cluster	PROTECT WITH FENCE
15738	18"	Water Oak	PROTECT WITH FENCE
15739	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15740	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
15741	5"	Pecan	REMOVE, PROPOSED WATER EASEMENT
15742	5"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15743	10"	Sweet Gum	PROTECT WITH FENCE
15744	10"	Ash	PROTECT WITH FENCE
15745	6"	Chinese Rivet	PROTECT WITH FENCE
15746	30"	Southern Hackberry	PROTECT WITH FENCE
15747	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15748	6"	Dead Tree	DEAD, REMOVE
15749	6"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15750	12"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15751	28"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15752	18"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15753	18"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15754	4"	Chinese Rivet	PROTECT WITH FENCE
15755	24"	Southern Hackberry	PROTECT WITH FENCE
15756	24"	Southern Hackberry	PROTECT WITH FENCE
15757	24"	Chinese Rivet	PROTECT WITH FENCE
15758	4"	Dead Tree	DEAD, REMOVE
15759	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15760	4"	Southern Hackberry	PROTECT WITH FENCE
15761	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15762	4"	Chinese Privet	PROTECT WITH FENCE
15763	4"	Chinese Privet	PROTECT WITH FENCE
15764	4"	Chinese Privet	PROTECT WITH FENCE
15765	4"	Chinese Privet	PROTECT WITH FENCE
15766	4"	Chinese Privet	PROTECT WITH FENCE
15767	4"	Southern Hackberry	PROTECT WITH FENCE
15768	4"	Chinese Privet	PROTECT WITH FENCE
15769	4"	Chinese Privet	PROTECT WITH FENCE
15770	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15771	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15772	4"	Chinese Privet	PROTECT WITH FENCE
15773	4"	Chinese Privet	PROTECT WITH FENCE
15774	4"	Chinese Privet	PROTECT WITH FENCE
15775	4"	Chinese Rivet	PROTECT WITH FENCE
15776	15"	Dead Tree	DEAD, REMOVE
15777	15"	Chinese Privet	PROTECT WITH FENCE
15778	15"	Dead Tree	DEAD, REMOVE
15779	15"	Red Mulberry	PROTECT WITH FENCE
15780	8"	Southern Hackberry	PROTECT WITH FENCE
15781	20"	Southern Hackberry	PROTECT WITH FENCE
15782	20"	Southern Hackberry	PROTECT WITH FENCE
15783	20"	Southern Hackberry	PROTECT WITH FENCE
15784	15"	Southern Hackberry	PROTECT WITH FENCE
15785	8"	Southern Hackberry	PROTECT WITH FENCE
15789	4"	Dead Tree	DEAD, REMOVE
15790	4"	Japanese Wax-Leaf Privet	REMOVE, PROPOSED WATER EASEMENT
15791	6"	Dead Tree	DEAD, REMOVE
15792	5"	Dead Tree	DEAD, REMOVE
15796	30"	Southern Hackberry	PROTECT WITH FENCE
15797	8"	Carolina Laurel Cherry	PROTECT WITH FENCE
15798	12"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15799	12"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15800	12"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15801	12"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15805	12"	Southern Hackberry	PROTECT WITH FENCE
15806	6"	Dead Tree	DEAD, REMOVE
15807	24"	Southern Hackberry	PROTECT WITH FENCE
15808	12"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15809	8"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15810	8"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15811	8"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15812	10"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15813	4"	Dead Tree	DEAD, REMOVE
15814	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15815	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15816	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15817	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15818	4"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15819	18"	Red Mulberry	PROTECT WITH FENCE
15820	10"	Red Mulberry	PROTECT WITH FENCE
15821	10"	Dead Tree	DEAD, REMOVE
15822	15"	Red Mulberry	PROTECT WITH FENCE
15824	18"	Chinese Privet	PROTECT WITH FENCE
15825	12"	Southern Hackberry	PROTECT WITH FENCE
15826	12"	Southern Hackberry	PROTECT WITH FENCE
15827	12"	Chinese Privet	PROTECT WITH FENCE
15828	15"	Japanese Wax-Leaf Privet	PROTECT WITH FENCE
15829	10"	Chinese Privet	PROTECT WITH FENCE
15830	10"	Chinese Privet	PROTECT WITH FENCE
15831	10"	Southern Hackberry	PROTECT WITH FENCE
15832	10"	Chinese Privet	PROTECT WITH FENCE
15833	12"	Red Mulberry	PROTECT WITH FENCE
15834	12"	Chinese Privet	PROTECT WITH FENCE
15835	4"	Chinese Privet	PROTECT WITH FENCE
15836	4"	Chinese Privet	PROTECT WITH FENCE
15837	4"	Southern Hackberry	PROTECT WITH FENCE
15838	4"	Musk Seed	REMOVE, PROPOSED WATER EASEMENT
15840	5"	Musk Seed	REMOVE, PROPOSED WATER EASEMENT
15841	5"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15842	6"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
15843	6"	Dead Tree	DEAD, REMOVE
15844	8"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15845	8"	Dead Tree	DEAD, REMOVE
15846	8"	Red Mulberry	REMOVE, PROPOSED WATER EASEMENT
15847	6"	Red Mulberry	REMOVE, PROPOSED WATER EASEMENT
15850	10"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
15851	10"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15852	10"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

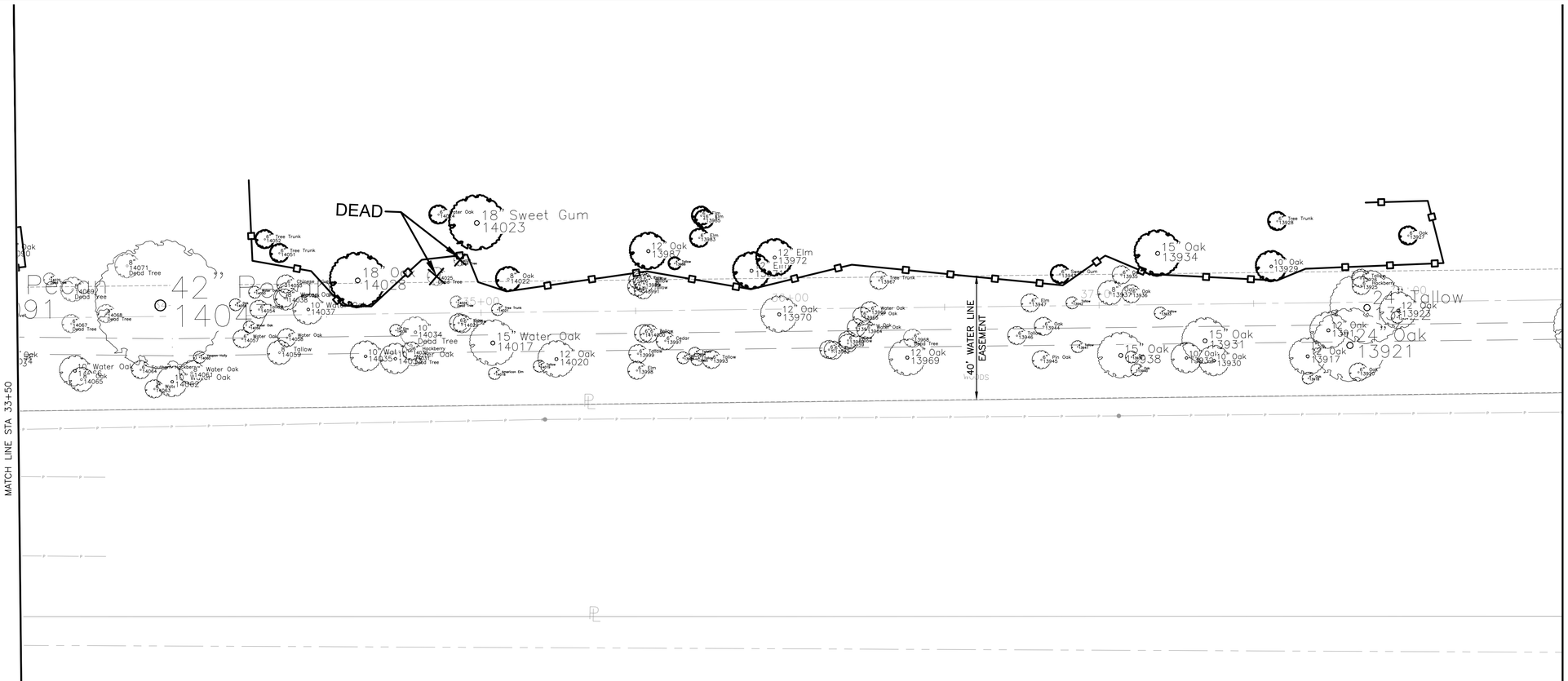
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE REMOVAL SCHEDULE
STA 28+50 TO STA 33+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 39 OF 157	



ID#	SIZE	SPECIES	REMARKS
13917	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13918	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13919	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13920	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13921	24"	Oak	REMOVE, PROPOSED WATER EASEMENT
13922	24"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13923	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13924	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13925	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
13926	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13927	6"	Oak	PROTECT WITH FENCE
13928	6"	Tree Trunk	PROTECT WITH FENCE
13929	10"	Oak	PROTECT WITH FENCE
13930	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
13931	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13932	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
13933	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13934	15"	Oak	PROTECT WITH FENCE
13935	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13936	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13937	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
13938	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13939	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13940	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13941	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13942	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13943	6"	Sweet Gum	PROTECT WITH FENCE
13944	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13945	6"	Pin Oak	REMOVE, PROPOSED WATER EASEMENT
13946	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13947	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13959	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13960	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13961	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13962	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13963	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13964	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT

13965	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13966	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13967	6"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
13968	6"	Dead Tree	DEAD, REMOVE
13969	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13970	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13971	12"	Elm	PROTECT WITH FENCE
13972	12"	Elm	PROTECT WITH FENCE
13983	6"	Elm	PROTECT WITH FENCE
13984	6"	Elm	PROTECT WITH FENCE
13985	6"	Elm	PROTECT WITH FENCE
13986	4"	Tallow	PROTECT WITH FENCE
13987	12"	Oak	PROTECT WITH FENCE
13988	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13989	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13990	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13991	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13992	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13993	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13994	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13995	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13996	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13997	6"	Cedar	REMOVE, PROPOSED WATER EASEMENT
13998	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13999	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14000	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14001	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
14017	15"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14018	4"	American Elm	REMOVE, PROPOSED WATER EASEMENT
14019	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14020	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
14021	6"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
14022	8"	Oak	PROTECT WITH FENCE
14023	18"	Sweet Gum	PROTECT WITH FENCE
14024	6"	Water Oak	PROTECT WITH FENCE
14025	6"	Dead Tree	DEAD, REMOVE
14026	4"	Dead Tree	DEAD, REMOVE
14027	4"	Dead Tree	DEAD, REMOVE

14028	18"	Oak	PROTECT WITH FENCE
14029	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14030	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14031	6"	Dead Tree	DEAD, REMOVE
14032	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
14033	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14034	10"	Dead Tree	DEAD, REMOVE
14035	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14036	10"	Elm	REMOVE, PROPOSED WATER EASEMENT
14037	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14038	8"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14047	42"	Pecan	REMOVE, PROPOSED WATER EASEMENT
14048	8"	Dead Tree	DEAD, REMOVE
14050	4"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14051	6"	Tree Trunk	PROTECT WITH FENCE
14052	6"	Tree Trunk	PROTECT WITH FENCE
14053	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14054	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14055	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14056	4"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14057	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14058	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14059	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14059	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
14060	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
14061	8"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14062	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14063	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14064	6"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
14065	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
14066	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14067	6"	Dead Tree	DEAD, REMOVE
14068	6"	Dead Tree	DEAD, REMOVE
14069	8"	Dead Tree	DEAD, REMOVE
14070	4"	Dead Tree	DEAD, REMOVE
14071	8"	Dead Tree	DEAD, REMOVE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

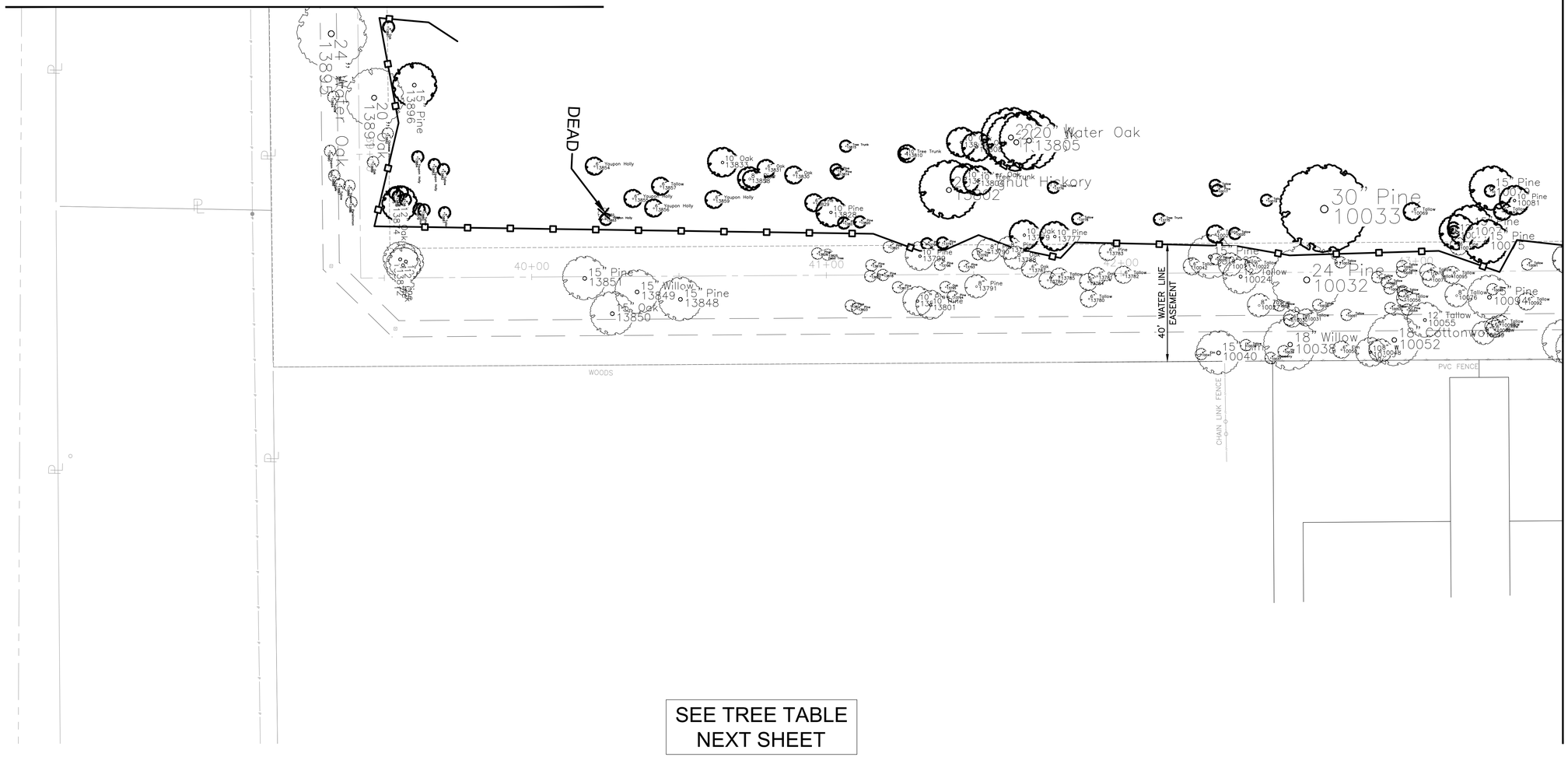
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 33+50 TO STA 38+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 40 OF 157	

MATCH LINE STA 38+50



MATCH LINE STA 43+50

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

SEE TREE TABLE
NEXT SHEET

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 38+50 TO STA 43+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 41 OF 157	

ID#	SIZE	SPECIES	REMARKS
10017	4"	Pine	PROTECT WITH FENCE
10018	4"	Tallow	PROTECT WITH FENCE
10019	4"	Tallow	PROTECT WITH FENCE
10020	4"	Tallow	PROTECT WITH FENCE
10021	6"	Tallow	PROTECT WITH FENCE
10022	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10023	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10024	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10025	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10026	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10027	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10028	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10029	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10030	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10031	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10032	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10033	30"	Pine	PROTECT WITH FENCE
10034	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10035	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10036	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10037	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10038	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10039	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10040	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10041	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10042	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10048	8"	Willow	REMOVE, PROPOSED WATER EASEMENT
10049	10"	Willow	REMOVE, PROPOSED WATER EASEMENT
10050	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10051	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10052	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10053	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10054	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10055	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10056	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10057	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10058	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10059	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10060	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10061	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10062	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10063	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10069	6"	Tallow	PROTECT WITH FENCE
10070	6"	Pine	REMOVE, PROPOSED WATER EASEMENT
10071	12"	Pine	PROTECT WITH FENCE
10072	4"	Pine	PROTECT WITH FENCE
10073	4"	Pine	PROTECT WITH FENCE
10074	15"	Pine	PROTECT WITH FENCE
10075	15"	Pine	PROTECT WITH FENCE
10076	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10077	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10078	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10079	15"	Pine	PROTECT WITH FENCE
10080	4"	Pine	PROTECT WITH FENCE
10081	10"	Pine	PROTECT WITH FENCE
10082	6"	Tallow	PROTECT WITH FENCE
10091	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10092	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10093	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10094	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10095	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10096	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10097	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10098	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10099	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13775	4"	Tree Trunk	PROTECT WITH FENCE
13776	4"	Tree Trunk	PROTECT WITH FENCE
13777	10"	Pine	PROTECT WITH FENCE
13778	4"	Tallow	PROTECT WITH FENCE
13779	10"	Oak	PROTECT WITH FENCE
13780	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13781	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13782	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13783	6"	Pine	REMOVE, PROPOSED WATER EASEMENT
13784	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13785	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13786	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13787	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13788	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
13789	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13790	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13791	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13792	4"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
13793	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13794	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13795	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13796	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13797	4"	Pine	PROTECT WITH FENCE
13798	4"	Pine	PROTECT WITH FENCE
13799	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13800	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13801	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13802	20"	Pignut Hickory	PROTECT WITH FENCE
13803	10"	Water Oak	PROTECT WITH FENCE
13804	10"	Tree Trunk	PROTECT WITH FENCE
13805	20"	Water Oak	PROTECT WITH FENCE
13806	20"	Oak	PROTECT WITH FENCE
13807	20"	Oak	PROTECT WITH FENCE
13808	10"	Oak	PROTECT WITH FENCE
13809	10"	Oak	PROTECT WITH FENCE
13810	10"	Tree Trunk	PROTECT WITH FENCE
13813	4"	Pine	PROTECT WITH FENCE
13814	4"	Pine	PROTECT WITH FENCE
13815	4"	Tree Trunk	PROTECT WITH FENCE
13816	4"	Oak	PROTECT WITH FENCE
13817	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13818	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13819	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13820	4"	Pine	PROTECT WITH FENCE
13821	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13822	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13823	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13824	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13825	4"	Dead Tree	DEAD, REMOVE
13826	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13827	4"	Pine	PROTECT WITH FENCE
13828	10"	Pine	PROTECT WITH FENCE
13829	6"	Pine	PROTECT WITH FENCE
13830	6"	Oak	PROTECT WITH FENCE
13831	6"	Oak	PROTECT WITH FENCE
13832	6"	Tallow	PROTECT WITH FENCE
13833	10"	Oak	PROTECT WITH FENCE
13848	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
13849	15"	Willow	REMOVE, PROPOSED WATER EASEMENT
13850	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13851	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
13852	4"	Dead Tree	DEAD, REMOVE
13853	4"	Yaupon Holly	PROTECT WITH FENCE
13854	6"	Yaupon Holly	PROTECT WITH FENCE
13855	6"	Yaupon Holly	PROTECT WITH FENCE
13856	6"	Yaupon Holly	PROTECT WITH FENCE
13857	6"	Tallow	PROTECT WITH FENCE
13858	8"	Pine	PROTECT WITH FENCE
13859	6"	Yaupon Holly	PROTECT WITH FENCE
13871	12"	Pine	REMOVE, PROPOSED WATER EASEMENT
13872	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13873	12"	Pine	REMOVE, PROPOSED WATER EASEMENT
13874	12"	Oak	PROTECT WITH FENCE
13875	4"	Tallow	PROTECT WITH FENCE
13876	4"	Tallow	PROTECT WITH FENCE
13877	4"	Oak	PROTECT WITH FENCE
13878	4"	Oak	PROTECT WITH FENCE
13879	4"	Tallow	PROTECT WITH FENCE
13880	4"	Tallow	PROTECT WITH FENCE
13881	4"	Tallow	PROTECT WITH FENCE
13882	4"	Tallow	PROTECT WITH FENCE
13883	4"	Yaupon Holly	PROTECT WITH FENCE
13884	4"	Yaupon Holly	PROTECT WITH FENCE
13885	4"	Persimmon	REMOVE, PROPOSED WATER EASEMENT
13886	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
13887	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13888	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13889	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13890	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
13891	20"	Oak	REMOVE, PROPOSED WATER EASEMENT
13892	4"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
13893	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13894	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13895	24"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13896	15"	Pine	PROTECT WITH FENCE
13897	4"	Oak	PROTECT WITH FENCE

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

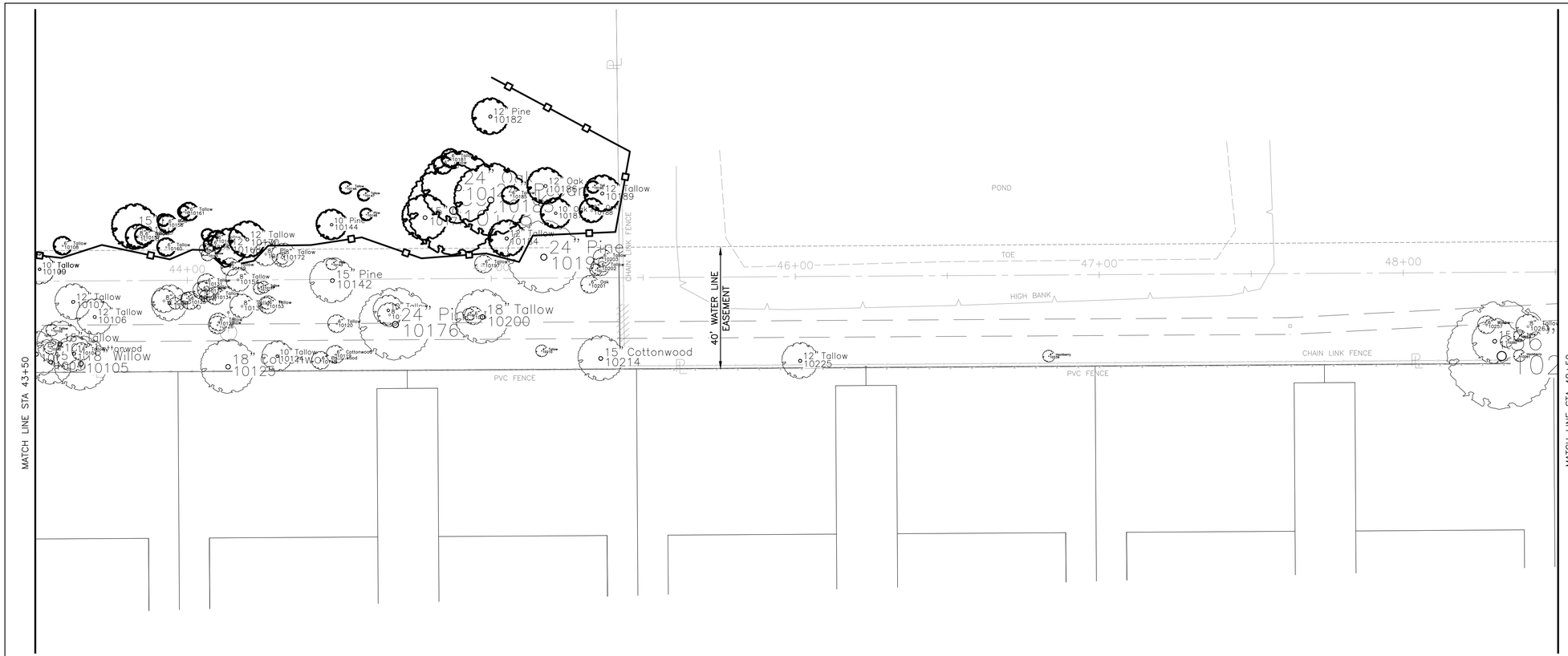
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE REMOVAL SCHEDULE

STA 38+50 TO STA 43+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 42 OF 157	



ID#	SIZE	SPECIES	REMARKS
1017	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
10046	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10047	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
10090	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10100	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10101	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10102	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10103	12"	Cottonwod	REMOVE, PROPOSED WATER EASEMENT
10104	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10105	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10106	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10107	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10108	6"	Tallow	PROTECT WITH FENCE
10109	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10118	6"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10119	6"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10120	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10124	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10125	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10126	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10127	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10128	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10129	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10130	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10131	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT

10132	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10133	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10134	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10135	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10136	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10137	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10138	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10142	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10143	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10144	10"	Pine	PROTECT WITH FENCE
10146	4"	Tallow	PROTECT WITH FENCE
10147	4"	Tallow	PROTECT WITH FENCE
10148	4"	Pine	PROTECT WITH FENCE
10150	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10151	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10152	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10153	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10154	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10156	6"	Pine	PROTECT WITH FENCE
10157	6"	Tallow	PROTECT WITH FENCE
10158	8"	Tallow	PROTECT WITH FENCE
10159	15"	Pine	PROTECT WITH FENCE
10160	6"	Tallow	PROTECT WITH FENCE
10161	6"	Tallow	PROTECT WITH FENCE
10162	4"	Tallow	PROTECT WITH FENCE
10163	4"	Tallow	PROTECT WITH FENCE

10164	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10165	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10166	6"	Tallow	PROTECT WITH FENCE
10167	6"	Tallow	PROTECT WITH FENCE
10168	12"	Tallow	PROTECT WITH FENCE
10169	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10170	12"	Tallow	PROTECT WITH FENCE
10172	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10173	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10174	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10175	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10176	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10177	15"	Oak	PROTECT WITH FENCE
10178	30"	Oak	PROTECT WITH FENCE
10179	24"	Oak	PROTECT WITH FENCE
10180	6"	Tallow	PROTECT WITH FENCE
10181	6"	Tallow	PROTECT WITH FENCE
10182	12"	Pine	PROTECT WITH FENCE
10183	24"	Pecan	PROTECT WITH FENCE
10184	12"	Tallow	PROTECT WITH FENCE
10185	6"	Tallow	PROTECT WITH FENCE
10186	12"	Oak	PROTECT WITH FENCE
10187	10"	Oak	PROTECT WITH FENCE
10188	8"	Oak	PROTECT WITH FENCE
10189	12"	Tallow	PROTECT WITH FENCE
10190	4"	Tallow	PROTECT WITH FENCE

10196	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10197	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10198	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10199	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10200	18"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10201	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
10202	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10203	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10204	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10210	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10214	15"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10225	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10239	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10257	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10258	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10259	36"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10260	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10261	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10262	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10263	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
			PROTECT WITH FENCE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

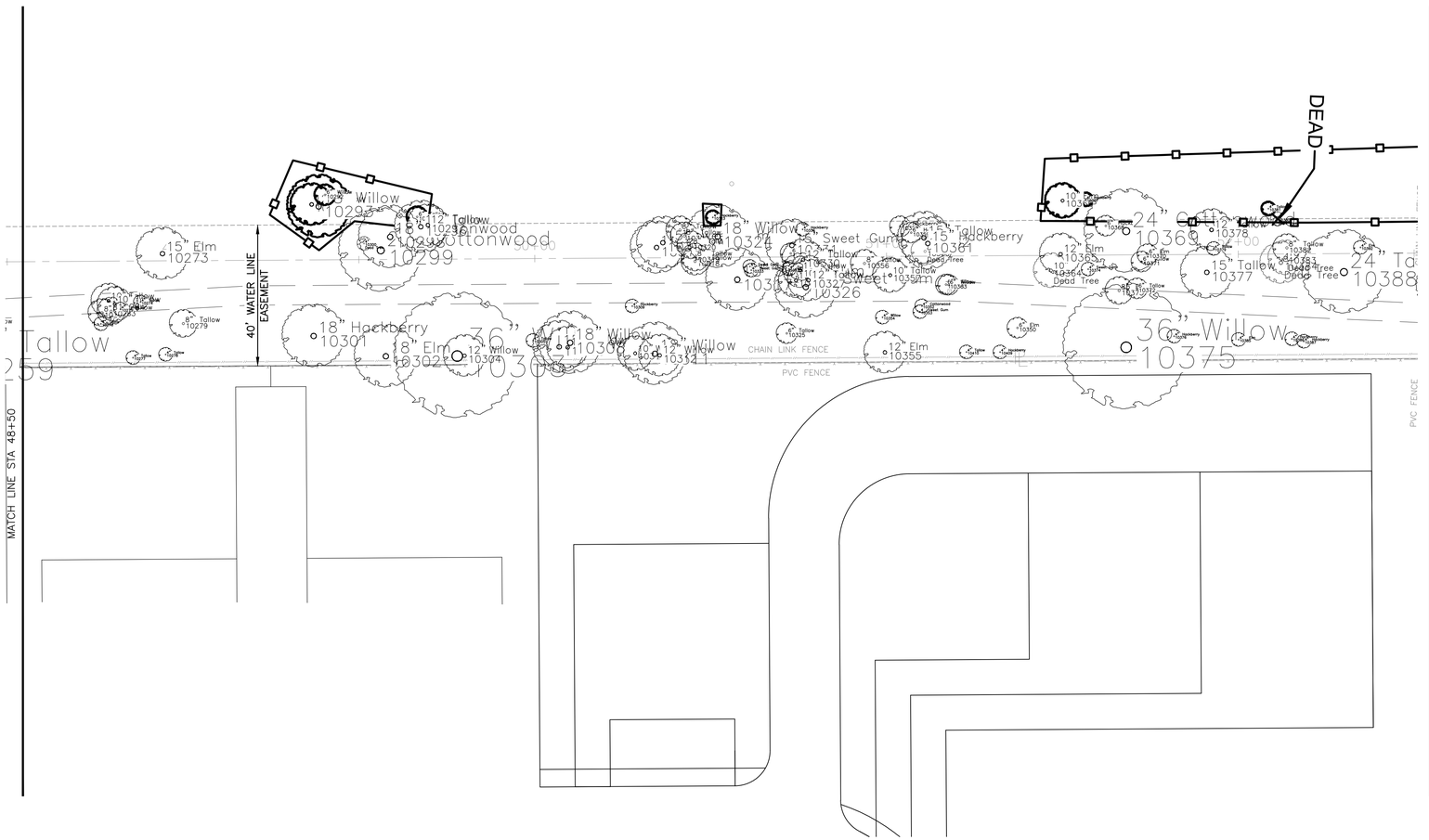
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 43+50 TO STA 48+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 43 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

ID#	SIZE	SPECIES	REMARKS
10273	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10274	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10275	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10276	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10277	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10278	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10279	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10282	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10283	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10284	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10285	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10292	6"	Willow	PROTECT WITH FENCE
10293	18"	Willow	PROTECT WITH FENCE
10294	12"	Willow	PROTECT WITH FENCE
10295	6"	Tallow	PROTECT WITH FENCE
10296	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10297	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10298	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10299	24"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10300	4"	Dead Tree	DEAD, REMOVE
10301	18"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10302	18"	Elm	REMOVE, PROPOSED WATER EASEMENT
10303	36"	Willow	REMOVE, PROPOSED WATER EASEMENT
10304	12"	Willow	REMOVE, PROPOSED WATER EASEMENT

10305	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10306	15"	Willow	REMOVE, PROPOSED WATER EASEMENT
10307	12"	Willow	REMOVE, PROPOSED WATER EASEMENT
10308	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10309	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10310	10"	Willow	REMOVE, PROPOSED WATER EASEMENT
10311	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10312	12"	Willow	REMOVE, PROPOSED WATER EASEMENT
10313	4"	Dead Tree	DEAD, REMOVE
10314	4"	Dead Tree	DEAD, REMOVE
10315	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10316	15"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10317	18"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10318	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10319	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10320	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10321	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10322	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10323	4"	Hackberry	PROTECT WITH FENCE
10324	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10325	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10326	18"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10327	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10328	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10329	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT

10330	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10331	15"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10332	6"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10333	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10334	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10335	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10336	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10350	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10351	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10352	4"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10353	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10354	4"	Willow	REMOVE, PROPOSED WATER EASEMENT
10355	12"	Elm	REMOVE, PROPOSED WATER EASEMENT
10356	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10357	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10358	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10359	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10360	8"	Dead Tree	DEAD, REMOVE
10361	15"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10362	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10363	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10364	10"	Dead Tree	DEAD, REMOVE
10365	12"	Elm	REMOVE, PROPOSED WATER EASEMENT
10366	10"	Elm	PROTECT WITH FENCE
10367	4"	Hackberry	PROTECT WITH FENCE

10368	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10369	24"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10370	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10371	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10372	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10373	8"	Elm	REMOVE, PROPOSED WATER EASEMENT
10374	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10375	36"	Willow	REMOVE, PROPOSED WATER EASEMENT
10376	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10377	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10378	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10379	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10380	4"	Dead Tree	DEAD, REMOVE
10381	4"	Tallow	PROTECT WITH FENCE
10382	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10383	10"	Dead Tree	DEAD, REMOVE
10384	12"	Dead Tree	DEAD, REMOVE
10385	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10386	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10387	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10388	24"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10392	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10409	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10410	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

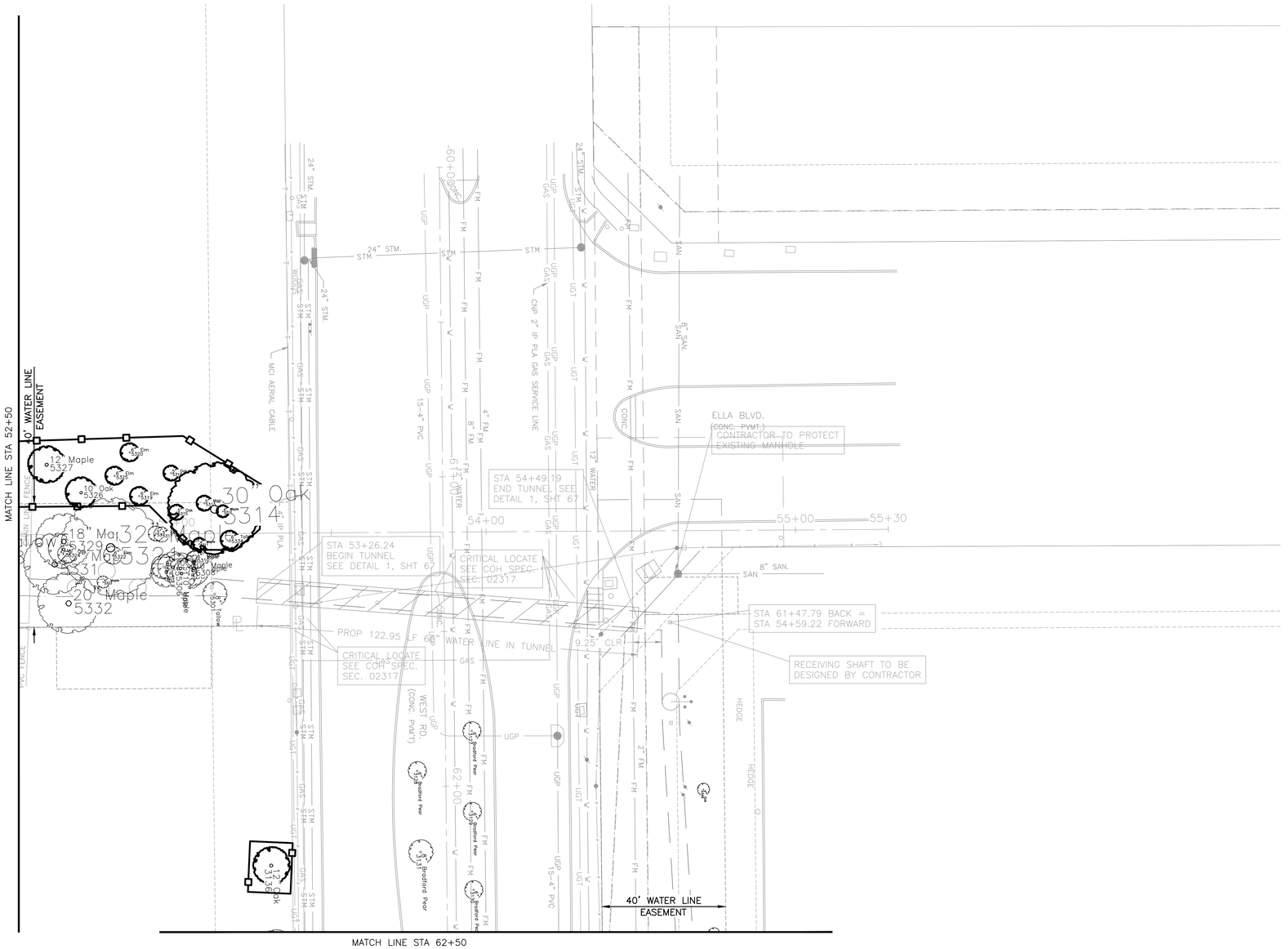
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN

STA 48+50 TO STA 52+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 44 OF 157	



ID#	SIZE	SPECIES	REMARKS
3127	6"	Bradford Pear	OUTSIDE PROJECT AREA
3128	6"	Bradford Pear	OUTSIDE PROJECT AREA
3129	6"	Bradford Pear	OUTSIDE PROJECT AREA
3130	6"	Bradford Pear	OUTSIDE PROJECT AREA
3131	8"	Bradford Pear	OUTSIDE PROJECT AREA
3136	12"	Oak	PROTECT WITH FENCE
5301	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5302	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5303	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5304	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5305	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5306	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5307	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5308	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5309	6"	Maple	REMOVE, PROPOSED WATER EASEMENT
5310	6"	Maple	REMOVE, PROPOSED WATER EASEMENT
5311	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5312	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5313	5"	Maple	REMOVE, PROPOSED WATER EASEMENT
5314	30"	Oak	REMOVE, PROPOSED WATER EASEMENT
5315	5"	Oak	REMOVE, PROPOSED WATER EASEMENT

5316	5"	Oak	PROTECT WITH FENCE
5317	5"	Oak	REMOVE, PROPOSED WATER EASEMENT
5318	5"	Oak	REMOVE, PROPOSED WATER EASEMENT
5319	6"	Elm	PROTECT WITH FENCE
5320	6"	Elm	PROTECT WITH FENCE
5321	32"	Maple	REMOVE, PROPOSED WATER EASEMENT
5322	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
5323	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5324	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
5325	6"	Elm	PROTECT WITH FENCE
5326	10"	Oak	PROTECT WITH FENCE
5327	12"	Maple	PROTECT WITH FENCE
5329	18"	Maple	REMOVE, PROPOSED WATER EASEMENT
5330	10"	Elm	REMOVE, PROPOSED WATER EASEMENT
5331	20"	Maple	REMOVE, PROPOSED WATER EASEMENT
5332	20"	Maple	REMOVE, PROPOSED WATER EASEMENT
5334	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5349	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5354	4"	Oak	REMOVE, PROPOSED WATER EASEMENT

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

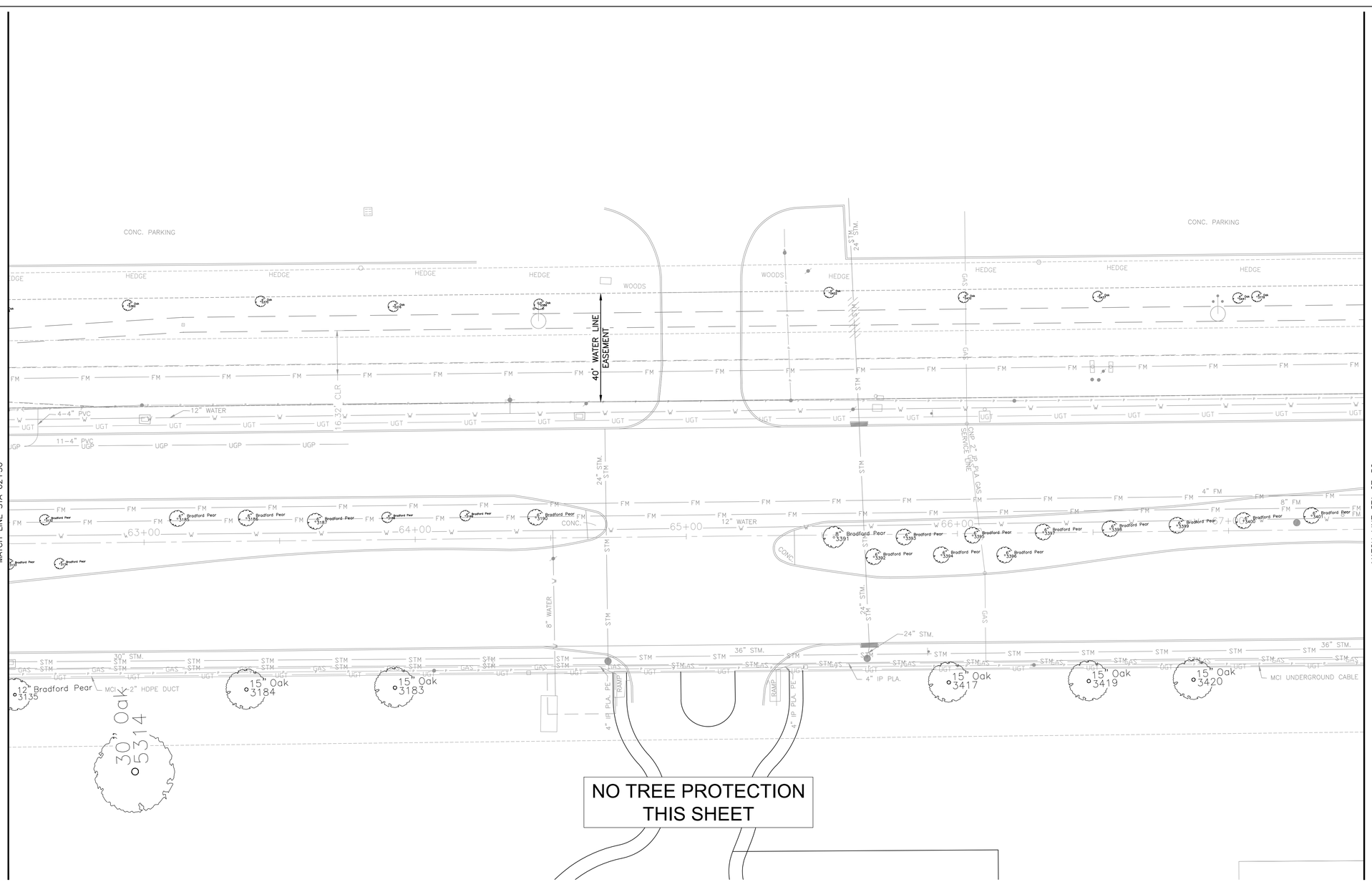
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 52+50 TO STA 62+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 45 OF 157	



ID#	SIZE	SPECIES	REMARKS
3132	4"	Bradford Pear	OUTSIDE PROJECT AREA
3133	4"	Bradford Pear	OUTSIDE PROJECT AREA
3134	4"	Bradford Pear	OUTSIDE PROJECT AREA
3135	12"	Bradford Pear	OUTSIDE PROJECT AREA
3183	15"	Oak	OUTSIDE PROJECT AREA
3184	15"	Oak	OUTSIDE PROJECT AREA
3185	6"	Bradford Pear	OUTSIDE PROJECT AREA
3186	6"	Bradford Pear	OUTSIDE PROJECT AREA
3187	6"	Bradford Pear	OUTSIDE PROJECT AREA
3188	4"	Bradford Pear	OUTSIDE PROJECT AREA
3189	4"	Bradford Pear	OUTSIDE PROJECT AREA
3190	6"	Bradford Pear	OUTSIDE PROJECT AREA

3391	8"	Bradford Pear	OUTSIDE PROJECT AREA
3392	6"	Bradford Pear	OUTSIDE PROJECT AREA
3393	6"	Bradford Pear	OUTSIDE PROJECT AREA
3394	6"	Bradford Pear	OUTSIDE PROJECT AREA
3395	6"	Bradford Pear	OUTSIDE PROJECT AREA
3396	6"	Bradford Pear	OUTSIDE PROJECT AREA
3397	6"	Bradford Pear	OUTSIDE PROJECT AREA
3398	6"	Bradford Pear	OUTSIDE PROJECT AREA
3399	6"	Bradford Pear	OUTSIDE PROJECT AREA
3400	6"	Bradford Pear	OUTSIDE PROJECT AREA
3401	6"	Bradford Pear	OUTSIDE PROJECT AREA
3417	15"	Oak	OUTSIDE PROJECT AREA
3419	15"	Oak	OUTSIDE PROJECT AREA

3420	15"	Oak	OUTSIDE PROJECT AREA
3779	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5314	30"	Oak	OUTSIDE PROJECT AREA
5362	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5370	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5376	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5386	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5422	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5432	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5437	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5441	4"	Oak	REMOVE, PROPOSED WATER EASEMENT

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

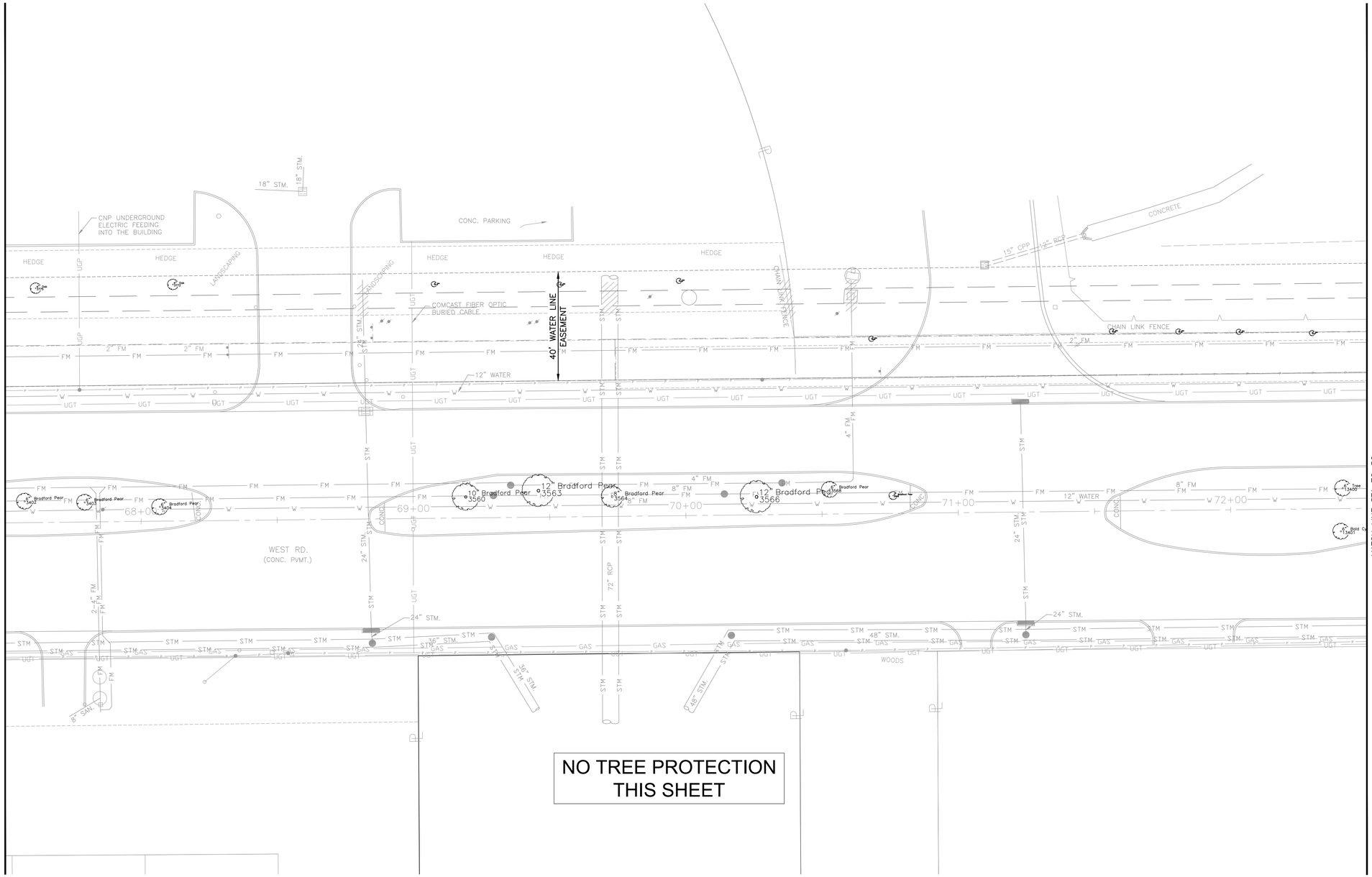
CITY OF HOUSTON

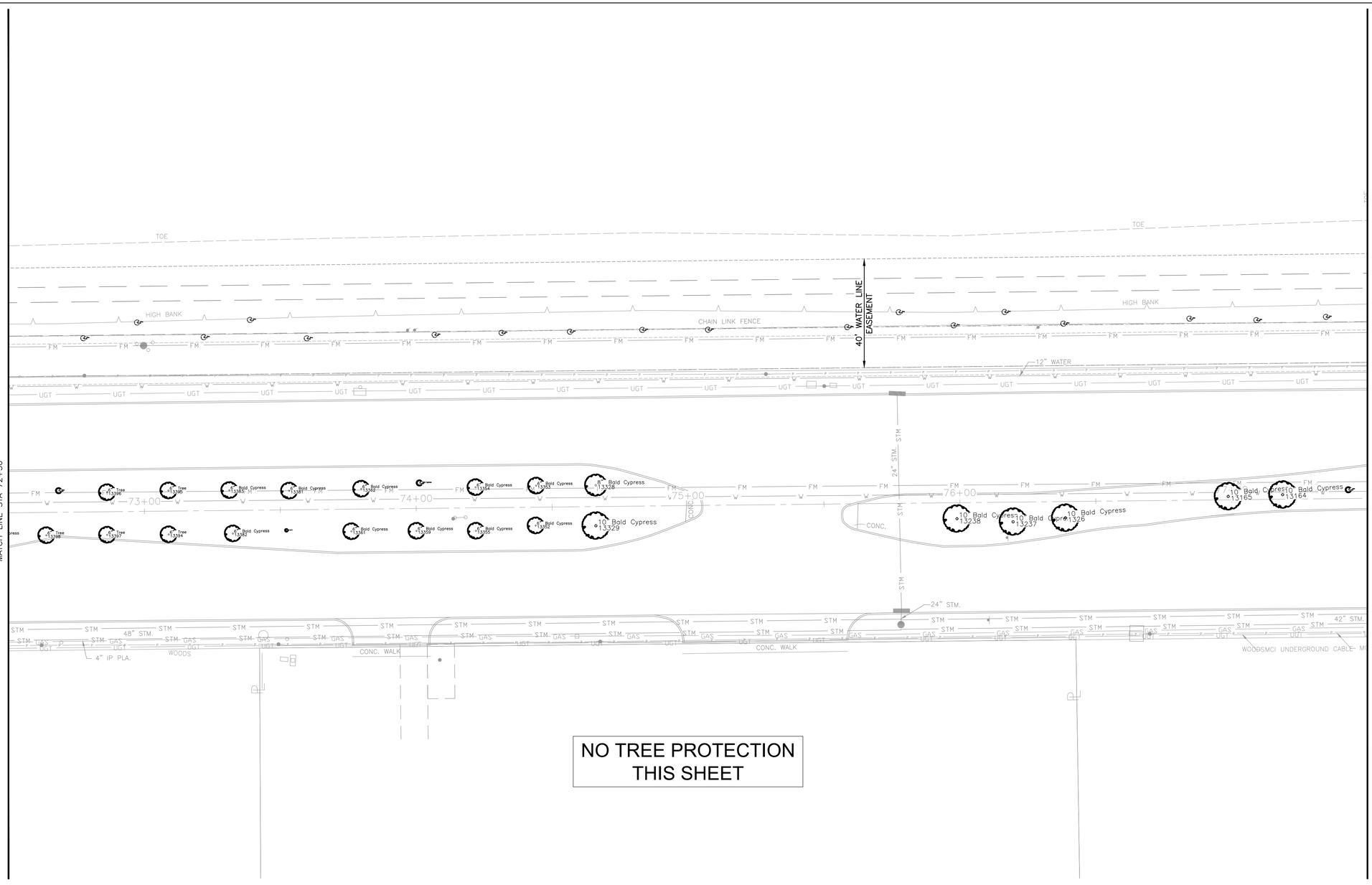
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 62+50 TO STA 67+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 46 OF 157	


MATCH LINE STA 67+50
MATCH LINE STA 72+50
CNP UNDERGROUND ELECTRIC FEEDING INTO THE BUILDING
CONC. PARKING
HEDGE
LANDSCAPING
COMCAST FIBER OPTIC BURIED CABLE
40' WATER LINE EASEMENT
12" WATER
CHAIN LINK FENCE
CONCRETE
15" CPP
18" RCP
18" STM.
2" FM
4" FM
8" FM
24" STM.
36" STM.
48" STM.
72" RCP
10" Bradford Pear 3560
12" Bradford Pear 3563
8" Bradford Pear 3564
12" Bradford Pear 3566
6" Bradford Pear 3568
6" Bradford Pear 3402
6" Bradford Pear 3403
6" Bradford Pear 3404
6" Bradford Pear 3405
6" Bradford Pear 3407
6" Bradford Pear 3408
6" Bradford Pear 3409
6" Bradford Pear 3410
6" Bradford Pear 3411
6" Bradford Pear 3412
6" Bradford Pear 3413
6" Bradford Pear 3414
6" Bradford Pear 3415
6" Bradford Pear 3416
6" Bradford Pear 3417
6" Bradford Pear 3418
6" Bradford Pear 3419
6" Bradford Pear 3420
6" Bradford Pear 3421
6" Bradford Pear 3422
6" Bradford Pear 3423
6" Bradford Pear 3424
6" Bradford Pear 3425
6" Bradford Pear 3426
6" Bradford Pear 3427
6" Bradford Pear 3428
6" Bradford Pear 3429
6" Bradford Pear 3430
6" Bradford Pear 3431
6" Bradford Pear 3432
6" Bradford Pear 3433
6" Bradford Pear 3434
6" Bradford Pear 3435
6" Bradford Pear 3436
6" Bradford Pear 3437
6" Bradford Pear 3438
6" Bradford Pear 3439
6" Bradford Pear 3440
6" Bradford Pear 3441
6" Bradford Pear 3442
6" Bradford Pear 3443
6" Bradford Pear 3444
6" Bradford Pear 3445
6" Bradford Pear 3446
6" Bradford Pear 3447
6" Bradford Pear 3448
6" Bradford Pear 3449
6" Bradford Pear 3450
6" Bradford Pear 3451
6" Bradford Pear 3452
6" Bradford Pear 3453
6" Bradford Pear 3454
6" Bradford Pear 3455
6" Bradford Pear 3456
6" Bradford Pear 3457
6" Bradford Pear 3458
6" Bradford Pear 3459
6" Bradford Pear 3460
6" Bradford Pear 3461
6" Bradford Pear 3462
6" Bradford Pear 3463
6" Bradford Pear 3464
6" Bradford Pear 3465
6" Bradford Pear 3466
6" Bradford Pear 3467
6" Bradford Pear 3468
6" Bradford Pear 3469
6" Bradford Pear 3470
6" Bradford Pear 3471
6" Bradford Pear 3472
6" Bradford Pear 3473
6" Bradford Pear 3474
6" Bradford Pear 3475
6" Bradford Pear 3476
6" Bradford Pear 3477
6" Bradford Pear 3478
6" Bradford Pear 3479
6" Bradford Pear 3480
6" Bradford Pear 3481
6" Bradford Pear 3482
6" Bradford Pear 3483
6" Bradford Pear 3484
6" Bradford Pear 3485
6" Bradford Pear 3486
6" Bradford Pear 3487
6" Bradford Pear 3488
6" Bradford Pear 3489
6" Bradford Pear 3490
6" Bradford Pear 3491
6" Bradford Pear 3492
6" Bradford Pear 3493
6" Bradford Pear 3494
6" Bradford Pear 3495
6" Bradford Pear 3496
6" Bradford Pear 3497
6" Bradford Pear 3498
6" Bradford Pear 3499
6" Bradford Pear 3500
6" Bradford Pear 3501
6" Bradford Pear 3502
6" Bradford Pear 3503
6" Bradford Pear 3504
6" Bradford Pear 3505
6" Bradford Pear 3506
6" Bradford Pear 3507
6" Bradford Pear 3508
6" Bradford Pear 3509
6" Bradford Pear 3510
6" Bradford Pear 3511
6" Bradford Pear 3512
6" Bradford Pear 3513
6" Bradford Pear 3514
6" Bradford Pear 3515
6" Bradford Pear 3516
6" Bradford Pear 3517
6" Bradford Pear 3518
6" Bradford Pear 3519
6" Bradford Pear 3520
6" Bradford Pear 3521
6" Bradford Pear 3522
6" Bradford Pear 3523
6" Bradford Pear 3524
6" Bradford Pear 3525
6" Bradford Pear 3526
6" Bradford Pear 3527
6" Bradford Pear 3528
6" Bradford Pear 3529
6" Bradford Pear 3530
6" Bradford Pear 3531
6" Bradford Pear 3532
6" Bradford Pear 3533
6" Bradford Pear 3534
6" Bradford Pear 3535
6" Bradford Pear 3536
6" Bradford Pear 3537
6" Bradford Pear 3538
6" Bradford Pear 3539
6" Bradford Pear 3540
6" Bradford Pear 3541
6" Bradford Pear 3542
6" Bradford Pear 3543
6" Bradford Pear 3544
6" Bradford Pear 3545
6" Bradford Pear 3546
6" Bradford Pear 3547
6" Bradford Pear 3548
6" Bradford Pear 3549
6" Bradford Pear 3550
6" Bradford Pear 3551
6" Bradford Pear 3552
6" Bradford Pear 3553
6" Bradford Pear 3554
6" Bradford Pear 3555
6" Bradford Pear 3556
6" Bradford Pear 3557
6" Bradford Pear 3558
6" Bradford Pear 3559
6" Bradford Pear 3561
6" Bradford Pear 3562
6" Bradford Pear 3565
6" Bradford Pear 3567
6" Bradford Pear 3569
6" Bradford Pear 3570
6" Bradford Pear 3571
6" Bradford Pear 3572
6" Bradford Pear 3573
6" Bradford Pear 3574
6" Bradford Pear 3575
6" Bradford Pear 3576
6" Bradford Pear 3577
6" Bradford Pear 3578
6" Bradford Pear



NO TREE PROTECTION THIS SHEET

ID#	SIZE	SPECIES	REMARKS
6125	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6126	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6127	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6128	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6130	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6131	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6132	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6133	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6134	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6135	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6137	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6138	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6139	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6142	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6143	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6144	2"	Pine	REMOVE, PROPOSED WATER EASEMENT

6145	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
6146	2"	Pine	REMOVE, PROPOSED WATER EASEMENT
13159	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13164	10"	Bald Cypress	OUTSIDE PROJECT AREA
13165	10"	Bald Cypress	OUTSIDE PROJECT AREA
13237	10"	Bald Cypress	OUTSIDE PROJECT AREA
13238	10"	Bald Cypress	OUTSIDE PROJECT AREA
1326	10	Bald Cypress	OUTSIDE PROJECT AREA
13328	8"	Bald Cypress	OUTSIDE PROJECT AREA
13329	10"	Bald Cypress	OUTSIDE PROJECT AREA
13352	6"	Bald Cypress	OUTSIDE PROJECT AREA
13353	6"	Bald Cypress	OUTSIDE PROJECT AREA
13354	6"	Bald Cypress	OUTSIDE PROJECT AREA
13355	6"	Bald Cypress	OUTSIDE PROJECT AREA
13359	6"	Bald Cypress	OUTSIDE PROJECT AREA
13360	2"	Bald Cypress	OUTSIDE PROJECT AREA
13361	6"	Bald Cypress	OUTSIDE PROJECT AREA

13362	6"	Bald Cypress	OUTSIDE PROJECT AREA
13380	1"	Bald Cypress	OUTSIDE PROJECT AREA
13381	6"	Bald Cypress	OUTSIDE PROJECT AREA
13382	6"	Bald Cypress	OUTSIDE PROJECT AREA
13383	6"	Bald Cypress	OUTSIDE PROJECT AREA
13394	6"	Tree	OUTSIDE PROJECT AREA
13395	6"	Tree	OUTSIDE PROJECT AREA
13396	6"	Tree	OUTSIDE PROJECT AREA
13397	6"	Tree	OUTSIDE PROJECT AREA
13398	6"	Tree	OUTSIDE PROJECT AREA
13399	2"	Tree	OUTSIDE PROJECT AREA

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

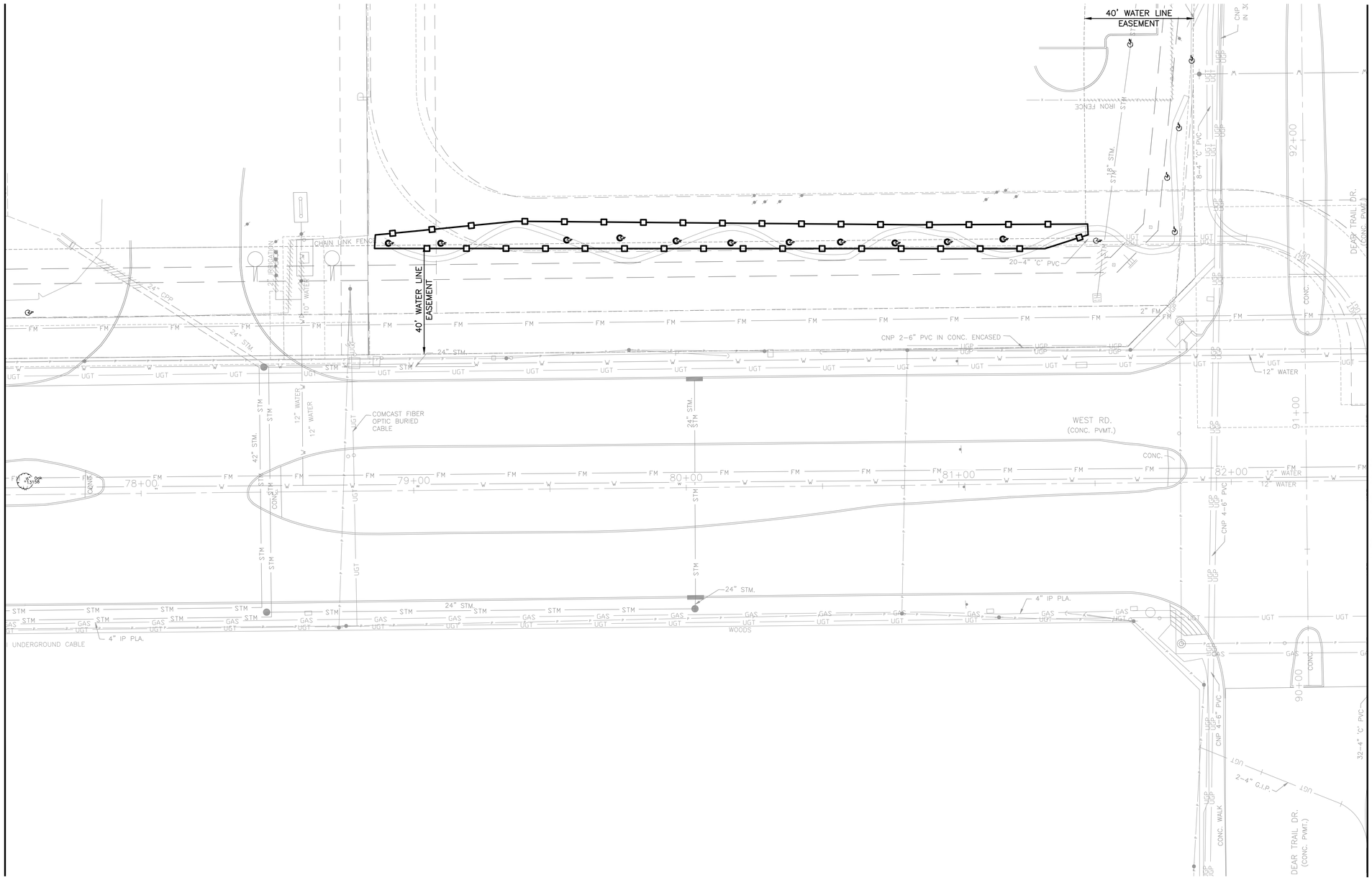
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN STA 72+50 TO STA 77+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 48 OF 157	



ID#	SIZE	SPECIES	REMARKS
2569	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2590	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2591	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2667	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
6124	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13158	6"	Oak	OUTSIDE PROJECT AREA
13662	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13689	2"	Tree	REMOVE, PROPOSED WATER EASEMENT
13698	2"	Oak	PROTECT WITH FENCE

13749	2"	Oak	PROTECT WITH FENCE
13750	2"	Oak	PROTECT WITH FENCE
13757	2"	Oak	PROTECT WITH FENCE
13758	2"	Oak	PROTECT WITH FENCE
13759	2"	Oak	PROTECT WITH FENCE
13760	2"	Oak	PROTECT WITH FENCE
13761	2"	Oak	PROTECT WITH FENCE
13762	2"	Oak	PROTECT WITH FENCE
13763	2"	Oak	PROTECT WITH FENCE
13764	2"	Oak	PROTECT WITH FENCE

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

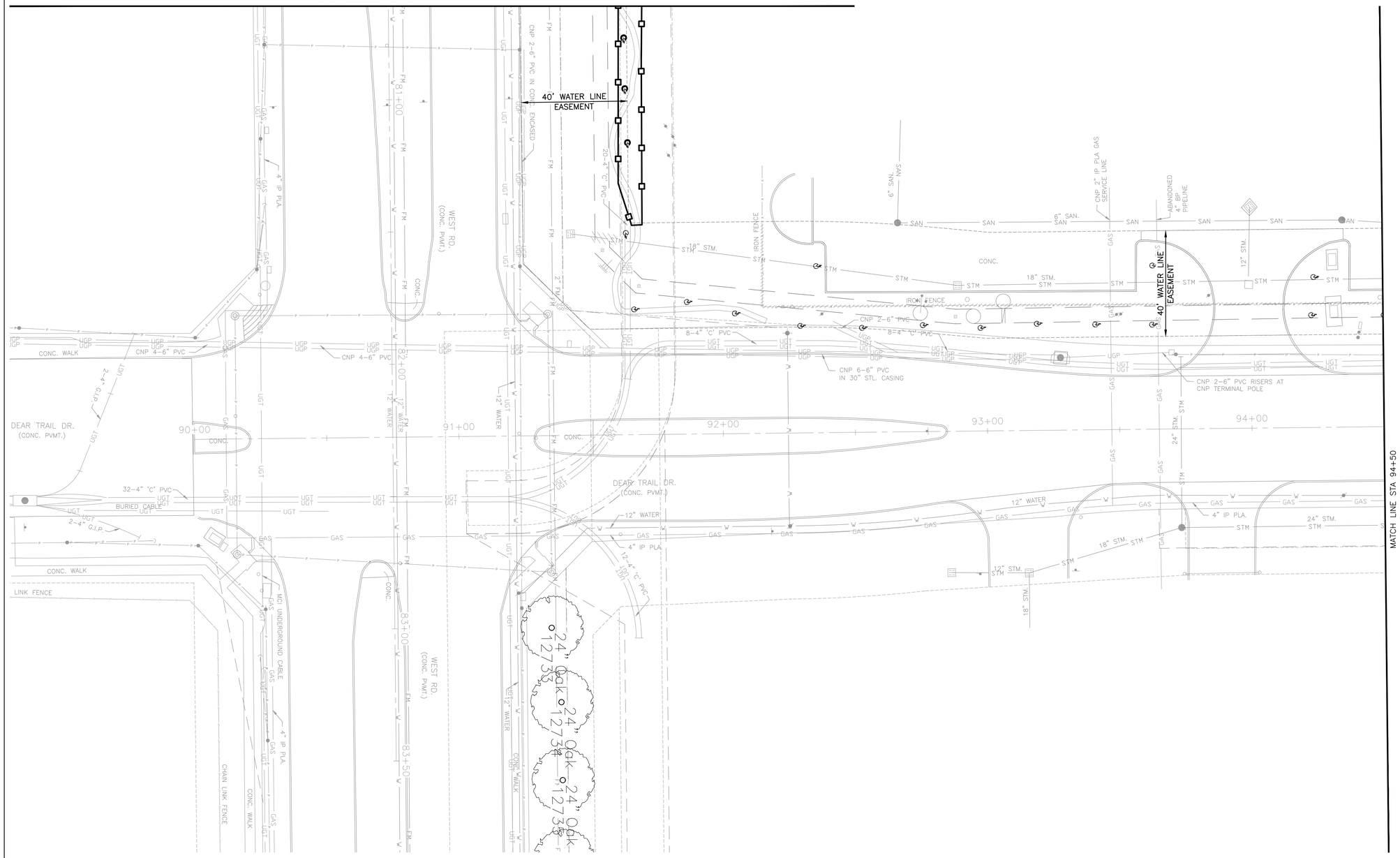
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 77+50 TO STA 82+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 49 OF 157	

MATCH LINE STA 80+50



ID#	SIZE	SPECIES	REMARKS
2445	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2500	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2510	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2516	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2517	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2524	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2562	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
12733	24"	Oak	OUTSIDE PROJECT AREA
12734	24"	Oak	OUTSIDE PROJECT AREA
12735	24"	Oak	OUTSIDE PROJECT AREA
12736	24"	Oak	OUTSIDE PROJECT AREA
13603	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13646	2"	Tree	REMOVE, PROPOSED WATER EASEMENT

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

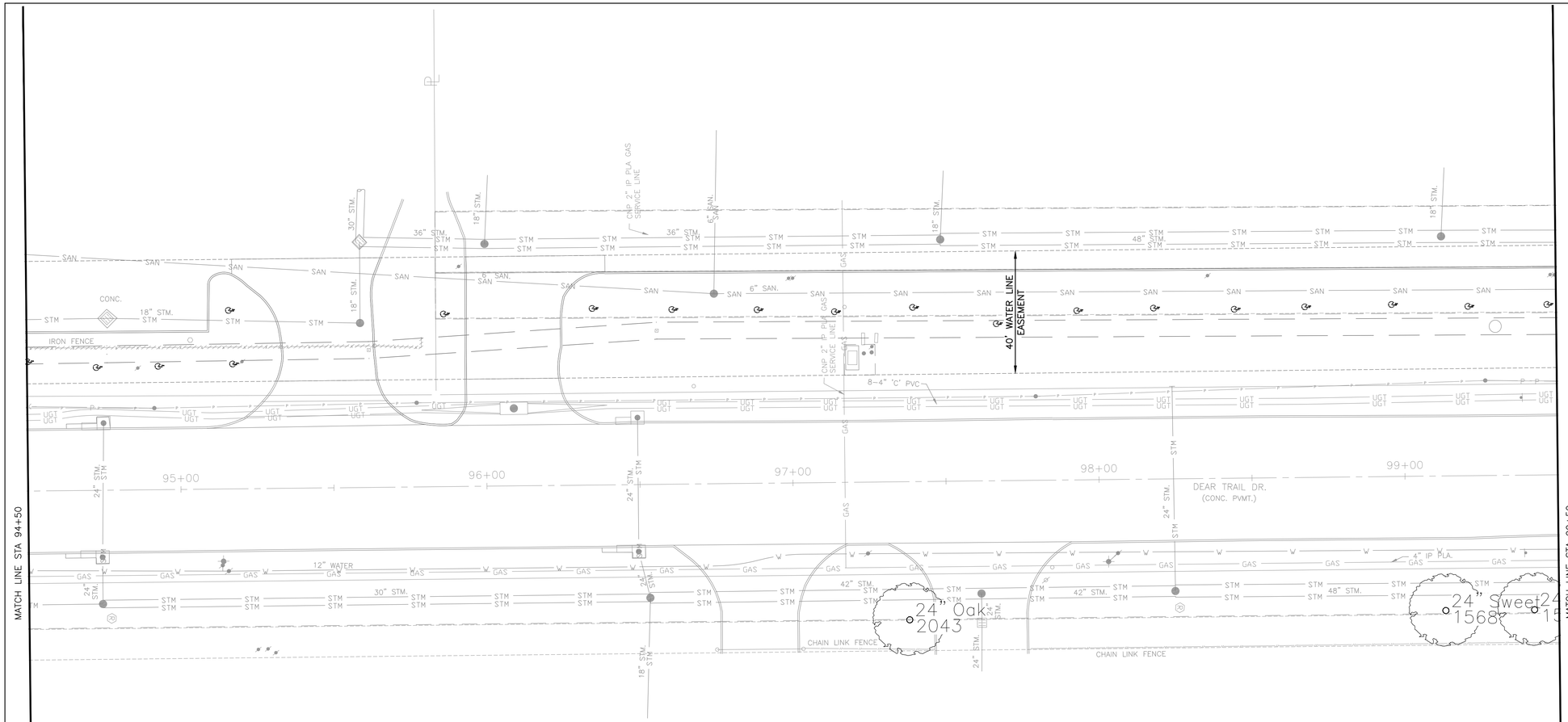
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 90+00 TO STA 94+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 50 OF 157	



