

48 HOUR NOTICE:
 CONTRACTOR SHALL NOTIFY HARRIS COUNTY PRIOR TO COMMENCING CONSTRUCTION AND/OR BACKFILLING ANY UTILITIES. CONTRACTOR(S) TO CONTACT PUBLIC REVIEW DEPARTMENT @ 713-274-3931 OR PUBLIC.REVIEW@HARRISCOUNTYTX.GOV PLEASE VISIT THE BELOW FOR THE 48-HOUR NOTICE FOR HCFCD RIGHT OF WAY. HTTP://WWW.ENG.HCTX.NET/PORTALS/23/PUBLICATIONS/48HR_PRE-CON_NOTIFICATION.PDF AS -BUILT NOTE: PLEASE VISIT THE BELOW LINK ON HOW TO SUBMIT AS-BUILT DRAWINGS TO HARRIS COUNTY.HTTPS://EPERIMTS.HARRISCOUNTYTX.GOV/. EMERGENCY UTILITY WORK IN HC ROW: THE OWNER MUST CONTACT THE HARRIS COUNTY PERMIT OFFICE AT 713-274-3931 DURING NORMAL BUSINESS HOURS OR BY EMAIL PUBLIC.REVIEW@HARRISCOUNTYTX.GOV TO REQUEST AN INSPECTION OF THE SITE. UPON INSPECTION, HARRIS COUNTY WILL DETERMINE THE EXTENT OF THE PAVEMENT REPAIR THAT WILL BE REQUIRED. ONCE THIS DETERMINATION IS MADE, THE OWNER MUST APPLY FOR A ROW CERTIFICATION (SEE STEP THREE). PLEASE VISIT THE LINK BELOW FOR THE EMERGENCY UTILITY WORK FORM: HTTP://WWW.ENG.HCTX.NET/PORTALS/23/PUBLICATIONS/EMER_UTIL_ROW_WORK1808.PDFCOUNTY UTILITY NOTE: HARRIS COUNTY MAY HAVE EXISTING UNDERGROUND / OVERHEAD UTILITIES WITHIN THE PROPOSED PROJECT LIMITS. PLEASE CONTACT THE CALL CENTER AT 713-881-3210 OR SUBMIT A WORK ORDER REQUESTS THROUGH HTTP://WWW.ENG.HCTX.NET/SIGNALOUT TO OBTAIN FIELD LOCATES AND POLE RELOCATIONS.NOTE: ONE CALL NOTIFICATION SYSTEM, CALL BEFORE YOU DIG, DIAL 811 OR 1-(800)-545-6005 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.

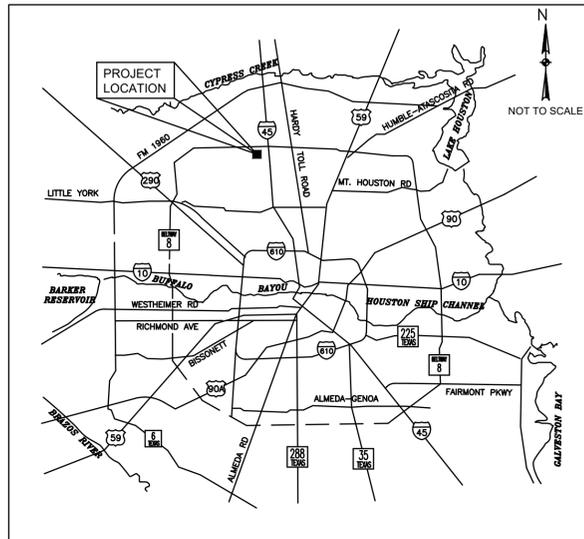
HTTP://WWW.ENG.HCTX.NET/SIGNALOUT TO OBTAIN FIELD LOCATES AND POLE RELOCATIONS. NOTE: ONE CALL NOTIFICATION SYSTEM, CALL BEFORE YOU DIG, DIAL 811 OR 1-(800)-545-6005 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.

CITY OF HOUSTON HOUSTON PUBLIC WORKS CAPITAL PROJECTS

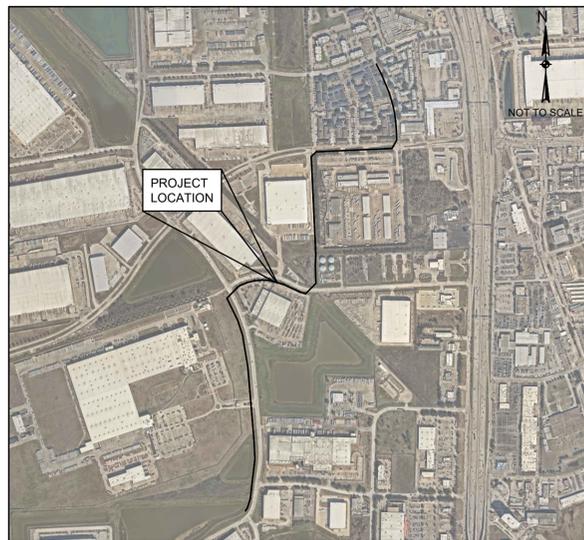
90% SUBMITTAL
 FEBRUARY 6, 2025

66-INCH WATER LINE ALONG DEER TRAIL DR, GILLESPIE RD, CITY EASEMENTS, FALLBROOK DR AND GREEN PLAZA DR FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

WBS NO. S-000900-0178-4



LOCATION MAP



VICINITY MAP
 KEY MAP NO 372 U, 372 Y



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 | |

NO.	DATE	REVISION	APP.
 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com		NOT FOR CONSTRUCTION <small>THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.</small>	
SURVEYED BY: LANDTECH, INC.		FB NO. P-6342	
PARKS-FORESTRY DEPT.			
METRO			
HOUSTON WATER			
TRANSPORTATION & DRAINAGE OPERATIONS			
CAPITAL PROJECTS		SURVEY	
CITY ENGINEER		DATE	
DIRECTOR OF HOUSTON PUBLIC WORKS		DATE	
SHEET NO 001 OF 176 SHEETS		FOR CITY OF HOUSTON USE ONLY	

TDLR EABPR N/A

PLOTTED: 2/6/2025 2:45 PM

PLOT STYLE: Coh_ctb_230809.ctb

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1. PAVING

(FOR H.C. PUBLIC R.O.W. ONLY)

Table with columns: DESIGN THICKNESS OF PAVING (IN.), STABILIZED SUBGRADE DEPTH (IN.), DESIGN STRENGTH OF CONCRETE (PSI), STEEL SPACING LONG (IN.), TRANS. (IN.), REINFORCEMENT STEEL SIZE (#4 MIN.)

CONCRETE

ASPHALT

Table with columns: DESIGN SURFACE COURSE THICKNESS (IN.), DESIGN SURFACE COURSE TYPE (MATERIAL), DESIGN BASE COURSE THICKNESS (IN.), DESIGN BASE COURSE TYPE (MATERIAL), STABILIZED SUBGRADE THICKNESS (IN.), STABILIZED SUBGRADE TYPE (MATERIAL)

DRIVEWAYS (in H.C. ROW only)

I. NUMBER OF DRIVEWAY APPROACHES PROPOSED INCLUDE WIDENING OR REPAVING EXISTING DRIVEWAYS AS WELL AS NEW DRIVEWAYS

Table with columns: DRWY, WIDTH, MATERIAL, CULVERT?, CULVERT LENGTH, NEAREST X-STREET, DIST. TO X-STREET

II. HARRIS COUNTY STANDARD DRIVEWAY DETAIL APPEARS ON SHEET FIRE APPARATUS ACCESS ROAD

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED DUE TO

CURBING

I. ISLANDS, MEDIANS AND ALL AREAS NOT TAKING DIRECT DRIVEWAY ACCESS REQUIRES STANDARD 6" CURBING

- STANDARD 6" CURBING PROPOSED
4" x 12" CURBING PROPOSED EXCEPT AT MEDIANS AND ISLANDS

TRAFFIC CONSIDERATIONS

I. MEDIAN CUTS
NO MEDIAN CUT OR RELOCATION IS PROPOSED
MEDIAN MODIFICATIONS ARE SHOWN ON SHEET

II. LEFT / RIGHT TURN LANE
NO LEFT / RIGHT TURN LANE IS PROPOSED
LEFT / RIGHT TURN LANE IS SHOWN ON SHEET

III. TRAFFIC CONTROL PLAN
NO WORK IN THE RIGHT OF WAY IS PROPOSED THAT WOULD INTERFERE WITH TRAFFIC FLOW
TRAFFIC CONTROL SHOWN ON SHEET 209-224

IV. TRAFFIC SIGNAL
NO TRAFFIC SIGNAL IS EXISTING / PROPOSED
EXISTING TRAFFIC SIGNAL DEVICES (T.C. BOXES AND LOOPS) SHOWN ON SHEET
PROPOSED TRAFFIC SIGNAL (BY OTHERS)

V. TRAFFIC IMPACT ANALYSIS
NO TRAFFIC IMPACT ANALYSIS IS REQUIRED
TRAFFIC IMPACT ANALYSIS HAS BEEN APPROVED ON DATE:
PLAN TITLE:
HCPID PROJECT NO.:

2. RESIDENTIAL / SUBDIVISION 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 POND (APPROVED H.C. PRJ NO.):
DETENTION POND MAINTAINED BY:
HCFCD DRAINAGE DITCH UNIT NO.:
H.C. ROADSIDE DITCH (ROAD NAME):
H.C. STORM SEWER (APPROVED H.C. PRJ NO.):

IV. H.C. OUTFALL CALCULATIONS

ROADSIDE DITCH OUTFALL: ALLOWABLE OUTFALL RATE: 0.0027 x LF Frontage = (CFS) PROPOSED OUTFALL RATE: (CFS), CALCULATIONS PROVIDED ON SHEET

STORM SEWER OUTFALL: CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: (CFS) FROM DRAINAGE AREA MAP DATED: PREPARED BY: APPROVED H.C. PROJECT NO.: ACTUAL OUTFALL RATE: (CFS), CALCULATIONS PROVIDED ON SHEET

V. DETENTION PROVIDED BY

- DETENTION BASIN IS PART THIS PLAN SET. SERVICE AREA MAP IS ON SHEET
REGIONAL DETENTION BASIN SYSTEM (APPROVED H.C. PRJ NO.):

PROPOSED STORM SEWER IS SUBMERGED (AGREEMENT MUST BE PROVIDED). STATIC W.S.E. @ OUTFALL IS

OFFSITE SHEET FLOW: (100 YEAR)

OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMMODATIONS 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. 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

- .65 (CHANNEL)
.75 (STM SWR)
1.00 (RD. DITCH)
OTHER:

NEW AREA x * = ACRE FEET
DETENTION REQUIRED

PROPOSED DETENTION VOLUME = ACRE FEET
PROPOSED DETENTION VOLUME CALCULATIONS ARE SHOWN ON SHEET

DETENTION VOLUME PROVIDED BY EXISTING DETENTION POND
APPROVED H.C. PROJECT NO.:
DETENTION POND SERVICE AREA MAP IS PROVIDED ON SHEET

III. OUTFALL

- H.C. ROADSIDE DITCH
EXISTING H.C. STORM SEWER
OTHER

ROADSIDE DITCH OUTFALL: ALLOWABLE OUTFALL RATE: 0.0027 x LF Frontage = (CFS) PROPOSED OUTFALL RATE: (CFS), CALCULATIONS PROVIDED ON SHEET

STORM SEWER OUTFALL: CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: (CFS) FROM DRAINAGE AREA MAP DATED: PREPARED BY: APPROVED H.C. PROJECT NO.: ACTUAL OUTFALL RATE: (CFS), CALCULATIONS PROVIDED ON SHEET

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

V. FLOW RESTRICTOR SIZE

OUTFALL PIPE SIZE:
RESTRICTOR PIPE SIZE:

NOTE: ALL ROADSIDE DITCH OUTFALLS REQUIRE EROSION CONTROL MEASURES. RIPRAP NOT ALLOWED AS AN EROSION CONTROL MEASURE IN HARRIS COUNTY ROW. ALL PUMPED DETENTION OUTFALLS TO ROADSIDE DITCHES REQUIRE MANHOLE W/ LEADS.

4. WATER AND WASTEWATER

I. COMMERCIAL PROJECTS

DOES PROPERTY HAVE EXISTING AND/OR PROPOSED UTILITIES?
YES
NO

IF YES, CHECK THE BOX THAT APPLIES TO THIS PROJECT

- PUBLIC WATER & SANITARY
PRIVATE WATER WELL & SEPTIC SYSTEM
PUBLIC WATER & PRIVATE SEPTIC SYSTEM
PRIVATE WATER WELL & PUBLIC SANITARY

NOTE: PUBLIC UTILITIES REQUIRE A LETTER FROM THE DISTRICT/ MUNICIPALITY AUTHORIZING SERVICE & CONNECTION. THIS IS REQUIRED FOR PLAN APPROVAL.

UTILITY DISTRICT/MUNICIPALITY NAME: CITY OF HOUSTON
NOTE: SEPTIC SYSTEMS REQUIRE H.C. WASTE WATER REVIEW H.C. SEPTIC PERMIT/REQUEST NO. N/A

NOTE: ALL EXISTING AND PROPOSED UTILITIES MUST BE ACCURATELY SHOWN & LABELED ON THE SITE PLANS.

II. SUBDIVISION PROJECTS

- UTILITY DISTRICT/MUNICIPALITY NAME: CITY OF HOUSTON
PRIVATE WATER & WASTE WATER SYSTEMS
PRIVATE WATER & INDIVIDUAL OSSF
INDIVIDUAL WATER WELL & OSSF

NOTE: A COPY OF TCEQ APPROVAL FOR PRIVATE WATER & WASTE WATER SYSTEMS IS REQUIRED FOR PLAN APPROVAL.

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

H.C. WWTP REVIEW:

IS THE PROPOSED PROJECT A NEW WWTP SITE OR A REPAIR/EXPANSION OF AN EXISTING WWTP SITE? YES NO

IF YES, IS A HARRIS COUNTY DOMESTIC WASTEWATER TREATMENT PLANT EXPRESS REVIEW SHEET ATTACHED AND COMPLETED ACCORDING TO INSTRUCTIONS? YES NO

REFER TO: WWW.ENR.HCTX.NET/PERMITS/WASTEWATER/REGULATIONS-STANDARDS-DETAILS FOR DOMESTIC WWTP ERS FORM

10. PERMITS REQUIRED

DOES THE PROPERTY HAVE ANY VIOLATIONS? IF SO PLEASE PROVIDE ALL VIOLATION NUMBERS.

- STORM WATER QUALITY
SEPTIC (EXISTING) SEPTIC (PROPOSED)
CIVIL SITE WORK (PHASE II PERMIT CLASS I (non-floodplain))
CIVIL SITE WORK (PHASE II PERMIT CLASS II (floodplain))
DRIVEWAY WITH CULVERT CURB AND GUTTER
BUILDING PERMITS (NO. OF BUILDINGS =) CRITICAL FACILITY
SUBDIVISION INFRASTRUCTURE PHASE II (NO. OF LOTS =)
NOTICE OF DETENTION AFFIDAVIT REQUIRED
MUD MAINTENANCE AGREEMENT REQUIRED
NOTES: 66-INCH WATER LINE
WORK IN HARRIS COUNTY R.O.W.
UTILITY WORK 66-INCH WATER LINE
TURN LANE
OTHER CONSTRUCTION

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 ROW. REFER TO WWW.ENG.HCTX.NET/PERMITS FOR EACH SCOPE OF WORK IN HC OR IN HCFCD ROW.

BENCHMARK REQUIREMENTS FOR PROPOSED BRIDGES AND OR NEW RESIDENTIAL SUBDIVISIONS

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 NO

If a new Benchmark is required, the proposed benchmark information is shown on sheets

6. STORMWATER QUALITY

I. SWPPP: CONSTRUCTION MEASURES. (Complete for ALL projects)

- DISTURBS >1AC. SITE PLAN & DETAILS ON SHEET(S) 9-46
DISTURBS <1AC. N/A

II. APPLICABILITY FOR PERMANENT FEATURES. (must be completed on all projects)

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) 133-136

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 CALCULATIONS APPEAR ON SHEET(S)
HYDRODYNAMIC TYPE SEPARATOR MODEL:
OTHER(S):

7. FLOOD PLAIN STATUS

I. GENERAL INFORMATION

FIRM PANEL(S) FOR PROPERTY: 48201C0470L
FIRM PANEL(S) DATE: 6/18/2007

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 152'-144') (0.2% BASE FLOOD LEVEL 152'-144')

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 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

IV. LOMR REQUIRED CLOMR REQUIRED VERIFIED BY:

8. CURB RAMPS

A. ARE CURB RAMPS THAT CONNECT TO PUBLIC STREETS PROPOSED IN THIS SET OF PLANS? YES NO

9. LANDSCAPING

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED

5. DESCRIPTION OF PROPERTY

I. LEGAL DESCRIPTION

A. ACREAGE: 11.6 AC
SUBDIVISION: RES A BLK 1
PINTO BUSINESS PARK DEER TRAIL RESERVE
SURVEY & ABSTRACT:

C. ADJACENT ROADS: DEER TRAIL DRIVE, GREENS LANDING DRIVE, GILLESPIE ROAD, FALLBROOK DRIVE, GREEN PLAZA DRIVE

II. PLATTING

A. SUBDIVISION PLAT
PROPOSED PLAT / REPLAT
RECORDED PLAT / REPLAT
B. STREETS PROPOSED
PUBLIC
PRIVATE
PUBLIC & PRIVATE
NONE
PLAT NAME:
PINTO BUSINESS PARK DEER TRAIL RESERVE

III. JURISDICTIONS

- CITY OF
ETJ, CITY OF HOUSTON
ETJ, CITY OF
NO ETJ

IV. HCAD ACCOUNT NOS. (ALL) KEY MAP PAGE 372Y
1363620010001

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

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED

NOTE: ALL APPROVED, FINAL PLATS AND ASSOCIATED CPC101 FORMS MUST BE INCLUDED WITH PLAN SUBMITTAL.

- CONFORMING SUBDIVISION
NON-CONFORMING SUBDIVISION
PARTIALLY NON-CONFORMING SUBDIVISION

HARRIS COUNTY ENGINEERING DEPARTMENT REVIEW SHEET

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) to the Harris County Engineering Department, 10555 Northwest Freeway, Suite 120, Houston, TX 77092

HARRIS COUNTY ENGINEERING DEPARTMENT - 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

ENGINEER'S CERTIFICATION

CARLOS E. QUINTERO, 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 HCD2 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.

HCD2 SIGNATURE BLOCK:

SIGNATURE DATE

REVISIONS

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

Table with columns: DATE, SHEET NO., DESCRIPTION, P.E. INITIAL, H.C. APPROVED DATE

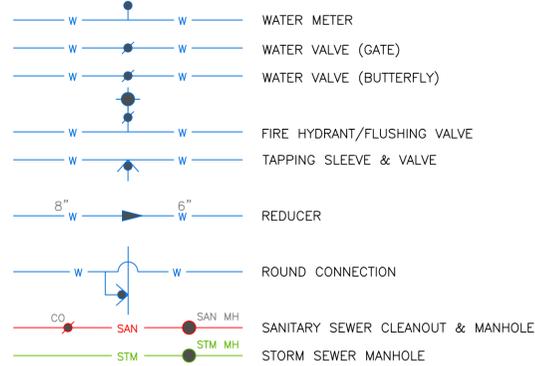
INTERIM REVIEW ONLY

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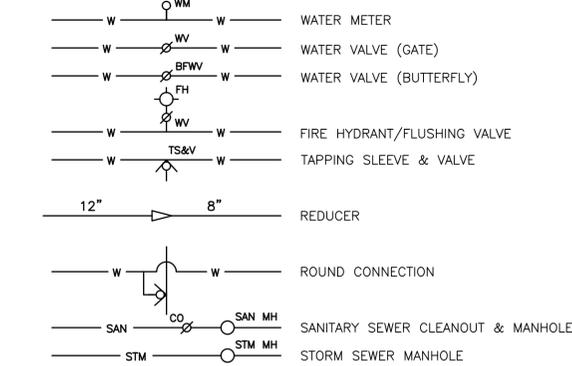
CARLOS E. QUINTERO
TEXAS NO. 94948
DATE

Engineer of Record
Texas Registered Engineering Firm F-2144

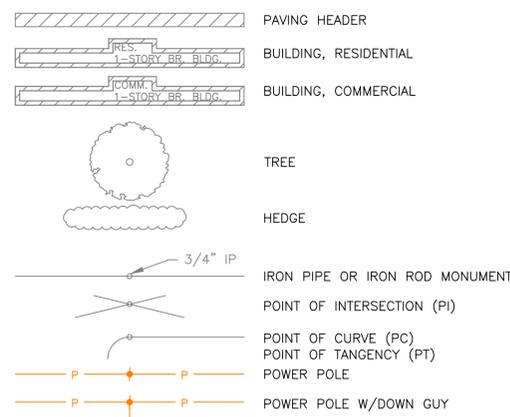
EXISTING PLAN VIEW



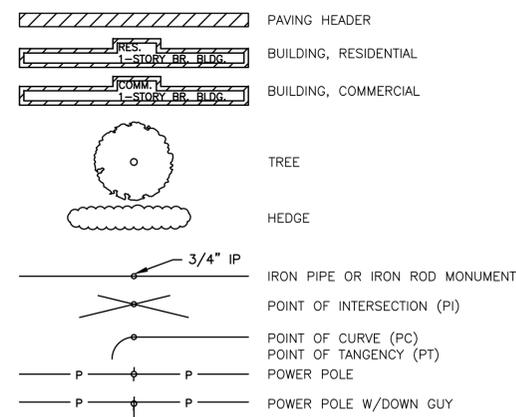
PROPOSED PLAN VIEW



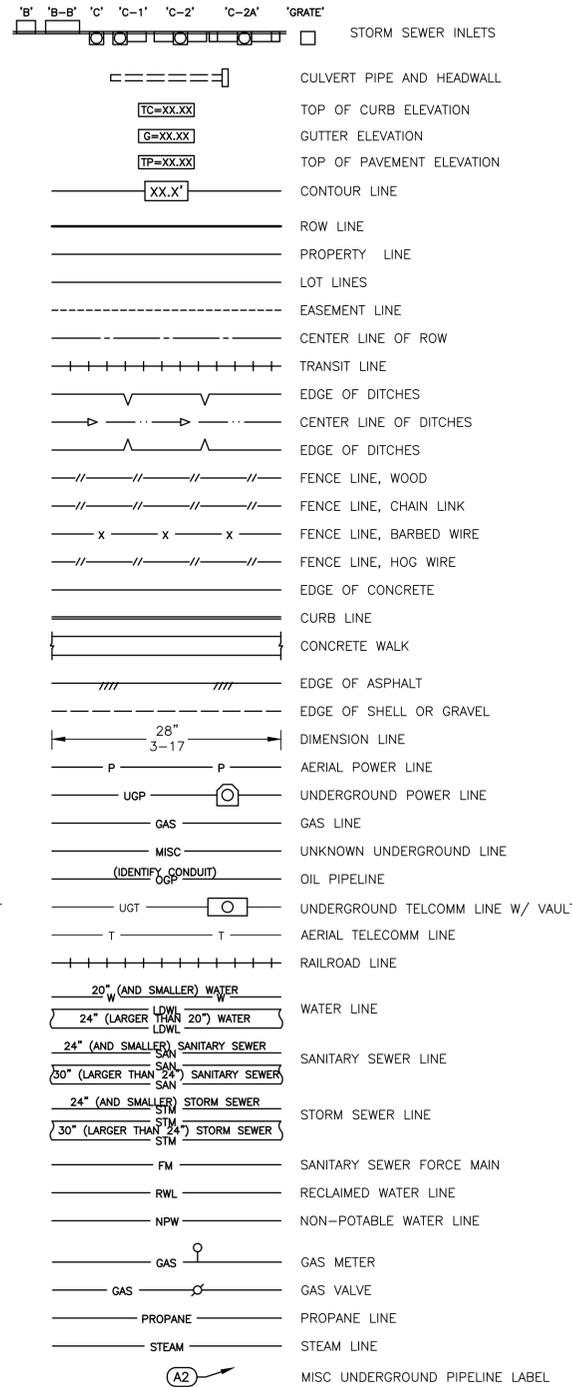
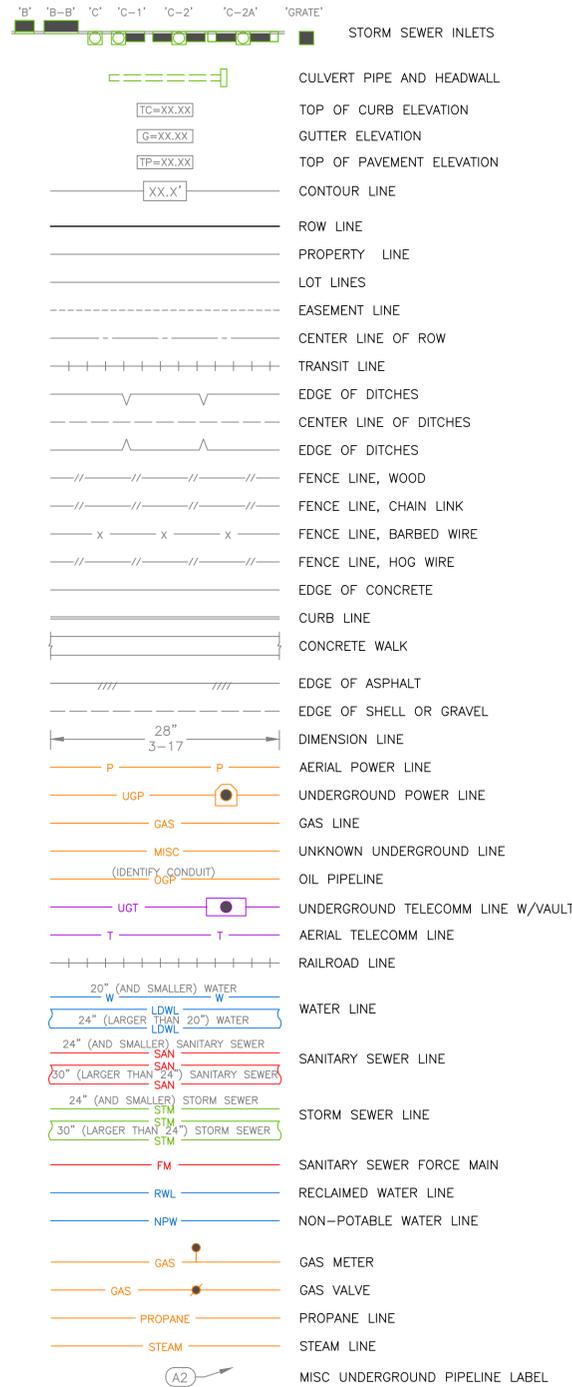
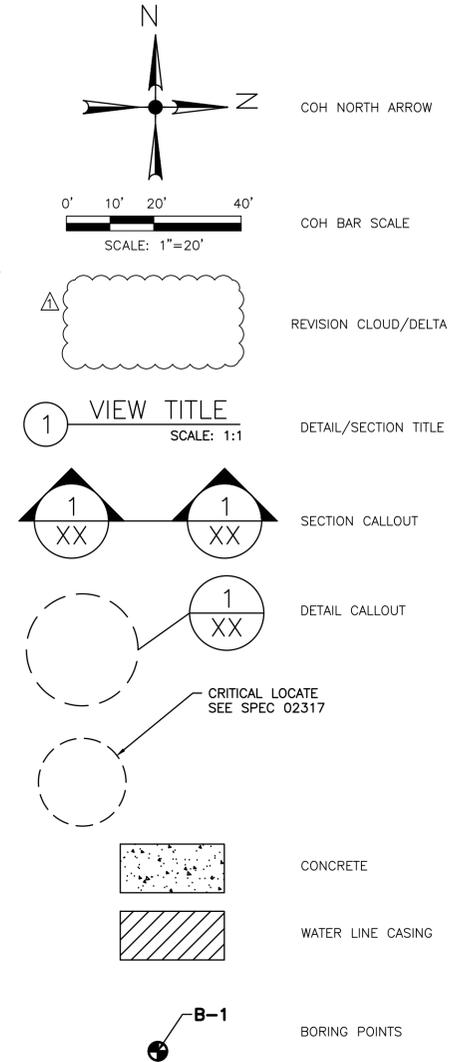
EXISTING PLAN VIEW



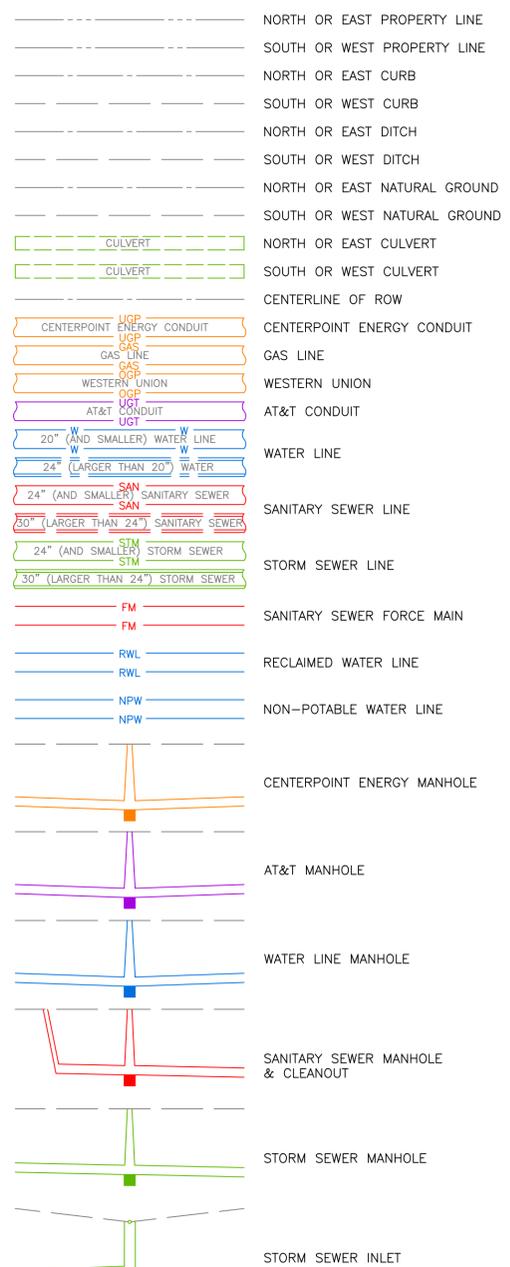
PROPOSED PLAN VIEW



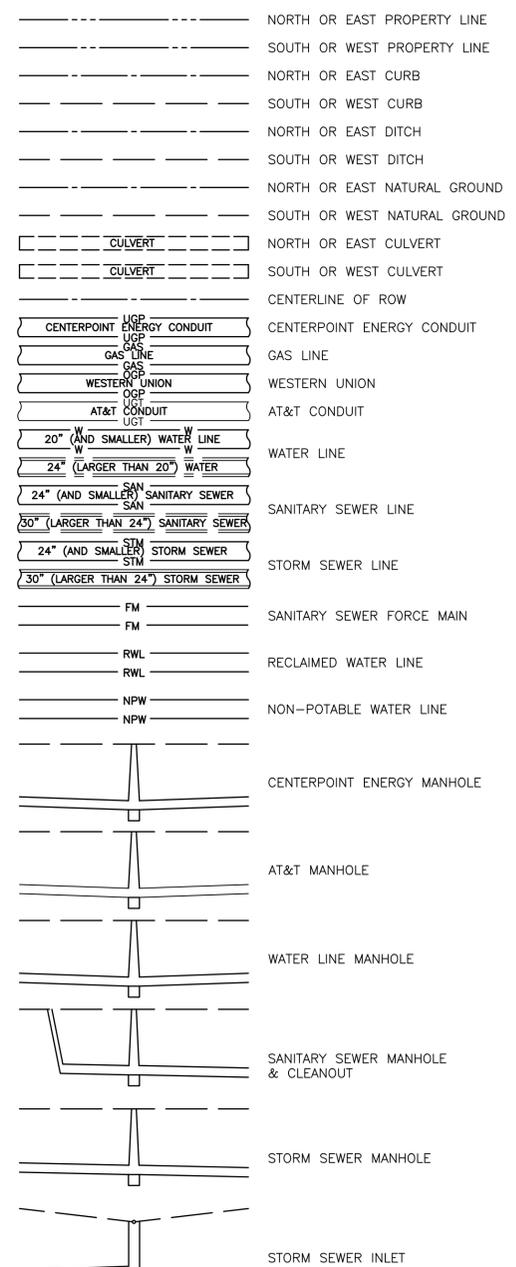
MISC STANDARD ELEMENTS



EXISTING PROFILE VIEW



PROPOSED PROFILE VIEW



FREESE & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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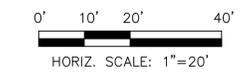
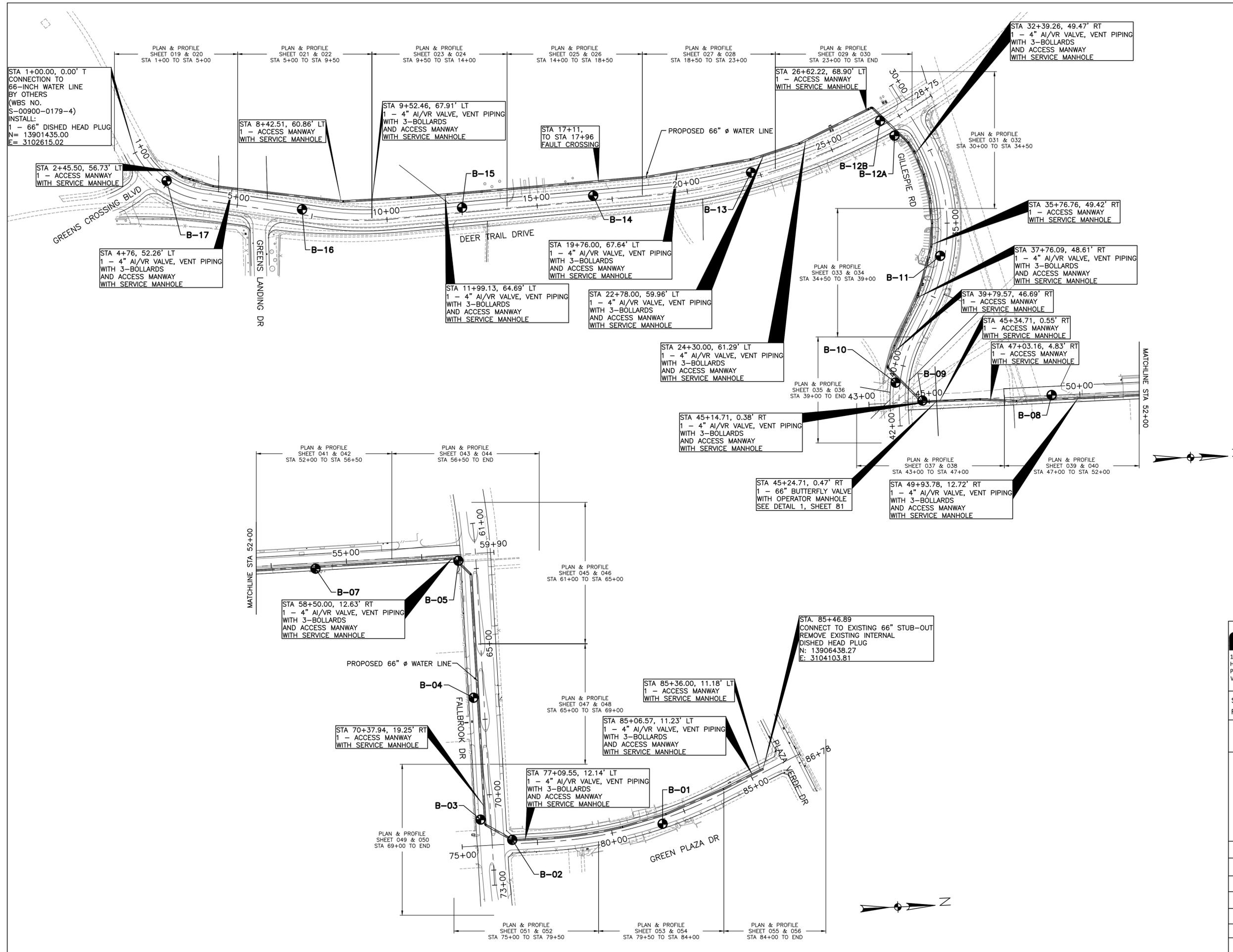
SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

STANDARD SYMBOLS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 006 OF 176	



- NOTES:
- ALL BORING POINTS ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL NORTHING AND EASTING COORDINATES ARE IN SURFACE SURFACE = GRID/0.999870017.
 - BORING B-6 IS NOT INCLUDED WITHIN THIS PROJECT.