NO TREE PROTECTION THIS SHEET

ID#	SIZE	SPECIES	REMARKS
1567	24"	Sweet Gum	OUTSIDE PROJECT AREA
1568	24"	Sweet Gum	OUTSIDE PROJECT AREA
2043	24"	Oak	OUTSIDE PROJECT AREA
2398	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2415	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2434	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2435	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13457	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13460	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13469	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13470	2"	Oak	REMOVE, PROPOSED WATER EASEMENT

13471	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13473	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13474	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13484	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13488	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13489	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13502	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13504	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13505	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13537	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13578	2"	Oak	REMOVE, PROPOSED WATER EASEMENT

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

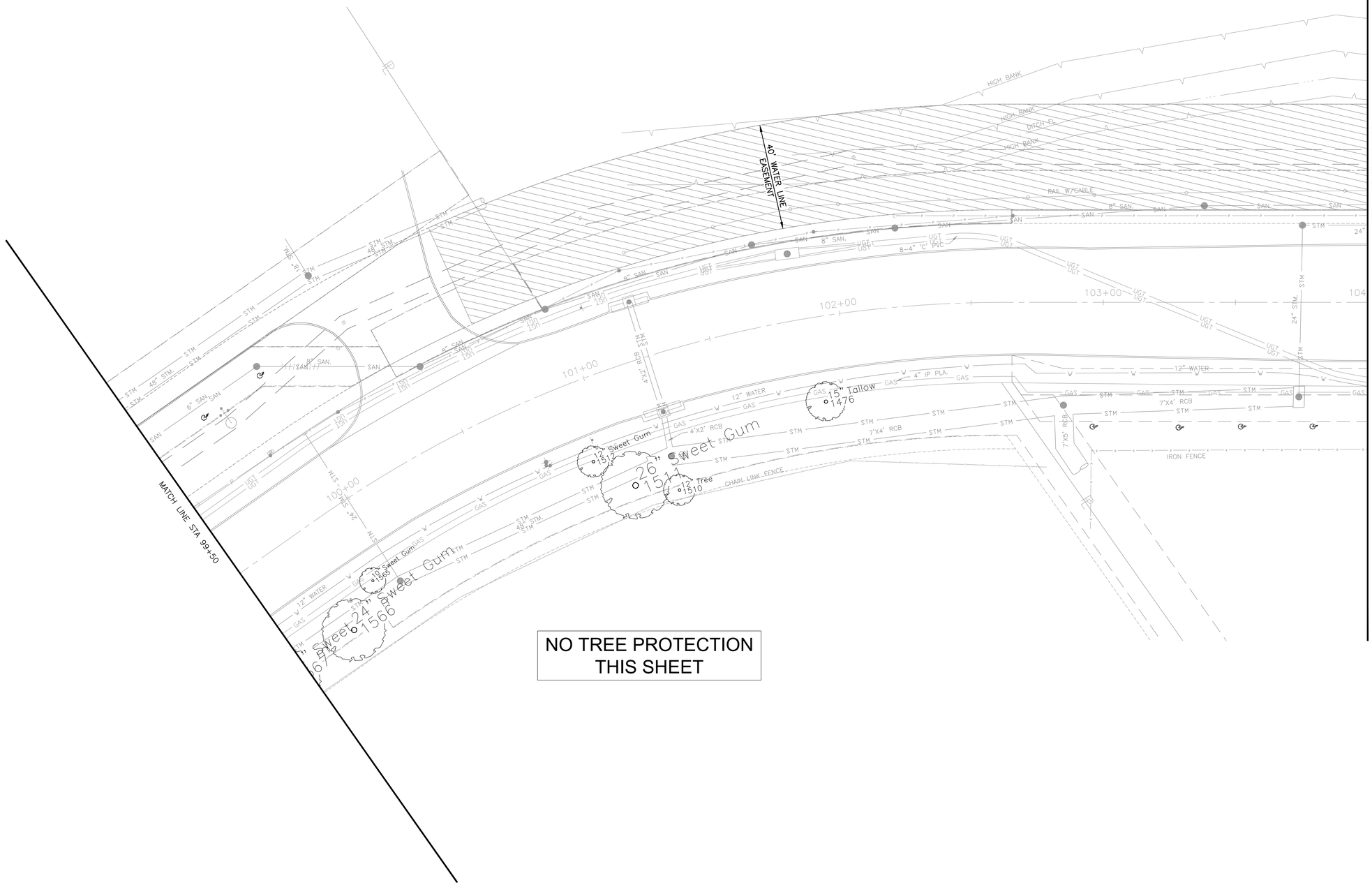
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 94+50 TO STA 99+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 51 OF 157	

ID#	SIZE	SPECIES	REMARKS
1444	2"	Oak	OUTSIDE PROJECT AREA
1471	2"	Oak	OUTSIDE PROJECT AREA
1472	2"	Oak	OUTSIDE PROJECT AREA
1473	2"	Oak	OUTSIDE PROJECT AREA
1476	15"	Tallow	OUTSIDE PROJECT AREA
1510	12"	Tree	OUTSIDE PROJECT AREA
1511	26"	Sweet Gum	OUTSIDE PROJECT AREA
1512	12"	Sweet Gum	OUTSIDE PROJECT AREA
1565	10"	Sweet Gum	OUTSIDE PROJECT AREA
1566	24"	Sweet Gum	OUTSIDE PROJECT AREA
13454	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13456	2"	Oakk	REMOVE, PROPOSED WATER EASEMENT



NO TREE PROTECTION THIS SHEET

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

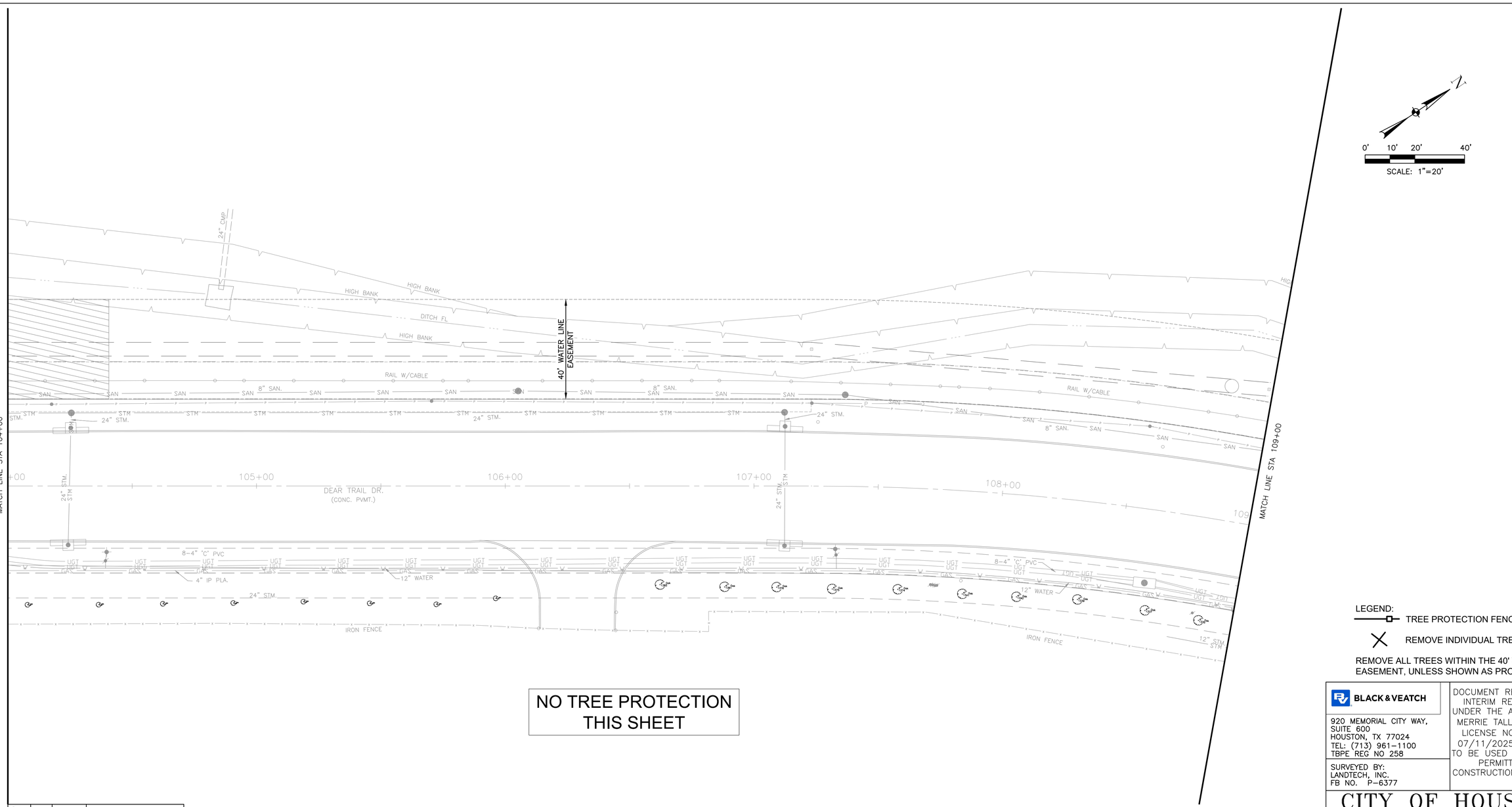
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN

STA 99+50 TO STA 104+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 52 OF 157	



0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

NO TREE PROTECTION THIS SHEET

ID#	SIZE	SPECIES	REMARKS
1335	4"	Oak	OUTSIDE PROJECT AREA
1337	4"	Oak	OUTSIDE PROJECT AREA
1339	4"	Oak	OUTSIDE PROJECT AREA
1340	4"	Oak	OUTSIDE PROJECT AREA
1341	4"	Oak	OUTSIDE PROJECT AREA
1374	4"	Oak	OUTSIDE PROJECT AREA
1375	4"	Oak	OUTSIDE PROJECT AREA
1376	4"	Oak	OUTSIDE PROJECT AREA
1381	4"	Oak	OUTSIDE PROJECT AREA
1382	4"	Oak	OUTSIDE PROJECT AREA
1412	2"	Oak	OUTSIDE PROJECT AREA
1413	2"	Oak	OUTSIDE PROJECT AREA
1434	2"	Oak	OUTSIDE PROJECT AREA
1435	2"	Oak	OUTSIDE PROJECT AREA
1436	2"	Oak	OUTSIDE PROJECT AREA
1437	2"	Oak	OUTSIDE PROJECT AREA
1438	2"	Oak	OUTSIDE PROJECT AREA
1439	2"	Oak	OUTSIDE PROJECT AREA

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

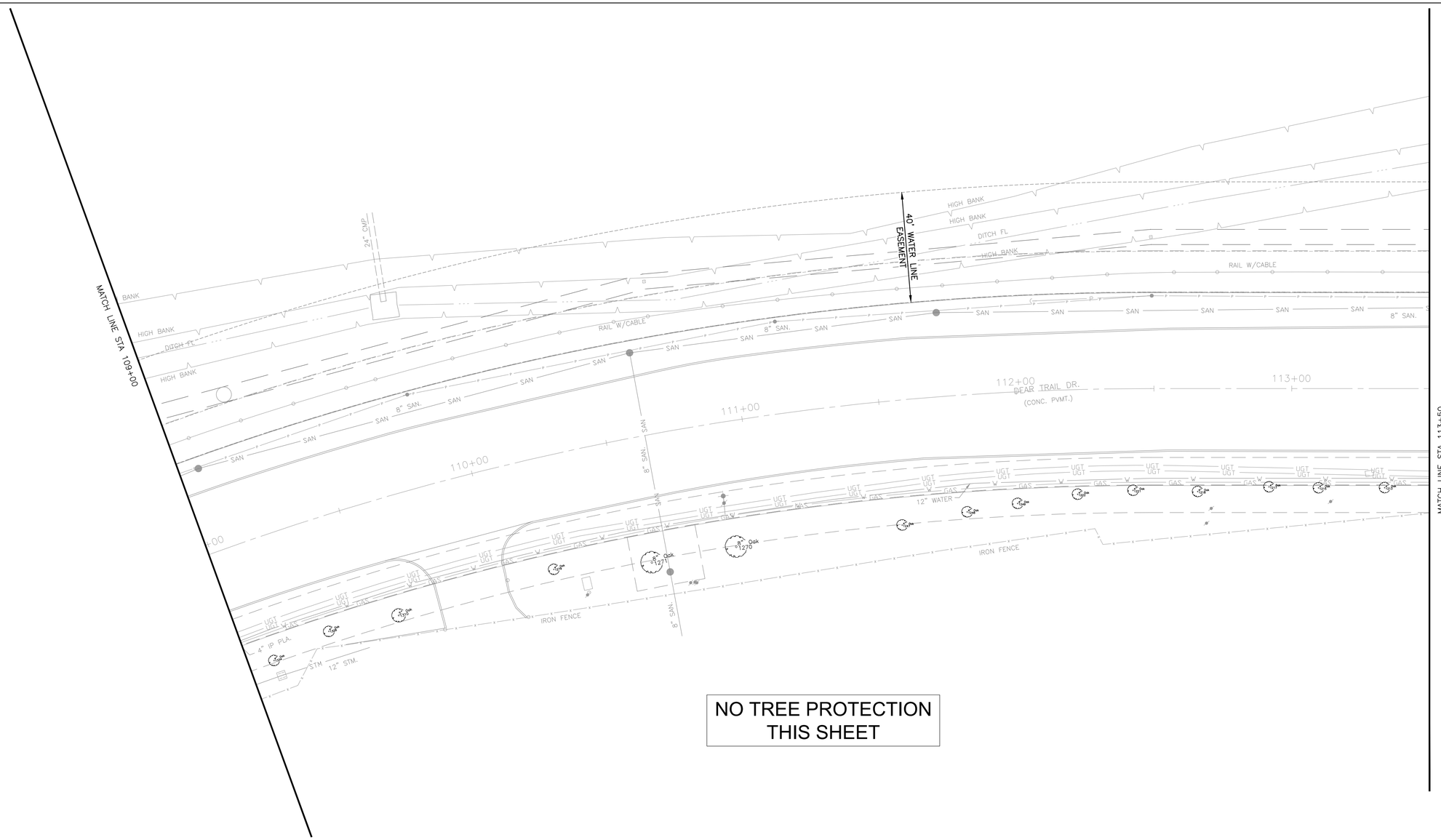
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 104+00 TO STA 109+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 53 OF 157	



NO TREE PROTECTION
THIS SHEET

ID#	SIZE	SPECIES	REMARKS
1213	4"	Oak	OUTSIDE PROJECT AREA
1215	4"	Oak	OUTSIDE PROJECT AREA
1217	4"	Oak	OUTSIDE PROJECT AREA
1218	4"	Oak	OUTSIDE PROJECT AREA
1221	4"	Oak	OUTSIDE PROJECT AREA
1222	4"	Oak	OUTSIDE PROJECT AREA
1247	4"	Oak	OUTSIDE PROJECT AREA
1248	4"	Oak	OUTSIDE PROJECT AREA
1249	4"	Oak	OUTSIDE PROJECT AREA
1270	8"	Oak	OUTSIDE PROJECT AREA
1271	8"	Oak	OUTSIDE PROJECT AREA
1279	4"	Oak	OUTSIDE PROJECT AREA
1310	5"	Oak	OUTSIDE PROJECT AREA
1328	4"	Oak	OUTSIDE PROJECT AREA
1334	4"	Oak	OUTSIDE PROJECT AREA

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

LEGEND:

TREE PROTECTION FENCE

REMOVE INDIVIDUAL TREE

REMOVE ALL TREES WITHIN THE 40' WATER LINE EASEMENT, UNLESS SHOWN AS PROTECTED.

BLACK & VEATCH

920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

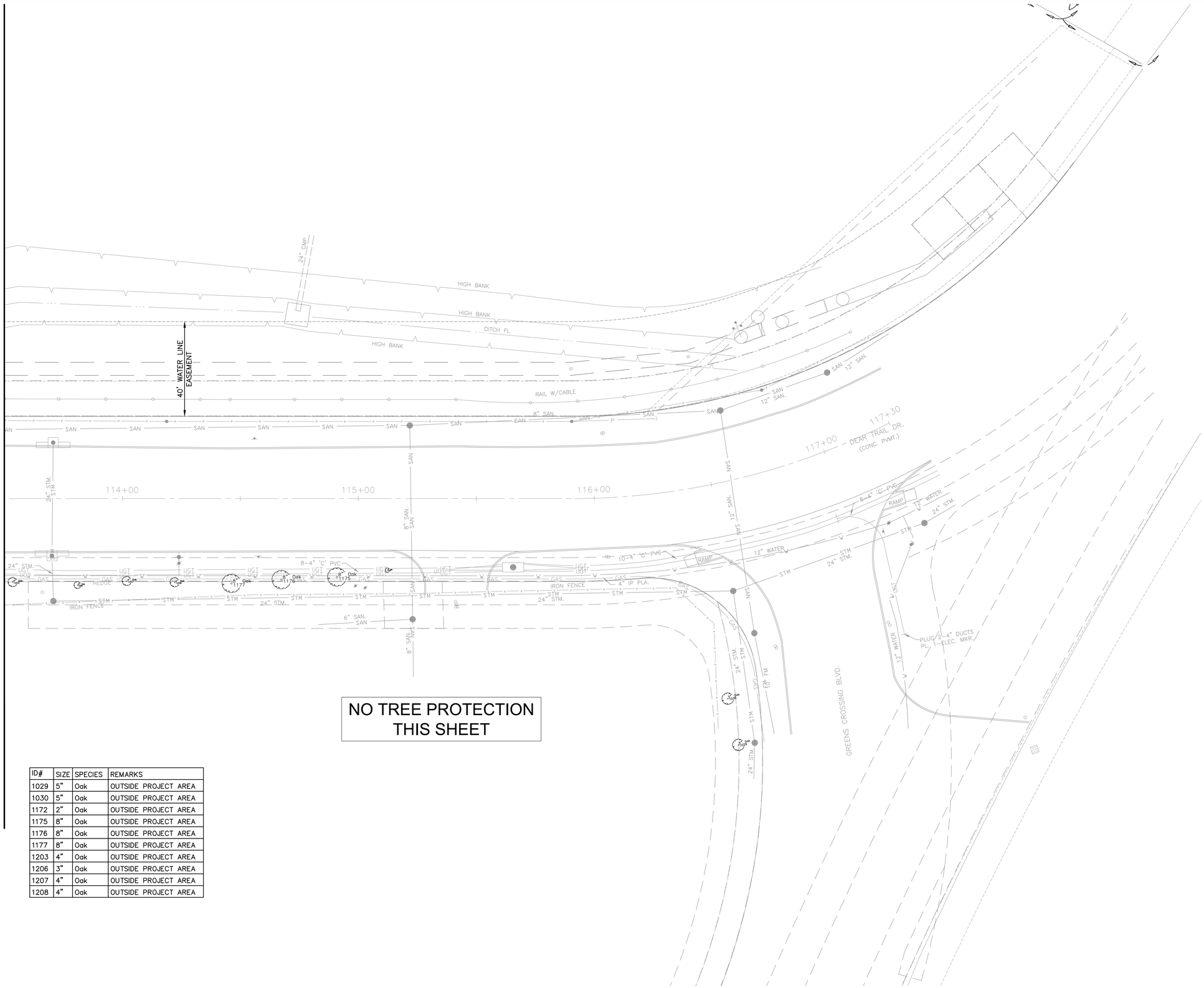
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION PLAN
STA 109+00 TO STA 113+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 54 OF 157	


MATCH LINE STA 113+50
24" CMP
HIGH BANK
HIGH BANK
DITCH FL
HIGH BANK
40' WATER LINE EASEMENT
RAIL W/CABLE
8" SAN.
12" SAN.
12" SAN.
SAN 12" SAN.
SAN
SAN
SAN

ID#	SIZE	SPECIES	REMARKS
5039	36"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
10022	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10023	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10024	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10025	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10026	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10027	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10028	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10029	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10030	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10031	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10032	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10034	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10035	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10036	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10037	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10038	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10039	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10040	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10041	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10042	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10048	8"	Willow	REMOVE, PROPOSED WATER EASEMENT
10049	10"	Willow	REMOVE, PROPOSED WATER EASEMENT
10050	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10051	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10052	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10053	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10054	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10055	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10056	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10057	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10058	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10059	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10060	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10061	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10062	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10063	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10070	6"	Pine	REMOVE, PROPOSED WATER EASEMENT
10076	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10077	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10078	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10091	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10092	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10093	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10094	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10095	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10096	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10097	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10098	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10099	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13780	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13781	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13782	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13783	6"	Pine	REMOVE, PROPOSED WATER EASEMENT
13784	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13785	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13786	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13787	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13788	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
13789	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13790	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13791	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
13792	4"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
13793	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13794	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13795	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13796	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13799	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13800	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13801	10"	Pine	REMOVE, PROPOSED WATER EASEMENT
13817	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13818	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13819	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13821	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13822	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13823	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13824	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13825	4"	Dead Tree	DEAD, REMOVE
13826	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
13848	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
13849	15"	Willow	REMOVE, PROPOSED WATER EASEMENT
13850	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13851	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
13852	4"	Dead Tree	DEAD, REMOVE
13871	12"	Pine	REMOVE, PROPOSED WATER EASEMENT
13872	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13873	12"	Pine	REMOVE, PROPOSED WATER EASEMENT
13885	4"	Persimmon	REMOVE, PROPOSED WATER EASEMENT
13886	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
13887	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13888	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13889	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13890	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
13891	20"	Oak	REMOVE, PROPOSED WATER EASEMENT
13892	4"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
13893	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13894	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13895	24"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13917	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13918	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13919	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13920	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13921	24"	Oak	REMOVE, PROPOSED WATER EASEMENT
13922	24"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13923	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13924	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13925	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
13926	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13930	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
13931	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13932	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
13933	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13935	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13936	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13937	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
13938	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
13939	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13940	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
13941	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13942	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13944	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
13945	6"	Pin Oak	REMOVE, PROPOSED WATER EASEMENT
13946	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13947	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13959	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13960	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13961	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13962	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13963	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13964	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13965	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13966	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
13967	6"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
13968	6"	Dead Tree	DEAD, REMOVE
13969	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13970	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
13988	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13989	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13990	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13991	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13992	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13993	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13994	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13995	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13996	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13997	6"	Cedar	REMOVE, PROPOSED WATER EASEMENT
13998	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
13999	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14000	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14001	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
14017	15"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14018	4"	American Elm	REMOVE, PROPOSED WATER EASEMENT
14019	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14020	12"	Oak	REMOVE, PROPOSED WATER EASEMENT
14021	6"	Tree Trunk	REMOVE, PROPOSED WATER EASEMENT
14025	6"	Dead Tree	DEAD, REMOVE
14026	4"	Dead Tree	DEAD, REMOVE
14027	4"	Dead Tree	DEAD, REMOVE
14029	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14030	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14031	6"	Dead Tree	DEAD, REMOVE
14032	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
14033	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14034	10"	Dead Tree	DEAD, REMOVE
14035	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14036	10"	Elm	REMOVE, PROPOSED WATER EASEMENT
14037	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14038	8"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14047	42"	Pecan	REMOVE, PROPOSED WATER EASEMENT
14048	8"	Dead Tree	DEAD, REMOVE
14050	4"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14053	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14054	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14055	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14056	4"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14057	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14058	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14059	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14059	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
14060	4"	Yaupon Holly	REMOVE, PROPOSED WATER EASEMENT
14061	8"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14062	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14063	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14064	6"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
14065	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
14066	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14067	6"	Dead Tree	DEAD, REMOVE
14068	6"	Dead Tree	DEAD, REMOVE
14069	8"	Dead Tree	DEAD, REMOVE
14070	4"	Dead Tree	DEAD, REMOVE
14071	8"	Dead Tree	DEAD, REMOVE
14074	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
14075	10"	Oak	REMOVE, PROPOSED WATER EASEMENT
14076	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14077	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14078	6"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
14079	4"	American Elm	REMOVE, PROPOSED WATER EASEMENT
14080	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
14081	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
14082	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
14083	24"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
14084	10"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
14085	6"	Pignut Hickory	REMOVE, PROPOSED WATER EASEMENT
14086	8"	Oak	REMOVE, PROPOSED WATER EASEMENT
14089	4"	Dead Tree	DEAD, REMOVE
14091	36"	Pecan	REMOVE, PROPOSED WATER EASEMENT
15739	10"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15740	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
15741	5"	Pecan	REMOVE, PROPOSED WATER EASEMENT
15742	5"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15747	6"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15748	6"	Dead Tree	DEAD, REMOVE
15749	6"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15750	12"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15751	28"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15752	18"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15753	18"	Water Oak	REMOVE, PROPOSED WATER EASEMENT
15758	4"	Dead Tree	DEAD, REMOVE
15776	15"	Dead Tree	DEAD, REMOVE
15778	15"	Dead Tree	DEAD, REMOVE
15789	4"	Dead Tree	DEAD, REMOVE
15790	4"	Japanese Wax-Leaf Privet	REMOVE, PROPOSED WATER EASEMENT
15791	6"	Dead Tree	DEAD, REMOVE
15792	5"	Dead Tree	DEAD, REMOVE
15806	6"	Dead Tree	DEAD, REMOVE
15813	4"	Dead Tree	DEAD, REMOVE
15821	10"	Dead Tree	DEAD, REMOVE
15838	4"	Musk Seed	REMOVE, PROPOSED WATER EASEMENT
15840	5"	Musk Seed	REMOVE, PROPOSED WATER EASEMENT
15841	5"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15842	6"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
15843	6"	Dead Tree	DEAD, REMOVE
15844	8"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15845	8"	Dead Tree	DEAD, REMOVE
15846	8"	Red Mulberry	REMOVE, PROPOSED WATER EASEMENT
15847	6"	Red Mulberry	REMOVE, PROPOSED WATER EASEMENT
15848	15"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15849	15"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15850	10"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
15851	10"	Chinese Privet	REMOVE, PROPOSED WATER EASEMENT
15852	10"	Southern Hackberry	REMOVE, PROPOSED WATER EASEMENT
15856	12"	Dead Tree	DEAD, REMOVE
15860	15"	Dead Tree	DEAD, REMOVE
15863	15"	Dead Tree	DEAD, REMOVE
24114	15"	Dead Tree	DEAD, REMOVE

NO.	DATE	REVISION	APP.

TREE PROTECTION NOTES:

1. All trees to be protected unless specifically tagged for removal by Landscape Architect and/or Owner's Representative.
2. Contractor shall identify any existing tree lacking protective fencing and request specific instructions regarding additional protection or removal.
3. Contractor shall maintain fencing during construction, repairing or replacing as needed.
4. All trees may not be shown. Contractor to identify all trees on site larger than 4" within 10' of project Limits of Work.
5. Contractor to notify Owner's Representative and/or Landscape Architect of any inconsistent topography not clearly defined on plan during layout inspection.
6. All clearing inside the drip line of canopy trees shall be completed by hand.
7. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   7.1. coverage materials (hydromulch or sod) based on season
   7.2. area of coverage to be measured.
   7.3. items to be measured and paid per bid form unit pricing.
8. Contractor responsible for watering all sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
9. Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
10. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
11. The General Contractor is responsible for all materials, construction methods and craftsmanship.
12. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
13. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
14. Do not scale drawings.
15. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
16. All utilities are to remain undisturbed unless otherwise noted. The Contractor Contractor will maintain clearly marked utility locate flagging throughout construction activities.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 56 OF 157	

ID#	SIZE	SPECIES	REMARKS
2398	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2415	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2434	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2435	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2445	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2500	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2510	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2516	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2517	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2524	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2562	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2569	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2590	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2591	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
2667	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
3703	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
3705	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
3712	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
3772	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
3775	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
3779	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5301	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5302	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5303	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5304	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5305	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5306	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5307	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5308	10"	Maple	REMOVE, PROPOSED WATER EASEMENT
5309	6"	Maple	REMOVE, PROPOSED WATER EASEMENT
5310	6"	Maple	REMOVE, PROPOSED WATER EASEMENT
5311	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5312	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5313	5"	Maple	REMOVE, PROPOSED WATER EASEMENT
5314	30"	Oak	REMOVE, PROPOSED WATER EASEMENT
5315	5"	Oak	REMOVE, PROPOSED WATER EASEMENT
5317	5"	Oak	REMOVE, PROPOSED WATER EASEMENT
5318	5"	Oak	REMOVE, PROPOSED WATER EASEMENT
5321	32"	Maple	REMOVE, PROPOSED WATER EASEMENT
5322	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
5323	4"	Maple	REMOVE, PROPOSED WATER EASEMENT
5324	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
5329	18"	Maple	REMOVE, PROPOSED WATER EASEMENT
5330	10"	Elm	REMOVE, PROPOSED WATER EASEMENT
5331	20"	Maple	REMOVE, PROPOSED WATER EASEMENT
5332	20"	Maple	REMOVE, PROPOSED WATER EASEMENT
5334	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
5349	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5354	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5362	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5370	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5376	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5386	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5422	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5432	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5437	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
5441	4"	Oak	REMOVE, PROPOSED WATER EASEMENT
10046	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10047	15"	Oak	REMOVE, PROPOSED WATER EASEMENT
10090	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10100	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10101	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10102	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10103	12"	Cottonwod	REMOVE, PROPOSED WATER EASEMENT
10104	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10105	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10106	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10107	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10109	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10118	6"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10119	6"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10120	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10124	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10125	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10126	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10127	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10128	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10129	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10130	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10131	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10132	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10133	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10134	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10135	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10136	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10137	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10138	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10142	15"	Pine	REMOVE, PROPOSED WATER EASEMENT
10143	4"	Pine	REMOVE, PROPOSED WATER EASEMENT
10150	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10151	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10152	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10153	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10154	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10164	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10165	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10169	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
1017	8"	Pine	REMOVE, PROPOSED WATER EASEMENT
10172	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10173	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10174	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10175	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10176	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10196	24"	Pine	REMOVE, PROPOSED WATER EASEMENT
10197	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10198	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10199	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10200	18"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10201	6"	Oak	REMOVE, PROPOSED WATER EASEMENT
10202	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10203	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10204	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10210	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10214	15"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10225	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10239	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10257	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10258	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10259	36"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10260	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10261	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10262	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10263	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10273	15"	Elm	REMOVE, PROPOSED WATER EASEMENT
10274	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10275	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10276	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10277	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10278	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10279	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10282	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10283	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10284	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10285	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10296	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10297	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10298	18"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10299	24"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10300	4"	Dead Tree	DEAD, REMOVE
10301	18"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10302	18"	Elm	REMOVE, PROPOSED WATER EASEMENT
10303	36"	Willow	REMOVE, PROPOSED WATER EASEMENT
10304	12"	Willow	REMOVE, PROPOSED WATER EASEMENT
10305	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10306	15"	Willow	REMOVE, PROPOSED WATER EASEMENT
10307	12"	Willow	REMOVE, PROPOSED WATER EASEMENT
10308	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10309	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10310	10"	Willow	REMOVE, PROPOSED WATER EASEMENT
10311	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10312	12"	Willow	REMOVE, PROPOSED WATER EASEMENT
10313	4"	Dead Tree	DEAD, REMOVE
10314	4"	Dead Tree	DEAD, REMOVE
10315	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10316	15"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10317	18"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10318	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10319	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10320	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10321	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10322	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10324	18"	Willow	REMOVE, PROPOSED WATER EASEMENT
10325	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10326	18"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10327	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10328	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10329	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10330	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10331	15"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10332	6"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10333	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10334	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10335	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10336	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10350	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10351	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10352	4"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10353	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10354	4"	Willow	REMOVE, PROPOSED WATER EASEMENT
10355	12"	Elm	REMOVE, PROPOSED WATER EASEMENT
10356	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10357	10"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10358	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10359	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10360	8"	Dead Tree	DEAD, REMOVE
10361	15"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10362	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10363	6"	Willow	REMOVE, PROPOSED WATER EASEMENT
10364	10"	Dead Tree	DEAD, REMOVE
10365	12"	Elm	REMOVE, PROPOSED WATER EASEMENT
10368	6"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10369	24"	Cottonwood	REMOVE, PROPOSED WATER EASEMENT
10370	6"	Elm	REMOVE, PROPOSED WATER EASEMENT
10371	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10372	6"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10373	8"	Elm	REMOVE, PROPOSED WATER EASEMENT
10374	4"	Sweet Gum	REMOVE, PROPOSED WATER EASEMENT
10375	36"	Willow	REMOVE, PROPOSED WATER EASEMENT
10376	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10377	15"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10378	12"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10379	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10380	4"	Dead Tree	DEAD, REMOVE
10382	8"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10383	10"	Dead Tree	DEAD, REMOVE
10384	12"	Dead Tree	DEAD, REMOVE
10385	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10386	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10387	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10388	24"	Tallow	REMOVE, PROPOSED WATER EASEMENT
10392	4"	Elm	REMOVE, PROPOSED WATER EASEMENT
10409	4"	Hackberry	REMOVE, PROPOSED WATER EASEMENT
10410	4"	Tallow	REMOVE, PROPOSED WATER EASEMENT
13454	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13456	2"	Oakk	REMOVE, PROPOSED WATER EASEMENT
13457	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13460	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13469	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13470	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13471	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13473	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13474	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13484	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13488	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13489	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13502	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13504	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13505	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13537	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13578	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13603	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13646	2"	Tree	REMOVE, PROPOSED WATER EASEMENT
13662	2"	Oak	REMOVE, PROPOSED WATER EASEMENT
13689	2"	Tree	REMOVE, PROPOSED WATER EASEMENT

TOTAL INCHES REMOVED: 3819
REPLACEMENT INCHES REQUIRED: 78

NO.	DATE	REVISION	APP.

TREE PROTECTION NOTES:

1. All trees to be protected unless specifically tagged for removal by Landscape Architect and/or Owner's Representative.
2. Contractor shall identify any existing tree lacking protective fencing and request specific instructions regarding additional protection or removal.
3. Contractor shall maintain fencing during construction, repairing or replacing as needed.
4. All trees may not be shown. Contractor to identify all trees on site larger than 4" within 10' of project Limits of Work.
5. Contractor to notify Owner's Representative and/or Landscape Architect of any inconsistent topography not clearly defined on plan during layout inspection.
6. All clearing inside the drip line of canopy trees shall be completed by hand.
7. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   7.1. coverage materials (hydromulch or sod) based on season
   7.2. area of coverage to be measured.
   7.3. items to be measured and paid per bid form unit pricing.
8. Contractor responsible for watering all sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
9. Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
10. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
11. The General Contractor is responsible for all materials, construction methods and craftsmanship.
12. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
13. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
14. Do not scale drawings.
15. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
16. All utilities are to remain undisturbed unless otherwise noted. The Contractor Contractor will maintain clearly marked utility locate flagging throughout construction activities.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

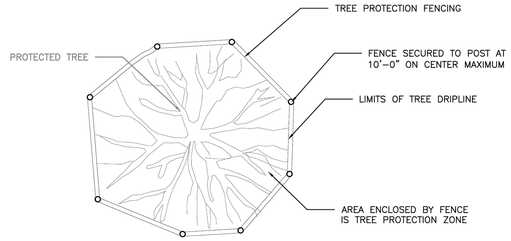
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

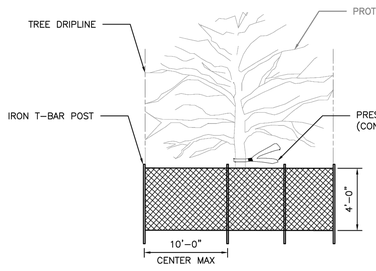
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION SCHEDULE

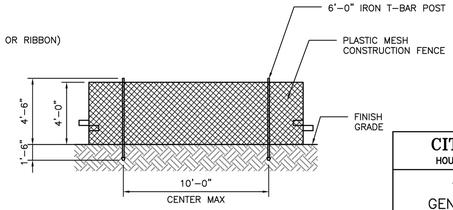
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 57 OF 157	



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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
GENERAL REQUIREMENTS

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | DWG NO: 01562-01

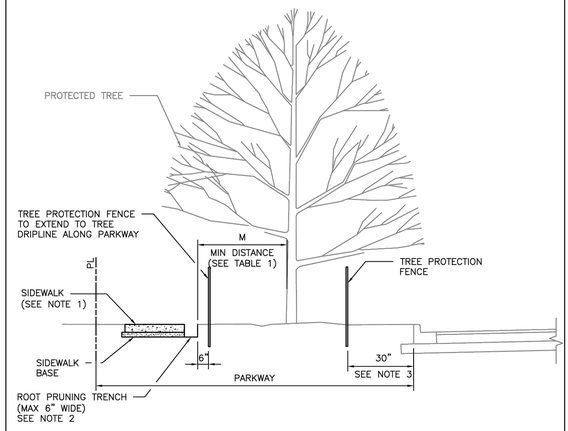


TABLE 1 "M" DISTANCE TABLE	
TREE TRUNK DIA. (IN)	*MINIMUM DISTANCE 'M'
< 6"	3 FEET
6" ≤ DIA. ≤ 20"	0.75 FEET PER DIA.-INCH
> 20"	CONSULT CITY ARBORIST

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

NOTES:

1. SIDEWALK SHALL BE CONSTRUCTED OF EITHER CEMENT, CONCRETE, ASPHALT OR OTHER DURABLE MATERIAL AS THE COUNCIL MAY DESIGNATE (CHAPTER 40-91, CODE OF ORDINANCES).
2. TRENCHING DEPTH SHALL BE TO THE ANTICIPATED BOTTOM OF SIDEWALK AND BASE MATERIAL FOR SIDEWALK ROOT PRUNING, ROOTS LOWER THAN SIDEWALK SHALL NOT BE PRUNED.
3. FENCES SHALL BE PLACED 30" BACK OF EXISTING CURB OR EDGE OF PAVEMENT WHERE ROOT PRUNING OR ZERO CURB CUT BACK IS NOT SPECIFIED.

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.

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

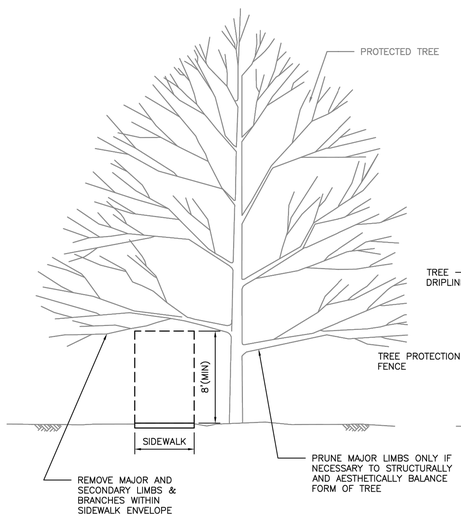
TREE PROTECTION/
IN SIDEWALK REPAIRS
IN PARKWAY AREAS

(SCALE: NOT TO SCALE)

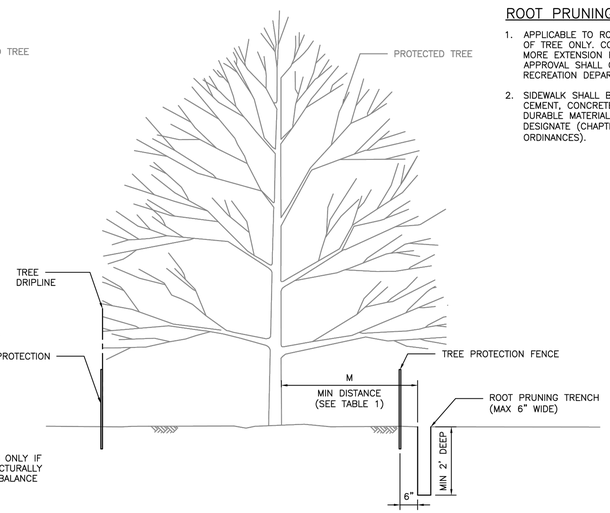
EFF DATE: NOV-27-2023 | DWG NO: 01562-03

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).



TREE PRUNING



ROOT PRUNING DETAIL

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

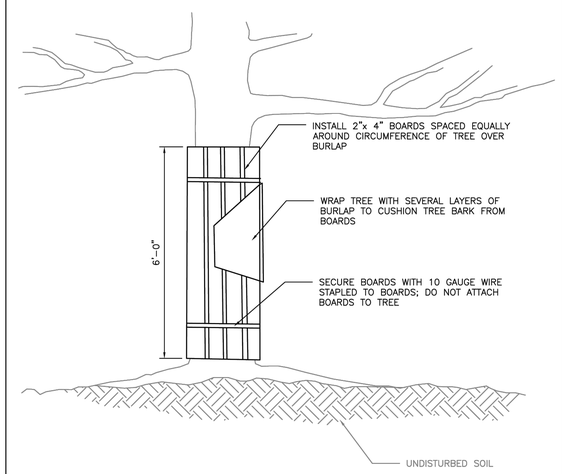
TREE PROTECTION
TREE AND ROOT PRUNING

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | DWG NO: 01562-02



ELEVATION

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.

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE BOARDING

(SCALE: NOT TO SCALE)

EFF DATE: NOV-27-2023 | DWG NO: 01562-07

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

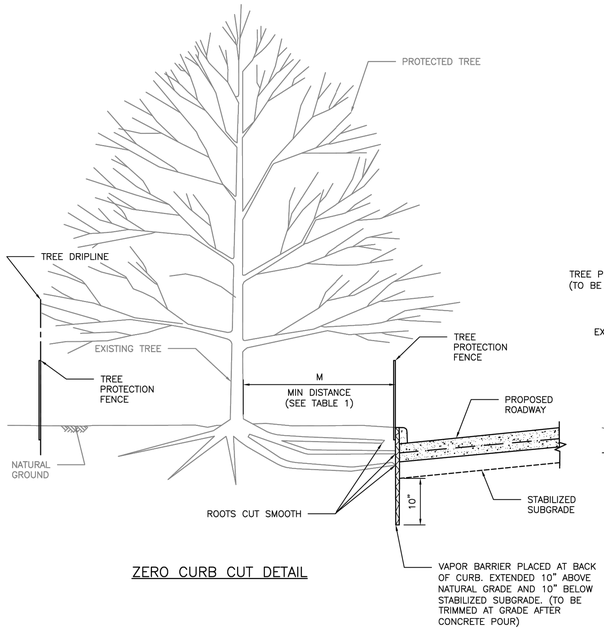
SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

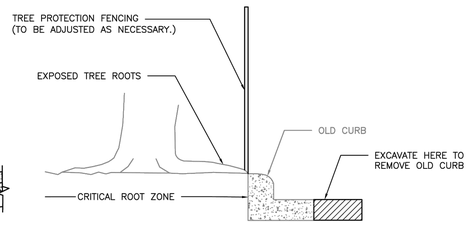
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
TREE PROTECTION DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 58 OF 157	



ZERO CURB CUT DETAIL



OLD CURB REMOVAL

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

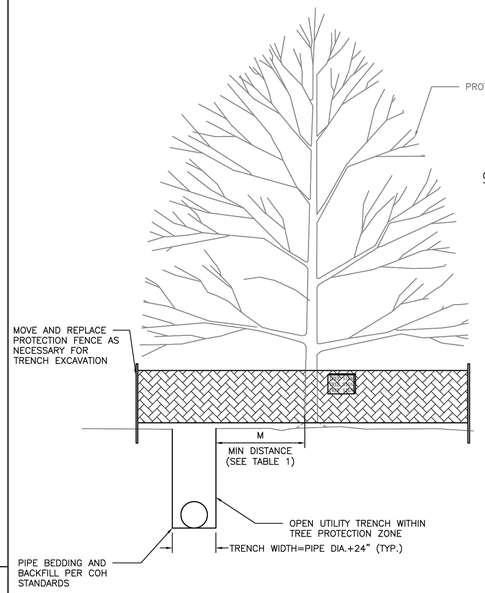
CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
ZERO CURB CUT

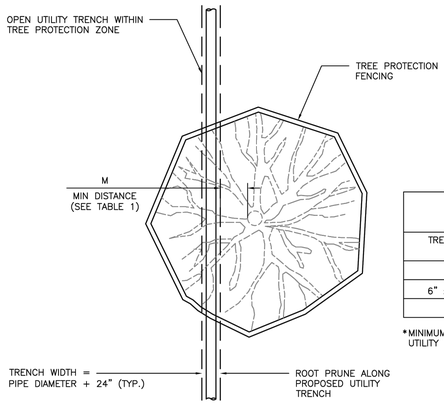
(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–04



ELEVATION
TRENCH EXCAVATION



PLAN
TRENCH EXCAVATION

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 UTILITY TRENCH

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

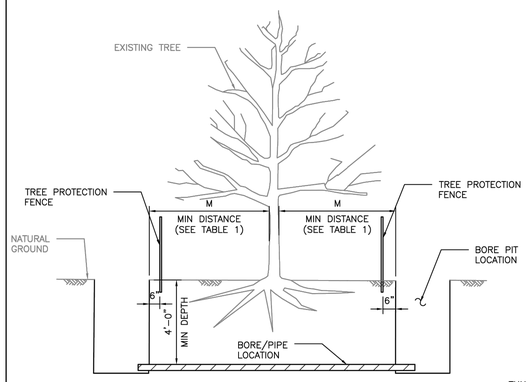
TREE PROTECTION
TRENCH REQUIREMENTS

(SCALE: NOT TO SCALE)

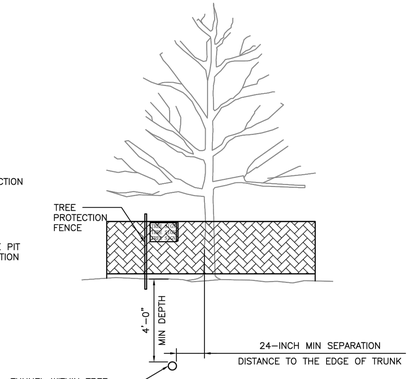
APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–06

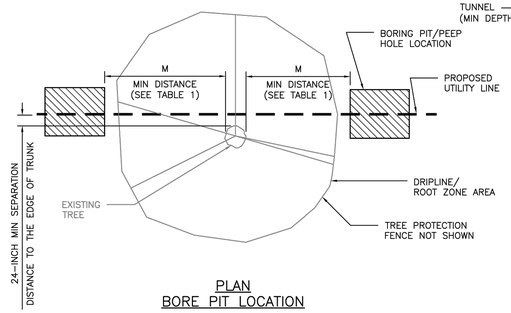
NO.	DATE	REVISION	APP.



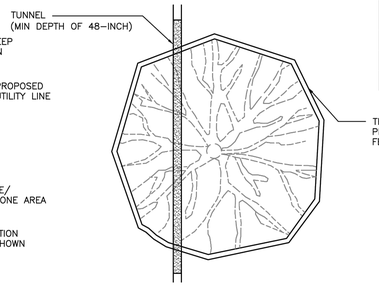
ELEVATION
BORE PIT LOCATION



ELEVATION
TUNNEL LOCATION



PLAN
BORE PIT LOCATION



PLAN
TUNNEL LOCATION

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 BORE PIT.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
TUNNELING REQUIREMENTS

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–05

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

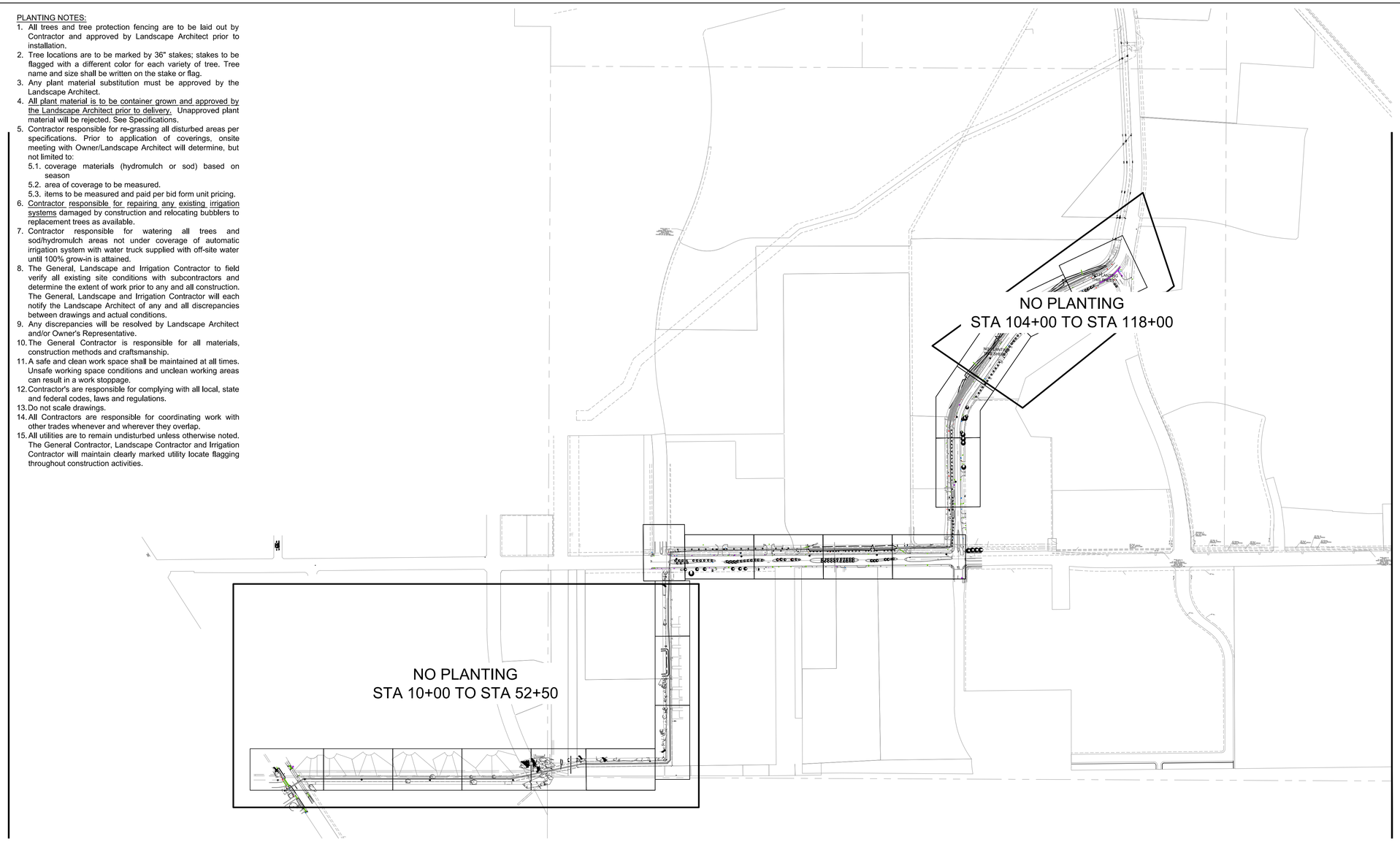
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TREE PROTECTION DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 59 OF 157	

PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.



N

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

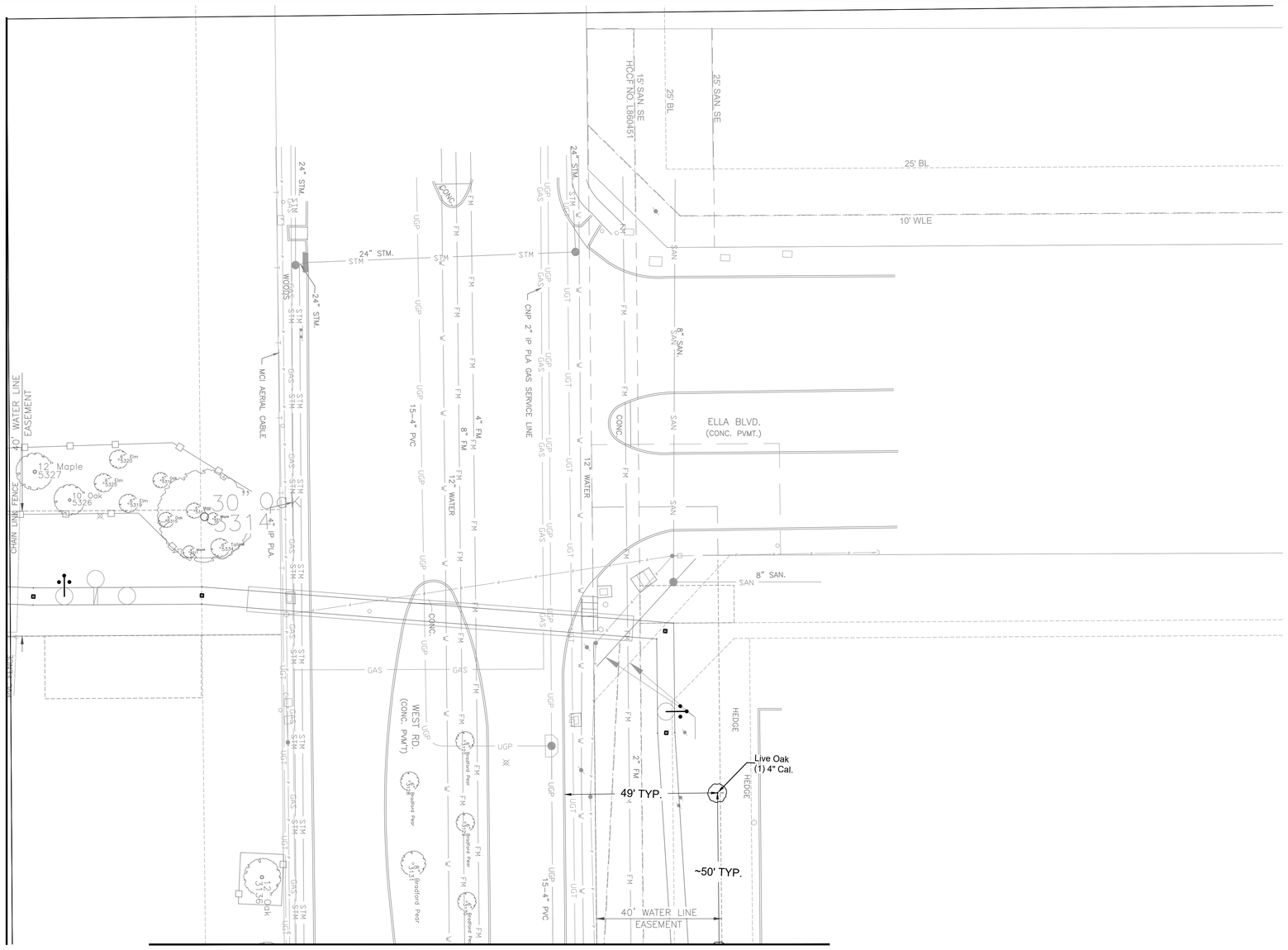
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
OVERALL PLANTING PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
1"=400'–0"	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 60 OF 157	



PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

NO.	DATE	REVISION	APP.

N

0' 10' 20' 40'

SCALE: 1"=20'

PLANT SCHEDULE L-10

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Live Oak / Quercus virginiana	4" Cal.	1

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

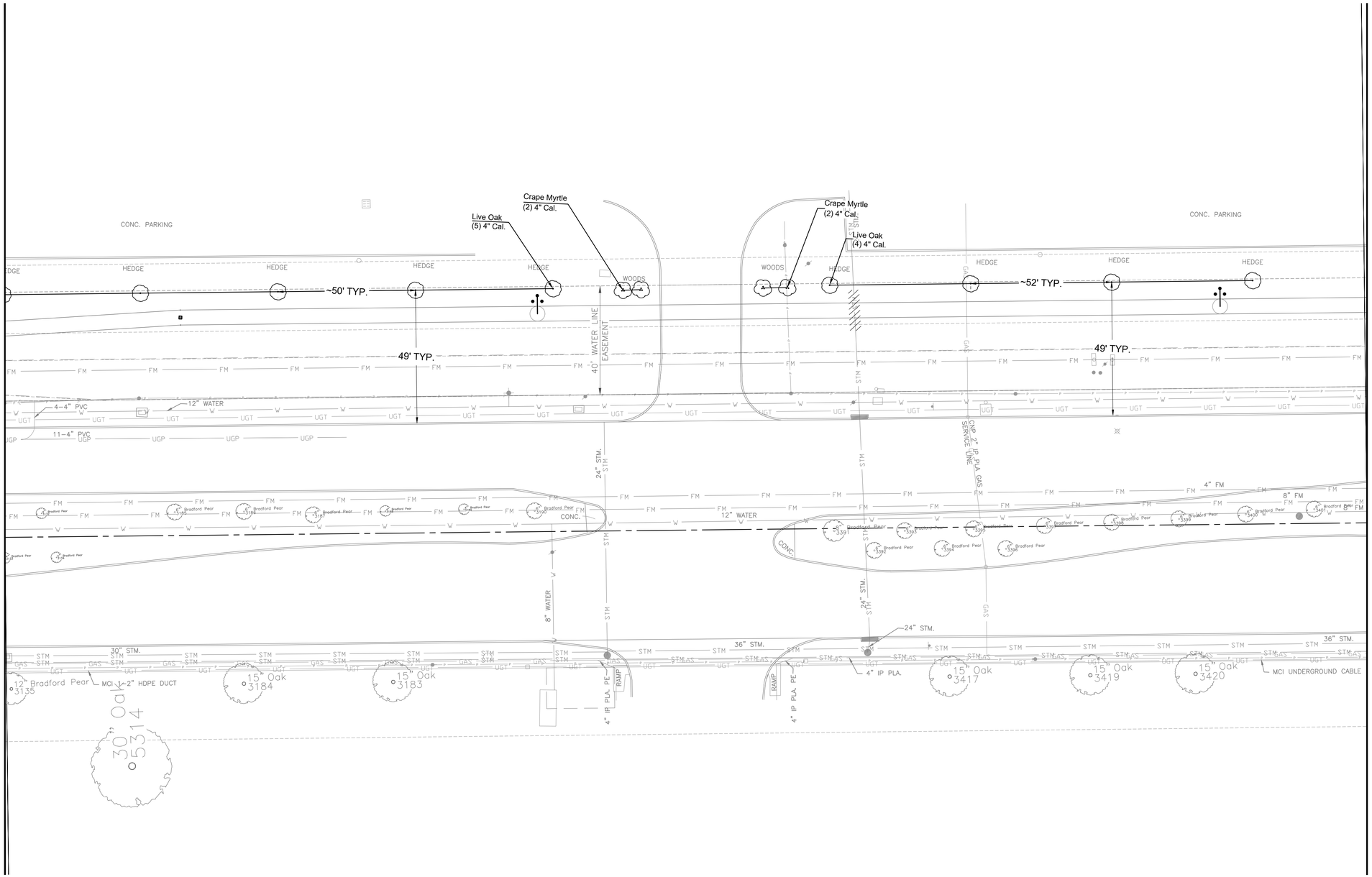
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 52+50 TO STA 62+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 61 OF 157	



PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-11

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Crape Myrtle / Lagerstroemia indica	4" Cal.	4
	Live Oak / Quercus virginiana	4" Cal.	9

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

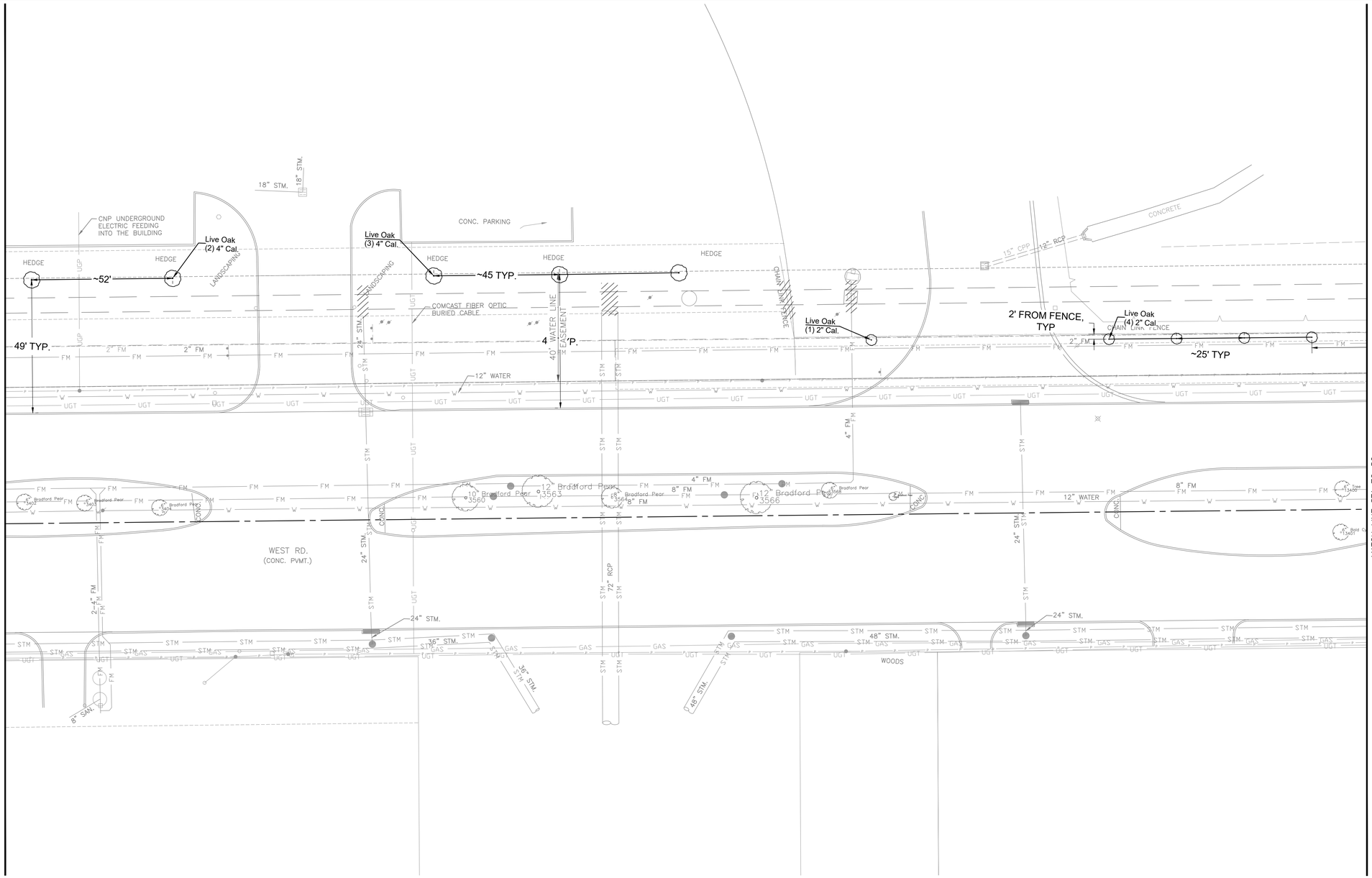
HOUSTON PUBLIC WORKS

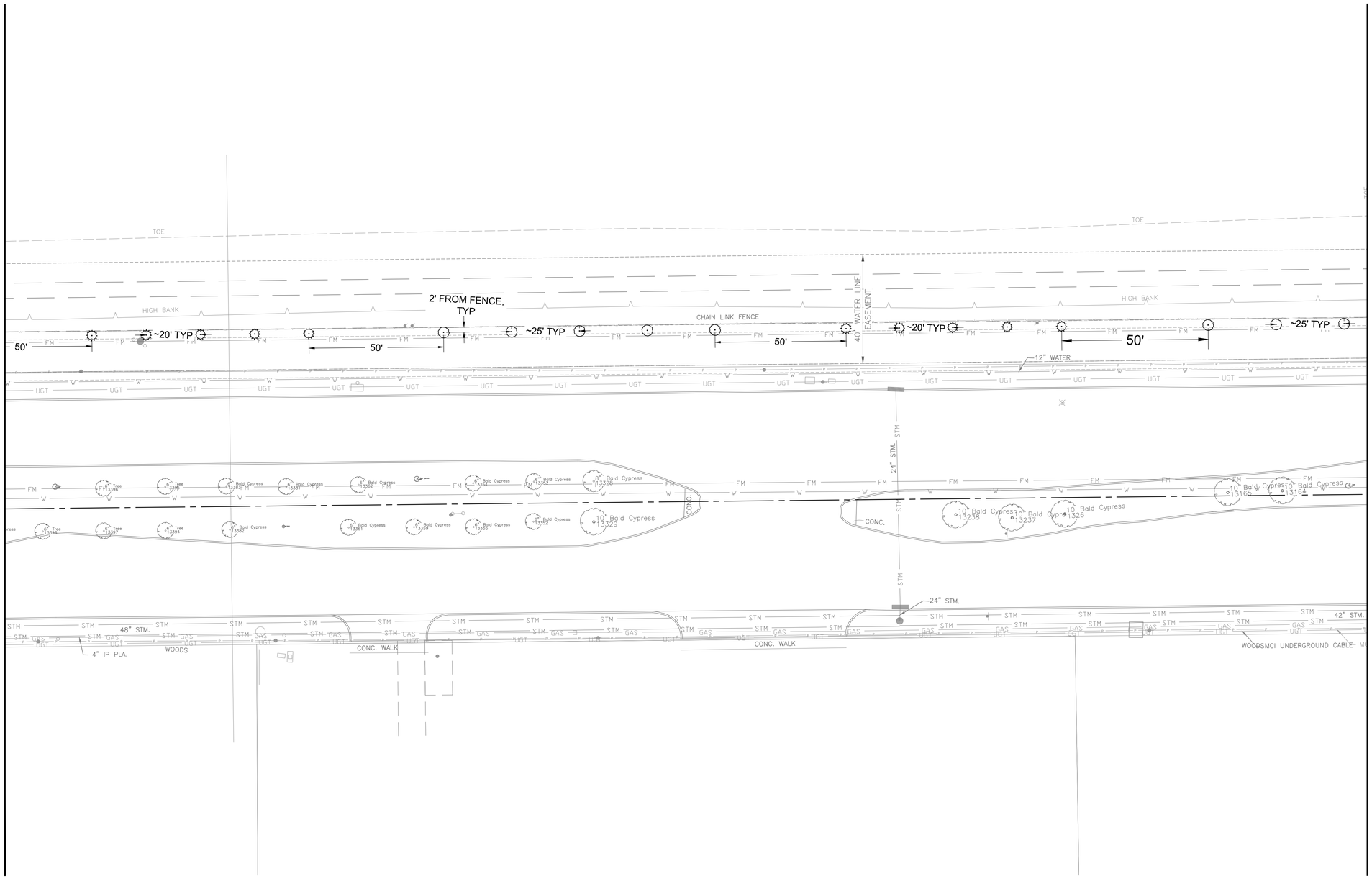
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 62+50 TO STA 67+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 62 OF 157	


MATCH LINE STA 67+50
MATCH LINE STA 72+50
CNP UNDERGROUND ELECTRIC FEEDING INTO THE BUILDING
Live Oak (2) 4" Cal.
Live Oak (3) 4" Cal.
Live Oak (1) 2" Cal.
Live Oak (4) 2" Cal.
HEDGE
~52'
~45 TYP.
49' TYP.
2' FROM FENCE, TYP
~25' TYP
LANDSCAPING
CONC. PARKING
CONCRETE
CHAIN LINK FENCE
COMCAST FIBER OPTIC BURIED CABLE
40' WATER LINE EASEMENT
12" WATER
18" STM.
24" STM.
72" RCP
15" CPP
12" RCP
4" FM
8" FM
2" FM
2-4" FM
12" Bradford Pear 13563
10" Bradford Pear 13560
12" Bradford Pear 13566
Bradford Pear 13564
Bradford Pear 13567
Bradford Pear 13561
4" Bradford Pear 13562
4" Bradford Pear 13568
4" Bradford Pear 13569
4" Bradford Pear 13570
4" Bradford Pear 13571
4" Bradford Pear 13572
4" Bradford Pear 13573
4" Bradford Pear 13574
4" Bradford Pear 13575
4" Bradford Pear 13576
4" Bradford Pear 13577
4" Bradford Pear



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-13

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Loblolly Pine / Pinus taeda	2" Cal.	10
	Live Oak / Quercus virginiana	2" Cal.	8

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

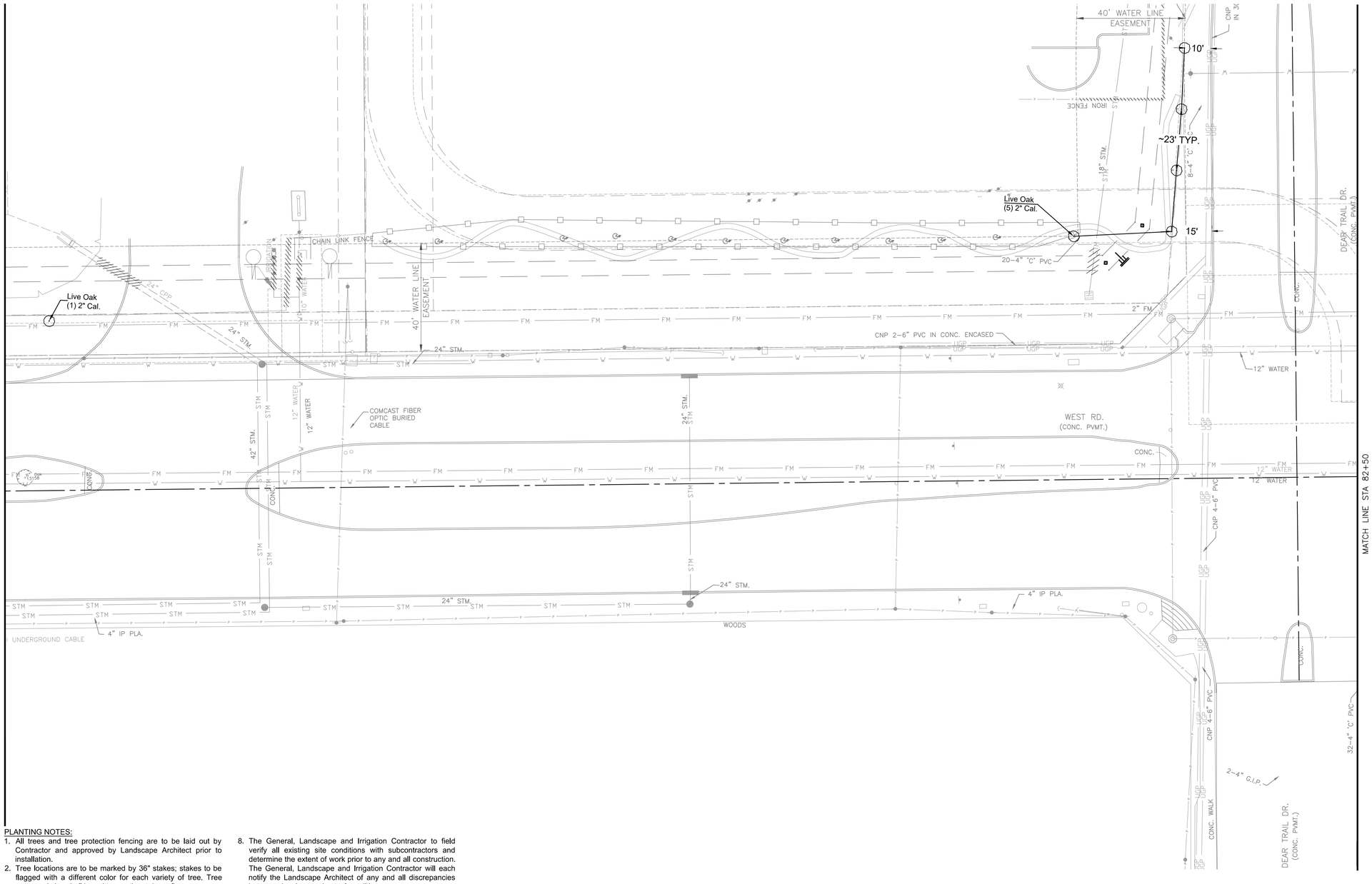
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 72+50 TO STA 77+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 64 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-14