BORING TABLE		
BORING NO.	NORTHING	EASTING
B-01	13906102.49	3104281.32
B-02	13905603.10	3104327.71
B-03	13905499.08	3104259.23
B-04	13905481.27	3103855.46
B-05	13905437.06	3103401.43
B-07	13904962.92	3103421.21
B-08	13904472.81	3103423.55
B-09	13904044.31	3103440.83
B-10	13903955.47	3103381.17
B-11	13904104.56	3102962.05
B-12A	13903953.84	3102563.65
B-12B	13903906.25	3102514.25
B-13	13903477.72	3102684.62
B-14	13902953.95	3102760.28
B-15	13902519.00	3102798.98
B-16	13901988.44	3102803.59
B-17	13901539.42	3102708.01

FREESE & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

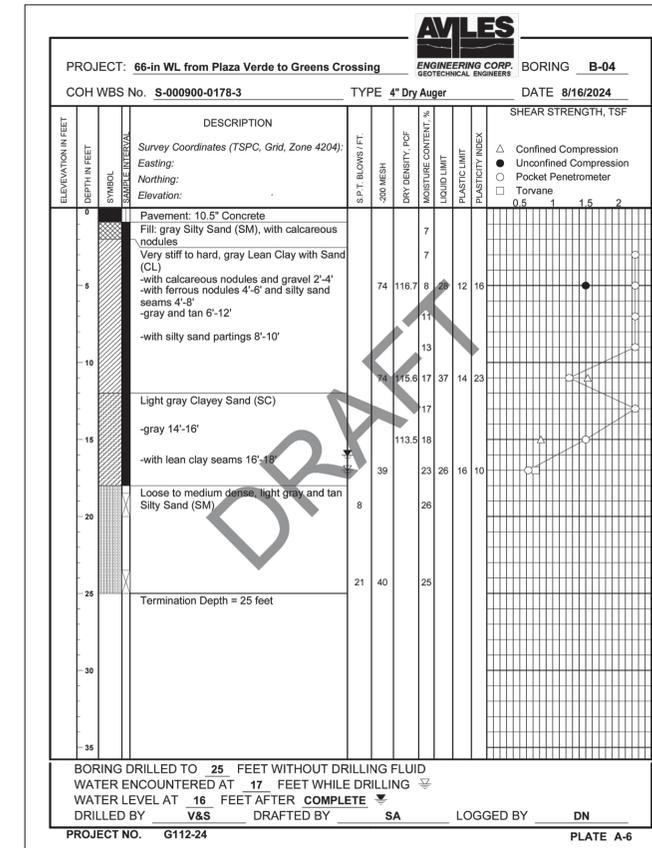
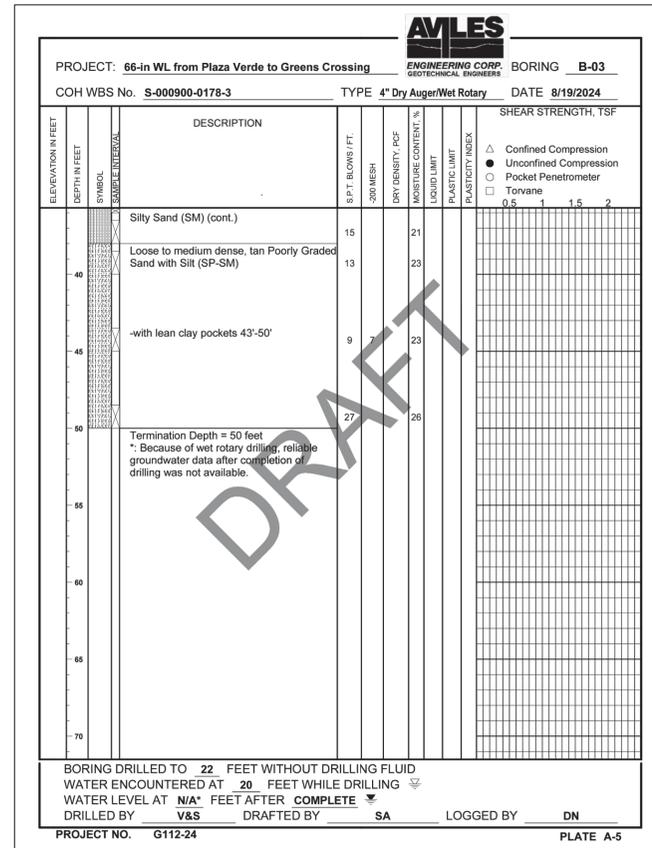
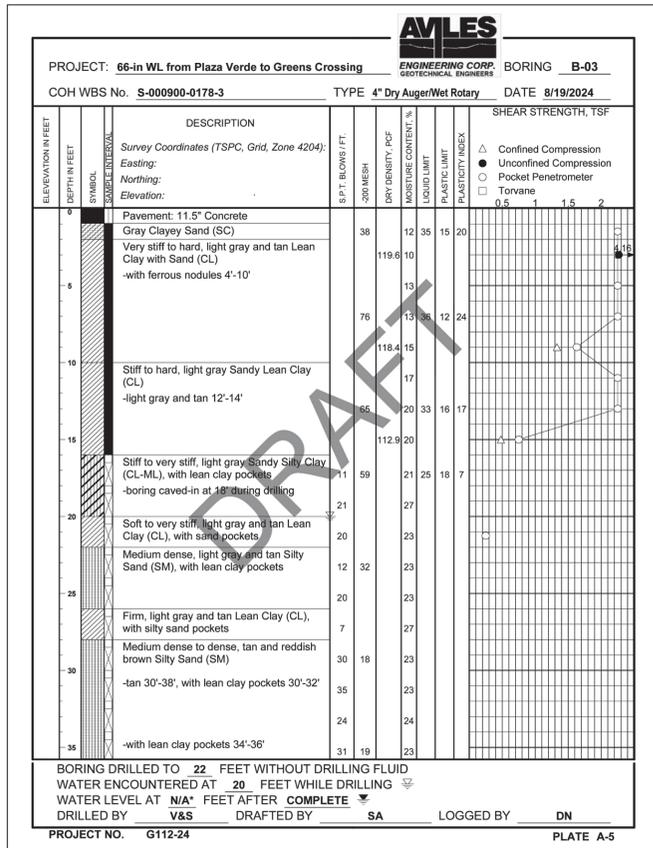
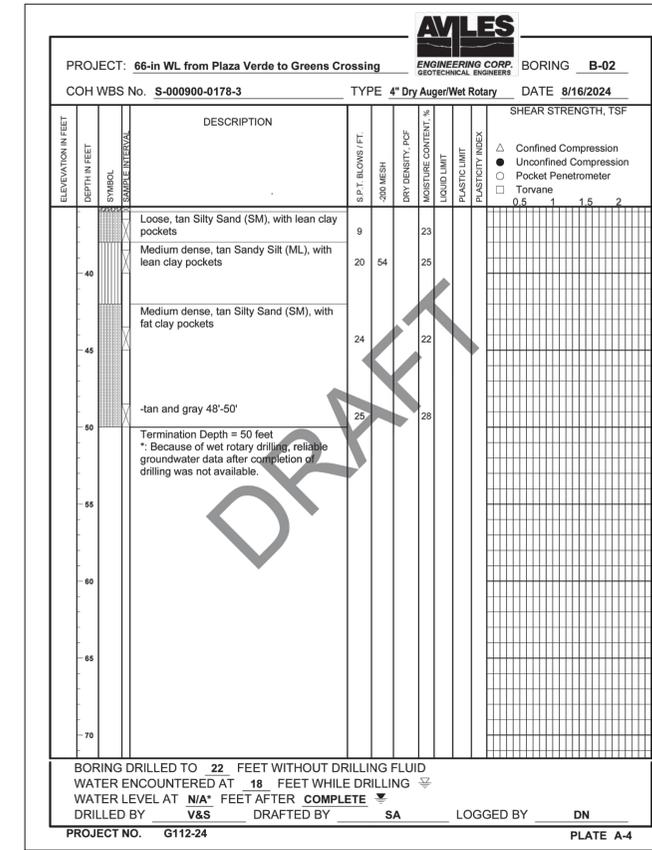
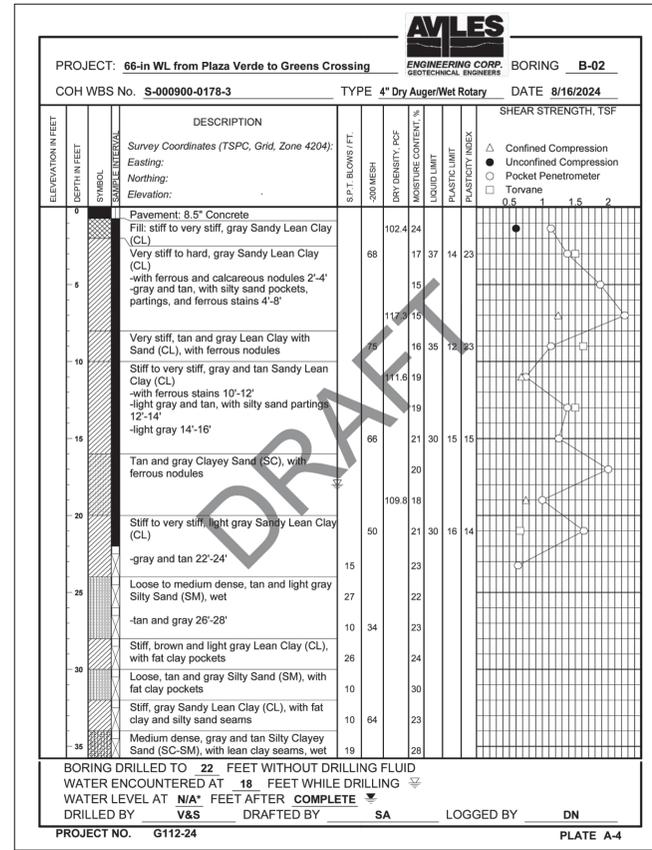
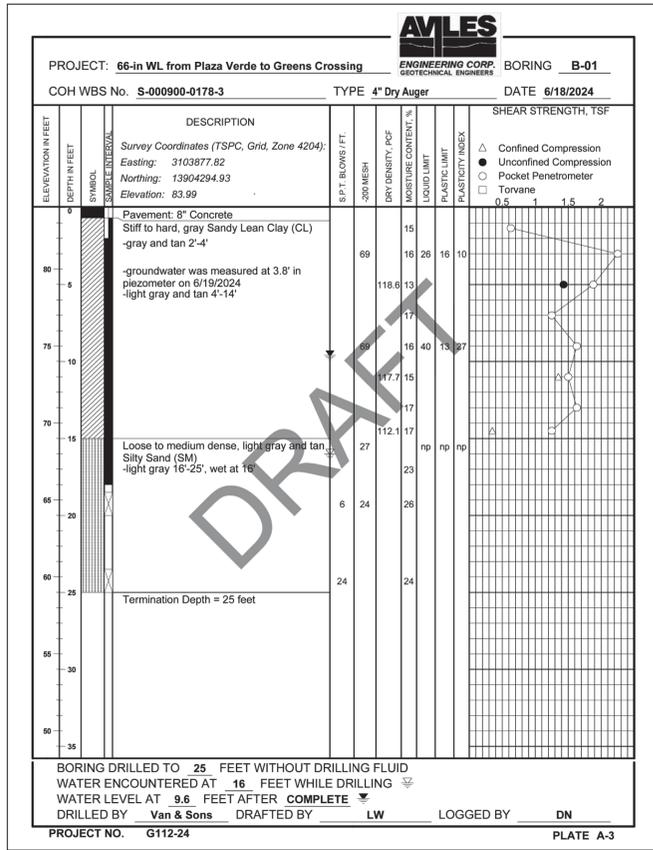
SHEET LAYOUT AND BORING LOCATIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
1"=150'	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 008 OF 176	

NO.	DATE	REVISION	APP.

PLOT STYLE: Coh_ctb_230809.ctb PLOTTED: 2/6/2025 2:46 PM

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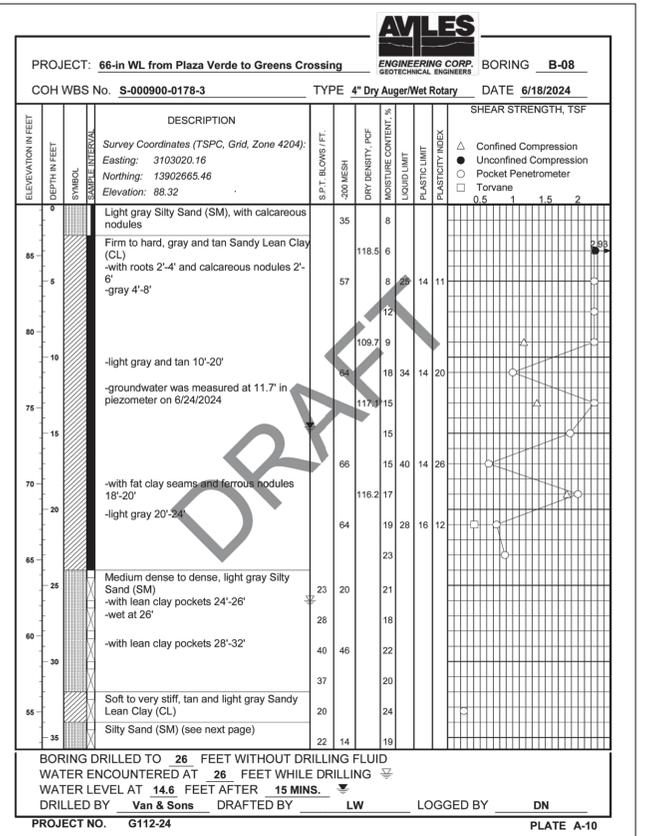
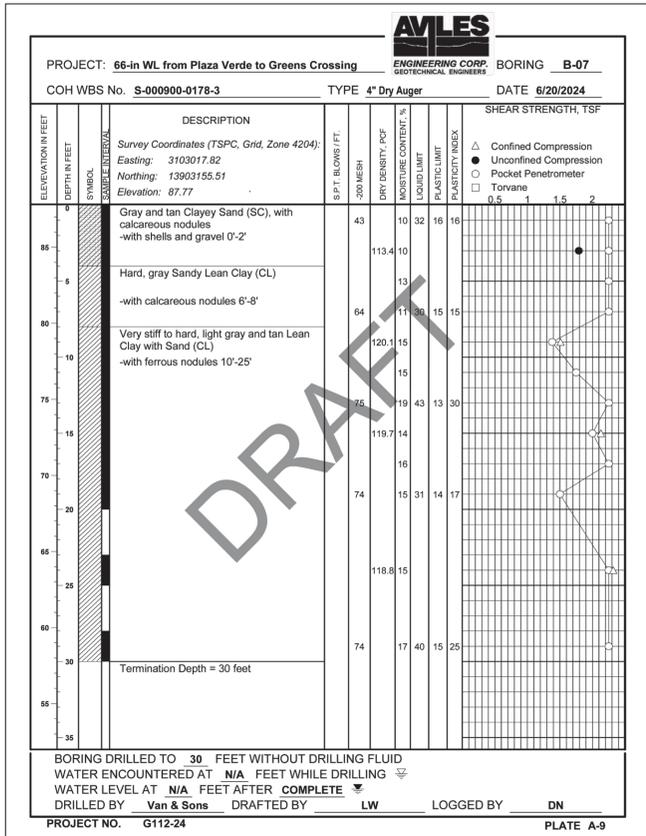
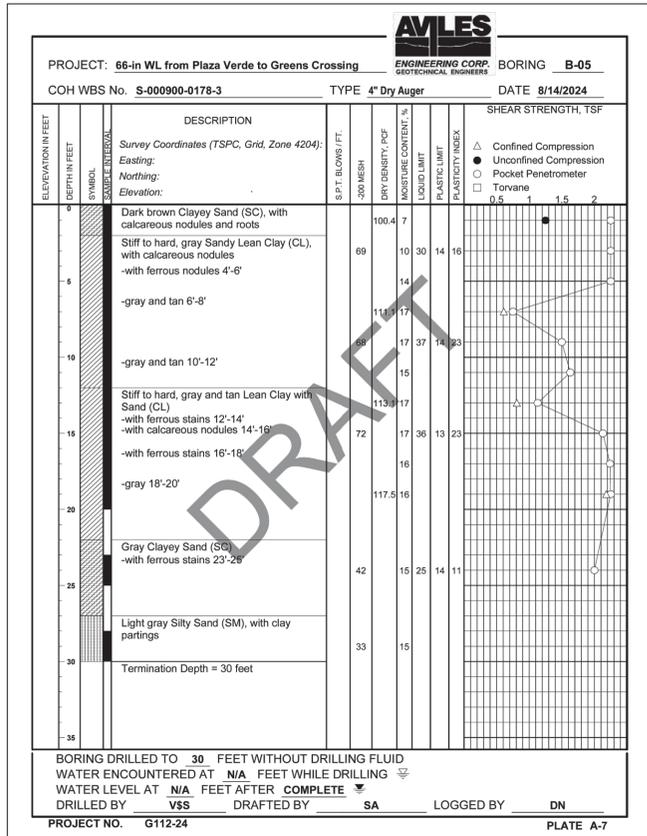
SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

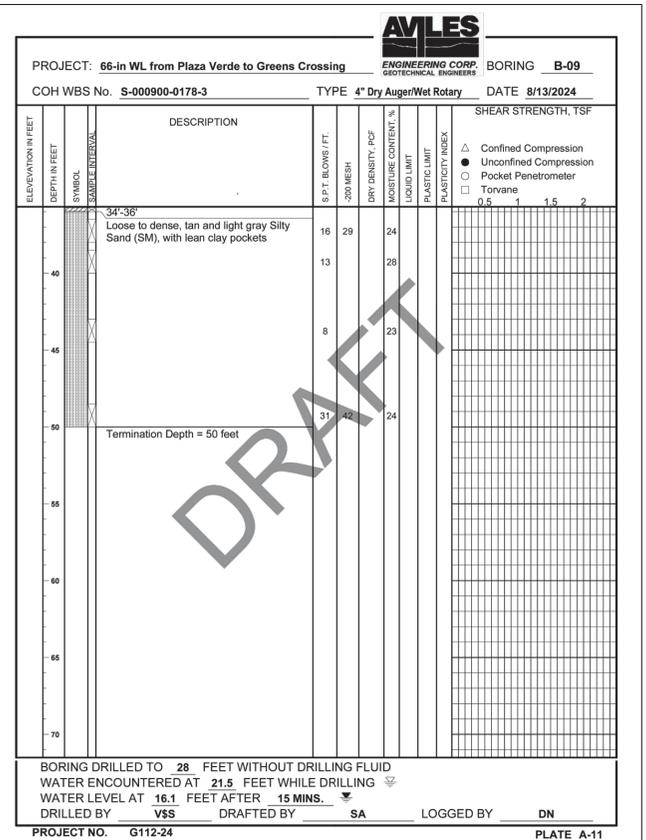
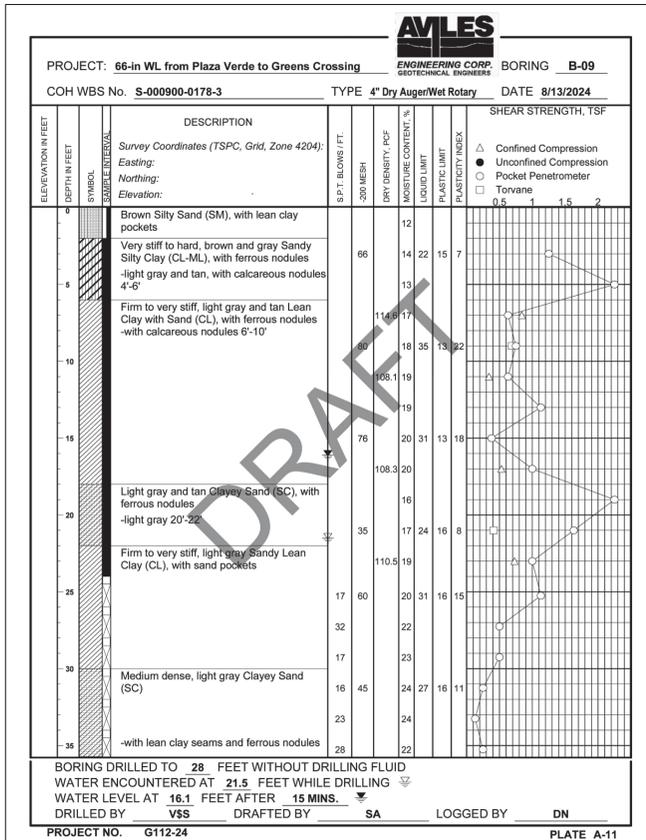
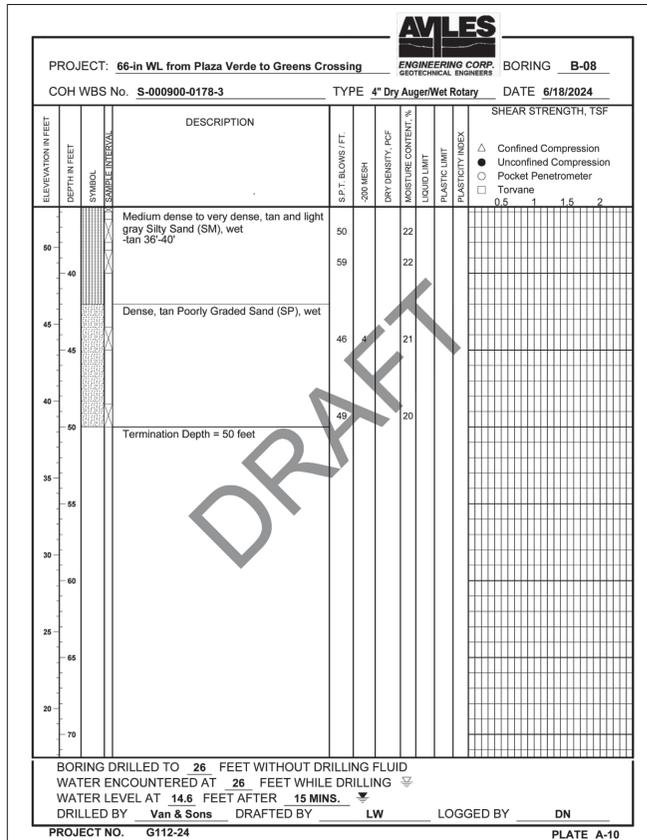
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

BORE HOLE LOGS
SHEET 1 OF 4

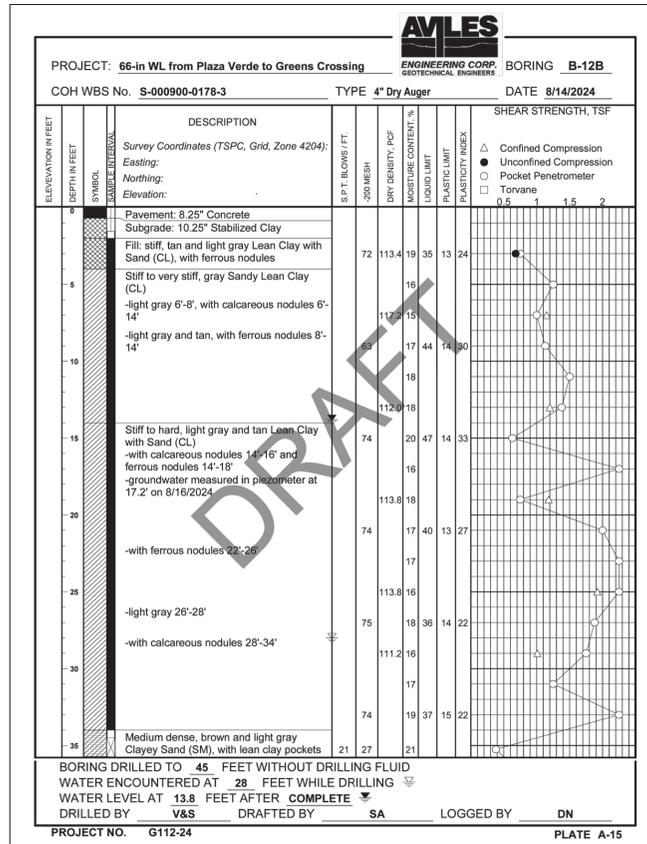
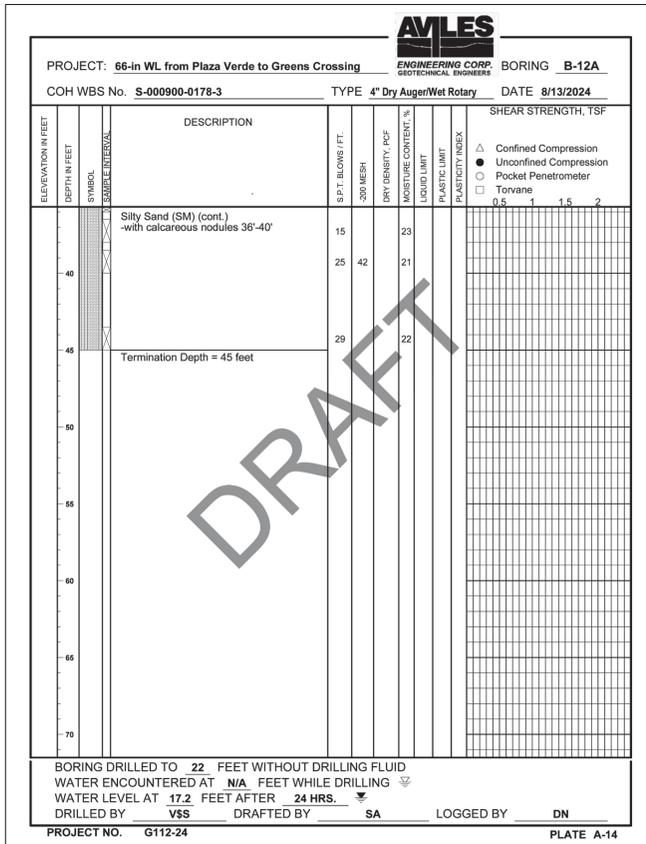
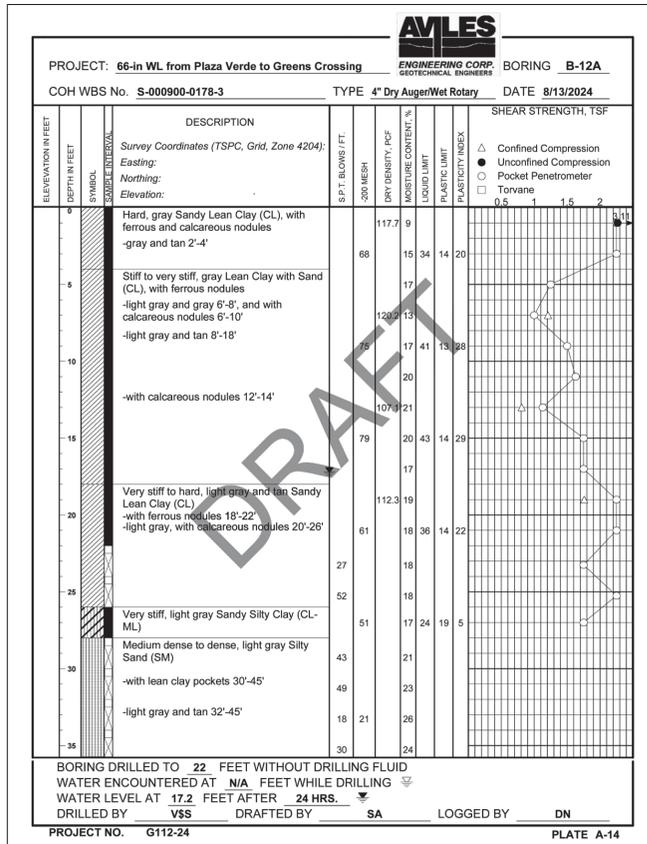
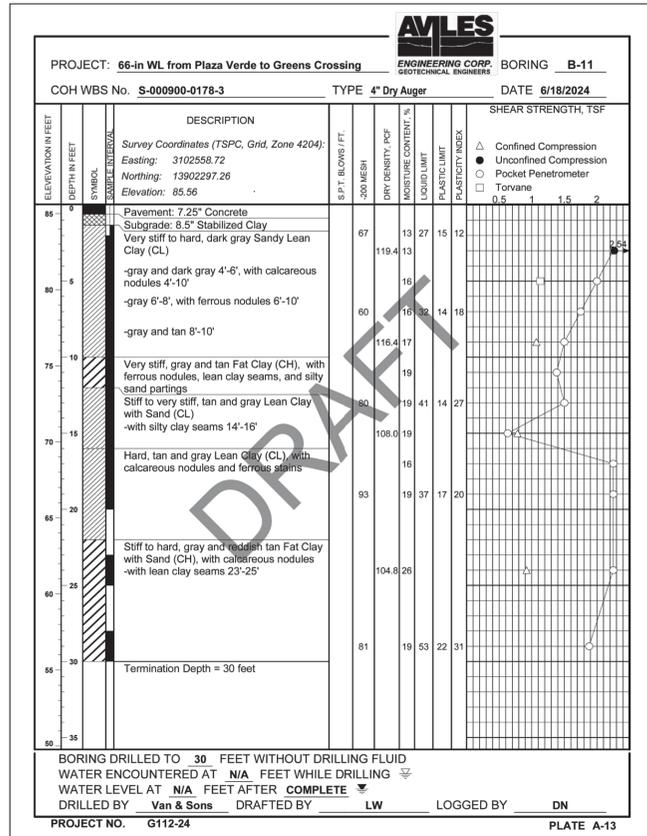
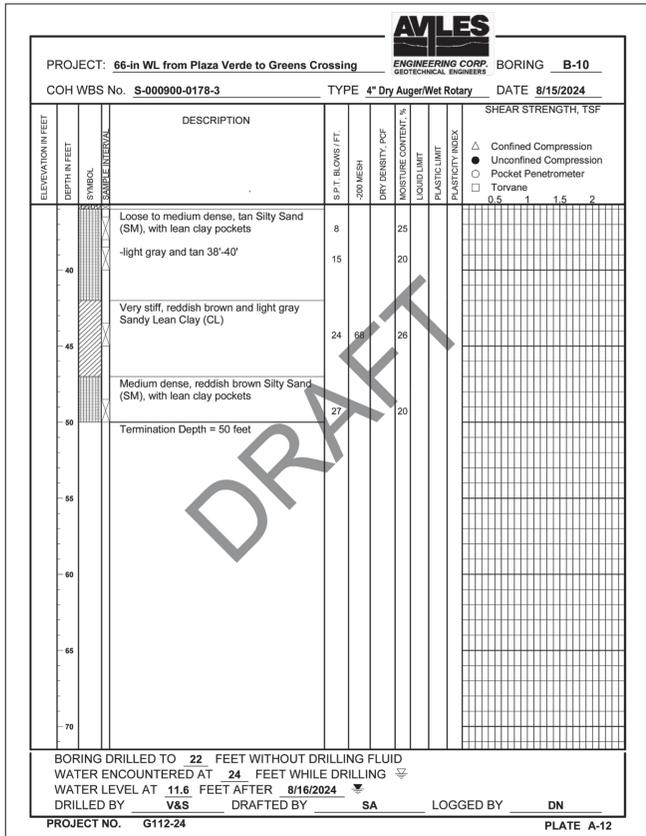
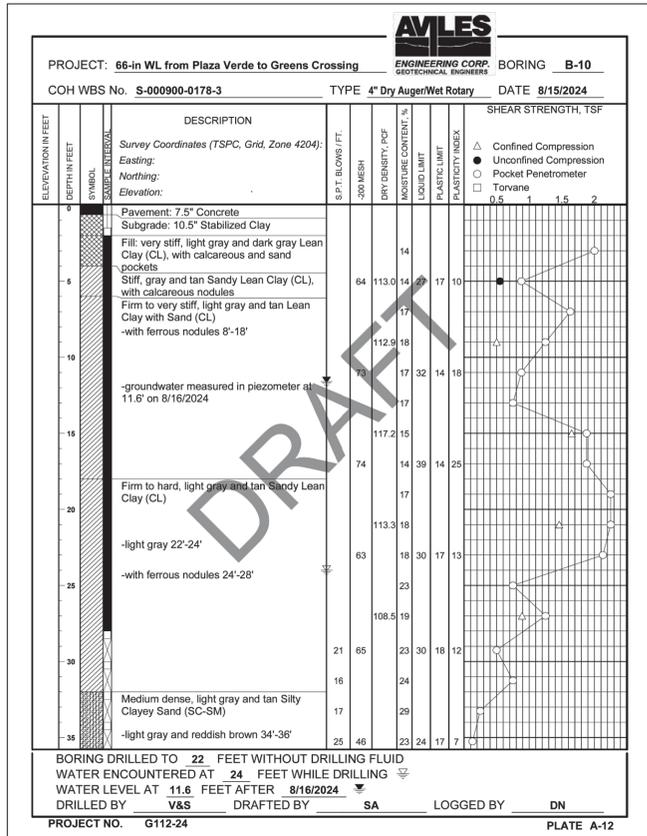
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 009 OF 176	



NOTES:
 1. BORING B-6 IS NOT INCLUDED WITHIN THIS PROJECT.



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	SURVEYED BY: LANDTECH, INC. FB NO. P-6342
CITY OF HOUSTON HOUSTON PUBLIC WORKS 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
BORE HOLE LOGS SHEET 2 OF 4	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 010 OF 176	



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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

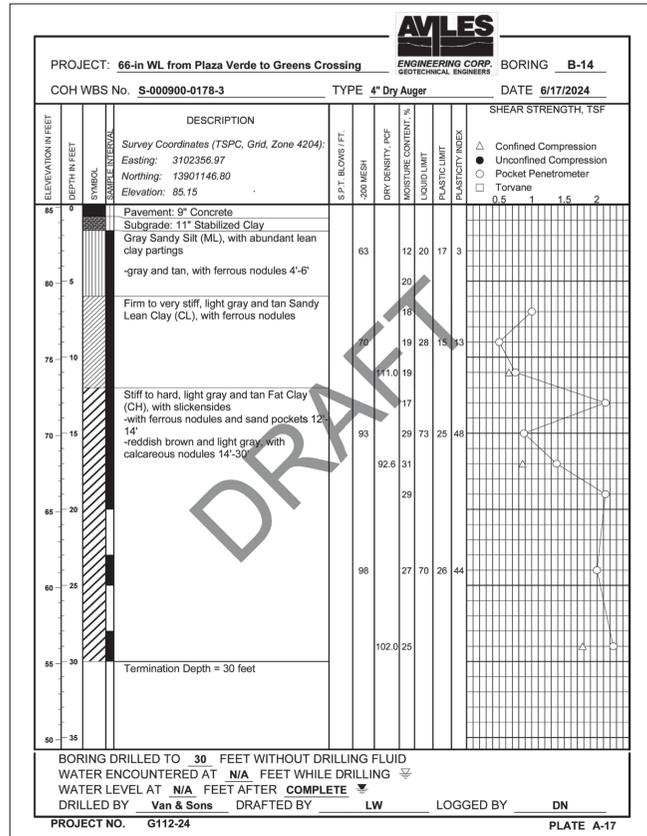
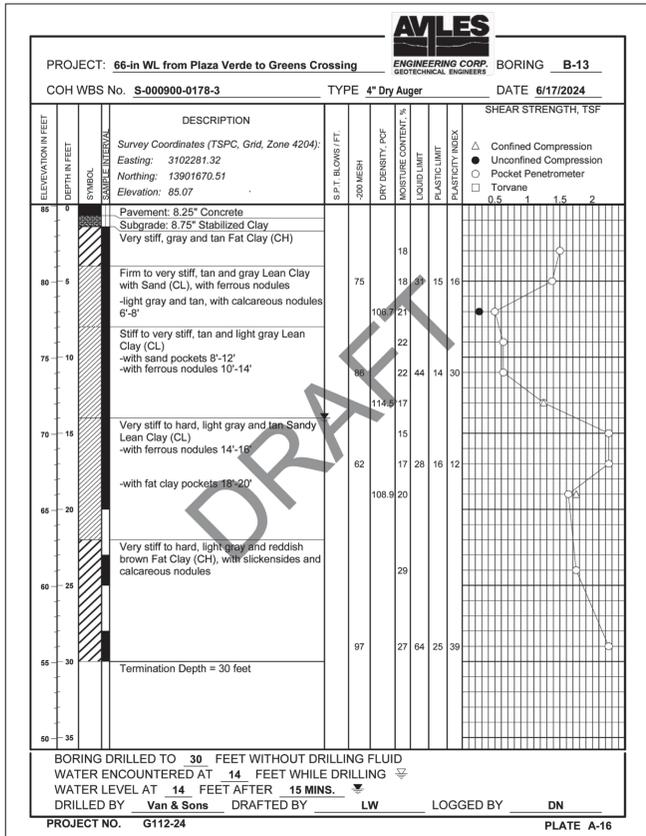
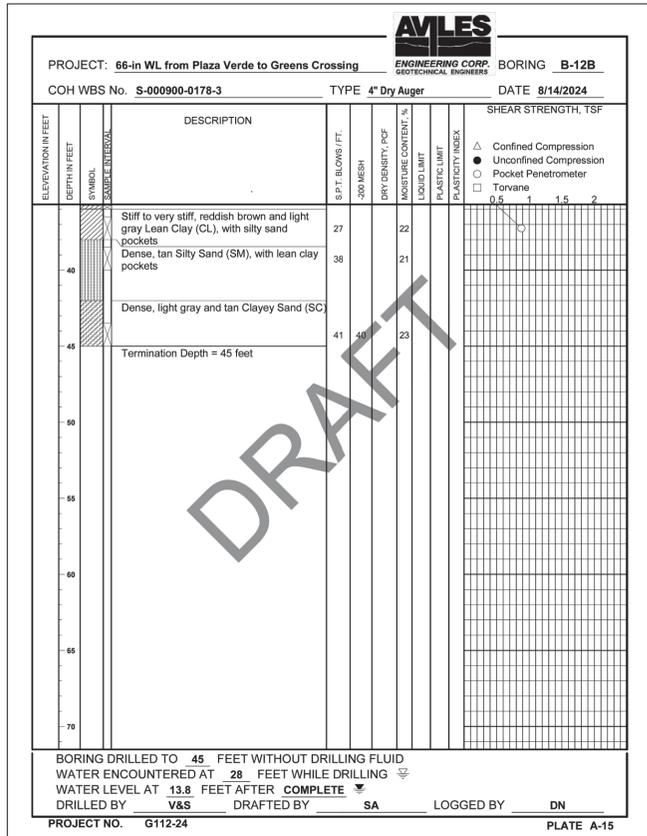
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

BORE HOLE LOGS
SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 011 OF 176	

PLOT STYLE: Coh_ctb_230809.ctb

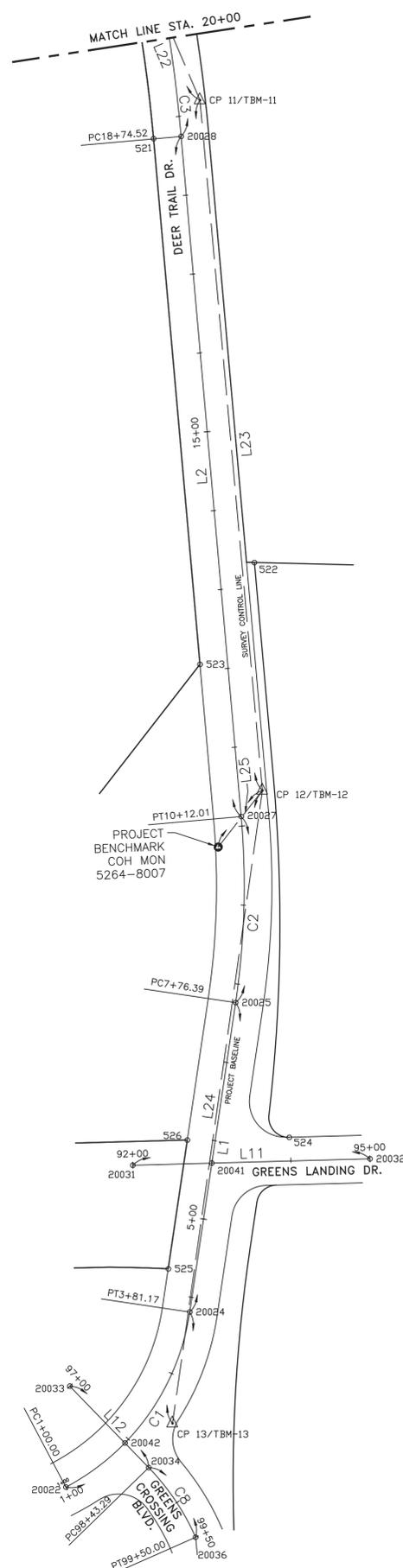
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PLOT STYLE: COH.ctb

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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)

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

Reference Frame Used: NAD 83 (GRS 80)
Vertical Adjustment used: NAVD 88 (CORS 96)
General Location: 400 FEET NORTH OF THE INTERSECTION OF DEER TRAIL DRIVE WITH GREENS LANDING DRIVE
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'

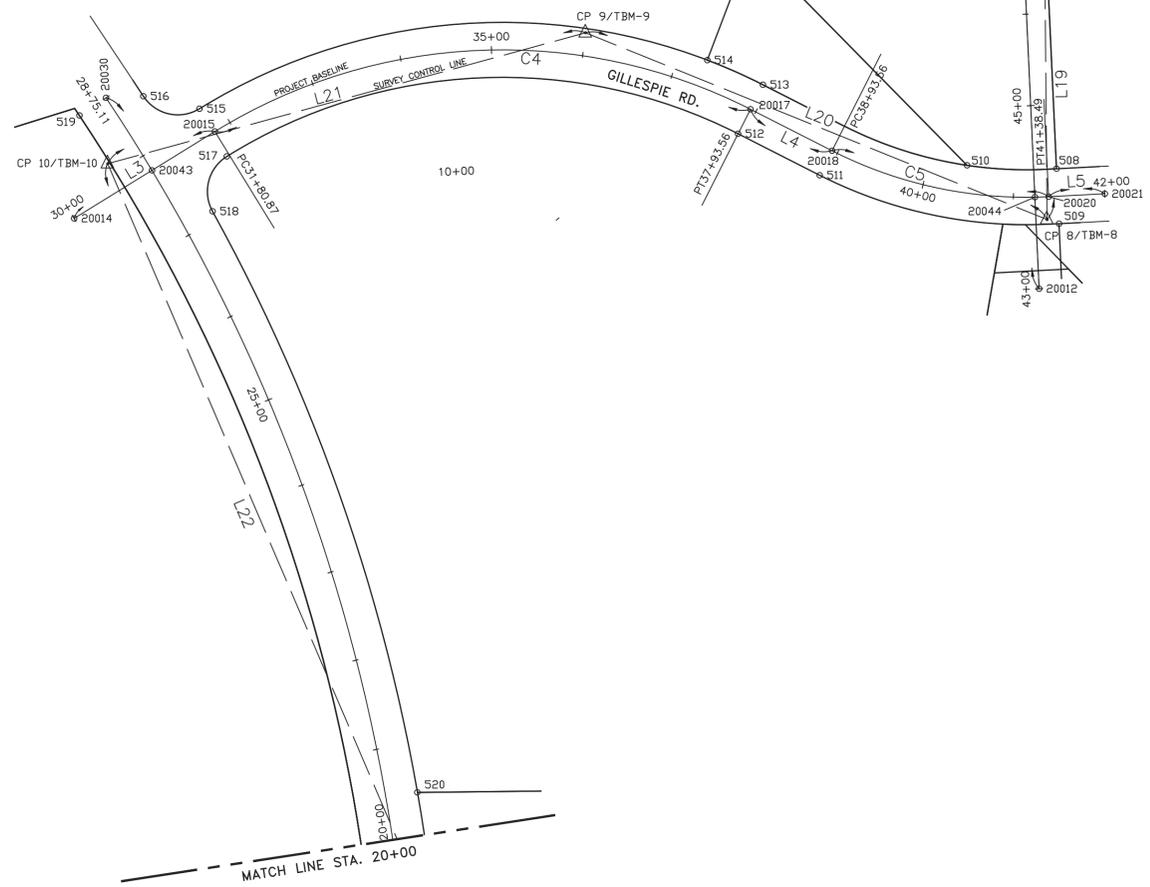
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = (S.F. 0.999870017).
3. Surface = Grid
S.F.