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
•	Live Oak / Quercus virginiana	2" Cal.	6

PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

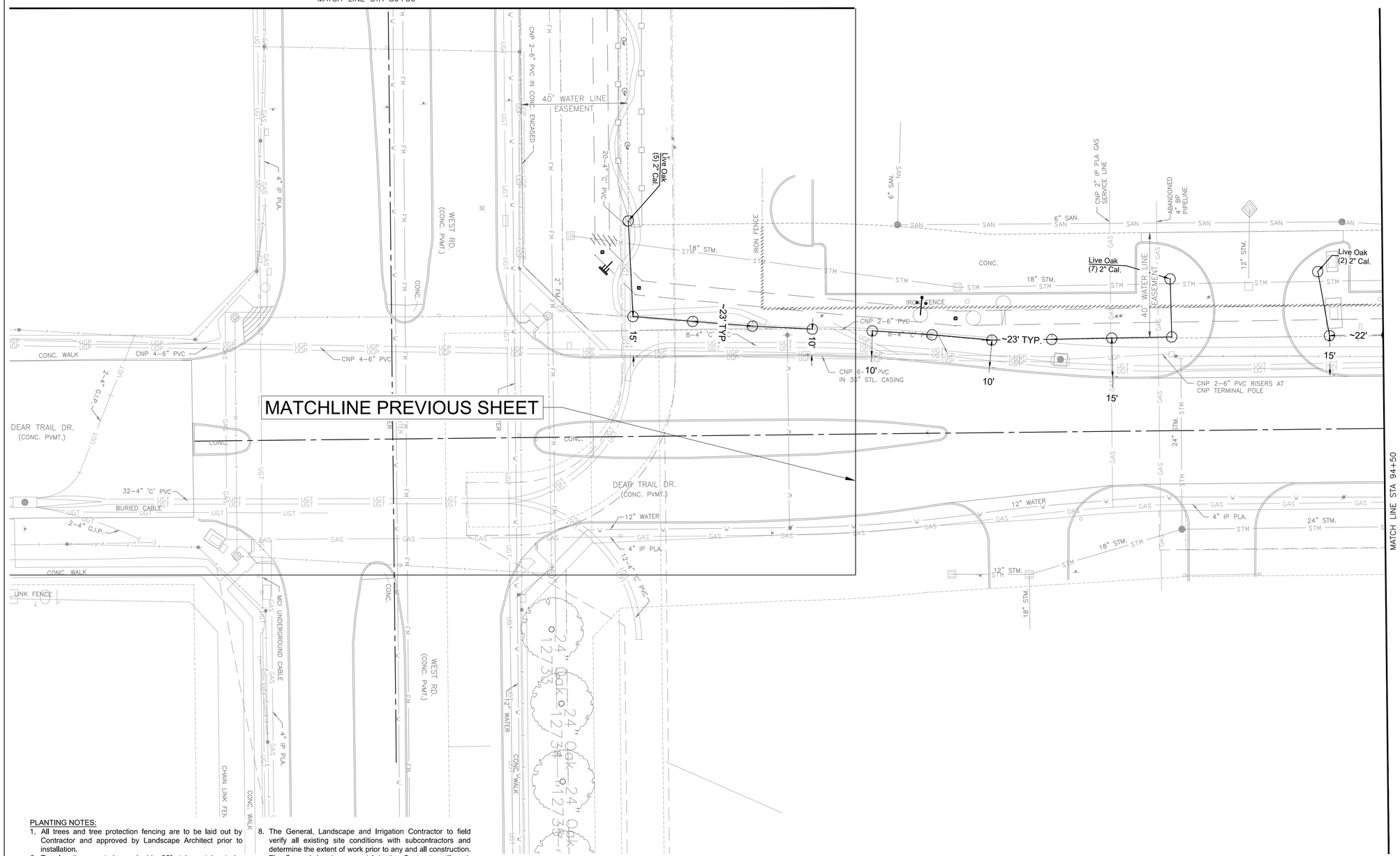
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 77+50 TO STA 82+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 65 OF 157	



PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-16

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Live Oak / Quercus virginiana	2" Cal.	9

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

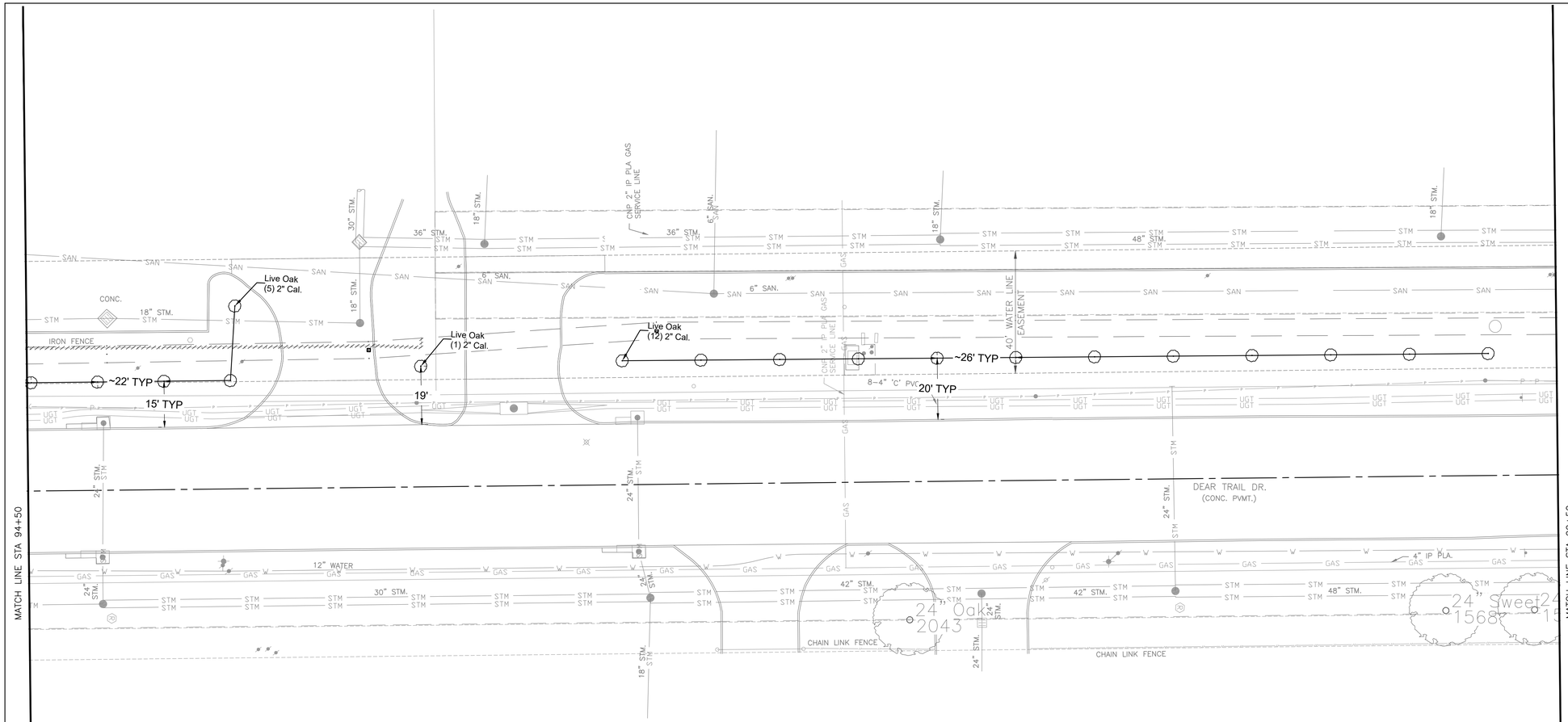
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 90+00 TO STA 94+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 66 OF 157	



PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-17

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Live Oak / Quercus virginiana	2" Cal.	18

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

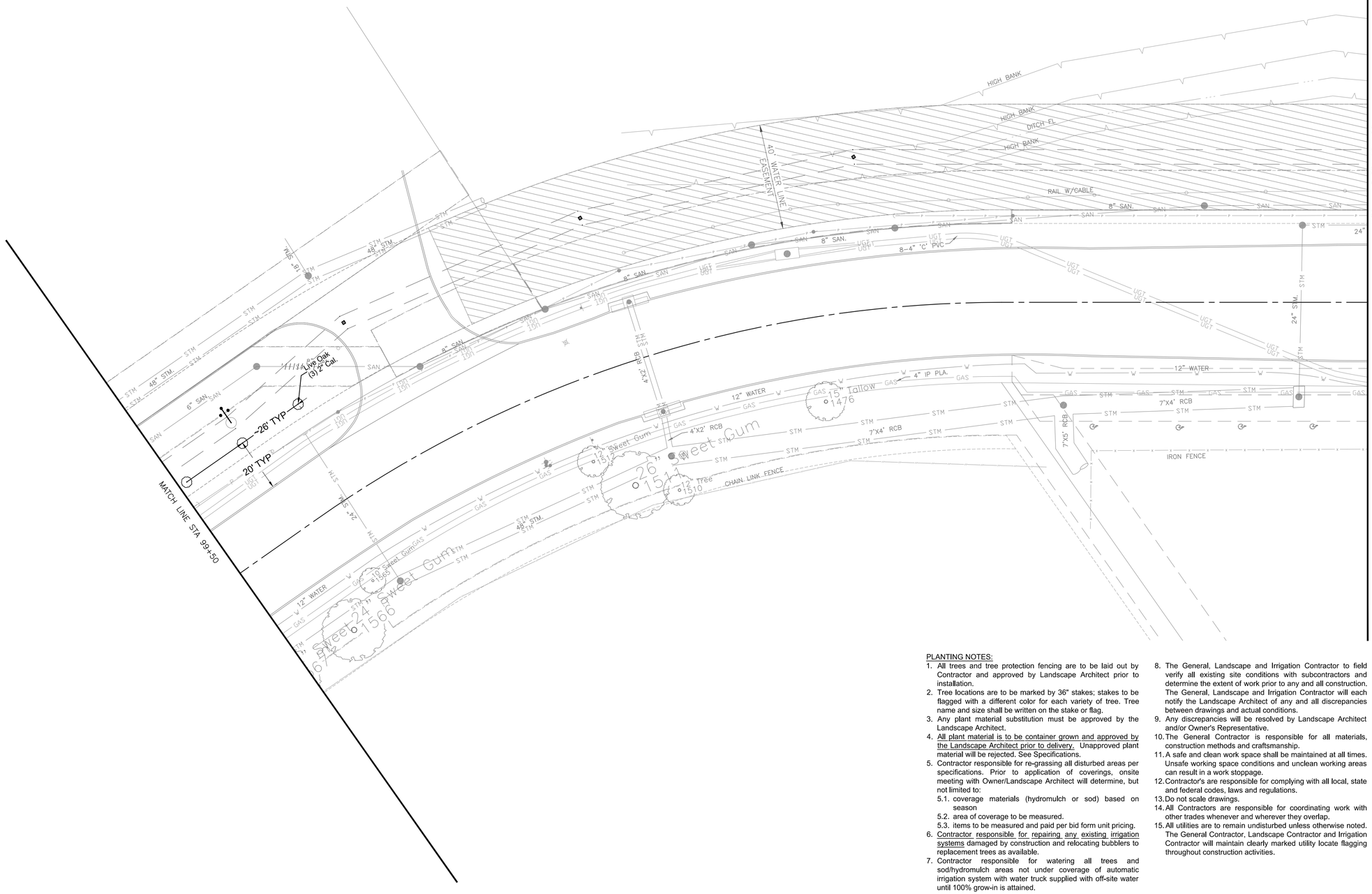
HOUSTON PUBLIC WORKS

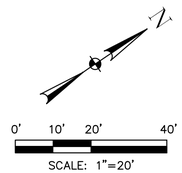
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 94+50 TO STA 99+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 67 OF 157	





NO.	DATE	REVISION	APP.

PLANT SCHEDULE L-18

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
•	Live Oak / Quercus virginiana	2" Cal.	3

PLANTING NOTES:

1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   - 5.1. coverage materials (hydromulch or sod) based on season
   - 5.2. area of coverage to be measured.
   - 5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

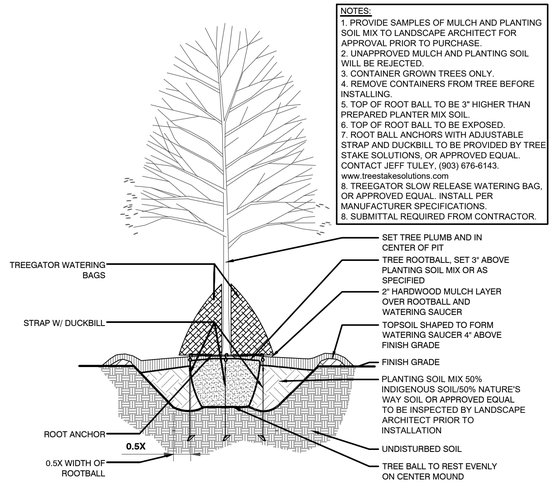
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLANTING PLAN

STA 99+50 TO STA 104+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 68 OF 157	

NOTES:
1. PROVIDE SAMPLES OF MULCH AND PLANTING SOIL MIX TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.
2. UNAPPROVED MULCH AND PLANTING SOIL WILL BE REJECTED.
3. CONTAINER GROWN TREES ONLY.
4. REMOVE CONTAINERS FROM TREE BEFORE INSTALLING.
5. TOP OF ROOT BALL TO BE 3" HIGHER THAN PREPARED PLANTER MIX SOIL.
6. TOP OF ROOT BALL TO BE EXPOSED.
7. ROOT BALL ANCHORS WITH ADJUSTABLE STRAP AND DUCKBILL TO BE PROVIDED BY TREE STAKE SOLUTIONS, OR APPROVED EQUAL. CONTACT JEFF TULEY, (903) 676-6143. www.treestakesolutions.com
8. TREEGATOR SLOW RELEASE WATERING BAG, OR APPROVED EQUAL. INSTALL PER MANUFACTURER SPECIFICATIONS.
8. SUBMITTAL REQUIRED FROM CONTRACTOR.



1 TYPICAL TREE PLANTING SAFETY STAKE

Not to Scale P-TLA-16

PLANT SCHEDULE

SYMBOL	COMMON / BOTANICAL NAME	SIZE	QTY
TREES			
	Crape Myrtle / Lagerstroemia indica	4" Cal.	4
	Loblolly Pine / Pinus taeda	2" Cal.	10
	Live Oak / Quercus virginiana	2" Cal.	49
	Live Oak / Quercus virginiana	4" Cal.	15

PLANTING NOTES:
1. All trees and tree protection fencing are to be laid out by Contractor and approved by Landscape Architect prior to installation.
2. Tree locations are to be marked by 36" stakes; stakes to be flagged with a different color for each variety of tree. Tree name and size shall be written on the stake or flag.
3. Any plant material substitution must be approved by the Landscape Architect.
4. All plant material is to be container grown and approved by the Landscape Architect prior to delivery. Unapproved plant material will be rejected. See Specifications.
5. Contractor responsible for re-grassing all disturbed areas per specifications. Prior to application of coverings, onsite meeting with Owner/Landscape Architect will determine, but not limited to:
   5.1. coverage materials (hydromulch or sod) based on season
   5.2. area of coverage to be measured.
   5.3. items to be measured and paid per bid form unit pricing.
6. Contractor responsible for repairing any existing irrigation systems damaged by construction and relocating bubblers to replacement trees as available.
7. Contractor responsible for watering all trees and sod/hydromulch areas not under coverage of automatic irrigation system with water truck supplied with off-site water until 100% grow-in is attained.
8. The General, Landscape and Irrigation Contractor to field verify all existing site conditions with subcontractors and determine the extent of work prior to any and all construction. The General, Landscape and Irrigation Contractor will each notify the Landscape Architect of any and all discrepancies between drawings and actual conditions.
9. Any discrepancies will be resolved by Landscape Architect and/or Owner's Representative.
10. The General Contractor is responsible for all materials, construction methods and craftsmanship.
11. A safe and clean work space shall be maintained at all times. Unsafe working space conditions and unclean working areas can result in a work stoppage.
12. Contractor's are responsible for complying with all local, state and federal codes, laws and regulations.
13. Do not scale drawings.
14. All Contractors are responsible for coordinating work with other trades whenever and wherever they overlap.
15. All utilities are to remain undisturbed unless otherwise noted. The General Contractor, Landscape Contractor and Irrigation Contractor will maintain clearly marked utility locate flagging throughout construction activities.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

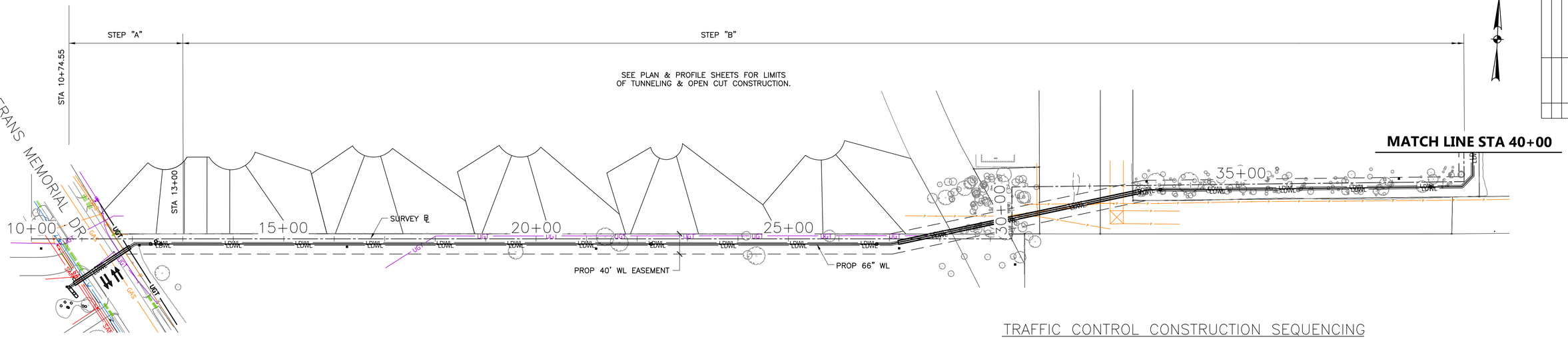
SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF MERRIE TALLEY, PLA (TX LICENSE NO. 615) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 69 OF 157	





TRAFFIC CONTROL CONSTRUCTION SEQUENCING

STEP "A"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 10+74.55 TO STA 13+00 BY TUNNELING & OPEN CUT.

STEP "B"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO CONSTRUCT PROPOSED 66" WL FROM STA 13+00 TO STA 52+50 BY OPEN CUT.

STEP "C"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT PROPOSED 66" WL FROM STA 52+50 TO STA 62+50 BY TUNNELING & OPEN CUT.

STEP "D"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 62+50 TO STA 80+00 BY OPEN CUT.

STEP "E"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 80+00 TO STA 117+27.76 BY OPEN CUT.

100 0 100 200

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

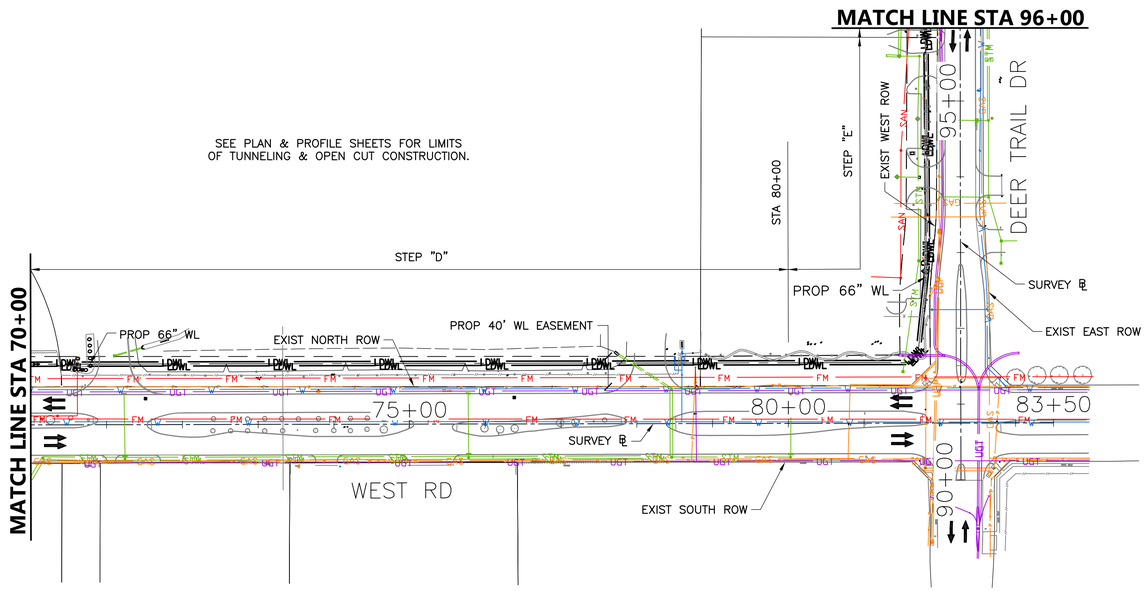
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

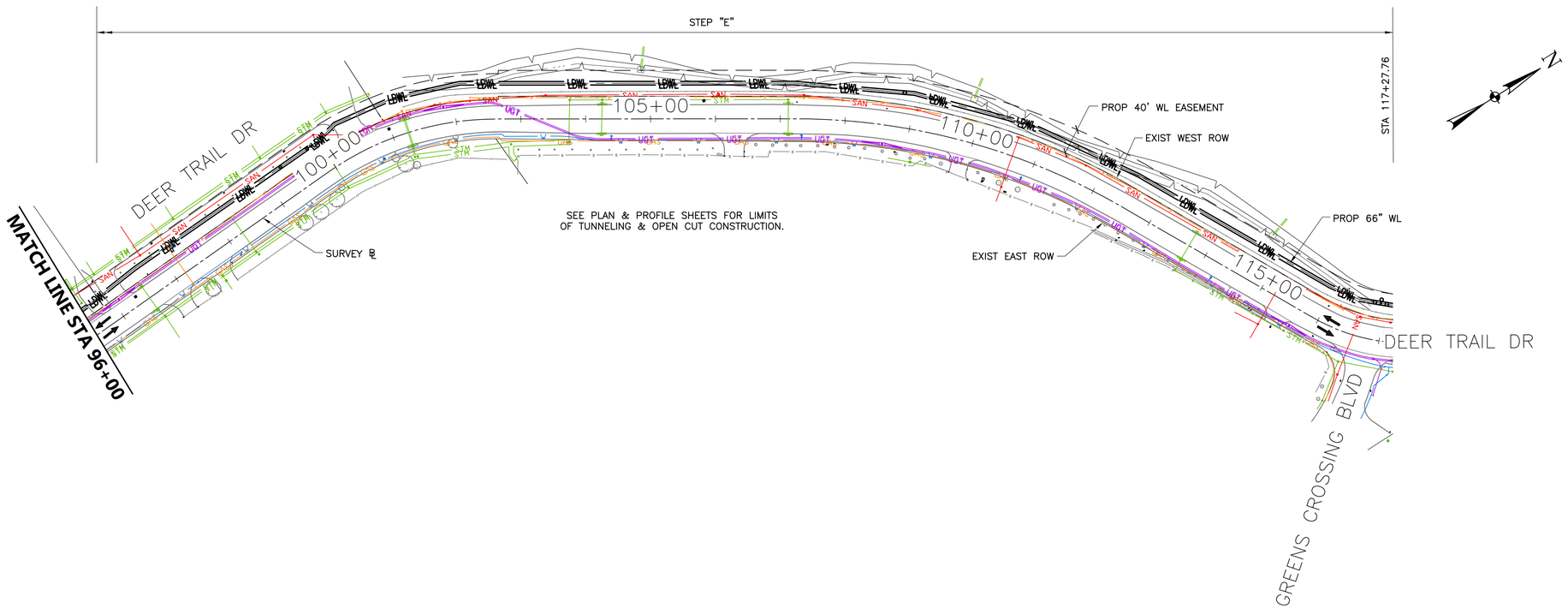
TRAFFIC CONTROL PLAN
OVERALL LAYOUT AND CONSTRUCTION SEQUENCING

SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=100' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 70 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\70_OVERALL TCP & CON-SEQ_01.dwg





N

TRAFFIC CONTROL CONSTRUCTION SEQUENCING

STEP "A"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 10+74.55 TO STA 13+00 BY TUNNELING & OPEN CUT.

STEP "B"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO CONSTRUCT PROPOSED 66" WL FROM STA 13+00 TO STA 52+50 BY OPEN CUT.

STEP "C"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT PROPOSED 66" WL FROM STA 52+50 TO STA 62+50 BY TUNNELING & OPEN CUT.

STEP "D"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 62+50 TO STA 80+00 BY OPEN CUT.

STEP "E"

1. PROPOSED TRAFFIC CONTROL PLANS AS SHOWN ARE FOR DAY TIME OPERATION ONLY.
2. CONTRACTOR TO PLACE ALL STORM WATER POLLUTION PREVENTION DEVICES PER PLAN PRIOR TO CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO PLACE DRUMS/ LPCTB PER LIMITS SHOWN, AS SPECIFIED, AND NOTED ON PLAN.
4. CONTRACTOR TO PLACE ADVANCE WARNING SIGNS AS SPECIFIED, AND NOTED ON PLAN.
5. CONTRACTOR TO CONSTRUCT THE PROPOSED 66" WL FROM STA 80+00 TO STA 117+27.76 BY OPEN CUT.

100 0 100 200

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TRAFFIC CONTROL PLAN
OVERALL LAYOUT AND CONSTRUCTION SEQUENCING

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=100' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 71 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\71_OVERALL TCP & CON-SEQ_02.dwg

NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

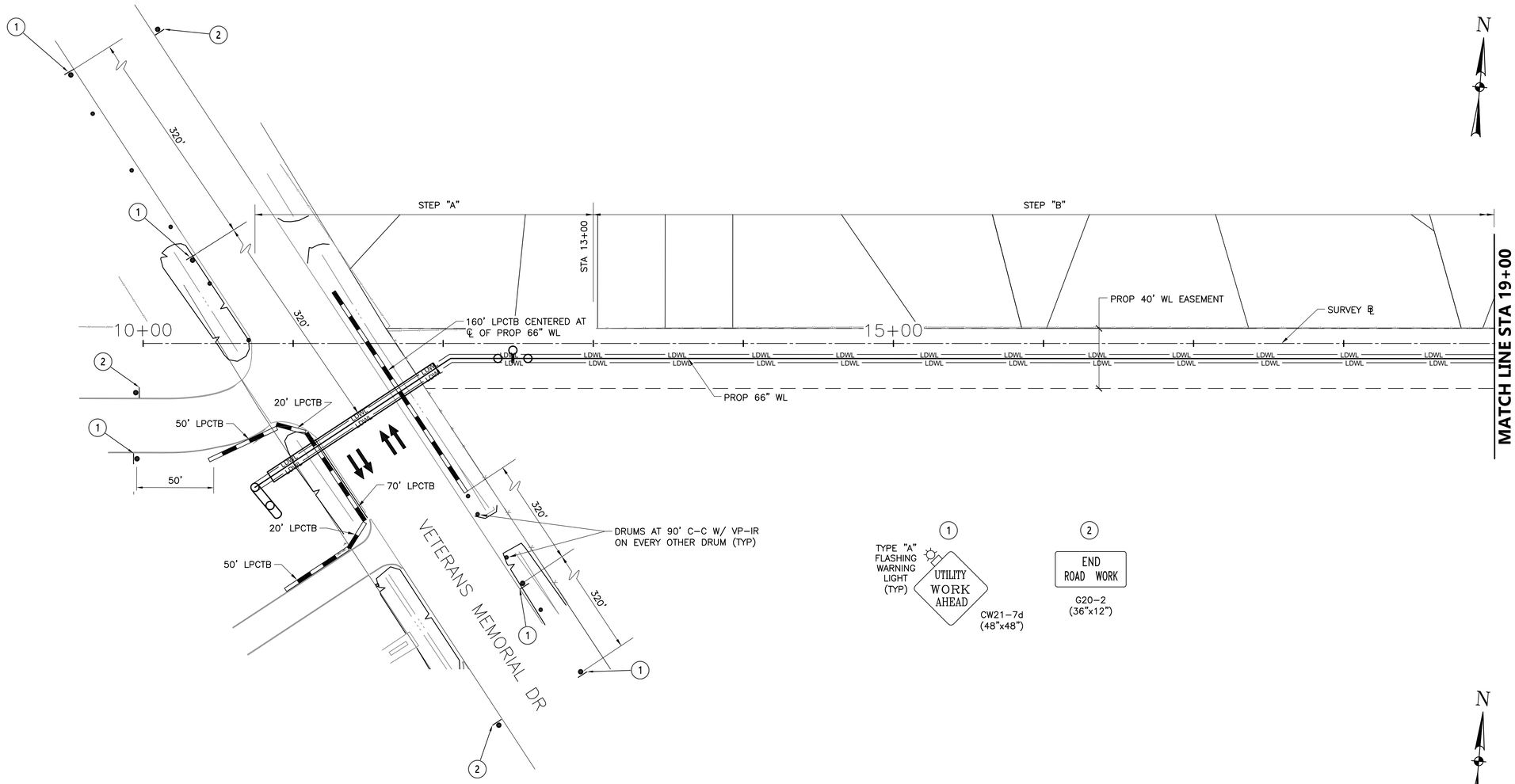
DIRECTION OF TRAFFIC

DRUMS

LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C–C

TEMPORARY SIGN

NO.	DATE	REVISION	APP.



40 0 40 80

BLACK & VEATCH	920 MEMORIAL CITY WAY, SUITE 600 HOUSTON, TX 77024 TEL: (713) 961–1100 TBPE REG NO 258
HOWN ENGINEERS 2825 WILCREST DRIVE, SUITE 218 HOUSTON, TX 77042 TEL: (832) 899–5657 TBPE REG NO. F–26176	DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.
SURVEYED BY: LANDTECH, INC. FB NO. P–6377	

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

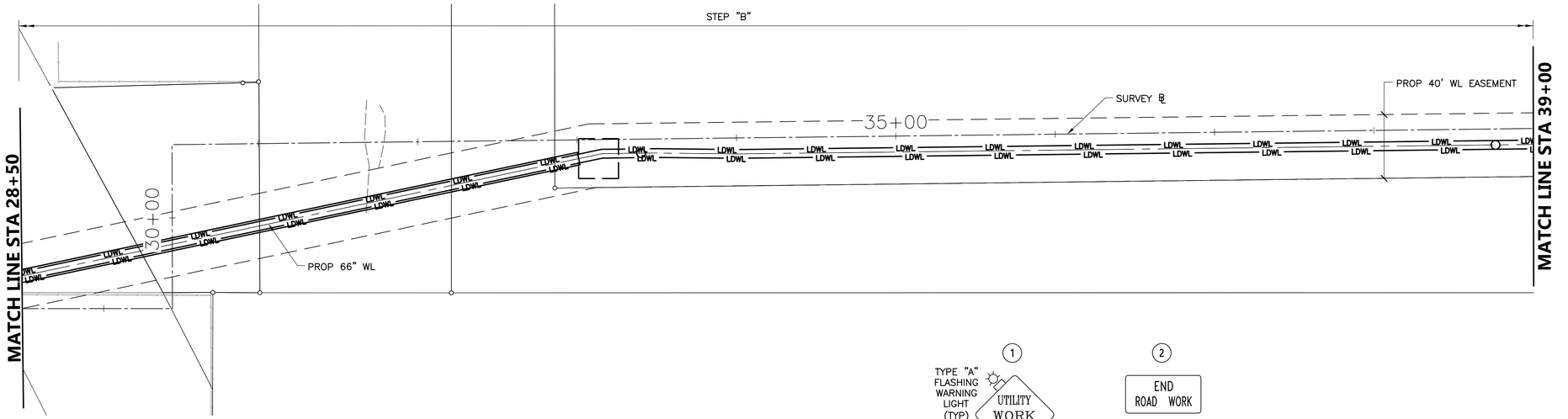
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

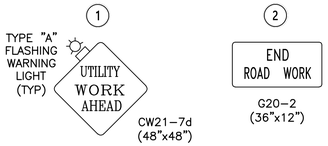
TRAFFIC CONTROL PLAN

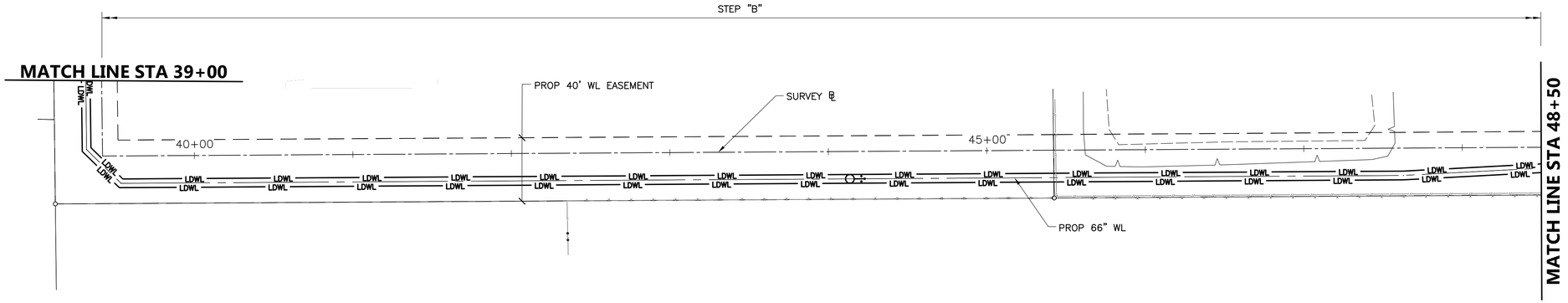
SHEET 1 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 72 OF 157	

FILE PATH: Z:\Active Projects\1003–02 COH SWTP 66–inch WL\Drawings\72_TRAFFIC CONTROL PLAN_01.dwg







NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

- DIRECTION OF TRAFFIC
- DRUMS
- LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C–C
- TEMPORARY SIGN

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

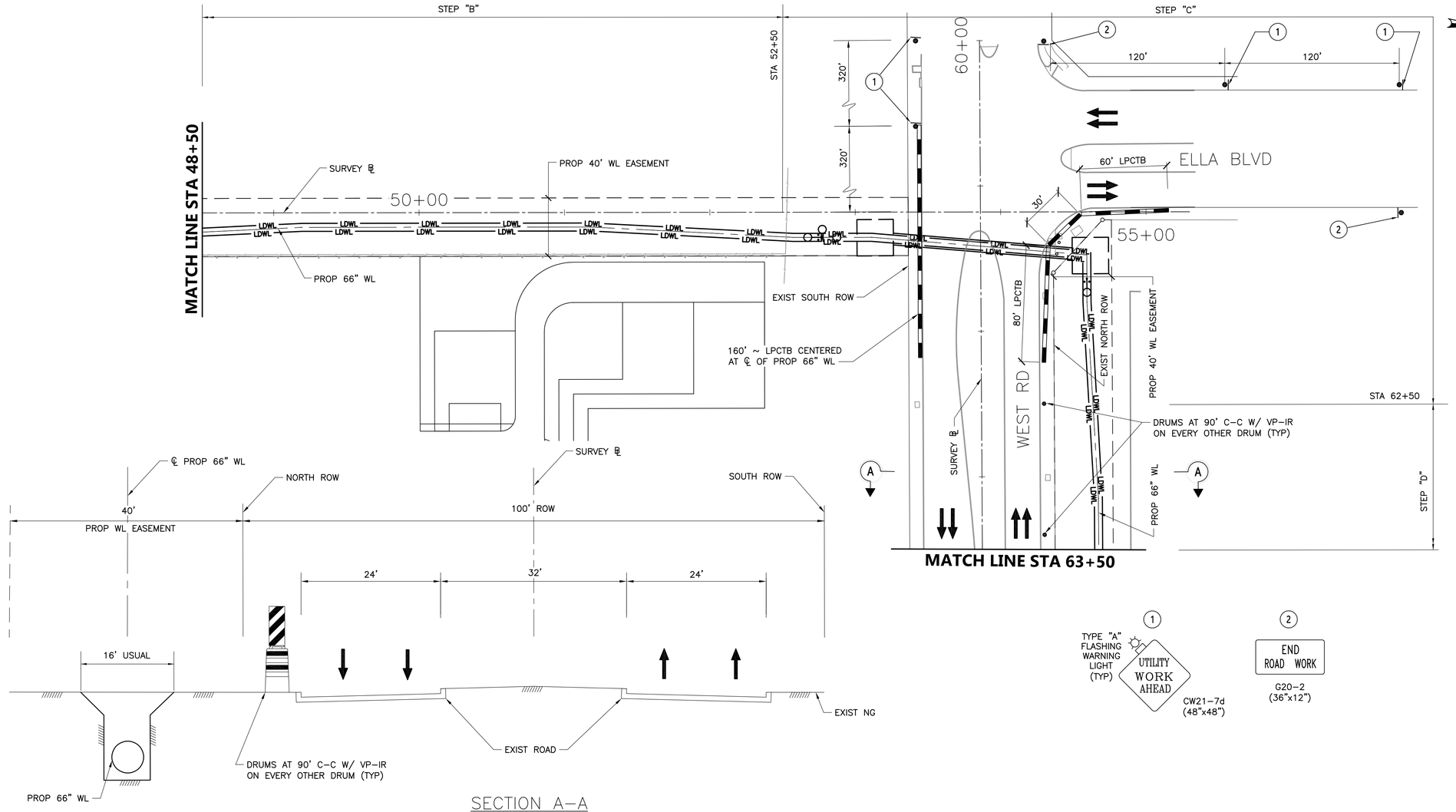
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TRAFFIC CONTROL PLAN

SHEET 2 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 73 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\73_TRAFFIC CONTROL PLAN_02.dwg



NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

DIRECTION OF TRAFFIC

DRUMS

LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C-C

TEMPORARY SIGN

* THE CONTRACTOR SHALL LIMIT CONSTRUCTION TO ONE DRIVEWAY AT A TIME WHERE THERE ARE MULTIPLE DRIVEWAYS SERVING THE SAME BUSINESS.

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

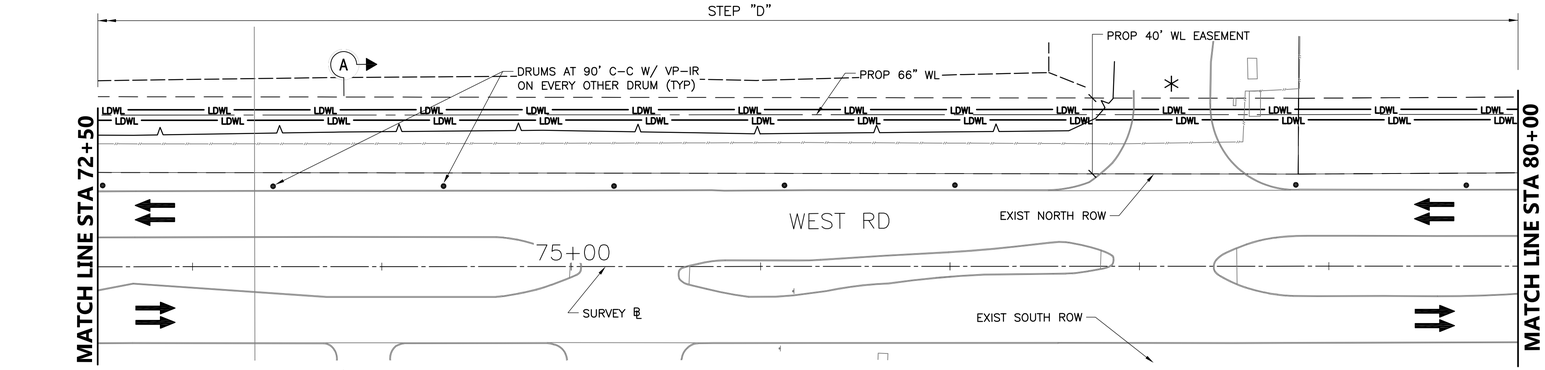
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

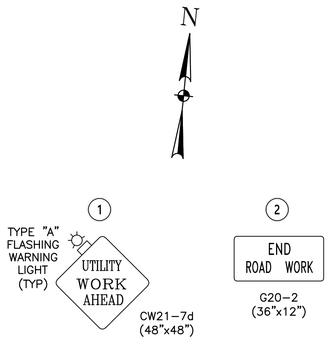
TRAFFIC CONTROL PLAN

SHEET 3 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 74 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\74_TRAFFIC CONTROL PLAN_03.dwg





NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

DIRECTION OF TRAFFIC

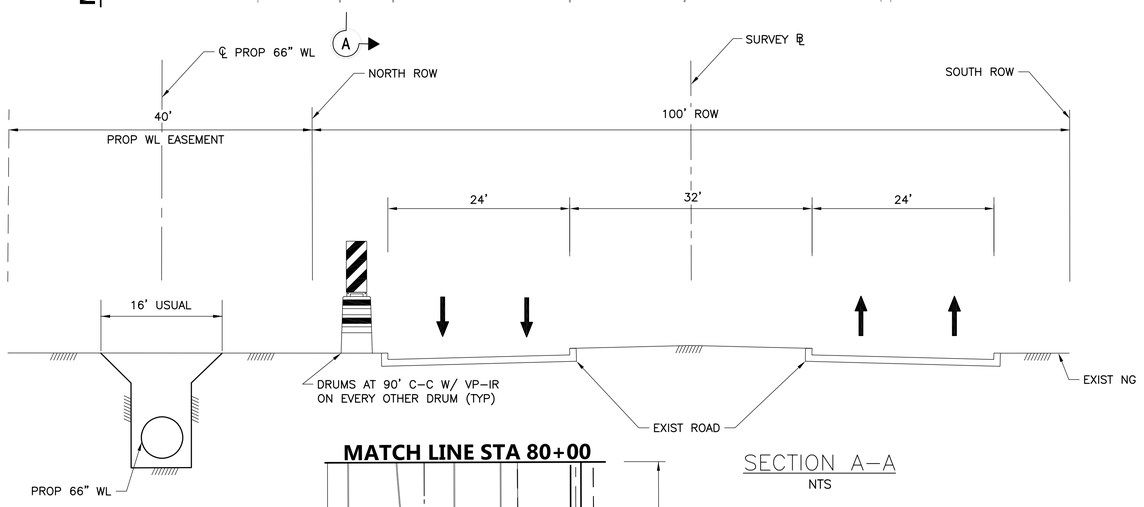
DRUMS

LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C-C

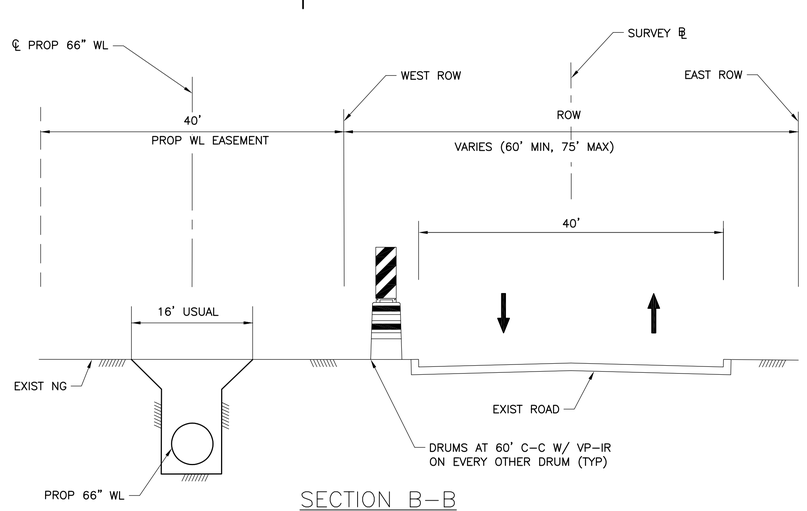
TEMPORARY SIGN

✳ THE CONTRACTOR SHALL LIMIT CONSTRUCTION TO ONE DRIVEWAY AT A TIME WHERE THERE ARE MULTIPLE DRIVEWAYS SERVING THE SAME BUSINESS.

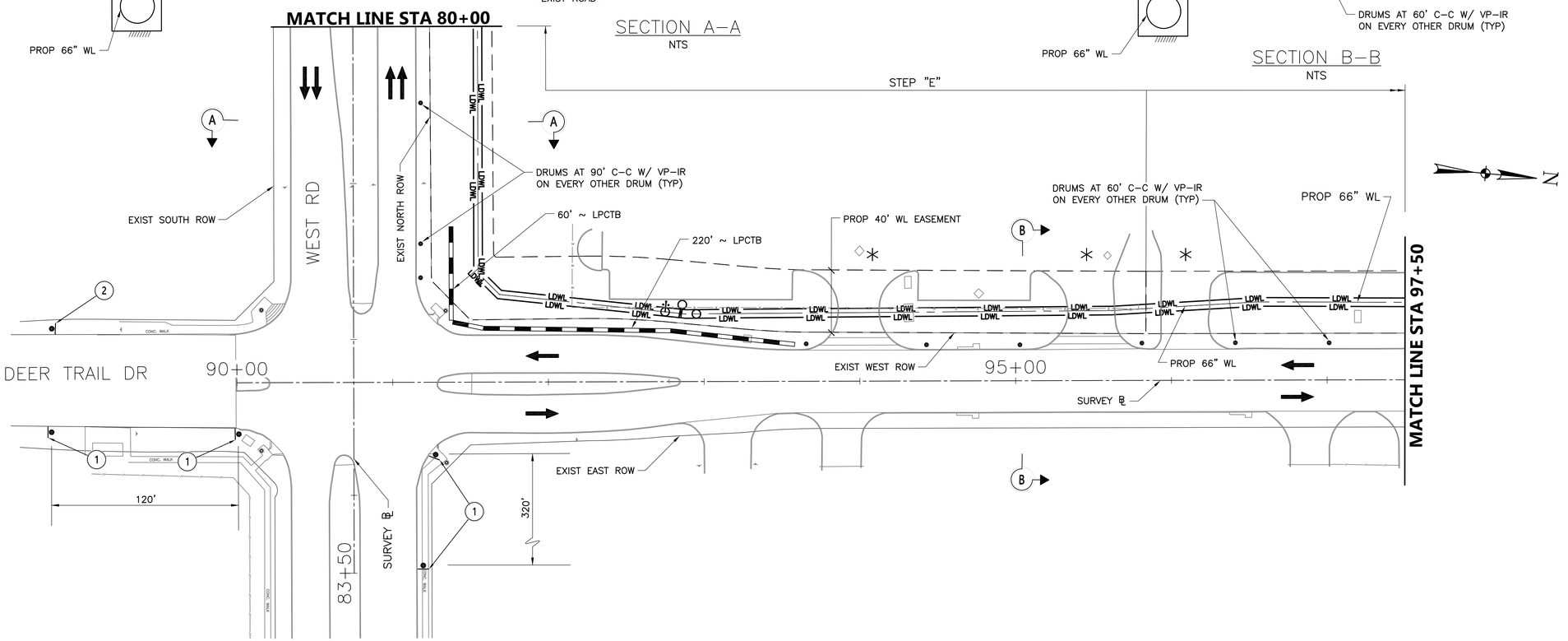
NO.	DATE	REVISION	APP.



SECTION A-A
NTS



SECTION B-B
NTS



40 0 40 80

BLACK & VEATCH	920 MEMORIAL CITY WAY, SUITE 600 HOUSTON, TX 77024 TEL: (713) 961-1100 TBPE REG NO 258
HOWN ENGINEERS 2825 WILCREST DRIVE, SUITE 218 HOUSTON, TX 77042 TEL: (832) 899-5657 TBPE REG NO. F-26176	DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.
SURVEYED BY: LANDTECH, INC. FB NO. P-6377	

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

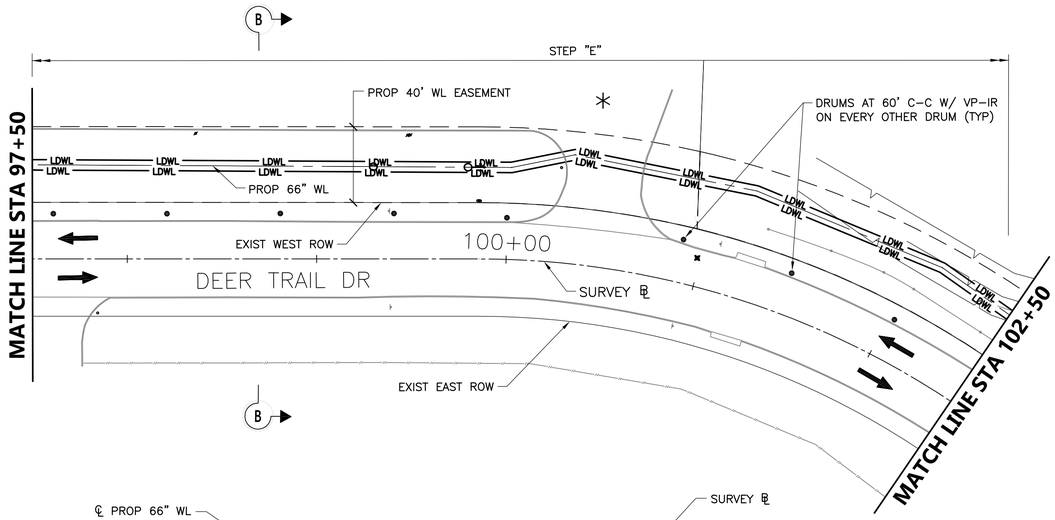
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

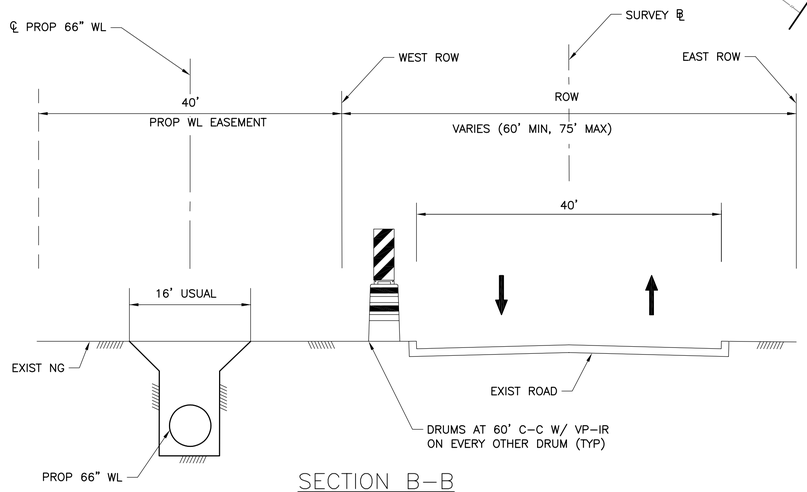
TRAFFIC CONTROL PLAN

SHEET 4 OF 6

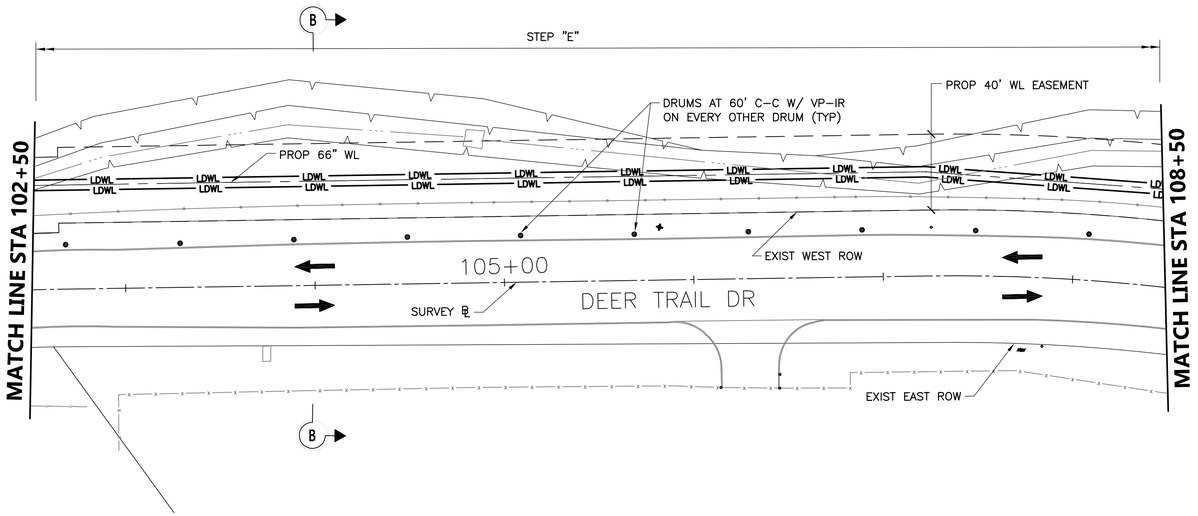
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 75 OF 157	

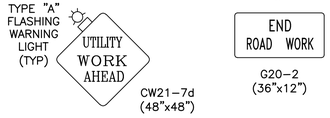
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\75_TRAFFIC CONTROL PLAN_04.dwg





SECTION B-B
NTS





NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

- DIRECTION OF TRAFFIC
- DRUMS
- LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C-C
- TEMPORARY SIGN

✳ THE CONTRACTOR SHALL LIMIT CONSTRUCTION TO ONE DRIVEWAY AT A TIME WHERE THERE ARE MULTIPLE DRIVEWAYS SERVING THE SAME BUSINESS.

NO.	DATE	REVISION	APP.

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TRAFFIC CONTROL PLAN

SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 76 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\76_TRAFFIC CONTROL PLAN_05.dwg

NOTES & LEGEND:

1. SEE "TRAFFIC CONTROL PLAN GENERAL NOTES" & "TRAFFIC CONTROL PLAN OVERALL LAYOUT & CONSTRUCTION SEQUENCING" SHEETS FOR MORE INFORMATION.
2. CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT THE TRAFFIC IN ORDER TO ASSIST DRIVEWAY ENTRY/EXIT FOR LOCAL RESIDENTS DURING CONSTRUCTION HOURS.
3. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS ALONG THIS PROJECT AT ALL TIMES.
4. AT THE COMPLETION OF EACH STEP DURING CONSTRUCTION OF THE PROPOSED 66" WL, CONTRACTOR PER ENGINEER DIRECTION MAY REMOVE/ADJUST THE LOCATION OF TRAFFIC CONTROL PLAN DEVICES (TEMPORARY SIGNS, DRUMS, & LPCTB) IF NO LONGER NEEDED PRIOR TO STARTING THE NEXT STEP.

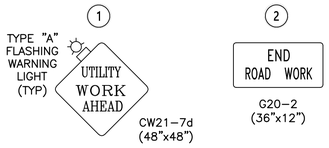
DIRECTION OF TRAFFIC

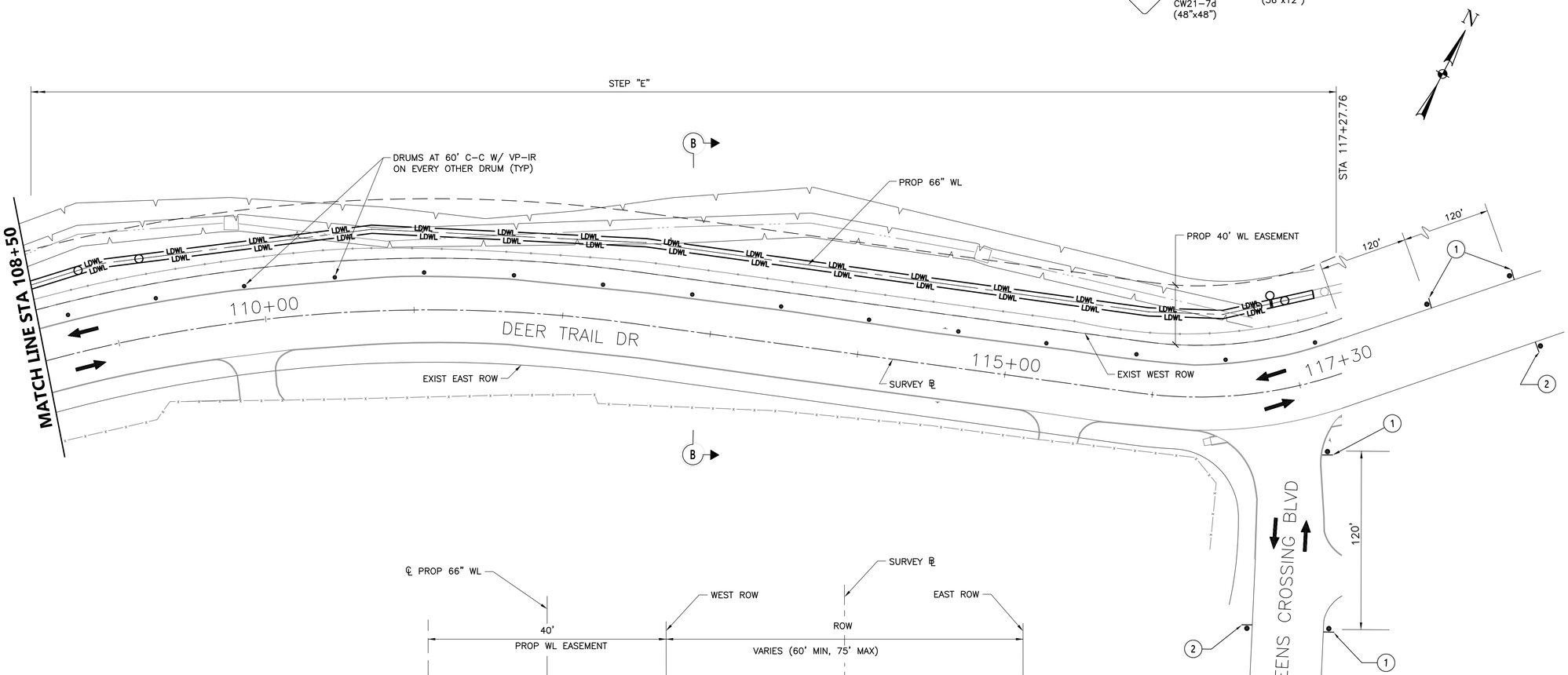
DRUMS

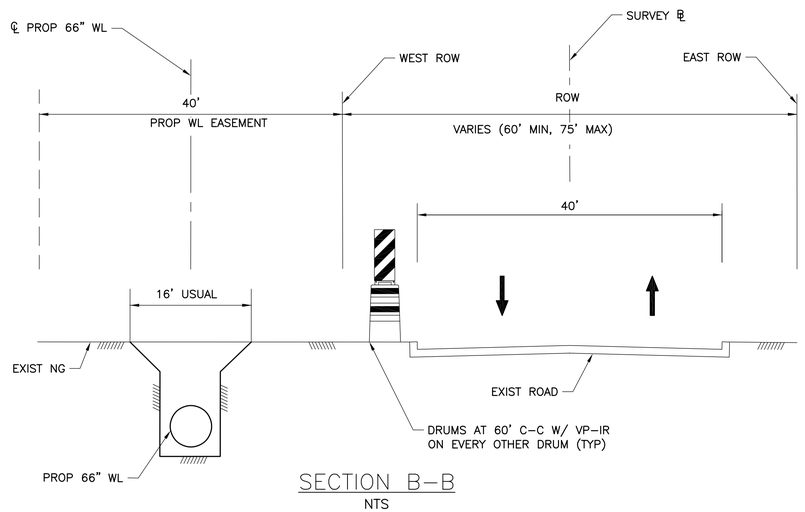
LPCTB TYPE 1 & TYPE 2 AT APPROACHES W/ WHITE REFLECTORS ON TOP AT 10' C-C

TEMPORARY SIGN

NO.	DATE	REVISION	APP.







SECTION B-B
NTS

40 0 40 80

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TRAFFIC CONTROL PLAN

SHEET 6 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=40' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 77 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\77_TRAFFIC CONTROL PLAN_06.dwg

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.

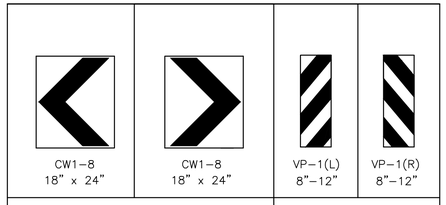
J. SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

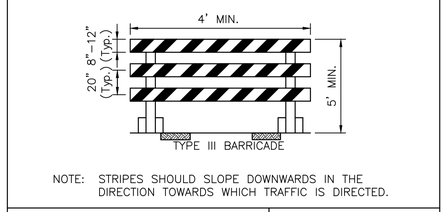
TABLE C3 – TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES

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'

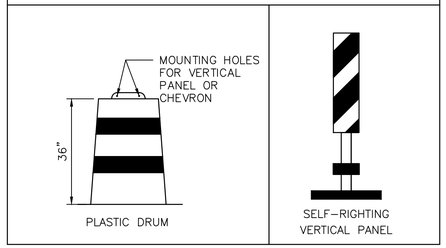
TABLE C4 – STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

POSTED SPEED (MPH)	DISTANCE "D" (FEET)
30	200
35	250
40	305
45	360
50	425
55	495

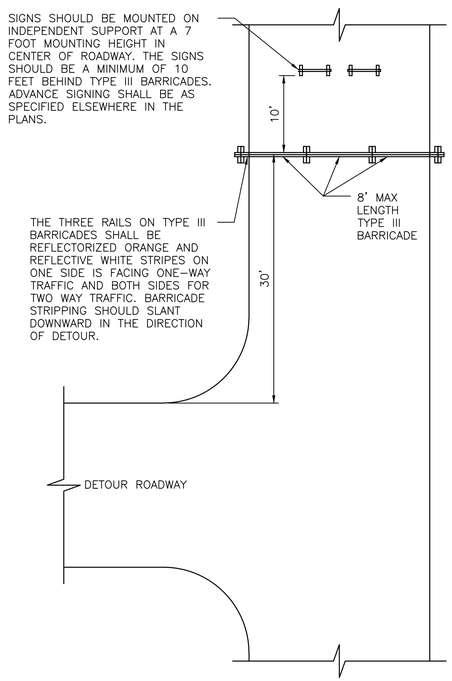




NOTE: STRIPES SHOULD SLOPE DOWNWARDS IN THE DIRECTION TOWARDS WHICH TRAFFIC IS DIRECTED.



CHANNELIZATION AND BARRICADES



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.

APPROVED BY: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478... CITY ENGINEER

APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA758409... CITY TRAFFIC ENGINEER

APPROVED BY: DocuSigned by: Carol Haddock A83C41B97283453... DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023

DWG NO: 01555–01

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TCP NOTES CHANNELIZING DEVICES AND BARRICADES

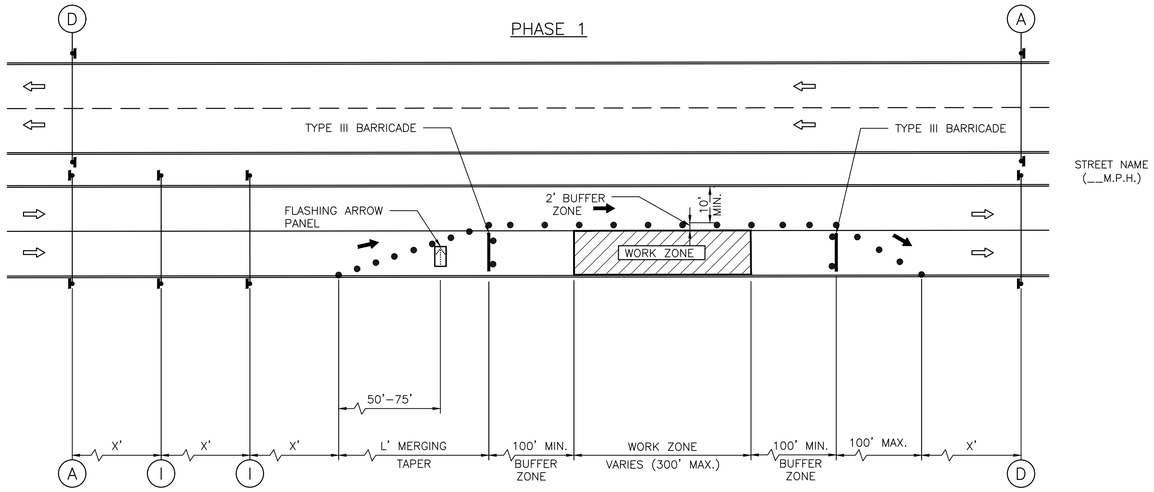
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 78 OF 157	

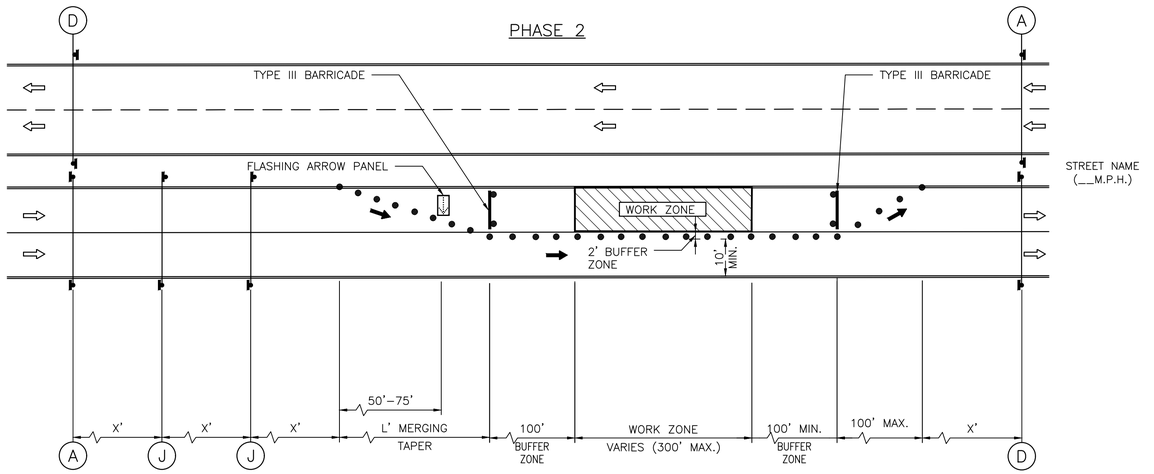
FILE PATH: Z:\Active Projects\1003–02 60H SWTP 66–inch WL\Drawings\STANDARDS\60H\78_TCP NOTES CHANNELIZING DEVICES AND BARRICADES.dwg

A	D	I	J
ROAD WORK AHEAD	END ROAD WORK	RIGHT LANE CLOSED	LEFT LANE CLOSED
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

NO.	DATE	REVISION	APP.

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.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF880C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A93C410B7EB3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 | DWG NO: 01555-04

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

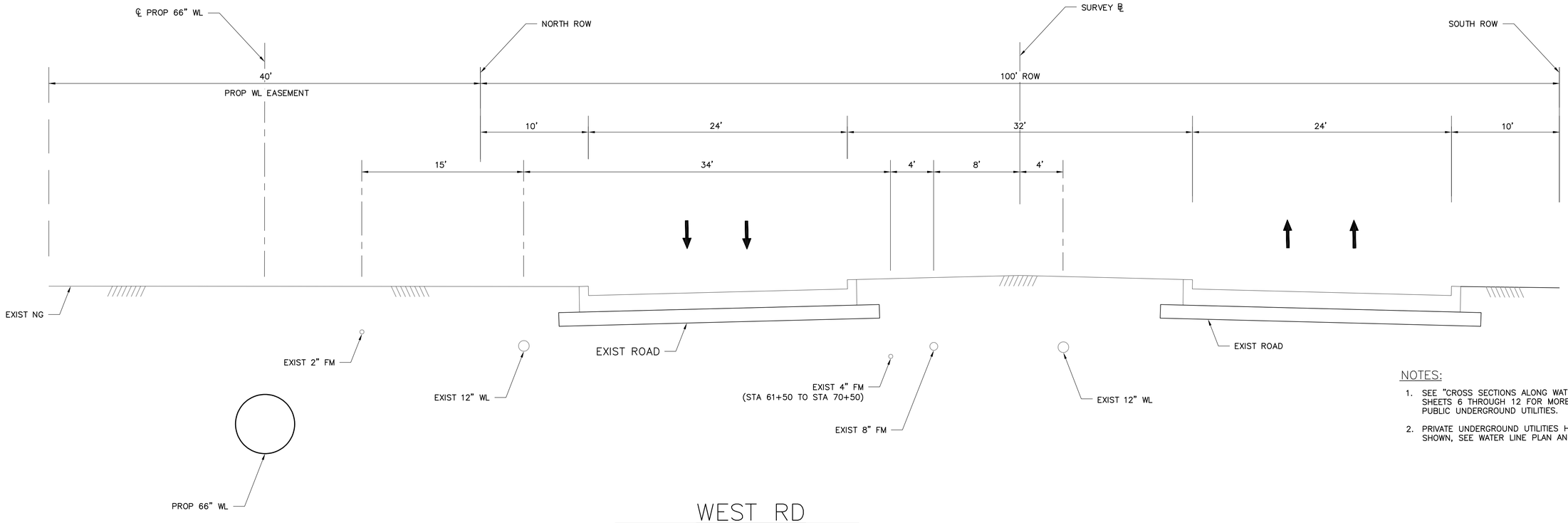
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

TCP ONE LANE CLOSURE
PHASE 1 & 2

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 79 OF 157	

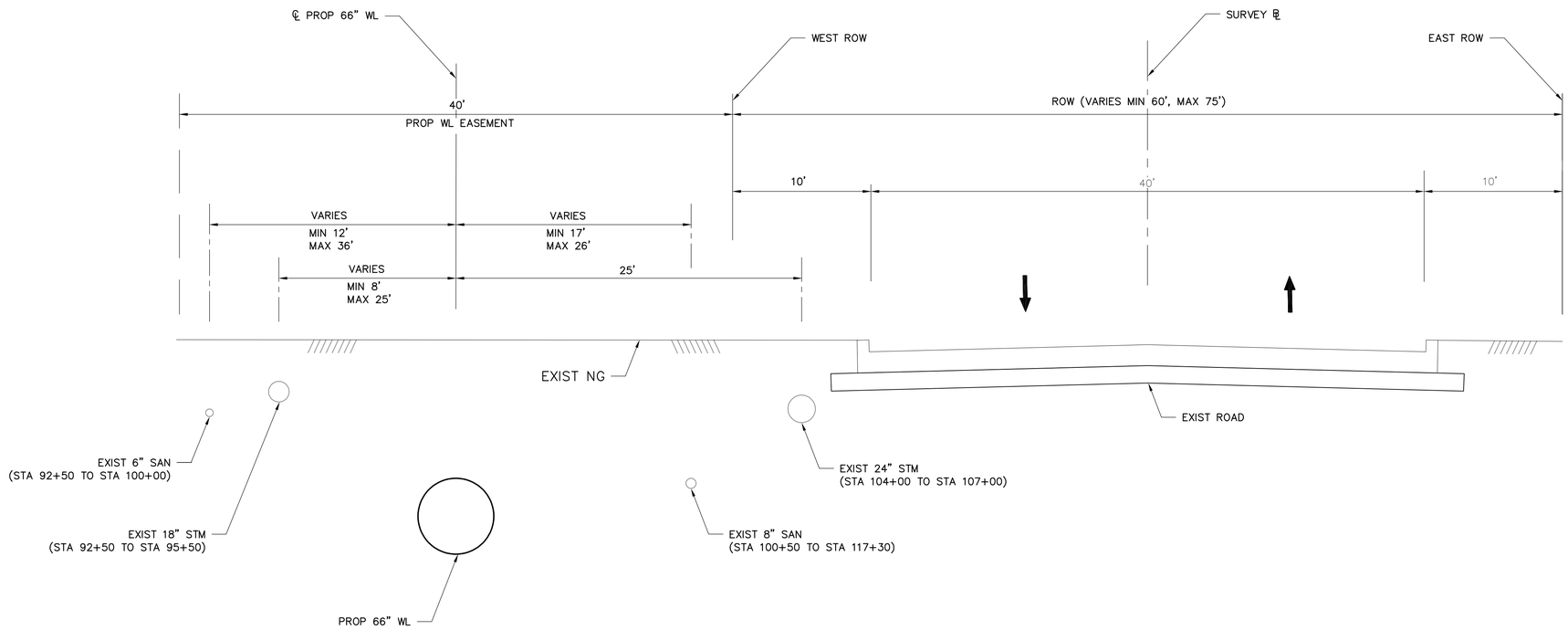
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\STANDARDS\COH\79_01555-04_2023_11_MOD.dwg



NOTES:

1. SEE "CROSS SECTIONS ALONG WATER LINE ALIGNMENT" SHEETS 6 THROUGH 12 FOR MORE INFORMATION ON PUBLIC UNDERGROUND UTILITIES.
2. PRIVATE UNDERGROUND UTILITIES HAVE NOT BEEN SHOWN, SEE WATER LINE PLAN AND PROFILE SHEETS.

WEST RD
STA 61+50 TO STA 81+80



DEER TRAIL DR
STA 91+50 TO STA 117+30

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

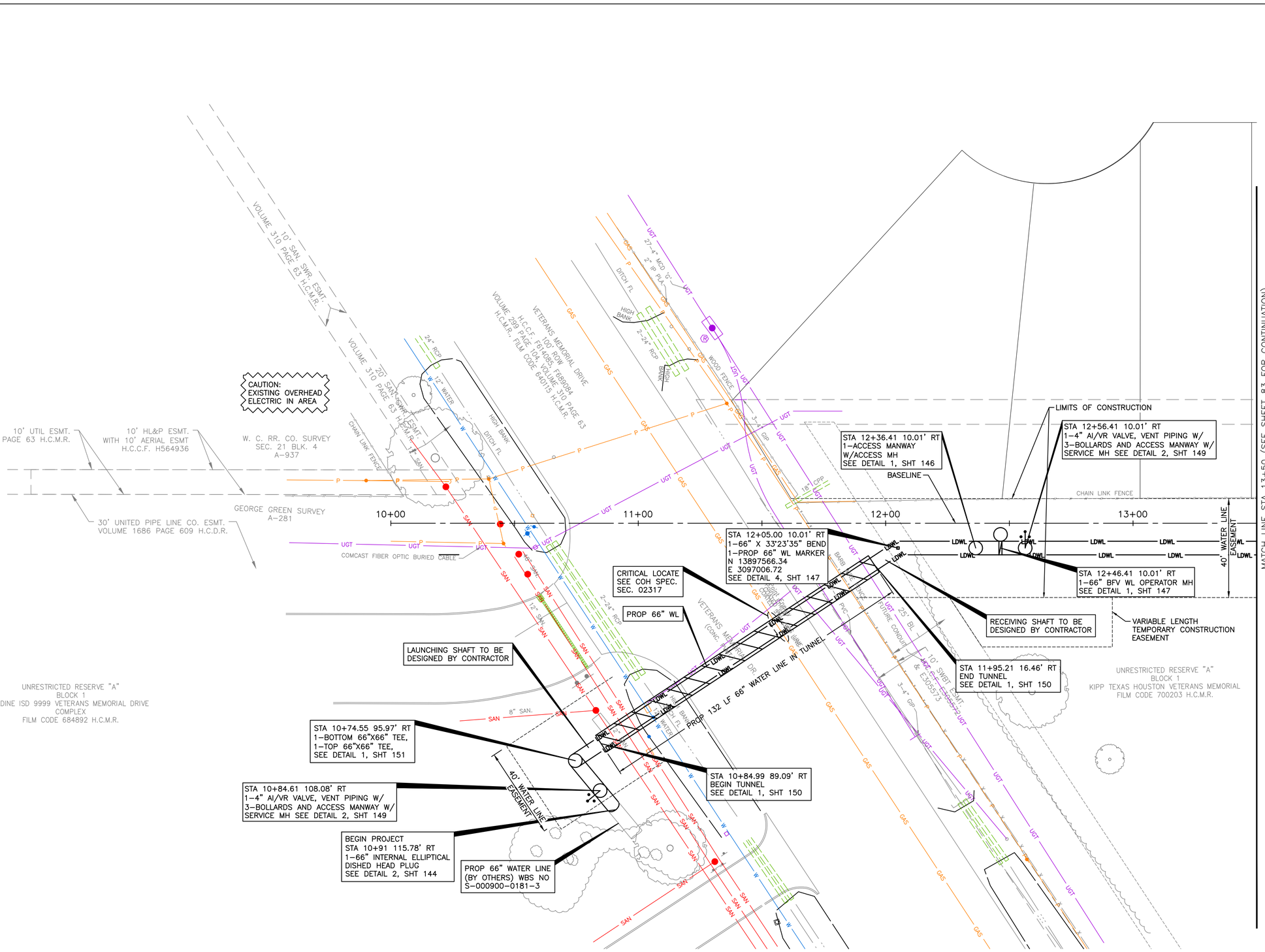
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

WEST RD AND DEER TRAIL DR
TYPICAL SECTIONS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=5' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 80 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\80_WEST RD AND DEER TRAIL DR TYPICAL SECTIONS.dwg



NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

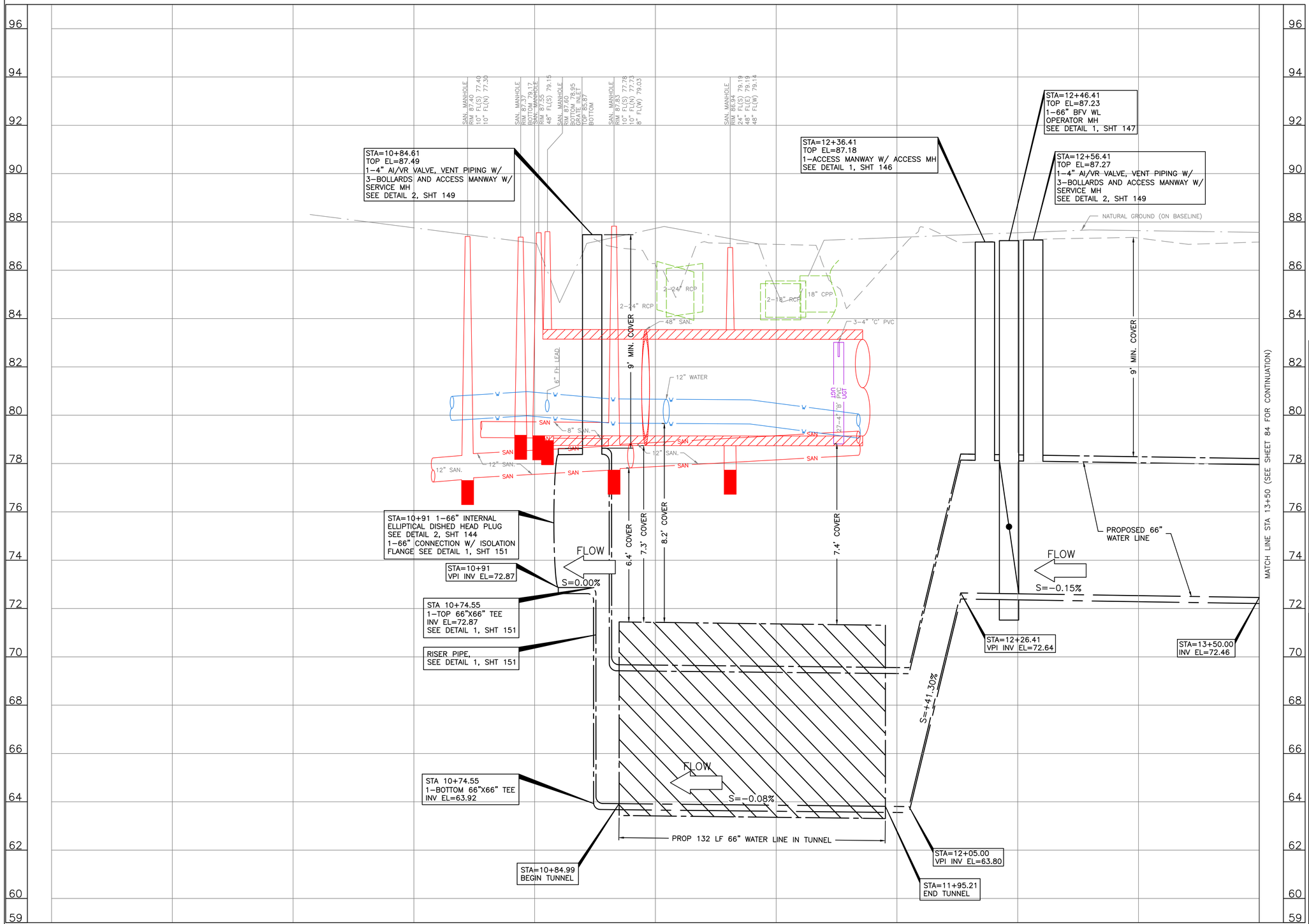
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PLAN
STA 10+00 TO STA 13+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 81 OF 157	

SEE SHEET 81 – FOR PLAN



0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

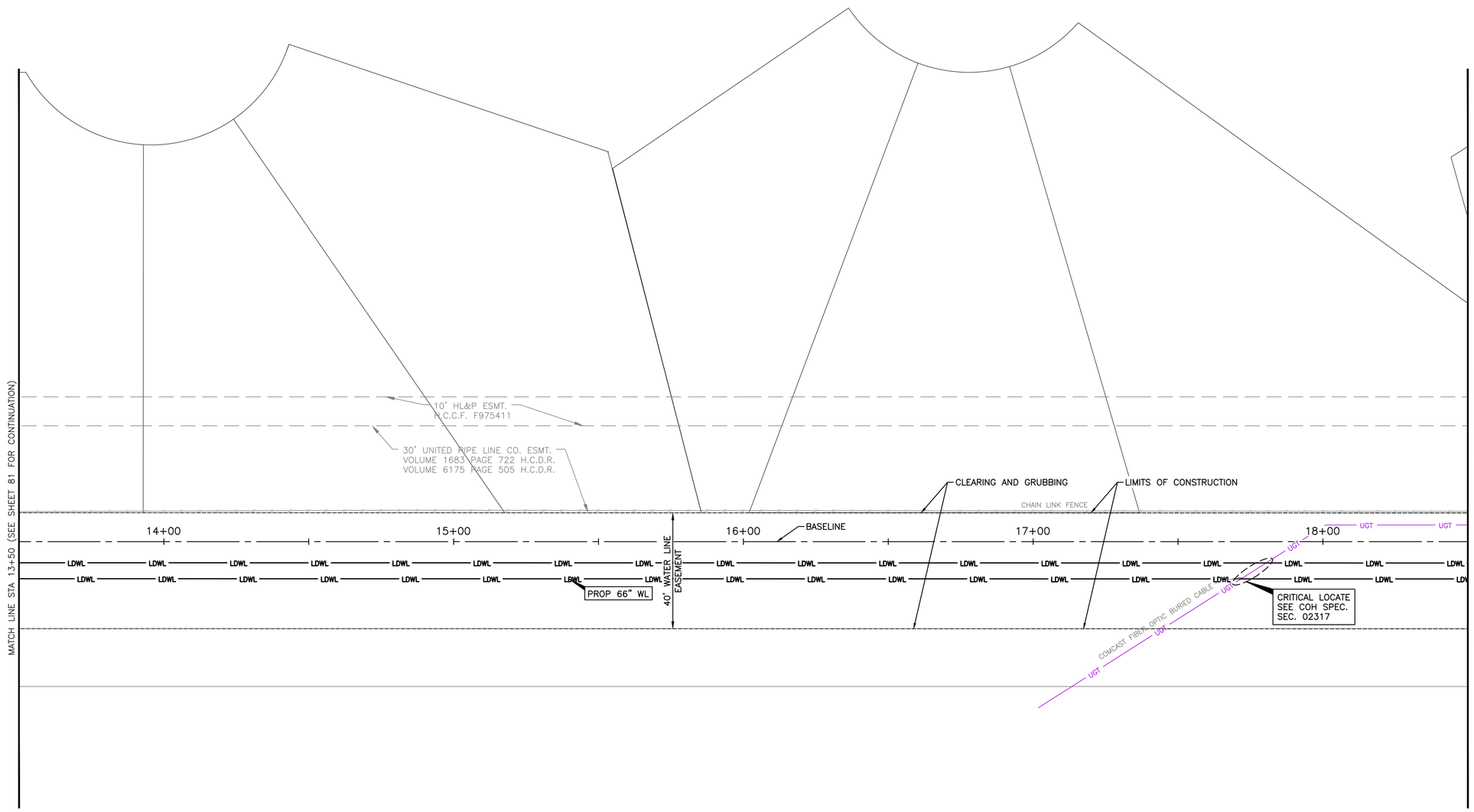
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PROFILE
STA 10+00 TO STA 13+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 82 OF 157	



SEE SHEET 84 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

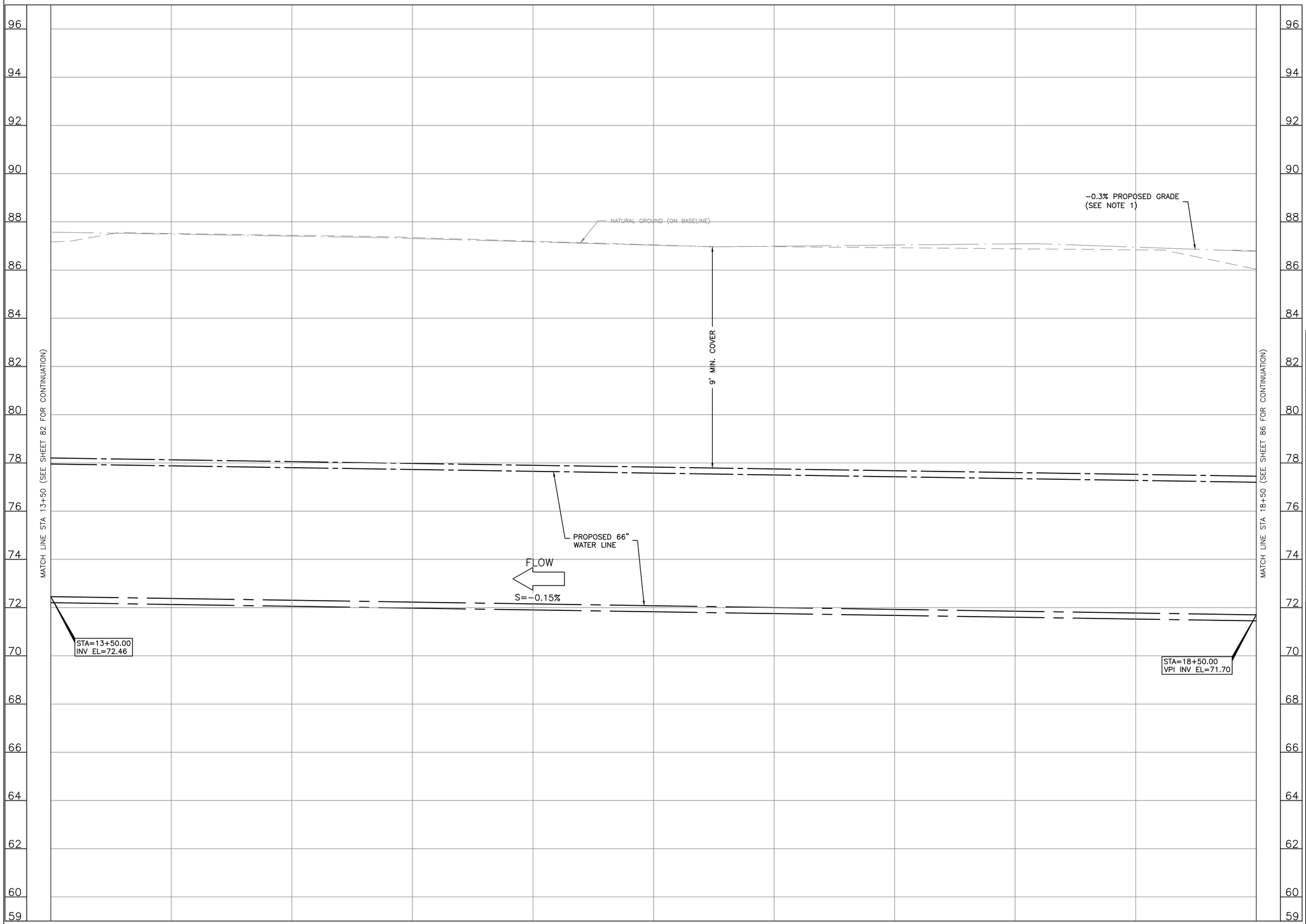
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 13+50 TO STA 18+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 83 OF 157	

SEE SHEET 83 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NOTES:

1. CONTRACTOR SHALL ADD FILL BETWEEN STATION 18+23.9 TO STATION 19+66.44 WITH ONSITE MATERIALS TO PROVIDE –0.3% FINAL GRADE. PROPOSED GRADE WHERE FILL IS REQUIRED SHALL PROVIDE 9' MINIMUM COVER OVER THE 66–INCH WL. ALL FILL MATERIALS SHALL BE COMPACTED TO 95%.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

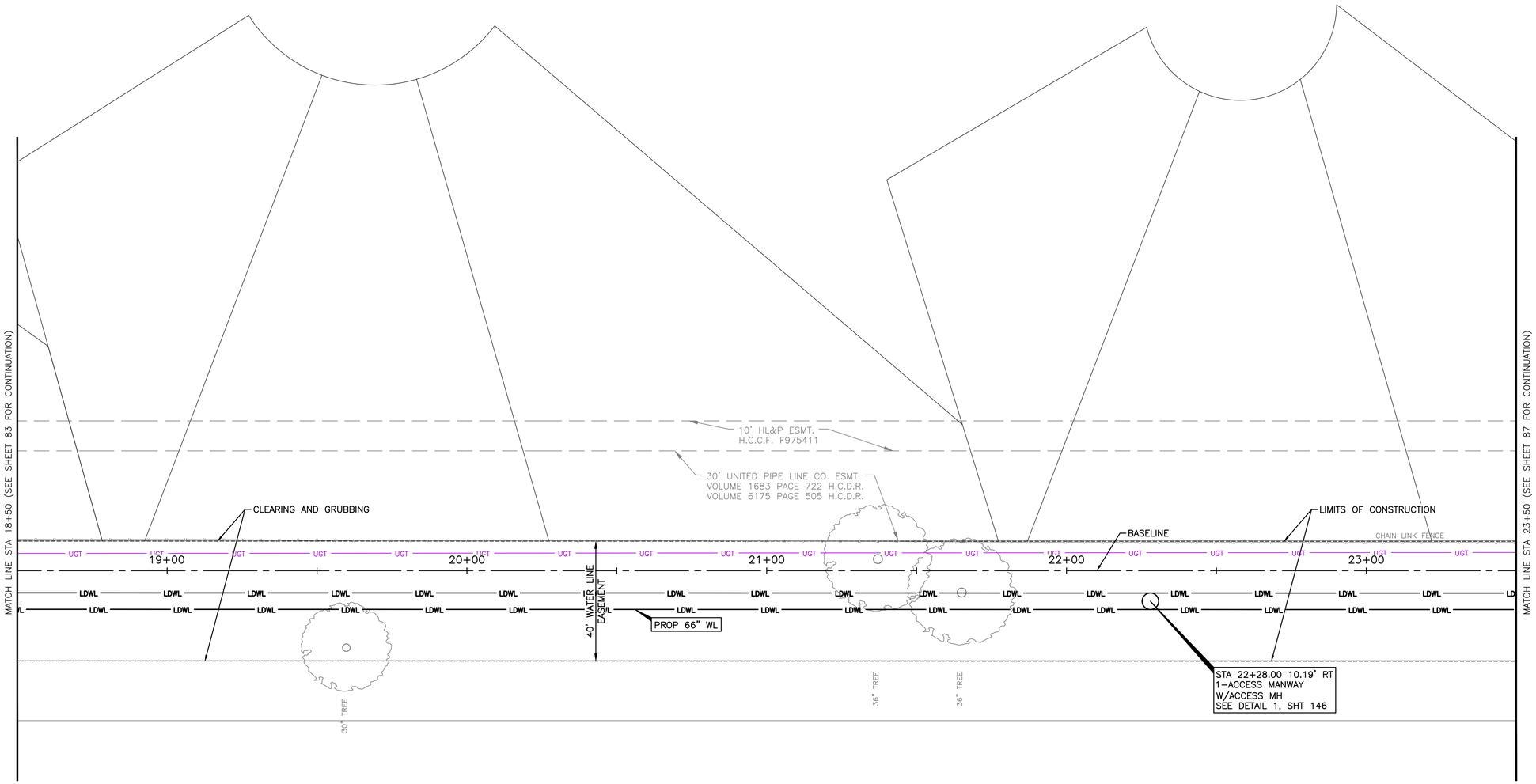
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 13+50 TO STA 18+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 84 OF 157	



SEE SHEET 86 - FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

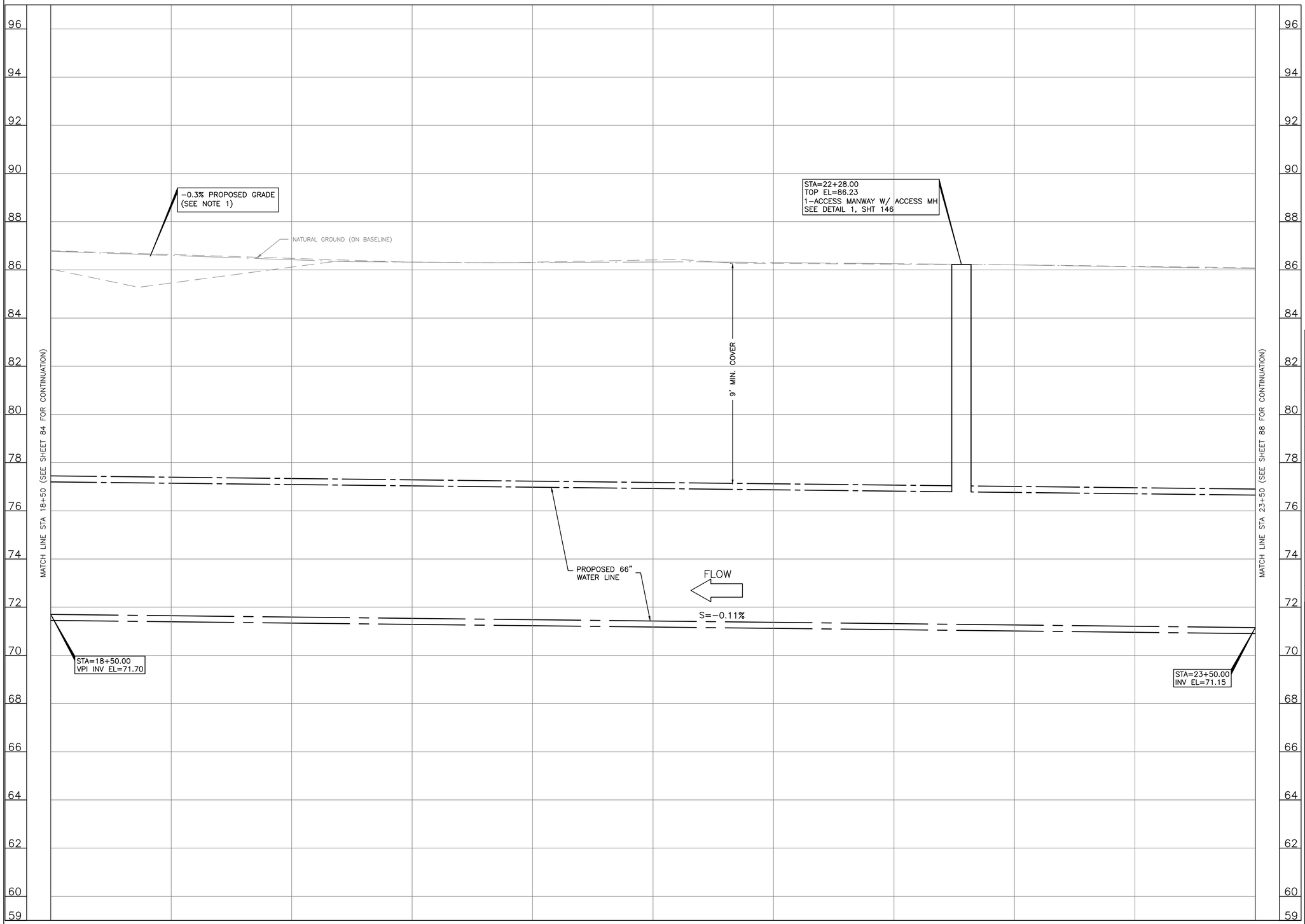
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 18+50 TO STA 23+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 85 OF 157	

SEE SHEET 85 – FOR PLAN



0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NO.	DATE	REVISION	APP.

NOTES:

1. CONTRACTOR SHALL ADD FILL BETWEEN STATION 18+23.9 TO STATION 19+66.44 WITH ONSITE MATERIALS TO PROVIDE –0.3% FINAL GRADE. PROPOSED GRADE WHERE FILL IS REQUIRED SHALL PROVIDE 9' MINIMUM COVER OVER THE 66–INCH WL. ALL FILL MATERIALS SHALL BE COMPACTED TO 95%.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

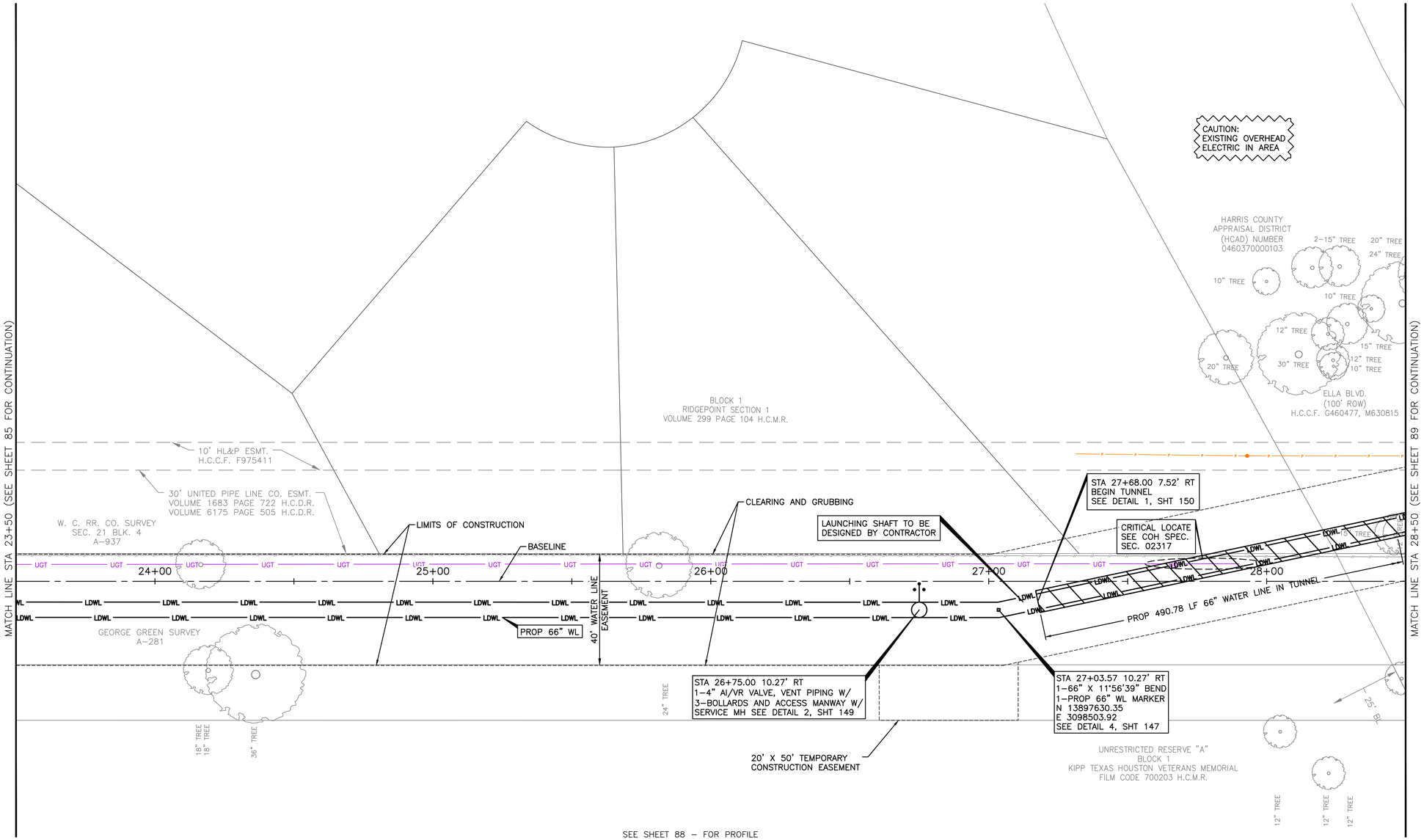
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PROFILE
STA 18+50 TO STA 23+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 86 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

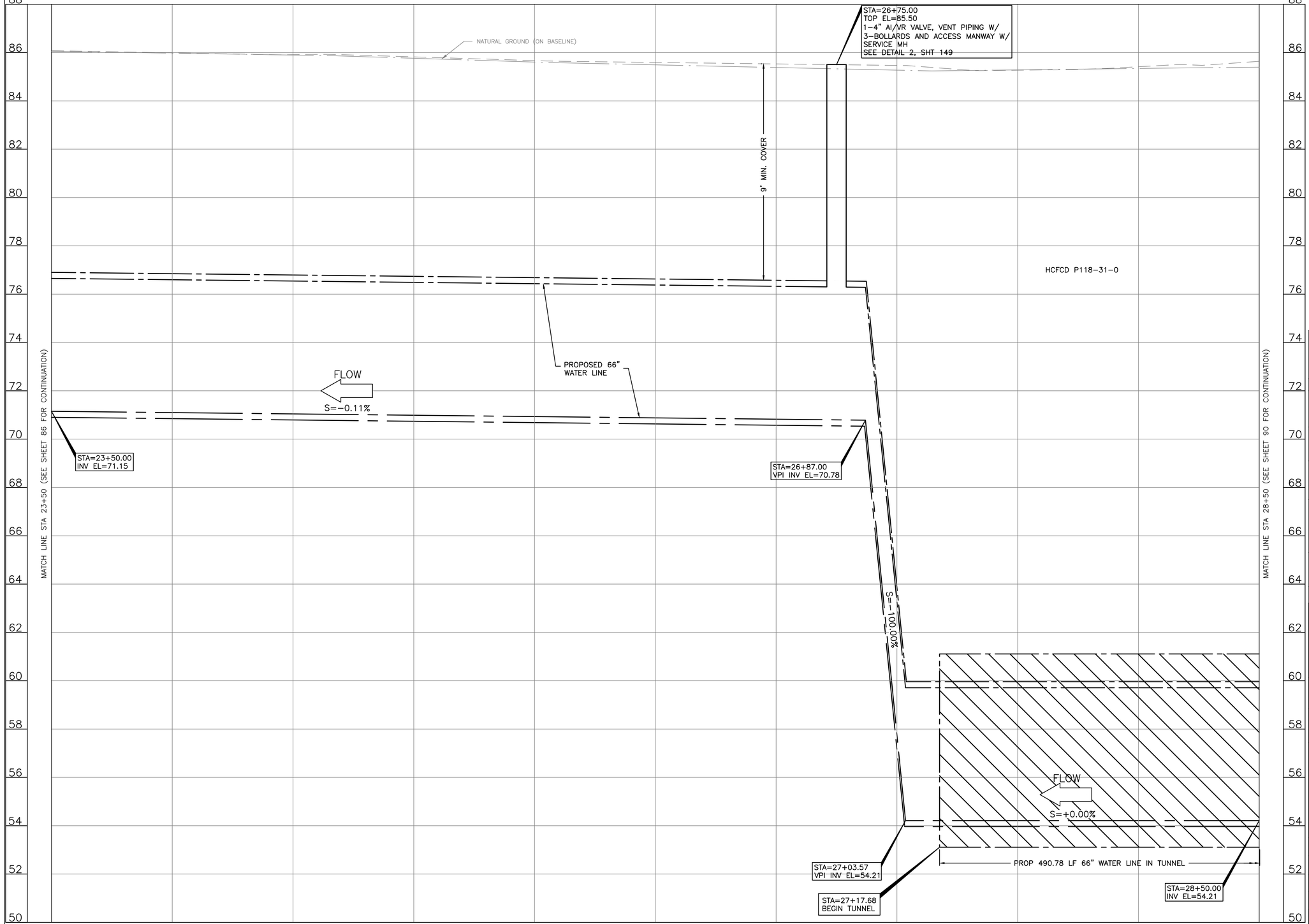
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 23+50 TO STA 28+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 87 OF 157	

SEE SHEET 87 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

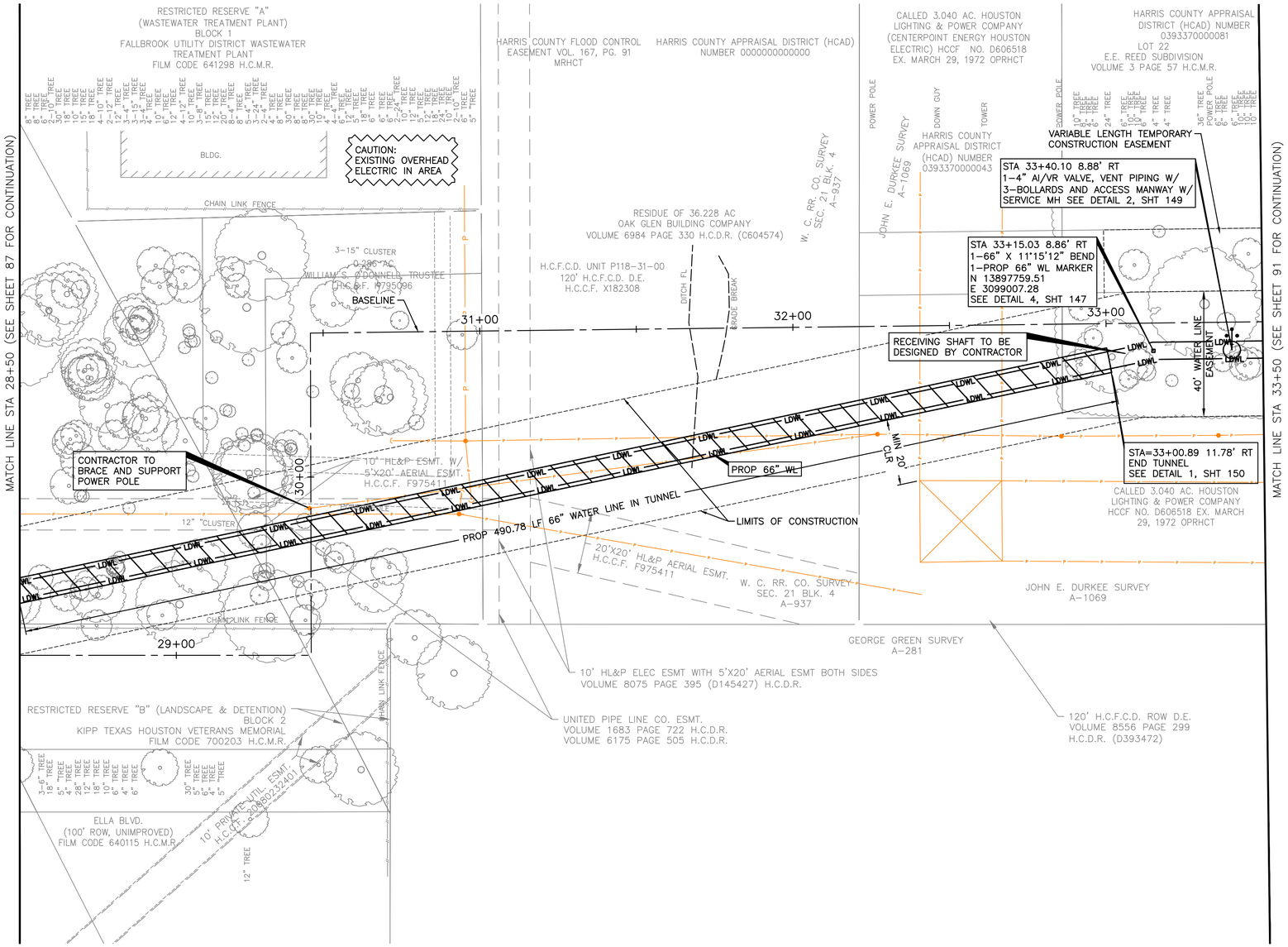
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROILE

STA 23+50 TO STA 28+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 88 OF 157	



SEE SHEET 90 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

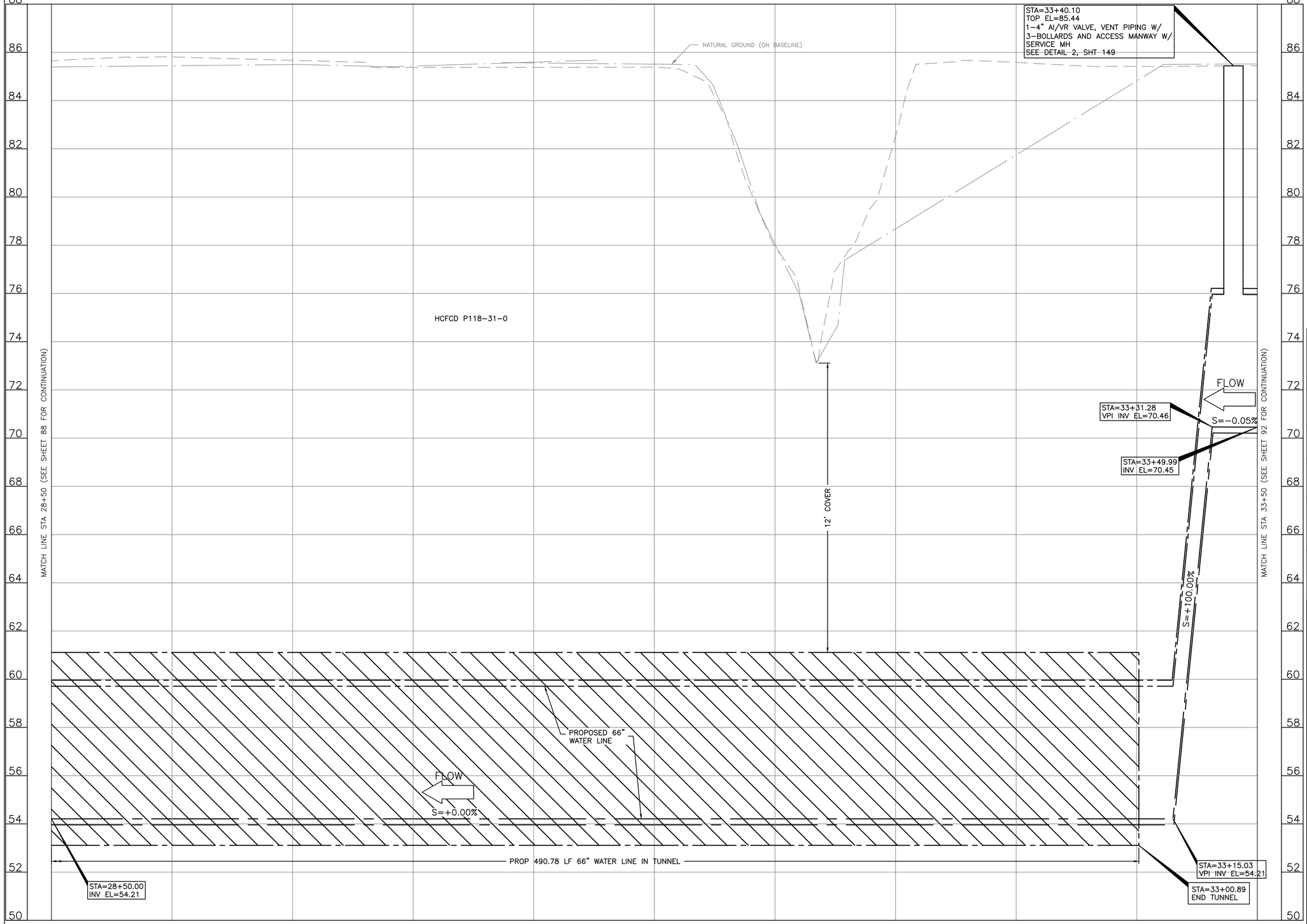
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 28+50 TO STA 33+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 89 OF 157	

SEE SHEET 89 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

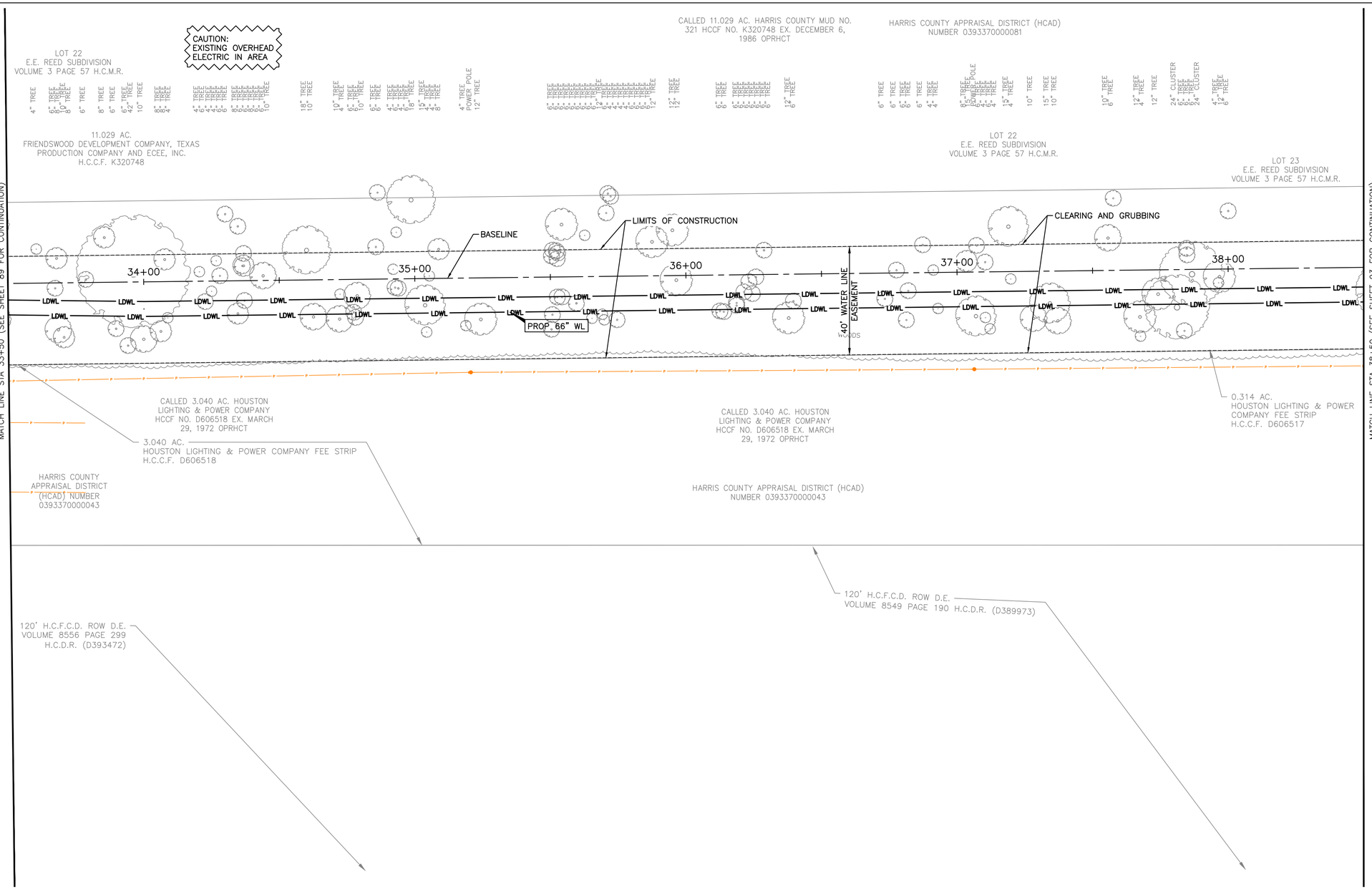
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROILE

STA 28+50 TO STA 33+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 90 OF 157	



SEE SHEET 92 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

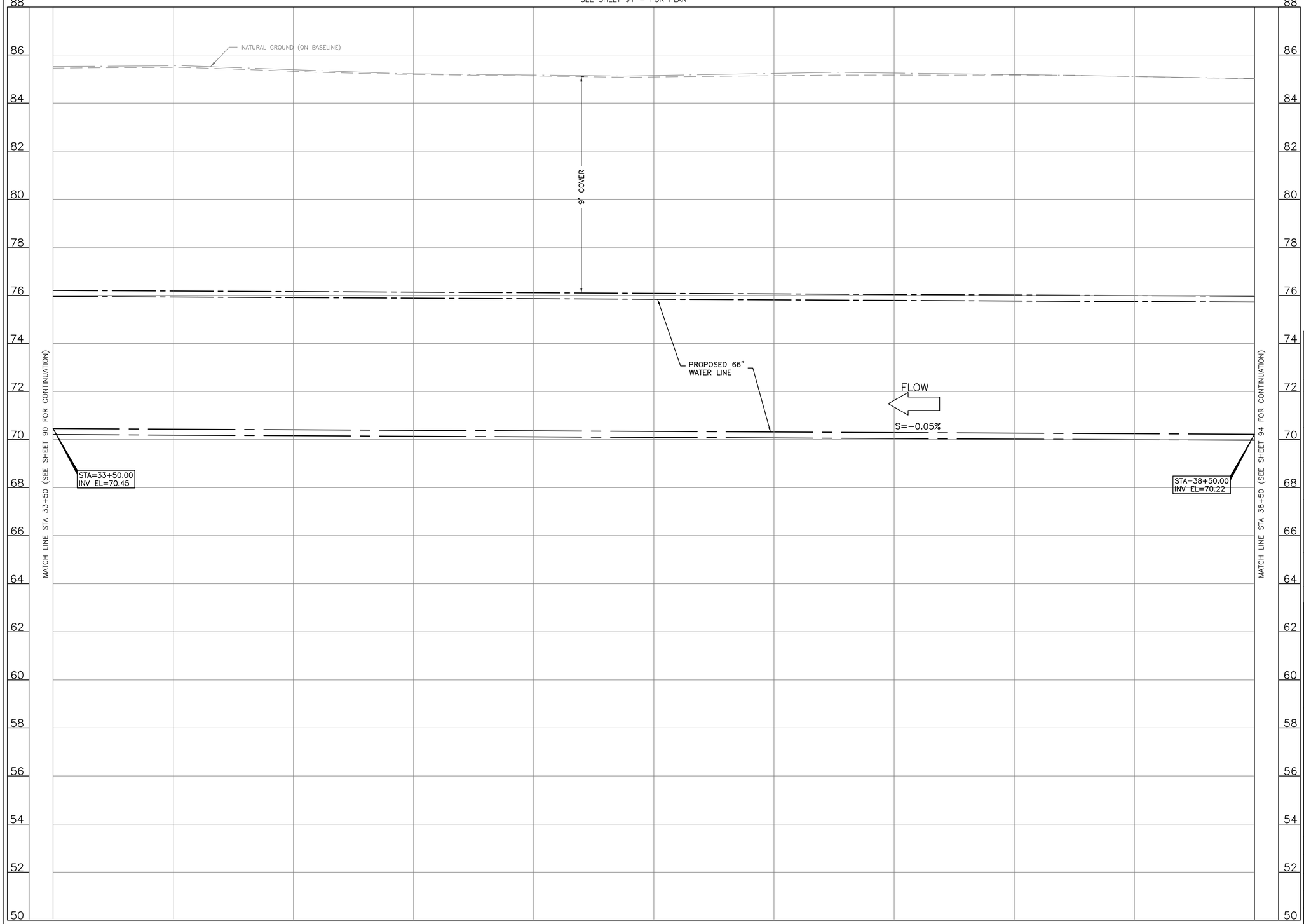
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 33+50 TO STA 38+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 91 OF 157	

SEE SHEET 91 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

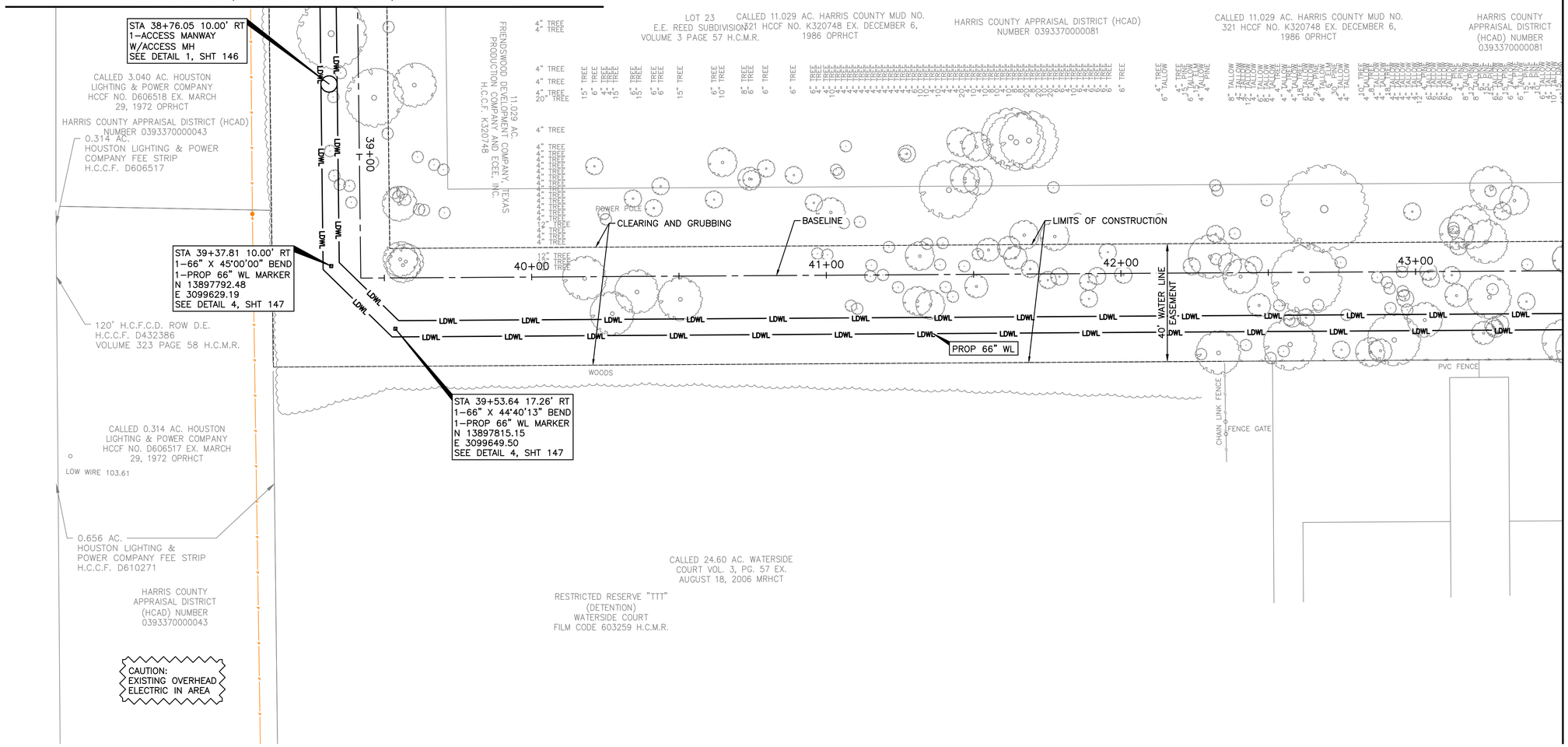
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 33+50 TO STA 38+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 92 OF 157	



SEE SHEET 94 – FOR PROFILE

MATCH LINE STA 43+50 (SEE SHEET 95 FOR CONTINUATION)

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

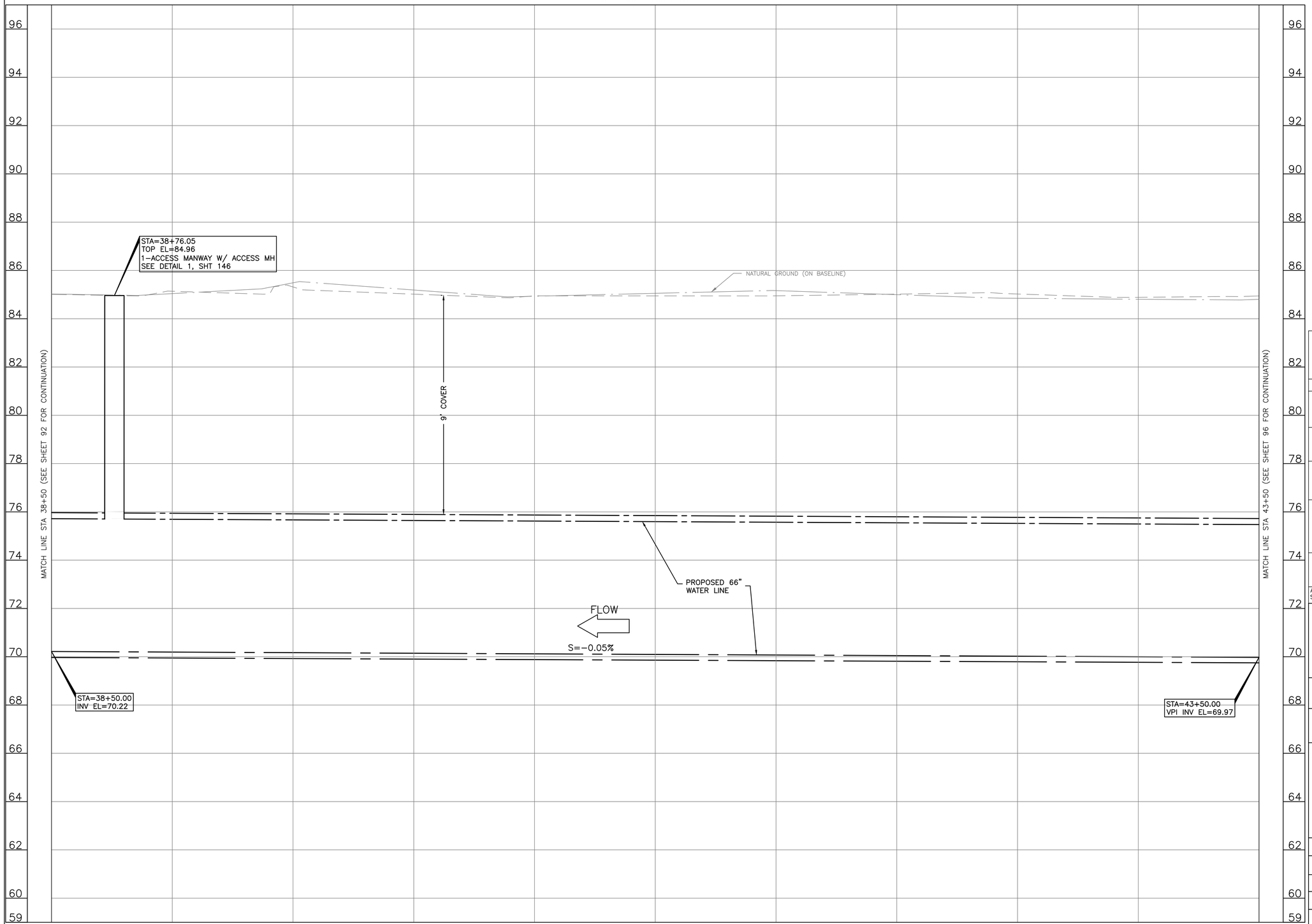
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 38+50 TO STA 43+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 93 OF 157	

SEE SHEET 93 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

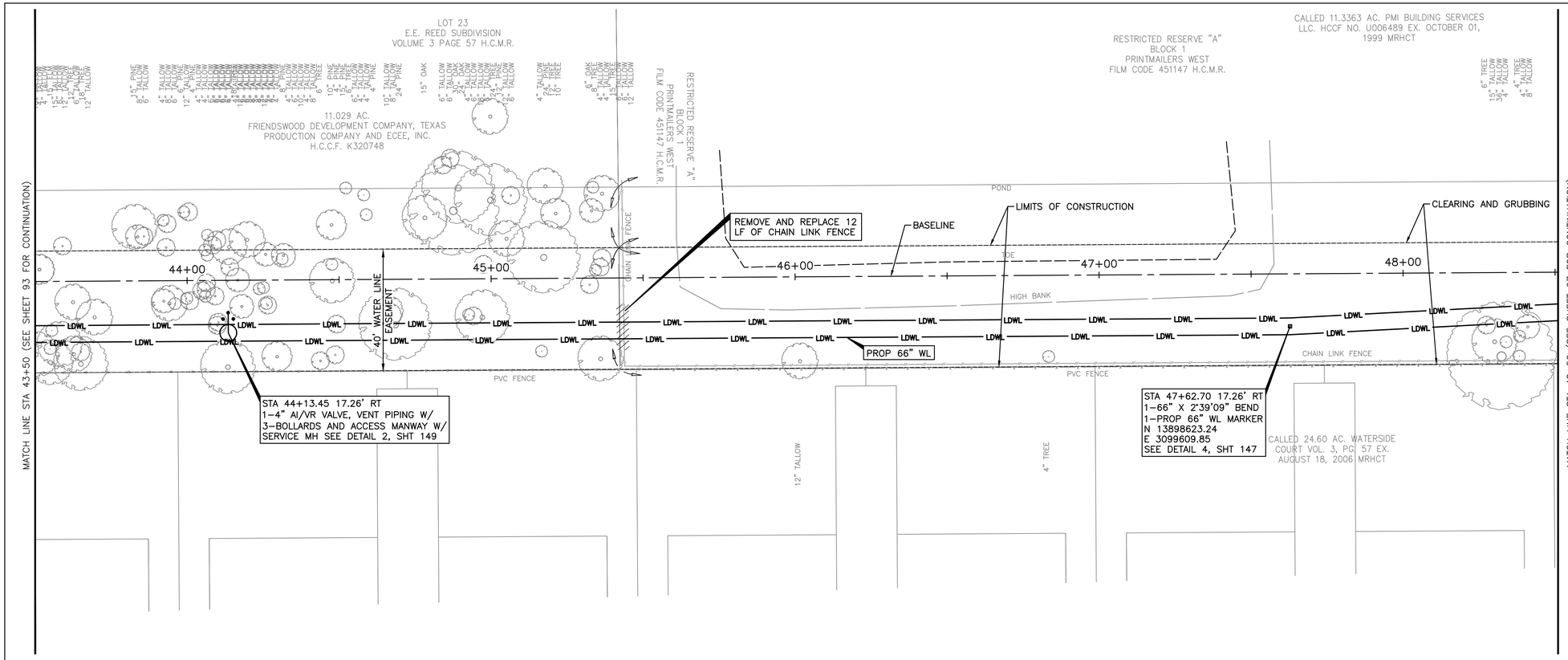
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PROFILE
STA 38+50 TO STA 43+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 94 OF 157	



SEE SHEET 96 – FOR PROFILE

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

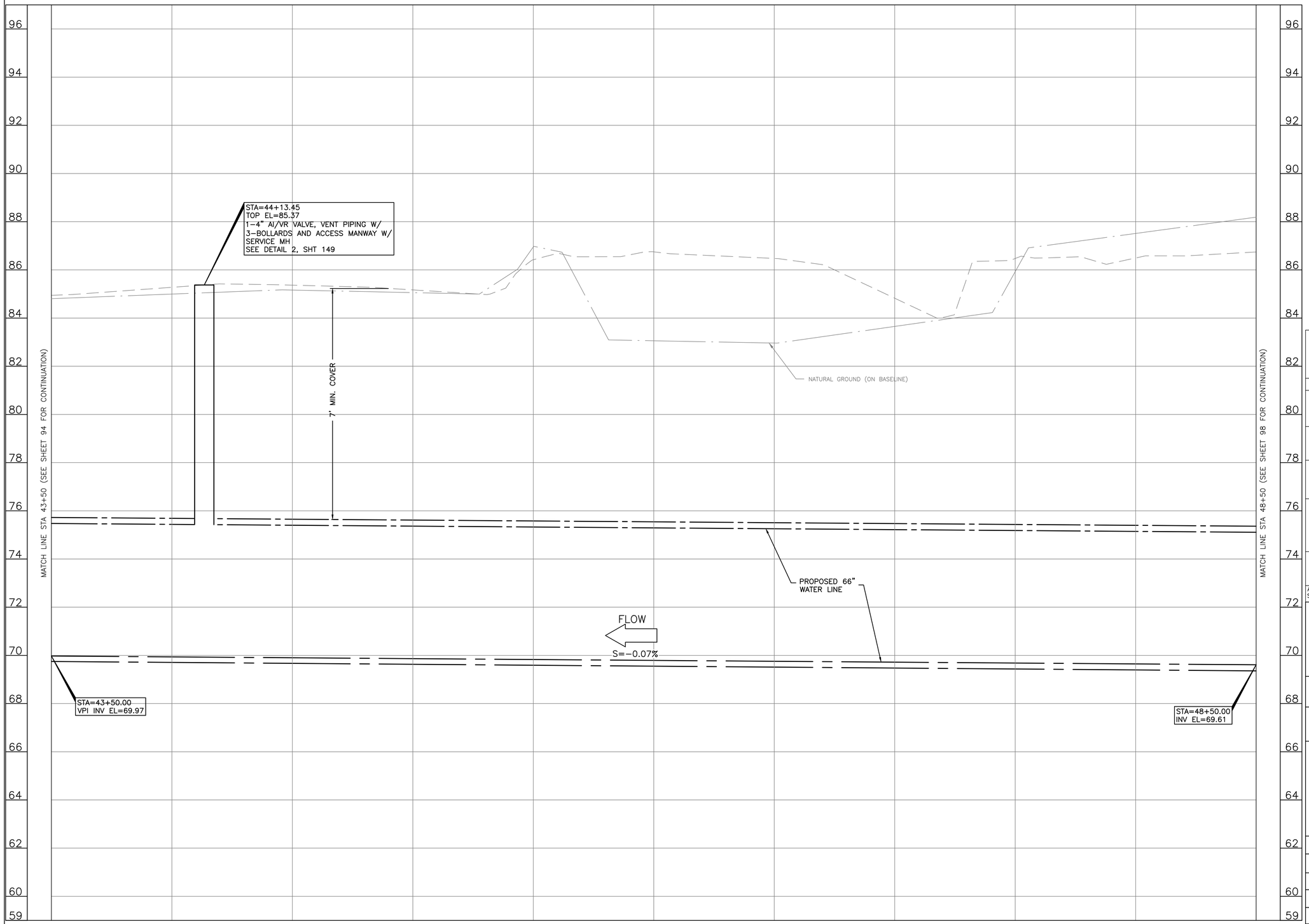
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 43+50 TO STA 48+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 95 OF 157	

SEE SHEET 95 – FOR PLAN



0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

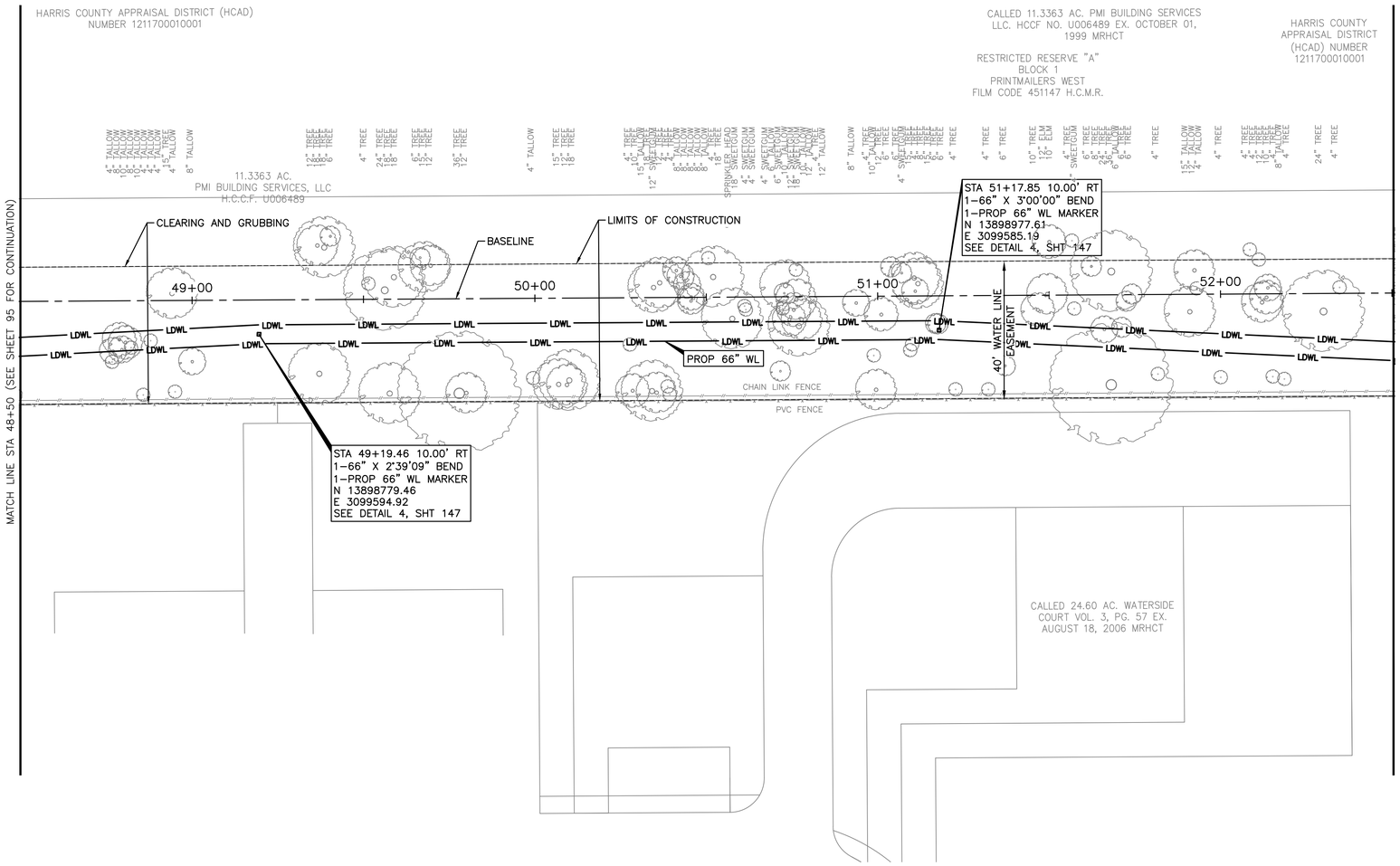
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 43+50 TO STA 48+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 96 OF 157	



SEE SHEET 98 – FOR PROFILE

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

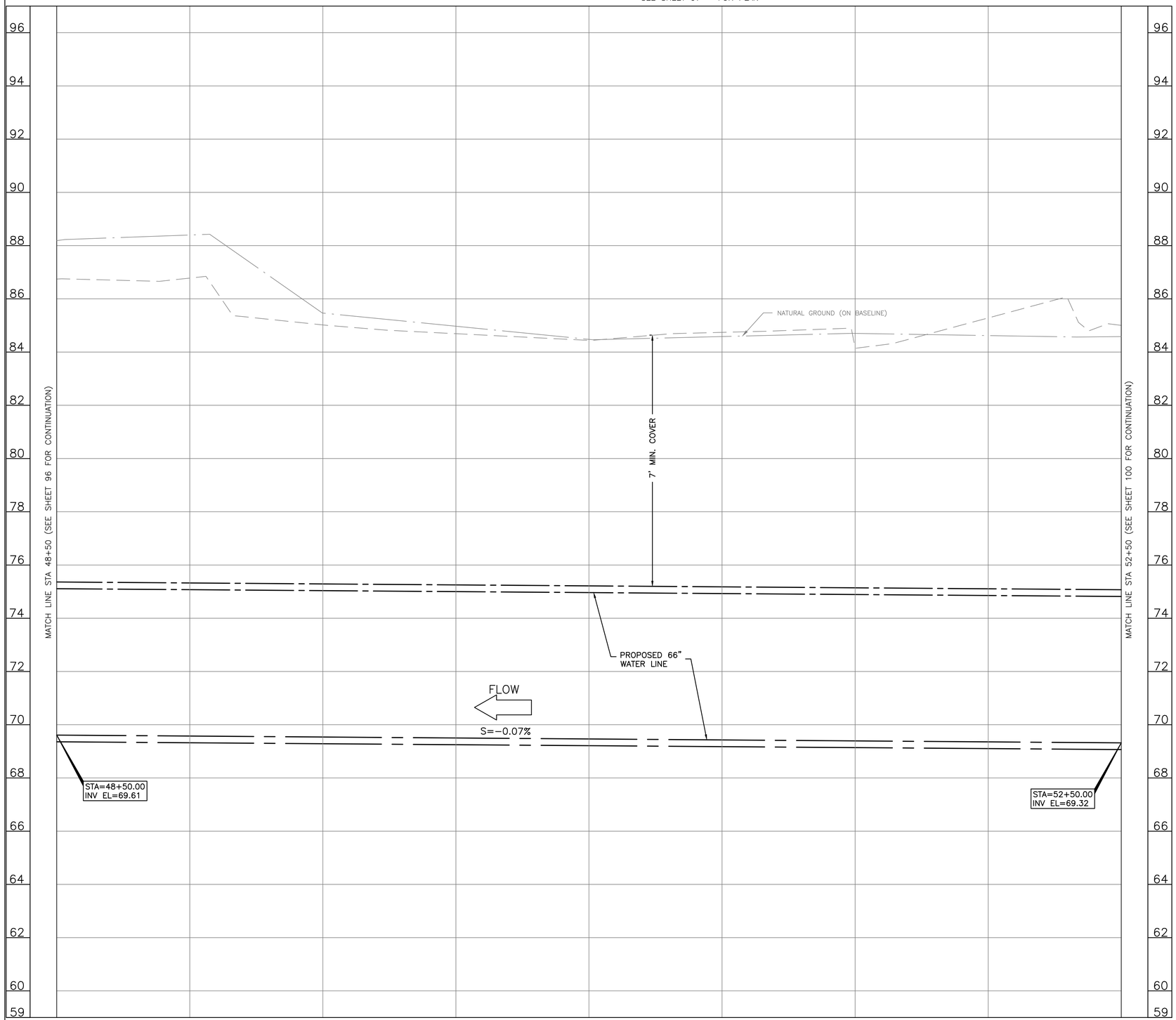
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 48+50 TO STA 52+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 97 OF 157	

SEE SHEET 97 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

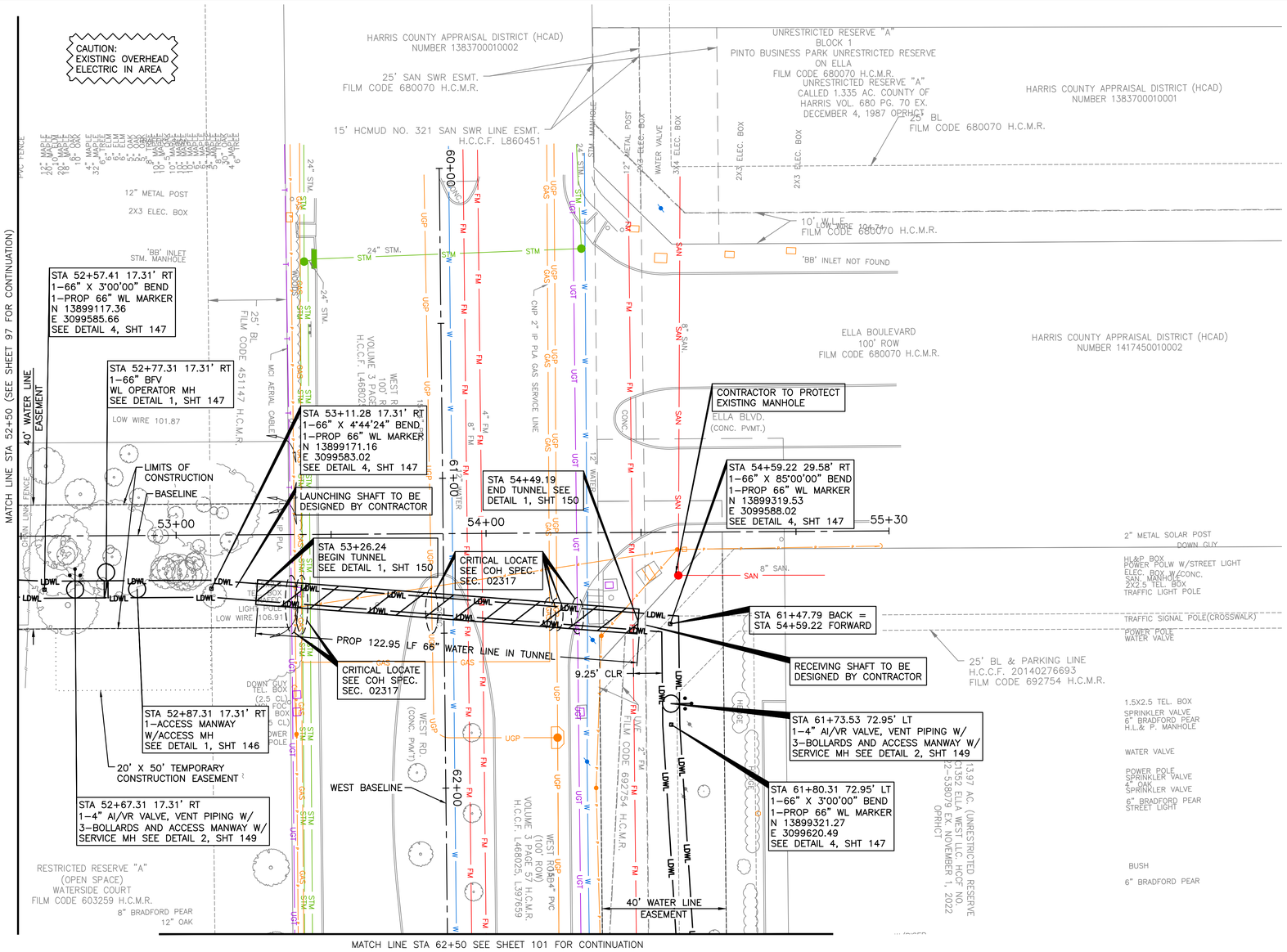
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 48+50 TO STA 52+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 98 OF 157	



NO.	DATE	REVISION	APP.