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

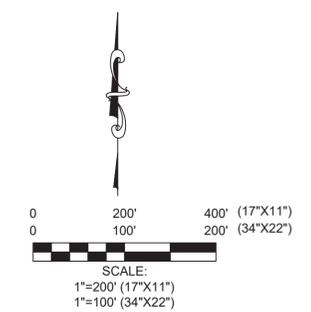
City of Houston, Harris County, Texas

CURVE TABLE				
CURVE	RADIUS	DELTA	LENGTH	CHORD
C1	300.00	53°42'01"	281.17	N35°18'04"E 271.00'
C2	1000.00	13°30'00"	235.62	N01°42'03"E 235.07'
C3	2000.00	28°39'53"	1000.59	N19°22'54"W 990.19'
C4	600.00	58°30'26"	612.69	N87°37'48"E 586.41'
C5	470.00	29°51'29"	244.93	S78°02'44"E 242.17'
C8	300.00	20°22'48"	106.71	S33°58'19"E 106.15'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N08°27'03"E	395.22'
L2	N05°02'57"W	862.51'
L3	N58°22'35"E	180.87'
L4	S63°06'59"E	100.00'
L5	N87°01'31"E	61.51'
L6	N02°38'17"W	1690.00'
L11	N88°27'03"E	300.00'
L12	S44°09'43"E	143.29'
L16	S08°01'52"E	744.58'
L17	S03°34'47"W	323.59'
L18	S12°08'02"E	223.46'
L19	S00°30'07"E	274.97'
L20	N68°00'37"W	544.45'
L21	S74°42'50"W	541.92'
L22	S23°14'34"E	888.38'
L23	S05°10'27"E	875.63'
L24	S08°05'40"W	807.50'
L25	N38°03'11"E	90.74'



- TEMPORARY BENCHMARKS**
- TBM-5
SET 3/8" IR W/ LANDTECH CAP AT EAST OF 255 FALLBROOK DR.
STA. 51+91.86 OFFSET: 20.60 RT
ELEV.=87.57 FEET
 - TBM-6
SET 3/8" IR W/ LANDTECH CAP AT NORTHWEST OF WATER PLANT
STA. 48+70.17 OFFSET: 14.44 LT
ELEV.=86.54 FEET
 - TBM-7
SET 3/8" IR W/ LANDTECH CAP AT WEST OF WATER PLANT
STA. 46+49.78 OFFSET: 22.42 RT
ELEV.=86.57 FEET
 - TBM-8
SET 3/8" IR W/ LANDTECH CAP AT GILLESPIE ROAD
STA. 43+75.00 OFFSET:12.17 RT
ELEV.=88.55 FEET
 - TBM-9
SET 3/8" IR W/ LANDTECH CAP AT GILLESPIE ROAD
STA. 35+99.56 OFFSET: 25.33 LT
ELEV.=86.13 FEET
 - TBM-10
SET 3/8" IR W/ LANDTECH CAP AT GILLESPIE ROAD AND
DEER TRAIL DR. INTERSECTION
STA. 30+62.64 OFFSET: 31.59 LT
ELEV.=88.88 FEET
 - TBM-11
SET 3/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 19+17.55 OFFSET: 28.22RT
ELEV.=85.70 FEET
 - TBM-12
SET 3/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 10+42.53 OFFSET: 29.66 RT
ELEV.=85.53 FEET
 - TBM-13
SET 3/8" IR W/ LANDTECH CAP AT DEER TRAIL DR.
STA. 2+48.02 OFFSET: 31.21 RT
ELEV.=85.72 FEET



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:

- ALL BEARINGS, DISTANCES, COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL DISTANCES ARE IN SURFACE. ALL COORDINATES ARE IN GRID.
SURFACE = GRID/0.999870017.
- 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.
- 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. 4820100470L, REVISED JUNE 18, 2007, CREATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (800-358-9616 AND WWW.FEMA.GOV/MSC)
- ABSTRACT RESEARCH PERFORMED BY LANDTECH, INC. IN APRIL 2024
- SUBSURFACE UTILITY ENGINEERING INVESTIGATION PERFORMED BY SAM, LLC (512-447-0575) BY DECEMBER 2024.
- FIELD WORK COMPLETED IN DECEMBER 2024.

FREESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

LANDTECH
1315 W. Sam Houston North, Ste 100
Houston, Texas 77043
T: 713-861-7068 F: 713-861-4131
TBPELS No. 10019100
FB# 6342

STATE OF TEXAS REGISTERED PROFESSIONAL LAND SURVEYOR
NHUY T. NGUYEN
6408
2/6/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREEN CROSSING BLVD TO PLAZA VERDE DR
SURVEY CONTROL MAP
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
1"=100'	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 13 OF 176	

FILE PATH: S:\2024\2420029\CADD\COH 66 INCH WL - SCM.dwg

PLOT STYLE: COH.ctb

PLOTTED: 2/6/2025 2:31 PM

CITY OF HOUSTON
CITY SURVEY 5264-8113
SITE CONTROL MONUMENT

Project WBS# S-000900-0178-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X = 3,102,943.0571
Y = 13,903,745.0555

Keymap Page: 372U
Orthometric Elevation = 85.96 FEET
Ellipsoid Height = -4.11 FEET
Geoid: 12A
Datum Source & Adjustment: CONVENTIONAL LEVEL

Reference Frame Used: NAD 83 (GRS 80)
Vertical Adjustment used: NAVD 88 (CORS '96)
General Location: 0.30 MILE WEST OF FALLBROOK DRIVE AND IH-45 INTERSECTION

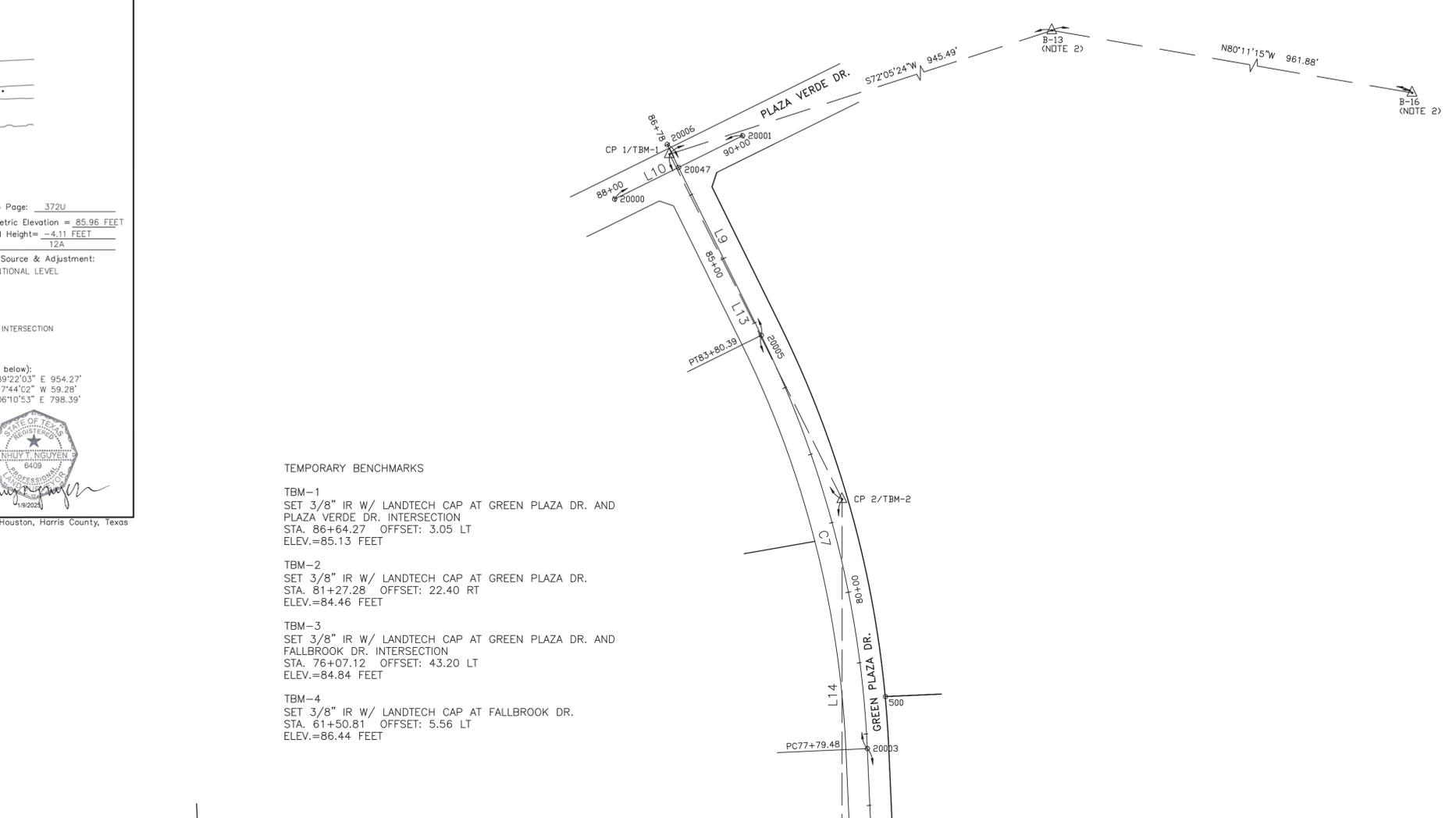
Date Set: NOV 23, 2024 Type of Mark: 4A

3 Nearest project control points (bearings and distances stated below):
CP-3, SET 3/8" IR WITH CAP STAMPED "LANDTECH" - S 89°22'03" E 954.27'
CP-4, SET 3/8" IR WITH CAP STAMPED "LANDTECH" - S 17°44'02" W 59.28'
CP-5, SET 3/8" IR WITH CAP STAMPED "LANDTECH" - S 06°10'53" E 798.39'

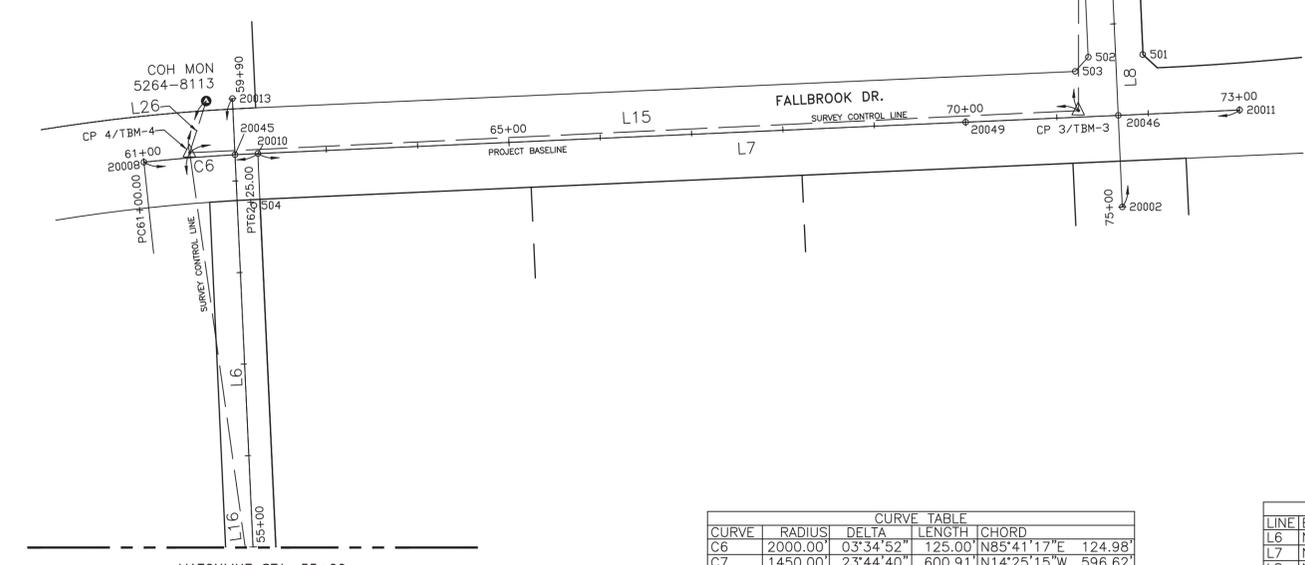
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = (S.F. 0.999870017).
3. Surface = Grid
S.F. =

Surveyed By: LANDTECH, INC.
1315 W. Sam Houston Parkway N, Suite 100
Houston, Texas 77043
T: 713-861-7068 F: 713-861-4131
TBPELS REGISTRATION NO. 10019100

City of Houston, Harris County, Texas



- TEMPORARY BENCHMARKS**
- TBM-1**
SET 3/8" IR W/ LANDTECH CAP AT GREEN PLAZA DR. AND PLAZA VERDE DR. INTERSECTION
STA. 86+64.27 OFFSET: 3.05 LT
ELEV.=85.13 FEET
- TBM-2**
SET 3/8" IR W/ LANDTECH CAP AT GREEN PLAZA DR.
STA. 81+27.28 OFFSET: 22.40 RT
ELEV.=84.46 FEET
- TBM-3**
SET 3/8" IR W/ LANDTECH CAP AT GREEN PLAZA DR. AND FALLBROOK DR. INTERSECTION
STA. 76+07.12 OFFSET: 43.20 LT
ELEV.=84.84 FEET
- TBM-4**
SET 3/8" IR W/ LANDTECH CAP AT FALLBROOK DR.
STA. 61+50.81 OFFSET: 5.56 LT
ELEV.=86.44 FEET

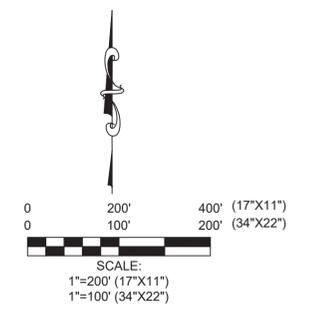


CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH	CHORD
C6	2000.00	03°34'52"	125.00	N85°41'17"E 124.98'
C7	1450.00	23°44'40"	600.91	N14°25'15"W 596.62'

LINE TABLE

LINE	BEARING	DISTANCE
L6	N02°38'17"W	1690.00'
L7	N67°28'00"E	1075.00'
L8	N02°32'55"W	279.48'
L9	N26°17'35"W	297.61'
L10	N63°42'25"E	200.00'
L13	S26°37'12"E	539.61'
L14	S00°01'22"W	522.68'
L15	S87°17'42"W	973.36'
L16	S08°01'52"E	744.58'
L26	N17°44'02"E	59.28'



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:

- ALL BEARINGS, DISTANCES, COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE. ALL DISTANCES ARE IN SURFACE. ALL COORDINATES ARE IN GRID. SURFACE = GRID/0.999870017.
- 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.
- 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. 4820100470L, REVISED JUNE 18, 2007, CREATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (800-358-9616 AND WWW.FEMA.GOV/MSC)
- ABSTRACT RESEARCH PERFORMED BY LANDTECH, INC. IN APRIL 2024.
- SUBSURFACE UTILITY ENGINEERING INVESTIGATION PERFORMED BY SAM, LLC (512-447-0575) BY DECEMBER 2024.
- FIELD WORK COMPLETED IN DECEMBER 2024.

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FB# 6342

2/6/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREEN CROSSING BLVD TO PLAZA VERDE DR
SURVEY CONTROL MAP
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
1"=100'	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 14 OF 176	

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DEER TRAIL DRIVE BASELINE TABLE									
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION	
10	28+13.13	37.44	LT	13,904,003.41	3,102,434.00	13,902,196.12	3,102,030.73	88.88	SET 3/8" IR W/ LANDTECH CAP
11	19+17.55	28.22	RT	13,903,187.13	3,102,784.57	13,901,379.95	3,102,381.26	85.70	SET 3/8" IR W/ LANDTECH CAP
12	10+42.53	29.66	RT	13,902,315.07	3,102,863.54	13,900,508.01	3,102,460.22	85.53	SET 3/8" IR W/ LANDTECH CAP
13	2+48.02	31.21	RT	13,901,515.61	3,102,749.84	13,899,708.65	3,102,346.54	85.72	SET 3/8" IR W/ LANDTECH CAP
516	28+54.32	34.92	RT	13,904,077.02	3,102,472.86	13,902,269.73	3,102,069.59	0.00	FND 1/2" IP
518	27+10.11	35.06	RT	13,903,951.42	3,102,548.65	13,902,144.14	3,102,145.38	0.00	FND 1/2" IP W/CAP BROWN & GAY
519	28+75.11	34.90	LT	13,904,056.00	3,102,403.09	13,902,248.71	3,101,999.83	0.00	FND 1/2" IP W/CAP BROWN & GAY
520	20+46.09	34.82	RT	13,903,317.30	3,102,772.65	13,901,510.10	3,102,369.35	0.00	FND 1/2" IP W/CAP BROWN & GAY
521	18+74.72	35.09	LT	13,903,138.33	3,102,725.80	13,901,331.16	3,102,322.49	0.00	FND 1/2" IP W/CAP BROWN & GAY CAP
522	13+30.05	44.88	RT	13,902,602.81	3,102,853.39	13,900,795.71	3,102,450.07	0.00	FND 1/2" IP
523	12+08.09	34.96	LT	13,902,474.30	3,102,784.60	13,900,667.21	3,102,381.29	0.00	FND 1/2" W/CAP BROWN & GAY IN PIPE
525	4+31.09	34.79	LT	13,901,710.65	3,102,744.54	13,899,903.67	3,102,341.24	0.00	FND 1/2" IP
526	5+95.63	34.97	LT	13,901,873.43	3,102,768.54	13,900,066.42	3,102,365.23	0.00	FND 1/2" IP W/CAP BROWN & GAY CAP
20022	1+00.00	0.00	LT	13,901,435.00	3,102,615.02	13,899,628.04	3,102,211.73	0.00	SET COTTON SPINDLE
20024	3+81.17	0.00	LT	13,901,656.16	3,102,771.62	13,899,849.18	3,102,368.31	0.00	SET "X" CUT IN CONCRETE
20025	7+76.39	0.00	LT	13,902,047.09	3,102,829.70	13,900,240.06	3,102,426.39	0.00	SET "X" CUT IN CONCRETE
20027	10+12.01	0.00	LT	13,902,282.06	3,102,836.68	13,900,475.00	3,102,433.36	0.00	SET "X" CUT IN CONCRETE
20028	18+74.52	0.00	LT	13,903,141.22	3,102,760.77	13,901,334.05	3,102,357.46	0.00	SET "X" CUT IN CONCRETE
20030	28+75.11	0.00	LT	13,904,075.29	3,102,432.17	13,902,268.00	3,102,028.90	0.00	SET "X" CUT IN CONCRETE
20034	1+92.49	43.28	RT	13,901,459.70	3,102,719.78	13,899,652.75	3,102,316.47	0.00	SET "X" CUT IN CONCRETE
20041	5+71.39	0.00	LT	13,901,844.31	3,102,799.57	13,900,037.31	3,102,396.26	0.00	SET "X" CUT IN CONCRETE
20042	1+93.51	0.00	LT	13,901,490.76	3,102,689.62	13,899,683.80	3,102,286.32	0.00	SET "X" CUT IN CONCRETE
20043	27+81.33	0.00	LT	13,903,996.10	3,102,482.37	13,902,188.81	3,102,079.10	0.00	SET "X" CUT IN CONCRETE
5264-8007	9+75.10	31.68	LT	13,902,243.62	3,102,807.61	13,900,436.57	3,102,404.30	85.53	SET COH MON

GILLESPIE ROAD BASELINE TABLE									
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION	
8	41+35.67	24.84	RT	13,903,942.42	3,103,461.58	13,902,135.14	3,103,058.18	88.55	SET 3/8" IR W/ LANDTECH CAP
9	35+99.56	25.33	LT	13,904,146.28	3,102,956.74	13,902,338.97	3,102,553.41	86.13	SET 3/8" IR W/ LANDTECH CAP
10	30+62.64	31.59	LT	13,904,003.41	3,102,434.00	13,902,196.12	3,102,030.73	88.88	SET 3/8" IR W/ LANDTECH CAP
508	41+48.68	30.07	LT	13,903,997.93	3,103,471.87	13,902,190.64	3,103,068.48	0.00	FND 5/8" IR
509	41+48.40	29.98	RT	13,903,937.95	3,103,474.71	13,902,130.67	3,103,071.31	0.00	FND 1/2" IP
510	40+44.52	30.09	LT	13,904,001.63	3,103,373.99	13,902,194.35	3,102,970.60	0.00	FND 1/2" IP
511	38+93.55	30.02	RT	13,903,990.76	3,103,212.75	13,902,183.48	3,102,809.39	0.00	FND 1/2" IP
512	37+93.46	30.02	RT	13,904,036.01	3,103,123.49	13,902,228.72	3,102,720.13	0.00	FND 1/2" IP W/CAP BROWN & GAY
513	37+93.57	30.03	LT	13,904,089.53	3,103,150.73	13,902,282.23	3,102,747.38	0.00	FND 1/2" IP W/CAP BROWN & GAY
514	37+30.18	29.94	LT	13,904,116.36	3,103,089.85	13,902,309.06	3,102,686.50	0.00	FND 1/2" IP W/CAP BROWN & GAY
515	31+79.52	30.04	LT	13,904,063.37	3,102,534.33	13,902,256.07	3,102,131.06	0.00	FND 1/2" IP W/CAP BROWN & GAY
517	31+77.64	29.94	RT	13,904,011.31	3,102,564.18	13,902,204.03	3,102,160.90	0.00	FND 1/2" IP
20014	30+00.00	0.00	LT	13,903,943.66	3,102,397.22	13,902,136.38	3,101,993.96	0.00	SET 3/8" IR W/CAP "LANDTECH"
20015	31+80.87	0.00	LT	13,904,038.50	3,102,551.24	13,902,231.21	3,102,147.96	0.00	SET "X" CUT IN CONCRETE
20017	37+93.56	0.00	LT	13,904,062.75	3,103,137.15	13,902,255.46	3,102,733.79	0.00	SET "X" CUT IN CONCRETE
20018	38+93.56	0.00	LT	13,904,017.53	3,103,226.34	13,902,210.25	3,102,822.97	0.00	SET "X" CUT IN CONCRETE
20020	41+38.49	0.00	LT	13,903,967.37	3,103,463.25	13,902,160.09	3,103,059.85	0.00	SET "X" CUT IN CONCRETE
20021	42+00.00	0.00	LT	13,903,970.56	3,103,524.68	13,902,163.28	3,103,121.28	0.00	SET "X" CUT IN CONCRETE
20043	31+00.00	0.00	RT	13,903,996.10	3,102,482.37	13,902,188.81	3,102,079.10	0.00	SET "X" CUT IN CONCRETE
20044	41+23.49	0.00	LT	13,903,966.83	3,103,448.27	13,902,159.55	3,103,044.87	0.00	SET "X" CUT IN CONCRETE

BASELINE A TABLE									
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION	
4	59+33.14	49.38	LT	13,905,496.07	3,103,328.38	13,903,688.59	3,102,925.00	86.44	SET 3/8" IR W/ LANDTECH CAP
5	51+91.86	20.60	RT	13,904,758.80	3,103,432.41	13,902,951.41	3,103,029.01	87.57	SET 3/8" IR W/ LANDTECH CAP
6	48+70.17	14.44	LT	13,904,435.84	3,103,412.20	13,902,628.50	3,103,008.81	86.54	SET 3/8" IR W/ LANDTECH CAP
7	46+49.78	22.42	RT	13,904,217.38	3,103,459.17	13,902,410.06	3,103,055.77	86.57	SET 3/8" IR W/ LANDTECH CAP
8	43+75.00	12.17	RT	13,903,942.42	3,103,461.58	13,902,135.14	3,103,058.18	88.55	SET 3/8" IR W/ LANDTECH CAP
504	58+72.40	18.06	RT	13,905,438.50	3,103,398.54	13,903,631.03	3,102,995.15	0.00	FND 5/8" IR
505	47+79.38	25.13	RT	13,904,346.97	3,103,455.91	13,902,539.64	3,103,052.52	0.00	FND 3/4" IR
506	47+49.22	25.00	RT	13,904,316.83	3,103,457.17	13,902,509.51	3,103,053.77	0.00	FND 1/2" IP
507	47+49.19	29.89	LT	13,904,314.27	3,103,402.34	13,902,506.95	3,102,998.95	0.00	FND 1/2" IP
508	44+29.98	25.01	RT	13,903,997.93	3,103,471.87	13,902,190.64	3,103,068.48	0.00	FND 5/8" IR
509	43+69.93	25.08	RT	13,903,937.95	3,103,474.71	13,902,130.67	3,103,071.31	0.00	FND 1/2" IP
20010	59+28.81	25.00	RT	13,905,495.17	3,103,402.88	13,903,687.69	3,102,999.49	0.00	SET "X" CUT IN CONCRETE
20012	43+00.00	0.00	LT	13,903,866.94	3,103,452.87	13,902,059.67	3,103,049.48	0.00	SET 5/8" IR W/CAP "LANDTECH"
20013	59+90.00	0.00	LT	13,905,555.15	3,103,375.09	13,903,747.66	3,102,971.70	0.00	SET 5/8" IR W/CAP "LANDTECH"
20020	43+99.85	14.99	RT	13,903,967.37	3,103,463.25	13,902,160.09	3,103,059.85	0.00	SET "X" CUT IN CONCRETE
20044	44+00.00	0.00	LT	13,903,966.83	3,103,448.27	13,902,159.55	3,103,044.87	0.00	SET "X" CUT IN CONCRETE
20045	59+28.70	0.00	LT	13,905,493.92	3,103,377.91	13,903,686.44	3,102,974.52	0.00	SET "X" CUT IN CONCRETE
20048	50+00.00	0.00	LT	13,904,566.20	3,103,420.65	13,902,758.84	3,103,017.26	0.00	SET 5/8" IR W/CAP "LANDTECH"
5264-8113	59+88.72	28.74	LT	13,905,552.54	3,103,346.44	13,903,745.06	3,102,943.06	85.96	SET COH MON

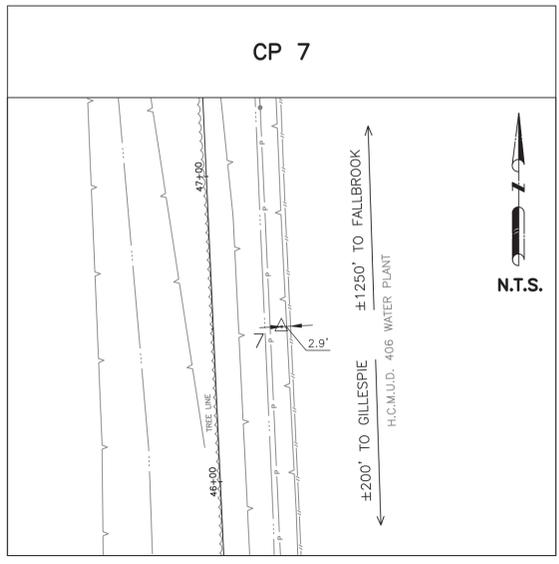
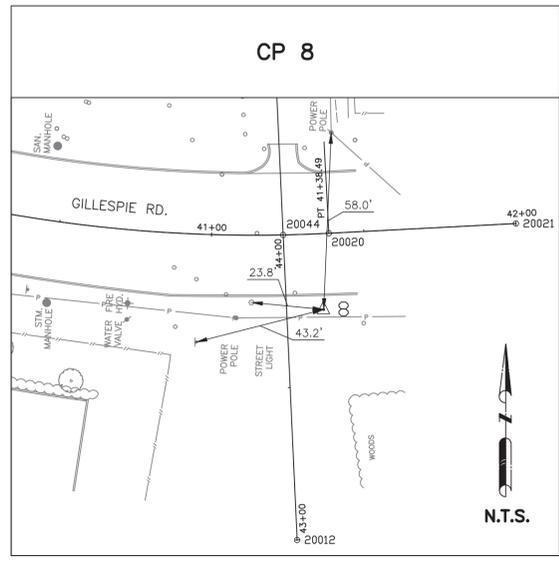
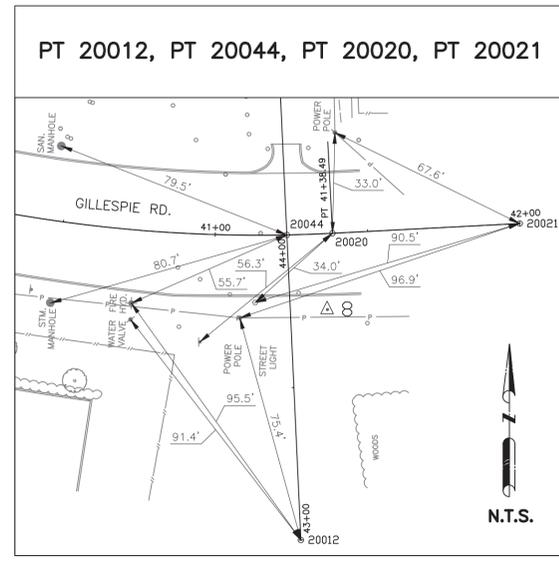
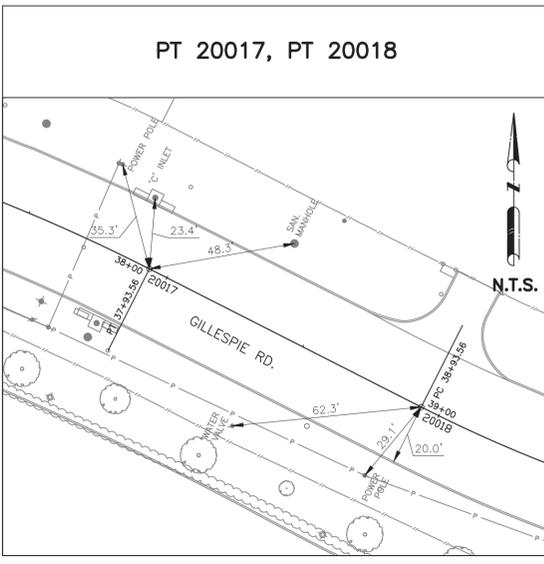
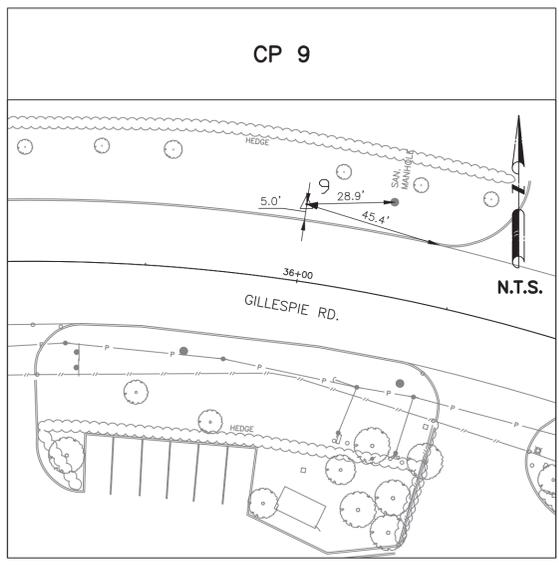
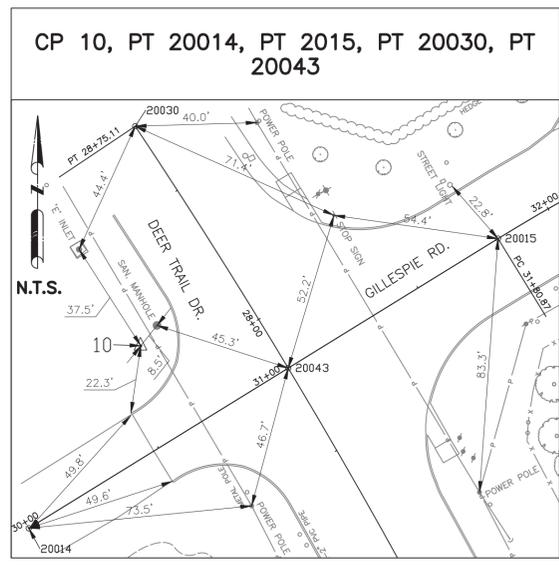
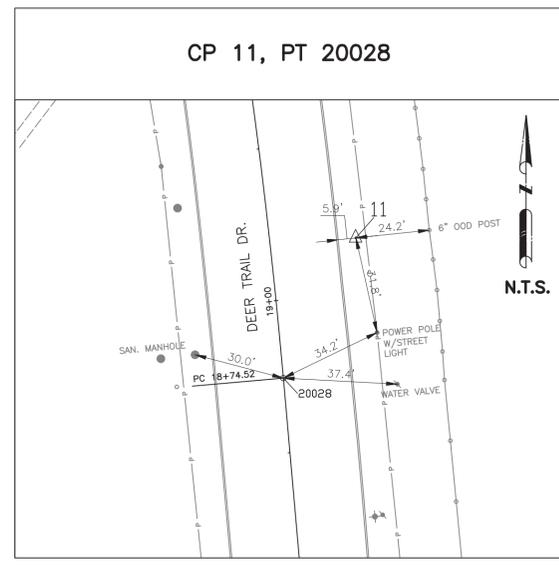
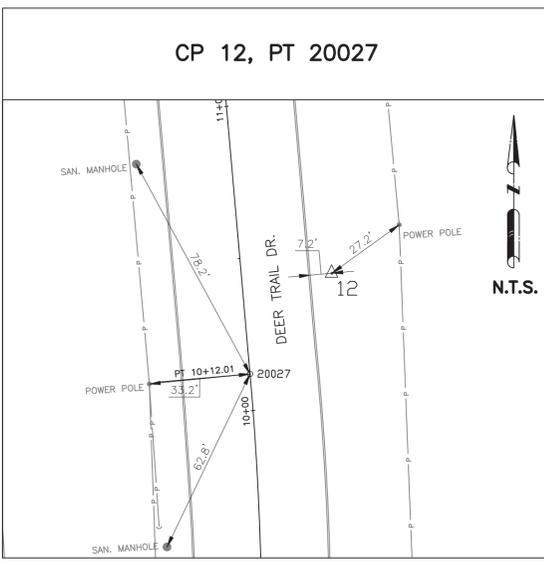
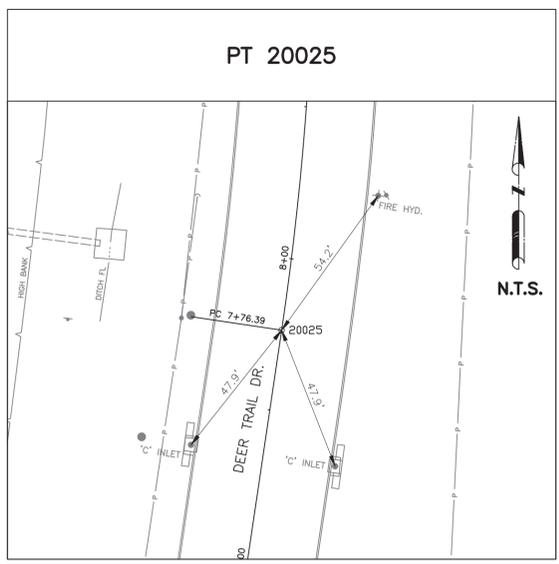
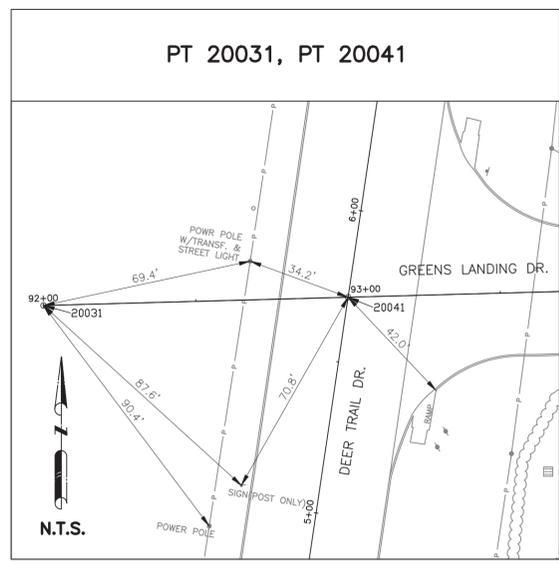
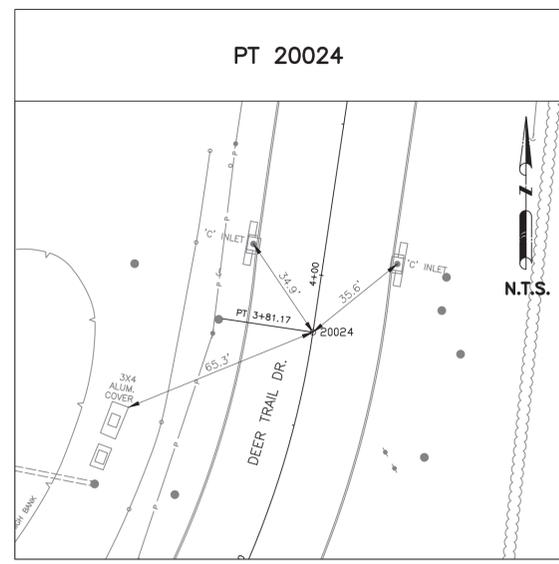
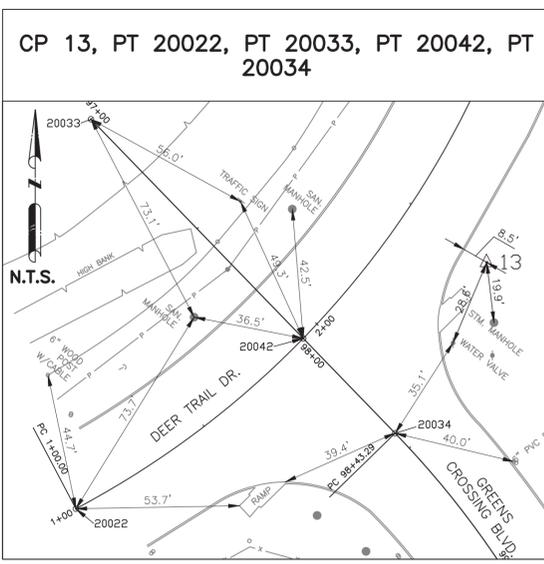
FALLBROOK DRIVE TABLE									
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION	
3	71+23.97	7.11	LT	13,905,542.01	3,104,300.65	13,903,734.52	3,103,897.15	84.84	SET 3/8" IR W/ LANDTECH CAP
4	61+50.81	5.56	LT	13,905,496.07	3,103,328.38	13,903,688.59	3,102,925.00	86.44	SET 3/8" IR W/ LANDTECH CAP
503	71+22.27	50.05	LT	13,905,584.83	3,104,297.06	13,903,777.34	3,103,893.55	0.00	FND 5/8" IR
504	62+17.98	56.41	RT	13,905,438.50	3,103,398.54	13,903,631.03	3,102,995.15	0.00	FND 5/8" IR
20008	61+00.00	0.00	LT	13,905,485.78	3,103,278.25	13,903,678.30	3,102,874.88	0.00	SET 5/8" IR W/CAP "LANDTECH"
20010	62+25.00	0.00	LT	13,905,495.17	3,103,402.88	13,903,687.69	3,102,999.49	0.00	SET "X" CUT IN CONCRETE
20011	73+00.00	0.00	LT	13,905,542.69	3,104,476.83	13,903,735.20	3,104,073.30	0.00	SET 5/8" IR W/CAP "LANDTECH"
20045	62+00.00	0.00	LT	13,905,493.92	3,103,377.91	13,903,686.44	3,102,974.52	0.00	SET "X" CUT IN CONCRETE
20046	71+67.17	0.00	LT	13,905,536.82	3,104,344.13	13,903,729.33	3,103,940.62	0.00	SET "X" CUT IN CONCRETE
20049	70+00.00	0.00	LT	13,905,529.43	3,104,177.12	13,903,721.94	3,103,773.63	0.00	SET 5/8" IR W/CAP "LANDTECH"

GREEN PLAZA DRIVE TABLE									
POINT	STATION	OFFSET	SURFACE NORTH	SURFACE EAST	GRID NORTH	GRID EAST	ELEV.	DESCRIPTION	
1	86+64.27	3.05	LT	13,906,547.10	3,104,059.08	13,904,739.49	3,103,655.60	85.13	SET 3/8" IR W/ LANDTECH CAP
2	81+27.28	22.40	RT	13,906,064.69	3,104,300.86	13,904,257.13	3,103,897.36	84.46	SET 3/8" IR W/ LANDTECH CAP
3	76+07.12	43.20	LT	13,905,542.01	3,104,300.65	13,903,734.52	3,103,897.15	84.84	SET 3/8" IR W/ LANDTECH CAP
500	78+49.50	30.31	RT	13,905,788.77	3,104,361.53	13,903,981.26	3,103,958.01	0.00	FND 5/8" IR
501	76+65.21	29.84	RT	13,905,603.28	3,104,370.84	13,903,795.79	3,103,967.32	0.00	FND 5/8" IR
502	76+64.89	29.90	LT	13,905,600.32	3,104,311.38	13,903,792.82	3,103,907.87	0.00	FND 5/8" IR
503	76+50.06	44.89	LT	13,905,584.83	3,104,297.06	13,903,777.34	3,103,893.55	0.00	FND 5/8" IR
20002	75+00.00	0.00	LT	13,905,436.92	3,104,348.58	13,903,629.44	3,103,945.06	0.00	SET "X" CUT IN CONCRETE
20003	77+79.48	0.00	LT	13,905,716.12	3,104,336.15	13,903,908.61	3,103,932.64	0.00	SET "X" CUT IN CONCRETE
20005	83+80.39	0.00	LT	13,906,293.94	3,104,187.57	13,904,486.35	3,103,784.08	0.00	SET "X" CUT IN CONCRETE
20006	86+78.00	0.00	LT	13,906,560.76	3,104,055.74	13,904,753.14	3,103,652.26	0.00	SET 5/8" IR W/CAP "LANDTECH"
20046	76+00.00								

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PLOT STYLE: COH.ctb

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 TBPELS No. 10019100
 FB#: 6342

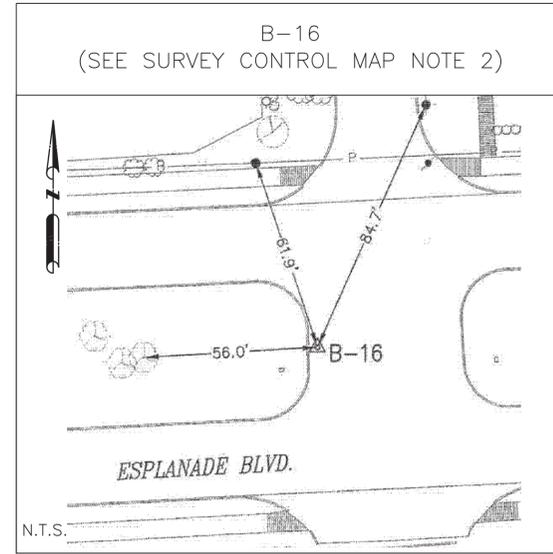
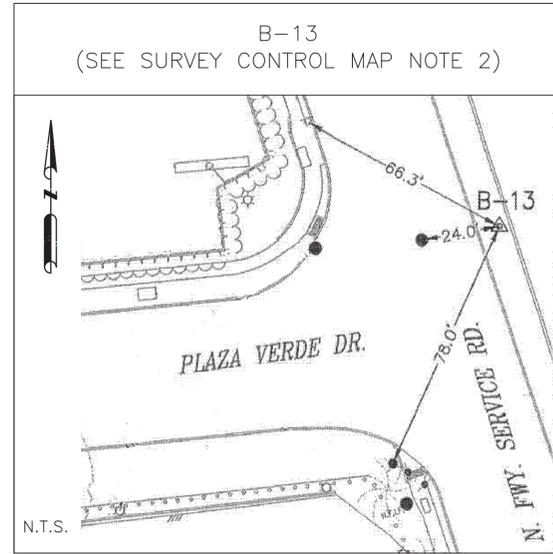
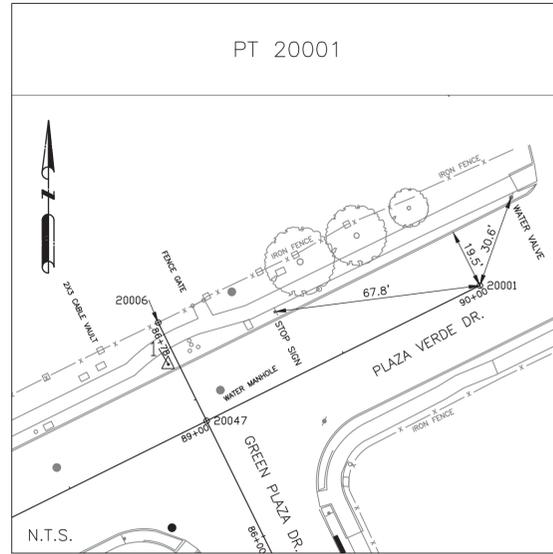
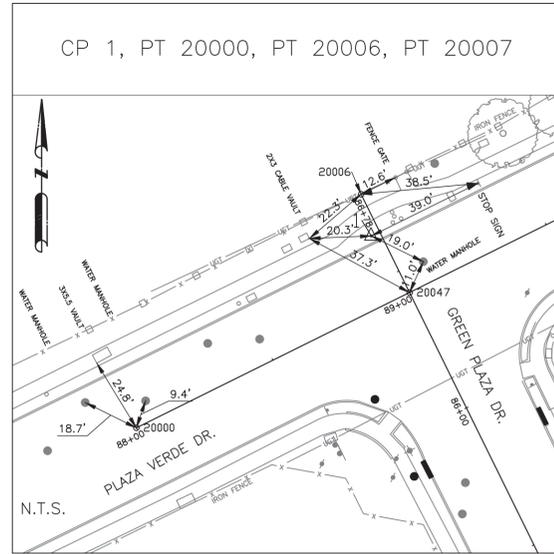
STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER
 NHUY T. NGUYEN
 6409
 2/6/2025

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREEN CROSSING BLVD TO PLAZA VERDE DR SWING TIES SHEET 1 OF 3	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
1"=100'	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 16 OF 176	

FILE PATH: S:\2024\2420029\CADD\COH 66 INCH WL - SCM Swing Ties.dwg

PLOTTED: 2/6/2025 2:31 PM

PLOT STYLE: COH.ctb



FREESSE & NICHOLS
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 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

LANDTECH
 1315 W. Sam Houston North, Ste 100
 Houston, Texas 77043
 T: 713-861-7068 F: 713-861-4131
 TBPELS No. 10019100
 FB# 6342



CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREEN
CROSSING BLVD TO PLAZA VERDE DR
SWING TIES
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
1"=100'	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 18 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (I-45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NO.	DATE	REVISION	APP.

NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- CONTRACTOR TO INSTALL FLANGE FOR FLANGE ISOLATION KIT.
- FIELD VERIFY LOCATION OF ADJACENT PROJECT (WBS NO. S-000900-0179-4) AND MAKE NECESSARY ADJUSTMENTS TO LINE AND GRADE TO ENSURE PROPER TIE IN BEFORE SUBMITTING PIPE LAY SCHEDULE. IF ADJACENT PROJECT IS IN PLACE AFTER PIPE LAY SCHEDULE IS SUBMITTED, FIELD VERIFY AND COORDINATE CONNECTION WITH ADJACENT CONTRACTOR AND ADJUST LINE AND GRADE AS NECESSARY. CONTRACTOR TO PROVIDE DISHED HEAD PLUG ADJACENT PROJECT IS NOT IN PLACE.
- REMOVE AND REPLACE TYPE C STORM SEWER MANHOLE AS SHOWN IN PLANS. REMOVE AND DISPOSE 9 LF OF 18" RCP STORM SEWER. FURNISH AND INSTALL 18 LF OF 4" DIP WATER LINE INCLUDING 2 - 4" 45° BENDS. WORK TO BE DONE PRIOR TO TUNNEL WORK.
- CONTRACTOR TO REGRADE AND PLACE HYDROMULCH SEED ON ALL DETENTION MAINTENANCE BERMS TO EXISTING CONDITION AFTER INSTALLATION OF THE PROPOSED 66-INCH WATER LINE.
- ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.
- CONTRACTOR TO INSTALL SETTLEMENT MONITORING ON MUD 321 VAULTS PER SPECIFICATION 02425(LD) - TUNNEL EXCAVATION AND PRIMARY LINER.
- REMOVE AND REPLACE 212 LF OF STEEL CABLE INCLUDING WOODEN POSTS.

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 to 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.

FREESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

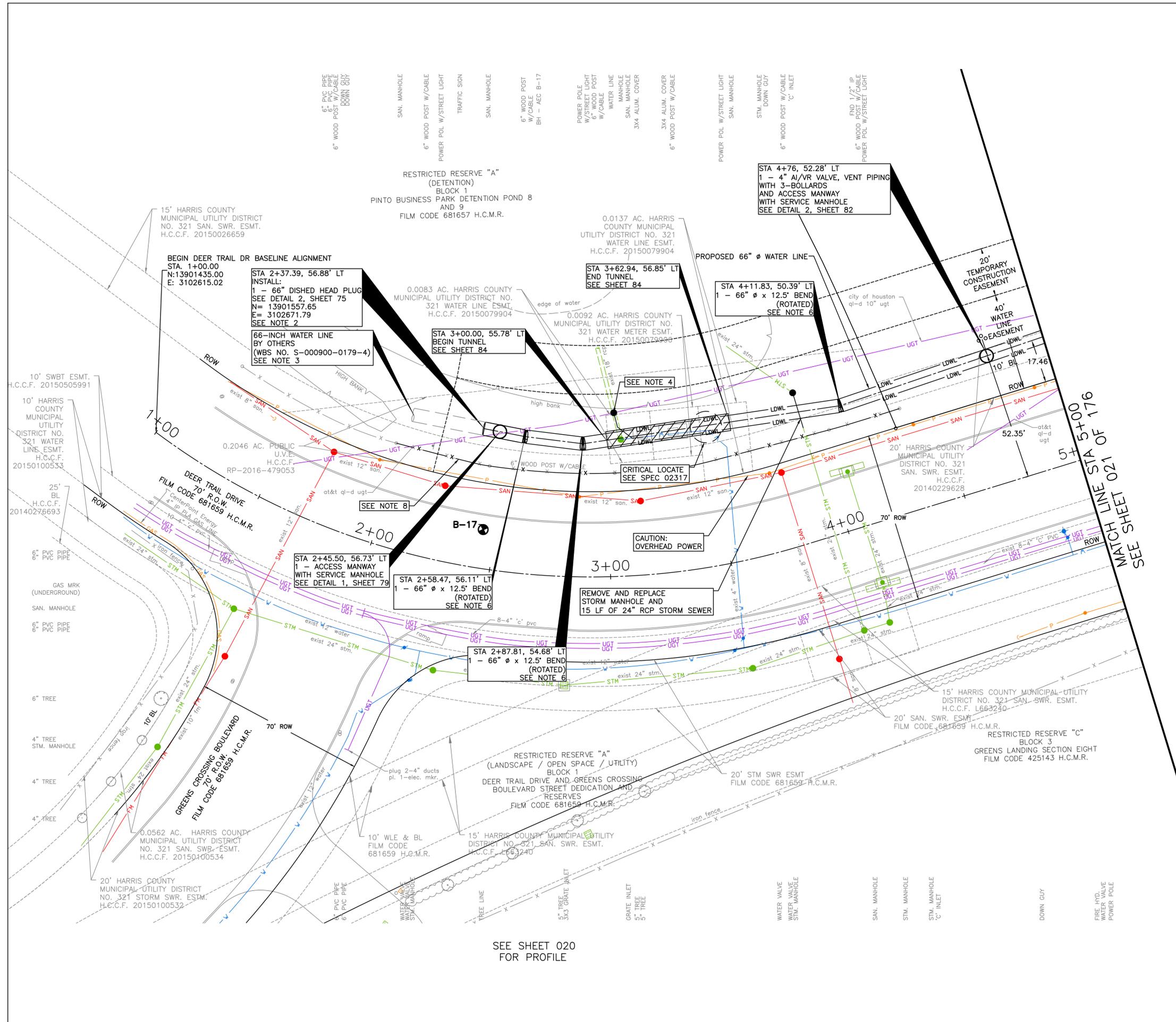
NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

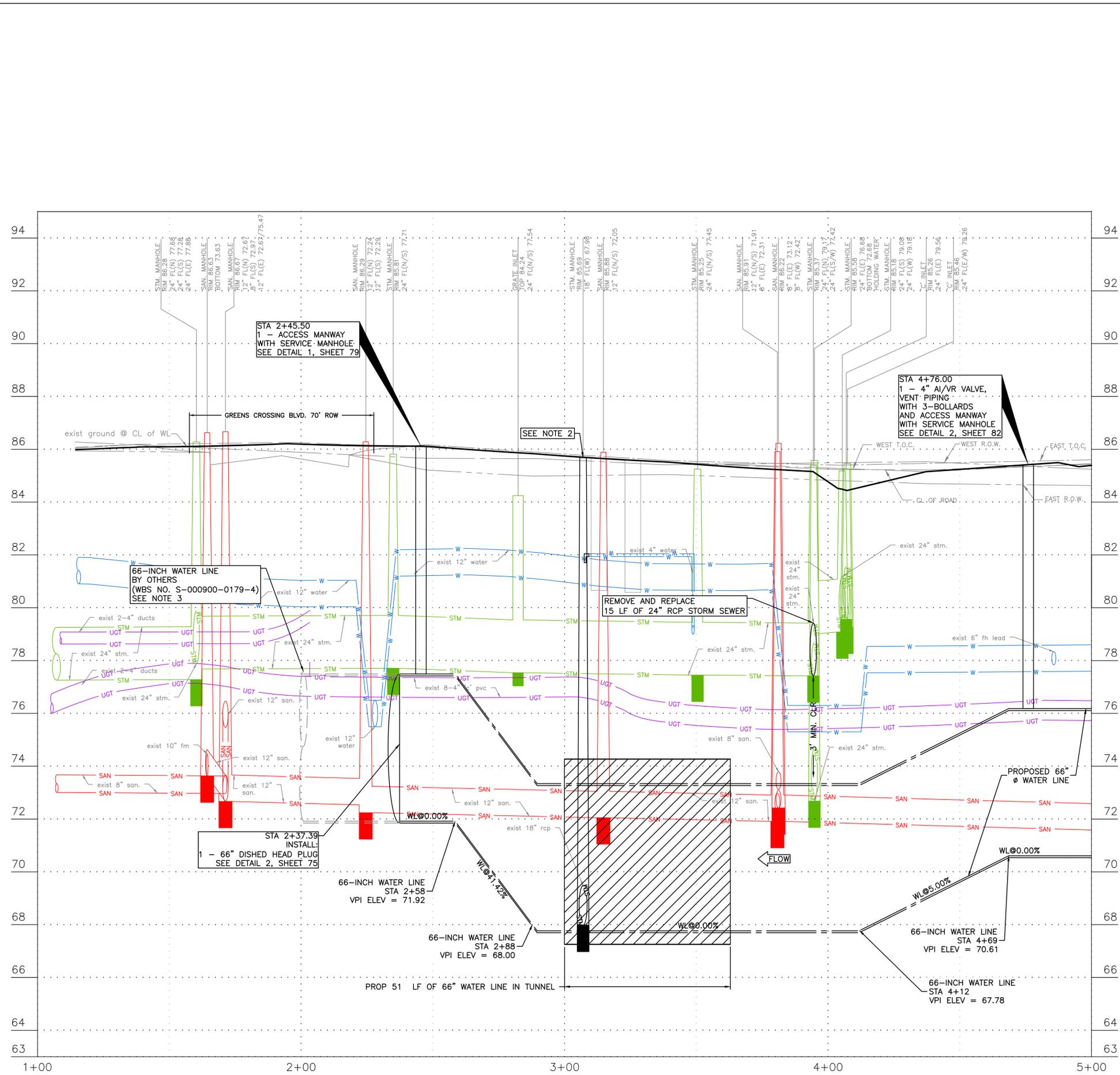
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-DEER TRAIL DR
STA 1+00 TO STA 5+00
(SHEET 1 OF 38)

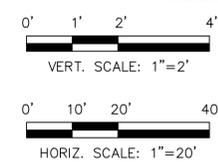
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 019 OF 176	





BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

- NOTES:
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 - REMOVE AND RELOCATE STORM SEWER MANHOLE. REMOVE AND DISPOSE 9 LF OF 18" STORM SEWER. FURNISH AND INSTALL 4" DIP WATER LINE.
 - FIELD VERIFY LOCATION OF ADJACENT PROJECT (WBS NO. S-000900-0179-4) AND MAKE NECESSARY ADJUSTMENTS TO LINE AND GRADE TO ENSURE PROPER TIE IN BEFORE SUBMITTING PIPE LAY SCHEDULE. IF ADJACENT PROJECT IS IN PLACE AFTER PIPE LAY SCHEDULE IS SUBMITTED, FIELD VERIFY AND COORDINATE CONNECTION WITH ADJACENT CONTRACTOR AND ADJUST LINE AND GRADE AS NECESSARY.



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.

FREESE & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

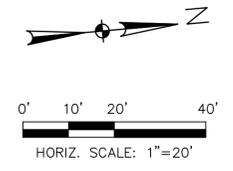
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PROFILE-DEER TRAIL DR
STA 1+00 TO STA 5+00
(SHEET 2 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 020 OF 176	

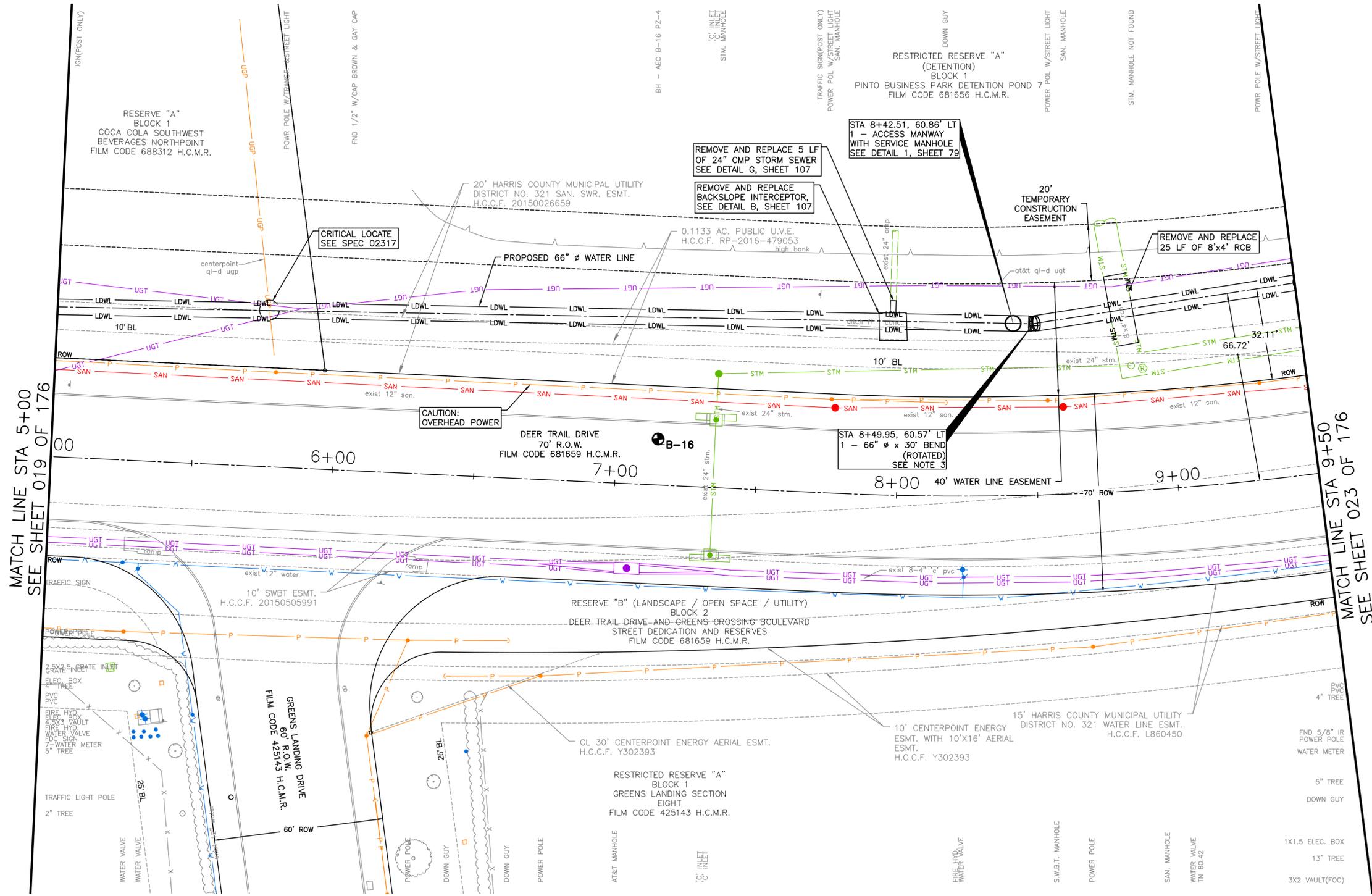
NO.	DATE	REVISION	APP.

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 2. CONTRACTOR TO REGRADE AND PLACE HYDROMULCH SEED ON ALL DETENTION MAINTENANCE BERMS TO EXISTING CONDITION AFTER INSTALLATION OF THE PROPOSED 66-INCH WATER LINE.
 3. ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

NO.	DATE	REVISION	APP.



MATCH LINE STA 5+00
SEE SHEET 019 OF 176

MATCH LINE STA 9+50
SEE SHEET 023 OF 176

SEE SHEET 022
FOR PROFILE

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 to 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.

FREESE & NICHOLS
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 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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 FB NO. P-6342

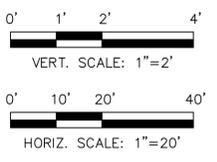
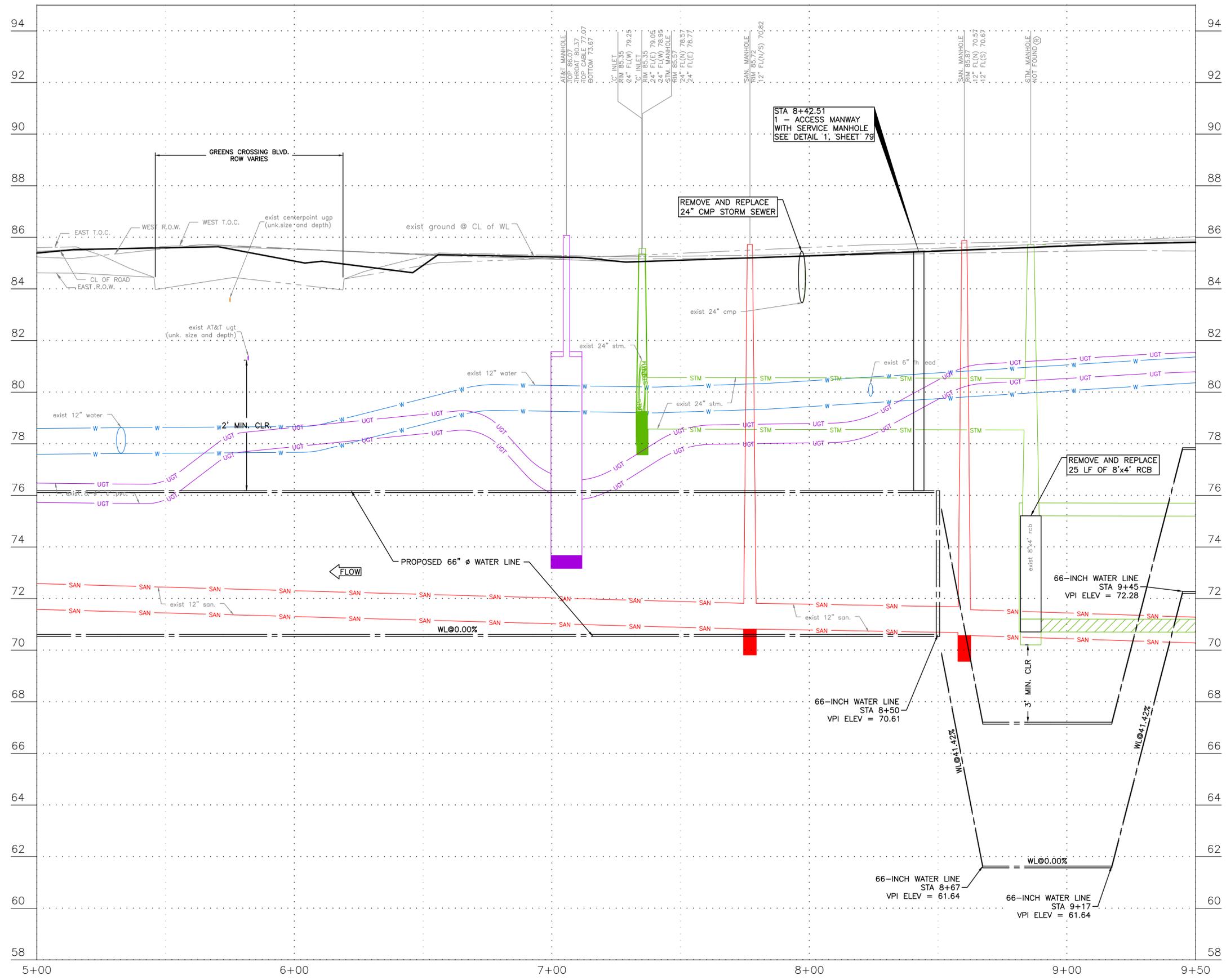
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 PLAN-DEER TRAIL DR
 STA 5+00 TO STA 9+50
 (SHEET 3 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 021 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.



NOTICE:
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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 to 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.

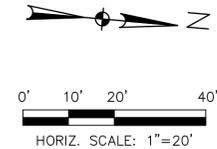
 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com	NOT FOR CONSTRUCTION THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
	SURVEYED BY: LANDTECH, INC. FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
**66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR**
PROFILE-DEER TRAIL DR
STA 5+00 TO STA 9+50
(SHEET 4 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 022 OF 176	

NO.	DATE	REVISION	APP.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEVY 86.05' NAVD 1988 (CORS96, GEOD
12A)



- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 2. REMOVE AND REPLACE 16 LF OF 60" RCP STORM SEWER. RELOCATE 5'x6' STORM SEWER PRECAST BOX MANHOLE AS SHOWN IN PLANS.
 3. CONTRACTOR TO REGRADE AND PLACE HYDROMULCH SEED ON ALL DETENTION MAINTENANCE BERMS TO EXISTING CONDITION AFTER INSTALLATION OF THE PROPOSED 66-INCH WATER LINE.
 4. ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

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 to 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.

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10497 Town and Country Way, Suite 500
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Web - www.freese.com

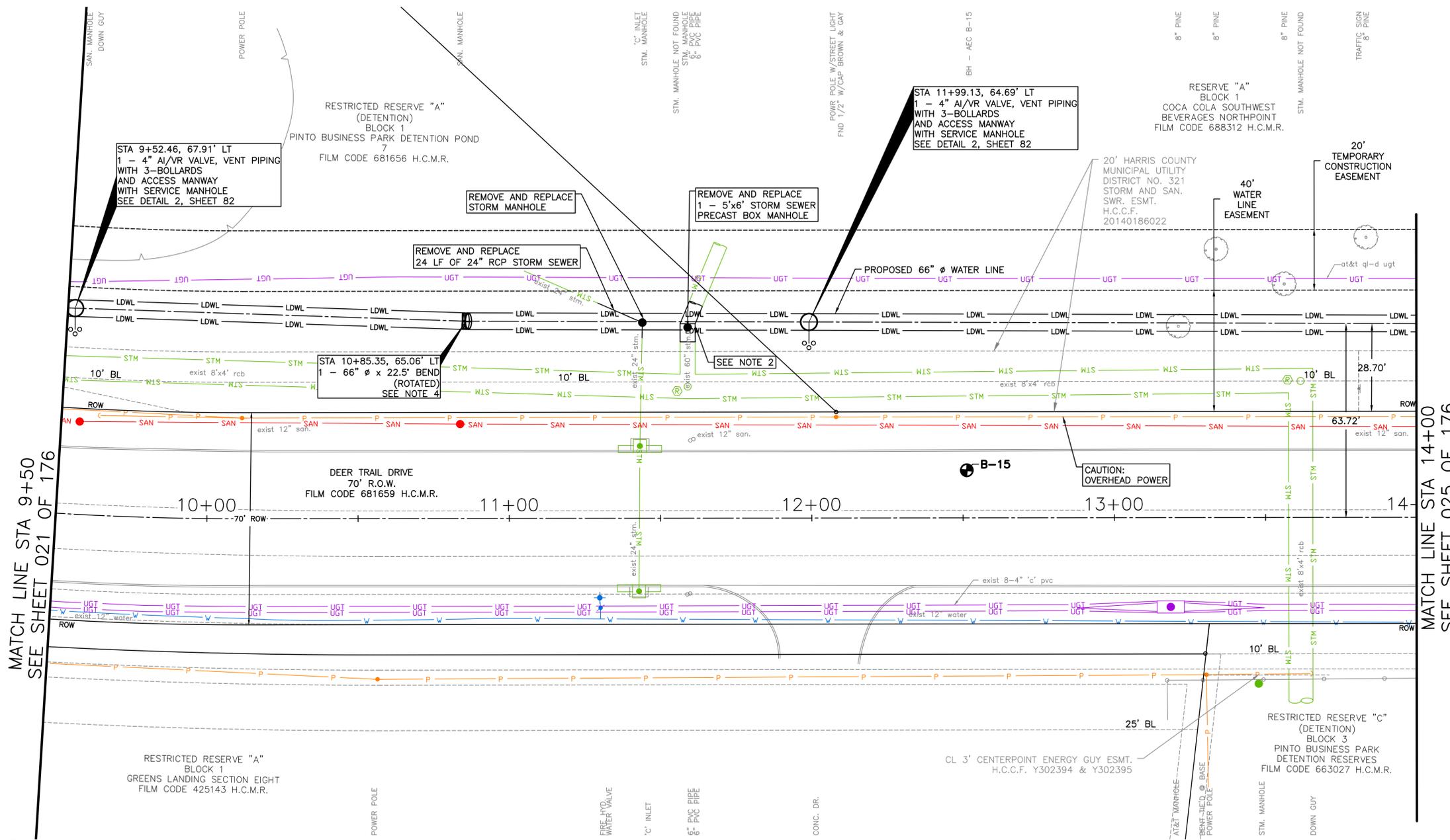
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-DEER TRAIL DR
STA 9+50 TO STA 14+00
(SHEET 5 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 023 OF 176	



MATCH LINE STA 9+50
SEE SHEET 021 OF 176

MATCH LINE STA 14+00
SEE SHEET 025 OF 176

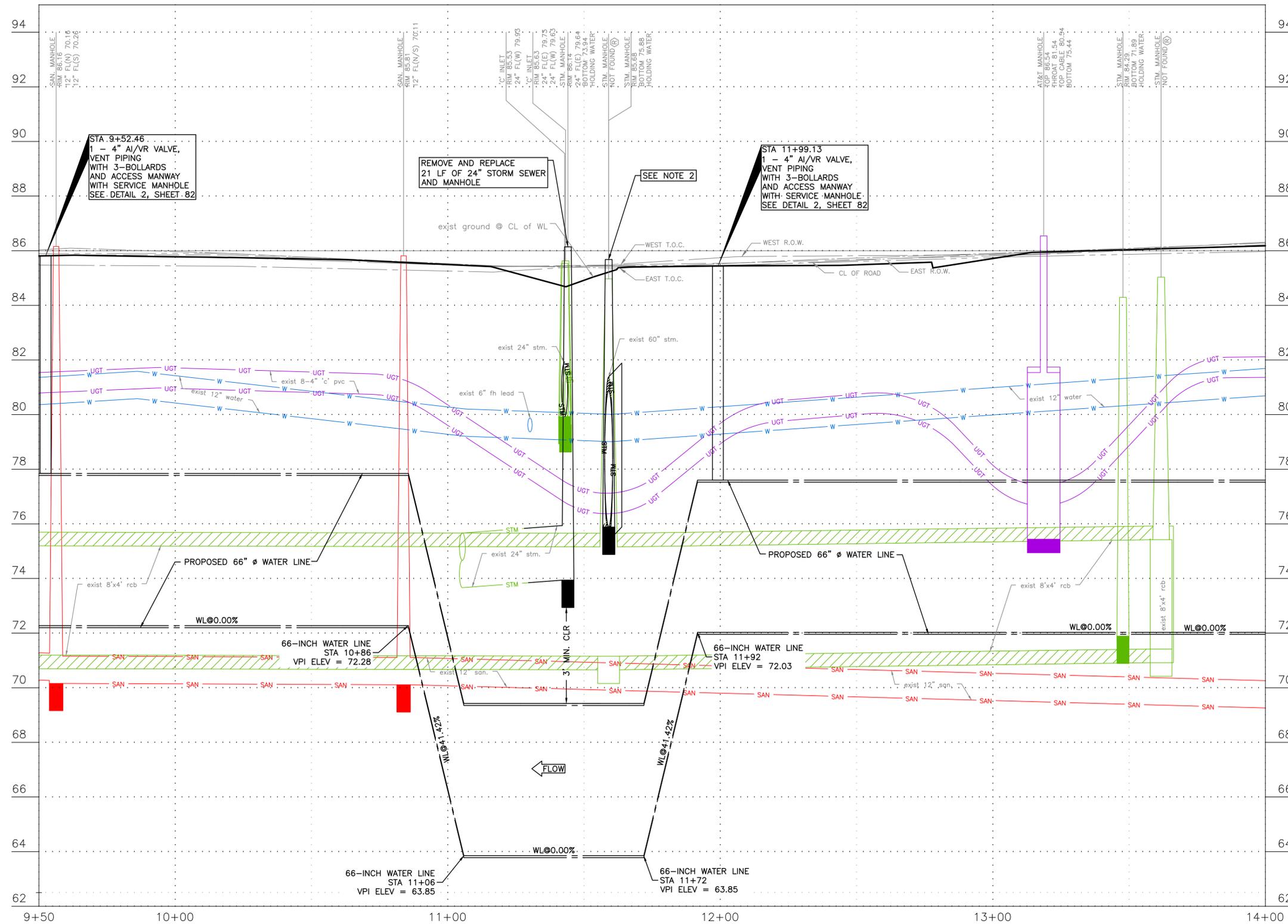
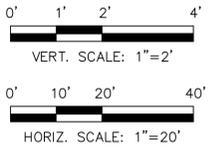
SEE SHEET 024
FOR PROFILE

APP.	
REVISION	
NO.	DATE

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.
2. REMOVE AND REPLACE 16 LF OF
60" STORM SEWER. RELOCATE 5'x6'
STORM SEWER PRECAST BOX
MANHOLE AS SHOWN IN 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.

FREESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

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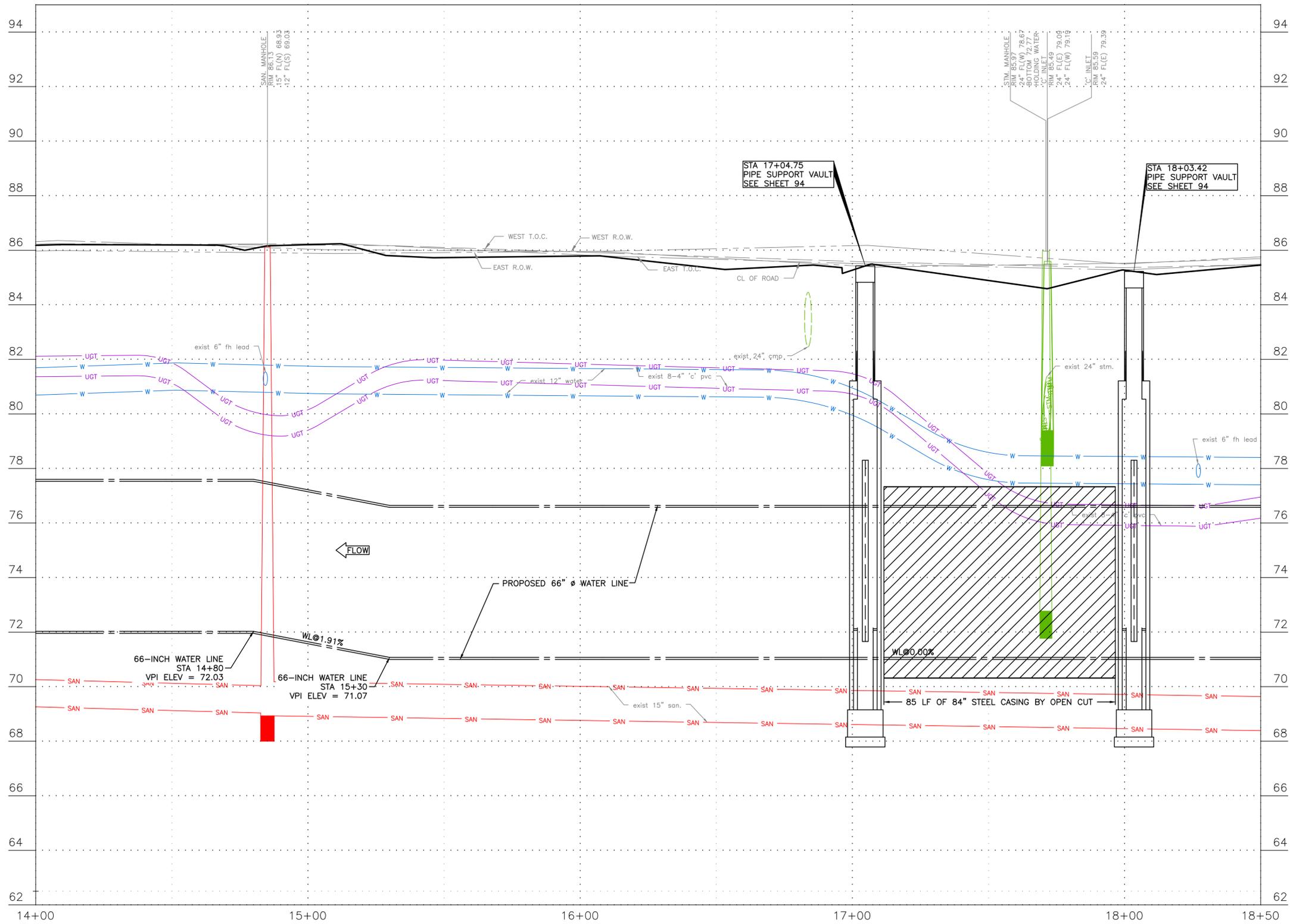
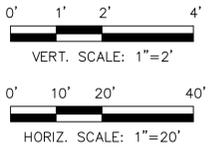
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE-DEER TRAIL DR STA 9+50 TO STA 14+00 (SHEET 6 OF 38)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 024 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.

NO.	DATE	REVISION	APP.



NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

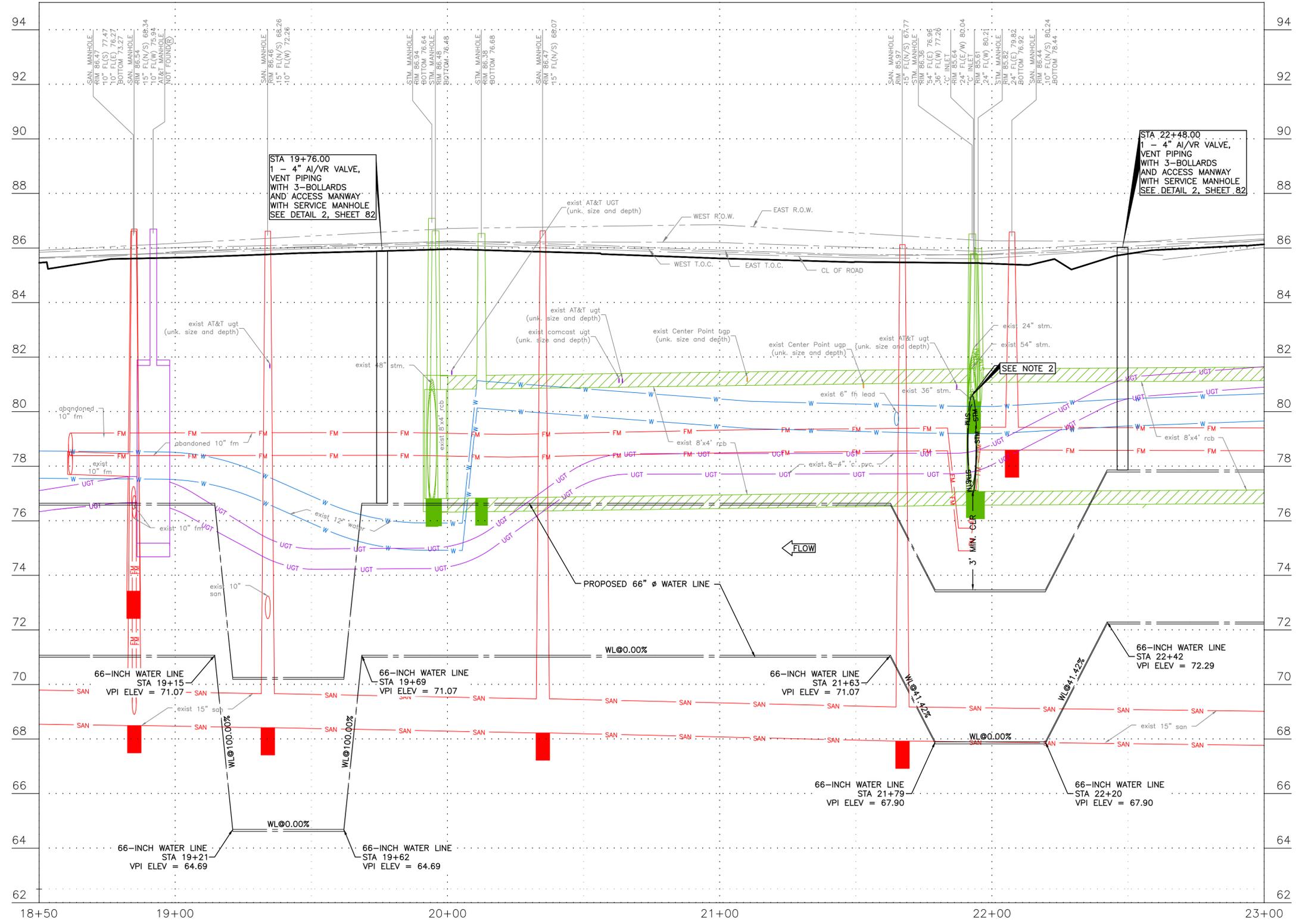
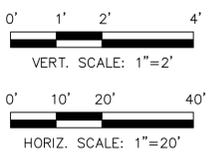
**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PROFILE-DEER TRAIL DR
STA 14+00 TO STA 18+50
(SHEET 8 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 026 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

- NOTES:
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 - REMOVE AND DISPOSE EXISTING 36" & 54" STORM SEWERS INCLUDING MANHOLE. INSTALL 16 LF OF 36" STORM SEWER. INSTALL 5 LF OF 54" STORM SEWER. INSTALL TYPE-C 4-FOOT DIAMETER PRECAST ROUND CONCRETE MANHOLE. SEE SHEET 106.