0' 10' 20' 40'

SCALE: 1"=20'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

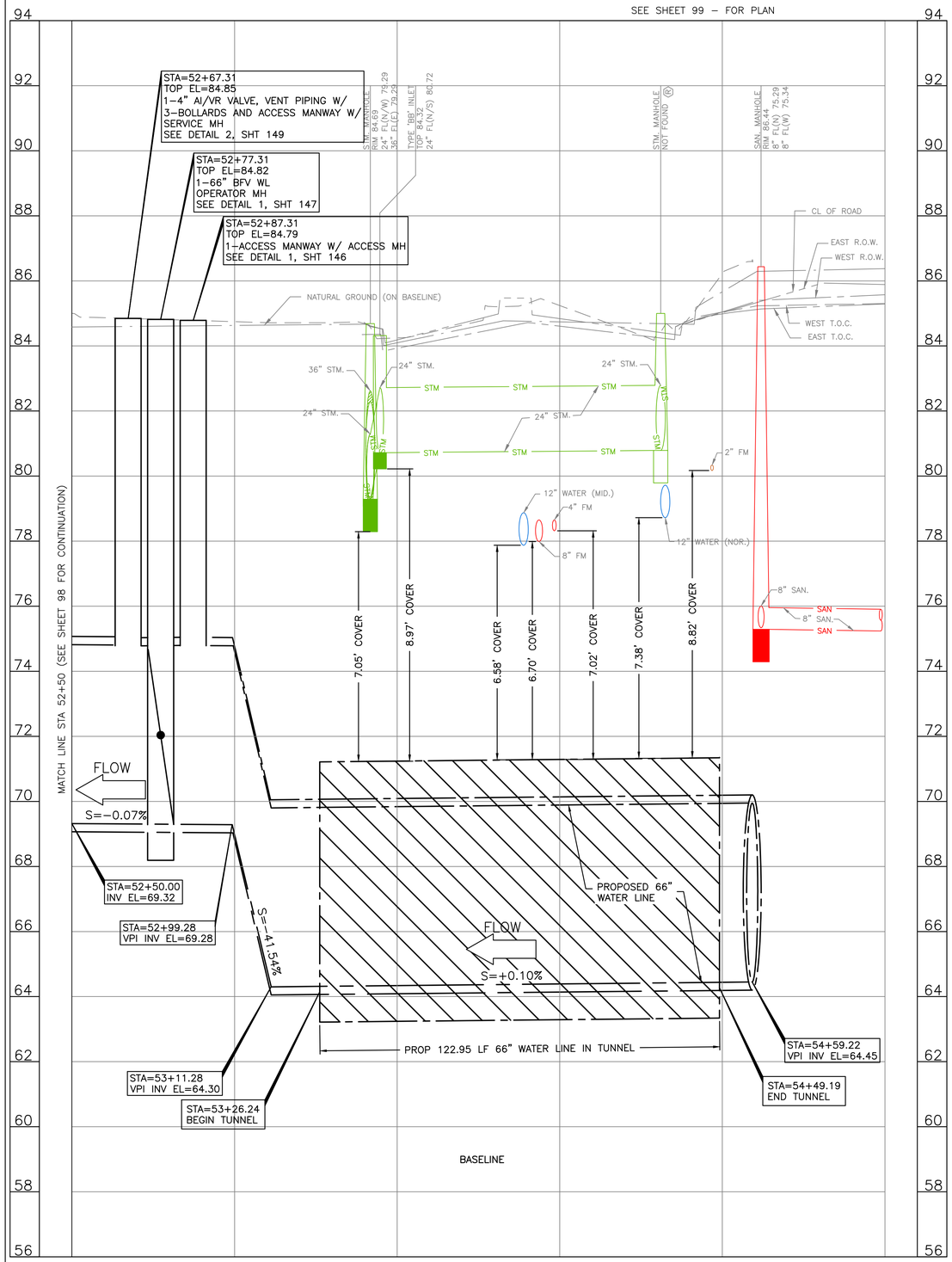
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 52+50 TO STA 62+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 99 OF 157	



0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

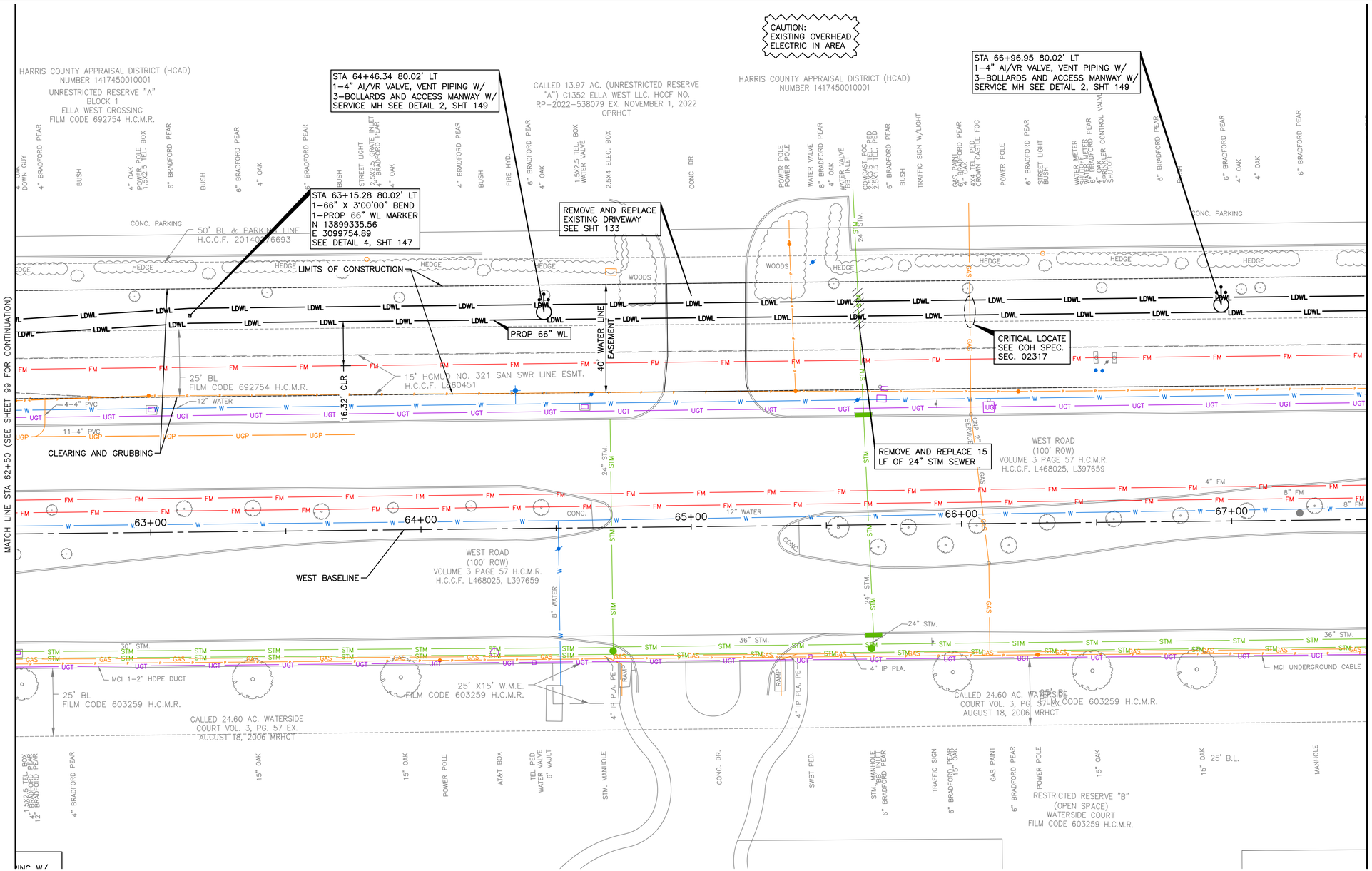
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PROFILE
STA 52+50 TO STA 62+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 100 OF 157	



SEE SHEET 102 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 62+50 TO STA 67+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 101 OF 157	

SEE SHEET 101 – FOR PLAN

STA=64+46.34
TOP EL=87.94
1–4" AI/VR VALVE, VENT PIPING W/
3–BOLLARDS AND ACCESS MANWAY W/
SERVICE MH
SEE DETAIL 2, SHT 149

STA=66+96.95
TOP EL=87.98
1–4" AI/VR VALVE, VENT PIPING W/
3–BOLLARDS AND ACCESS MANWAY W/
SERVICE MH
SEE DETAIL 2, SHT 149

STM. MANHOLE
RIM 84.69
24" FL(E)
36" FL(E)
30" FL(W)

TYPE 'BB' INLET
TOP 84.13
24" FL(N/S) 78.93

STM. MANHOLE
RIM 84.43
24" FL(N) 78.77
24" FL(E) 77.92
36" FL(E) 77.97
36" FL(W) 77.97

TYPE 'BB' INLET
TOP 84.12
24" FL(N/S) 78.87

SAN. MANHOLE
RIM 85.27
TOP OF PUMP 84.52

NG–ALONG CL
CL OF ROAD
NORTH R.O.W.
SOUTH T.O.C.
NORTH T.O.C.
SOUTH R.O.W.
7' MIN. COVER
24" STM.
30" STM.
12" WATER (NOR.)
12" WATER (MID.)
8" WATER
6" FH LEAD
8" FM
4" FM
2" FM
36" STM.
3.20' COVER
PROPOSED 66" WATER LINE
FLOW
S=–0.35%
S=–1.68%
S=–0.33%

STA=62+50.00
INV EL=71.73

STA=64+56.34
VPI INV EL=71.00

STA=65+42.76
VPI INV EL=69.55

STA=67+50.00
VPI INV EL=68.86

MATCH LINE STA 62+50 (SEE SHEET 100 FOR CONTINUATION)
MATCH LINE STA 67+50 (SEE SHEET 104 FOR CONTINUATION)

96 94 92 90 88 86 84 82 80 78 76 74 72 70 68 66 64 62 60 59

62+50 63+00 63+50 64+00 64+50 65+00 65+50 66+00 66+50 67+00 67+50

NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

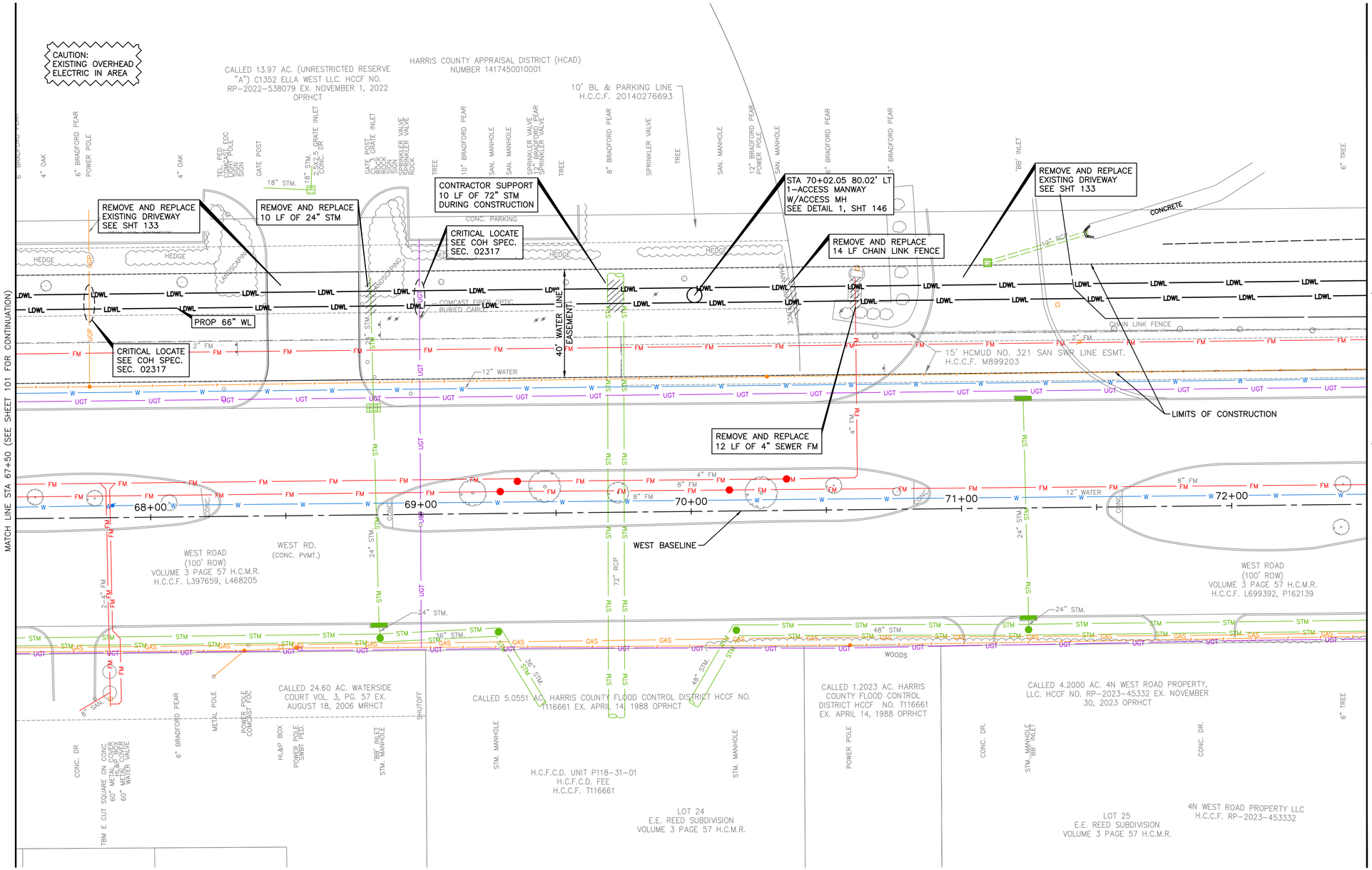
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 62+50 TO STA 67+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 102 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

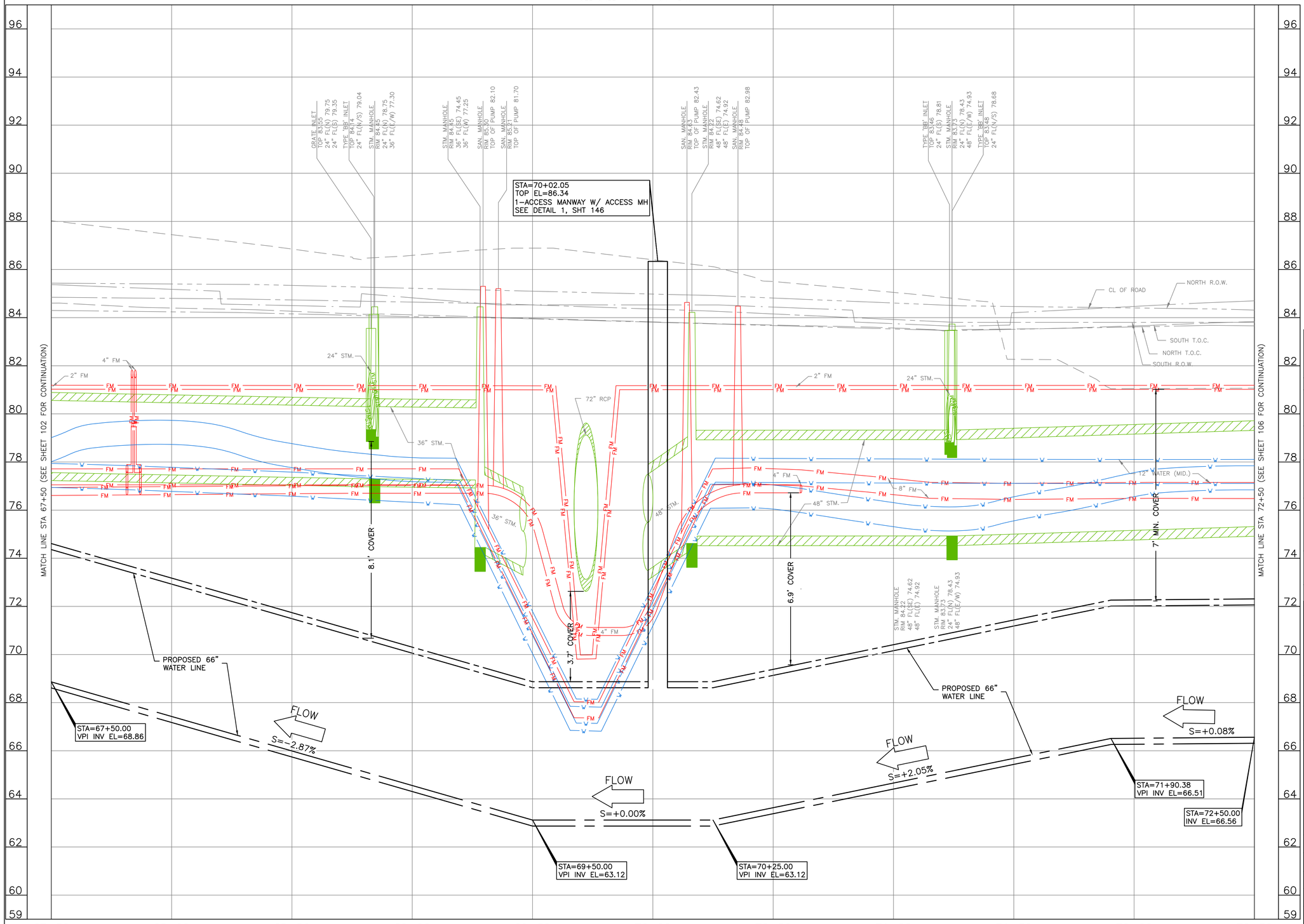
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 67+50 TO STA 72+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 103 OF 157	

SEE SHEET 103 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

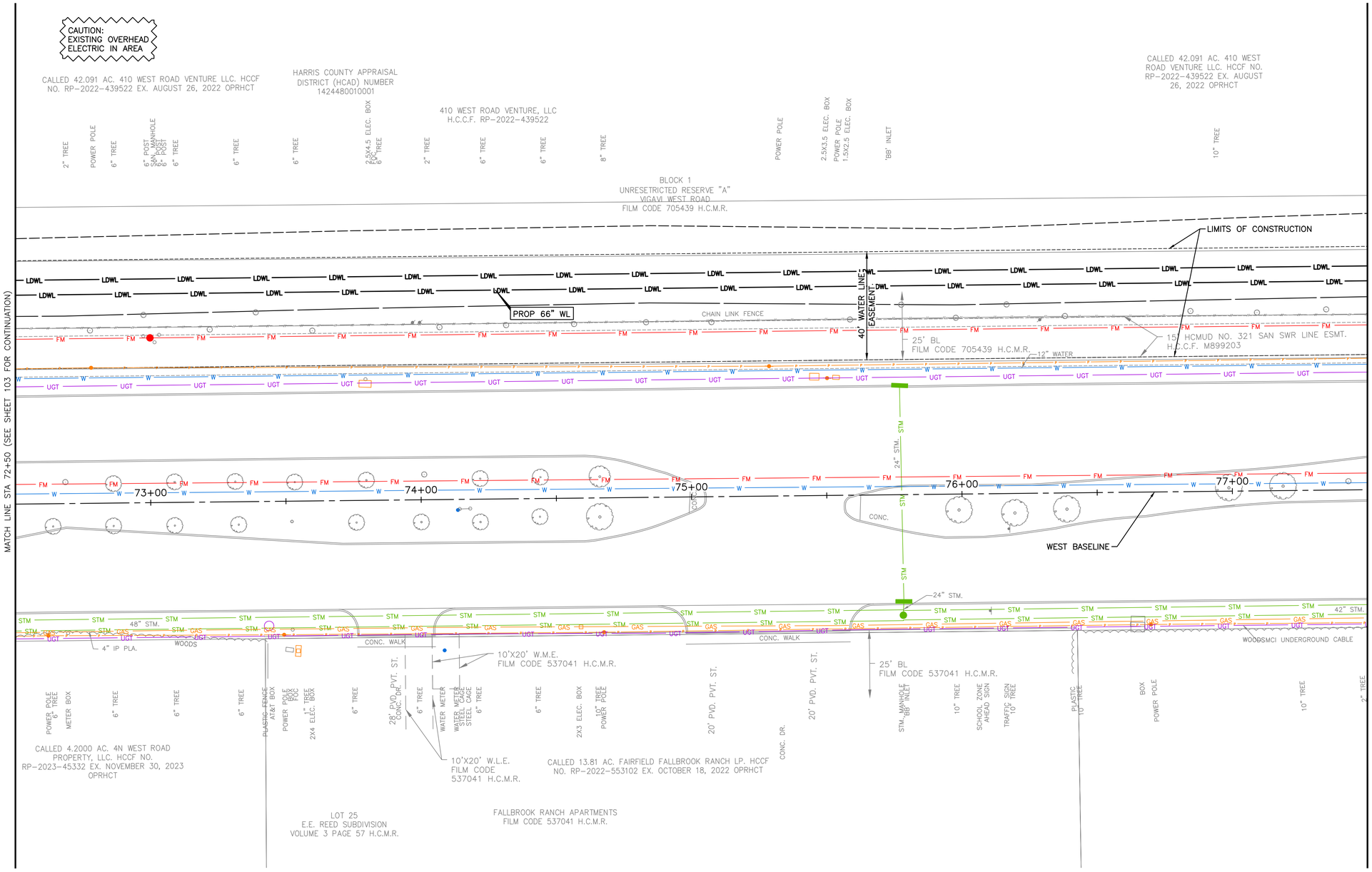
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 67+50 TO STA 72+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 104 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH

920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

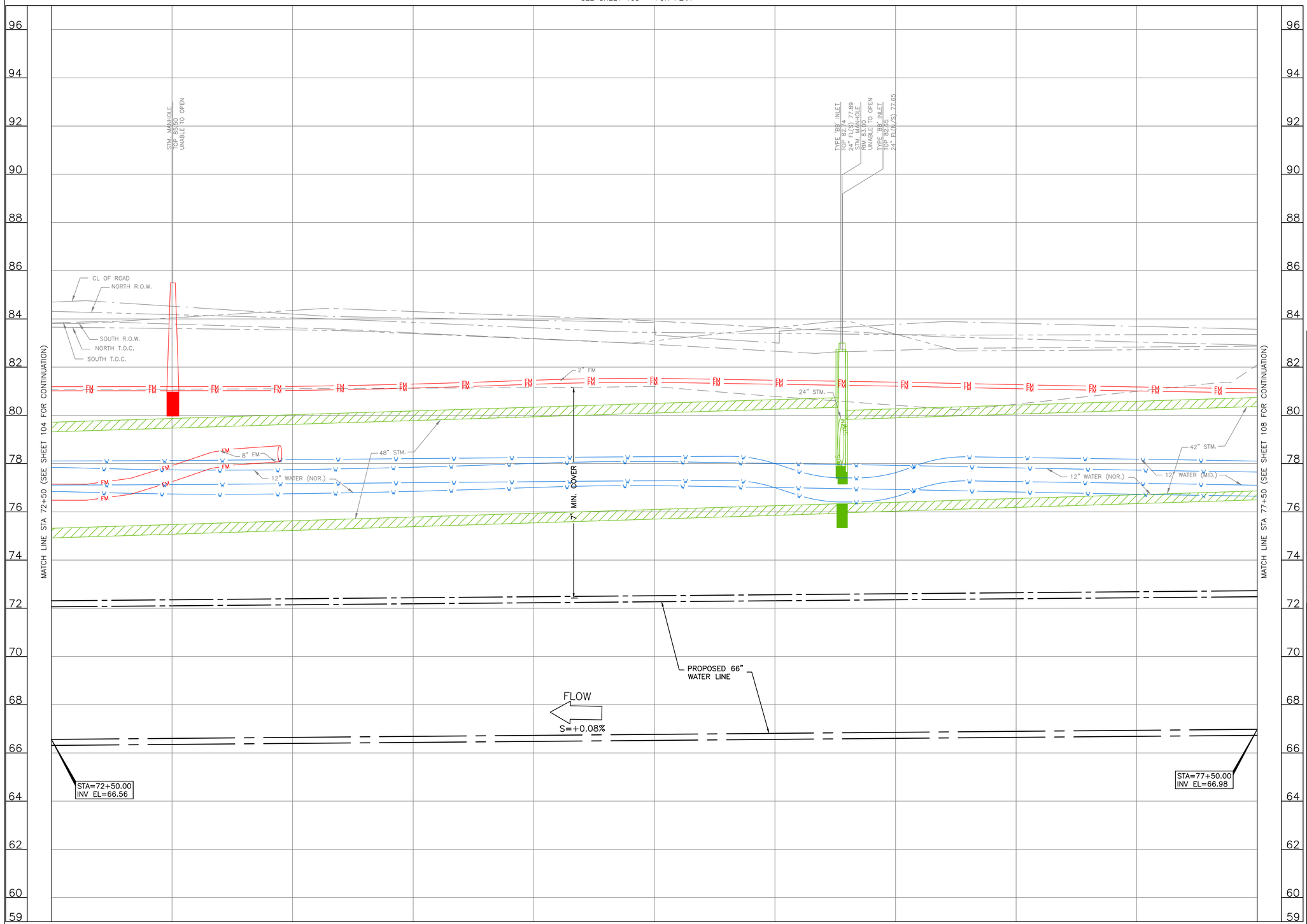
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 72+50 TO STA 77+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 105 OF 157	

SEE SHEET 105 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

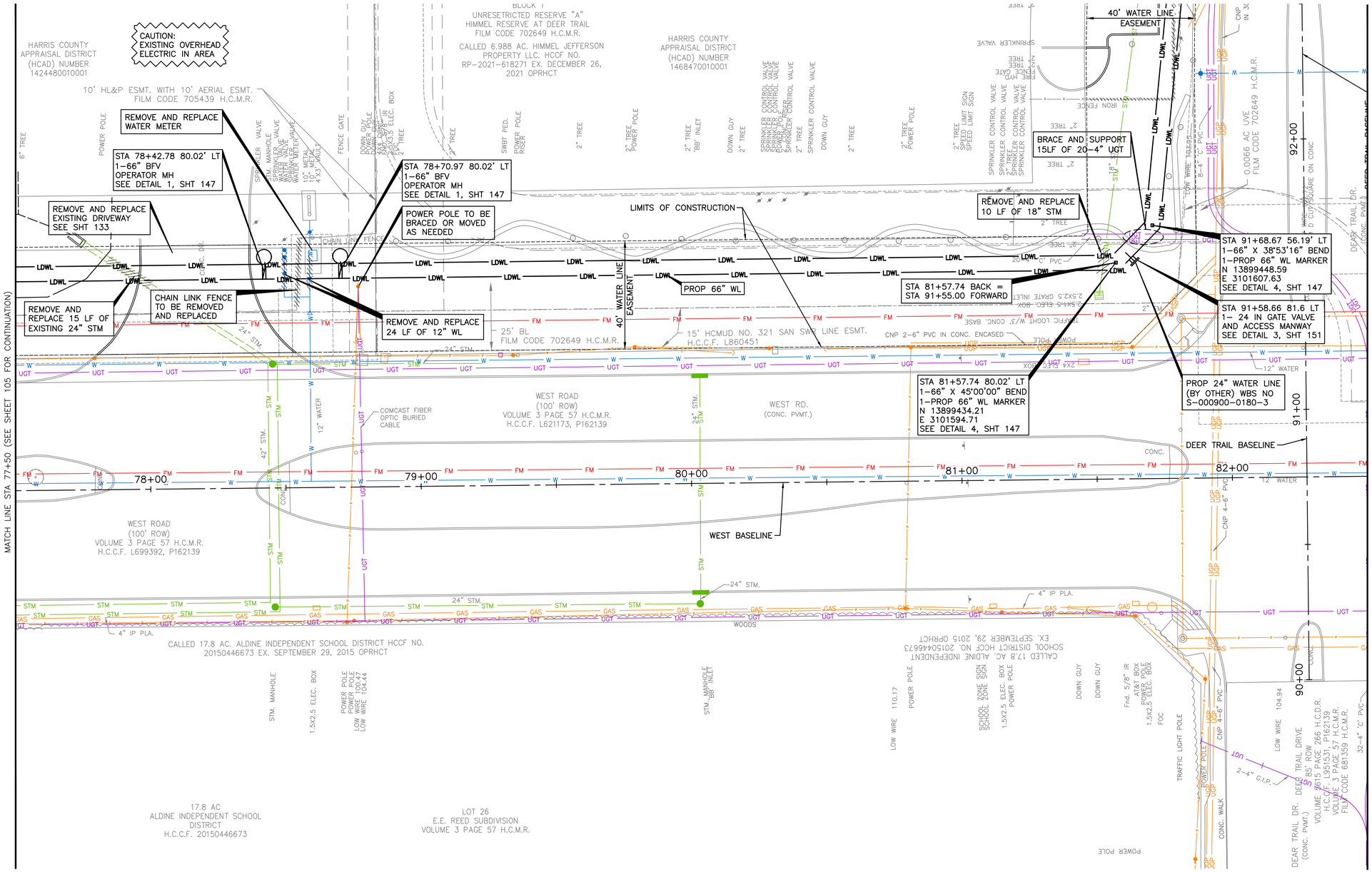
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 72+50 TO STA 77+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 106 OF 157	



N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

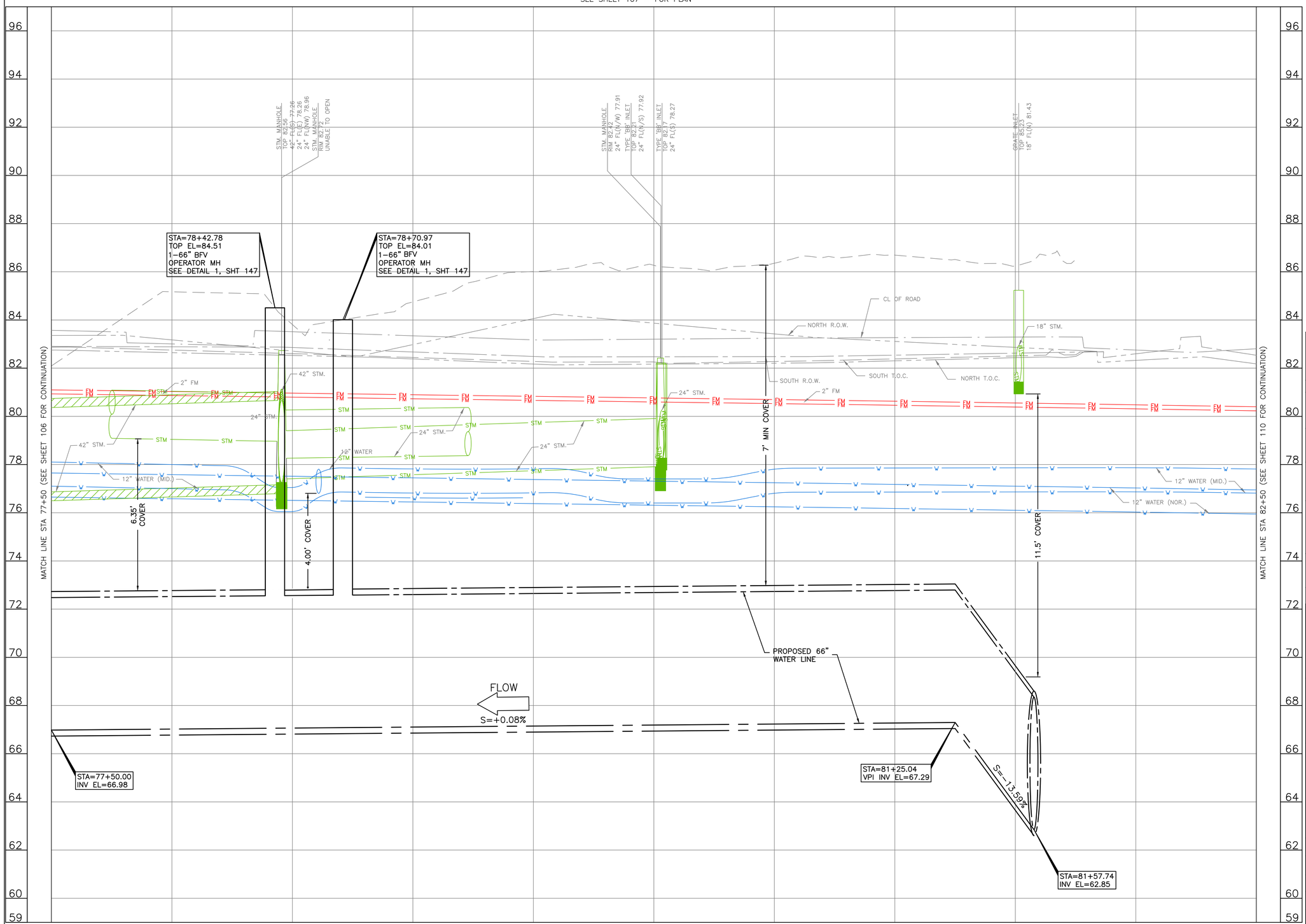
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 77+50 TO STA 82+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 107 OF 157	

SEE SHEET 107 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 77+50 TO STA 82+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 108 OF 157	

MATCH LINE STA 80+50 (SEE SHEET 107 FOR CONTINUATION)

CAUTION: EXISTING OVERHEAD ELECTRIC IN AREA

LOW WIRE 110.17

POWER POLE

CALLED 17.8 AC. ALDINE INDEPENDENT SCHOOL DISTRICT HCCF NO. 20150446673 EX. SEPTEMBER 29, 2015 OPRHCT

SCHOOL ZONE SIGN
SCHOOL ZONE SIGN

1.5X2.5 ELEC. BOX
POWER POLE

DOWN GUY

DOWN GUY

POWER POLE

Fnd. 5/8" IR
AT&T BOX
POWER POLE
1.5X2.5 ELEC. BOX
FOC

TRAFFIC LIGHT POLE

POWER POLE

CONC. WALK

CNP 4–6" PVC

LOW WIRE 104.94

DEAR TRAIL DR.
(CONC. PVMT.)

DEER TRAIL DRIVE
85' ROW
VOLUME 5615 PAGE 266 H.C.D.R.
H.C.C.F. L951531, P162139
VOLUME 3 PAGE 57 H.C.M.R.
FILM CODE 681359 H.C.M.R.

90+00

91+00

82+00

81+00

2–4" G.I.P.

32–4" 'C' PVC

BURIED CABLE

2–4" G.I.P.

2.5X4.5 ELEC. BOX
DOWN GUY
2X3 ELEC. BOX

POWER POLE
TRAFFIC LIGHT POLE

CONC. WALK

METER POLE

LINK FENCE

3X5.5 ELEC. BOX
FOC
POWER POLE

AT&T/S.W.B.T. MANHOLE

TRAFFIC SIGN

POWER POLE

DOWN GUY

DOWN GUY

25' BL.
FILM CODE 681359 H.C.M.R.

POWER POLE

UNRESTRICTED RESERVE "A"
BLOCK 1
ALDINE CAREER AND TECHNOLOGY
FILM CODE 681359 H.C.M.R.

0.0139 AC UVE ESMT
FILM CODE 681359 H.C.M.R.

CONC. WALK

LINK FENCE

4" IP PLA.

MCI UNDERGROUND CABLE

WEST ROAD
(100' ROW)
VOLUME 3 PAGE 57 H.C.M.R.
H.C.C.F. L621173, L951531, P162139

WEST RD.
(CONC. PVMT.)

83+00

83+50

40' WATER LINE EASEMENT

2" TREE
POWER POLE

2" TREE
SPEED LIMIT SIGN
SPEED LIMIT SIGN

SPRINKLER CONTROL VALVE
SPRINKLER CONTROL VALVE
2" TREE
SPRINKLER CONTROL VALVE
SPRINKLER CONTROL VALVE

ONP 2–6" PVC IN CONC. ENCASE

CONC. BASE

TRAFFIC LIGHT W/3' CONC. BASE

2X4 ELEC. BOX

2.5X4.5 ELEC. BOX

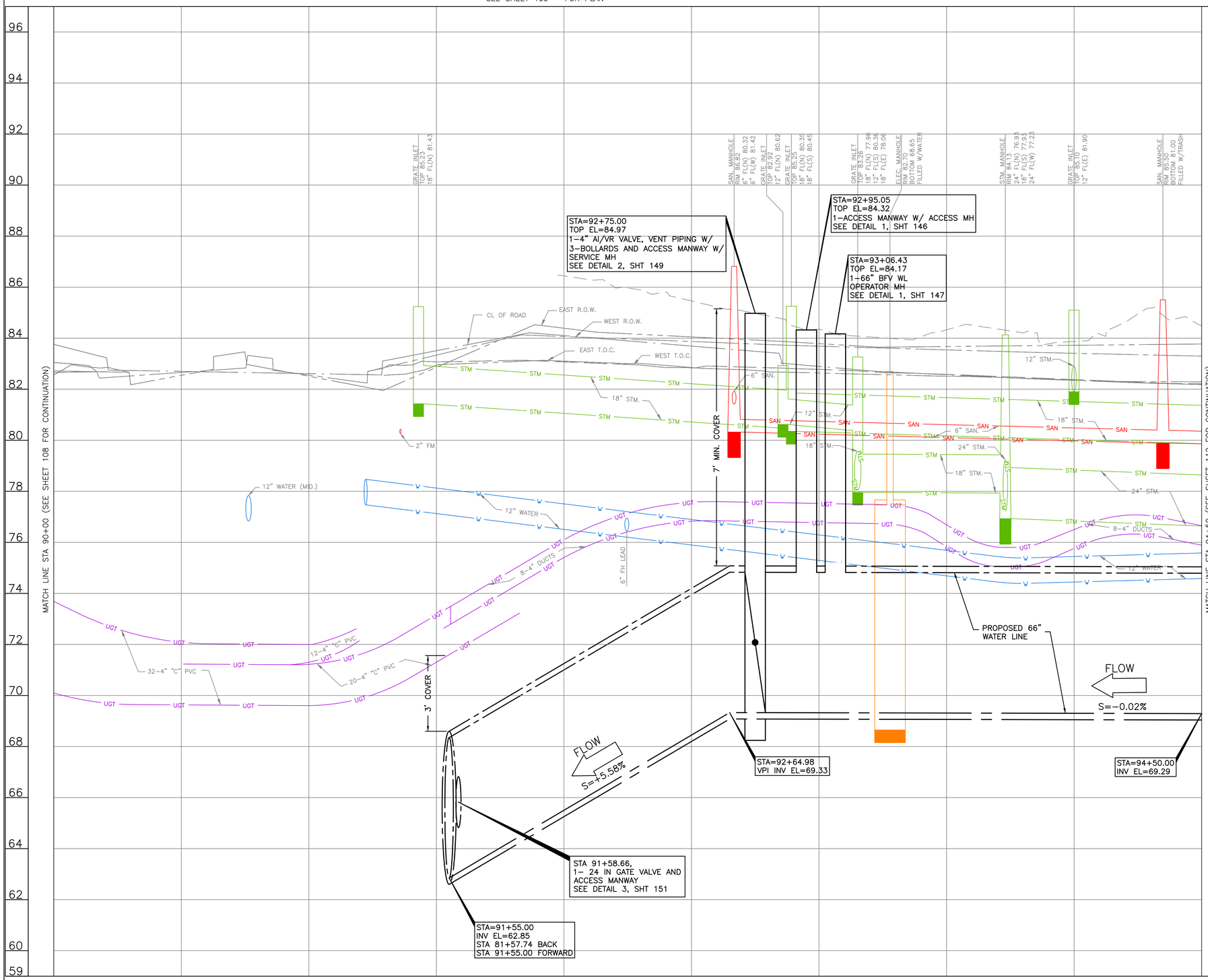
2.5X2.5 GRATE INLET

2" TREE

2" TREE

2" TREE

SEE SHEET 109 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

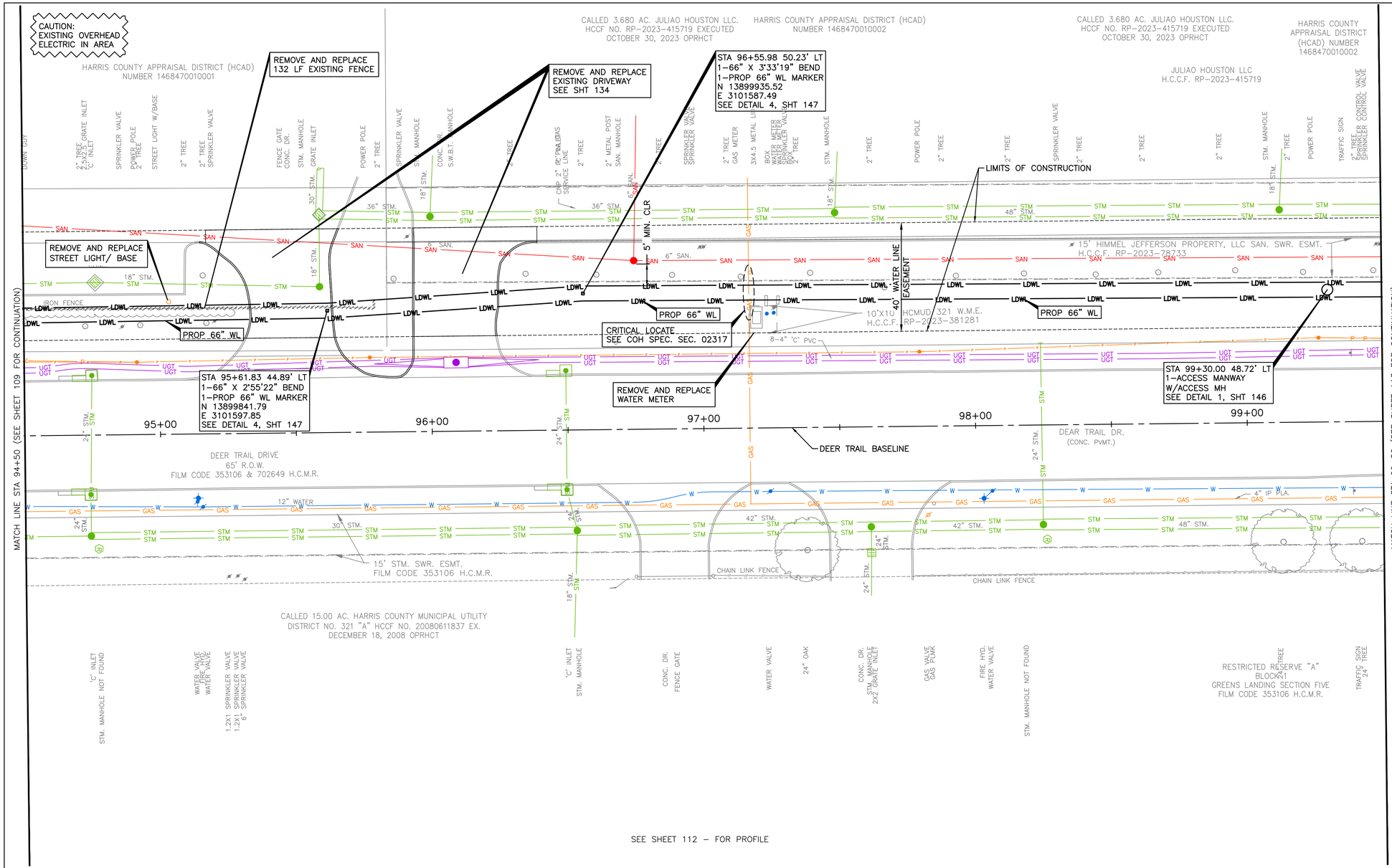
SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PROFILE
STA 90+00 TO STA 94+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 110 OF 157	



SEE SHEET 112 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

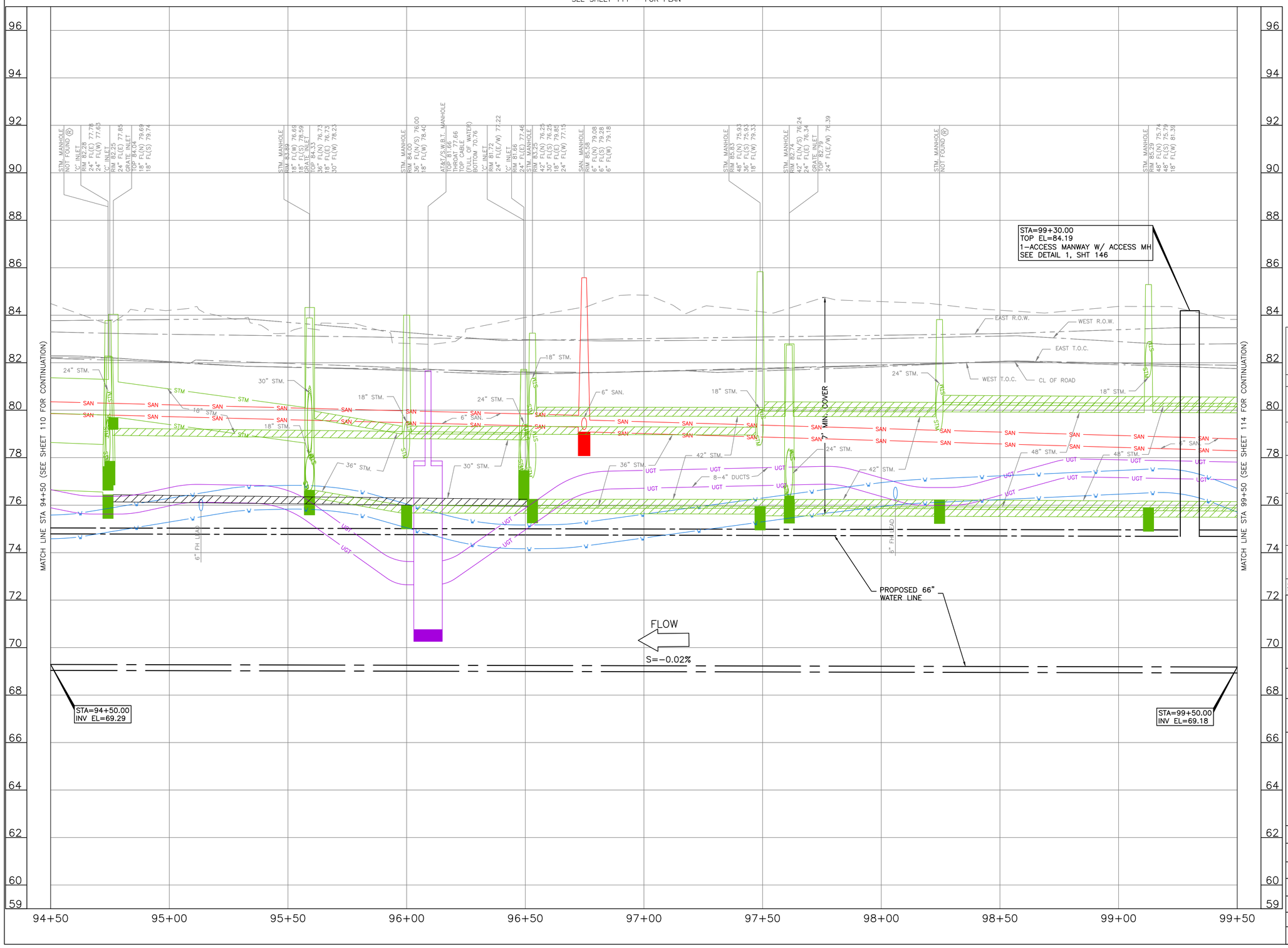
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 94+50 TO STA 99+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 111 OF 157	

SEE SHEET 111 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

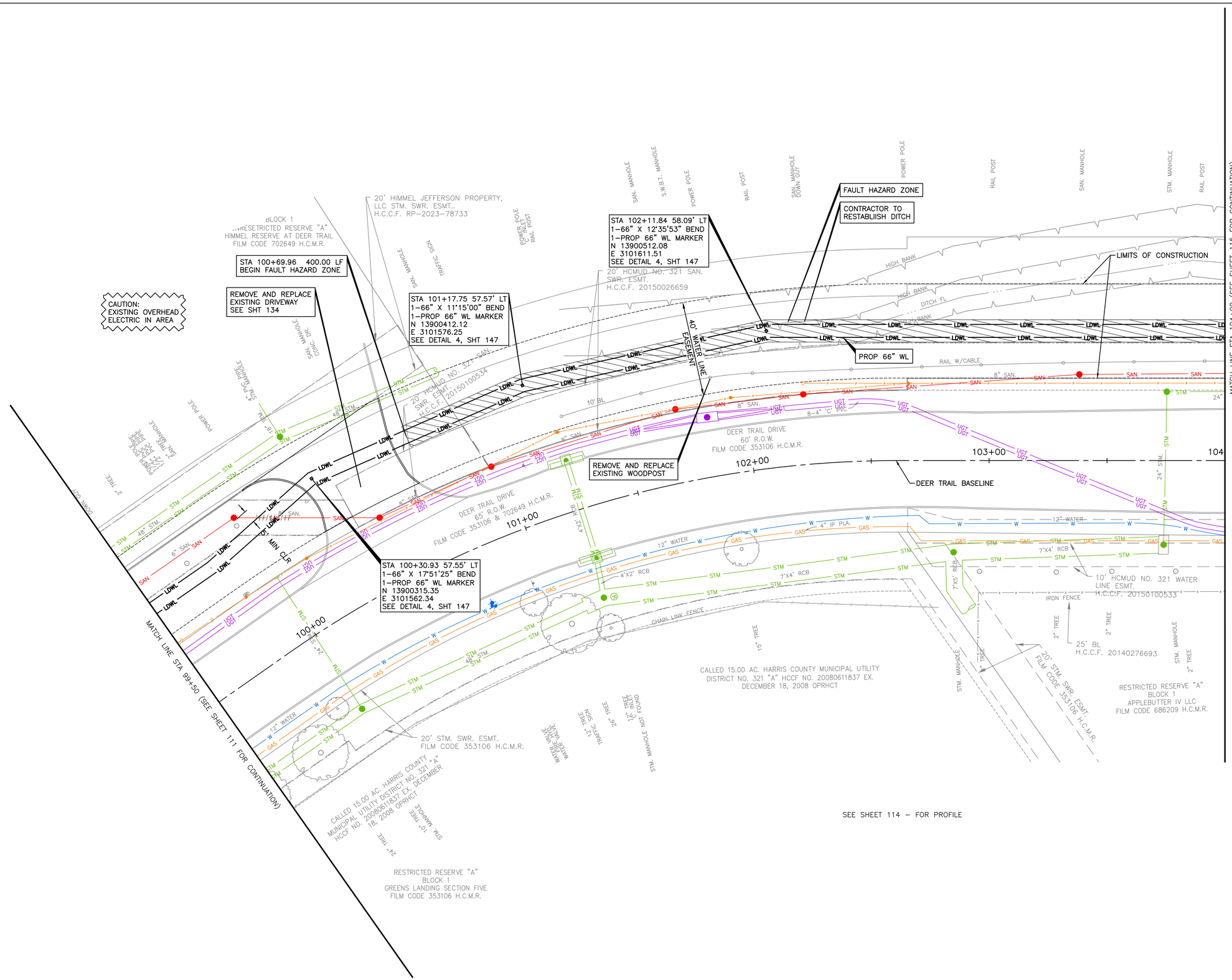
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 94+50 TO STA 99+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 112 OF 157	



NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

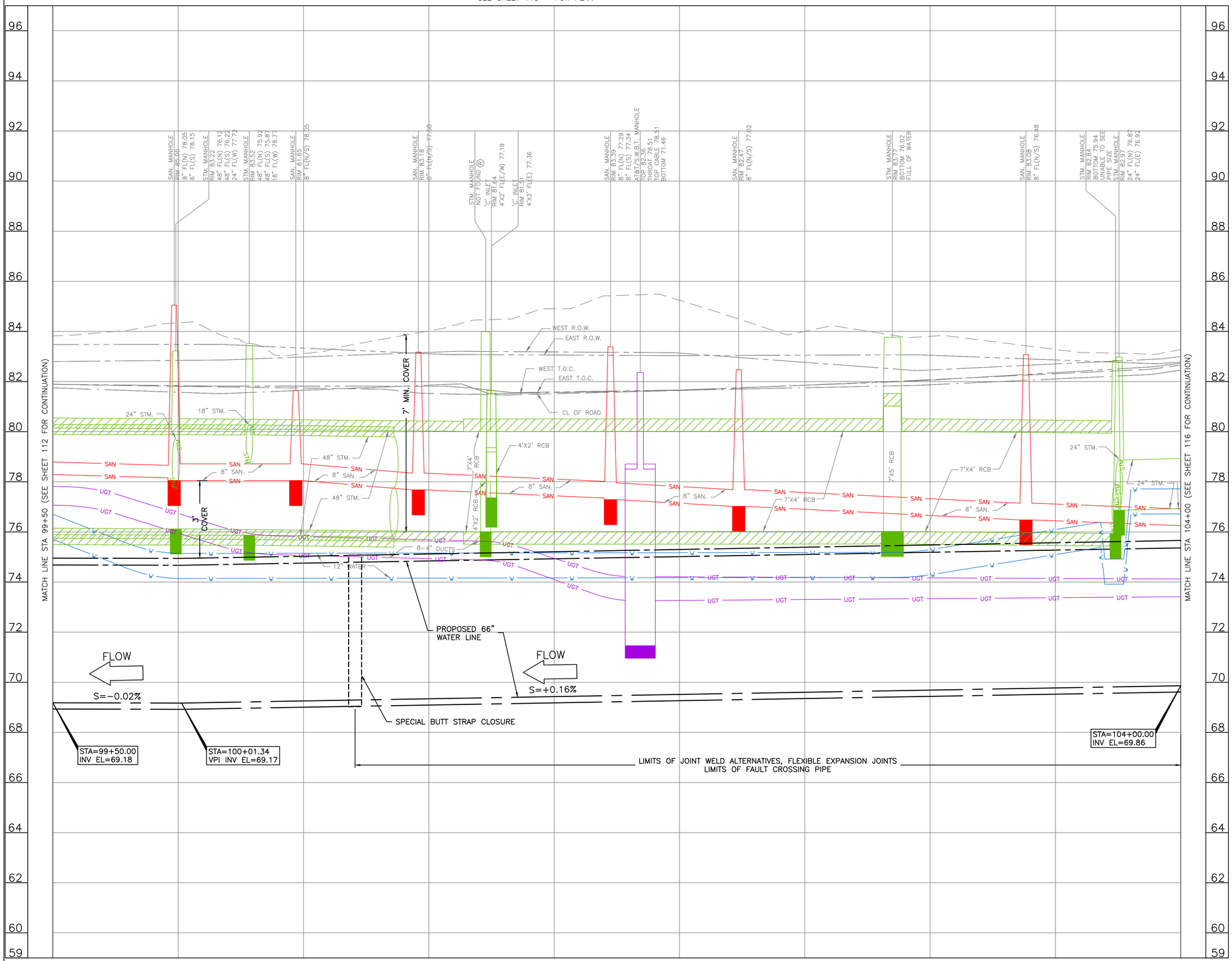
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PLAN
STA 99+50 TO STA 104+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 113 OF 157	

SEE SHEET 113 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 99+50 TO STA 104+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 114 OF 157	

CAUTION:
EXISTING OVERHEAD
ELECTRIC IN AREA

CALLED 47.45 AC. EXHIBIT A-4 & A-5
HARRIS COUNTY MUNICIPAL UTILITY DISTRICT
NO.321 HCCF NO. 20140201813 EXECUTED
MAY 09, 2014 OPRRPHCT

HARRIS COUNTY APPRAISAL DISTRICT (HCAD)
NUMBER 1388850010001

MATCH LINE STA 104+00 (SEE SHEET 113 FOR CONTINUATION)

POWER POLE
'C' INLET
STM. MANHOLE
RAIL POST
24" CMP
POWER POLE
RAIL POST
SAN. MANHOLE
RAIL POST
STM. MANHOLE
'C' INLET
POWER POLE
2" GALV POST
SAN. MANHOLE
DOWN GUY
POWER POLE
2" GALV POST

FAULT HAZARD ZONE
LIMITS OF CONSTRUCTION
CONTRACTOR TO RESTABLISH DITCH
40' WATER LINE EASEMENT
PROP 66" WL
HIGH BANK
DITCH FL
HIGH BANK
RAIL W/CABLE
RAIL W/CABLE

STA 107+23.17 55.00' LT
1-66" X 5°01'11" BEND
1-PROP 66" WL MARKER
N 13900950.92
E 3101886.03
SEE DETAIL 4, SHT 147

STA 108+98.41 55.00' LT
1-66" X 10°02'29" BEND
1-PROP 66" WL MARKER
N 13901098.29
E 3101997.28
SEE DETAIL 4, SHT 147

STA 108+84.24 53.79' LT
TOP EL=85.12
1-ACCESS MANWAY
W/ACCESS MH
SEE DETAIL 1, SHT 146

STA 104+45.75 400.00 LF
END FAULT HAZARD ZONE

LDWL
SAN
8" SAN.
STM
24" STM.
UGT
GAS
W
8-4" 'C' PVC
12" WATER
4" IP PLA.
IRON FENCE
12" STM

+00
105+00
106+00
107+00
108+00
109

DEAR TRAIL DR.
(CONC. PVMT.)
DEER TRAIL BASELINE

MATCH LINE STA 109+00 (SEE SHEET 117 FOR CONTINUATION)

2" TREE
'C' INLET
2" TREE
WATER VALVE
TRE TYPE
2" TREE
2" TREE
2" TREE
2" TREE
2" TREE
2" TREE
2" TREE
HEDGE
CONC. DR.
FENCE GATE
KEY PED
4" TREE
4" TREE
4" TREE
'C' INLET
4" TREE
FIRE VALVE
WATER VALVE
4" TREE
SPRINKLER VALVE
SPRINKLER
SPRINKLER
SPRINKLER
SPRINKLER
PIPELINE(UNDERGROUND)
4" TREE
4" TREE
4" TREE
S.W.B.T. MANHOLE
4" TREE
SPRINKLER VALVE
4" TREE

CALLED 7.747 AC. APPLEBUTTER IV, LLC. HCCF NO.
RP-2017-561556 EXECUTED DECEMBER 20, 2017
OPRRPHCT

CALLED 7.747 AC. APPLEBUTTER IV,
LLC. HCCF NO. RP-2017-561556
EXECUTED DECEMBER 20, 2017
OPRRPHCT

SEE SHEET 116 - FOR PROFILE

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

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

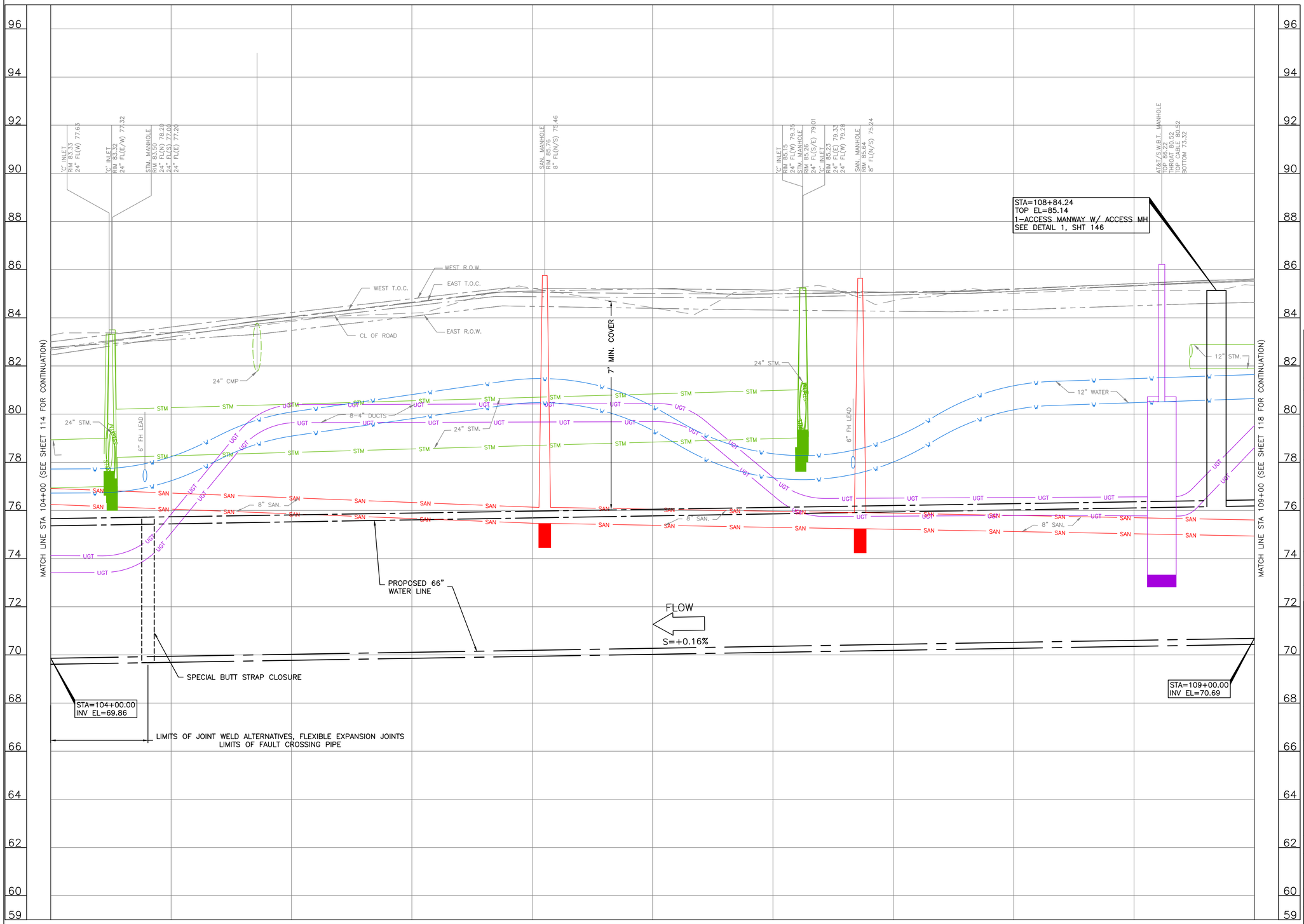
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 104+00 TO STA 109+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 115 OF 157	

SEE SHEET 115 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 104+00 TO STA 109+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 116 OF 157	

HARRIS COUNTY APPRAISAL DISTRICT (HCAD)
NUMBER 1388850010001

CAUTION:
EXISTING OVERHEAD
ELECTRIC IN AREA

CALLED 47.45 AC. EXHIBIT A-4 & A-5
HARRIS COUNTY MUNICIPAL UTILITY DISTRICT
NO.321 HCCF NO. 20140201813 EXECUTED
MAY 09, 2014 OPRRPHCT

STA 110+73.66 55.00' LT
1-66" X 10°02'29" BEND
1-PROP 66" WL MARKER
N 13901224.00
E 3102132.52
SEE DETAIL 4, SHT 147

STA 112+48.90 55.00' LT
1-66" X 5°01'11" BEND
1-PROP 66" WL MARKER
N 13901324.22
E 3102287.61
SEE DETAIL 4, SHT 147

STA 109+23.74 53.00' LT
TOP EL=85.32
1-ACCESS MANWAY
W/ACCESS MH
SEE DETAIL 1, SHT 146

CONTRACTOR TO
RESTABLIISH DITCH
SEE DETAIL XX, SHEET XX

LIMITS OF CONSTRUCTION

40' WATER LINE EASEMENT

PROP 66" WL

24" CMP

HIGH BANK
DITCH FL
RAIL W/CABLE
8" SAN.
12" WATER
IRON FENCE
4" IP PLA.
12" STM.

112+00
DEER TRAIL DR.
(CONC. PVMT.)
113+00
111+00
110+00
DEER TRAIL BASELINE

MATCH LINE STA 109+00 (SEE SHEET 115 FOR CONTINUATION)

MATCH LINE STA 113+50 (SEE SHEET 119 FOR CONTINUATION)

CALLED 7.747 AC. APPLEBUTTER IV, LLC. HCCF NO.
RP-2017-561556 EXECUTED DECEMBER 20, 2017
OPRRPHCT

0.0115 AC. HCMUD NO. 321
SAN. SWR. ESMT.
H.C.C.F. 20150100534

SEE SHEET 118 - FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

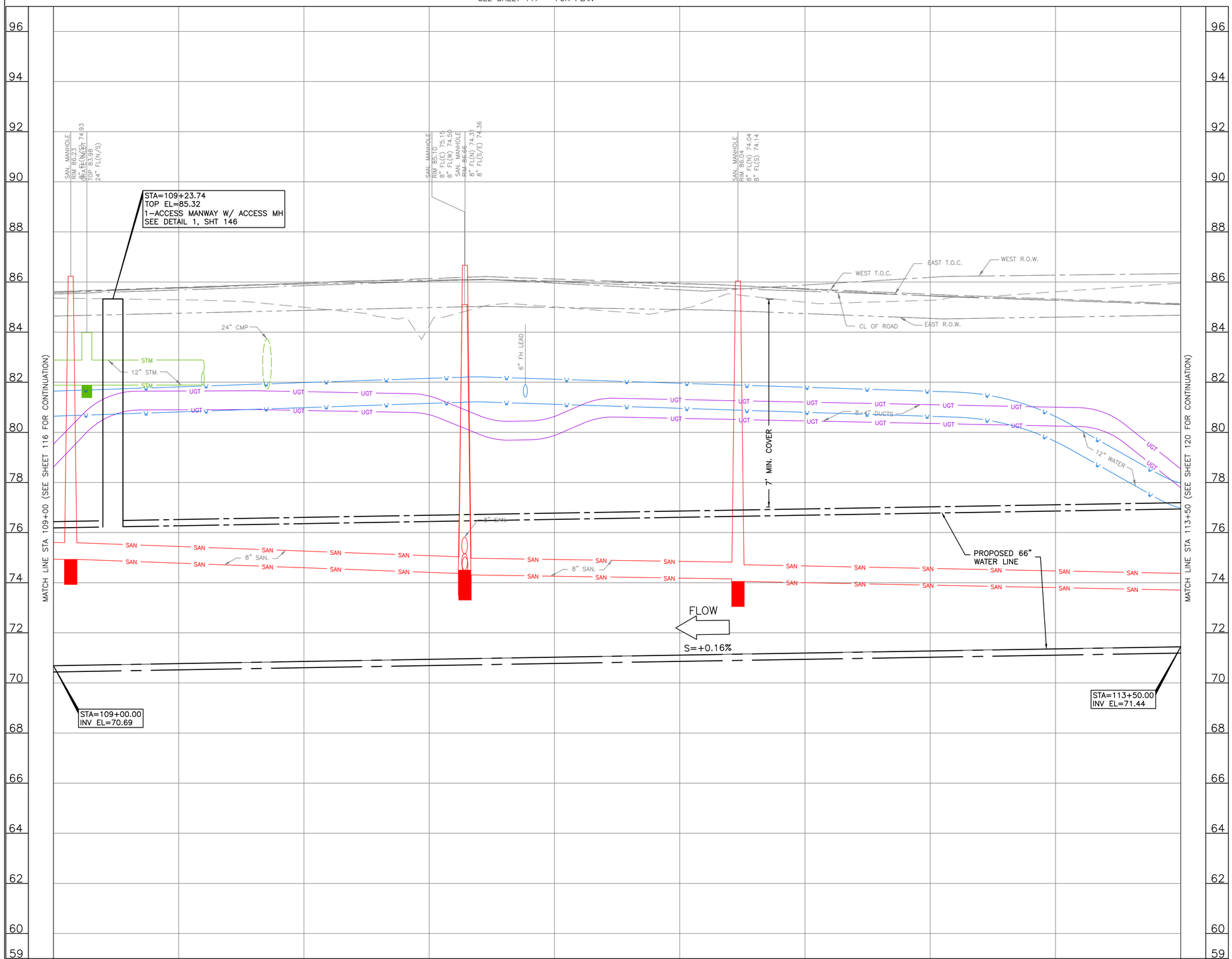
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD
PLAN
STA 109+00 TO STA 113+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 117 OF 157	

SEE SHEET 117 – FOR PLAN



0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 109+00 TO STA 113+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 118 OF 157	

CAUTION:
EXISTING OVERHEAD
ELECTRIC IN AREA

CALLED 47.45 AC. EXHIBIT A-4 & A-5
HARRIS COUNTY MUNICIPAL UTILITY DISTRICT
NO. 321 HCCF NO. 20140201813 EXECUTED
MAY 09, 2014 OPRRPHCT

HARRIS COUNTY APPRAISAL
DISTRICT (HCAD) NUMBER
1388850010001

RESTRICTED RESERVE "A"
(DETENTION)
BLOCK 1
PINTO BUSINESS PARK DETENTION POND 8 AND 9
FILM CODE 681657 H.C.M.R.