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

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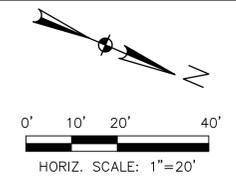
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PROFILE-DEER TRAIL DR
STA 18+50 TO STA 23+00
(SHEET 10 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 028 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOD
12A)



- NOTES:
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 - PROTECT EXISTING VAULTS DURING TUNNEL AND SHAFTS ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO VAULTS.
 - EXISTING 10" FORCE MAIN IS ABANDONED. REMOVE AND DISPOSE 370 LF OF 10" FORCE MAIN TO INSTALL PROPOSED 66" WATER LINE. ENDS SHALL BE CAPPED AT NO SEPARATE PAY. SEE 02222, PARAGRAPH 2.03.
 - CONTRACTOR TO REGRADE AND REESTABLISH GRASS ON ALL DETENTION MAINTENANCE BERMS TO EXISTING CONDITION AFTER INSTALLATION OF THE PROPOSED 66-INCH WATER LINE.
 - ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

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

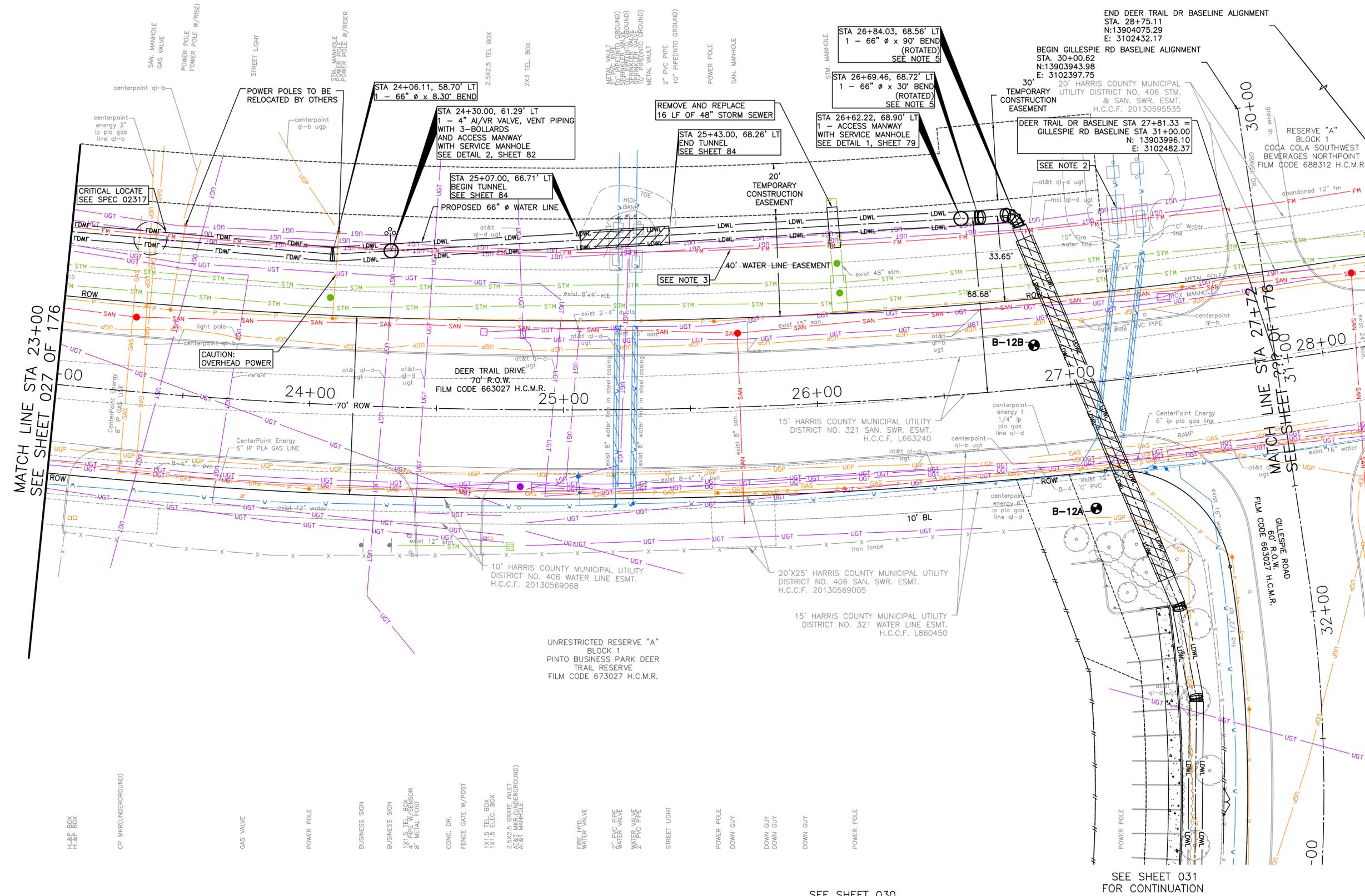
VERIFICATION OF PRIVATE UTILITY LINES	
Date	
	CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification. Signature valid for six months.
	CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification) Signature valid for six months.
	Approved for AT&T underground conduit facilities only. Signature valid for one year.

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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-DEER TRAIL DR
STA 23+00 TO END
(SHEET 11 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 029 OF 176	



MATCH LINE STA 23+00
SEE SHEET 027 OF 176

MATCH LINE STA 27+72
SEE SHEET 028 OF 176

SEE SHEET 031
FOR CONTINUATION

SEE SHEET 030
FOR PROFILE

- HL&P BOX
- CP MKR(UNDERGROUND)
- GAS VALVE
- POWER POLE
- BUSINESS SIGN
- BUSINESS SIGN
- 1 1/2" TEL. BOX
- 1 1/2" ELEC. BOX
- 2.5X2.5 TELE. BOX
- 2.5X2.5 GRATE INLET
- AT&T MKR(UNDERGROUND)
- AT&T MANHOLE
- FIRE HYD. WATER VALVE
- 2" PVC PIPE WATER VALVE
- 2" PVC PIPE
- STREET LIGHT
- POWER POLE DOWN GUY
- DOWN GUY
- DOWN GUY
- POWER POLE

UNRESTRICTED RESERVE "A"
BLOCK 1
PINTO BUSINESS PARK DEER TRAIL RESERVE
FILM CODE 673027 H.C.M.R.

15' HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 321 WATER LINE ESMT. H.C.C.F. L860450

15' HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 321 SAN. SWR. ESMT. H.C.C.F. L663240

DEER TRAIL DRIVE
70' R.O.W.
FILM CODE 663027 H.C.M.R.

10' HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 406 WATER LINE ESMT. H.C.C.F. 20130569068

END DEER TRAIL DR BASELINE ALIGNMENT
STA. 28+75.11
N:13904075.29
E: 3102432.17

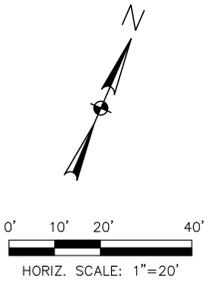
BEGIN GILLESPIE RD BASELINE ALIGNMENT
STA. 30+00.62
N:13903943.98
E: 3102397.75

30' 20' HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 406 STM. & SAN. SWR. ESMT. H.C.C.F. 20130595535

DEER TRAIL DR BASELINE STA 27+81.33 = GILLESPIE RD BASELINE STA 31+00.00
N: 13903996.10
E: 3102482.37

RESERVE "A" BLOCK 1
COCA COLA SOUTHWEST BEVERAGES NORTHPOINT FILM CODE 688312 H.C.M.R.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



- NOTES:**
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 - ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.
 - CONTRACTOR TO INSTALL SECURITY FENCE ALONG EDGE OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO SECURE ALL FENCING AT END OF THE DAY.
 - REMOVE AND DISPOSE 50 LF OF DECORATIVE FENCE. INSTALL DECORATIVE CHAIN LINK FENCE WITH BLACK PVC COATING AND BLACK POWDER COATED FENCE POSTS.
 - CONTRACTOR TO REMOVE EXISTING PARKING LIGHT INCLUDING CONCRETE FOUNDATION, AND UNDERGROUND POWER CONDUIT.

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 to 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.

FREESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

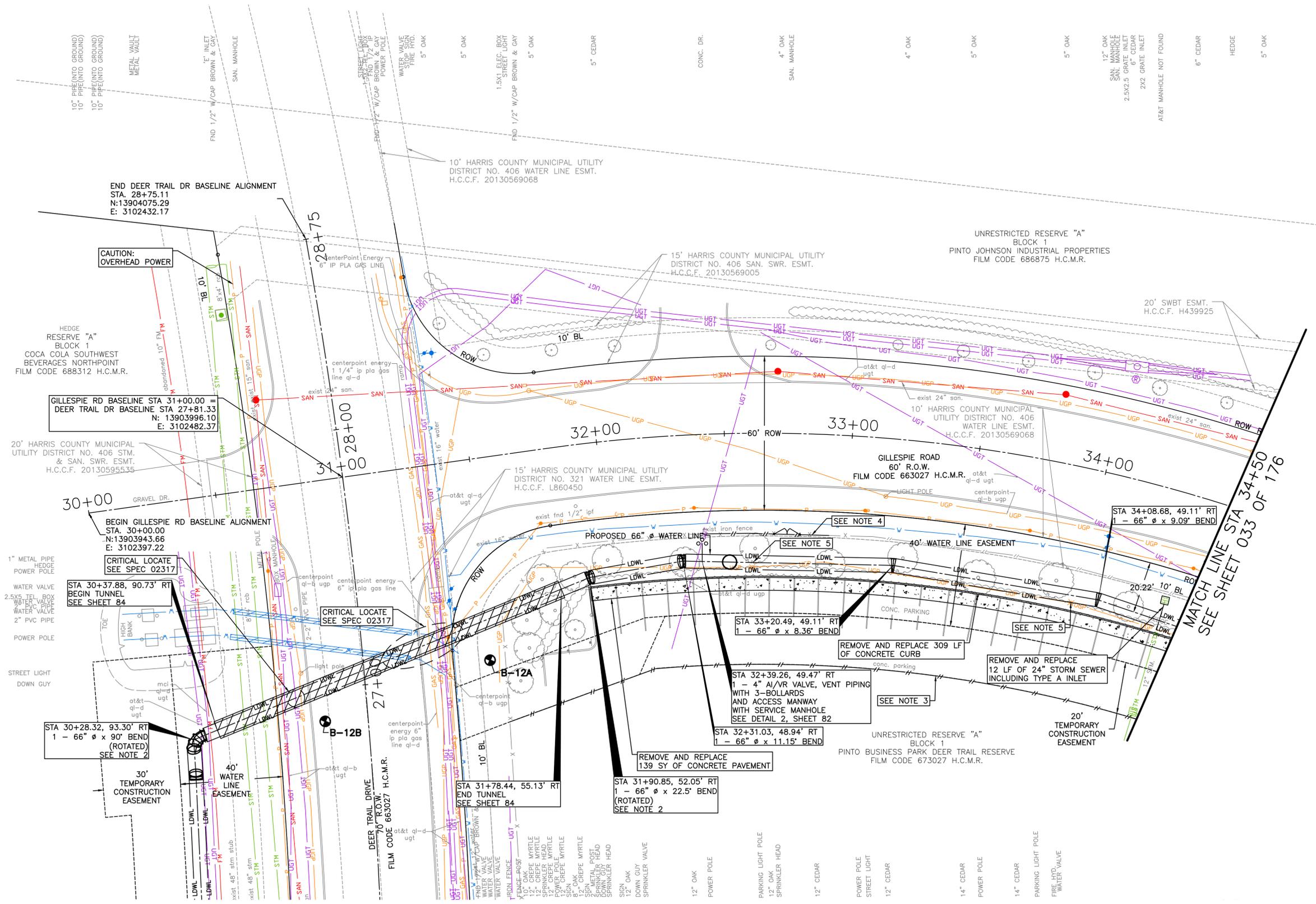
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-GILLESPIE ROAD
STA 30+00 TO STA 34+50
(SHEET 13 OF 38)**

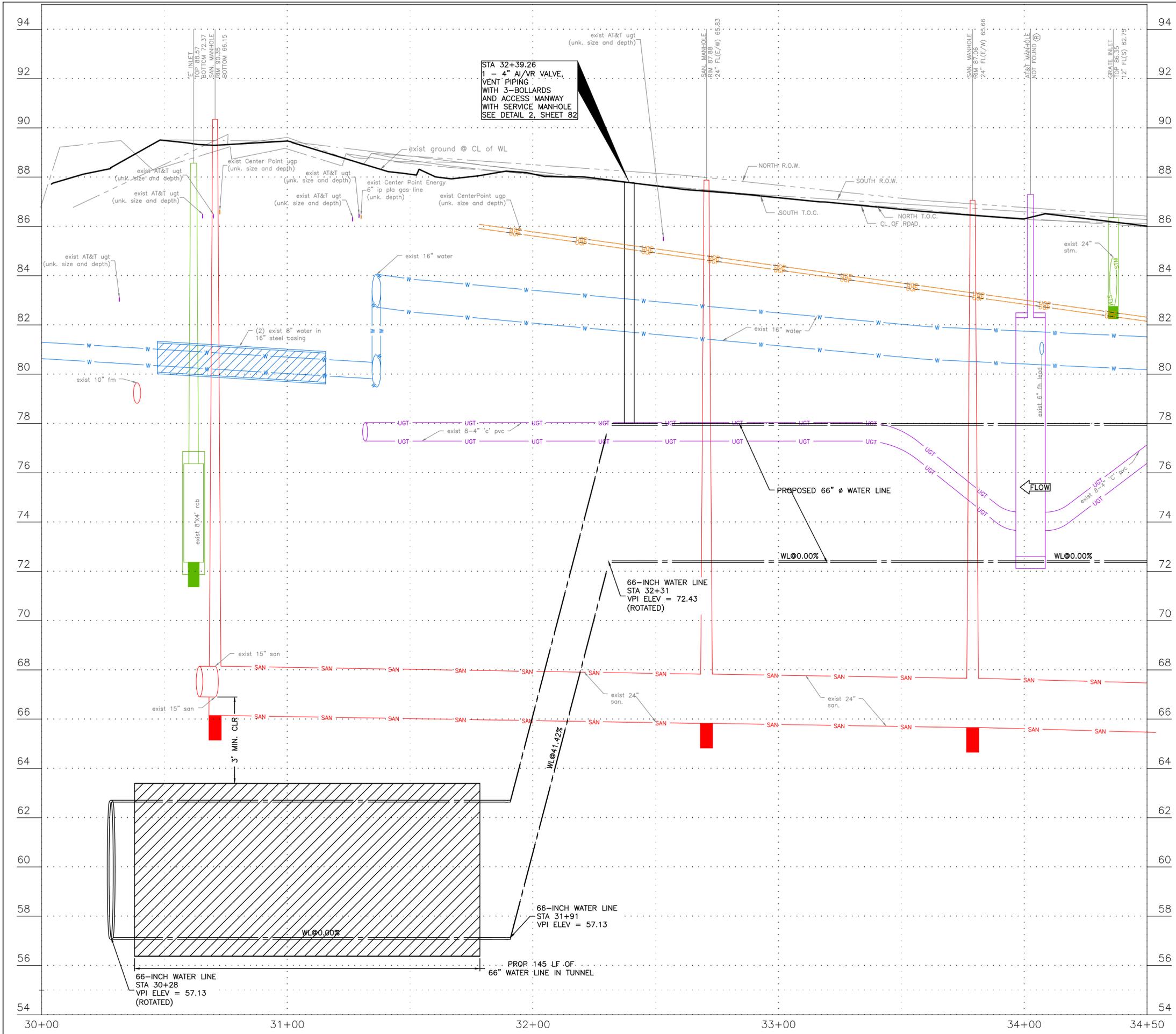
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 031 OF 176	



SEE SHEET 029 FOR CONTINUATION

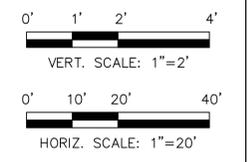
SEE SHEET 032 FOR PROFILE

NO.	DATE	REVISION	APP.



BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415;
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.



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 to 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.	

FREESE & NICHOLS
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Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

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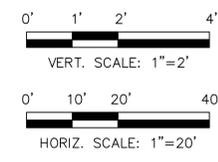
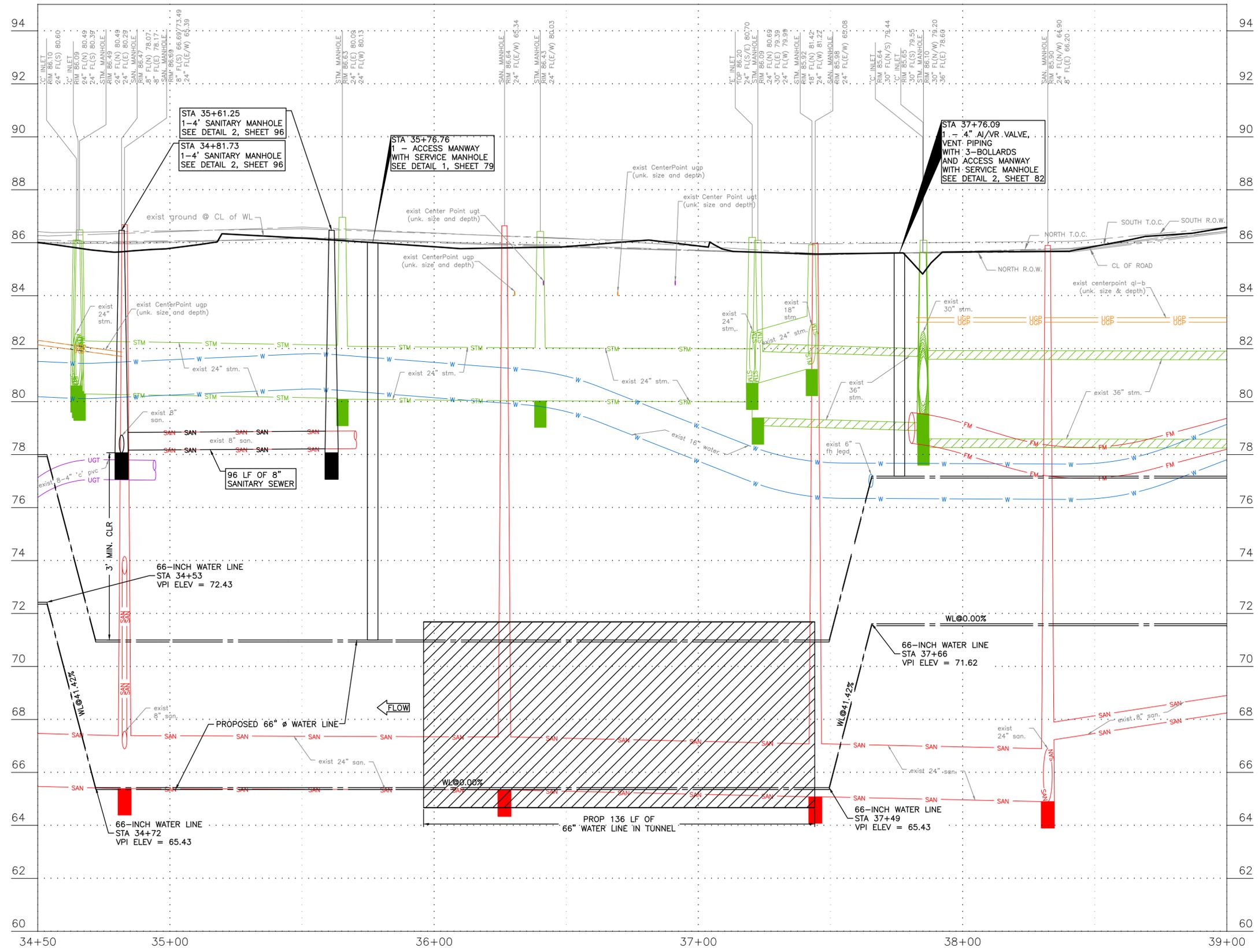
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE-GILLESPIE ROAD STA 30+00 TO STA 34+50 (SHEET 14 OF 38)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 032 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.

NO.	DATE	REVISION	APP.



NOTICE:
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AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES
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VERIFICATION OF PRIVATE UTILITY LINES

Date
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
Signature valid for six months.

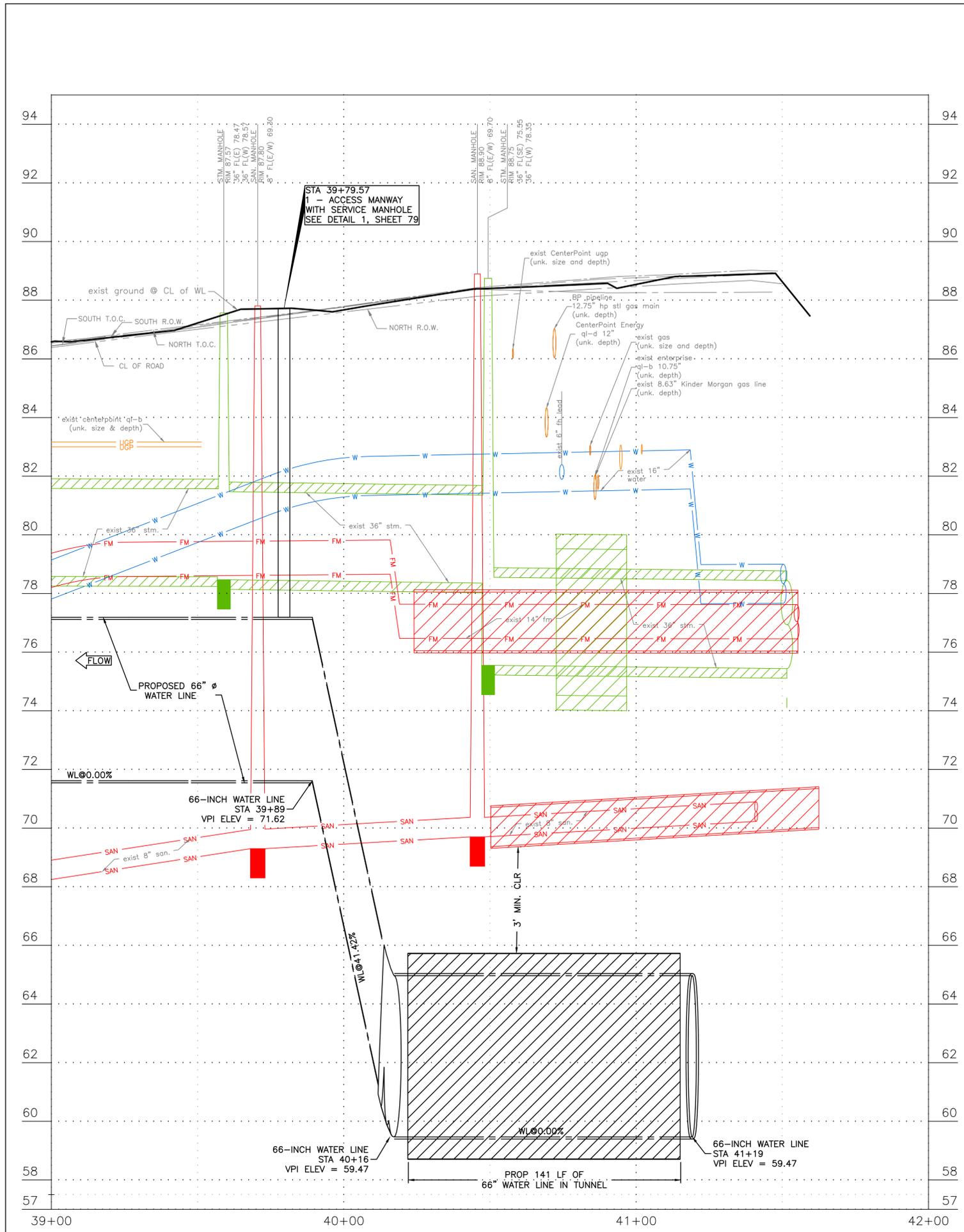
Date
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Signature valid for six months.

Date
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Signature valid for one year.

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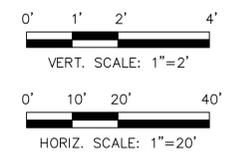
CITY OF HOUSTON
HOUSTON PUBLIC WORKS
**66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR
PROFILE-GILLESPIE ROAD
STA 34+50 TO STA 39+00
(SHEET 16 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 034 OF 176	



BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.



NO.	DATE	REVISION	APP.

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
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 shown). This signature not to 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.

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 & NICHOLS**
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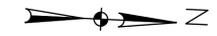
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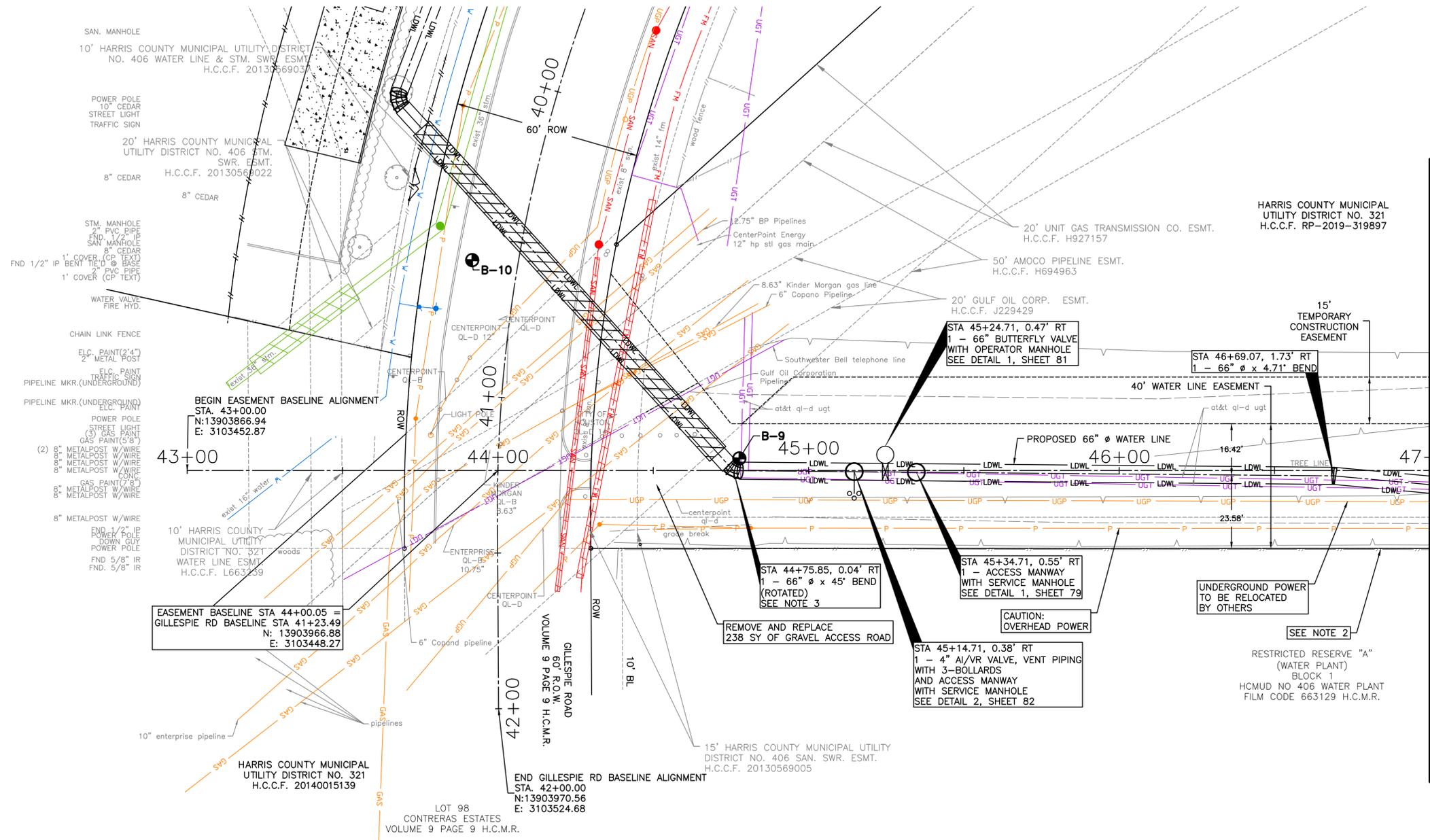
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
**66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR**
PROFILE-GILLESPIE ROAD
STA 39+00 TO END
(SHEET 18 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 036 OF 176	

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



SEE SHEET 035
 FOR CONTINUATION



MATCH LINE STA 47+00
 SEE SHEET 039 OF 176

NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. WATER PLANT SITE TO REMAIN FENCED DURING CONSTRUCTION TO MAINTAIN SECURITY OF FACILITY. EXISTING CHAIN LINK FENCE TO BE REPAIRED AND/OR REPLACED TO EXISTING CONDITION OR BETTER IF DAMAGED OR REMOVED DURING CONSTRUCTION.
3. ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

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	
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 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 PLAN-EASEMENT
 STA 43+00 TO STA 47+00
 (SHEET 19 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 037 OF 176	

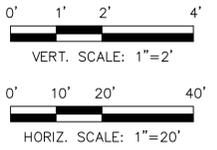
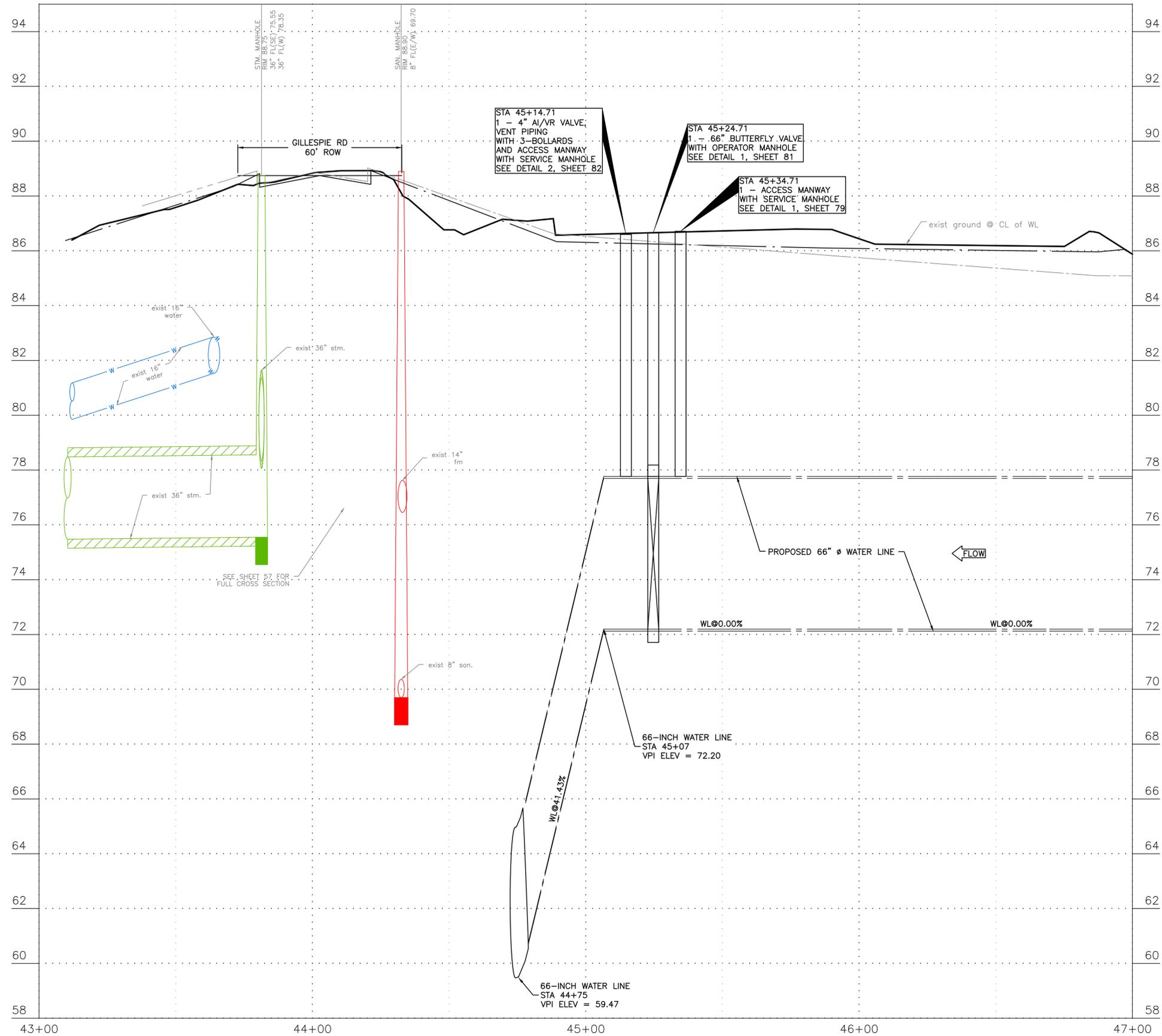
SEE SHEET 038
 FOR PROFILE

NO.	DATE	REVISION	APP.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.

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	
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE-EASEMENT STA 43+00 TO PLAN 47+00 (SHEET 20 OF 38)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 038 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



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

NO.	DATE	REVISION	APP.

NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- REMOVE AND REINSTALL SECURITY GATE, WORK IS INCIDENTAL TO TEMPORARY SECURITY FENCE.
- WATER PLANT SITE TO REMAIN FENCED DURING CONSTRUCTION TO MAINTAIN SECURITY OF FACILITY. EXISTING CHAIN LINK FENCE TO BE REPAIRED AND/OR REPLACED TO EXISTING CONDITION OR BETTER IF DAMAGED OR REMOVED DURING CONSTRUCTION.
- CONTRACTOR TO INSTALL 204 TEMPORARY SECURITY FENCE ALONG EDGE OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO SECURE ALL FENCING AT THE END OF THE DAY.
- CLEAR AND GRUB FOR THE INSTALLATION OF THE 66" WATER LINE FROM STA 47+87 TO STA 50+06.

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

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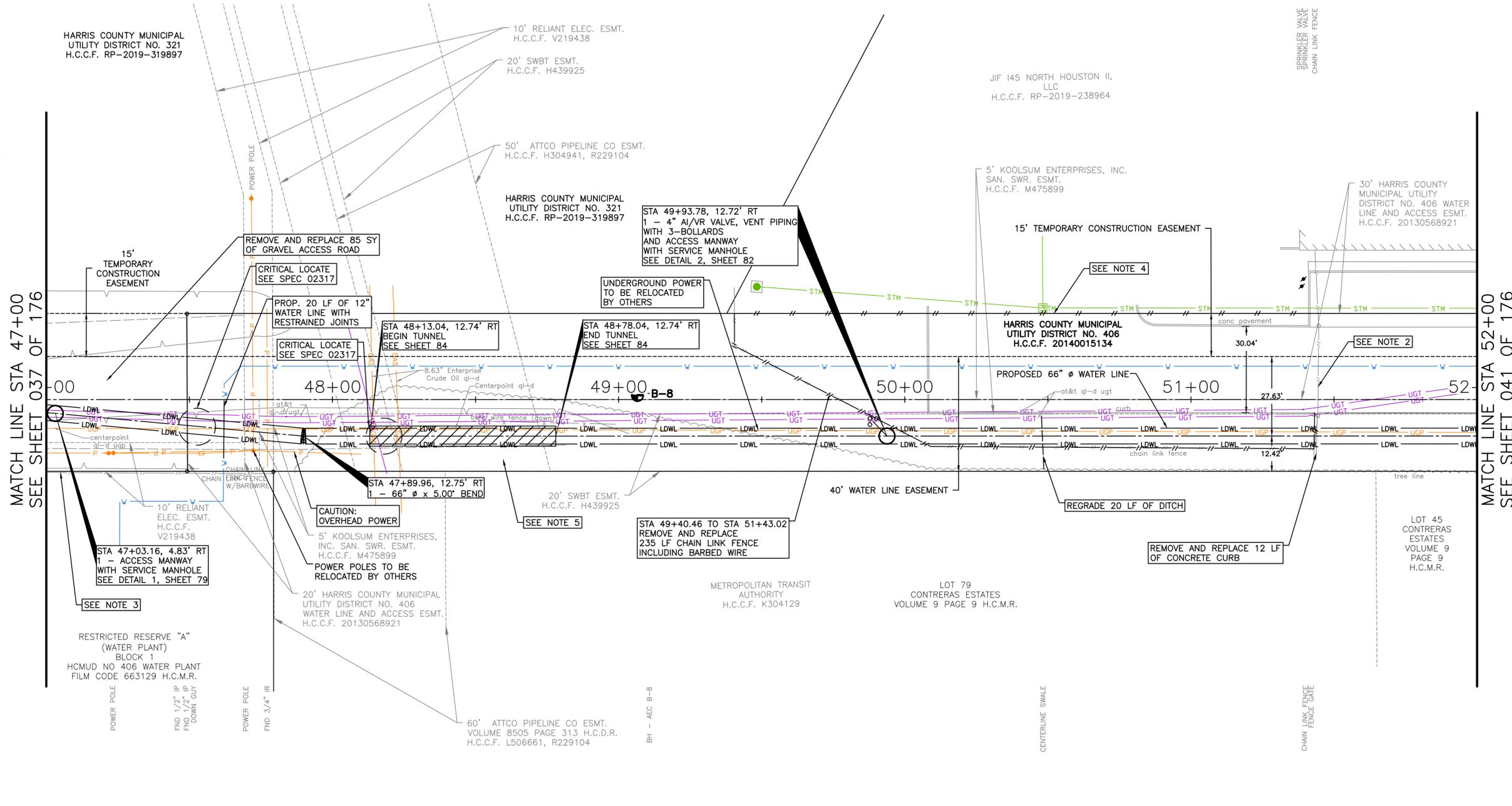
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-EASEMENT
STA 47+00 TO STA 52+00
(SHEET 21 TO 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 039 OF 176	



SEE SHEET 040
FOR PROFILE

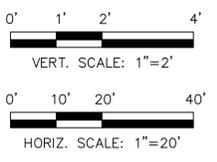
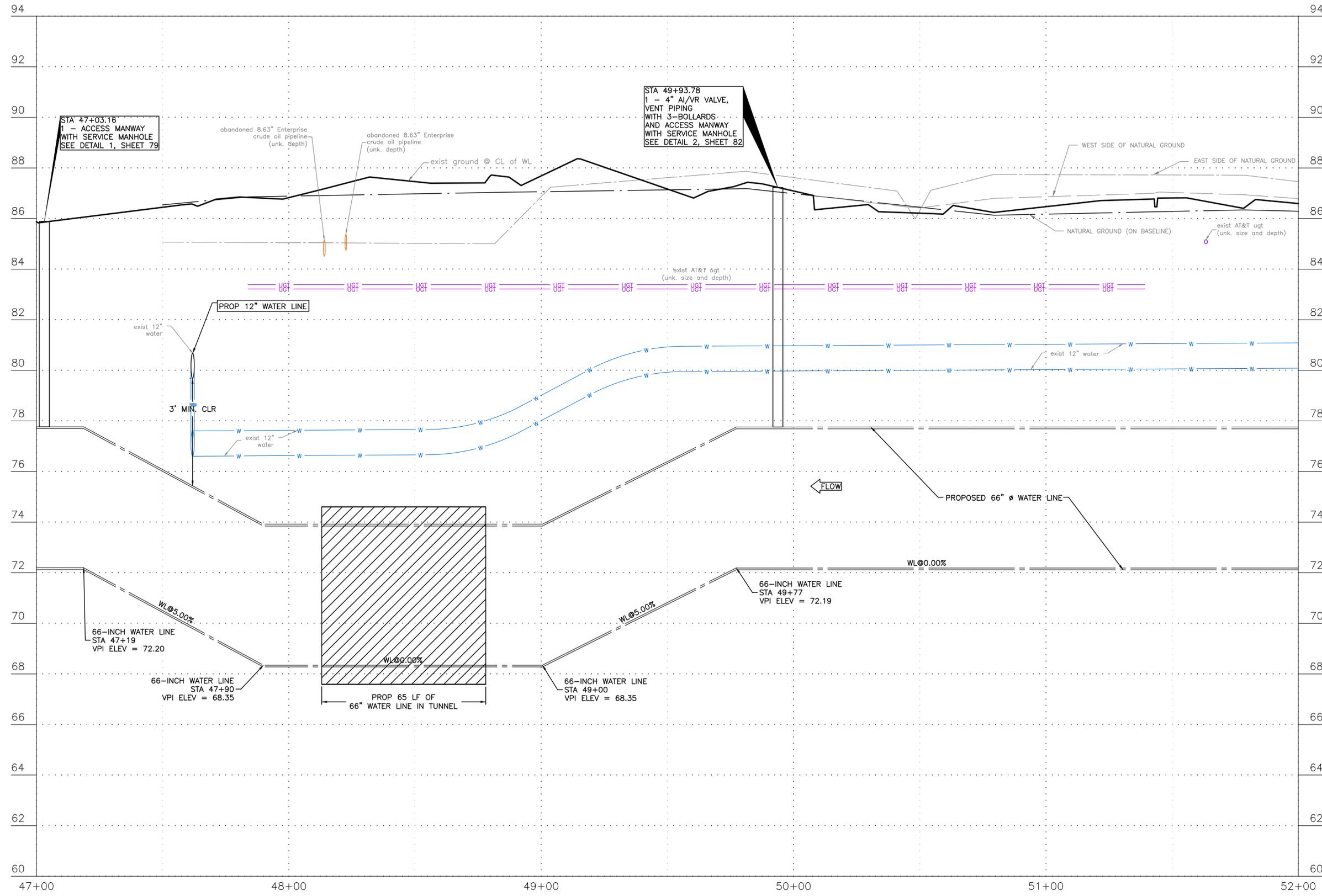
MATCH LINE STA 47+00
SEE SHEET 037 OF 176

MATCH LINE STA 52+00
SEE SHEET 041 OF 176

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION AND
 DEPTH OF ALL UTILITIES PRIOR TO
 BEGINNING OF CONSTRUCTION.

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.

FREESE & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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 TEXAS NO: 94948 ON DATE: 2/6/2025
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 BIDDING OR PERMIT PURPOSES.

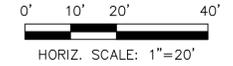
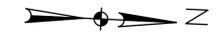
SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

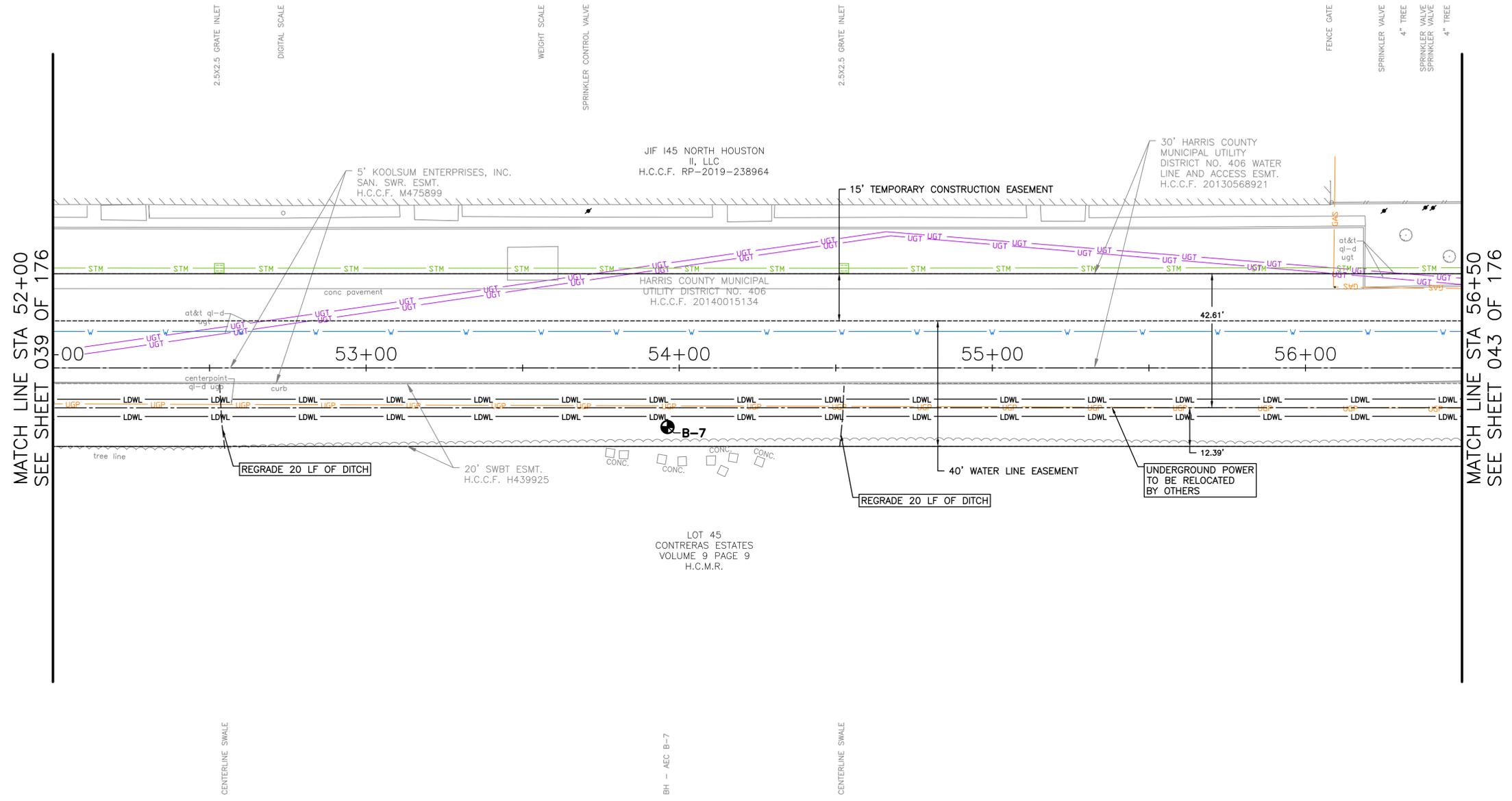
**66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
 PROFILE-EASEMENT
 STA 47+00 TO STA 52+00
 (SHEET 22 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 040 OF 176	

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



NOTES:
 1. CONTRACTOR SHALL VERIFY
 LOCATION AND DEPTH OF ALL
 UTILITIES PRIOR TO BEGINNING
 OF CONSTRUCTION.



MATCH LINE STA 52+00
SEE SHEET 039 OF 176

MATCH LINE STA 56+50
SEE SHEET 043 OF 176

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.	

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SURVEYED BY: LANDTECH, INC. FB NO. P-6342	

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
 PLAN-EASEMENT
 STA 52+00 TO STA 56+50
 (SHEET 23 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 041 OF 176	

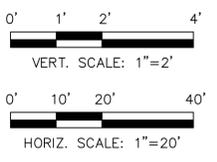
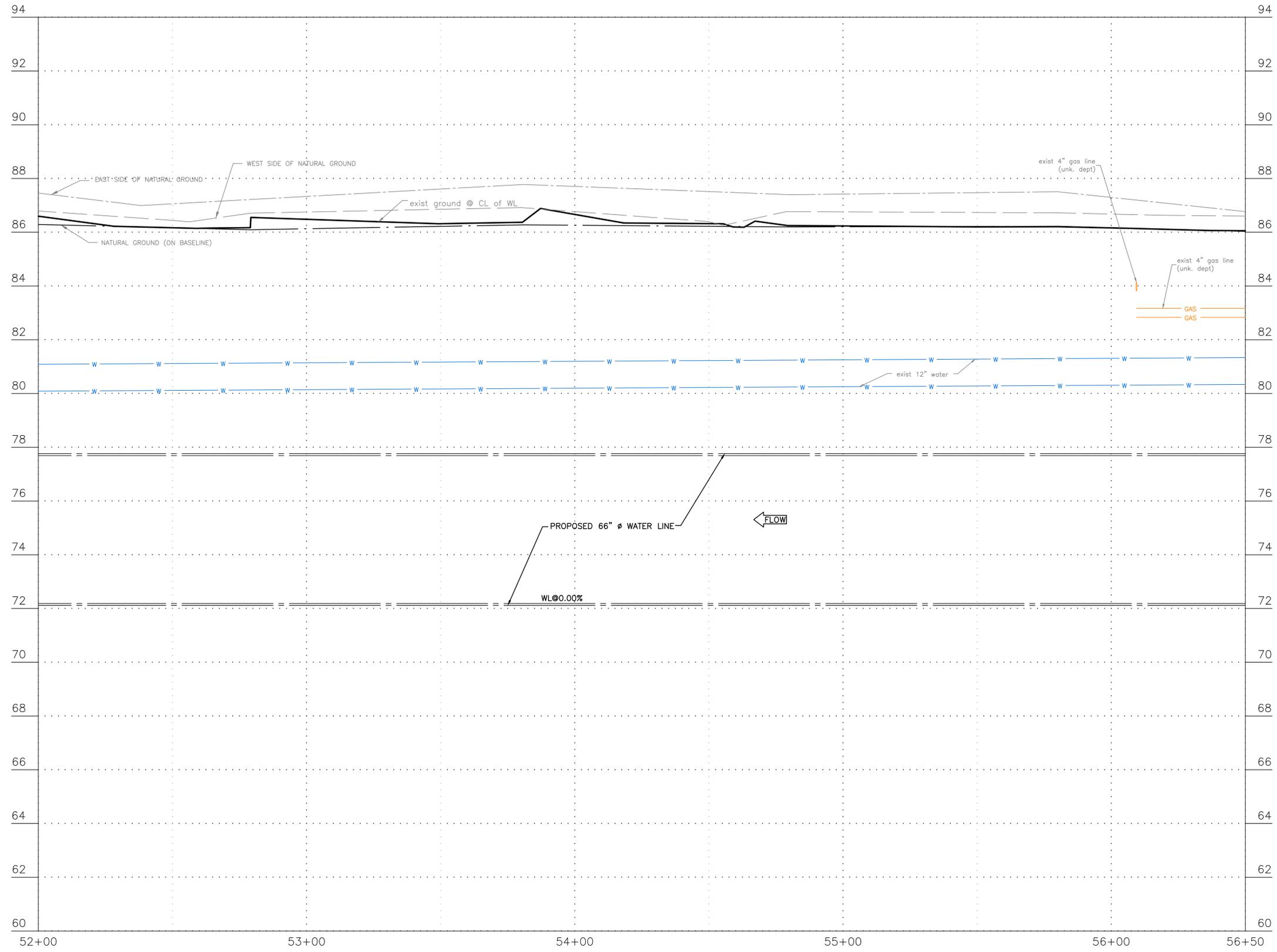
SEE SHEET 042
FOR PROFILE

NO.	DATE
REVISION	APP.

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.

NO.	DATE	REVISION	APP.



NOTICE:
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Date _____
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Date _____
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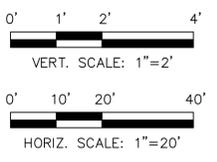
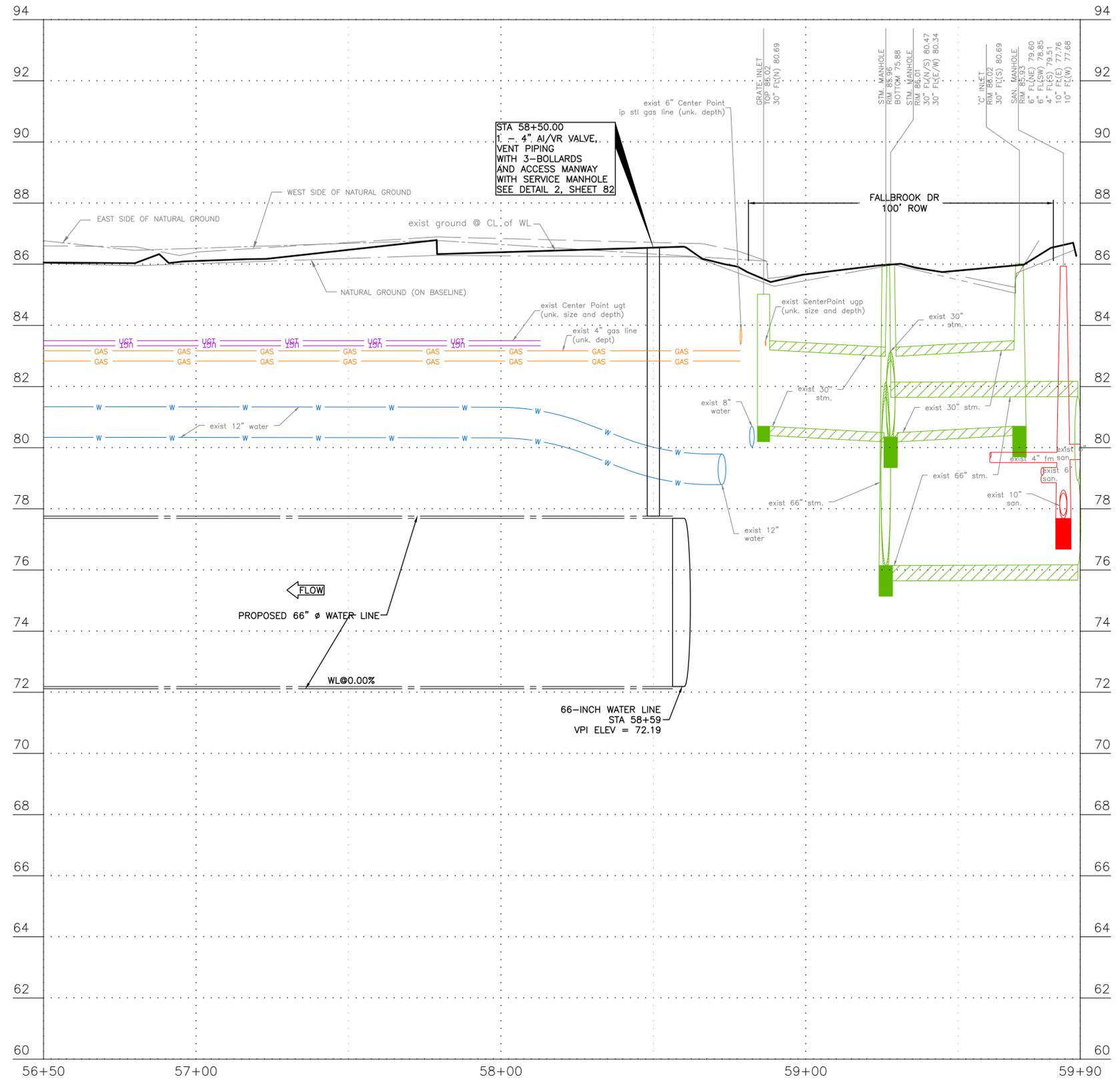
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PROFILE-EASEMENT
 STA 52+00 TO STA 56+50
 (SHEET 24 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 042 OF 176	

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.

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	Signature valid for six months.
Date	Signature valid for six months.
Date	Signature valid for six months.
Date	Signature valid for one year.

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

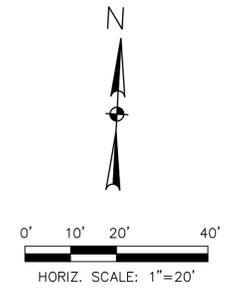
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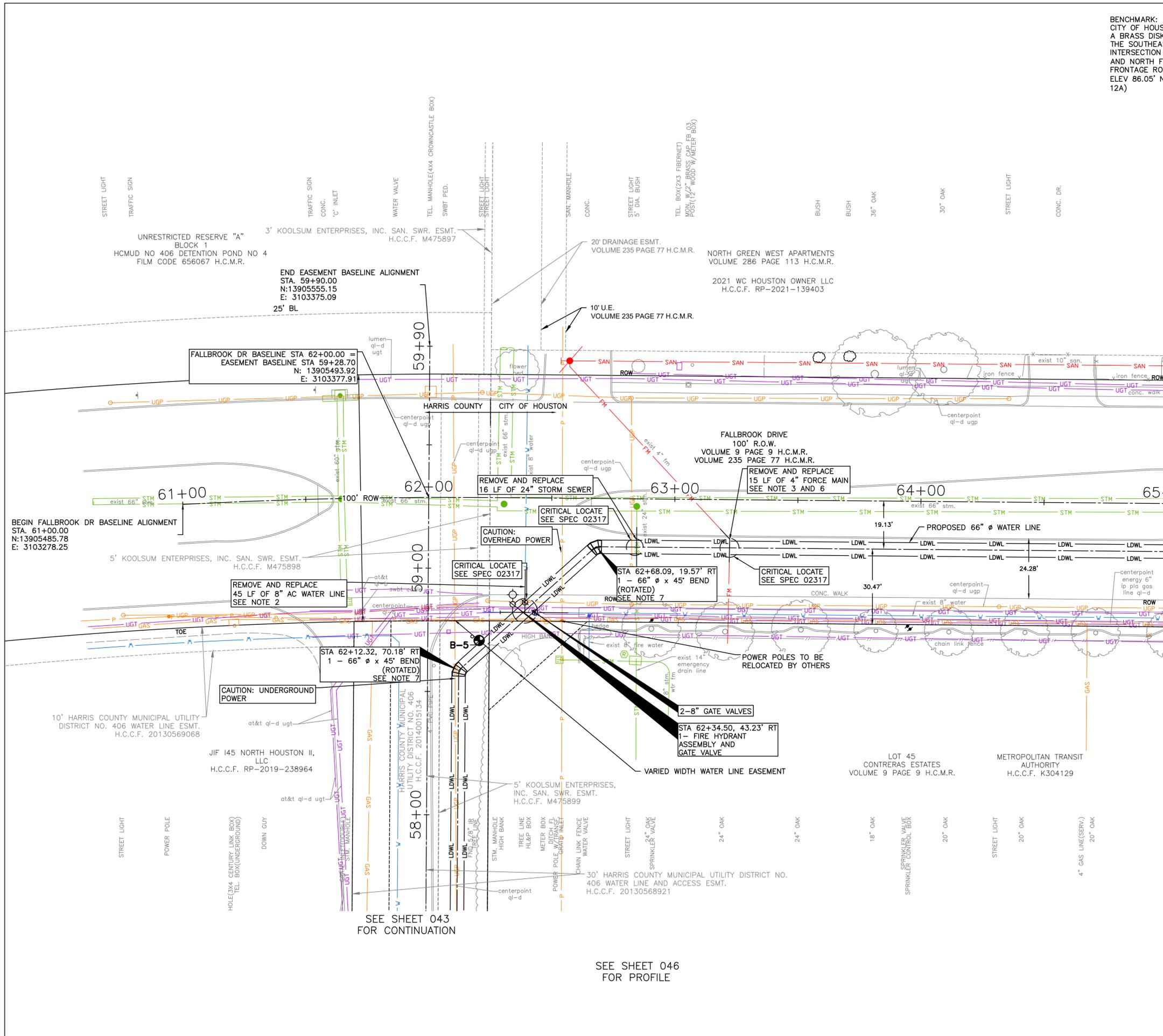
SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE-EASEMENT STA 56+50 TO END (SHEET 26 OF 38)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 044 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NO.	DATE	REVISION	APP.



MATCH LINE STA 65+00
SEE SHEET 047 OF 176

- NOTES:**
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
 - CONTRACTOR TO REMOVE AND DISPOSE EXISTING 8" AC WATER LINE AS REQUIRED IN SPECIFICATION 02221, 1.03. REMOVE AC PIPE FROM JOINT TO JOINT.
 - CONTRACTOR TO COORDINATE WITH METRO TRANSIT AUTHORITY FOR REPLACING THE EXISTING 4" FORCE MAIN.
 - SEE SHEET 62 FOR PAVEMENT REPLACEMENT.
 - COORDINATE WITH METRO FOR WORK ALONG FALLBROOK DR AT LEAST 2 WEEKS BEFORE TRAFFIC CONTROL PLAN IS SETUP. CONTACT TIM O'LEARY AT TIMOTHY.O'LEARY@RIDEMETRO.ORG (713-615-619)
 - PLACE 1 FULL SECTION (18 LF MIN) OF WATER LINE CENTERED AT SANITARY CROSSING. PLACE 1 FULL SECTION OF SANITARY PIPE CENTERED AT WATER LINE. SANITARY PIPE SECTION TO BE ENCASED WITH CEMENT STABILIZED SAND FOR ENTIRE LIMITS OF REPLACEMENT.
 - ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

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 to 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.	

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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>

<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PLAN-FALLBROOK DR STA 61+00 TO STA 65+00 (SHEET 27 OF 38)</p>	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 045 OF 176	

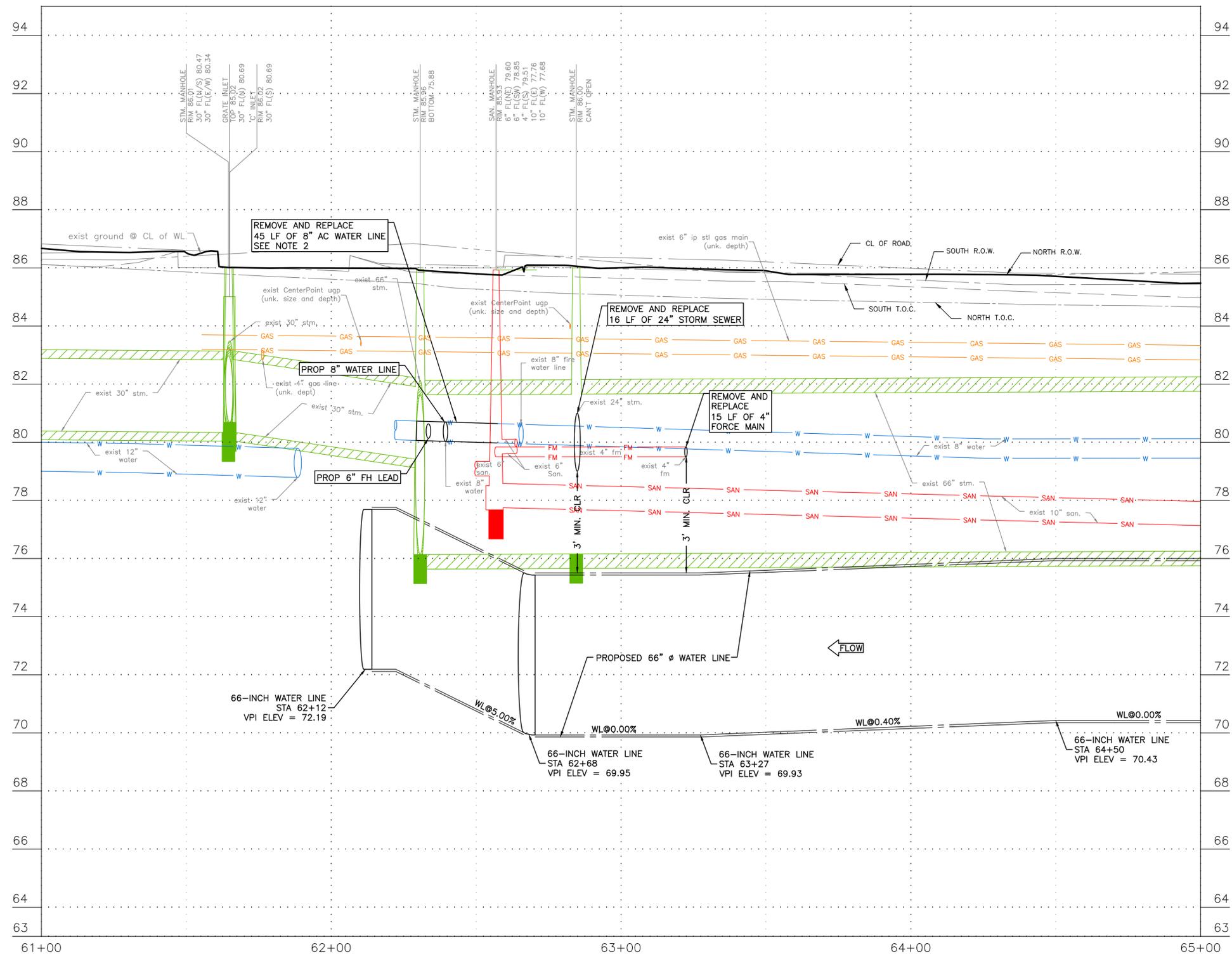
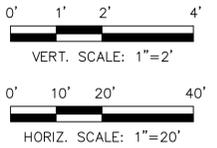
SEE SHEET 043
FOR CONTINUATION

SEE SHEET 046
FOR PROFILE

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)

- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION
AND DEPTH OF ALL UTILITIES PRIOR
TO BEGINNING OF CONSTRUCTION.
2. CONTRACTOR TO REMOVE AND
DISPOSE EXISTING 6" AC WATER LINE
AS REQUIRED IN SPECIFICATION
02221, 1.03. REMOVE AC PIPE FROM
JOINT TO JOINT.

NO.	DATE	REVISION	APP.



NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
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Date _____
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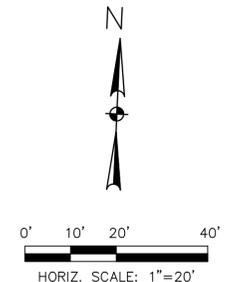
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PROFILE-FALLBROOK DR
STA 61+00 TO STA 65+00
(SHEET 28 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 046 OF 176	

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. CONTRACTOR TO REMOVE AND DISPOSE EXISTING 6" AC WATER LINE AS REQUIRED IN SPECIFICATION 02221, 1.03. REMOVE AC PIPE FROM JOINT TO JOINT.
3. SEE SHEET 62 FOR PAVEMENT REPLACEMENT.
4. COORDINATE WITH METRO FOR WORK ALONG FALLBROOK DR AT LEAST 2 WEEKS BEFORE TRAFFIC CONTROL PLAN IS SETUP. CONTACT TIM O'LEARY AT TIMOTHY.O'LEARY@RIDEMETRO.ORG (713-615-619)

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VERIFICATION OF PRIVATE UTILITY LINES

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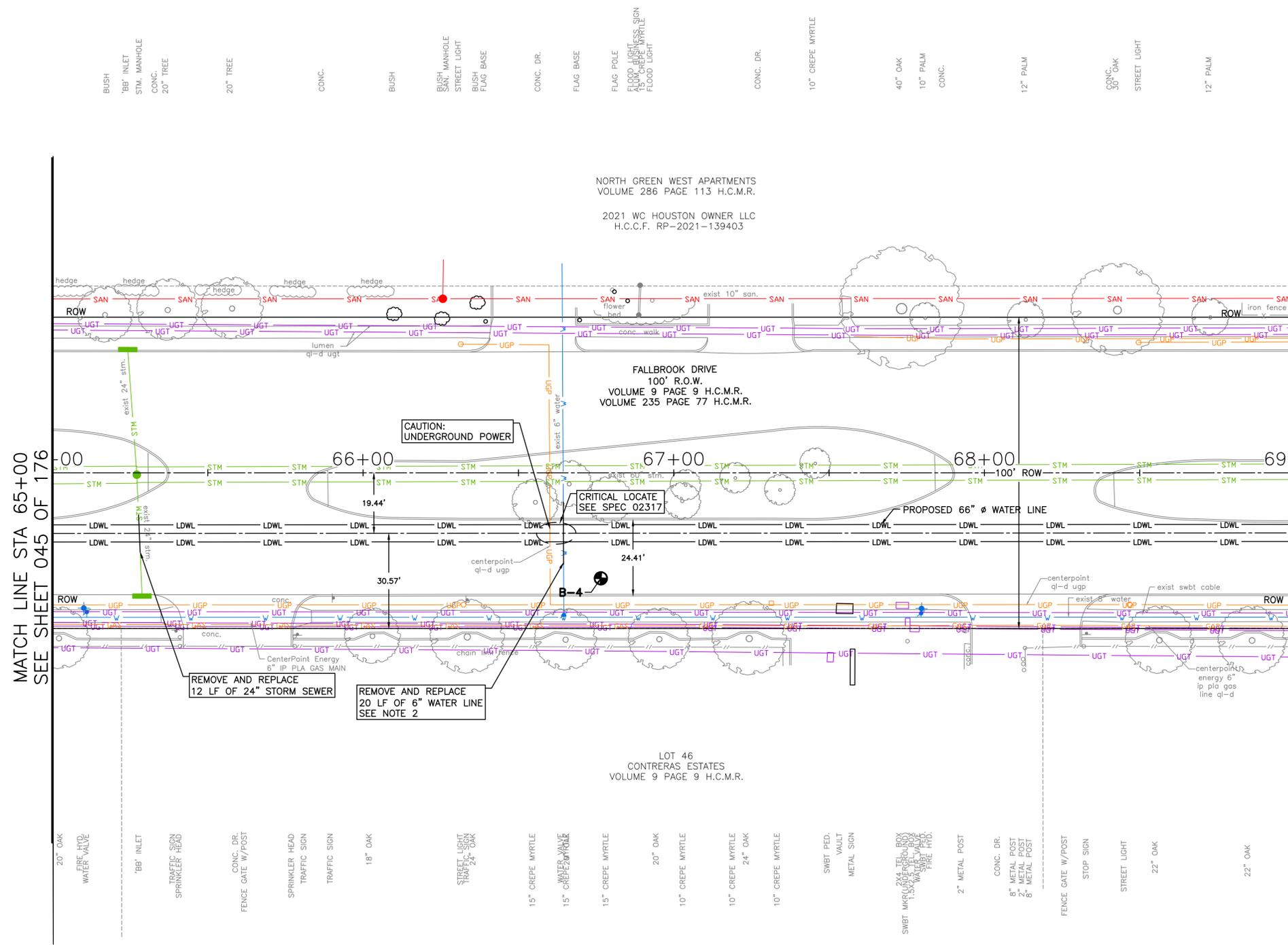
Date _____
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	SURVEYED BY: LANDTECH, INC. FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-FALLBROOK DR
STA 65+00 TO STA 69+00
(SHEET 29 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 047 OF 176	



MATCH LINE STA 65+00
 SEE SHEET 045 OF 176

MATCH LINE STA 69+00
 SEE SHEET 049 OF 176

NORTH GREEN WEST APARTMENTS
 VOLUME 286 PAGE 113 H.C.M.R.
 2021 WC HOUSTON OWNER LLC
 H.C.C.F. RP-2021-139403

FALLBROOK DRIVE
 100' R.O.W.
 VOLUME 9 PAGE 9 H.C.M.R.
 VOLUME 235 PAGE 77 H.C.M.R.

LOT 46
 CONTRERAS ESTATES
 VOLUME 9 PAGE 9 H.C.M.R.

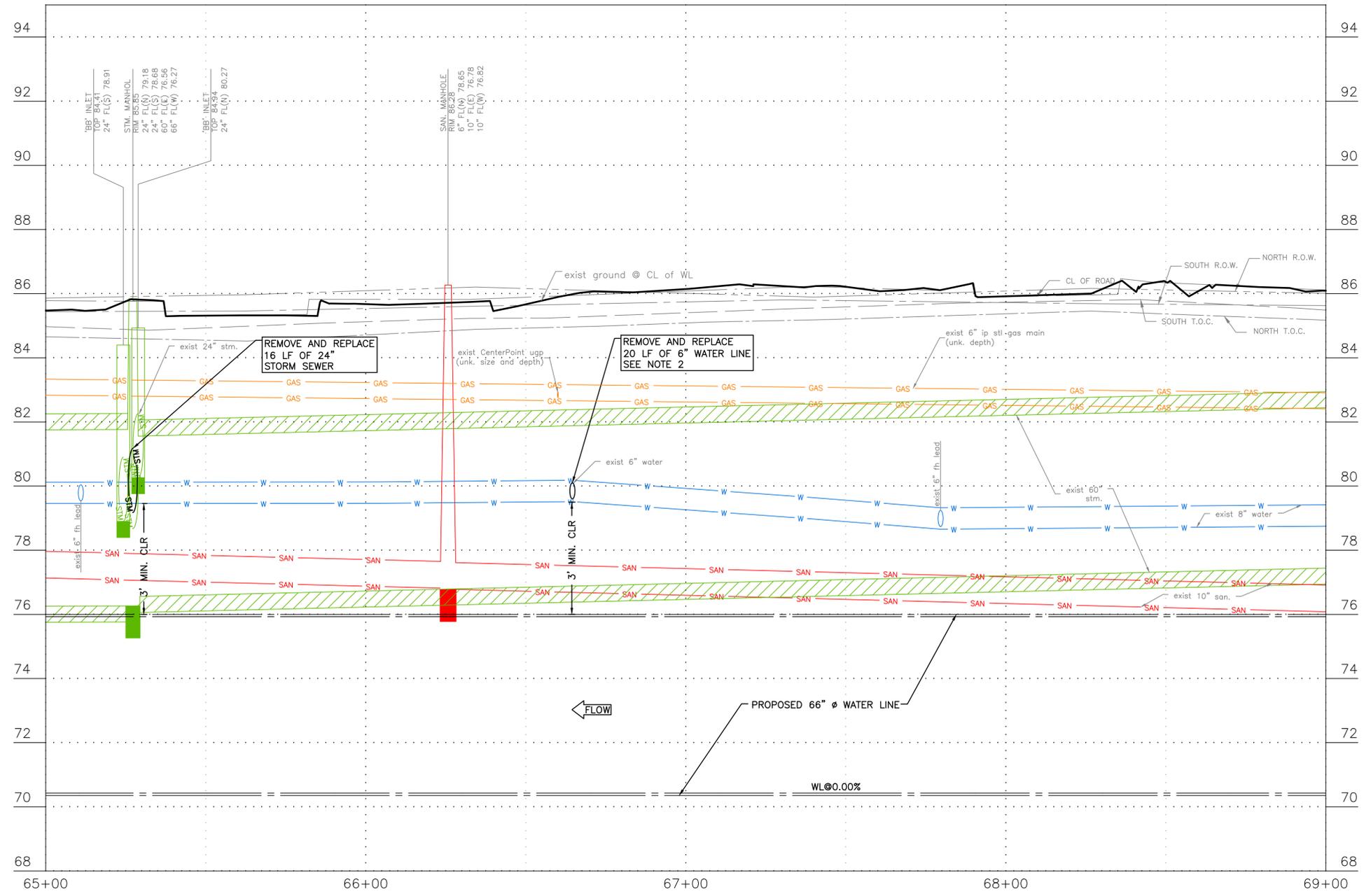
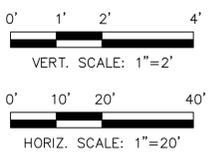
- BUSH
- 'BB' INLET
- STM. MANHOLE
- CONC.
- 20" TREE
- 20" TREE
- CONC.
- BUSH
- BUSH SAN. MANHOLE
- STREET LIGHT
- BUSH
- FLAG BASE
- CONC. DR.
- FLAG BASE
- FLAG POLE
- FLOOD LIGHT
- 15" CREPE MYRTLE
- FLOOD LIGHT
- CONC. DR.
- 10" CREPE MYRTLE
- 40" OAK
- 10" PALM
- CONC.
- 12" PALM
- CONC. OAK
- STREET LIGHT
- 12" PALM
- 20" OAK
- FIRE HYD. WATER VALVE
- 'BB' INLET
- TRAFFIC SIGN
- SPRINKLER HEAD
- CONC. DR.
- FENCE GATE W/POST
- SPRINKLER HEAD
- TRAFFIC SIGN
- TRAFFIC SIGN
- 18" OAK
- STREET LIGHT
- TRAFFIC SIGN
- 24" OAK
- 15" CREPE MYRTLE
- 15" CREPE MYRTLE
- 15" CREPE MYRTLE
- 10" CREPE MYRTLE
- 10" CREPE MYRTLE
- 24" OAK
- 10" CREPE MYRTLE
- 10" CREPE MYRTLE
- SWBT PED. VAULT
- METAL SIGN
- 2" METAL POST
- CONC. DR.
- 8" METAL POST
- 2" METAL POST
- 8" METAL POST
- FENCE GATE W/POST
- STOP SIGN
- STREET LIGHT
- 22" OAK
- 22" OAK

SEE SHEET 048
 FOR PROFILE

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

- NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.
 2. CONTRACTOR TO REMOVE AND
 DISPOSE EXISTING 6" AC WATER LINE
 AS REQUIRED IN SPECIFICATION
 02221, 1.03. REMOVE AC PIPE FROM
 JOINT TO JOINT.

NO.	DATE	REVISION	APP.



NOTICE:
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Date
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 Signature valid for six months.

Date
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 Signature valid for one year.

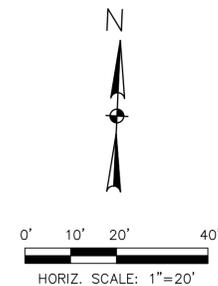
 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com	NOT FOR CONSTRUCTION THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
	SURVEYED BY: LANDTECH, INC. FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 PROFILE-FALLBROOK DR
 STA 65+00 TO STA 69+00
 (SHEET 30 OF 38)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 048 OF 176	

SEE SHEET 051
FOR CONTINUATION

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. SEE SHEET 62 FOR PAVEMENT REPLACEMENT.
3. COORDINATE WITH METRO FOR WORK ALONG FALLBROOK DR AT LEAST 2 WEEKS BEFORE TRAFFIC CONTROL PLAN IS SETUP. CONTACT TIM O'LEARY AT TIMOTHY.O'LEARY@RIDEMETRO.ORG (713-615-619)
4. ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

NOTICE:

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VERIFICATION OF PRIVATE UTILITY LINES

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

Date
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Signature valid for six months.