0.2046 AC. PUBLIC U.V.E.
H.C.C.F. RP-2016-479053

0.0137 AC. HCMUD NO.
321 WATER LINE ESMT.
H.C.C.F. 20150079904

0.0092 AC. HCMUD NO. 321
WATER METER ESMT.
H.C.C.F. 20150079906

0.0083 AC. HCMUD NO. 321
WATER LINE ESMT.
H.C.C.F. 20150079904

HARRIS COUNTY
APPRAISAL DISTRICT
(HCAD) NUMBER
1388850010001

PROP 66" WATER LINE
(BY OTHER) WBS NO
S-000900-0178-3

STA 117+03.77 57.80' LT
1-ACCESS MANWAY
W/ACCESS MH
SEE DETAIL 1, SHT 146

STA 116+92.48 63.30' LT
1-66" BFV WL OPERATOR MH
SEE DETAIL 1, SHT 147

STA 115+90.14 55.00' LT
1-66" X 5°51'13" BEND
1-PROP 66" WL MARKER
N 13901483.62
E 3102589.32
SEE DETAIL 4, SHT 147

STA 116+80.66 57.48' LT
1-4" AI/VR VALVE, VENT PIPING W/
3-BOLLARDS AND ACCESS MANWAY W/
SERVICE MH SEE DETAIL 2, SHT 149

CONTRACTOR TO
RESTABLISH DITCH
SEE DETAIL XX, SHEET XX

1-66" X 66" CONNECTION
STA 117+27.76
N 13901557.64
E 3102672.11

STA 116+51.45 55.00' LT
1-66" X 14°37'14" BEND
1-PROP 66" WL MARKER
N 13901511.36
E 3102630.91
SEE DETAIL 4, SHT 147

MATCH LINE STA 113+50 (SEE SHEET 117 FOR CONTINUATION)

LIMITS OF CONSTRUCTION

40' WATER LINE EASEMENT

PROP 66" WL

DEER TRAIL BASELINE

114+00 115+00 116+00 117+00 117+30

DEER TRAIL DRIVE
70' R.O.W.
FILM CODE 681659 H.C.M.R.

DEER TRAIL (TRAIL DR.
(CONC. PVMT.)

15' HCMUD NO. 321
SAN. SWR. ESMT.
H.C.C.F. 20150026659

FILM CODE 681659 H.C.M.R.

10' SWBT ESMT.
H.C.C.F. 20150505991

20' HCMUD NO. 321 STORM
SWR. ESTM. H.C.C.F.
20150100532

0.0115 AC. HCMUD NO. 321
SAN. SWR. ESMT.
H.C.C.F. 20150100534

10' HCMUD NO. 321 WATER
LINE ESMT.
H.C.C.F. 20150100533

25' BL
H.C.C.F.
20140276693

CALLED 7.747 AC. APPLEBUTTER IV, LLC. HCCF
NO. RP-2017-561556 EXECUTED DECEMBER 20,
2017 OPRRPHCT

RESTRICTED RESERVE "A"
BLOCK 1
APPLEBUTTER IV LLC
FILM CODE 686209 H.C.M.R.

0.0562 AC. HCMUD NO. 321
SAN. SWR. ESMT.
H.C.C.F. 20150100534

20' HCMUD NO. 321 STORM
SWR. ESTM. H.C.C.F.
20150100532

RESTRICTED RESERVE "A"
(LANDSCAPE / OPEN SPACE / UTILITY)
BLOCK 1
DEER TRAIL DRIVE AND GREENS CROSSING
BOULEVARD STREET DEDICATION AND RESERVES
FILM CODE 681659 H.C.M.R.

GREENS CROSSING BOULEVARD
70' R.O.W.
FILM CODE 681659 H.C.M.R.

GREENS CROSSING BLVD.
CONC. DR.

PLUG 2-4" DUCTS
PL. 1-ELEC. MKR.

PLUG 2-4" DUCTS
PL. 1-ELEC. MKR.

10' WLE
FILM CODE 681659 H.C.M.R.

10' HCMUD NO. 321 WATER LINE ESMT.
H.C.C.F. 20150100533

SEE SHEET 120 – FOR PROFILE

N

0' 10' 20' 40'

SCALE: 1"=20'

NO.	DATE	REVISION	APP.

NOTES:

1. FIELD VERIFY LOCATION OF ADJACENT PROJECT (WBS NO. S-000900-0178-3) AND MAKE SURE NECESSARY ADJUSTMENT TO LINE AND GRADE TO ENSURE PROPER TIE-IN.
2. IF ADJACENT PROJECT (WBS NO. S-000900-0178-3) IS IN PLACE, REMOVE INTERNAL ELLIPTICAL DISHED HEAD PLUG, AFTER SUCCESSFUL HYDROSTATIC TESTING OF PROPOSED WATER LINE AND CONNECT.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

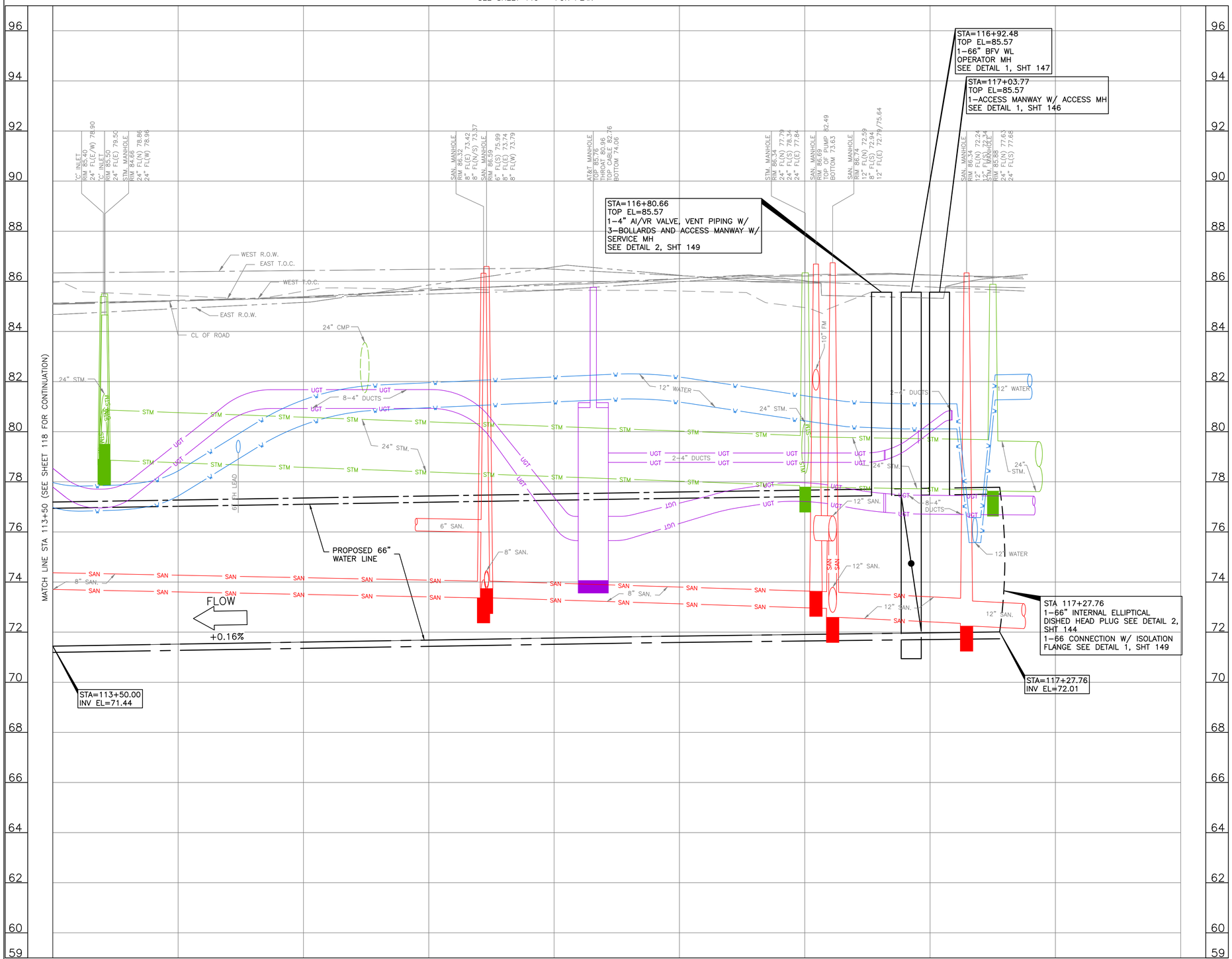
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PLAN

STA 113+00 TO STA 118+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ 1"=20'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 119 OF 157	

SEE SHEET 119 – FOR PLAN



NO.	DATE	REVISION	APP.

0' 10' 20' 40'
0' 1' 2' 4'

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

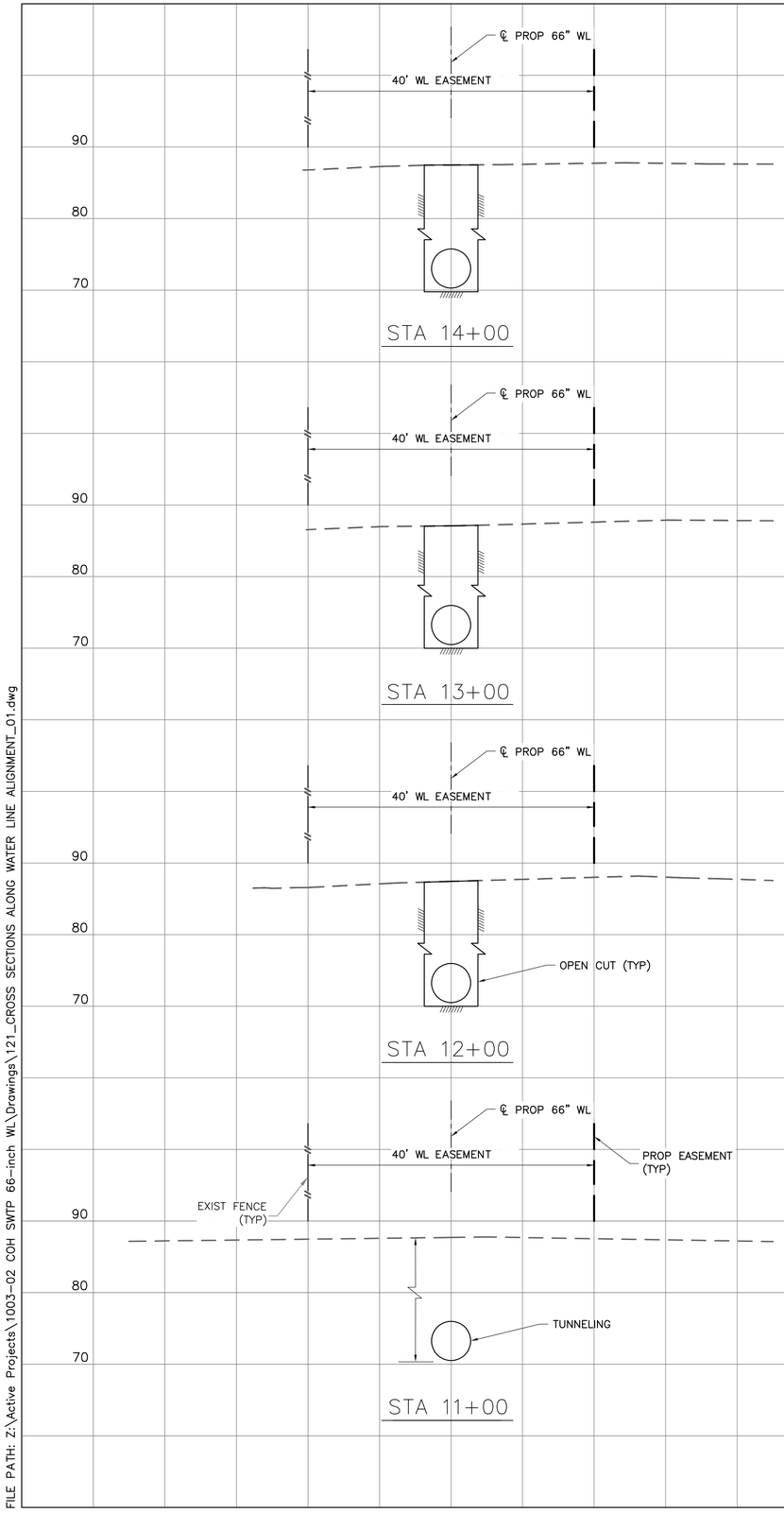
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

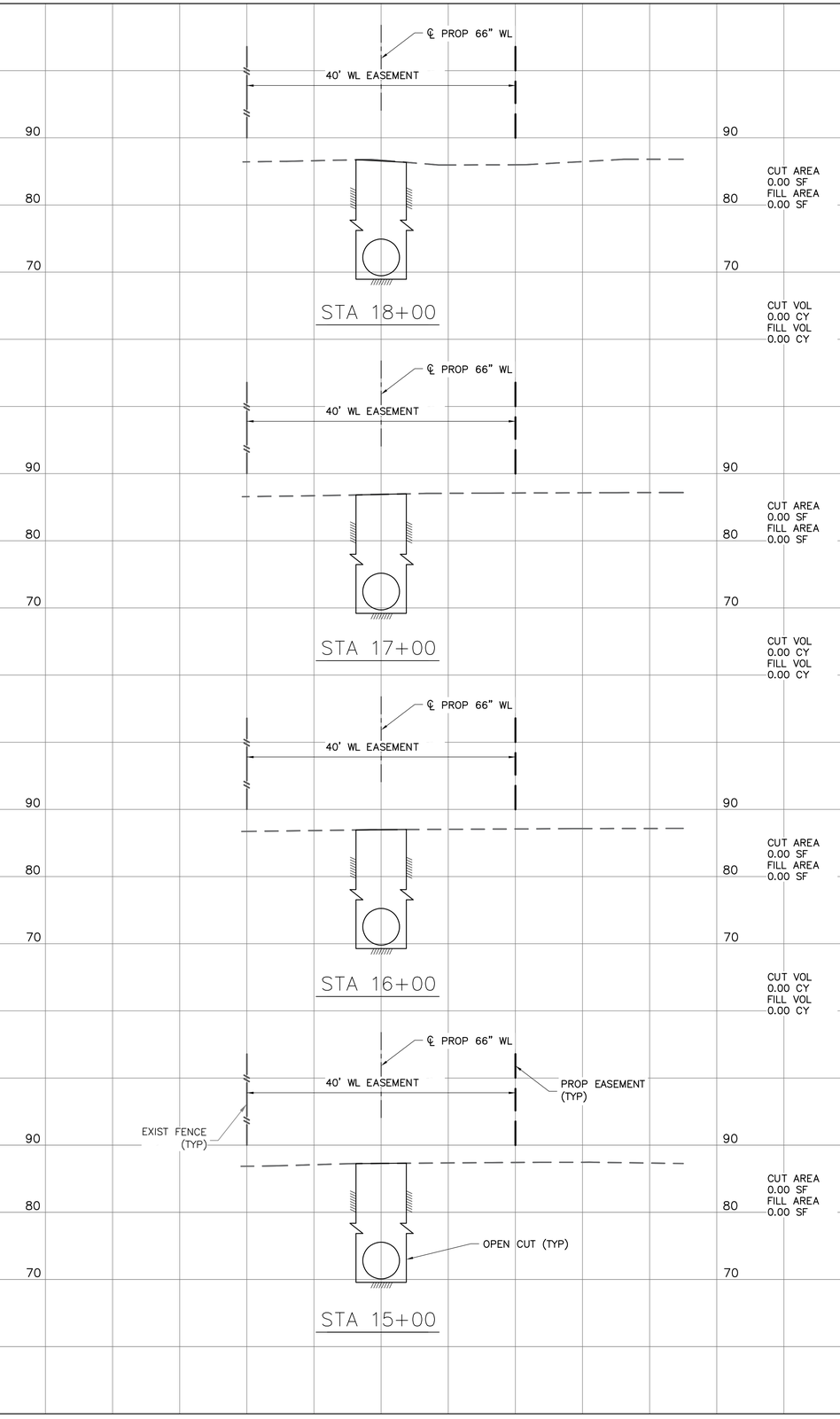
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PROFILE

STA 113+50 TO STA 118+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
VERT 1"=2'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 120 OF 157	





NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

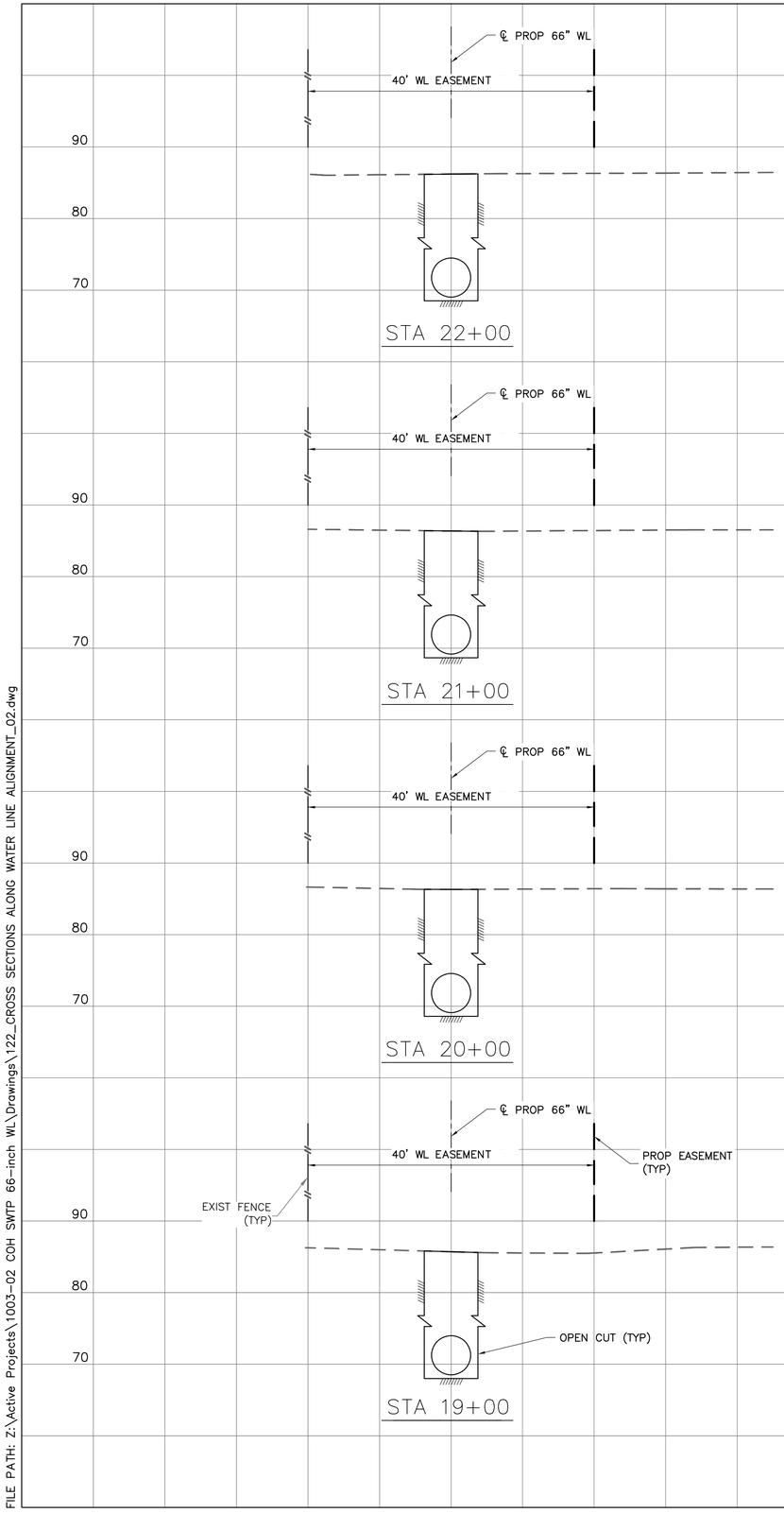
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 1 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 121 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\121_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_01.dwg



CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

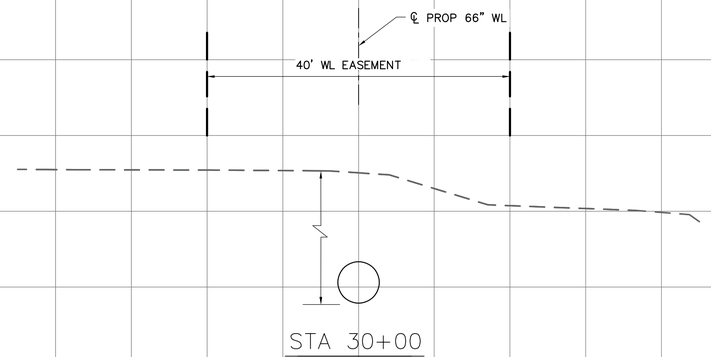
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 2 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 122 OF 157	

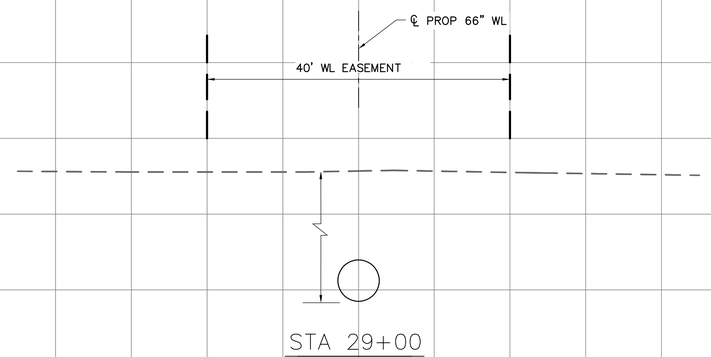
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\122_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_02.dwg



CUT VOL
0.00 CY
FILL VOL
0.00 CY

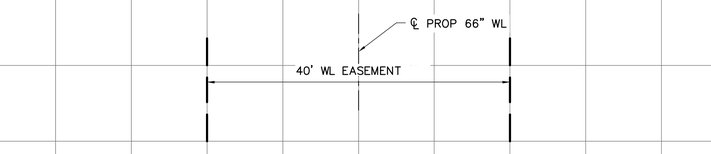
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



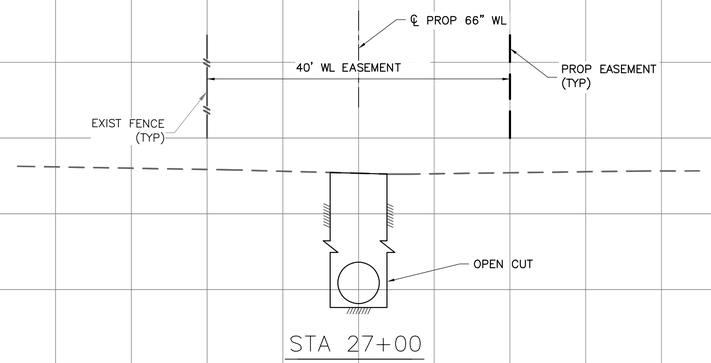
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



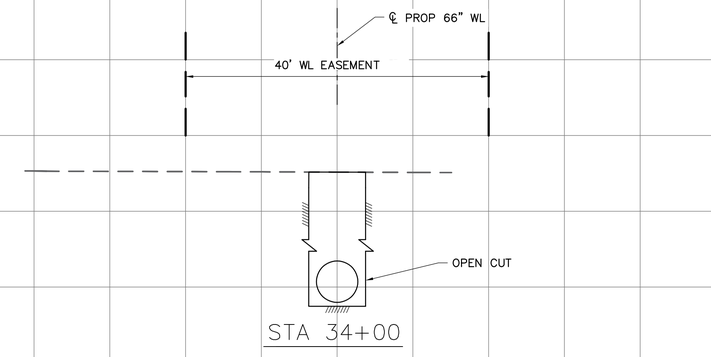
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



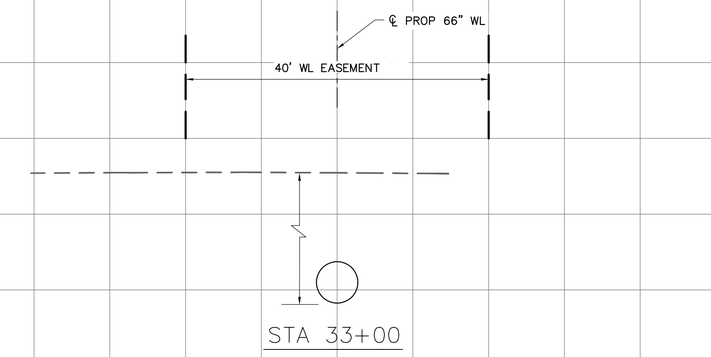
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



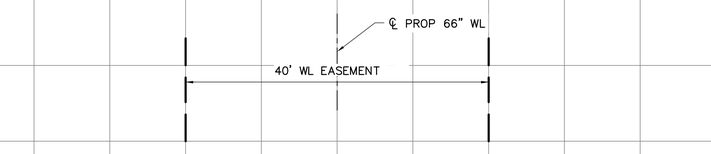
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



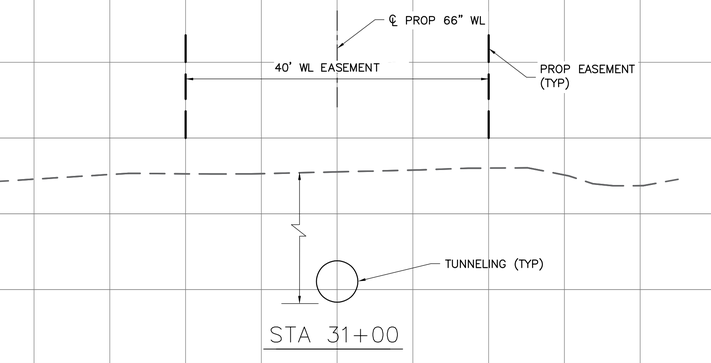
CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

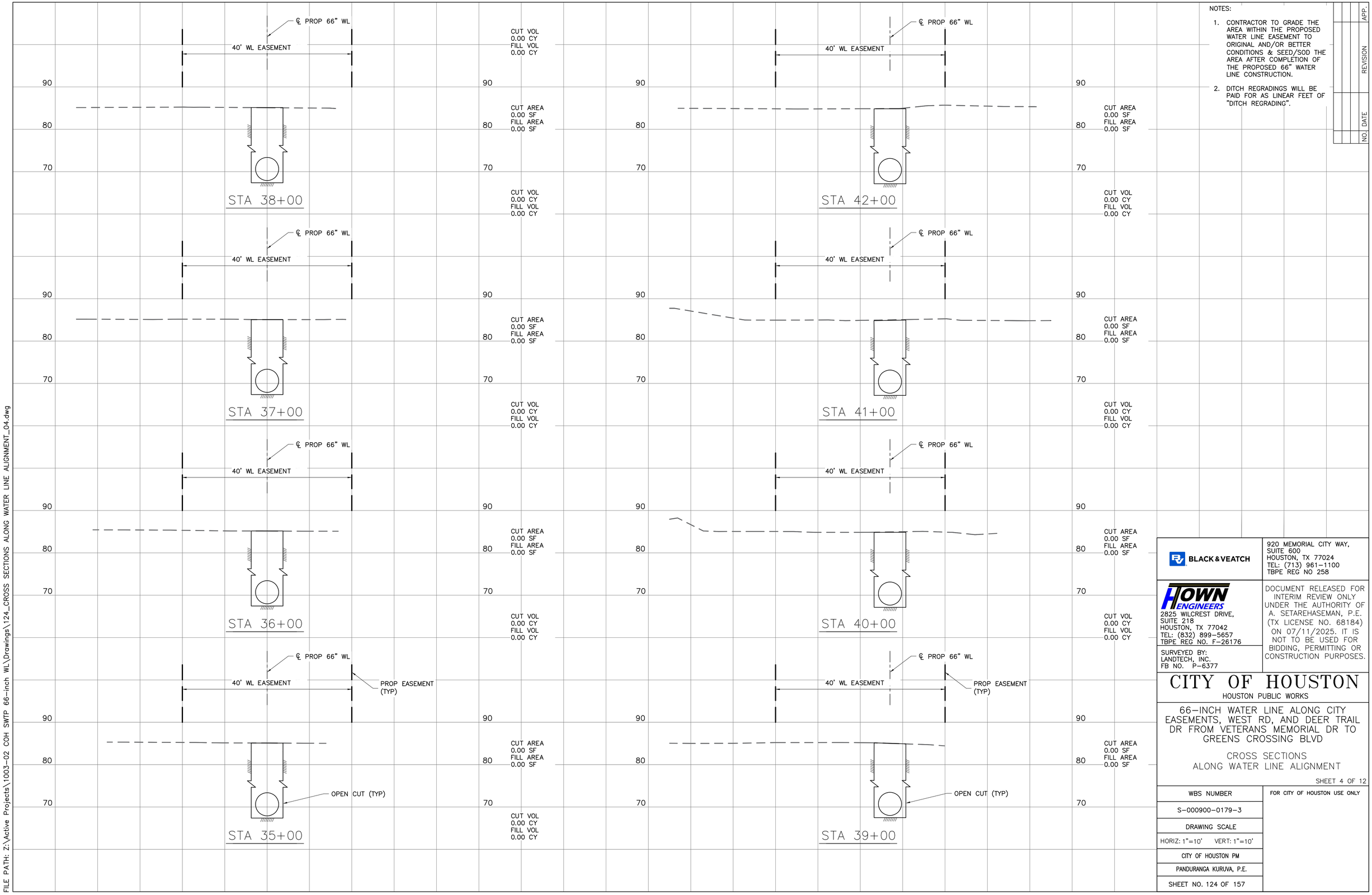
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 3 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 123 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\123_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_03.dwg



NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

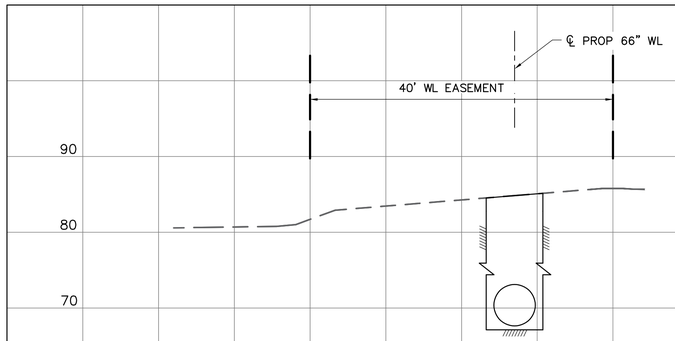
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 4 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 124 OF 157	

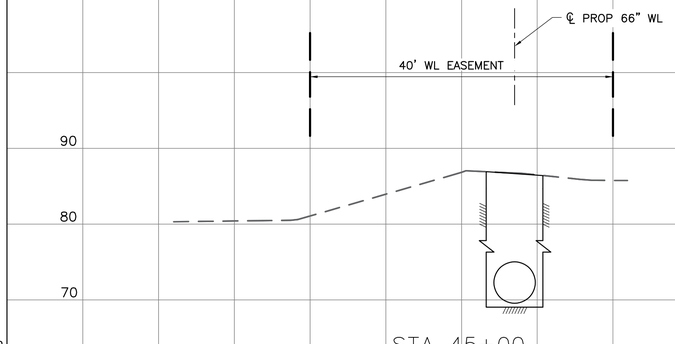
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\124_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_04.dwg



STA 46+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

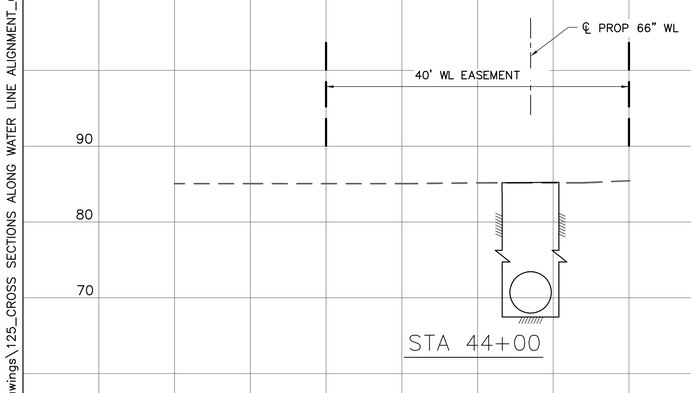
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 45+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

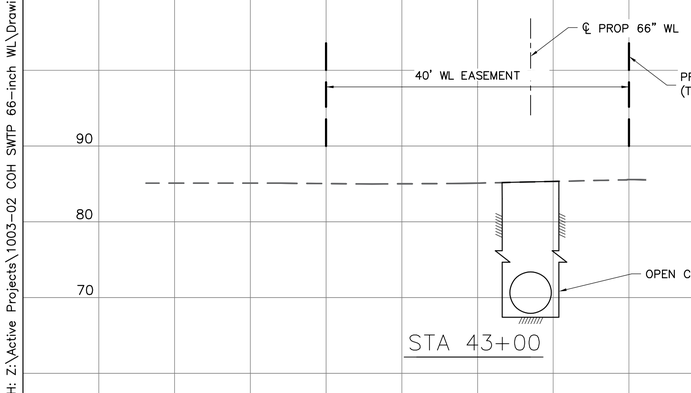
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 44+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

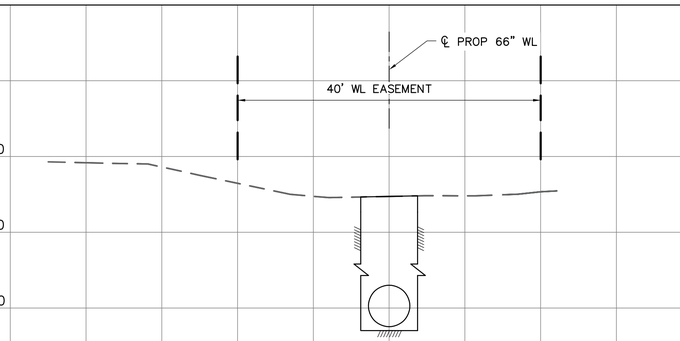
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 43+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

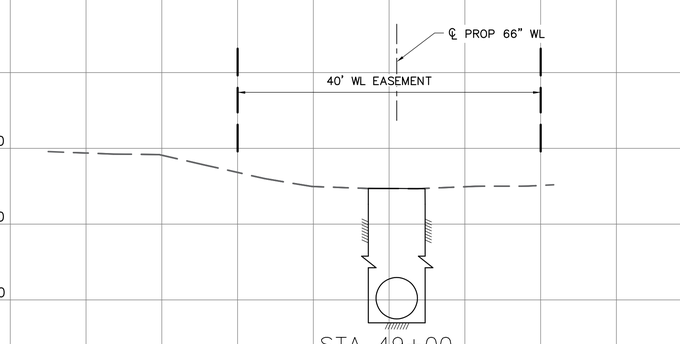
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 50+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

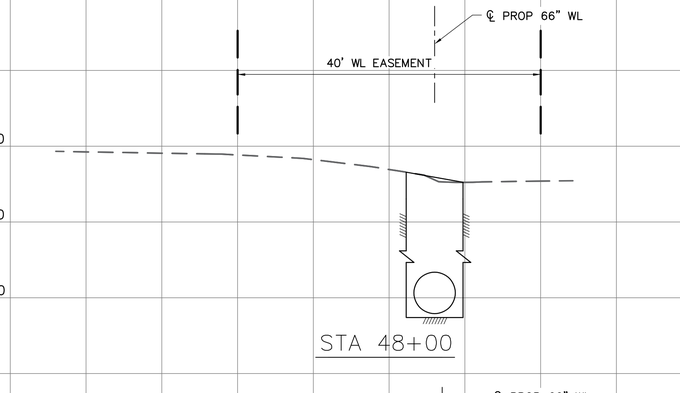
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 49+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

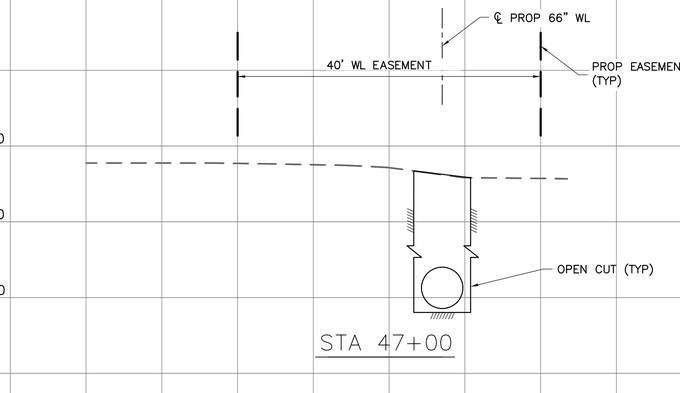
CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 48+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF



STA 47+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

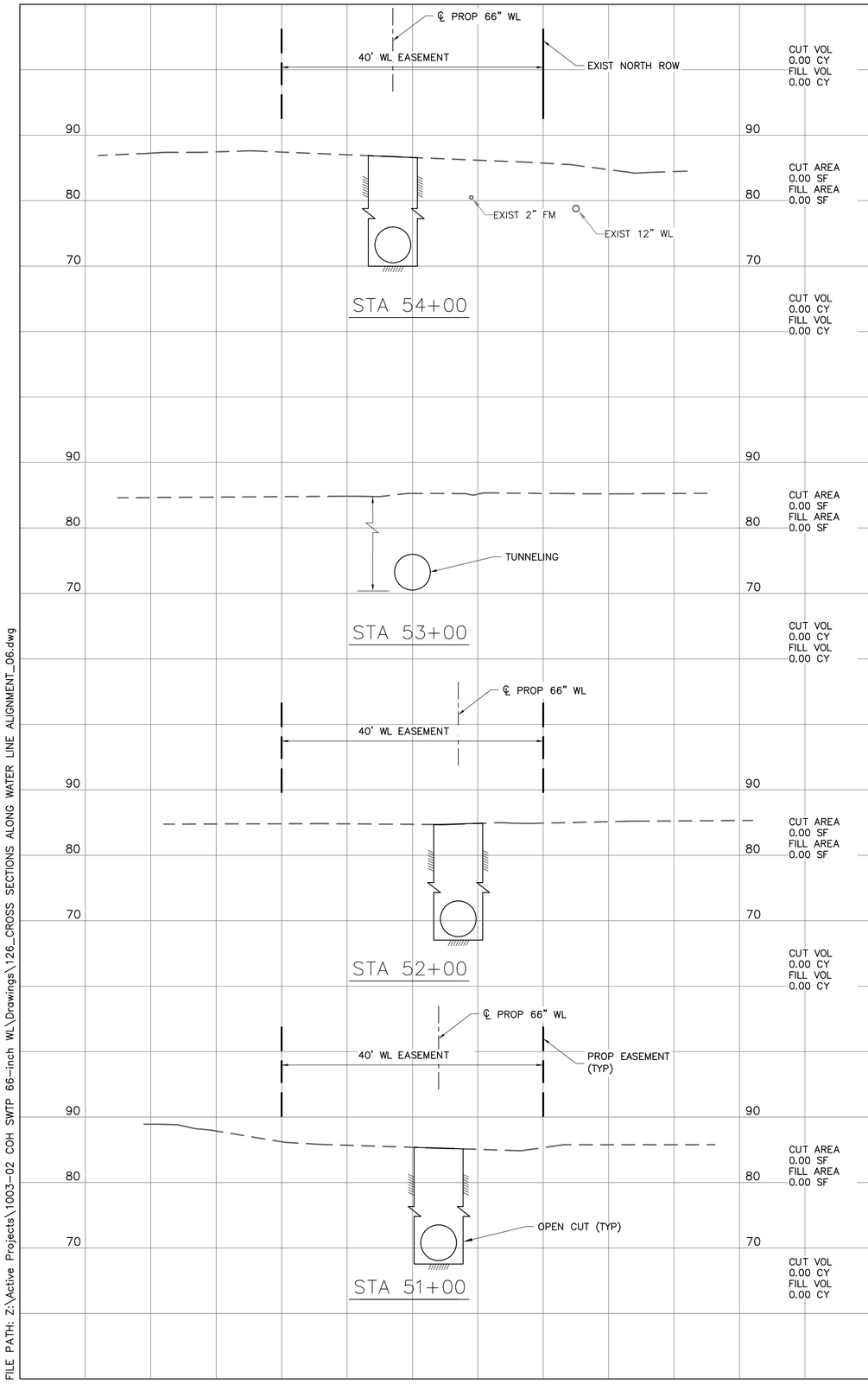
HOUSTON PUBLIC WORKS

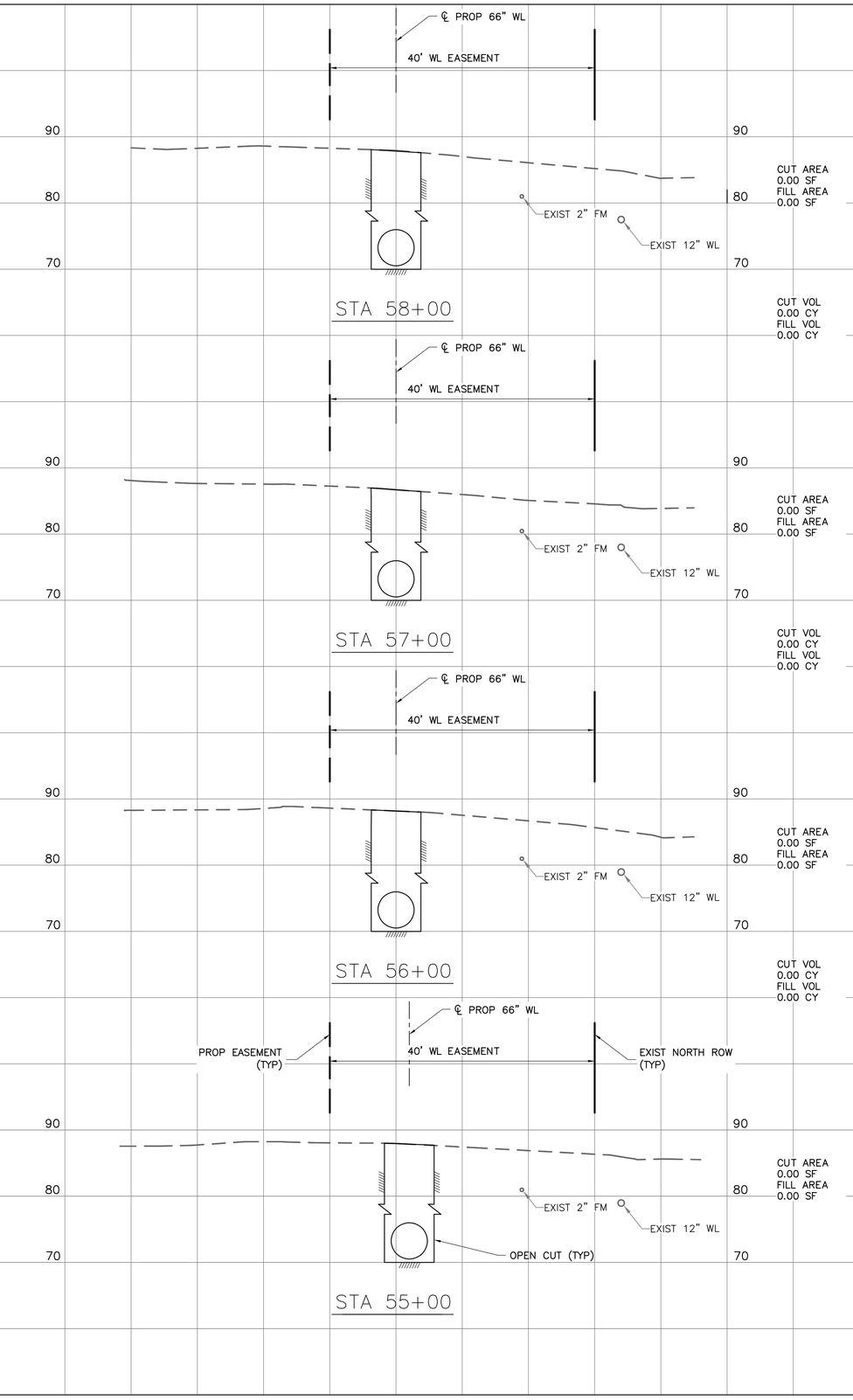
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 125 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\125_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_05.dwg





NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

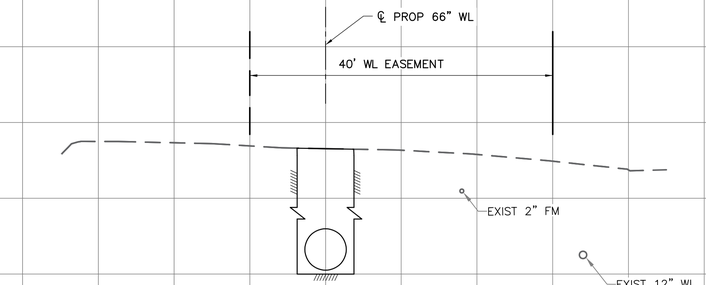
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 126 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\126_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_06.dwg

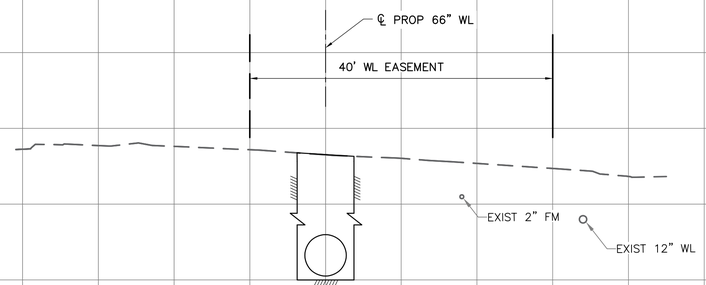


STA 62+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

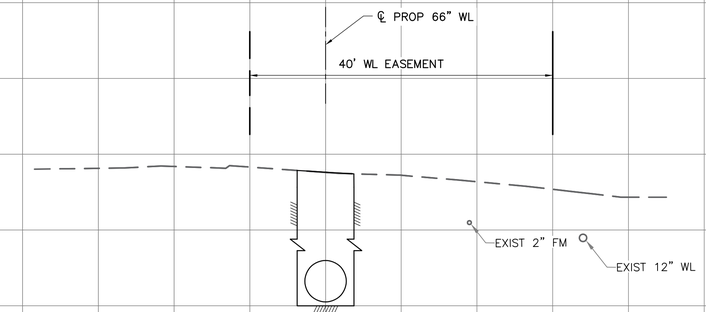
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 61+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

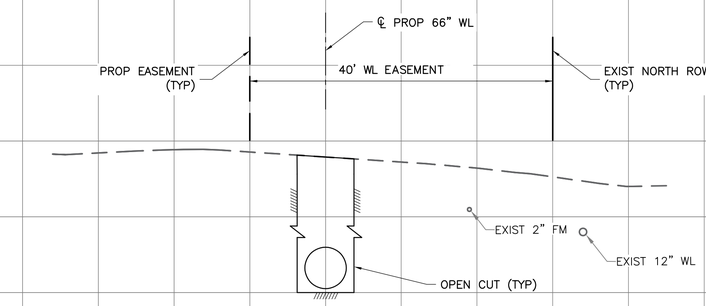
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 60+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

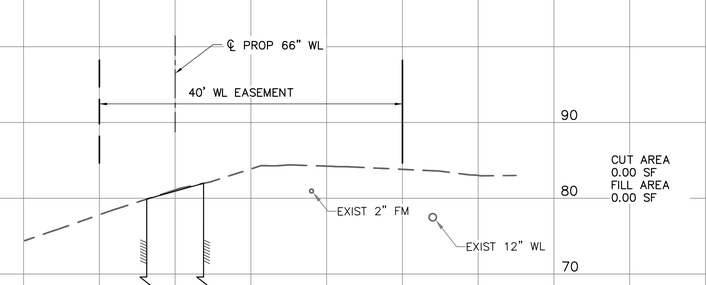
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 59+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

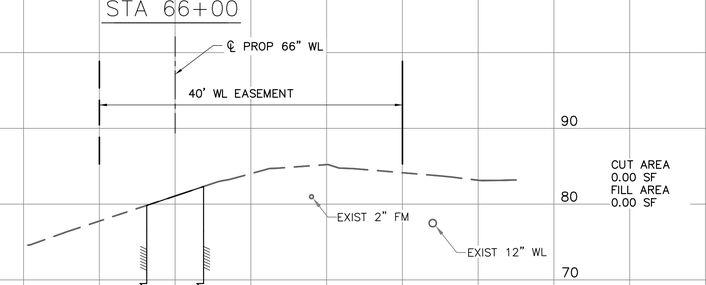
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 66+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

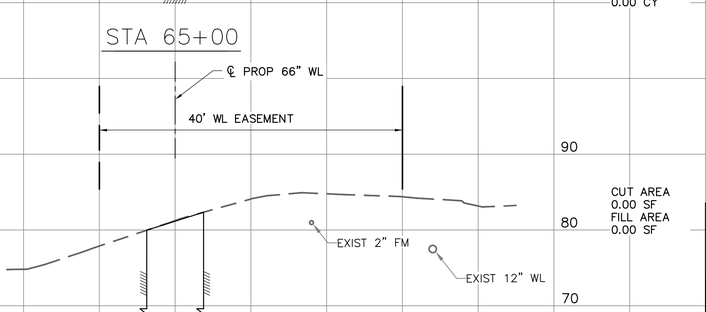
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 65+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

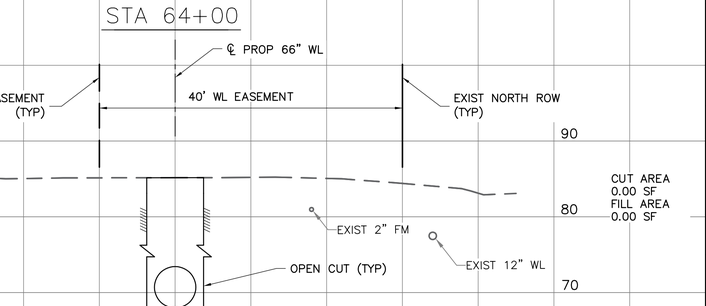
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 64+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 63+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

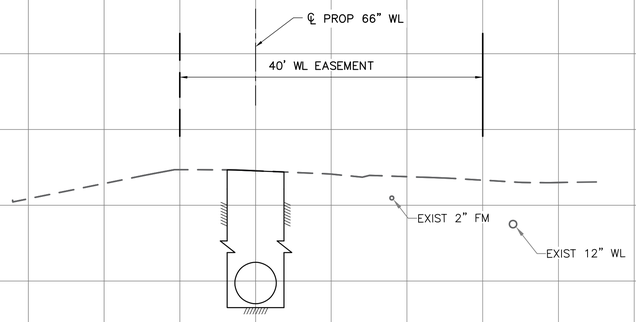
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 7 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 127 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\127_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_07.dwg

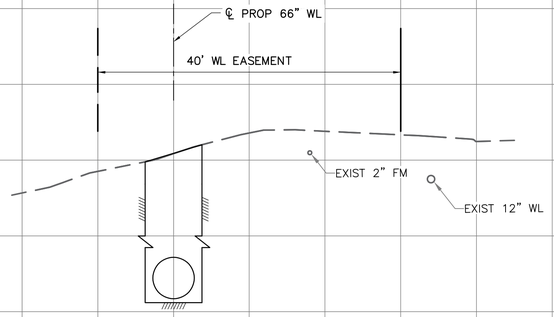


STA 70+00

CUT VOL
0.00 CY
FILL VOL
0.00 CY

CUT AREA
0.00 SF
FILL AREA
0.00 SF

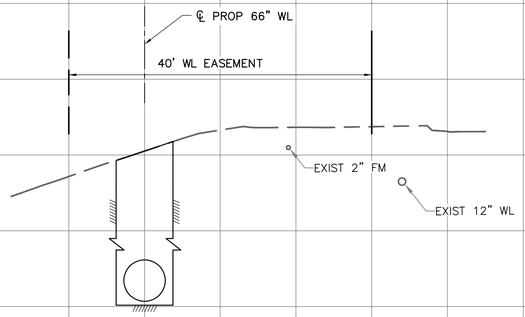
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 69+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

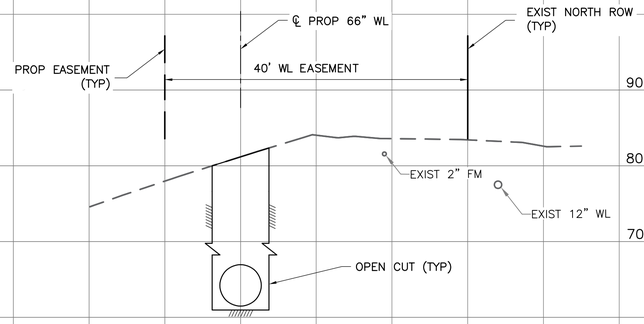
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 68+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

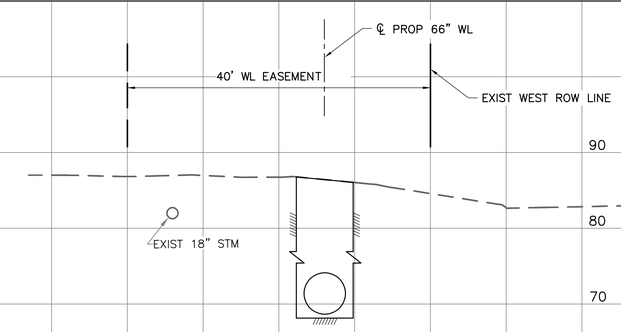
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 67+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

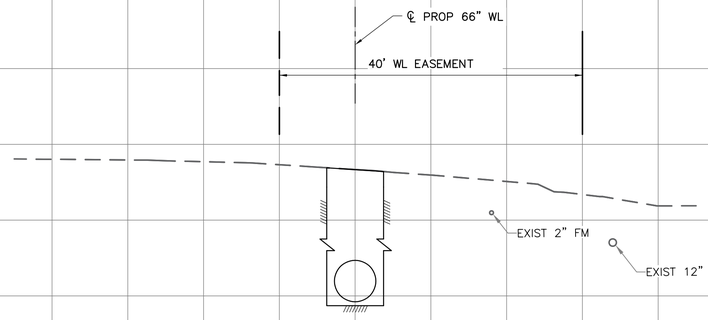
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 74+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

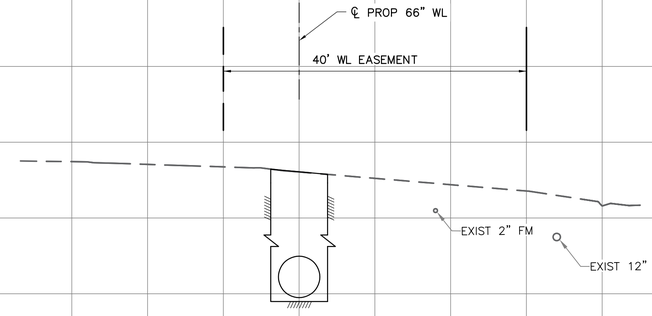
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 73+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

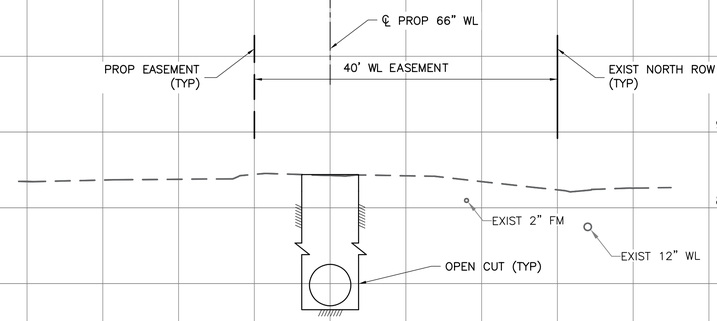
CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 72+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



STA 71+00

CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

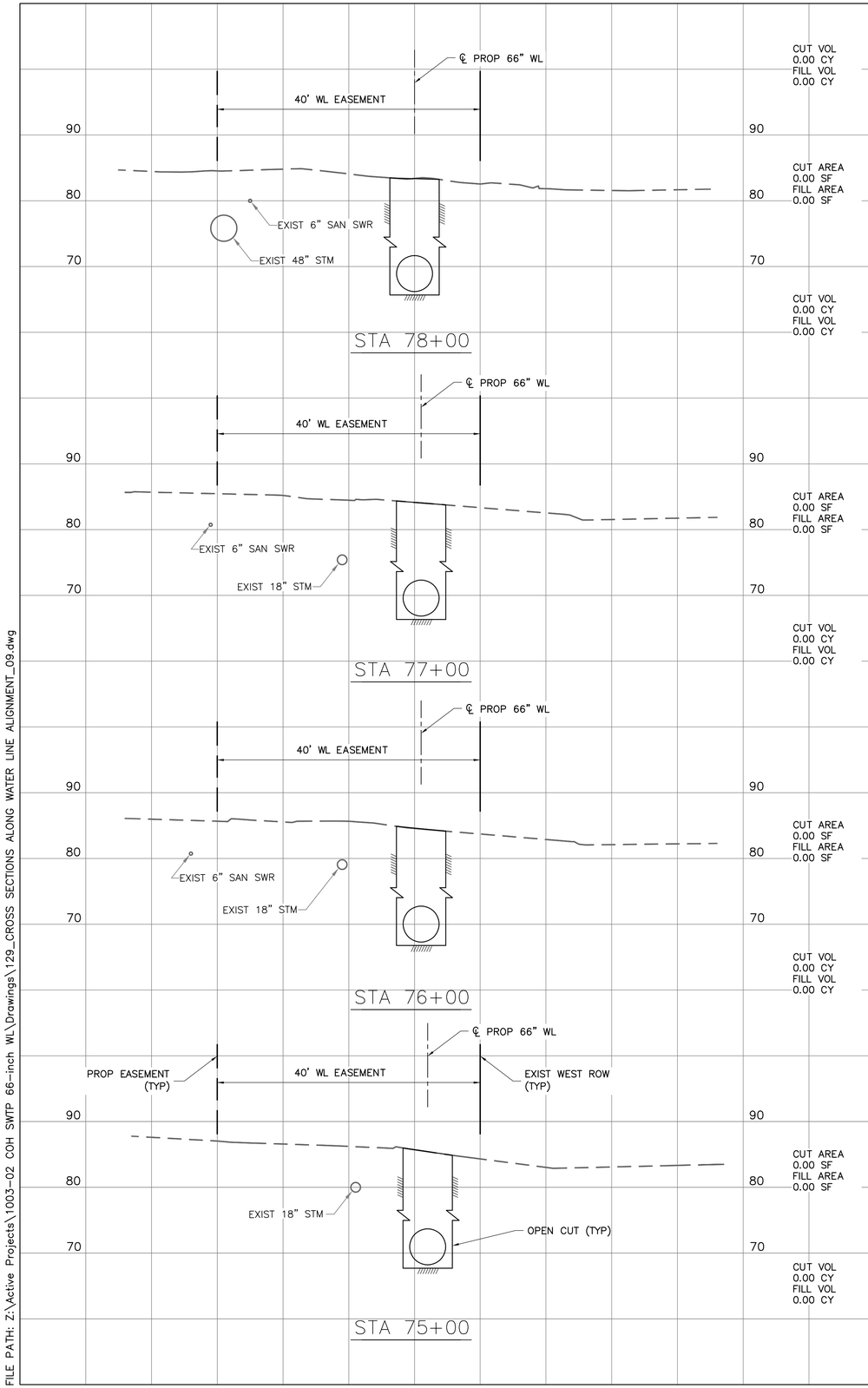
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

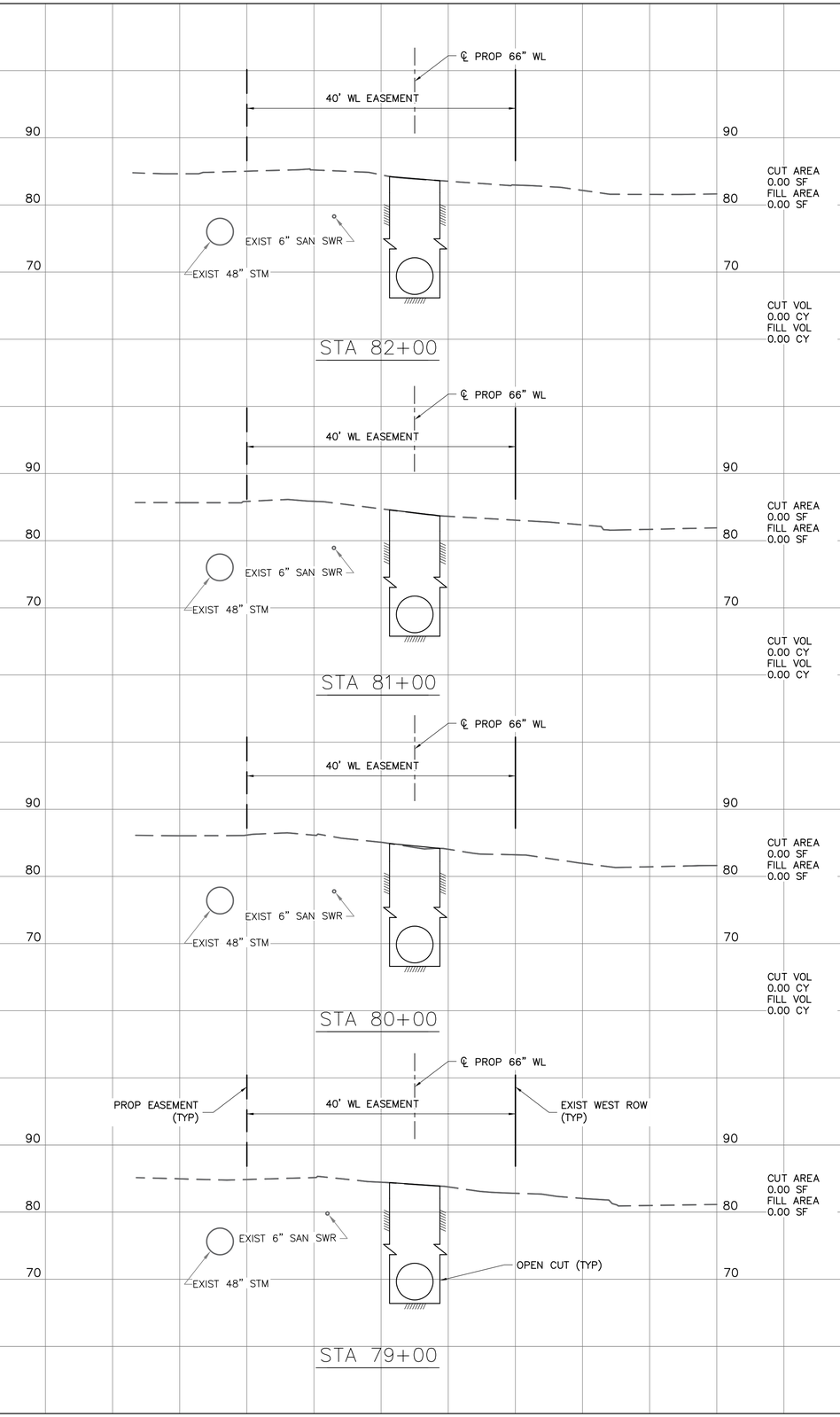
CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 8 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 128 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\128_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_08.dwg





NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

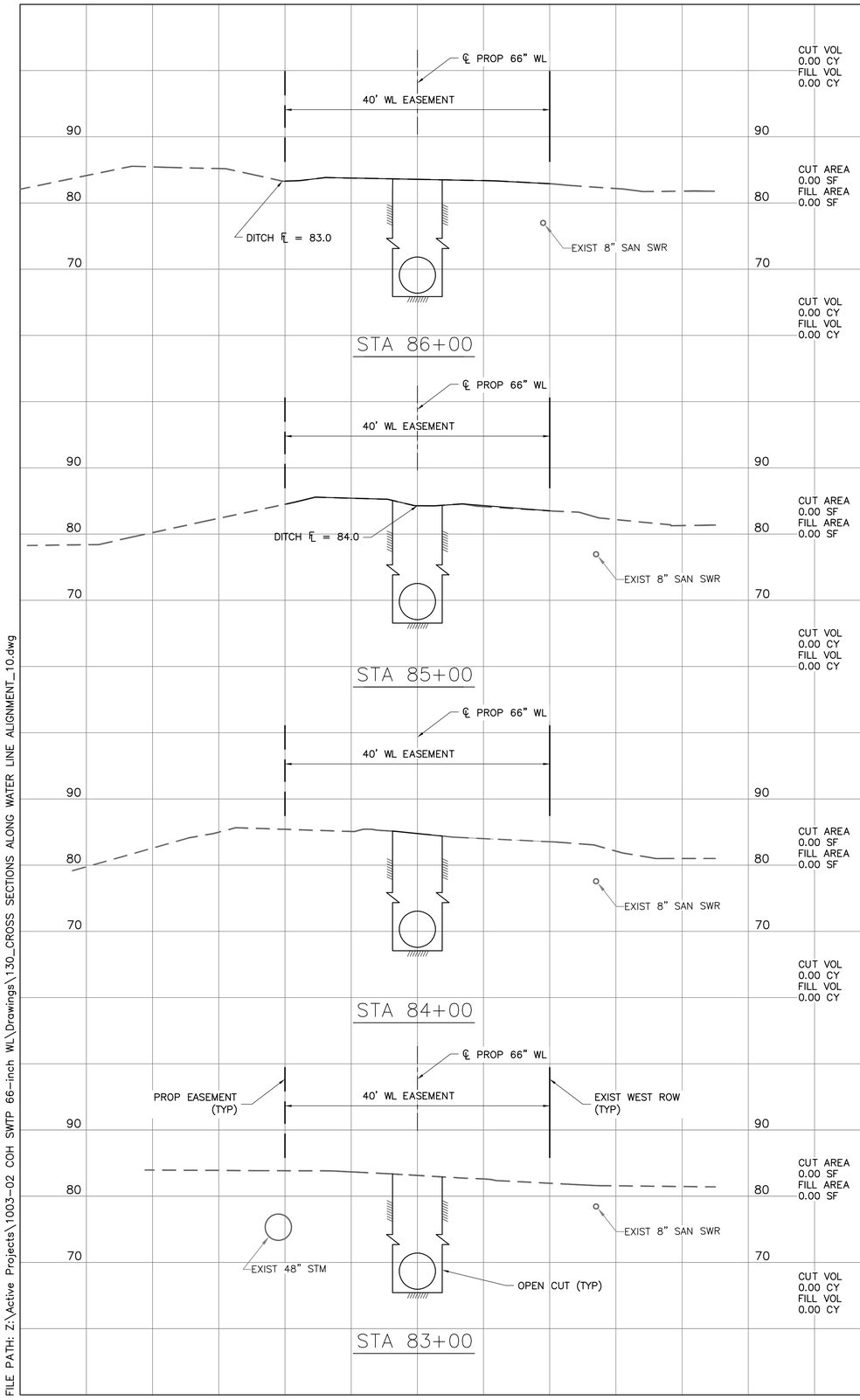
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

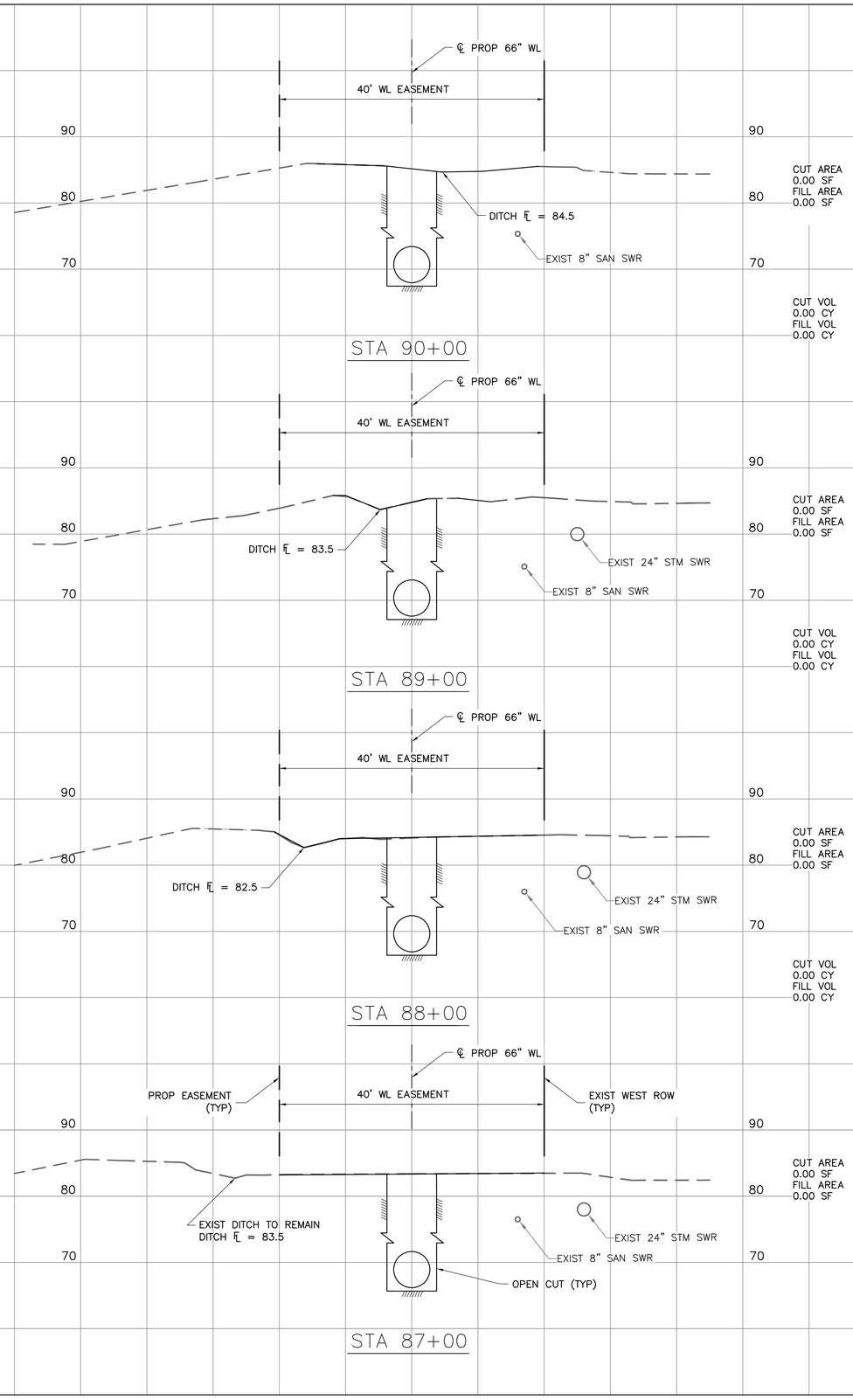
CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 9 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 129 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\129_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_09.dwg





NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

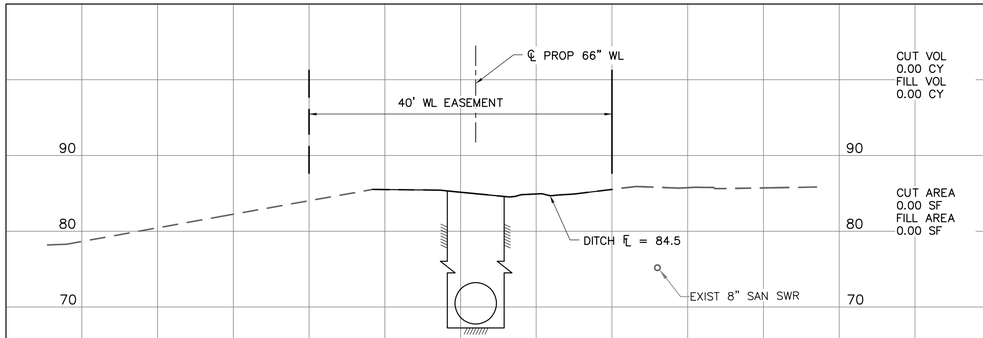
HOUSTON PUBLIC WORKS

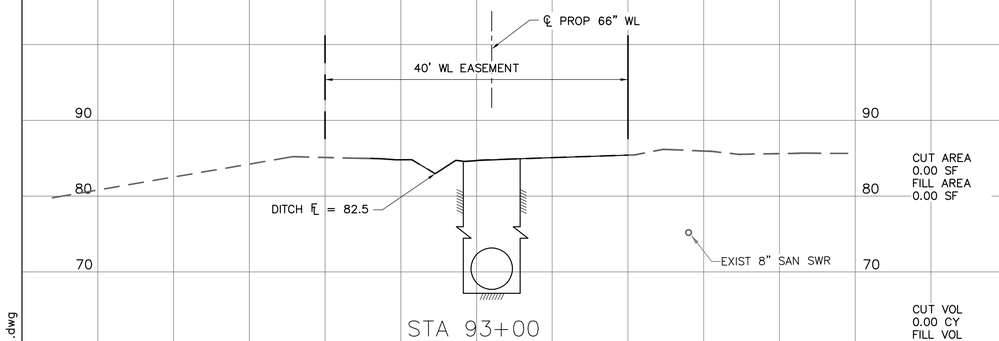
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

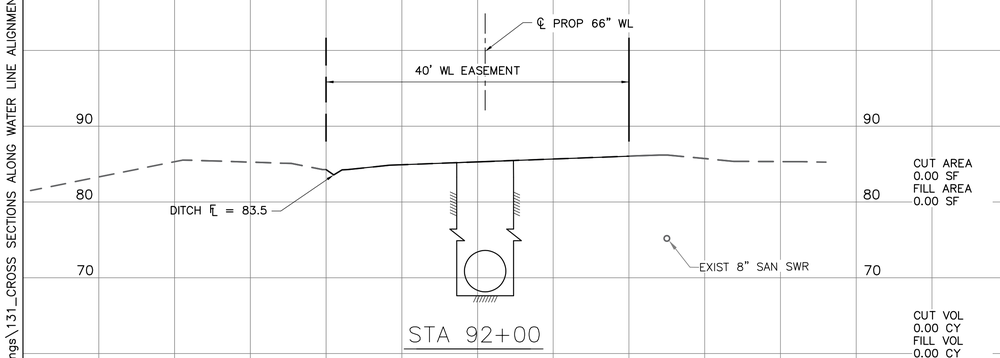
CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

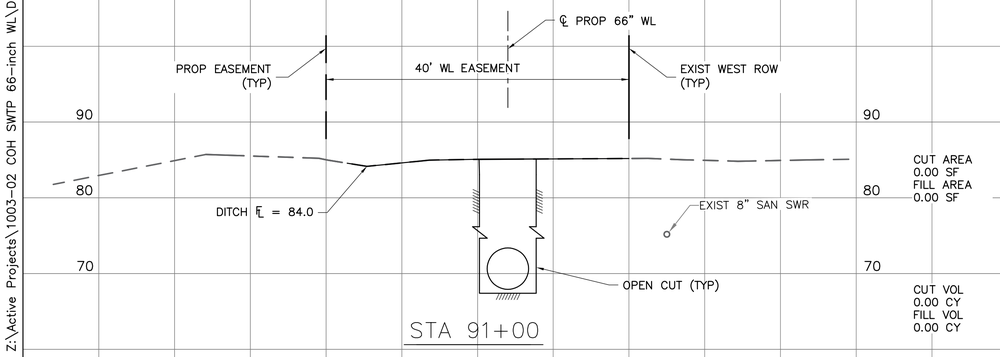
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 130 OF 157	

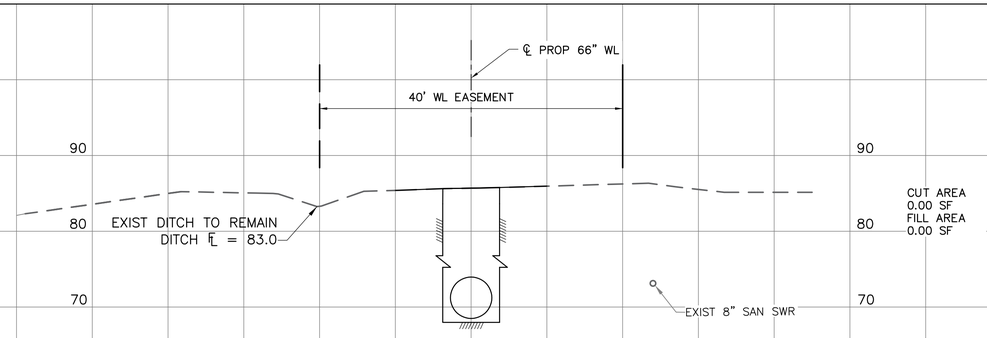
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\130_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_10.dwg

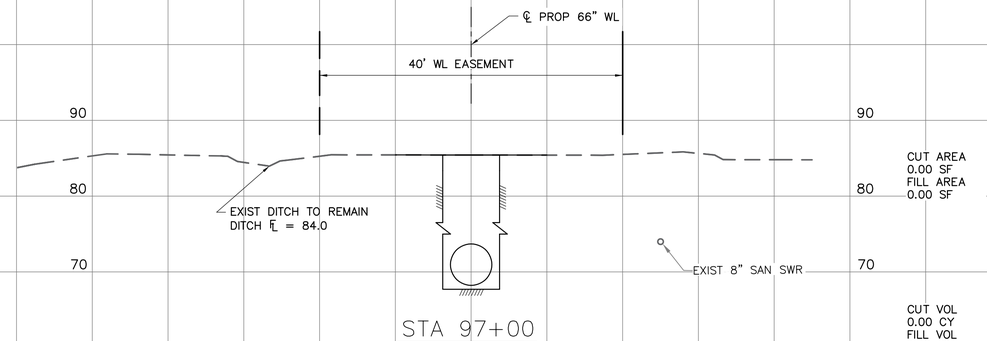


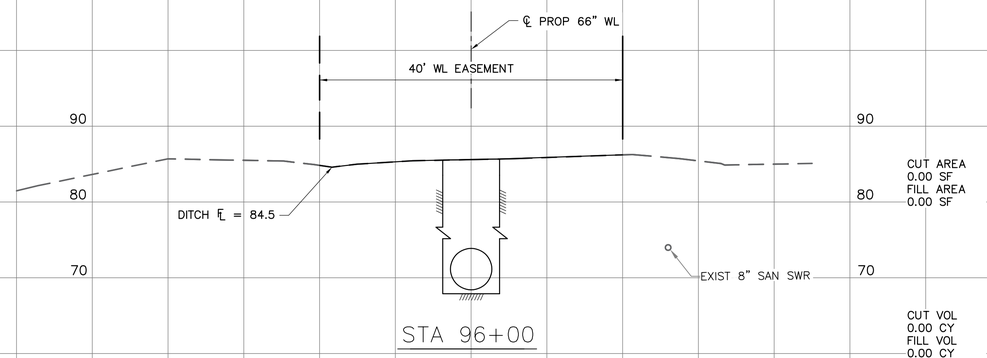


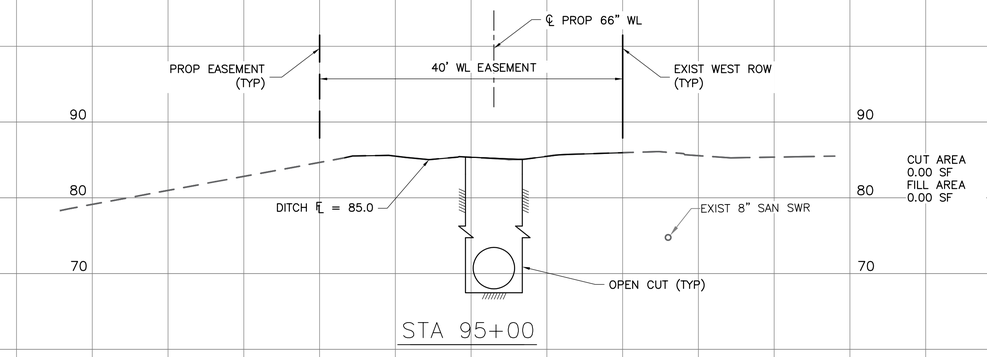












NOTES:

1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

SHEET 11 OF 12

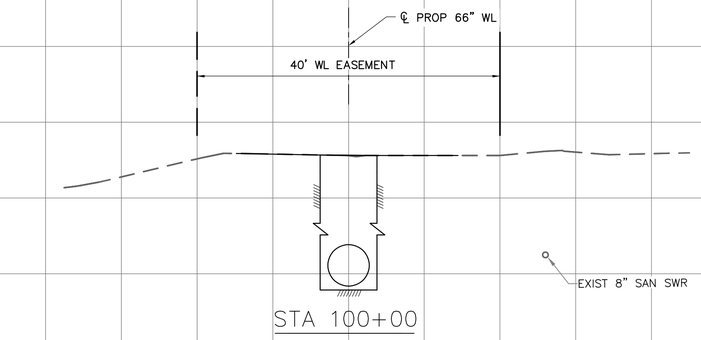
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=10' VERT: 1"=10'	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 131 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\131_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_11.dwg

NOTES:

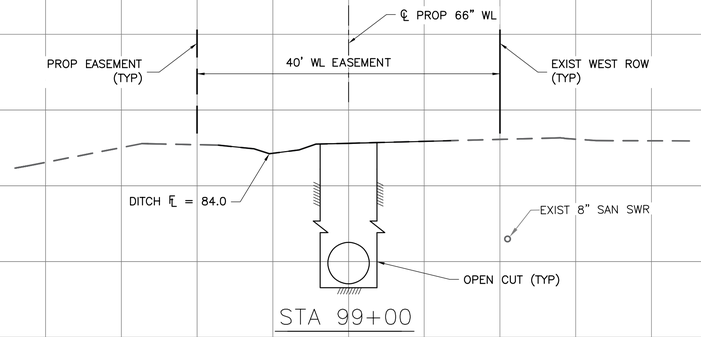
1. CONTRACTOR TO GRADE THE AREA WITHIN THE PROPOSED WATER LINE EASEMENT TO ORIGINAL AND/OR BETTER CONDITIONS & SEED/SOD THE AREA AFTER COMPLETION OF THE PROPOSED 66" WATER LINE CONSTRUCTION.
2. DITCH REGRADINGS WILL BE PAID FOR AS LINEAR FEET OF "DITCH REGRADING".