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

FREESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

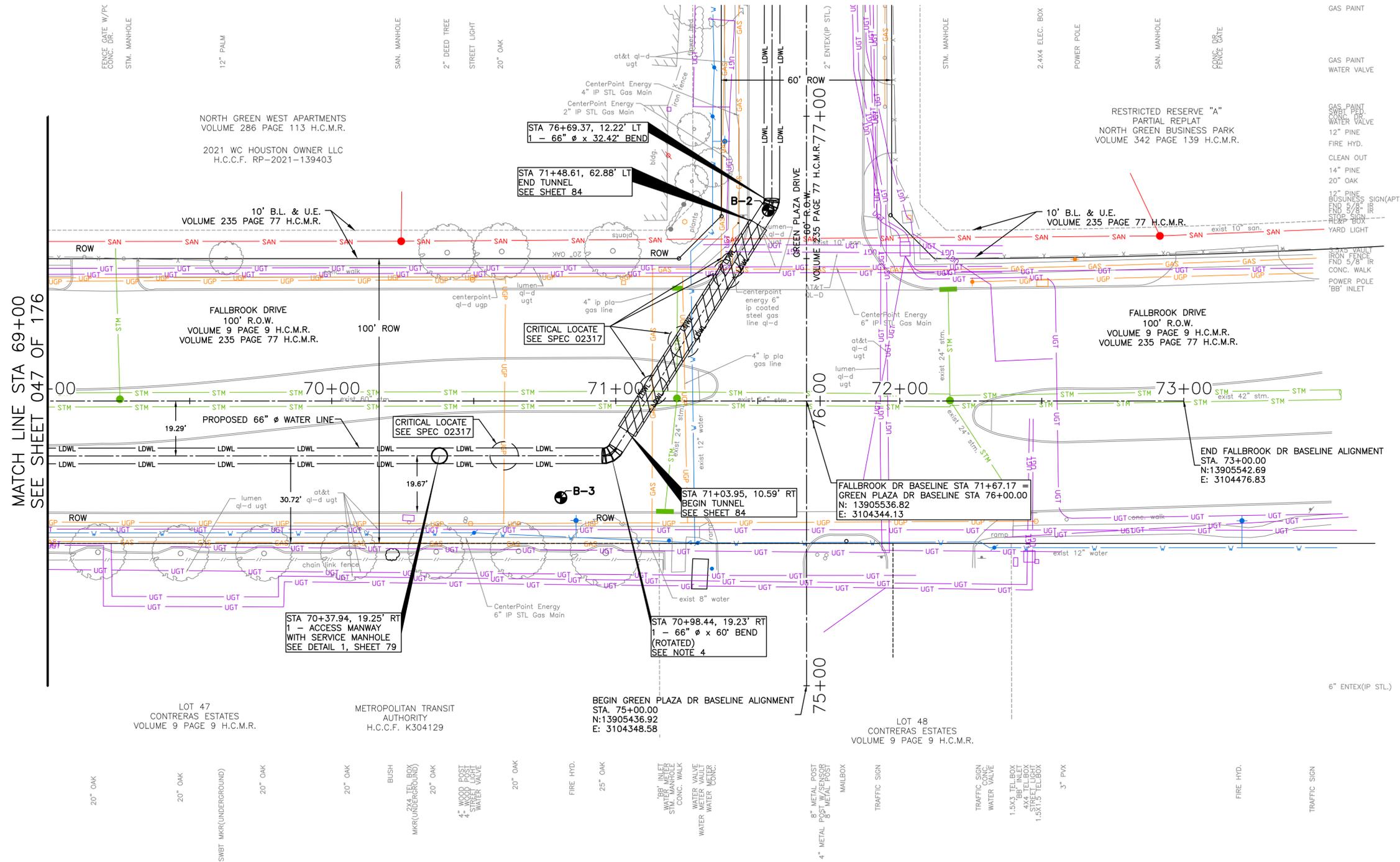
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-FALLBROOK DR
STA 69+00 TO END
(SHEET 31 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 049 OF 176	

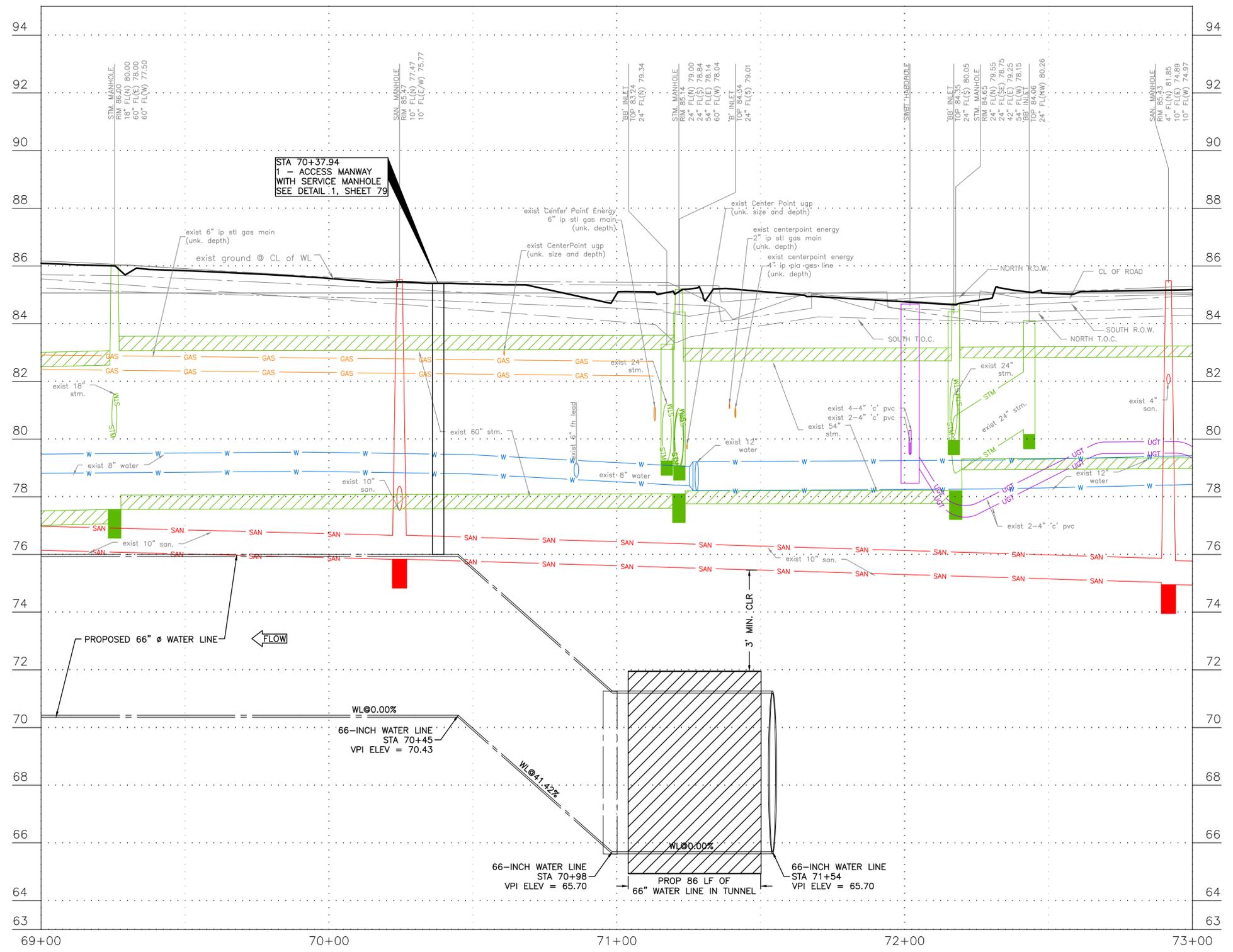
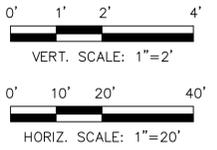


SEE SHEET 050
FOR PROFILE

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.

NO.	DATE	REVISION	APP.



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811
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 CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR
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VERIFICATION OF PRIVATE UTILITY LINES

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Date _____

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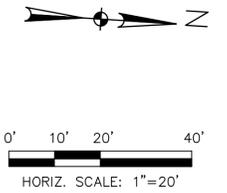
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
 PROFILE-FALLBROOK DR
 STA 69+00 TO END
 (SHEET 32 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 050 OF 176	

SEE SHEET 049
FOR CONTINUATION

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- CONTRACTOR TO REMOVE AND DISPOSE EXISTING 8" AC WATER LINE AS REQUIRED IN SPECIFICATION 02221. 1.03. REMOVE AC PIPE FROM JOINT TO JOINT.
- SEE SHEET 62 FOR PAVEMENT REPLACEMENT.
- ROTATE PROPOSED FITTINGS TO MEET REQUIRED ALIGNMENT.

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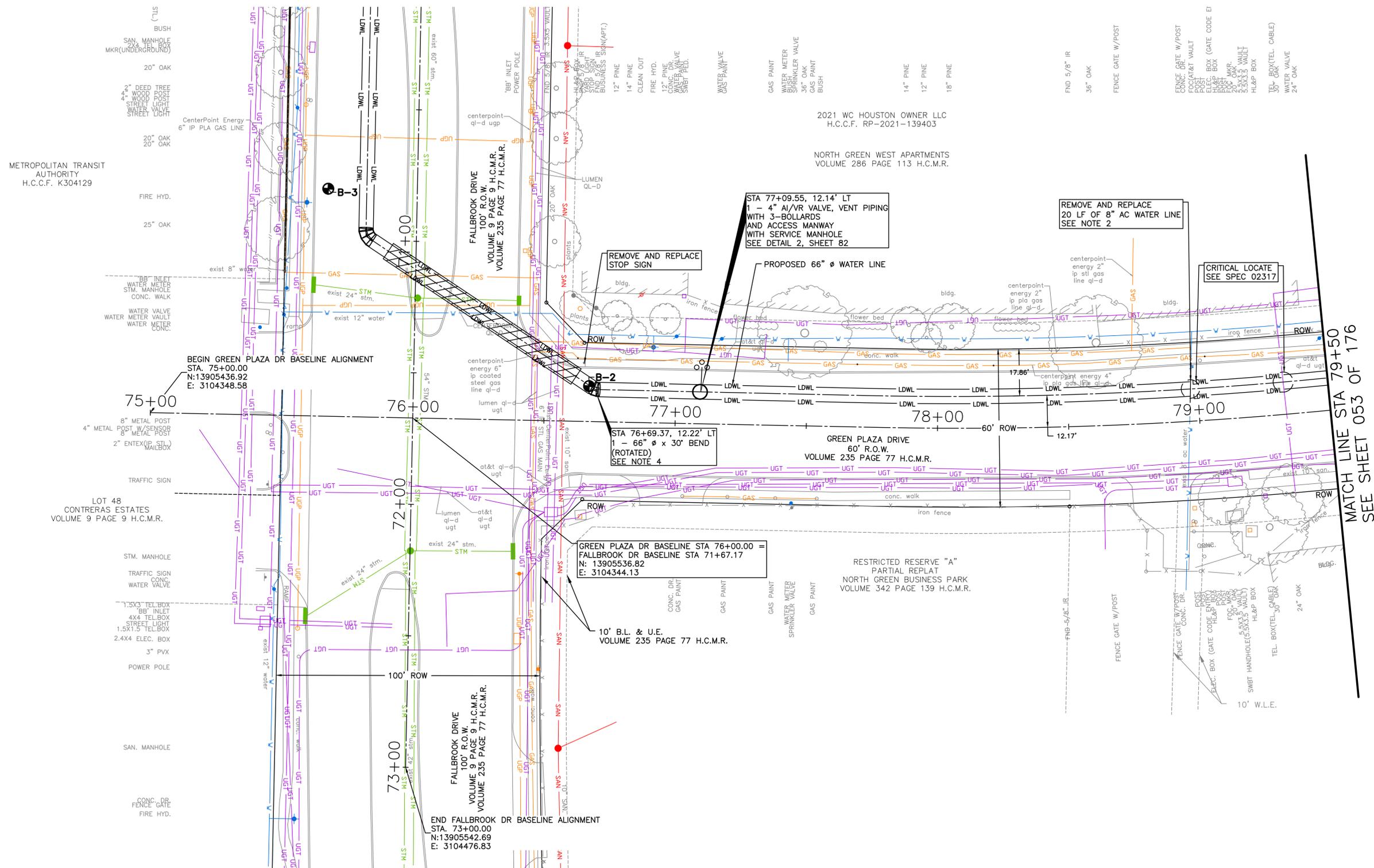
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-GREEN PLAZA DR
STA 75+00 TO STA 79+50
(SHEET 33 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 051 OF 176	



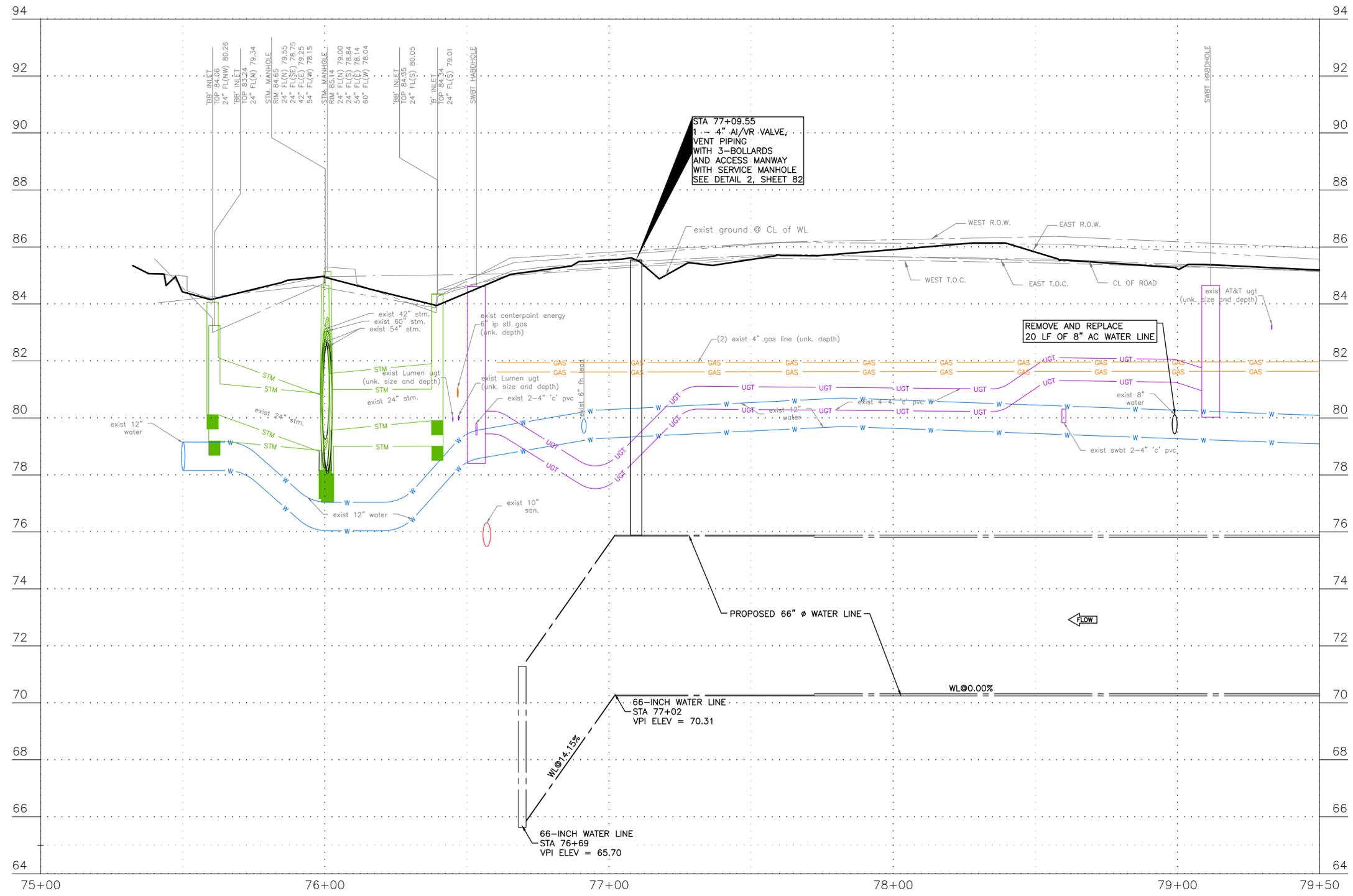
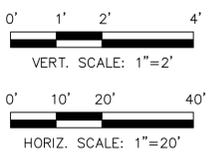
SEE SHEET 052
FOR PROFILE

MATCH LINE STA 79+50
SEE SHEET 053 OF 176

BENCHMARK:
 CITY OF HOUSTON MONUMENT 5264-8415:
 A BRASS DISK IN CONCRETE, LOCATED AT
 THE SOUTHEAST CORNER OF THE
 INTERSECTION OF ESPLANADE BOULEVARD
 AND NORTH FREEWAY (IH 45) WEST BOUND
 FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NOTES:
 1. CONTRACTOR SHALL VERIFY LOCATION
 AND DEPTH OF ALL UTILITIES PRIOR
 TO BEGINNING OF CONSTRUCTION.

NO.	DATE	REVISION	APP.



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VERIFICATION OF PRIVATE UTILITY LINES

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 Signature valid for six months.

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 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
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 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
 PROFILE-GREEN PLAZA DR
 STA 75+00 TO STA 79+50
 (SHEET 34 OF 38)

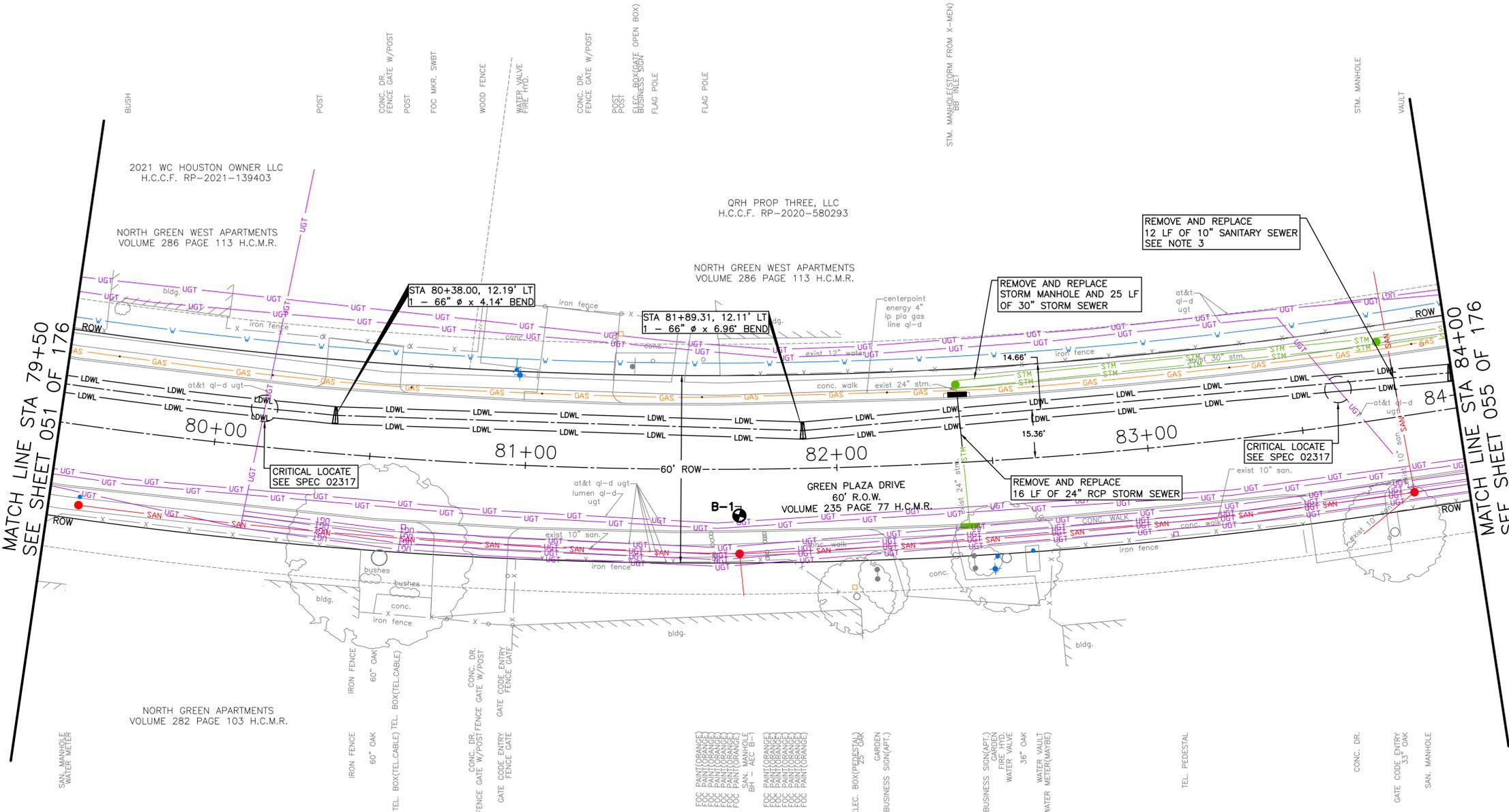
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 052 OF 176	

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. SEE SHEET 62 FOR PAVEMENT REPLACEMENT AND STORM SEWER REPLACEMENT.
3. PLACE 1 FULL SECTION (18 LF MIN) OF WATER LINE CENTERED AT SANITARY CROSSING. PLACE 1 FULL SECTION OF SANITARY PIPE CENTERED AT WATER LINE. SANITARY PIPE SECTION TO BE ENCASED WITH CEMENT STABILIZED SAND FOR ENTIRE LIMITS OF REPLACEMENT.



MATCH LINE STA 79+50
SEE SHEET 051 OF 176

MATCH LINE STA 84+00
SEE SHEET 055 OF 176

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-GREEN PLAZA DR
STA 79+50 TO STA 84+00
(SHEET 35 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 053 OF 176	

SEE SHEET 054
FOR PROFILE

NO.	DATE	REVISION	APP.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5264-8415:
A BRASS DISK IN CONCRETE, LOCATED AT
THE SOUTHEAST CORNER OF THE
INTERSECTION OF ESPLANADE BOULEVARD
AND NORTH FREEWAY (IH 45) WEST BOUND
FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. CONTRACTOR TO VERIFY THERE IS AN EXISTING FLANGE ON THE 66-INCH WATER LINE STUB-OUT (STA 85+46). IF NO EXISTING FLANGE IS IN PLACE, INSTALL NEW FLANGE ON THE EXISTING WATER LINE. CONTRACTOR TO PROVIDE FLANGE ON PROPOSED 66-INCH WATER LINE FOR FLANGE ISOLATION KIT.
3. SEE SHEET 62 FOR PAVEMENT REPLACEMENT.

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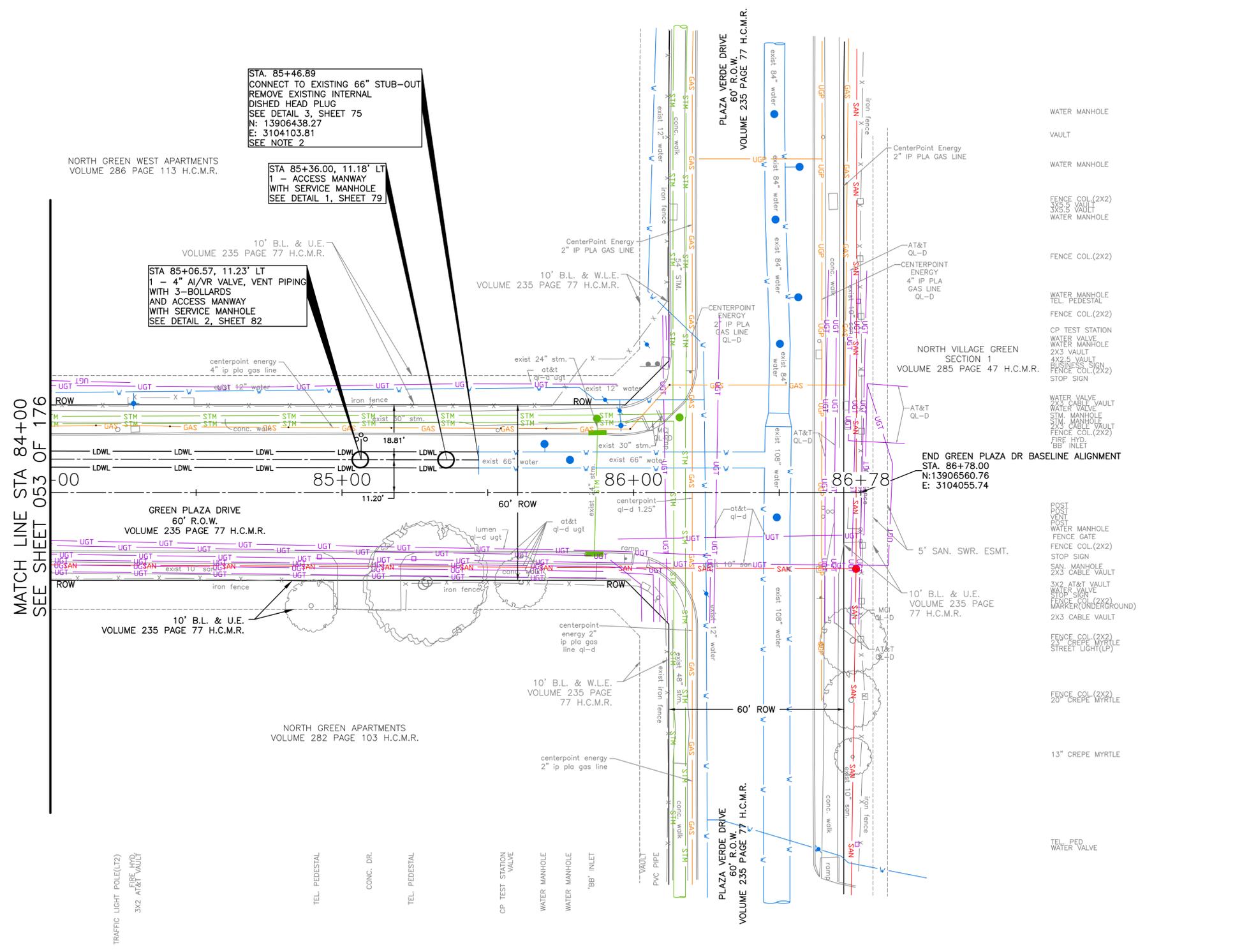
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FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
PLAN-GREEN PLAZA DR
STA 84+00 TO END
(SHEET 37 OF 38)**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 055 OF 176	



STA. 85+46.89
CONNECT TO EXISTING 66" STUB-OUT
REMOVE EXISTING INTERNAL
DISHED HEAD PLUG
SEE DETAIL 3, SHEET 75
N: 13906438.27
E: 3104103.81
SEE NOTE 2

STA 85+36.00, 11.18' LT
1 - ACCESS MANWAY
WITH SERVICE MANHOLE
SEE DETAIL 1, SHEET 79

STA 85+06.57, 11.23' LT
1 - 4" A/VR VALVE, VENT PIPING
AND ACCESS MANWAY
WITH SERVICE MANHOLE
SEE DETAIL 2, SHEET 82

SEE SHEET 056
FOR PROFILE

MATCH LINE STA 84+00
SEE SHEET 053 OF 176

TRAFFIC LIGHT POLE(LT2)
FIRE HYD.
3X2 AT&T VAULT

TEL. PEDESTAL
CONC. DR.
TEL. PEDESTAL
CP TEST STATION VALVE
WATER MANHOLE
WATER MANHOLE
"BB" INLET
VAULT
PVC PIPE

WATER MANHOLE
VAULT
WATER MANHOLE
FENCE COL.(2X2)
3X5.5 VAULT
WATER MANHOLE
FENCE COL.(2X2)
CENTERPOINT ENERGY 2" IP PLA GAS LINE QL-D
WATER MANHOLE TEL. PEDESTAL
FENCE COL.(2X2)
CP TEST STATION WATER VALVE WATER MANHOLE 2X3 VAULT 4X2.5 VAULT BUSINESS SIGN FENCE COL.(2X2) STOP SIGN
WATER VALVE 2X3 CABLE VAULT WATER VALVE 2X3 VAULT 4X2.5 VAULT 2X3 CABLE VAULT FENCE COL.(2X2) FIRE HYD. "BB" INLET
POST POST VENT POST WATER MANHOLE FENCE GATE FENCE COL.(2X2) STOP SIGN SAN MANHOLE 2X3 CABLE VAULT 3X2 AT&T VAULT WATER VALVE STOP SIGN FENCE COL.(2X2) MARKER(UNDERGROUND) 2X3 CABLE VAULT FENCE COL.(2X2) 20" CREPE MYRTLE STREET LIGHT(LP)
FENCE COL.(2X2) 20" CREPE MYRTLE
13" CREPE MYRTLE
TEL. PED WATER VALVE

NORTH GREEN WEST APARTMENTS
VOLUME 286 PAGE 113 H.C.M.R.

CenterPoint Energy 2" IP PLA GAS LINE
VOLUME 235 PAGE 77 H.C.M.R.

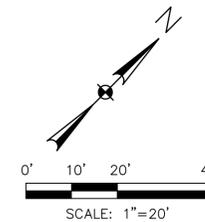
NORTH VILLAGE GREEN
SECTION 1
VOLUME 285 PAGE 47 H.C.M.R.

END GREEN PLAZA DR BASELINE ALIGNMENT
STA. 86+78.00
N:13906560.76
E: 3104055.74

GREEN PLAZA DRIVE
60' R.O.W.
VOLUME 235 PAGE 77 H.C.M.R.

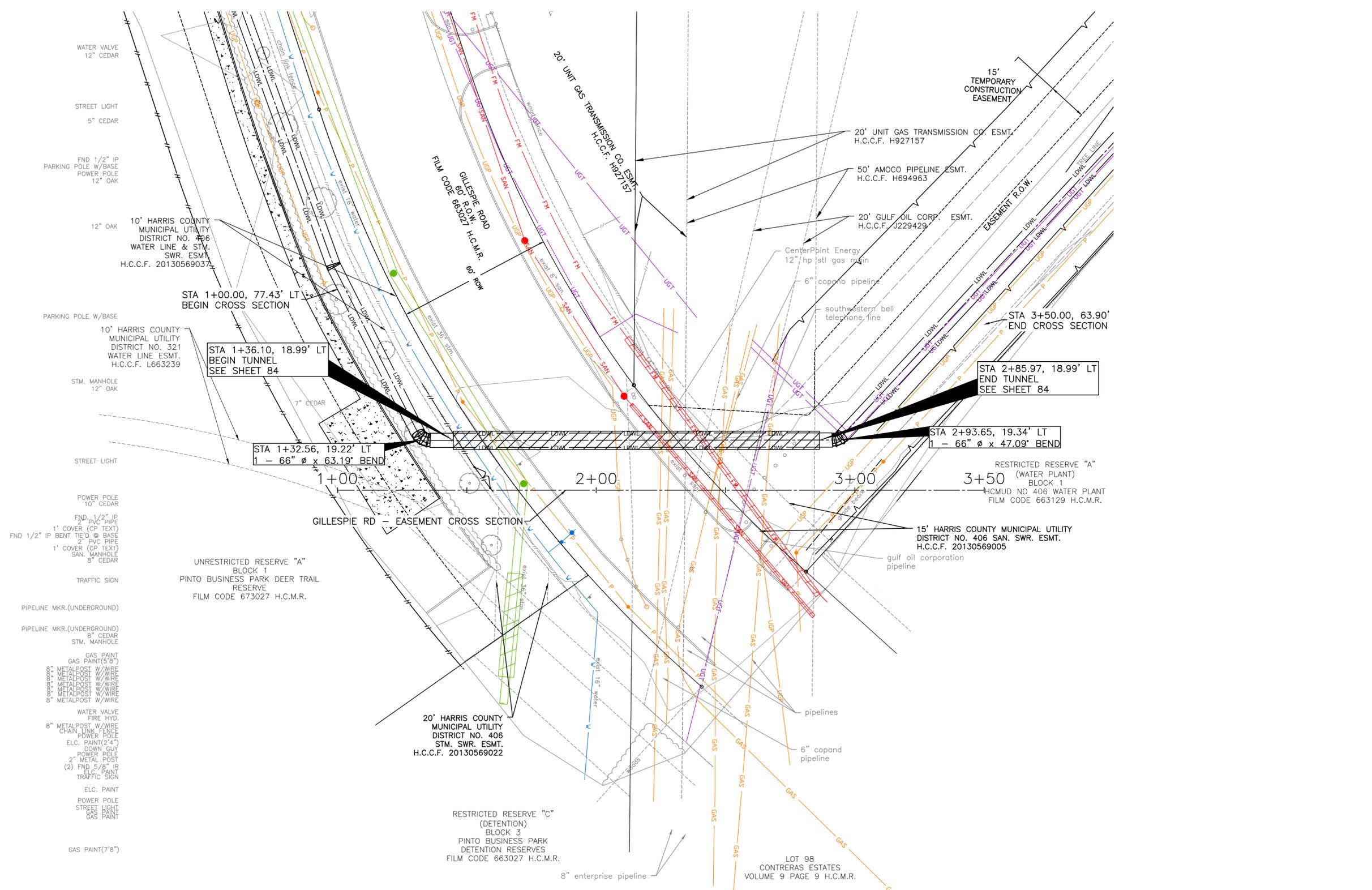
PLAZA VERDE DRIVE
60' R.O.W.
VOLUME 235 PAGE 77 H.C.M.R.

NORTH GREEN APARTMENTS
VOLUME 282 PAGE 103 H.C.M.R.



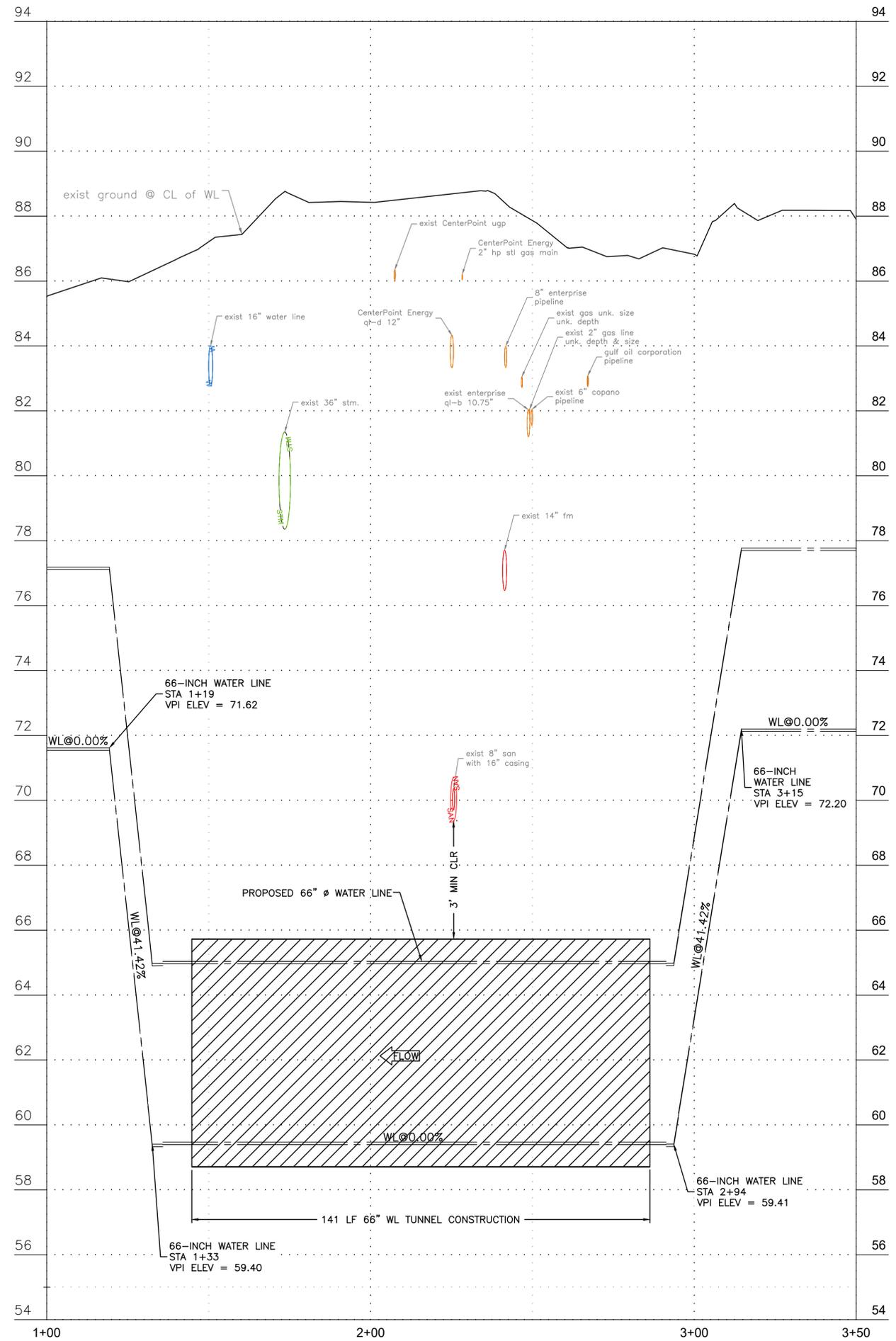
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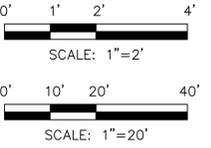


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SURVEYED BY: LANDTECH, INC. FB NO. P-6342	

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PLAN	
CROSS-SECTION	
GILLESPIE DRIVE	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 057 OF 176	



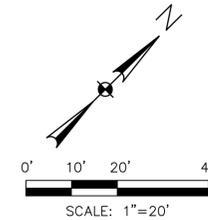
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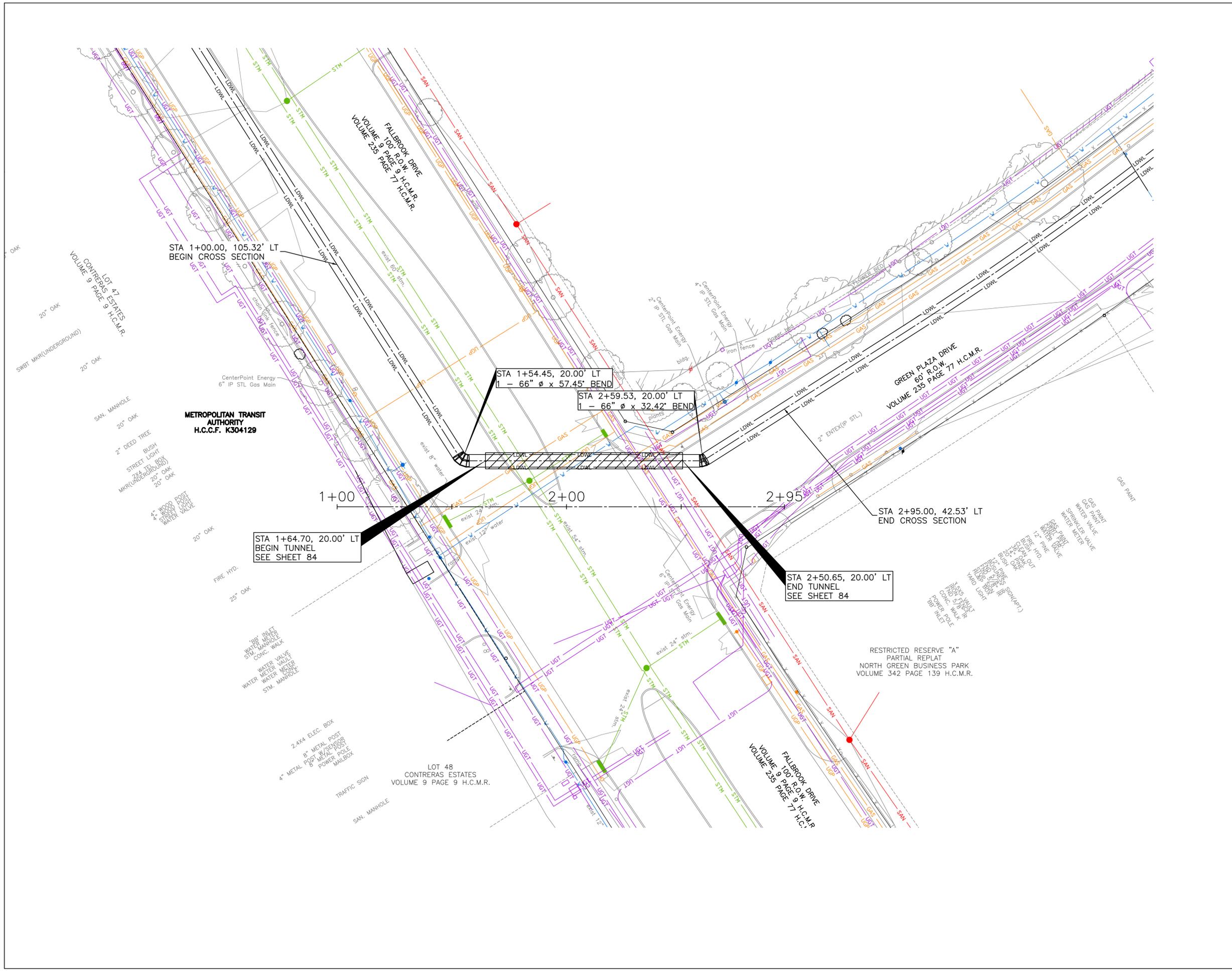
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE CROSS-SECTION GILLESPIE DRIVE	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 058 OF 176	



NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.