NO.	DATE	REVISION	APP.



CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY



CUT AREA
0.00 SF
FILL AREA
0.00 SF

CUT VOL
0.00 CY
FILL VOL
0.00 CY

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

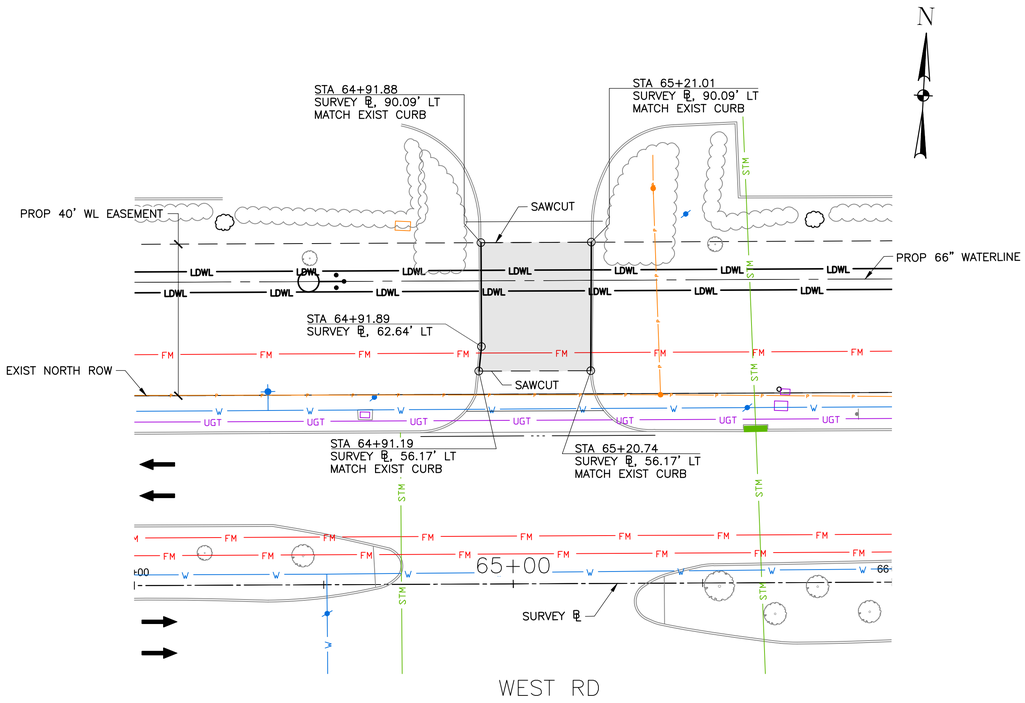
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

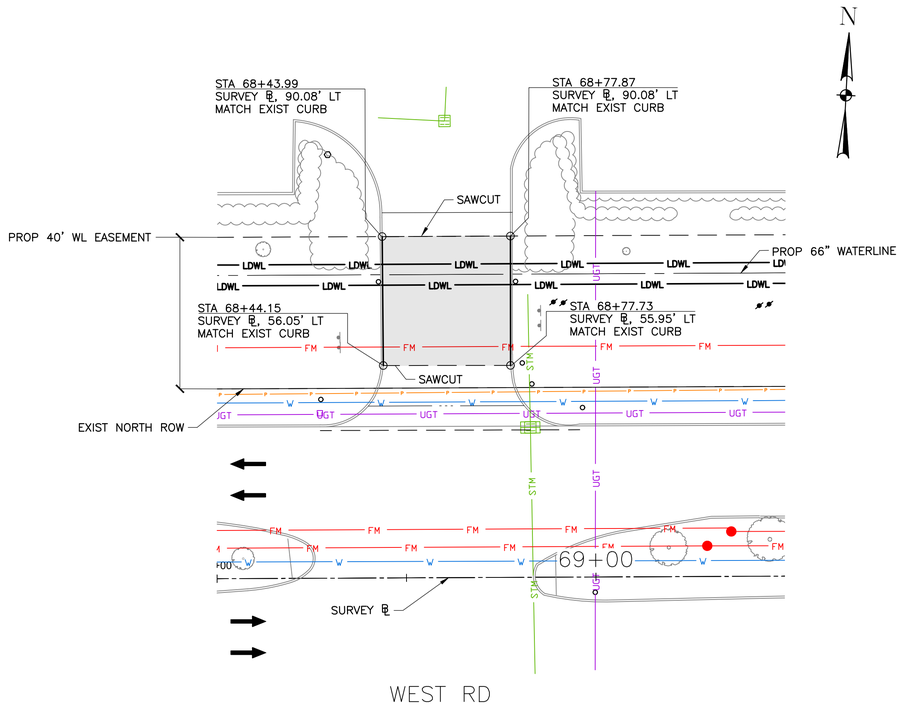
CROSS SECTIONS
ALONG WATER LINE ALIGNMENT

WBS NUMBER
S-000900-0179-3
DRAWING SCALE
HORIZ: 1"=10' VERT: 1"=10'
CITY OF HOUSTON PM
PANDURANGA KURUVA, P.E.
SHEET NO. 132 OF 157

FOR CITY OF HOUSTON USE ONLY

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\132_CROSS SECTIONS ALONG WATER LINE ALIGNMENT_12.dwg





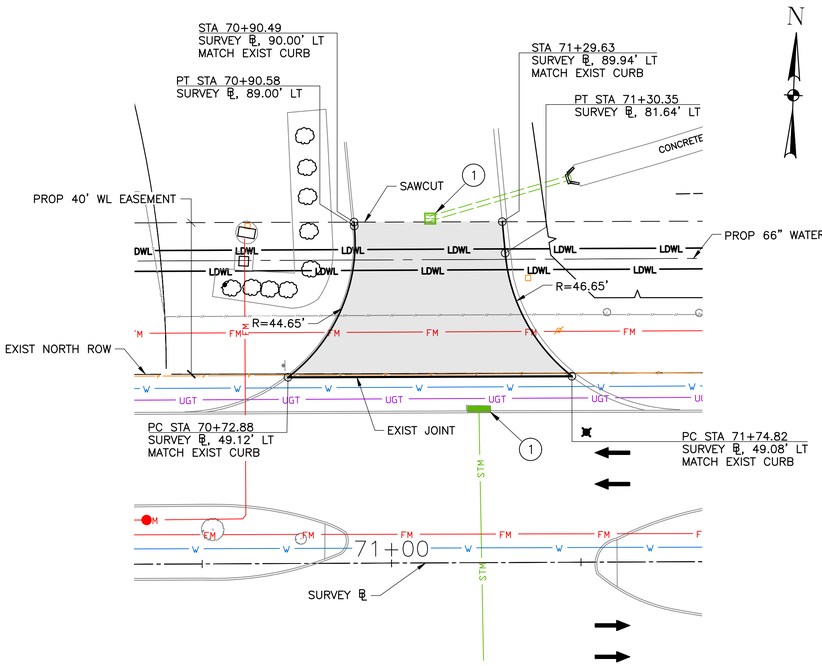
NOTES & LEGEND:

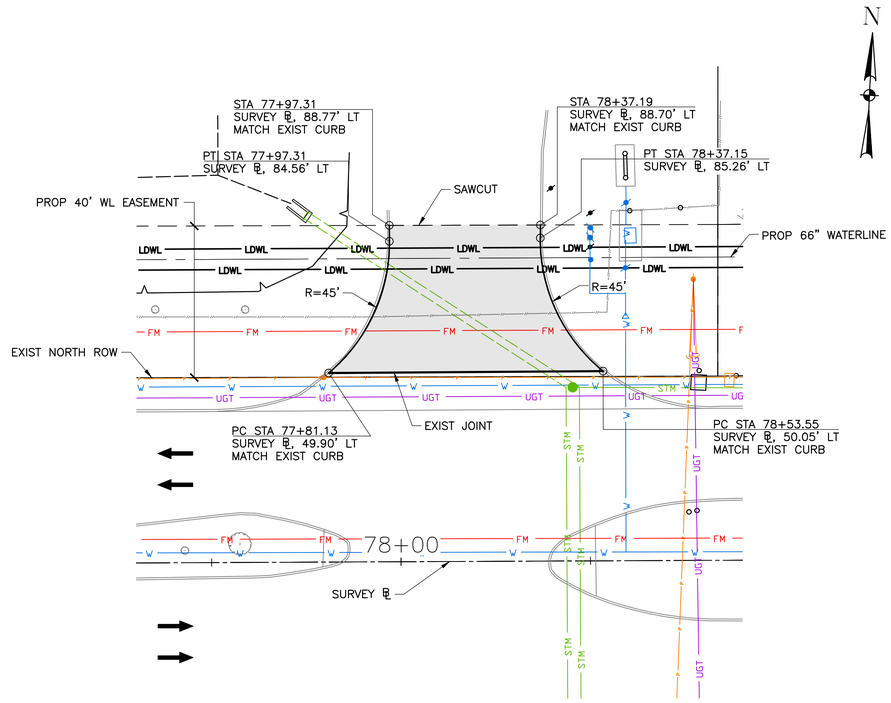
1. CONTRACTOR TO UTILIZE COH'S ONE LANE CLOSURE STANDARD DRAWING #01555-04 DURING CONSTRUCTION OF DRIVEWAYS.
2. SEE COH'S DRAWING #02754-01B FOR DETAILS.
3. NORTH SAWCUTS AS SHOWN ARE ALONG PROPOSED WL EASEMENT.
4. CURB ELEVATIONS SHALL MATCH EXISTING CURB ELEVATIONS.

REMOVE AND REPLACE EXISTING DRIVEWAY.

(1) EXISTING INLET TO REMAIN.

NO.	DATE	REVISION	APP.





20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

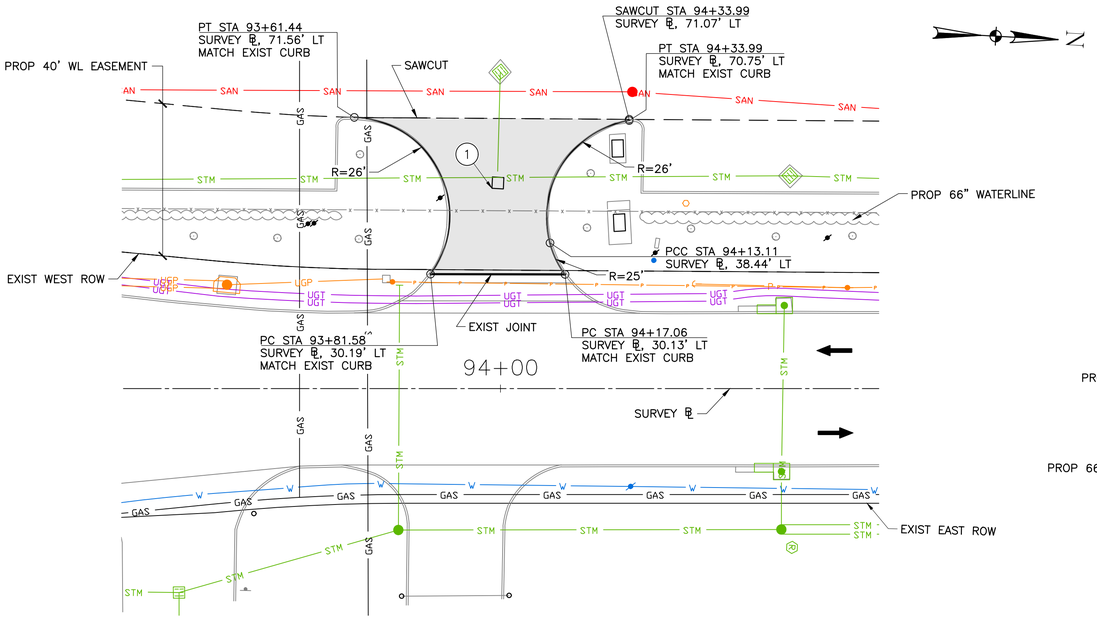
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

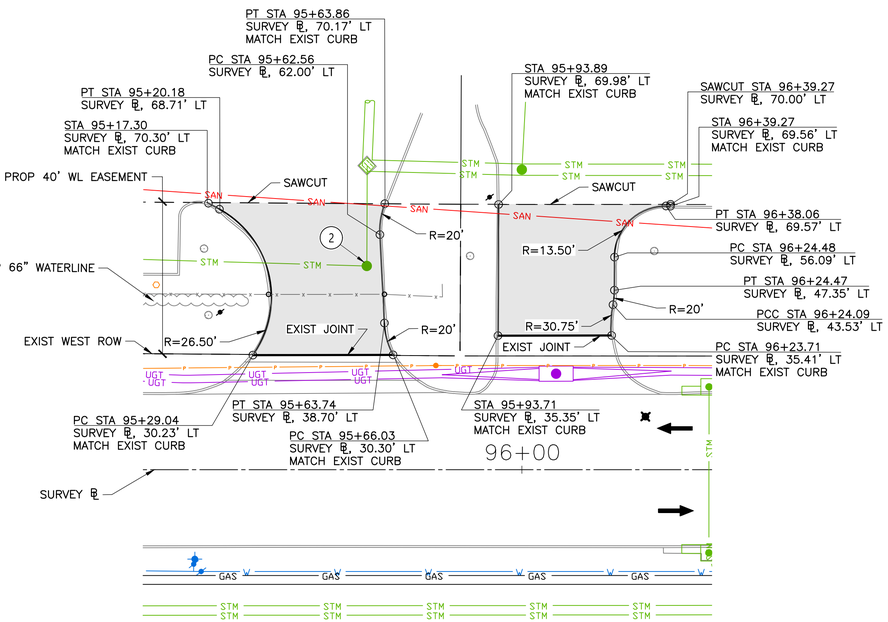
WEST RD
DRIVEWAYS REPLACEMENT

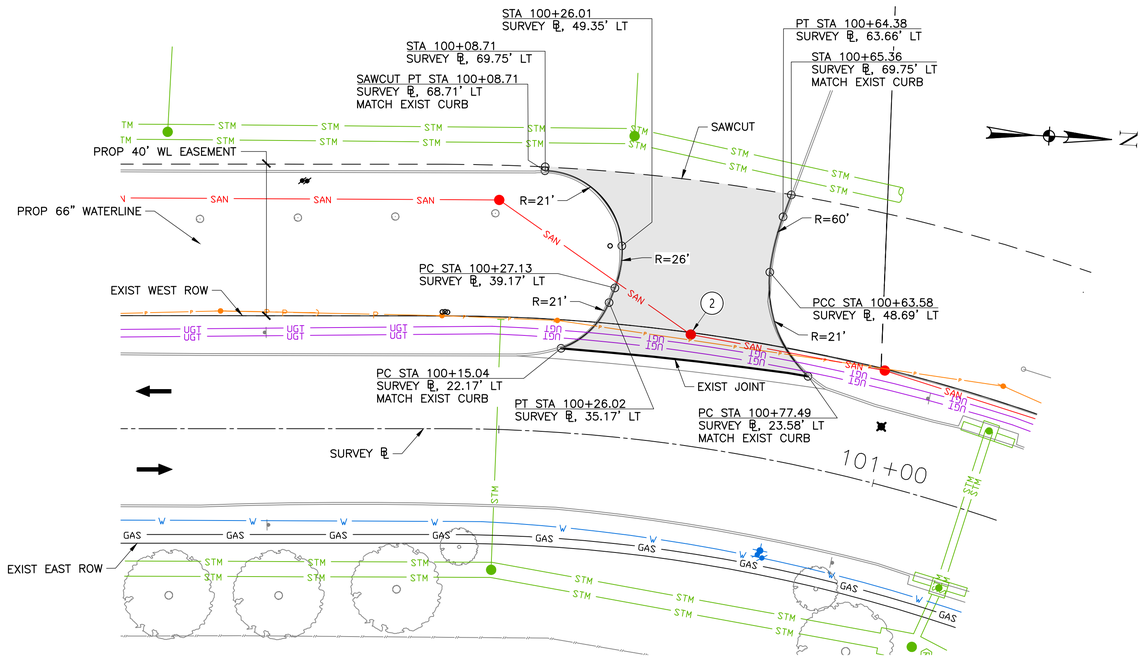
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 133 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\133_DRIVEWAYS REPLACEMENT WEST RD.dwg







NOTES & LEGEND:

1. CONTRACTOR TO UTILIZE COH'S ONE LANE CLOSURE STANDARD DRAWING #01555–04 DURING CONSTRUCTION OF DRIVEWAYS.
2. SEE COH'S DRAWING #02754–01B FOR DETAILS.
3. WEST SAWCUTS AS SHOWN ARE ALONG PROPOSED WL EASEMENT.
4. CURB ELEVATIONS SHALL MATCH EXISTING CURB ELEVATIONS.

REMOVE AND REPLACE EXISTING DRIVEWAY.

(1) EXISTING JB TO REMAIN, ADJUST ELEVATION TO FINISHED GRADE.

(2) EXISTING MANHOLE TO REMAIN, ADJUST RIM ELEVATION TO FINISHED GRADE.

NO.	DATE	REVISION	APP.

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

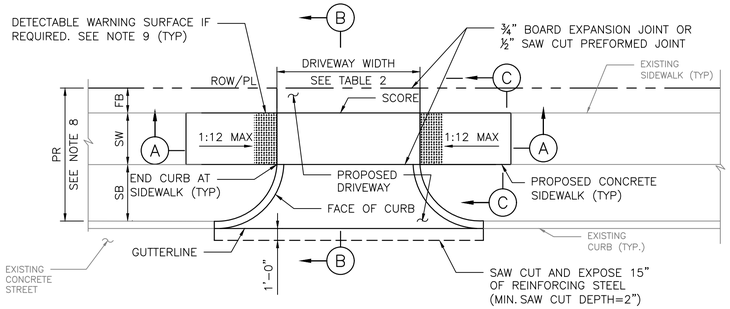
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

DEER TRAIL DR
DRIVEWAYS REPLACEMENT

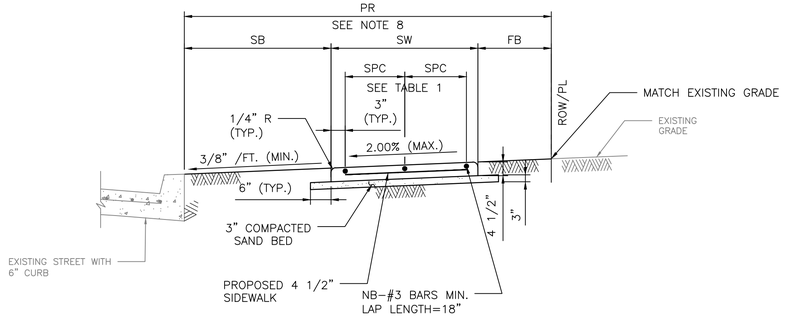
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 134 OF 157	

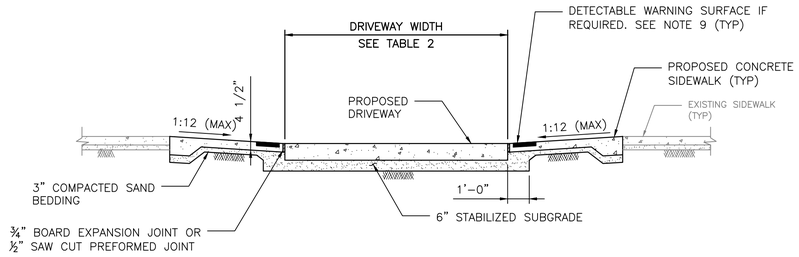
FILE PATH: Z:\Active Projects\1003–02 COH SWTP 66–inch WL\Drawings\134_DRIVEWAYS REPLACEMENT DEER TRAIL DR.dwg



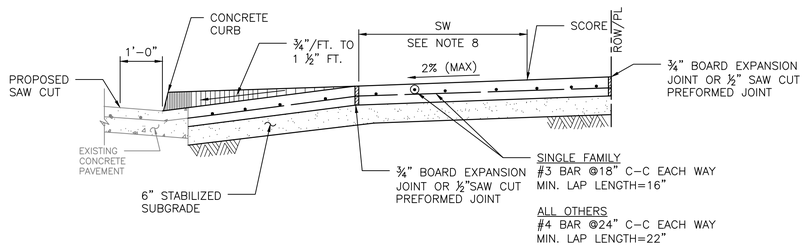
PLAN VIEW
DRIVEWAY



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

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			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.
(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.

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. 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 SLOPE WILL NOT BE ACCEPTED BY THE CIT HOUSTON.
8. REFER TO CONTRACT DRAWINGS FOR PEDES REALM (PR), SIDEWALK (SW), FRONTAGE BU (FB), AND SAFETY BUFFER (SB) WIDTHS.
9. DETECTABLE WARNING SURFACES:
   - 9.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
     - 9.1.1. SIDEWALK INTERSECTS TYPE DRIVEWAYS (COMMERCIAL DR THAT ARE STOP, YIELD, OR SIGNAL CONTROLLED; OR
     - 9.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
   - 9.2. 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).
   - 9.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

NO.	DATE	REVISION	APP.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF880C541F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Haddock A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023 | DWG NO: 02754–01B

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HTOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

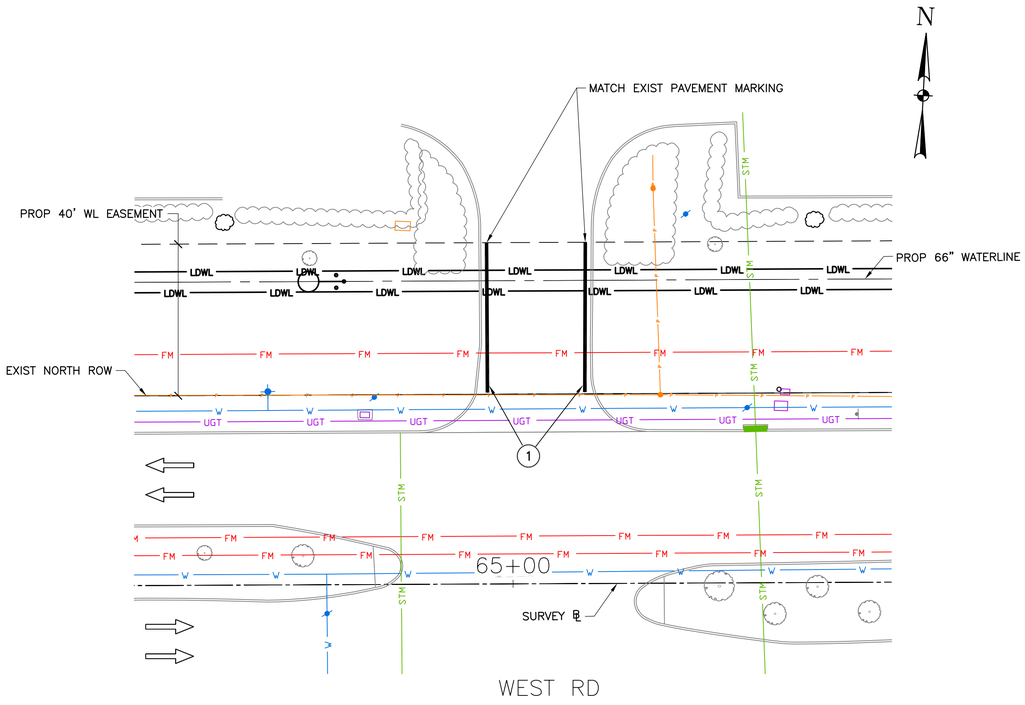
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

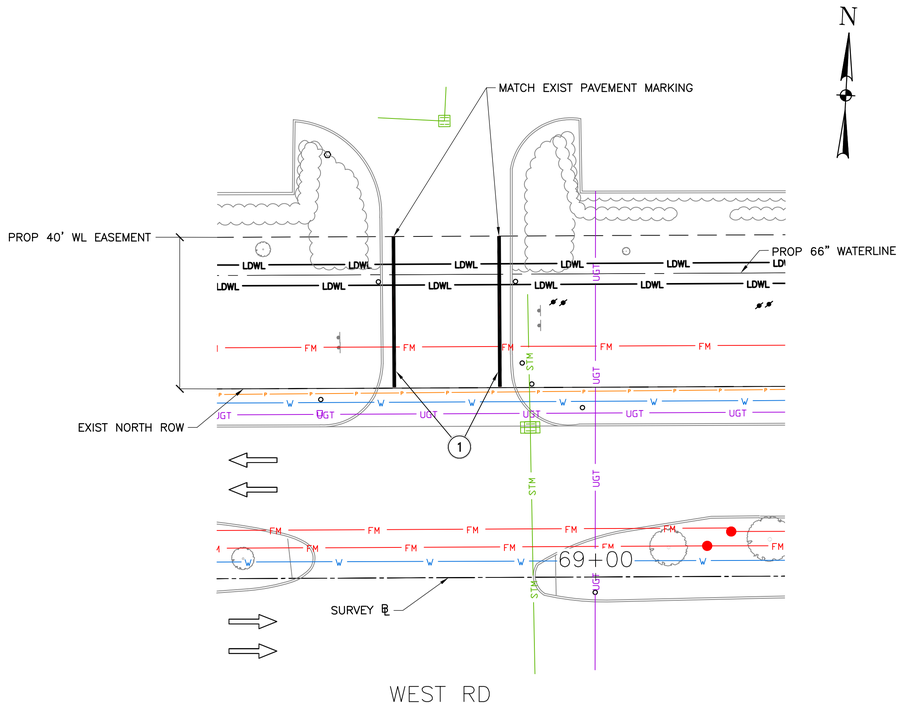
DRIVEWAY DETAIL WITH 6" CURBED STREETS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 135 OF 157	

FILE PATH: Z:\Active Projects\1003–02 COH SWTP 66–inch WL\Drawings\STANDARDS\COH\135_02754–01B_2023_11_MOD.dwg



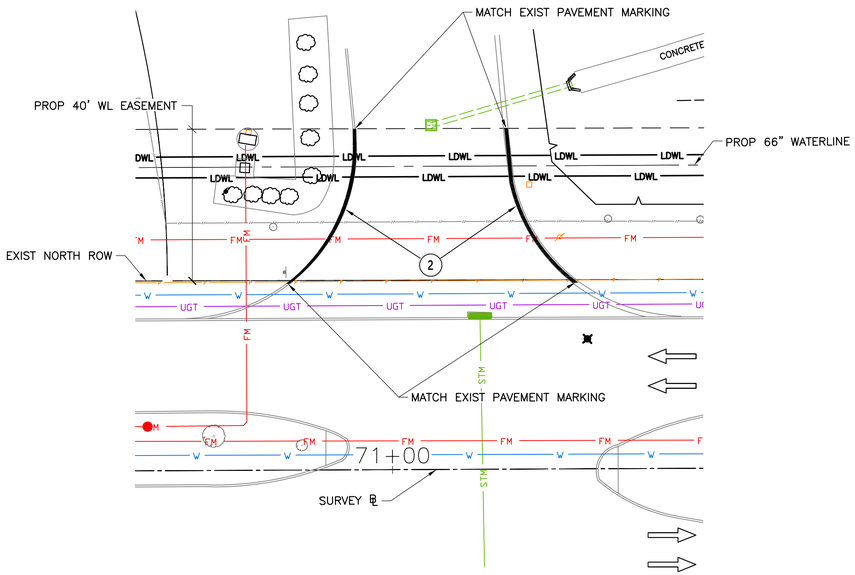


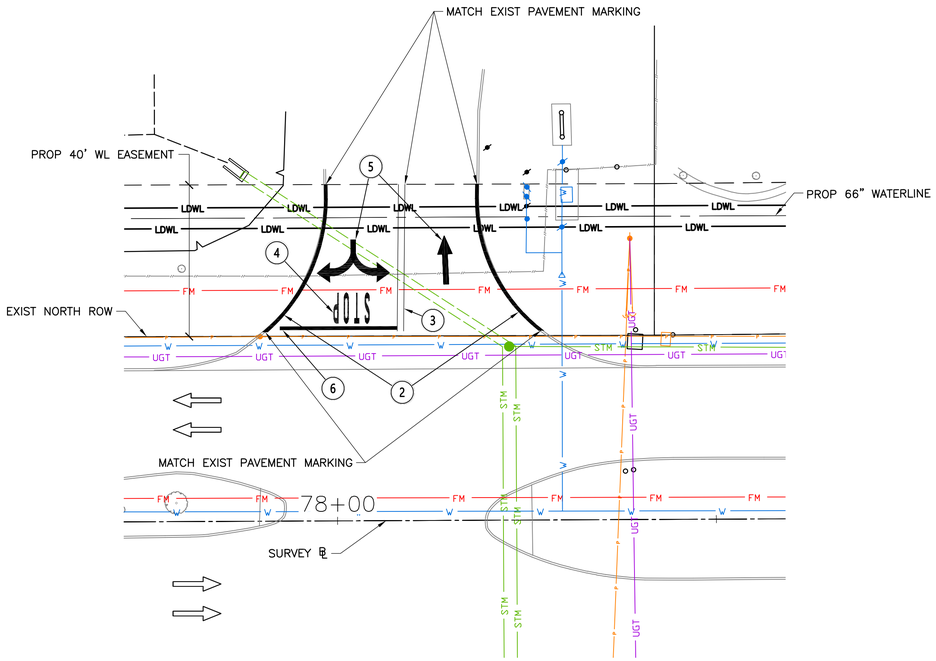
NOTES & LEGEND:

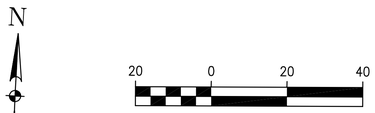
1. CONTRACTOR TO REFER TO STANDARD PAVEMENT MARKING SHEETS FOR DETAILS.
2. RS6 WITH WHITE TEXT "FIRE LANE NO PARKING TOW AWAY ZONE". MATCH EXISTING.
3. RS12 WITH WHITE TEXT "FIRE LANE NO PARKING TOW AWAY ZONE" AT FACE OF CURB. MATCH EXISTING.

- TRAFFIC DIRECTION
- (1) RS6
- (2) RS12
- (3) YDS4
- (4) WHITE WORDS
- (5) WHITE ARROW
- (6) WS24

NO.	DATE	REVISION	APP.







BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PAVEMENT MARKINGS

SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 136 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\136_PAVEMENT MARKINGS_1.dwg

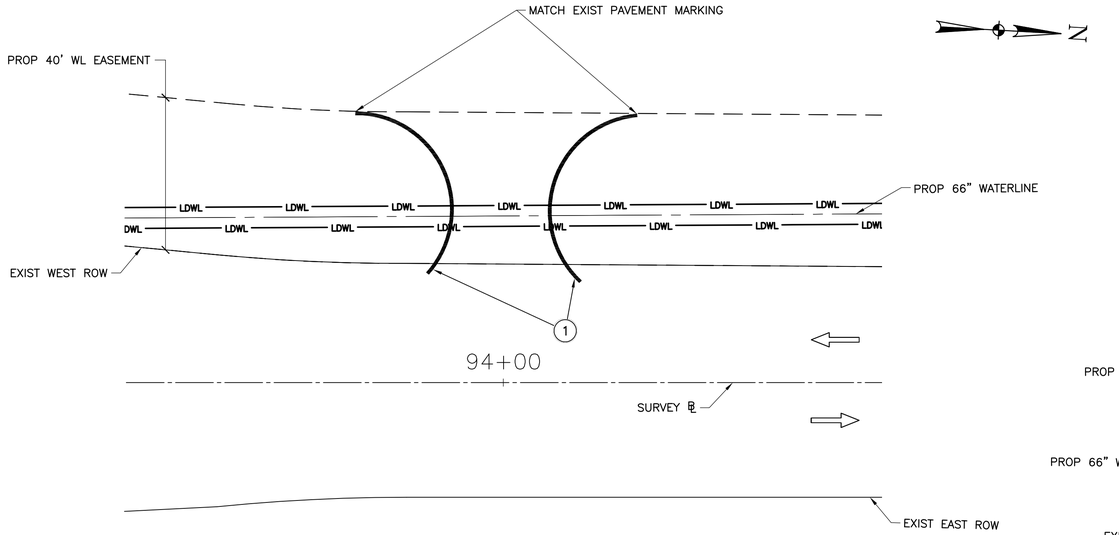
NOTES & LEGEND:

1. CONTRACTOR TO REFER TO STANDARD PAVEMENT MARKING SHEETS FOR DETAILS.
2. RS12 WITH WHITE TEXT "FIRE LANE NO PARKING TOW AWAY ZONE" AT FACE OF CURB. MATCH EXISTING.

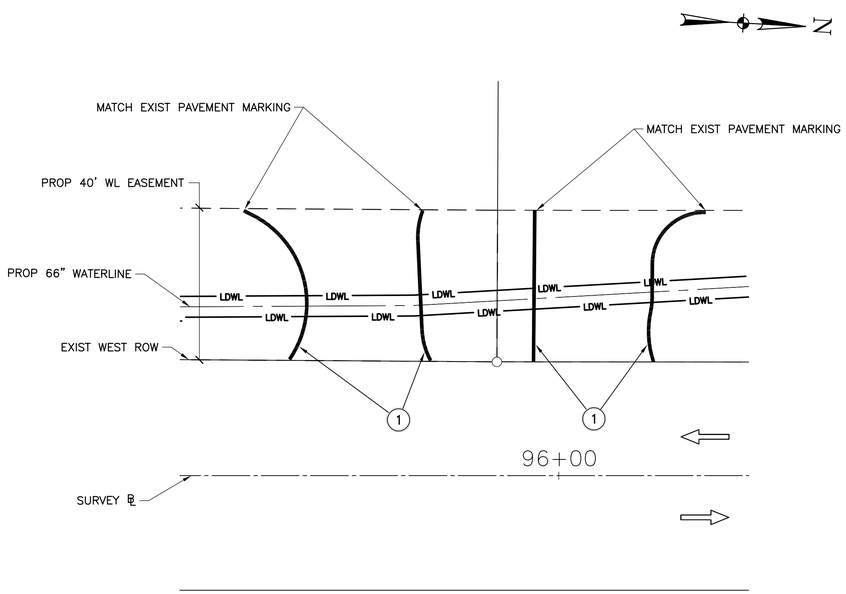
⇨ TRAFFIC DIRECTION

(1) RS12

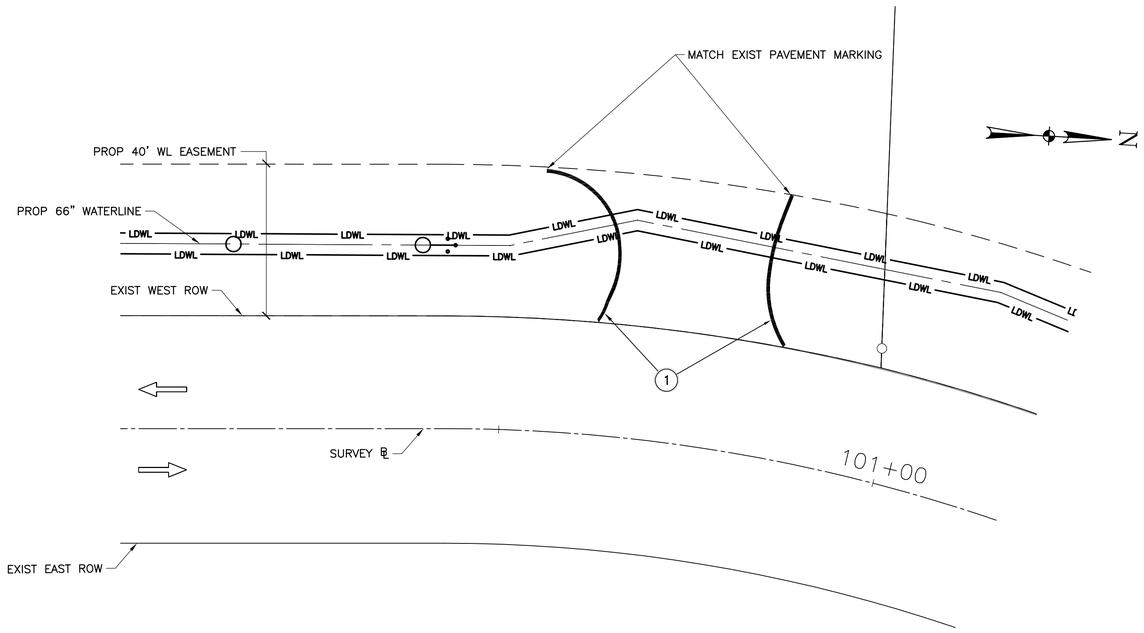
NO.	DATE	REVISION	APP.



DEER TRAIL DR



DEER TRAIL DR



DEER TRAIL DR

20 0 20 40

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PAVEMENT MARKINGS

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: 1"=20' VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 137 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\137_PAVEMENT MARKINGS_2.dwg

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.

LINE STYLE DESIGNATION : YSB4 – A40/A40

- YSB4: COLOR, PATTERN, WIDTH OF STRIPE
- A40/A40: RPM SPACING, RPM TYPE, RPM SPACING, RPM TYPE

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, UN OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED S THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTI TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC F 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).

NO.	DATE	REVISION	APP.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF58DC541F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA7584CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A93C410572B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 | DWG NO: 02760-01

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 138 OF 157	

FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\STANDARDS\COH\138_02760-01_2023_11_MOD.dwg



NO.	DATE	REVISION	APP.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar — 9EFB80C641F5478...	DocuSigned by: HANG NGUYEN — 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Haddock — A5CA155F7EA53...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023	DWG NO: 02760-03

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE,
SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

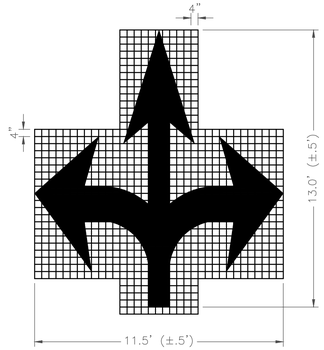
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

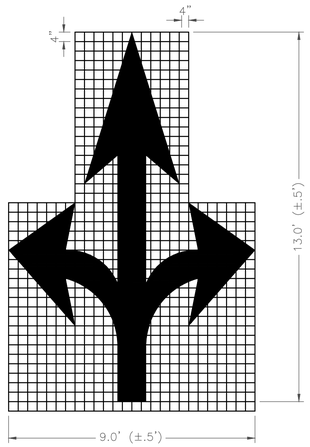
STANDARD PAVEMENT MARKING - (WORDS)

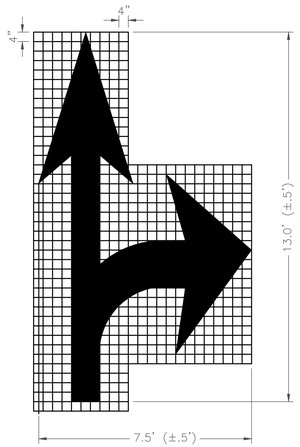
SHEET 1 OF 1

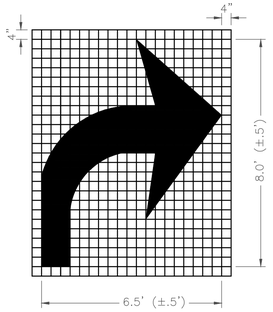
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 139 OF 157	

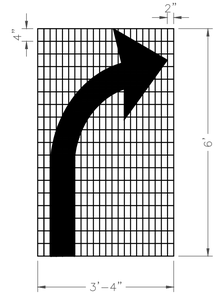
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\STANDARDS\COH\139_02760-03_2023_11_MOD.dwg

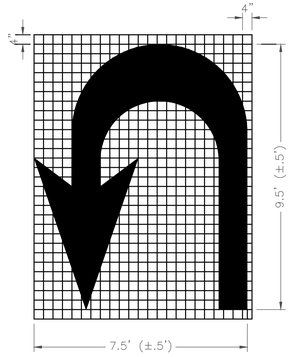


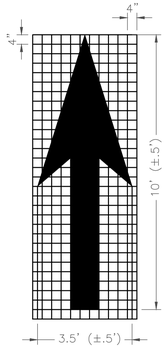


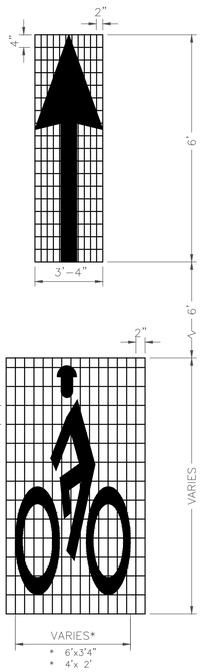


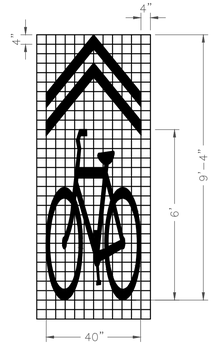


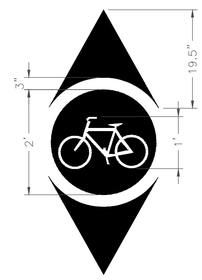


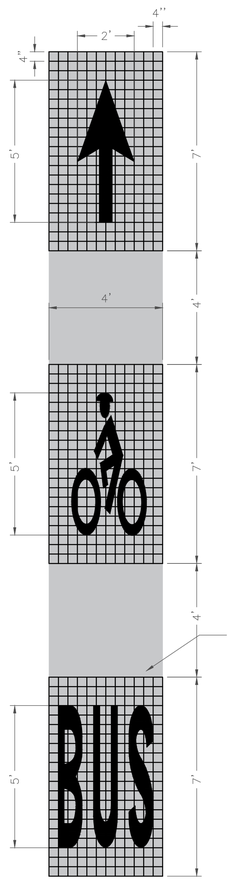


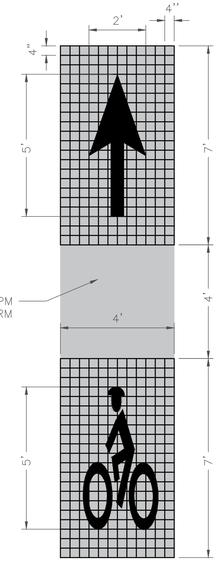


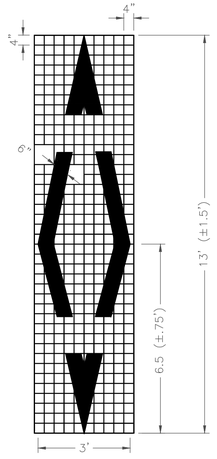


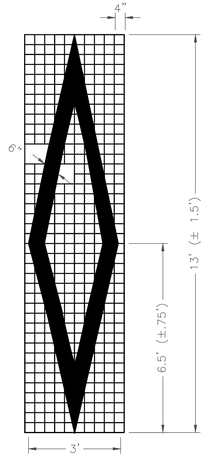


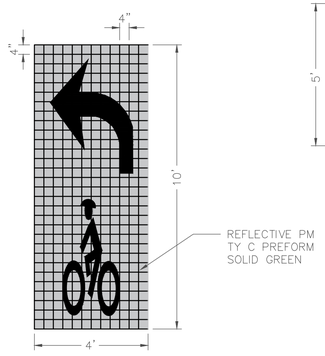












NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":

1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MO 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- 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.

NO.	DATE	REVISION	APP.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF880C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA7584CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Haddock A93C410572B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 | DWG NO: 02760-04

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899-5657
TBPE REG NO. F-26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

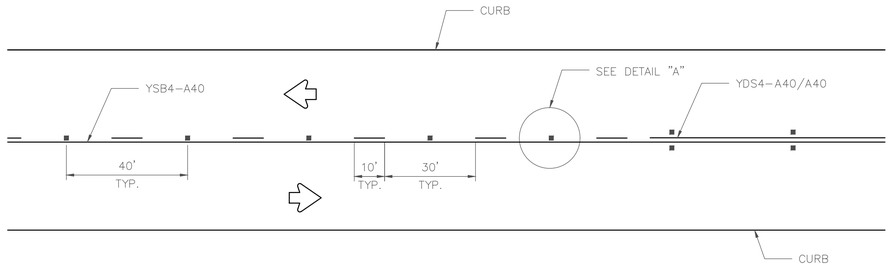
STANDARD PAVEMENT MARKING- SYMBOLS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 140 OF 157	

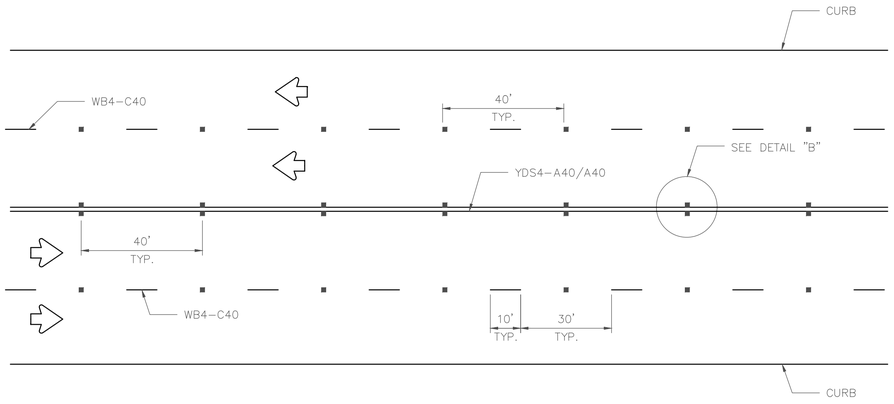
FILE PATH: Z:\Active Projects\1003-02 COH SWTP 66-inch WL\Drawings\STANDARDS\COH\140_02760-04_2023_11_MOD.dwg

CENTERLINE & FOR ALL TWO LANE STREETS WITH PASSING ZONE

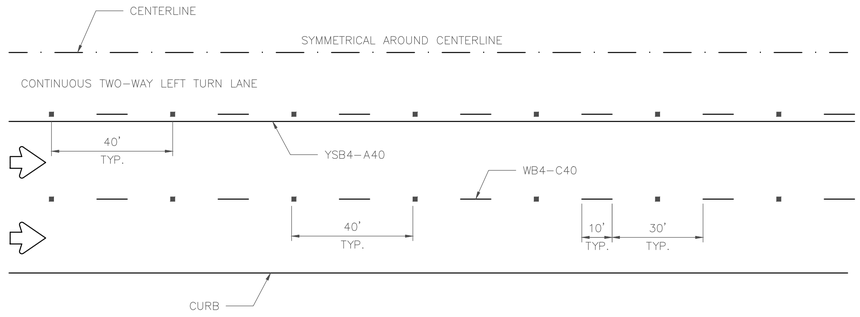


CENTERLINE & LANE LINES FOR FOUR LANE TWO–WAY STREETS

RRPM TYPE C, CLEAR FACE TOWARD NORMAL TRAFFIC, SHALL BE PLACED ON 40–FOOT CENTERS.

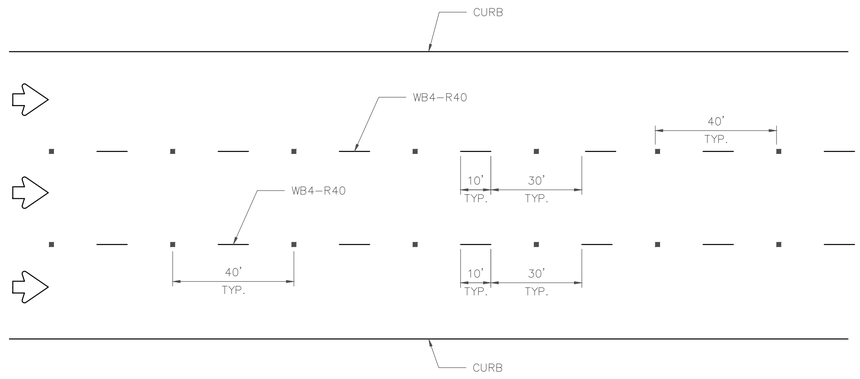


CENTERLINE & LANE LINES FOR TWO–WAY LEFT TURN LANE



LANE LINES FOR ONE–WAY MULTILANE STREET

RRPM TYPE R SHALL HAVE CLEAR FACE TOWARD NORMAL TRAFFIC AND RED FACE TOWARD WRONG–WAY TRAFFIC.

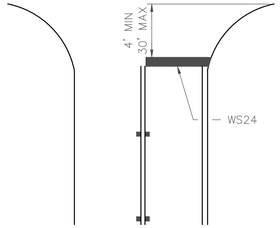


GENERAL NOTES:

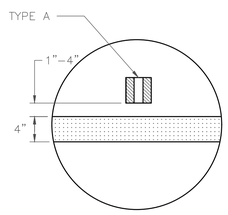
1. EDGELINE ADJACENT TO CURB AND GUTTER IS NO REQUIRED IN ALL CASES, HOWEVER SHALL BE PLA AS DIRECTED BY CITY TRAFFIC ENGINEER.
2. THE TRAVELED WAY INCLUDES ONLY THAT PORTION THE ROADWAY USED FOR VEHICULAR TRAVEL AND THE PARKING LANES, SIDEWALKS, BERMS AND SHOULDERS. THE TRAVELED WAYS SHALL BE MEAS FROM THE INSIDE OF EDGELINE TO INSIDE OF ED OF A TWO LANE ROADWAY.
3. ALL RAISED PAVEMENT MARKERS PLACED IN BROK LINES SHALL BE PLACED IN LINE WITH AND MIDWA BETWEEN THE STRIPES.
4. ON CONCRETE PAVEMENTS THE RAISED PAVEMENT MARKERS SHOULD BE PLACED TO ONE SIDE OF THE LONGITUDINAL JOINTS.
5. ALL PAVEMENT MARKING MATERIAL SHALL MEET THE REQUIRED MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF HOUSTON STANDARD SPECIFICATIONS.

NO.	DATE	REVISION	APP.

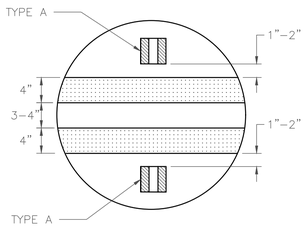
GUIDE FOR PLACEMENT OF STOP LINES & CENTERLINE



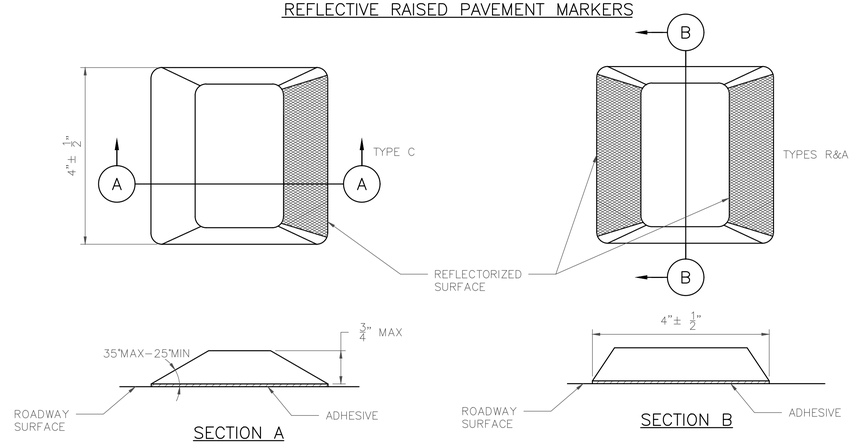
DETAIL "A"



DETAIL "B"



REFLECTIVE RAISED PAVEMENT MARKERS



APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF80C641F5478...	DocuSigned by: KHANG NGUYEN 35A29EFDA7584CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carl Haddock A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023	DWG NO: 02760–05

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

HOWN ENGINEERS
2825 WILCREST DRIVE, SUITE 218
HOUSTON, TX 77042
TEL: (832) 899–5657
TBPE REG NO. F–26176

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF A. SETAREHASEMAN, P.E. (TX LICENSE NO. 68184) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

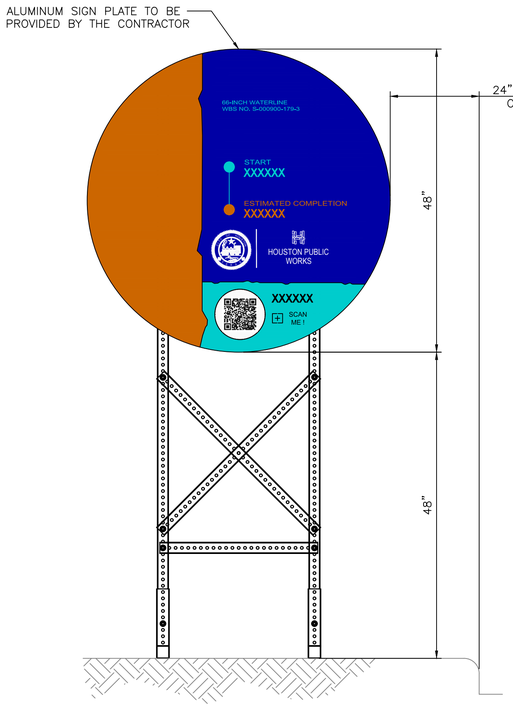
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE

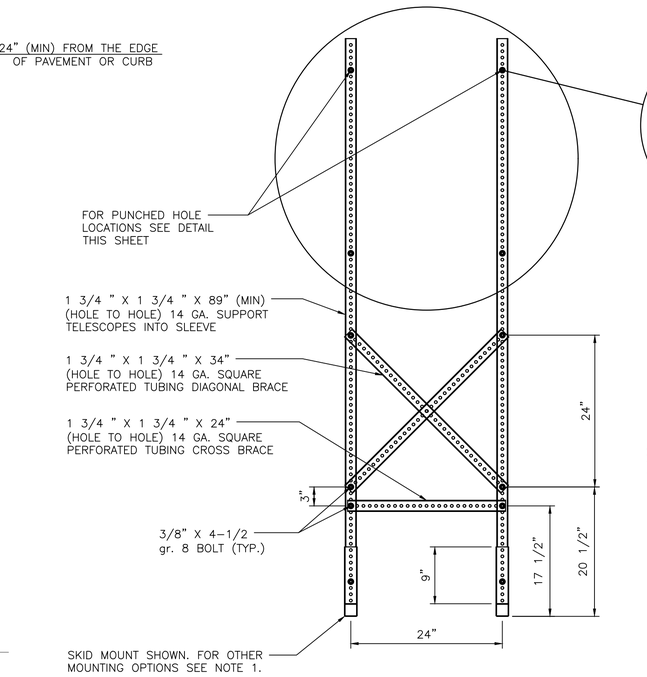
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
HORIZ: NONE VERT: NONE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 141 OF 157	

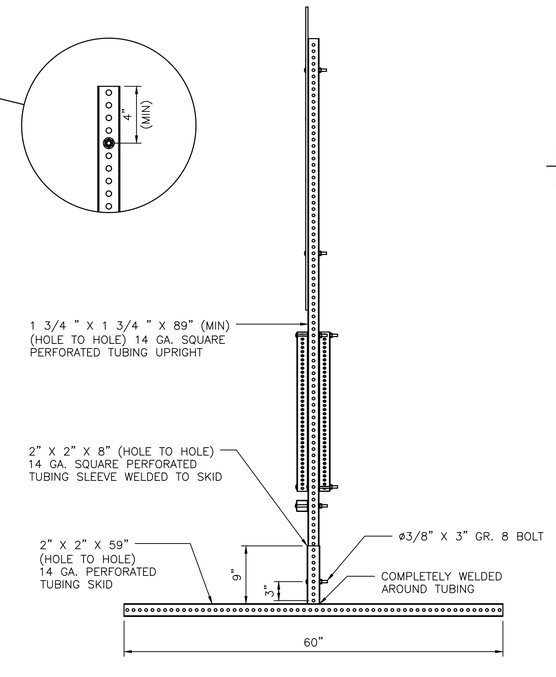
FILE PATH: Z:\Active Projects\1003–02 COH SWTP 66–inch WL\Drawings\STANDARDS\COH\141_02760–05_2023_11_MOD.dwg



FRONT VIEW



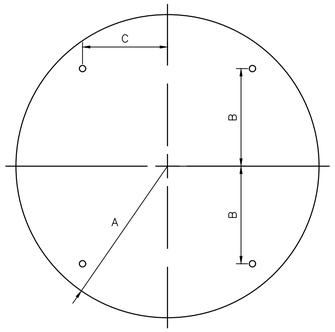
FRONT VIEW



SIDE VIEW

PROJECT SIGN – 48"

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.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

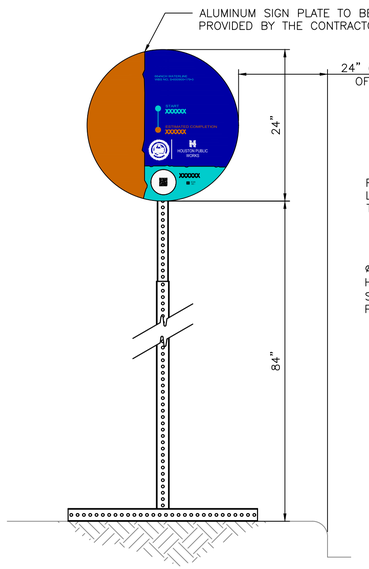
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

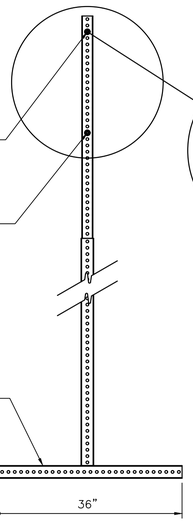
66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

CONSTRUCTION SIGN BUILD HOUSTON FORWARD

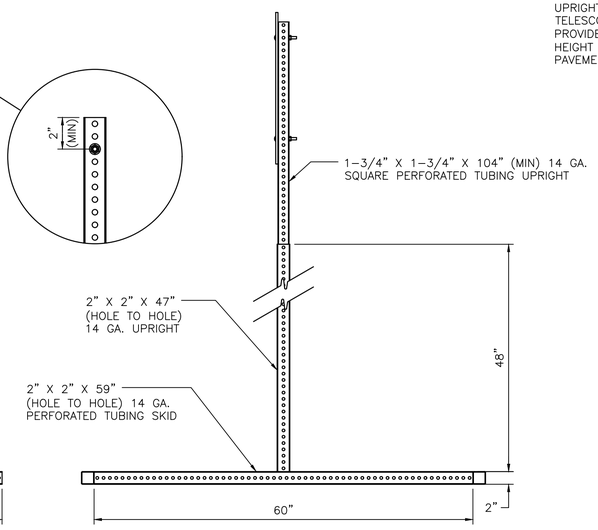
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 142 OF 157	



FRONT VIEW



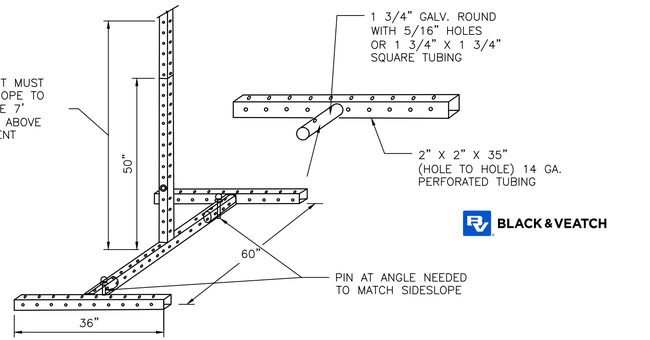
FRONT VIEW



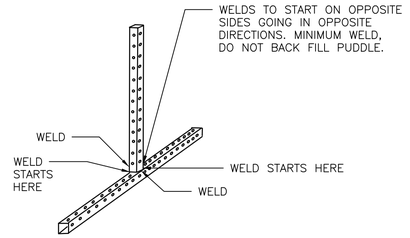
SIDE VIEW

PROJECT SIGN – 24"

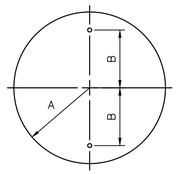
SKID MOUNTED SUPPORTS FOR 24" PROJECT SIGN



ISO VIEW

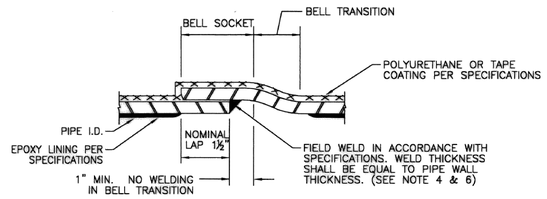


ISO VIEW

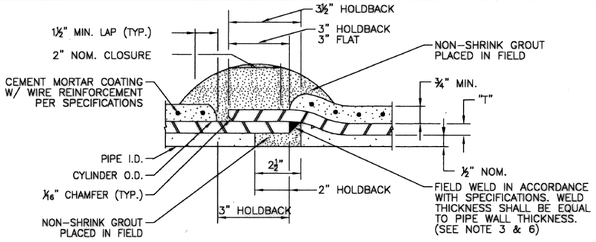


A	B	C
12"	8"	0.080"

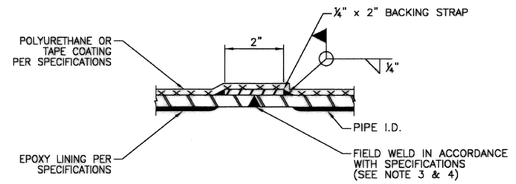
24" SIGN PLATE HOLE DETAIL



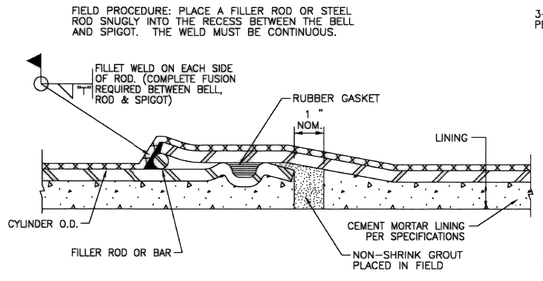
1 LAP–WELD FIELD JOINT – STEEL PIPE JOINT
FLEXIBLE COATING AND LINING



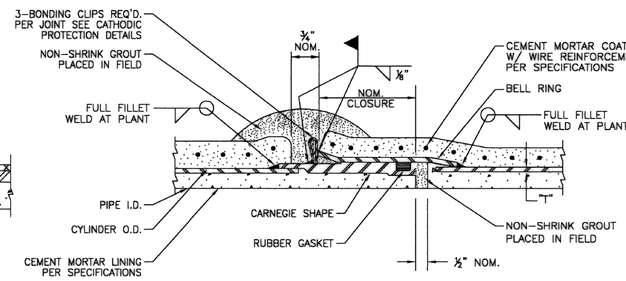
2 LAP–WELD FIELD JOINT – STEEL PIPE JOINT
CEMENT MORTAR LINED & CEMENT MORTAR COATED



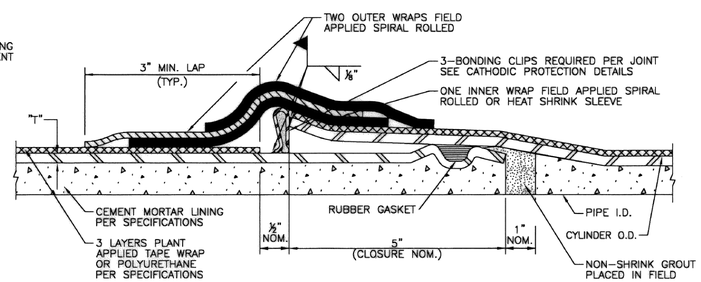
3 BUTT WELD FIELD JOINT – STEEL PIPE JOINT
FLEXIBLE COATING AND LINING



4 FIELD WELDED O–RING – STEEL PIPE JOINT
FLEXIBLE COATING AND CEMENT MORTOR LINING
(FOR ADJUSTMENTS ONLY AS APPROVED BY ENGINEER AND PIPE MANUFACTURER.)



5 CARNEGIE JOINT – STEEL PIPE JOINT
CEMENT MORTAR LINED & CEMENT MORTAR COATED



6 O–RING – STEEL PIPE JOINT
CEMENT MORTAR LINED & FLEXIBLE COATING

NOTES:

1. T = STEEL CYLINDER THICKNESS AND SIZE OF FILLET ATTACHMENT WELD.
2. ALL REFERENCES TO PIPE DIAMETER FOR THIS PROJECT SHALL SIGNIFY SIZE MEASURED TO INSIDE DIAMETER OF THE LINED PIPE.
3. DETAILS 1 AND 3 SHOW EPOXY LINING. CEMENT MORTAR LINING TO BE SIMILAR TO DETAILS ON THIS SHEET SHOWING CEMENT MORTAR LINED PIPE, AS APPROVED BY PROGRAM MANAGER.
4. SEE SPECIFICATIONS FOR REPAIR OF EPOXY LINING.
5. WHEN CEMENT MORTAR COATING IS USED FOR STEEL PIPE, FLEXIBLE MASTIC SEALER SHALL BE APPLIED TO THE EXTERIOR OF THE JOINT PRIOR TO JOINT ENGAGEMENT WHEN PIPE IS INSTALLED IN A TUNNEL OR ENCASEMENT PIPE.
6. OUTSIDE WELD MAY BE SUBSTITUTED FOR INSIDE WELD. INTERIOR WELDING IS NOT RECOMMENDED FOR 30" DIAMETER PIPE AND SMALLER.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
STEEL PIPE DETAILS
(SHEET 1 OF 2)

(NOT TO SCALE)

APPROVED BY: ACTING CITY ENGINEER	APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02518-01

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

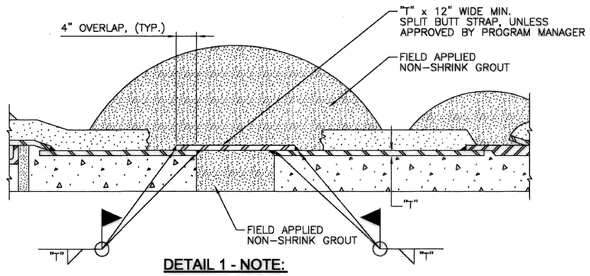
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STANDARD LDWL STEEL PIPE DETAIL (1 OF 2)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 143 OF 157	

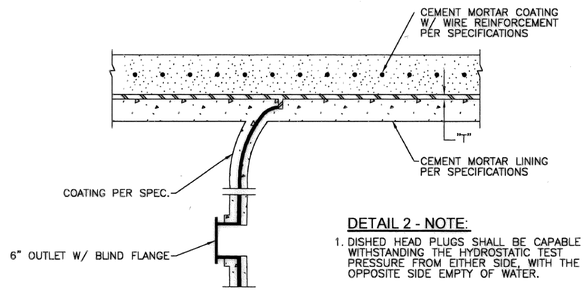


DETAIL 1 - NOTE:

1. WELD SIZE SHALL MATCH THICKNESS OF BUTT STRAP AND CARRIER PIPE, AS RECOMMENDED BY THE PIPE MANUFACTURER.
2. INTERNAL WELD NOT RECOMMENDED FOR 30" DIAMETER PIPE AND SMALLER.
3. NO ANGULAR DEFLECTION ALLOWED.

1 CLOSURE PIECE

FOR STEEL PIPE WITH CEMENT MORTAR LINED AND CEMENT MORTAR COATED (SIMILAR FOR FLEXIBLE COATING AND LINING)

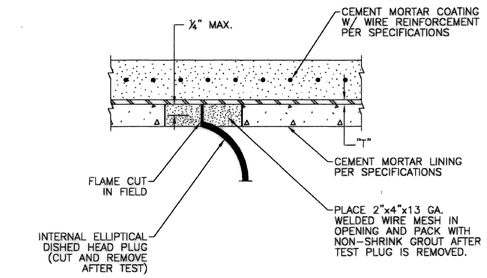


DETAIL 2 - NOTE:

1. DISHED HEAD PLUGS SHALL BE CAPABLE OF WITHSTANDING THE HYDROSTATIC TEST PRESSURE FROM EITHER SIDE, WITH THE OPPOSITE SIDE EMPTY OF WATER.

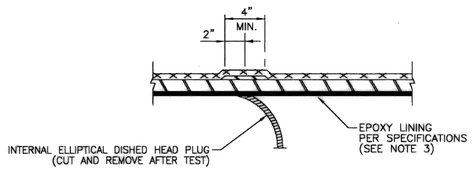
2 INTERNAL ELLIPTICAL DISHED HEAD PLUG

CEMENT MORTAR LINING AND CEMENT MORTAR COATED STEEL PIPE SPECIAL



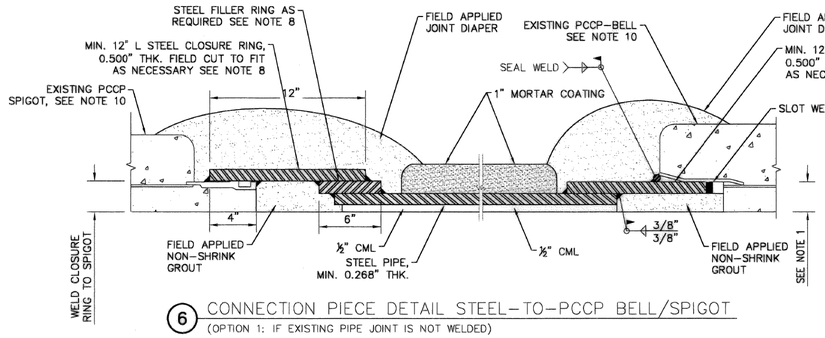
3 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL

CEMENT MORTAR LINING AND CEMENT MORTAR COATED STEEL PIPE SPECIAL



4 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL

FOR STEEL PIPE WITH FLEXIBLE COATING AND LINING

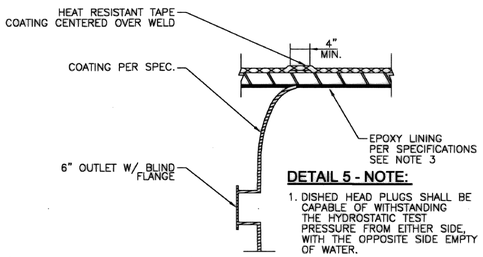


6 CONNECTION PIECE DETAIL STEEL-TO-PCCP BELL/SPIGOT

(OPTION 1: IF EXISTING PIPE JOINT IS NOT WELDED)

NOTES:

1. T = STEEL CYLINDER THICKNESS AND SIZE OF FILLET ATTACHMENT WELD.
2. ALL REFERENCES TO PIPE DIAMETER FOR THIS PROJECT SHALL SIGNIFY SIZE MEASURED TO INSIDE DIAMETER OF THE LINED PIPE.
3. DETAILS 4 AND 5 SHOW EPOXY LINING. CEMENT MORTAR LINING TO BE SIMILAR TO DETAILS ON THIS SHEET SHOWING CEMENT MORTAR LINED PIPE, AS APPROVED BY PROGRAM MANAGER.
4. SEE SPECIFICATIONS FOR REPAIR OF EPOXY LINING.
5. WHEN CEMENT MORTAR COATING IS USED FOR STEEL PIPE, FLEXIBLE MASTIC SEALER SHALL BE APPLIED TO THE EXTERIOR OF THE JOINT PRIOR TO JOINT ENGAGEMENT WHEN PIPE IS INSTALLED IN A TUNNEL OR ENCASEMENT PIPE.
6. OUTSIDE WELD MAY BE SUBSTITUTED FOR INSIDE WELD. INTERIOR WELDING IS NOT RECOMMENDED FOR 30" DIAMETER PIPE AND SMALLER.
7. FIELD VERIFY INSIDE DIAMETER OF JOINT RING.
8. RING THICKNESS TO BE DETERMINED BASED ON FIELD VERIFIED JOINT DIMENSIONS.
9. COATINGS ON PROPOSED PIPE TO BE SIMILAR TO EXISTING PIPE.
10. PROTECT EXISTING PIPE SECTIONS TO REMAIN IN PLACE. NOTIFY ENGINEER IF ANY SUSPECTED DAMAGE OCCURS.

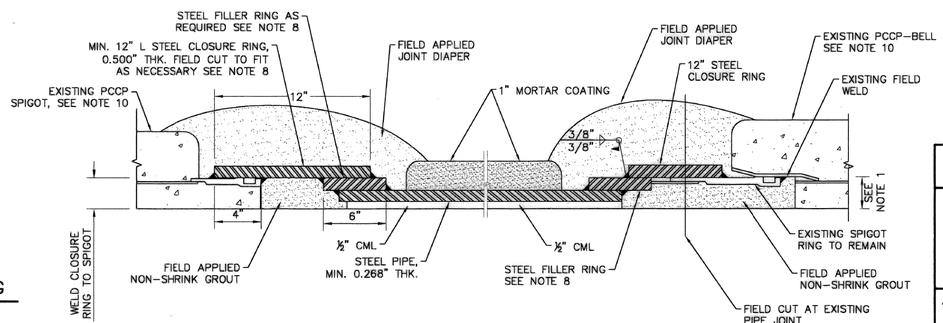


DETAIL 5 - NOTE:

1. DISHED HEAD PLUGS SHALL BE CAPABLE OF WITHSTANDING THE HYDROSTATIC TEST PRESSURE FROM EITHER SIDE, WITH THE OPPOSITE SIDE EMPTY OF WATER.

5 INTERNAL ELLIPTICAL DISHED HEAD PLUG

FOR STEEL PIPE WITH FLEXIBLE COATING AND LINING



7 CONNECTION PIECE DETAIL STEEL-TO-PCCP BELL/SPIGOT

(OPTION 2: IF EXISTING PIPE JOINT IS WELDED)

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
STEEL PIPE DETAILS
(SHEET 2 OF 2)

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
ACTING CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02518-02

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

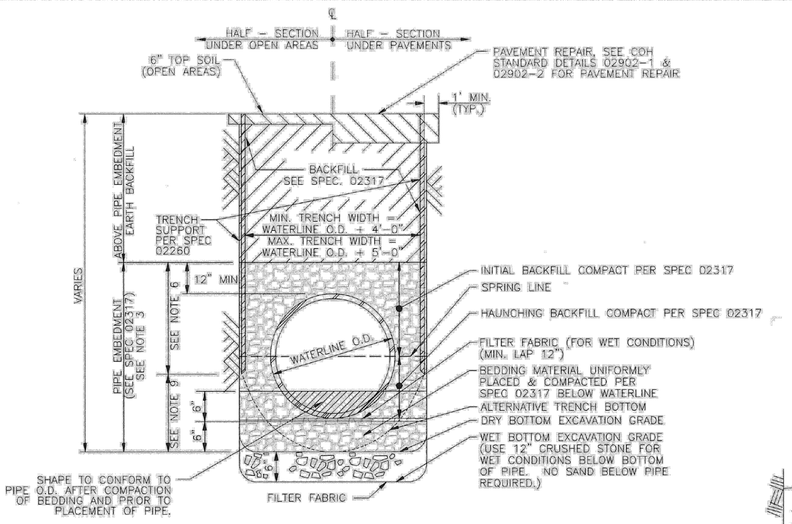
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STANDARD LDWL STEEL PIPE DETAIL (2 OF 2)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 144 OF 157	



1 EXCAVATION & BACKFILL DETAIL

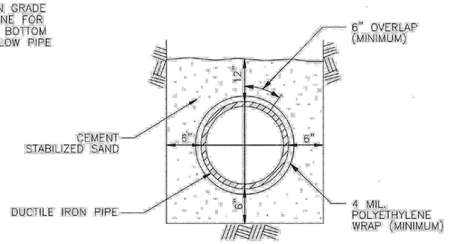
NO SCALE

DETAIL APPLICABLE IN FOLLOWING LIMITS:

– WATER MAIN WITH DEPTH OF COVER LESS THAN 16 FT

DETAILS 1 & 2 – NOTES:

1. SEE TRENCH SAFETY SYSTEM SPECIFICATIONS.
2. FOR WET BOTTOM EXCAVATION LIMITS OF CRUSHED STONE, EXTEND AS SHOWN.
3. PLACEMENT OF TRENCH DAM WITH A MINIMUM OF 12 INCHES INTO TRENCH BOTTOM AND WALLS.
4. TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING 12–INCH MINIMUM THICKNESS AND 12–INCH KEY DEPTH REQUIREMENTS.
5. TRENCH DAM SHALL BE PLACED AT LEAST 5 FT. AWAY FROM ANY PIPELINE STRUCTURE (EACH SIDE). SEE SECTION 02317 FOR OTHER REQUIREMENTS.
6. THIS PORTION OF PIPE EMBEDMENT ZONE MUST BE RECOMPACTED TO PROPER DENSITIES AFTER MOVING SUPPORT SYSTEM FORWARD.
7. USE FILTER FABRIC AS A BOND BREAKER IN PPCA LIMITS AND USE POLYETHYLENE WRAP AS A BOND BREAKER AT OTHER LOCATIONS BETWEEN CEMENT STABILIZED SAND AND PIPE.
8. REFER TO SPEC 02317 FOR GEOTEXTILE REQUIREMENTS AROUND EMBEDMENT.
9. ADJUST HEIGHT OF UNSUPPORTED TRENCH AS NEEDED FOR SAFE CONDITIONS.

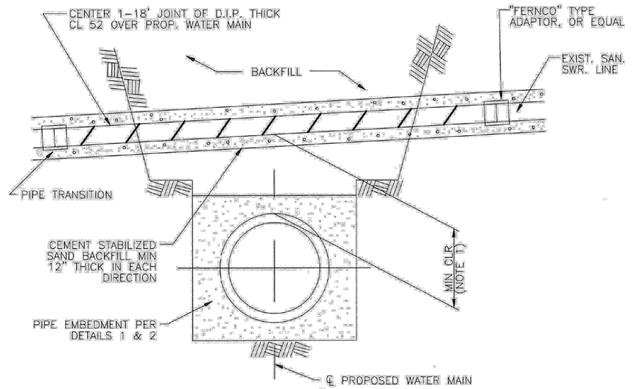


EMBEDMENT AND CORROSION PROTECTION FOR SANITARY SEWER DUCTILE IRON PIPE

4 NO SCALE

DETAIL 4 – NOTES:

1. FOLLOWING EXCAVATION OF TRENCH, PLACE A 6" LAYER OF CEMENT STAB. SAND AT BOTTOM OF TRENCH. LAY POLYETHYLENE WRAP IN TRENCH, AND LAY PIPE ON TOP OF WRAP. FOLD WRAP AROUND PIPE WITH A 6" OVERLAP (MIN.) AND TIE AROUND PIPE WITH HEAVY BINDER TWINE, OR EQUAL, ON 6" CENTERS. PROVIDE A 12" OVERLAP (MIN.) AND TIE WITH HEAVY BINDER TWINE END LAPS. PLACE ADDITIONAL CEMENT SAND UP TO 12" ABOVE.
2. ALL DUCTILE IRON PIPE SHALL HAVE A POLYETHYLENE "WRAP" OF 4 MIL. THICKNESS (MINIMUM) EXCEPT AS NOTED BELOW.
3. WHERE PIPE IS PLACED IN AN AUGER OR TUNNEL OR IN A CASING, PIPE IS TO HAVE A DOUBLE WRAP OF 4 MIL POLYETHYLENE AND SHALL BE BONDED ON 12" CENTERS WITH ½" STAINLESS STEEL BANDS. END LAPS TO BE AS SPECIFIED FOR TRENCH SECTIONS.
4. REFER TO SPECIFICATION SECTION 02528 – POLYETHYLENE ENCASEMENT/WRAP.

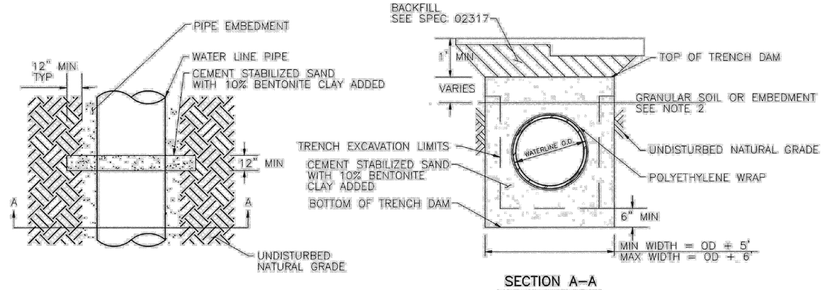


EXISTING SANITARY CROSSING OVER/UNDER PROPOSED WATER LINE

3 NO SCALE

DETAIL 3 – NOTES:

1. REFER TO MINIMUM CLEARANCE REQUIRED IN DRAWINGS.



5 TRENCH DAM DETAIL

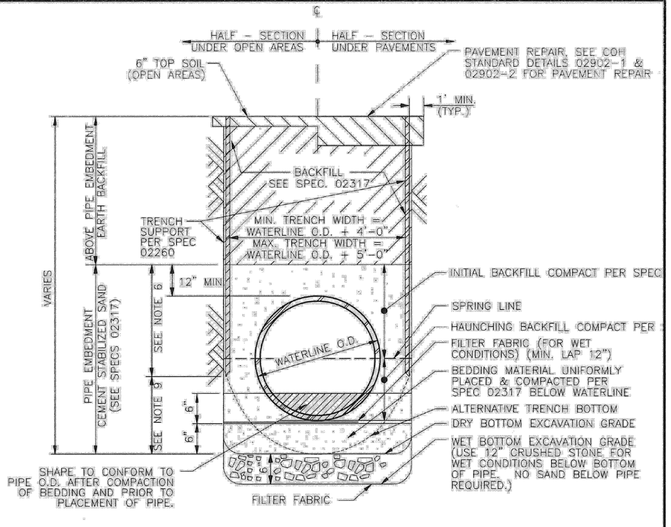
NO SCALE

DETAIL 5 – NOTES:

1. REFER TO SPEC 02317 FOR INSTALLATION REQUIREMENTS.
2. EXTEND TRENCH DAM 5 FEET MIN ABOVE TOP OF SURROUNDING GRANULAR SOIL LAYERS OR TOP OF GRANULAR EMBEDMENT MATERIAL, WHICHEVER IS HIGHEST.

SECTION A–A

N.T.S.



2 EXCAVATION & BACKFILL DETAIL

NO SCALE

DETAIL APPLICABLE IN FOLLOWING LIMITS:

– WATER MAIN WITH DEPTH OF COVER GREATER THAN 16 FT
– TUNNEL SHAFT LIMITS
– PPCA LIMITS

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961–1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P–6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66–INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

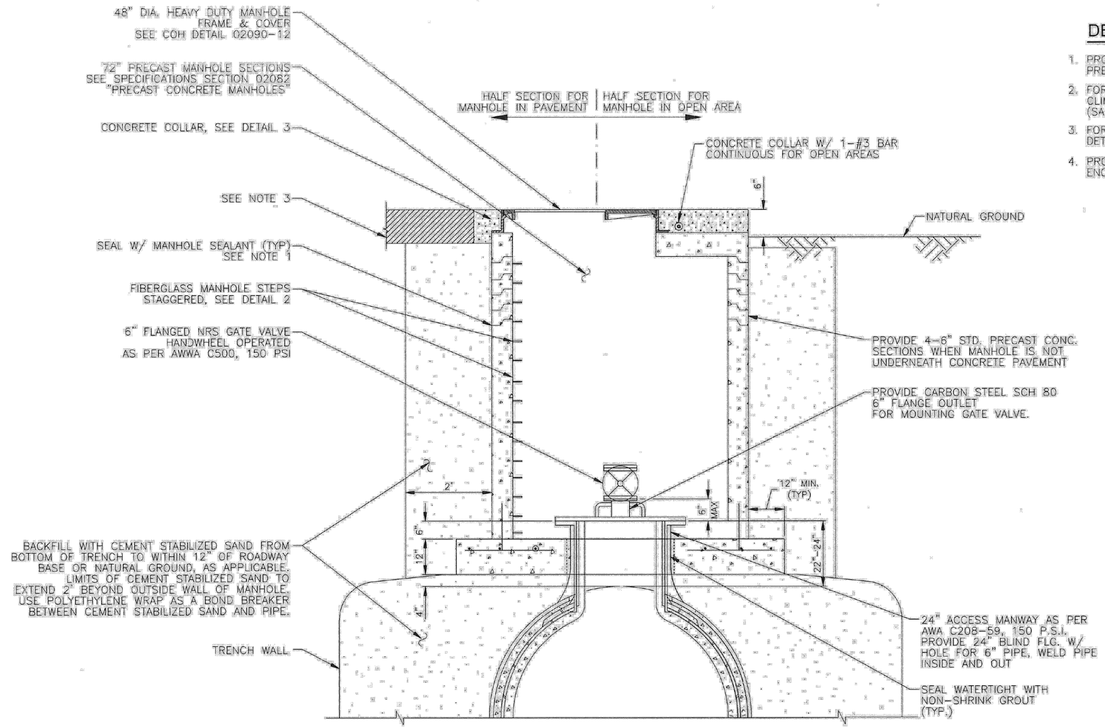
STANDARD LDWL EXCAVATION AND BACKFILL DETAIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S–000900–0179–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 145 OF 157	

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL EXCAVATION AND BACKFILL DETAIL
(NOT TO SCALE)

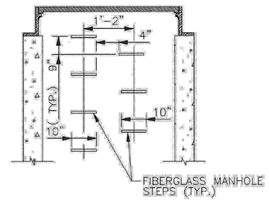
APPROVED BY:	APPROVED BY:
Sushail Kanwar, CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL – 01 – 2021	DWG NO: 02317-09



1 ACCESS MANWAY IN ACCESS MANHOLE
(FOR WATER LINES 36-INCH TO 96-INCH DIAMETER)

DETAIL 1 - NOTES:

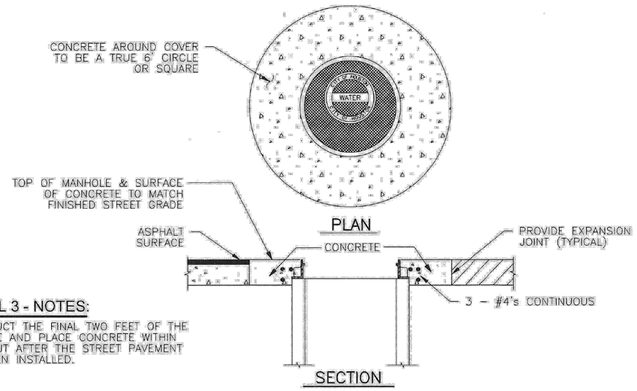
1. PROVIDE RAM-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. FOR MANHOLES DEEPER THAN 20 FEET, SAFETY CLIMBING RAIL MUST BE PROVIDED (SAF-T-CLIMB OR APPROVED EQUAL).
3. FOR PAVEMENT REPAIR, SEE COH STANDARD DETAILS 02902-01 & 02902-02.
4. PROVIDE AN APPROVED PETROLATUM BASED TAPE ENCAPSULATING ALL BOLTS IN ACCESS MANHOLE.



DETAIL 2 - NOTES:

1. PROVIDE MODEL PS1-PF STEPS AS MANUFACTURED BY M.A. INDUSTRIES INC. OR APPROVED EQUAL.
2. BOTTOM MANHOLE STEP SHALL BE NO HIGHER THAN 12" ABOVE MANHOLE INVERT.

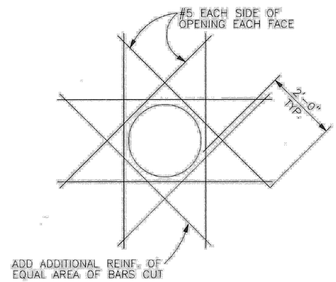
2 MANHOLE STEP DETAIL



DETAIL 3 - NOTES:

1. CONSTRUCT THE FINAL TWO FEET OF THE MANHOLE AND PLACE CONCRETE WITHIN BLOCKOUT AFTER THE STREET PAVEMENT HAS BEEN INSTALLED.

3 MANHOLE CONCRETE COLLAR DETAIL



4 SERVICE MANHOLE REINFORCEMENT DETAIL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL ACCESS MANHOLE DETAILS

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
Suhail Kanwar, CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JULY - 01 - 2021	DWG NO: 02082-10

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

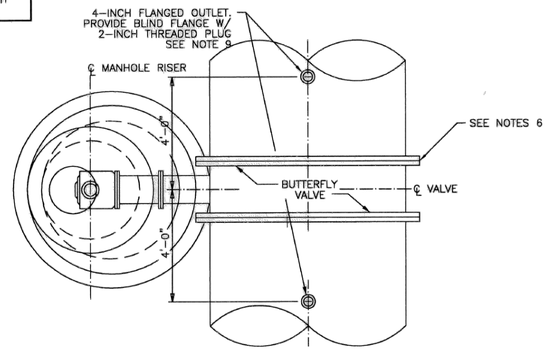
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

STANDARD LDWL ACCESS MANHOLE DETAILS

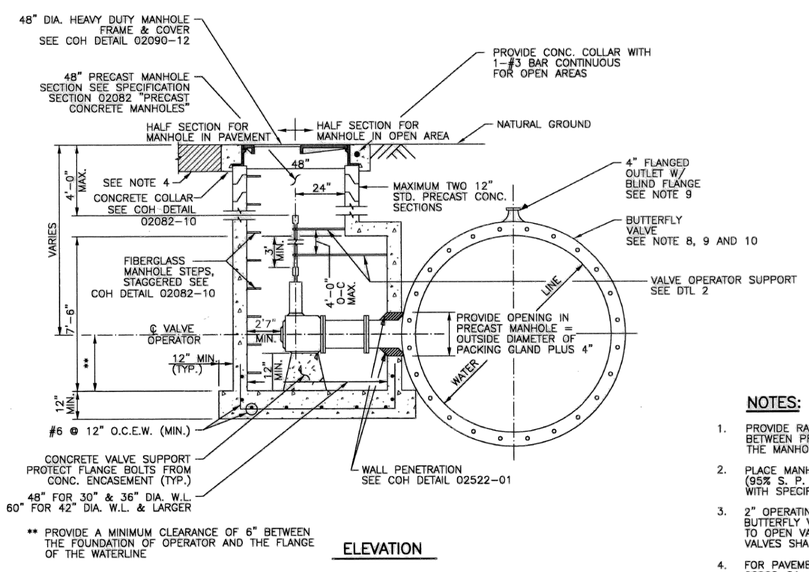
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 146 OF 157	

NOTE:

SHOULD CONTRACTOR DESIRE TO USE VALVES IN A THROTTLED POSITION FOR FILLING OF LINE SEGMENTS, CONTRACTOR IS CAUTIONED TO OBSERVE RECOMMENDATIONS OF VALVE MANUFACTURER IN ORDER TO PRECLUDE DAMAGE ASSOCIATED WITH THIS MODE OF OPERATION.



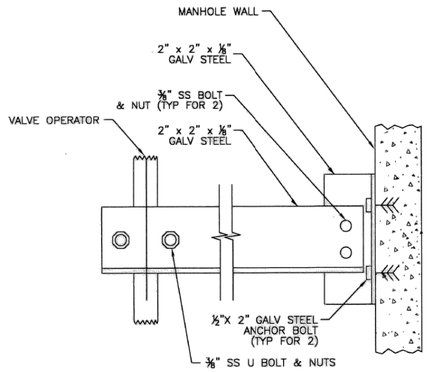
PLAN



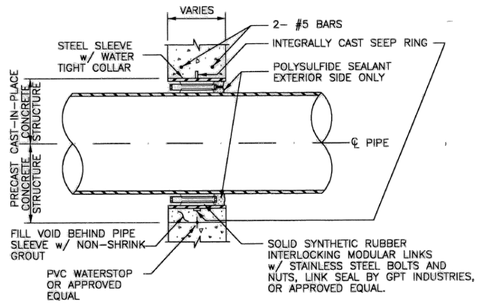
ELEVATION

1 BUTTERFLY VALVE AND OPERATOR MANHOLE DETAIL

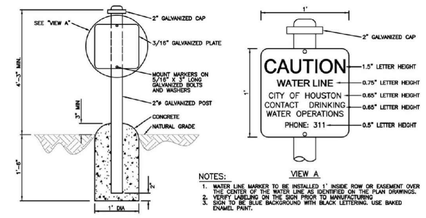
(FOR WATER LINES 30-INCHES TO 96-INCH IN DIAMETER)



2 VALVE OPERATOR SUPPORT



3 TYPICAL WALL PENETRATION DETAIL



NOTES:
1. WATER LINE MARKER TO BE INSTALLED 1' INSIDE ROW OR EASEMENT OVER THE CENTER OF THE WATER LINE AS IDENTIFIED ON THE PLAN DRAWINGS.
2. VERIFY LABELING ON THE SIGN PRIOR TO MANUFACTURING.
3. SIGN TO BE BLUE BACKGROUND WITH BLACK LETTERING. USE BAKED ENAMEL PAINT.

4 WATER LINE MARKER INSTALLATION

NOT TO SCALE

NOTES:

1. PROVIDE RAMNEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. PLACE MANHOLE ON NEW COMPACTED (95% S. P. D.) BOTTOM IN ACCORDANCE WITH SPECIFICATION 02316.
3. 2" OPERATING NUT ON LARGE DIAMETER BUTTERFLY VALVES SHALL TURN CLOCKWISE TO OPEN VALVE. ABOVE-GROUND AND PLANT VALVES SHALL OPEN COUNTERCLOCKWISE.
4. FOR PAVEMENT REPAIR, SEE COH DETAILS 02902-01 & 02902-02.
5. FOR MANHOLES DEEPER THAN 20 FEET, PROVIDE SAFETY CLIMBING RAIL (SAF-T-CLIMB OR EQUAL)
6. FOR JOINT BONDING DETAILS AT BUTTERFLY VALVES SEE COH DETAIL 15640-02.
7. ADJUST MANHOLE AND MANHOLE OPENING TO ALIGN WITH VALVE OPERATOR NUT FOR EASE OF OPERATION
8. FOR VALVES GREATER THAN OR EQUAL TO 24-INCH DIAMETER, BACKFILL USING CONTROLLED LOW STRENGTH MATERIAL (CLSM, 100 P.S.I. MIN.) EXTENDING FROM THE VALVE CENTERLINE TO 7-FEET UPSTREAM AND DOWNSTREAM OF THE VALVE CENTERLINE FROM THE BOTTOM OF THE TRENCH TO 12-INCH MIN. ABOVE THE TOP OF PIPE. PROVIDE BUOYANCY CONTROL.
9. ADJUST FLANGED OUTLET LOCATION TO 9-FEET FROM VALVE CENTER LINE FOR VALVES GREATER THAN OR EQUAL TO 54-INCH DIAMETER.
10. USE ENCAPSULATED BOLTS AND POLYETHYLENE WRAP AS A BOND BREAKER BETWEEN PIPE, VALVE AND CLSM. ENSURE CLSM IS PROPERLY FILLED IN PIPE HAUNCHES. FOUR CLSM IN LIFTS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL BUTTERFLY VALVE AND OPERATOR MANHOLE DETAILS

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
ACTING CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02522-01

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

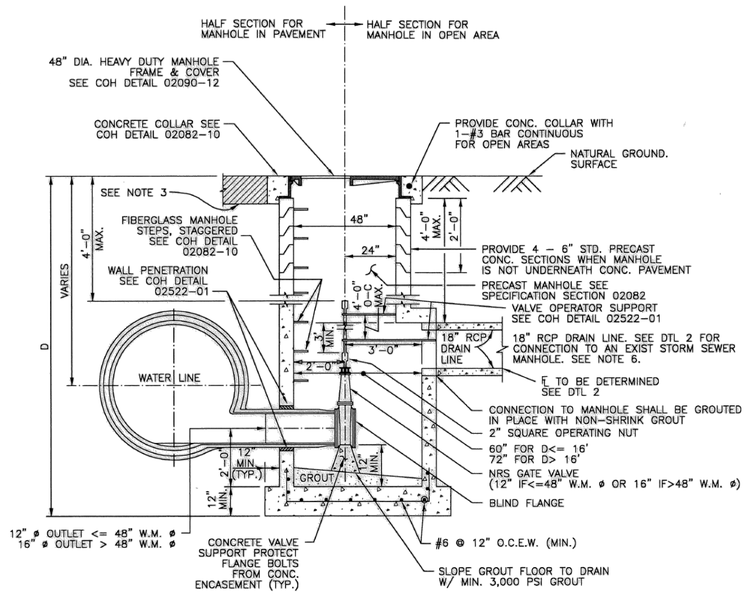
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

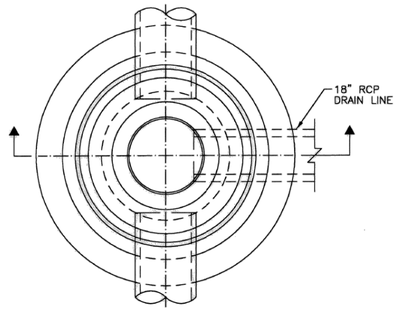
STANDARD LDWL BUTTERFLY VALVE AND OPERATOR MANHOLE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 147 OF 157	

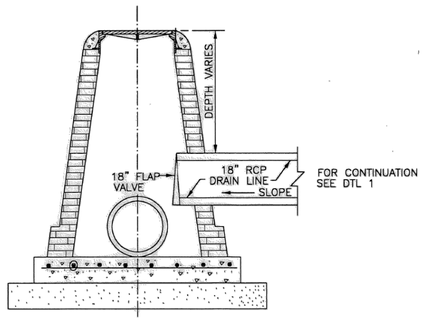


SERVICE MANHOLE FOR DRAINLINE VALVE CONNECTION

1



PLAN
(COVER NOT SHOWN)



SECTION

DRAIN LINE CONNECTION TO EXISTING STORM SEWER MANHOLE

2

NOTES:

1. PROVIDE RAMNEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. PLACE MANHOLE ON NEW COMPACTED (95% S. P. D.) BOTTOM IN ACCORDANCE WITH SPECIFICATION 02316.
3. FOR PAVEMENT REPAIR, SEE COH DETAILS 02902-01 & 02902-02.
4. FOR MANHOLES DEEPER THAN 20 FEET, PROVIDE SAFETY CLIMBING RAIL (SAF-T-CLIMB OR EQUAL). SEE COH DETAIL 02082-11.
5. ADJUST MANHOLE AND MANHOLE OPENING TO ALIGN WITH VALVE OPERATOR NUT FOR EASE OF OPERATION.
6. IF PROPOSED STORM SEWER MANHOLE IS CALLED OUT IN PLANS, SEE COH DETAILS 02081-01 OR 02081-02.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
DRAIN LINE VALVE DETAILS

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
ACTING CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02511-03

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY,
SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

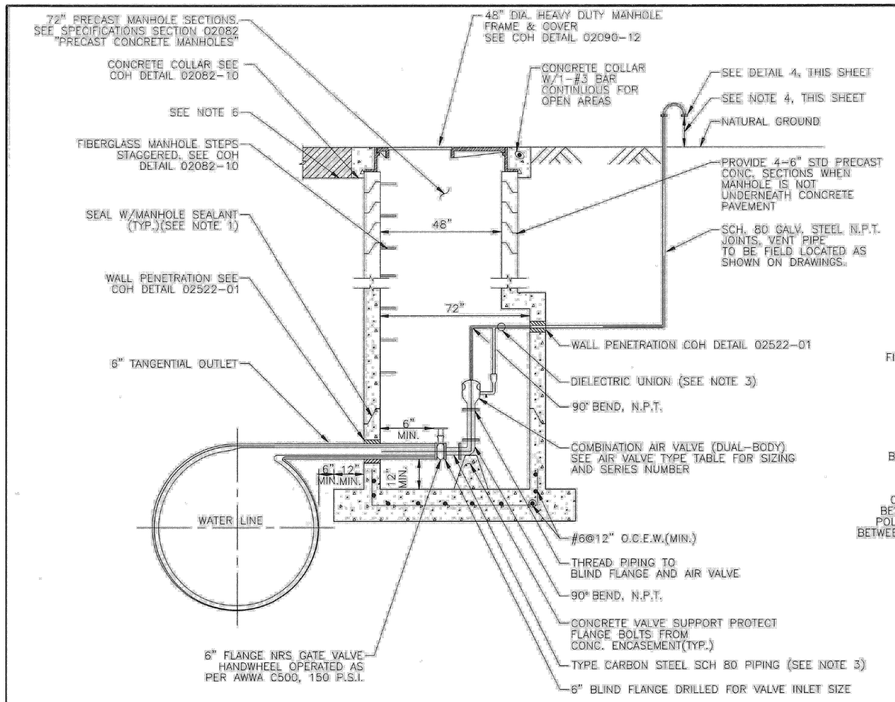
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

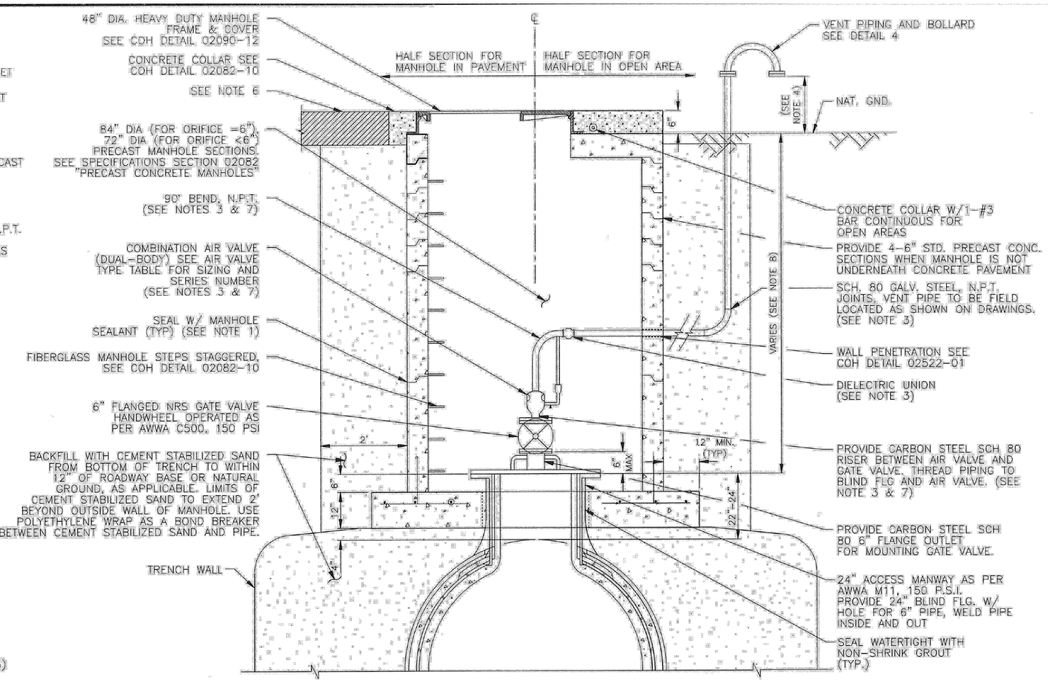
STANDARD LDWL DRAIN LINE VALVE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 148 OF 157	



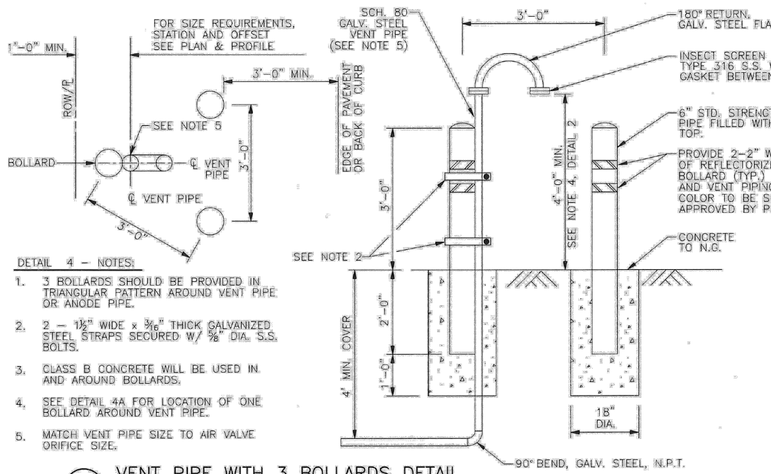
1 LOW PROFILE AIR VALVE ASSEMBLY

(FOR WATER LINES 36-INCH TO 96-INCH DIAMETER, ONLY IF SPECIFIED IN PLAN AND PROFILE SHEETS)



2 AIR VALVE ASSEMBLY WITH ACCESS MANWAY IN SERVICE MANHOLE

(FOR WATER LINES 36-INCH TO 96-INCH DIAMETER)



DETAIL 4 - NOTES:

1. 3 BOLLARDS SHOULD BE PROVIDED IN TRIANGULAR PATTERN AROUND VENT PIPE OR ANODE PIPE.
2. 2 - 1½" WIDE x 3/16" THICK GALVANIZED STEEL STRAPS SECURED W/ ⅝" DIA. S.S. BOLTS.
3. CLASS B CONCRETE WILL BE USED IN AND AROUND BOLLARDS.
4. SEE DETAIL 4A FOR LOCATION OF ONE BOLLARD AROUND VENT PIPE.
5. MATCH VENT PIPE SIZE TO AIR VALVE ORIFICE SIZE.

4 VENT PIPE WITH 3 BOLLARDS DETAIL

WATER MAIN DIAMETER	MANUFACTURER (1)	VACUUM (AI/VR) SERIES	VACUUM (AI/VR) ORIFICE SIZE	AIR RELEASE SERIES	AIR RELEASE INLET SIZE (NPT)	AIR RELEASE ORIFICE SIZE (2)
>=36" <=96"	APCO	1500C		200A	1"	
	CLAVAL	38VB		34AR-C	1"	
	PRATT	WAVB		WAR 02	1"	

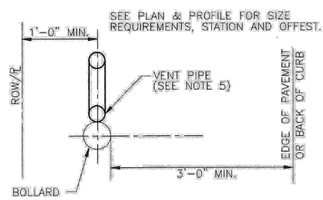
3 AIR VALVE & TYPE TABLE

(FOR WATER LINES 36" TO 96" DIAMETER)

DETAILS 3 - NOTES:

(1) OR APPROVED EQUAL.

(2) MINIMUM ORIFICE SIZE REQUIRED, TO BE UPDATED FOR EACH PROJECT BASED ON TRANSIENT ANALYSIS.



4A VENT PIPE WITH 1 BOLLARD DETAIL

DETAILS 1 & 2 - NOTES:

1. PROVIDE RAM-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. FOR MANHOLES DEEPER THAN 20 FEET, SAFETY CLIMBING RAIL MUST BE PROVIDED (SAF-T-CLIMB OR APPROVED EQUAL). SEE COH DETAIL 02082-11.
3. PIPING AND APPURTENANCES OF THE SAME DIAMETER AND CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
4. VERIFY THAT LOCATION OF VENT PIPE SCREEN IS 1 FOOT ABOVE 100-YEAR FLOOD PLAIN ELEVATION OR 4 FEET ABOVE NATURAL GROUND WHICHEVER IS HIGHER.
5. REFER TO PLAN AND PROFILE SHEETS FOR LOCATIONS OF AIR VALVES.
6. FOR PAVEMENT REPAIR, SEE COH DETAILS 02902-01 & 02902-02.
7. PROVIDE AN APPROVED PETROLATUM BASED TAPE ENCAPSULATING ALL BOLTS IN ACCESS MANHOLE.
8. USE "LOW PROFILE AIR VALVE ASSEMBLY DETAIL" ONLY IF SPECIFIED IN PLAN AND PROFILE SHEETS.
9. NATIONAL PIPE THREAD IS ABBREVIATED AS N.P.T. ON THIS DRAWING

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LDWL
AIR VALVE ASSEMBLY IN SERVICE MANHOLE DETAIL
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
Suhail Kanwar, CITY ENGINEER	Carol Haddock, DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL - 01 - 2021	DWG NO: 02524-03

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

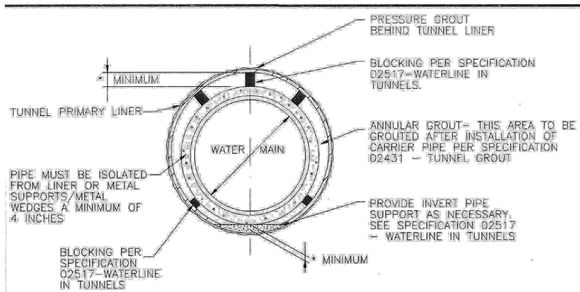
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

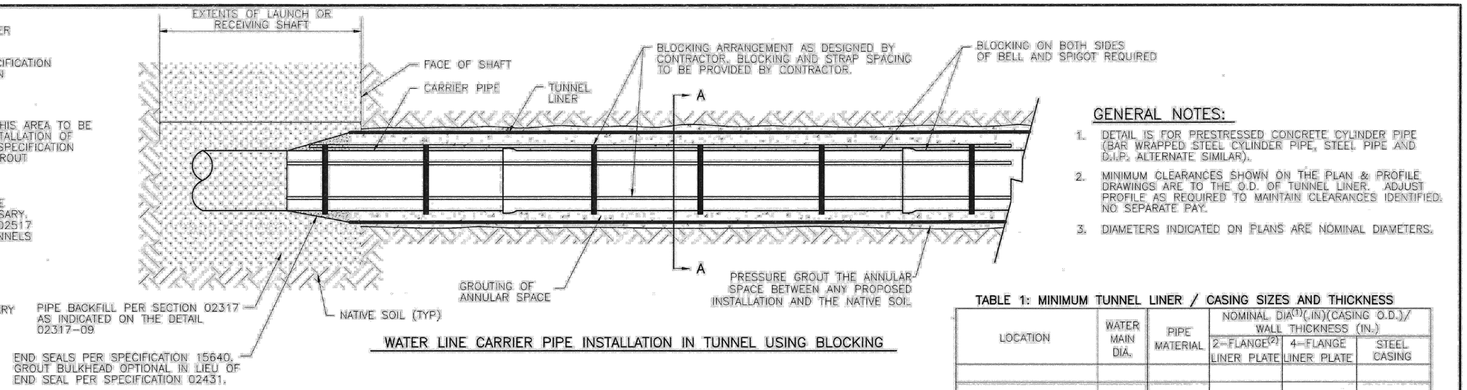
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

AIR VALVE ASSEMBLY IN SERVICE MANHOLE DETAIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 149 OF 157	



SECTION A–A



WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING BLOCKING

1 WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING BLOCKING

GENERAL NOTES:

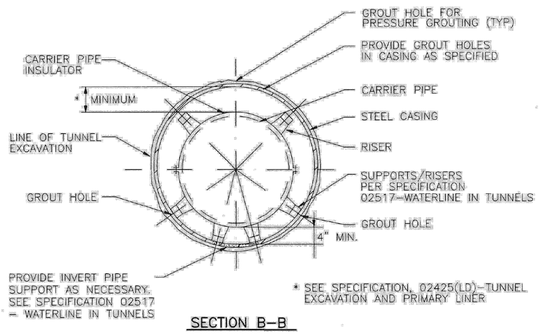
1. DETAIL IS FOR PRESTRESSED CONCRETE CYLINDER PIPE (BAR WRAPPED STEEL CYLINDER PIPE, STEEL PIPE AND D.I.P. ALTERNATE SIMILAR).
2. MINIMUM CLEARANCES SHOWN ON THE PLAN & PROFILE DRAWINGS ARE TO THE O.D. OF TUNNEL LINER. ADJUST PROFILE AS REQUIRED TO MAINTAIN CLEARANCES IDENTIFIED. NO SEPARATE PAY.
3. DIAMETERS INDICATED ON PLANS ARE NOMINAL DIAMETERS.

TABLE 1: MINIMUM TUNNEL LINER / CASING SIZES AND THICKNESS

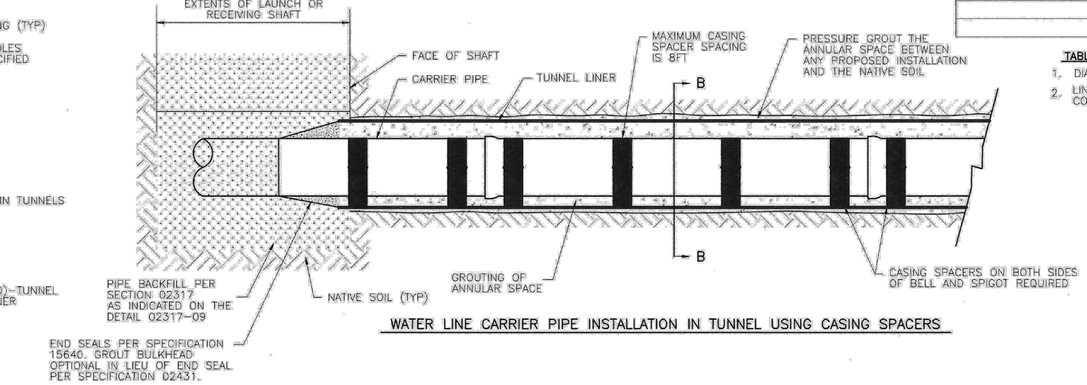
LOCATION	WATER MAIN DIA.	PIPE MATERIAL	NOMINAL DIA[1](.IN)(CASING O.D.)/ WALL THICKNESS (IN.)		
			2-FLANGE[2] LINER PLATE	4-FLANGE LINER PLATE	STEEL CASING

TABLE 1 – NOTES:

1. DIAMETER OF LINER PLATE IS AT NEUTRAL AXIS.
2. LINER PLATE IS TWO FLANGE AND NOMINALLY 2-INCH CORRUGATION BY 6-INCH PROFILE.

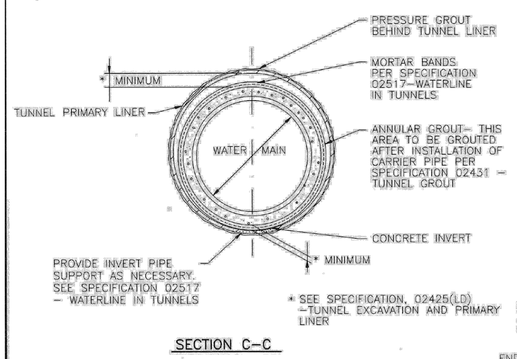


SECTION B–B

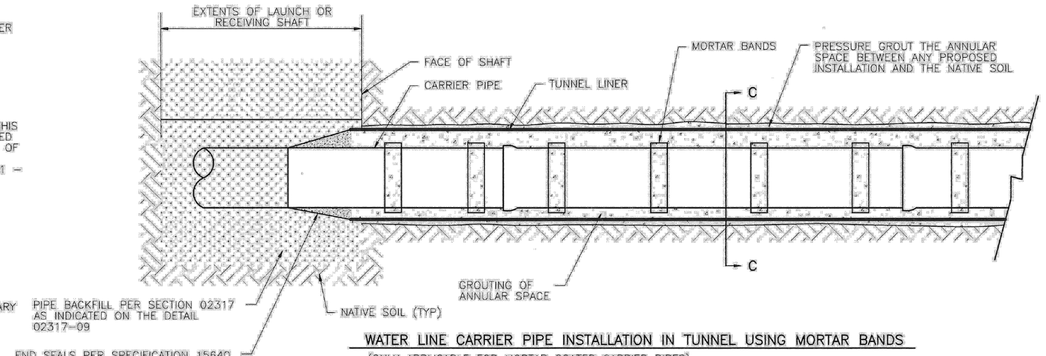


WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING CASING SPACERS

2 WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING CASING SPACERS



SECTION C–C



WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING MORTAR BANDS
(ONLY APPLICABLE FOR MORTAR COATED CARRIER PIPES)

3 WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING MORTAR BANDS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LDWL
TUNNEL AND CASING DETAILS FOR WATER LINES 24-INCH AND LARGER

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
Suhail Kanwar, CITY ENGINEER	Carol Haddock, DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL - 01 - 2021	DWG NO: 02517-01

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

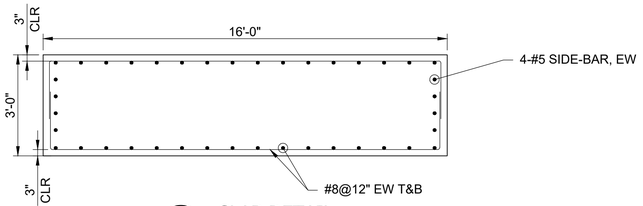
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

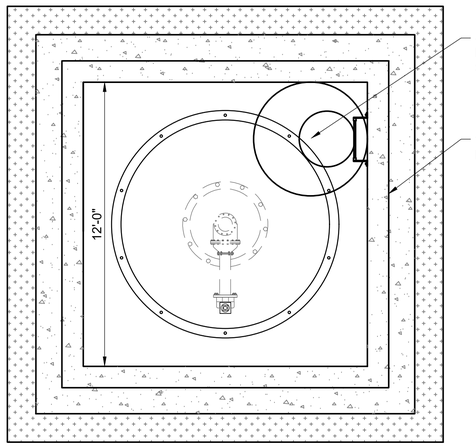
66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

LDWL TUNNEL AND CASING DETAILS FOR WATER LINES 24 INCH AND LARGER

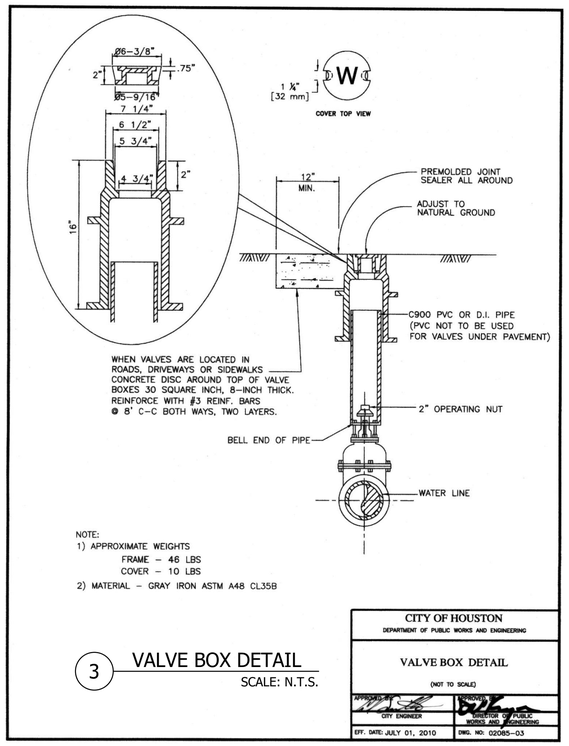
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 150 OF 157	



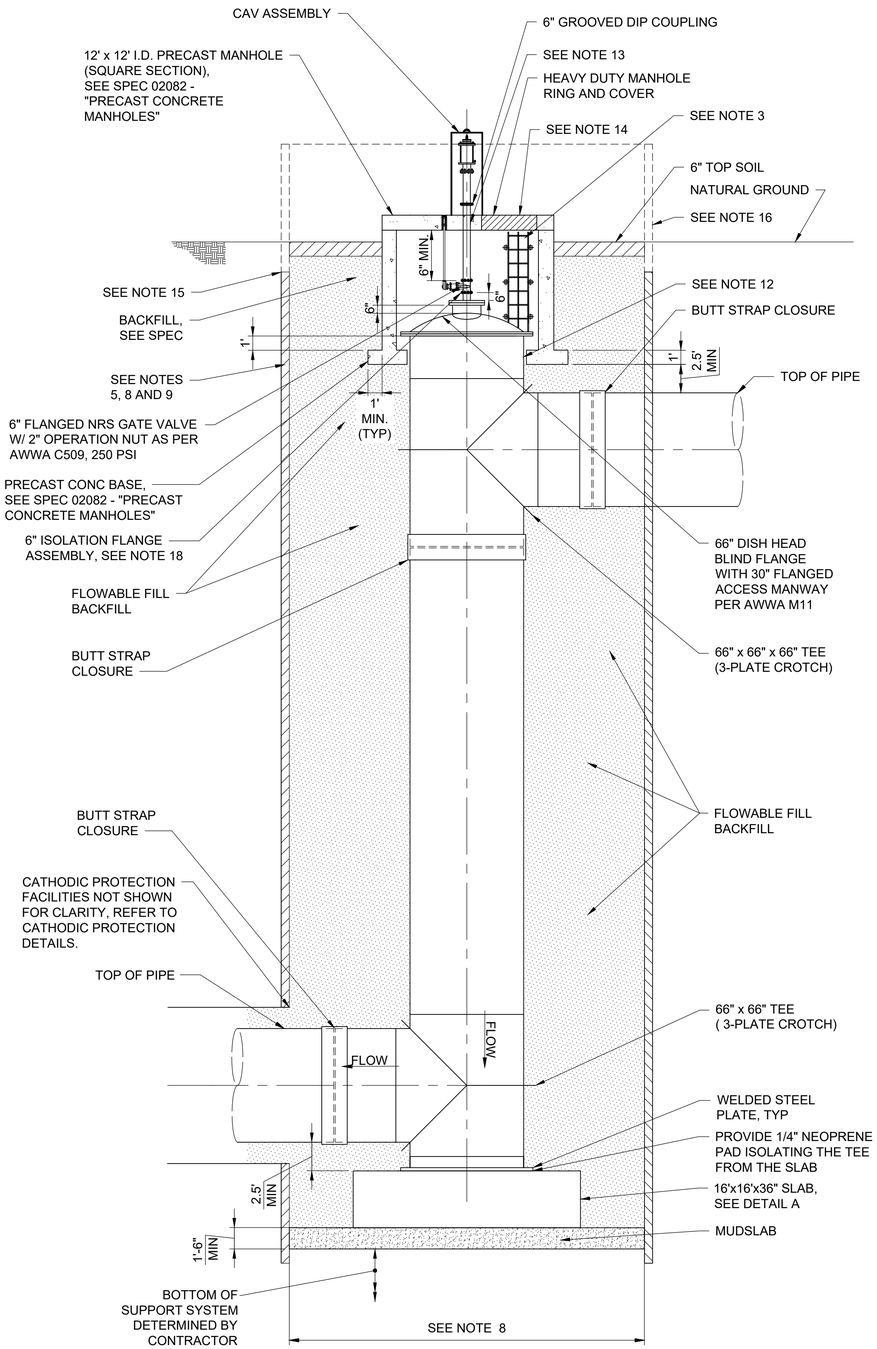
A SLAB DETAIL
SCALE: N.T.S.



2 PRECAST RISER PIPE VAULT
SCALE: N.T.S.



3 VALVE BOX DETAIL
SCALE: N.T.S.



1 RISER PIPE ELEVATION
SCALE: N.T.S.

NOTES:

1. CONTRACTOR SHALL PROVIDE INSTALLATION PLAN FOR THE RISER AND FITTINGS AND MUST BE APPROVED BY THE PIPE SUPPLIER.
2. CONTRACTOR SHALL DESIGN LIFTING LUGS AND STULLS AS REQUIRED FOR INSTALLATION. DESIGN MUST BE APPROVED BY THE PIPE SUPPLIER.
3. FOR MANHOLE GREATER THAN OR EQUAL TO 8 FEET DEEP, PROVIDE FIXED LADDER WITH FALL PROTECTION SYSTEM: MILLER SAFE-T CLIMB OR APPROVED EQUAL.
4. AIR/VACCUM RELEASE PIPING, SUPPORTS, ETC. SHALL FOLLOW DETAIL 4, SHT 149.
5. SEE SPEC 02325 FOR EXCAVATION REQUIREMENTS.
6. SEE SPEC 02320 FOR BACKFILL MATERIALS.
7. PIPE SHALL BE FULL PENETRATION BUTT WELDED STEEL PIPE ONLY FOR PIPING IN SHAFT AND TEES.
8. CONTRACTOR SHALL SELECT SHAFT SIZE BASED ON HIS MEANS AND METHODS.
9. SHAFT TEMPORARY SUPPORT TO BE DESIGNED BY CONTRACTOR.
10. ALL PIPE, FITTINGS AND PIPING SHALL BE COATED AS PER SPECIFICATIONS.
11. SEE PIPE SCHEDULE FOR PIPE WALL THICKNESS.
12. SEAL WITH HYDROPHILIC WATERSTOPS, SIKA HYDROTITE CJ, OR APPROVED EQUAL. SEAL WATERTIGHT WITH NON-SHRINK GROUT (TYP).
13. VAULT WALL PENETRATION.
14. REMOVABLE VAULT COVER. FOR LIFTING EYE DETAIL.
15. SEE SPEC 02325 FOR TOP OF SHAFT TEMPORARY SUPPORT REMOVAL LIMITS
16. CONTRACTOR MUST DESIGN SHAFT TO WITHSTAND FLOOD WATER LOADS IN CASE OF A FLOOD EVENT. SEE SPEC 02325.
17. CONTRACTOR MUST DESIGN SHAFT WITH WATER RETAINING LINER EXTENDING 2-FEET ABOVE 500-YEAR FLOOD ELEVATION. IT IS ACCEPTABLE WHEN LINER IS STORED AT SITE FOR IMMEDIATE INSTALLATION IN LIEU OF IT BEING INSTALLED AT SHAFT. SHAFT LINER SHALL EXTEND AT LEAST 4-FEET ABOVE EXISTING GROUND ELEVATIONS. SEE SPEC 02325.
18. ISOLATE FLANGE WITH FULL FACE PHENOLIC GASKET, SLEEVES AND WASHERS. REFER TO CATHODIC PROTECTION DETAILS.
19. REFER TO P&P FOR TOP OF PIPE ELEVATION AND RISER STATIONING.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

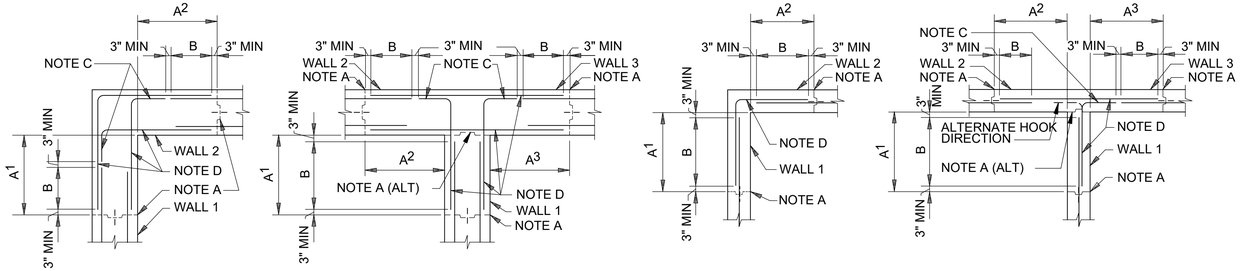
DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

RISER PIPE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 151 OF 157	



A = VERTICAL CONSTRUCTION JOINT NEAREST TO WALL CORNER.

A (ALT) = ALTERNATE VERTICAL CONSTRUCTION JOINT NEAREST TO WALL CORNER IN T WALL JOINT WHICH DOES NOT REQUIRE WATERSTOP.

A^X = DISTANCE FROM INSIDE CORNER FACE TO NEAREST VERTICAL CONSTRUCTION JOINT IN SIMILARLY NUMBERED WALL. A^X SHALL NOT BE LESS THAN DIMENSIONS INDICATED BY THESE DETAILS; NOR GREATER THAN INDICATED ON PLAN DRAWINGS; BUT IN ANY CASE SHALL NOT EXCEED 30 FEET IN LIQUID CONTAINMENT STRUCTURES OR 40 FEET IN OTHER STRUCTURES. IN T WALL JOINTS WHICH DO NOT REQUIRE WATERSTOP, A1 MAY BE ZERO.

B = OPTIONAL SPLICE LOCATION UNLESS SPECIFICALLY NOTED ON PLAN DRAWINGS. SPLICE LENGTH SHALL NOT BE LESS THAN THAT REQUIRED FOR TOP BARS AS SHOWN IN TABLE ON THIS SHEET. USE SPLICE LENGTH FOR THE SMALLER OF THE TWO BARS BEING SPLICED.

C = STANDARD HOOK

D = TYPICAL CORNER REINFORCEMENT. SIZE SHALL MATCH LARGEST ADJACENT WALL HORIZONTAL REINFORCEMENT; SPACING SHALL MATCH MINIMUM ADJACENT WALL HORIZONTAL REINFORCEMENT SPACING.

LENGTH OF LAPPED SPLICES FOR REINFORCEMENT (INCHES)

(f'c=4000 PSI) (UNLESS NOTED OTHERWISE ON THE DRAWINGS)

BAR SIZE *	BEAMS & COLUMNS		WALLS & SLABS		BAR SIZE
	**TOP BARS	OTHERS	**TOP BARS	OTHERS	
3	16	16	16	16	3
4	19	16	19	16	4
5	24	18	24	18	5
6	33	26	29	22	6
7	55	42	48	37	7
8	69	53	60	46	8
9	84	65	74	57	9
10	103	79	91	70	10
11	122	94	108	83	11

* LAP SPLICE LENGTH FOR BARS OF DIFFERENT SIZES SHALL BE THE GREATER OF THE SMALL BAR LAP LENGTH OR 0.75x THE LARGER BAR LAP LENGTH.

** TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAP LENGTHS AS REQUIRED FOR TOP BARS. VERTICAL BARS MAY BE CONSIDERED AS OTHER BARS.

CONCRETE COVER FOR REINFORCEMENT

LOCATION	MINIMUM COVER
UNFORMED SURFACES ADJACENT TO EXCAVATION	3"
SURFACES INSIDE OF OZONE CONTACTORS EXPOSED TO OZONE IN WATER OR AIR	3"
TOP SURFACES OF SLABS THAT ARE SUBMERGED	3"
FORMED SURFACES THAT ARE SUBMERGED, AND FORMED OR TOP SURFACES EXPOSED TO WEATHER, SATURATED AIR, OR EARTH.	2"
OTHER LOCATIONS:	
BEAMS OR GIRDERS	1 1/2"
SLABS, WALLS AND JOISTS	
#6 AND LARGER	1 1/2"
#5 AND SMALLER	1"

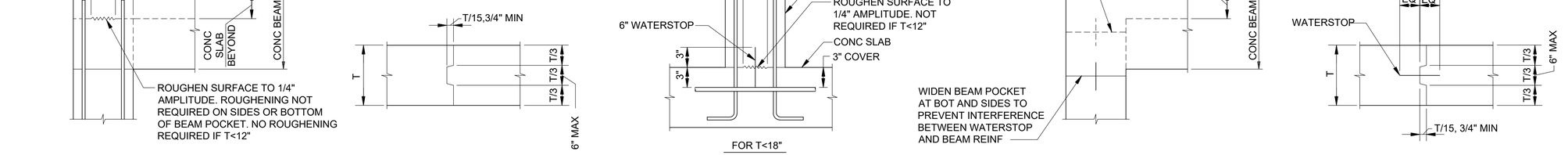
NOTES:
1. COVER IS MEASURED TO NEAREST BAR, STIRRUP, TIE, OR SPIRAL, AS APPLICABLE.
2. TOLERANCES FOR CONCRETE COVER AND THE FABRICATION AND PLACING OF REINFORCEMENT SHALL CONFORM TO ACI 117.

MAIN REINFORCEMENT FOR ALL STRUCTURES

5 TYPICAL HORIZONTAL CORNER REINFORCING DETAILS

SCALE: N.T.S.

NOTES:
1. VERTICAL REINFORCING NOT SHOWN.
2. THESE DETAILS SHALL BE APPLICABLE TO ALL WALL CORNERS UNLESS NOTED OTHERWISE ON THE DRAWINGS.



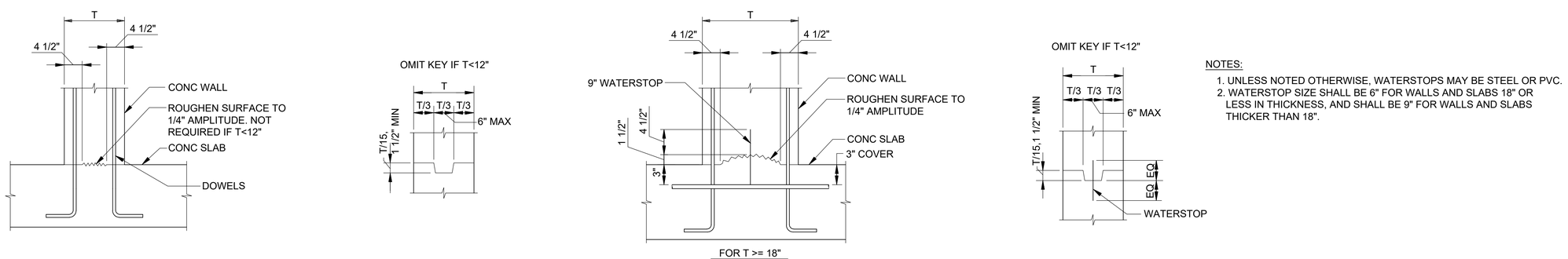
TOP OF WALL TO BEAM/SLAB

SLAB TO SLAB

SLAB TO BOTTOM OF WALL

TOP OF WALL TO BEAM/SLAB

SLAB TO SLAB



SLAB TO BOTTOM OF WALL

WALL TO WALL

SLAB TO BOTTOM OF WALL

WALL TO WALL

NOTES:
1. UNLESS NOTED OTHERWISE, WATERSTOPS MAY BE STEEL OR PVC.
2. WATERSTOP SIZE SHALL BE 6" FOR WALLS AND SLABS 18" OR LESS IN THICKNESS, AND SHALL BE 9" FOR WALLS AND SLABS THICKER THAN 18".

JOINTS WITHOUT WATERSTOPS

JOINTS WITH WATERSTOPS

NOTES:
1. REINFORCING STEEL IS CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS
2. "CSJ W/WS" - WITH WATERSTOP
3. "CSJ" - WITHOUT WATERSTOP

6 TYPICAL CONSTRUCTION JOINTS

SCALE: N.T.S.

NO.	DATE	REVISION	APP.

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.

BLACK & VEATCH
920 MEMORIAL CITY WAY, SUITE 600
HOUSTON, TX 77024
TEL: (713) 961-1100
TBPE REG NO 258

SURVEYED BY:
LANDTECH, INC.
FB NO. P-6377

DOCUMENT RELEASED FOR INTERIM REVIEW ONLY UNDER THE AUTHORITY OF THOMAS P. WILSHUSEN, P.E. (TX LICENSE NO. 79350) ON 07/11/2025. IT IS NOT TO BE USED FOR BIDDING, PERMITTING OR CONSTRUCTION PURPOSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE ALONG CITY EASEMENTS, WEST RD, AND DEER TRAIL DR FROM VETERANS MEMORIAL DR TO GREENS CROSSING BLVD

GENERAL STRUCTURAL DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0179-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
PANDURANGA KURUVA, P.E.	
SHEET NO. 152 OF 157	