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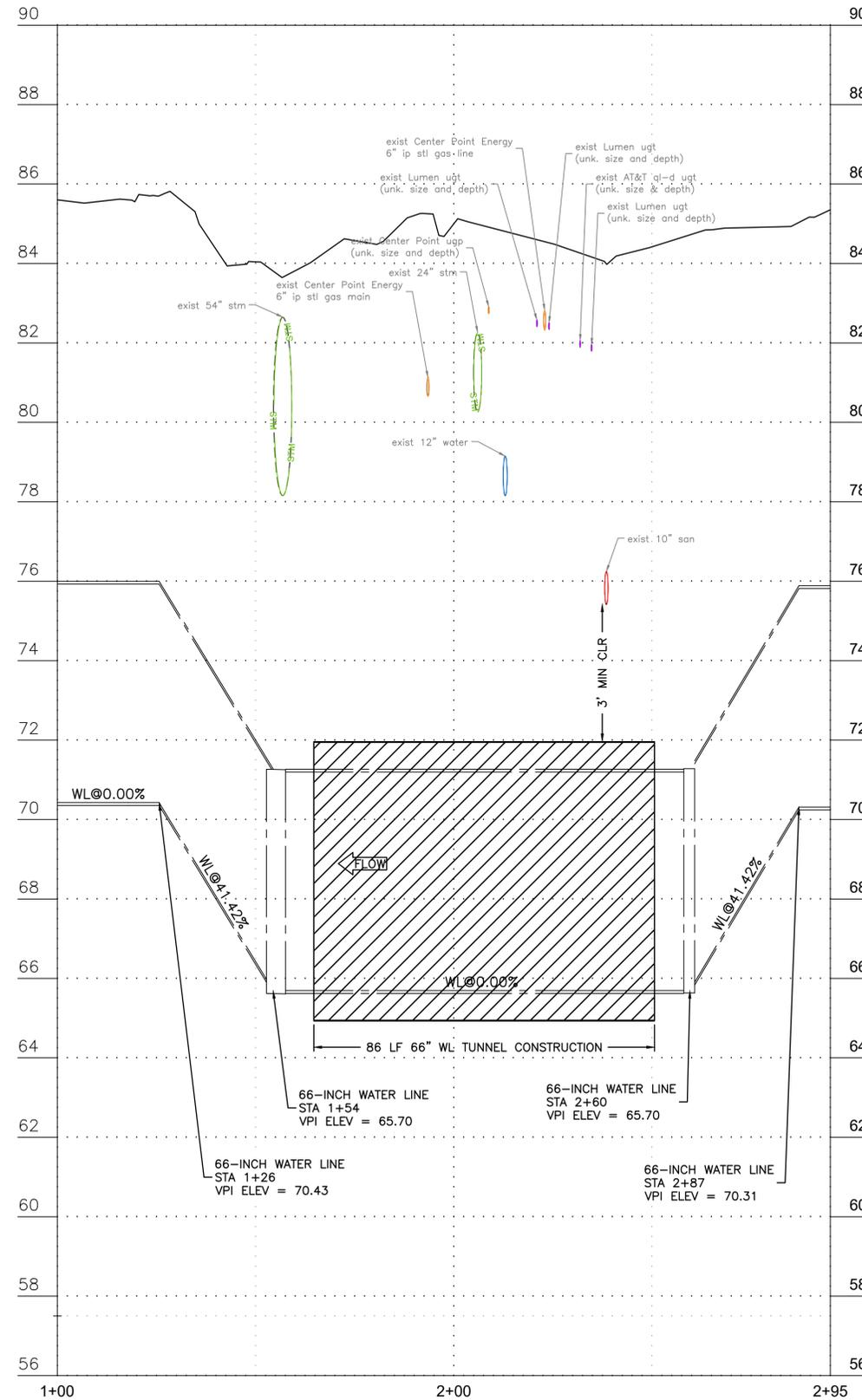
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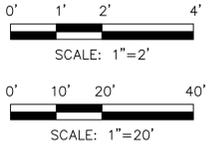
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PLAN	
CROSS-SECTION	
FALLBROOK DRIVE	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 059 OF 176	



NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.



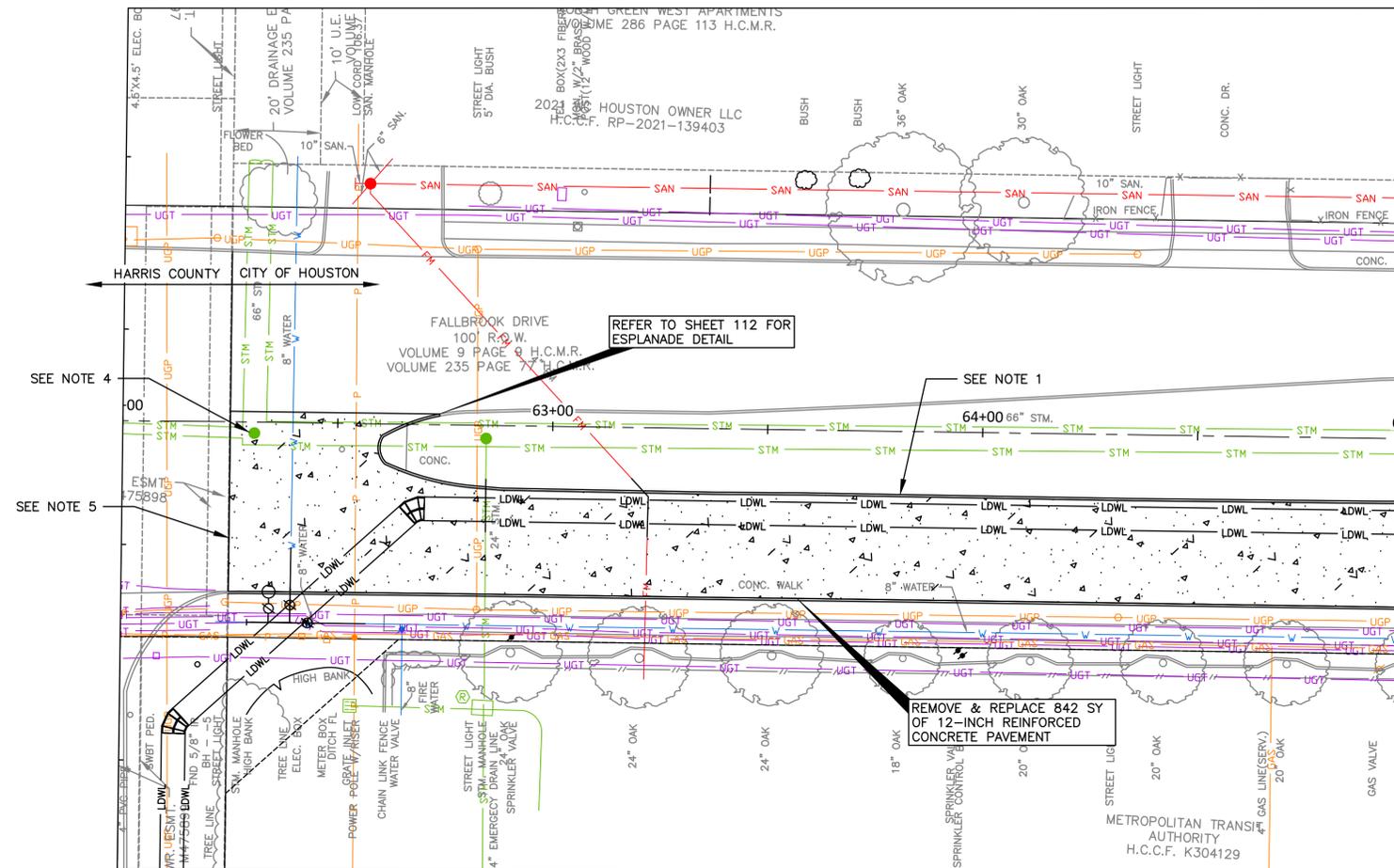
NOTICE:	
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811	
VERIFICATION OF PRIVATE UTILITY LINES	
Date	
CenterPoint Energy natural gas utilities shown. (Gas 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.	

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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>

<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR PROFILE CROSS-SECTION FALLBROOK DRIVE</p>	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 060 OF 176	

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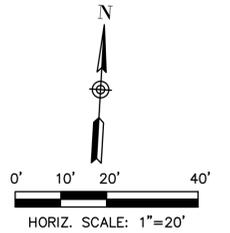


LEGEND:

PROPOSED CONCRETE PAVEMENT

BENCHMARK:

CITY OF HOUSTON MONUMENT 5264-8415: A BRASS DISK IN CONCRETE, LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF ESPLANADE BOULEVARD AND NORTH FREEWAY (IH 45) WEST BOUND FRONTAGE ROAD ELEV 86.05' NAVD 1988 (CORS96, GEOID 12A)



MATCH LINE STA 65+00
SEE SHEET 63

SEE NOTE 4
SEE NOTE 5

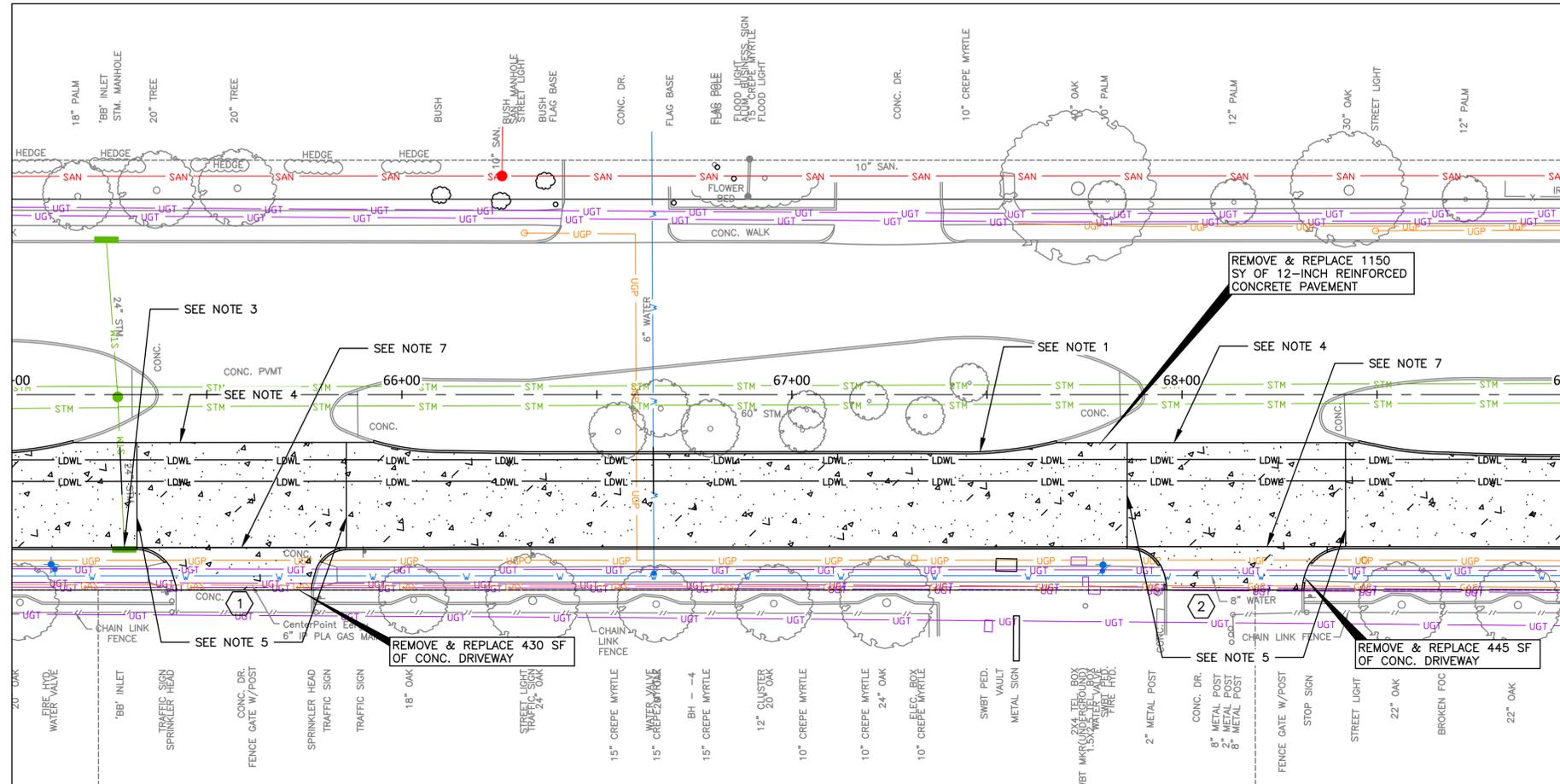
REFER TO SHEET 112 FOR
ESPLANADE DETAIL

REMOVE & REPLACE 842 SY
OF 12-INCH REINFORCED
CONCRETE PAVEMENT

- NOTES:
1. REMOVE AND REPLACE 6" CURB. SEE SHEET 109.
 2. SAW CUT EXISTING PAVEMENT, REFERENCE SHEET 111.
 3. REMOVE AND REPLACE STM INLET IF DAMAGED.
 4. REMOVE AND REPLACE STM MANHOLE, MAKE FLUSH WITH PROP PAVEMENT.
 5. ENSURE PROP PAVEMENT MATCHES EXISTING ELEVATION.
 6. REPLACE PAVEMENT MARKINGS AFTER CONSTRUCTION OF PROP PAVEMENT. MATCH EXISTING PAVEMENT MARKINGS. REFER TO PAVEMENT MARKINGS SHEETS.

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 <p>AURORA TECHNICAL SERVICES, LLC 2121 SAGE ROAD, SUITE 150 PHONE: 281-453-7700 TX FIRM NO: F-2059</p>	<p>INTERIM REVIEW ONLY Document incomplete: not intended for regulatory approval, permit, or construction. JEFFREY HAY 147887 Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059</p>
<p>SURVEYED BY: LANDTECH FB NO. P-6342</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p>	
<p>PLAN - FALLBROOK DR STA 62+00 - 65+00</p>	
<p>WBS NUMBER S-000900-0178-4</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JOAQUIN LOPEZ</p>	
<p>SHEET NO. 61 OF 176</p>	
<p>NO. DATE</p>	
<p>REVISION</p>	
<p>APP.</p>	

MATCH LINE STA 65+00
SEE SHEET 61

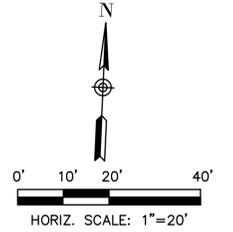


MATCH LINE STA 69+00
SEE SHEET 65

LEGEND:

- PROPOSED CONCRETE PAVEMENT
- DRIVEWAY SCHEDULE NUMBER (SEE NOTE 8)

BENCHMARK:
CITY OF HOUSTON MONUMENT
5264-8415: A BRASS DISK IN CONCRETE,
LOCATED AT THE SOUTHEAST CORNER OF
THE INTERSECTION OF ESPLANADE
BOULEVARD AND NORTH FREEWAY (IH 45)
WEST BOUND FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



NO.	DATE	REVISION	APP.

NOTES:

1. REMOVE AND REPLACE 6" CURB. SEE SHEET 109.
2. SAW CUT EXISTING PAVEMENT, REFERENCE SHEET 111.
3. REMOVE AND REPLACE STM INLET IF DAMAGED.
4. ENSURE PROP PAVEMENT MATCHES EXISTING ELEVATION.
5. HIGH EARLY STRENGTH CONCRETE.
6. REPLACE PAVEMENT MARKINGS AFTER CONSTRUCTION OF PROP PAVEMENT. MATCH EXISTING PAVEMENT MARKINGS. REFER TO SHEET PAVEMENT MARKINGS SHEETS.
7. REFER TO SHEET 113 & 114 FOR DRIVEWAY DETAILS
8. REFER TO SHEET 175 FOR DRIVEWAY SCHEDULE.

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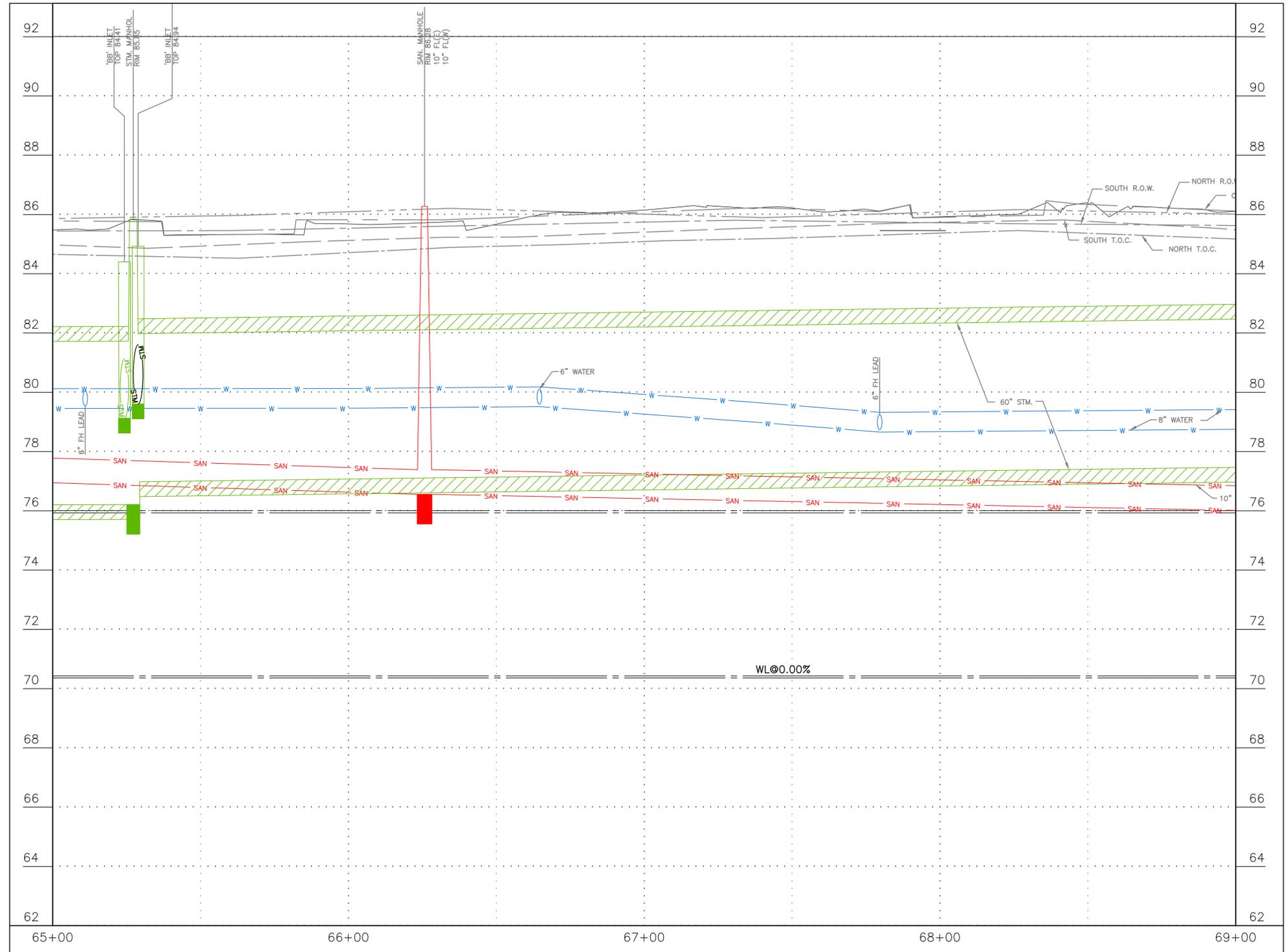
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PLAN - FALLBROOK DR
STA 65+00 TO STA 69+00
(SHEET 3 OF 12)

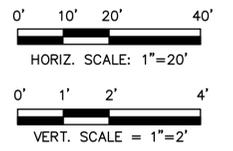
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 63 OF 176	

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BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
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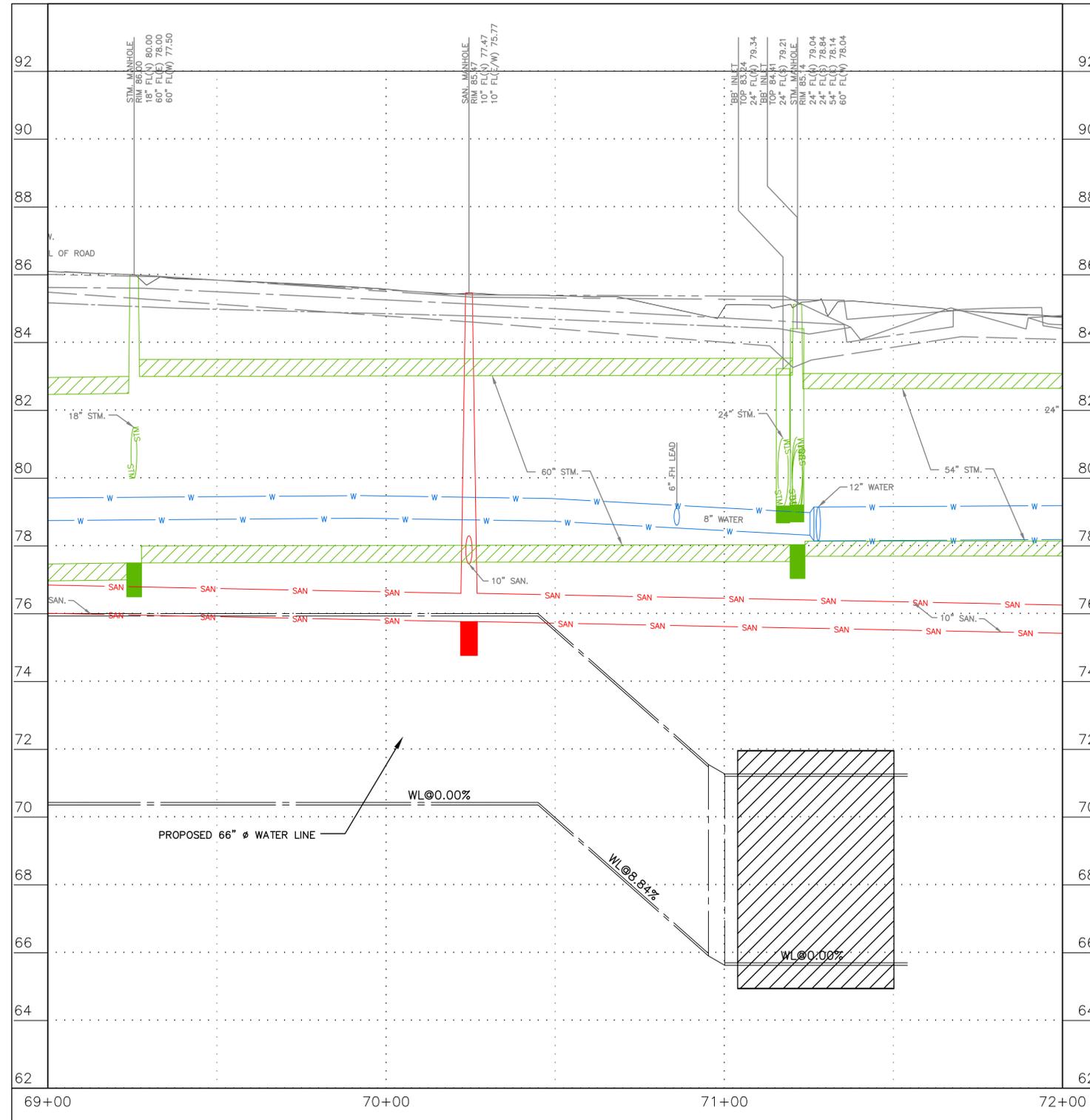
66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

PROFILE - FALLBROOK DR
 STA 65+00 TO STA 69+00
 (SHEET 4 OF 12)

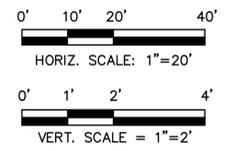
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 64 OF 176	

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\Sheet Set\Sheet Cut Limits 1_27_25.dwg PLOT STYLE: COH.ctb

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BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



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66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

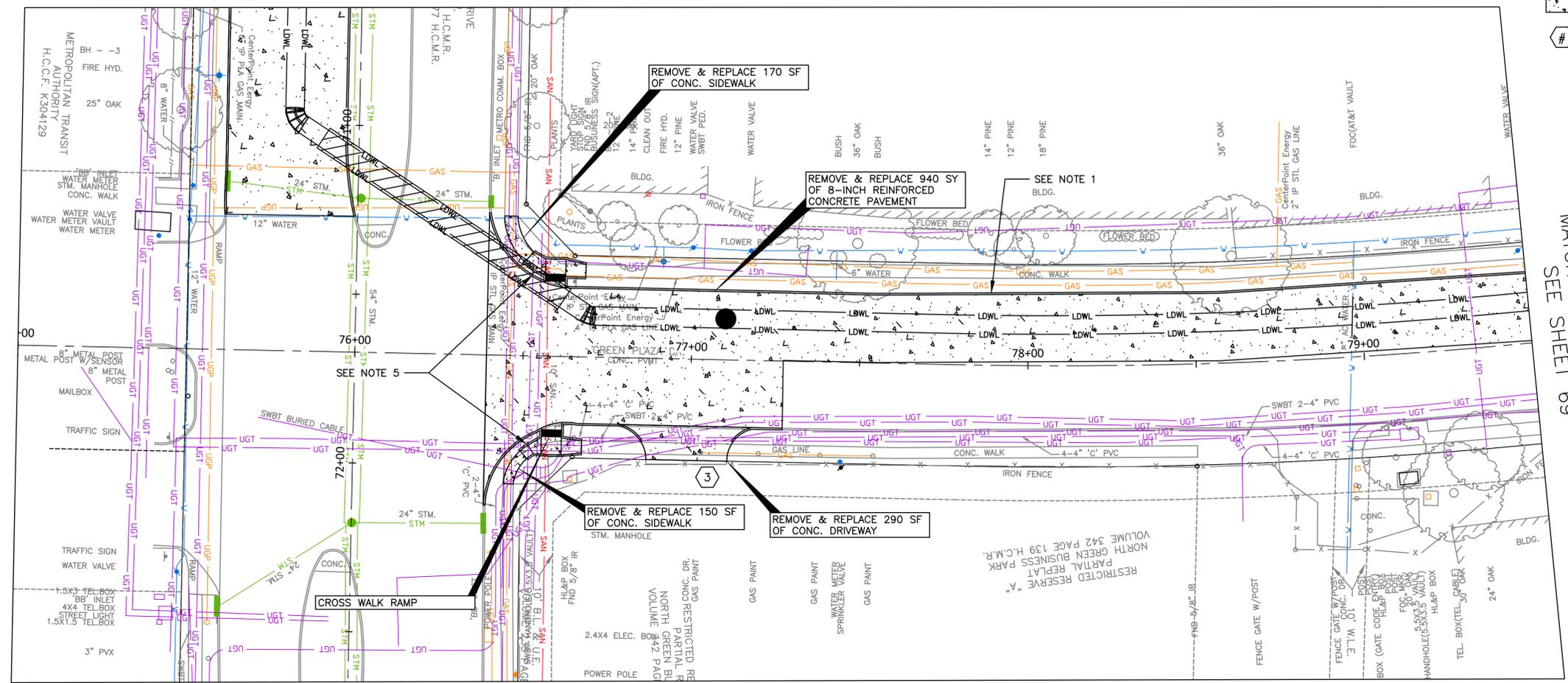
PROFILE - FALLBROOK DR
 STA 69+00 TO STA 73+00
 (SHEET 6 OF 12)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 66 OF 176	

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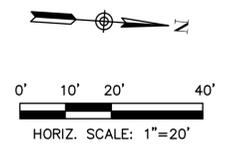
SEE SHEET 65



LEGEND:

- PROPOSED CONCRETE PAVEMENT
- DRIVEWAY SCHEDULE NUMBER

BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
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 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



MATCH LINE STA 79+50
 SEE SHEET 69

REMOVE & REPLACE 170 SF
 OF CONC. SIDEWALK

REMOVE & REPLACE 940 SY
 OF 8-INCH REINFORCED
 CONCRETE PAVEMENT

REMOVE & REPLACE 150 SF
 OF CONC. SIDEWALK

REMOVE & REPLACE 290 SF
 OF CONC. DRIVEWAY

CROSS WALK RAMP

- NOTES:
- REMOVE AND REPLACE 6" CURB. SEE SHEET 109.
 - SAW CUT EXISTING PAVEMENT, REFERENCE SHEET 111.
 - ENSURE PROP PAVEMENT MATCHES ELEVATION OF EXISTING ELEVATION.
 - REFER TO SHEETS 113 & 114 FOR DRIVEWAY DETAILS.
 - REFERENCE SHEETS 115 - 120 FOR CROSSWALK RAMP STANDARD DETAILS. REFERENCE 121 FOR RAMP DIMENSIONS.

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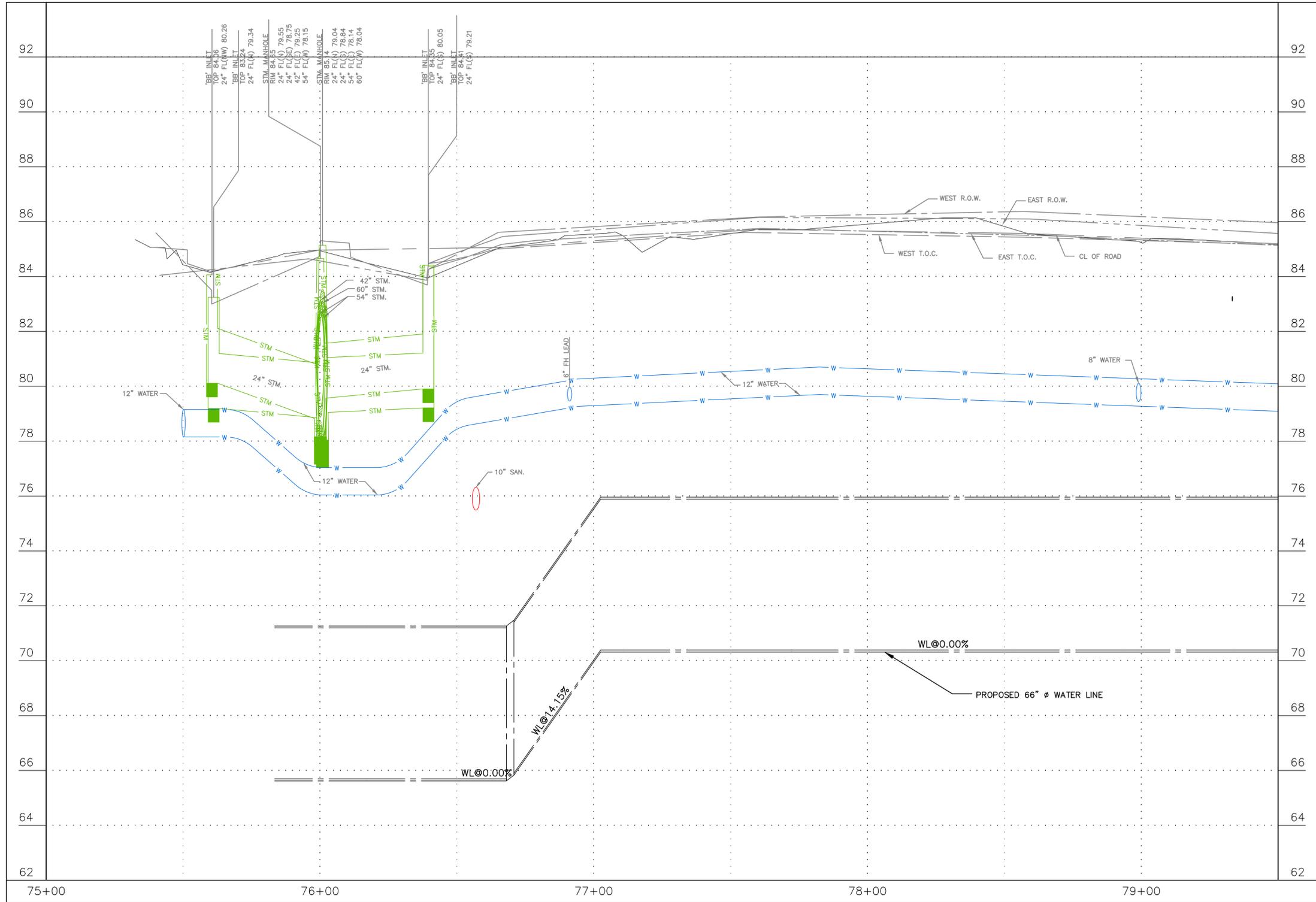
66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

PLAN - GREEN PLAZA
 DR STA 75+00 TO STA
 79+50 (SHEET 7 OF 12)

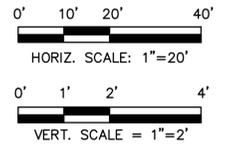
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DRAWING SCALE	
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SHEET NO. 67 OF 176	

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BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
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 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



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Professional Engineer
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Registration Number

Date

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CITY OF HOUSTON
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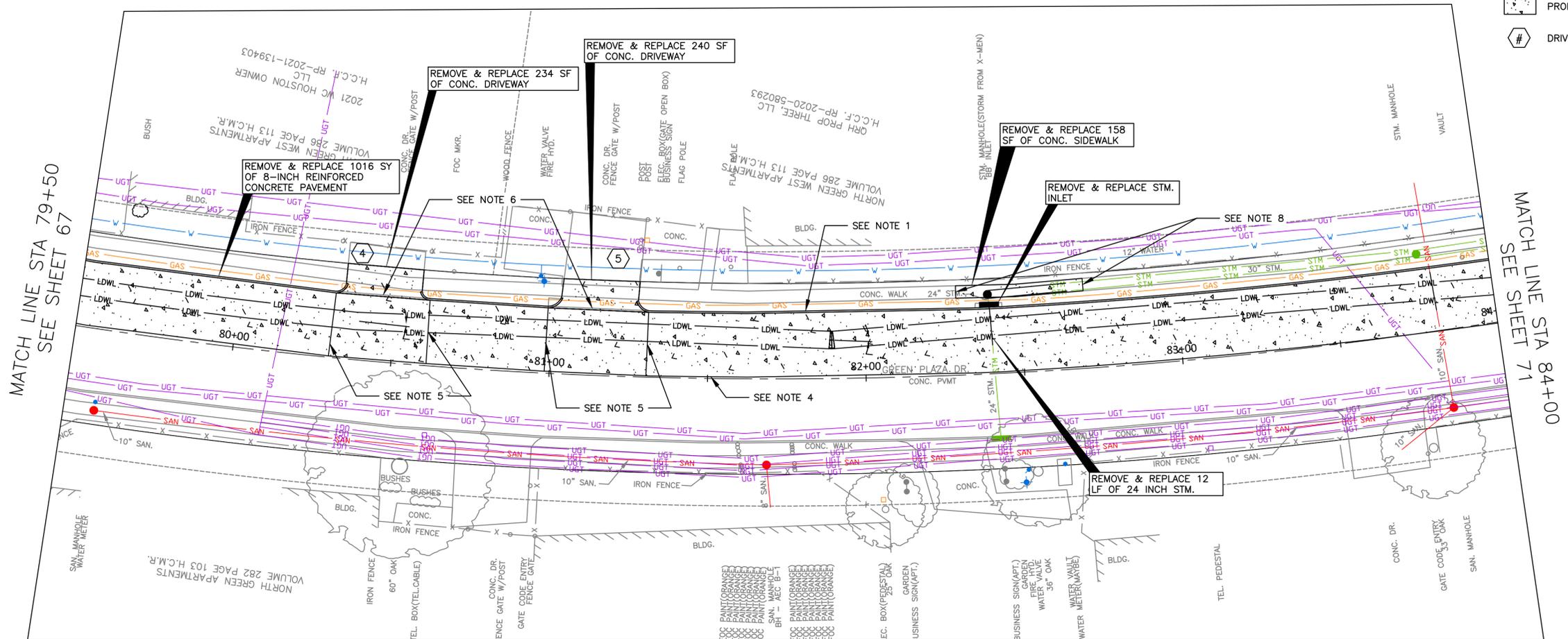
66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

PROFILE - GREEN PLAZA
 DR STA 75+00 TO STA
 79+50 (SHEET 8 OF 12)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 68 OF 176	

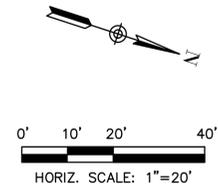
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- LEGEND:**
- PROPOSED CONCRETE PAVEMENT
 - DRIVEWAY SCHEDULE NUMBER

BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



NO.	DATE	REVISION	APP.

MATCH LINE STA 79+50
SEE SHEET 67

MATCH LINE STA 84+00
SEE SHEET 71

- NOTES:**
1. REMOVE AND REPLACE 6" CURB. SEE SHEET 109.
 2. SAW CUT EXISTING PAVEMENT, REFERENCE SHEET 111.
 3. REMOVE AND REPLACE STM INLET IF DAMAGED.
 4. ENSURE PROP PAVEMENT MATCHES ELEVATION OF EXISTING ELEVATION.
 5. HIGH EARLY STRENGTH CONCRETE.
 6. REFER TO SHEET 113 & 114 FOR DRIVEWAY DETAILS.
 7. REFER TO SHEET 175 FOR DRIVEWAY SCHEDULE.
 8. CONTRACTOR TO REMOVE AND REPLACE CONCRETE SIDEWALK TO NEAREST EXISTING EXPANSION JOINT.

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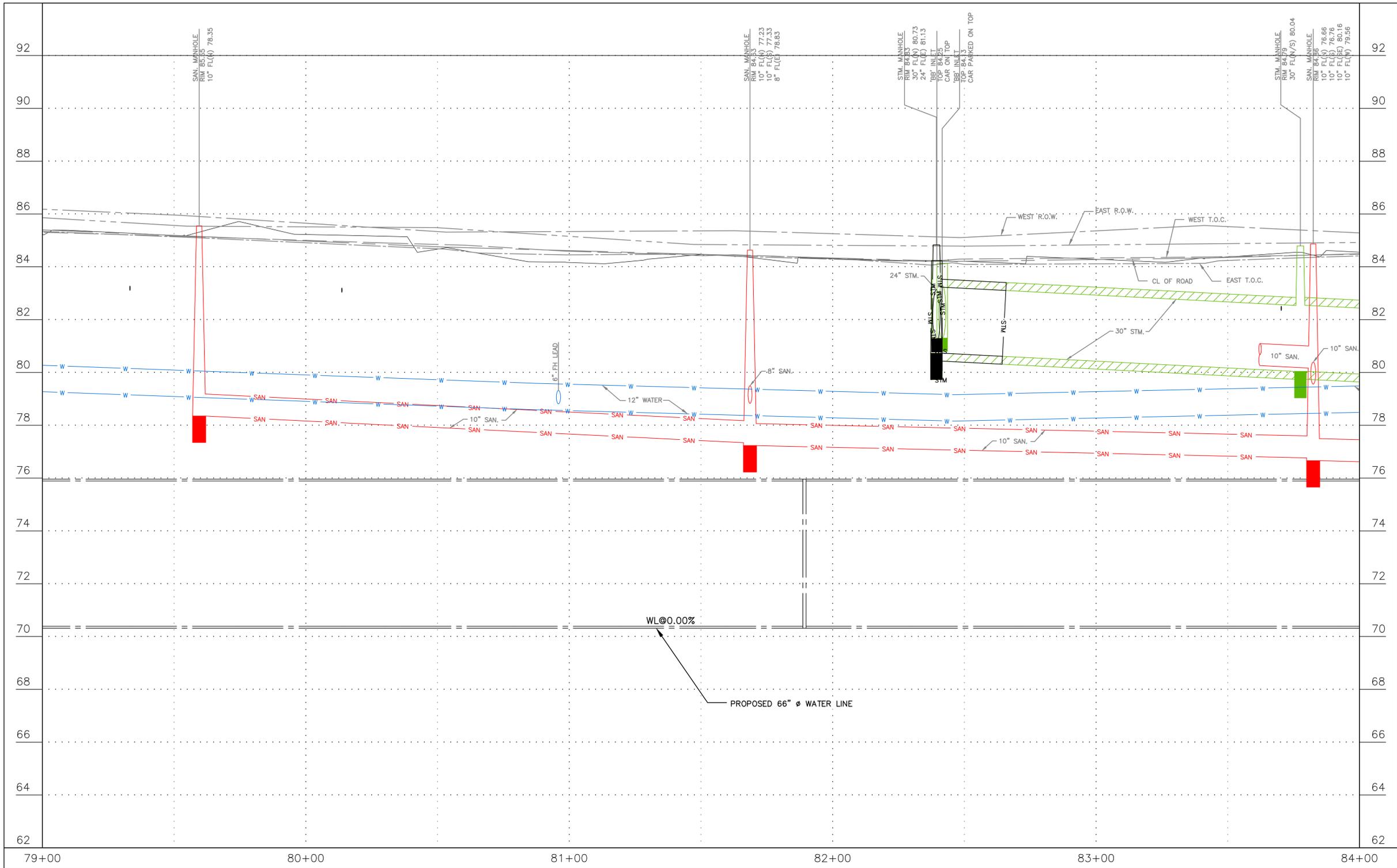
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PLAN - GREEN PLAZA DR STA 79+50 TO STA 84+00 (SHEET 9 OF 12)

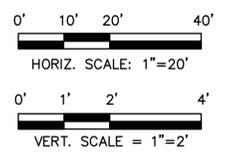
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 69 OF 176	

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\Sheet Set\Sheet Cut Limits 1_27_25.dwg PLOT STYLE: COH.ctb

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BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



NO.	DATE	REVISION	APP.

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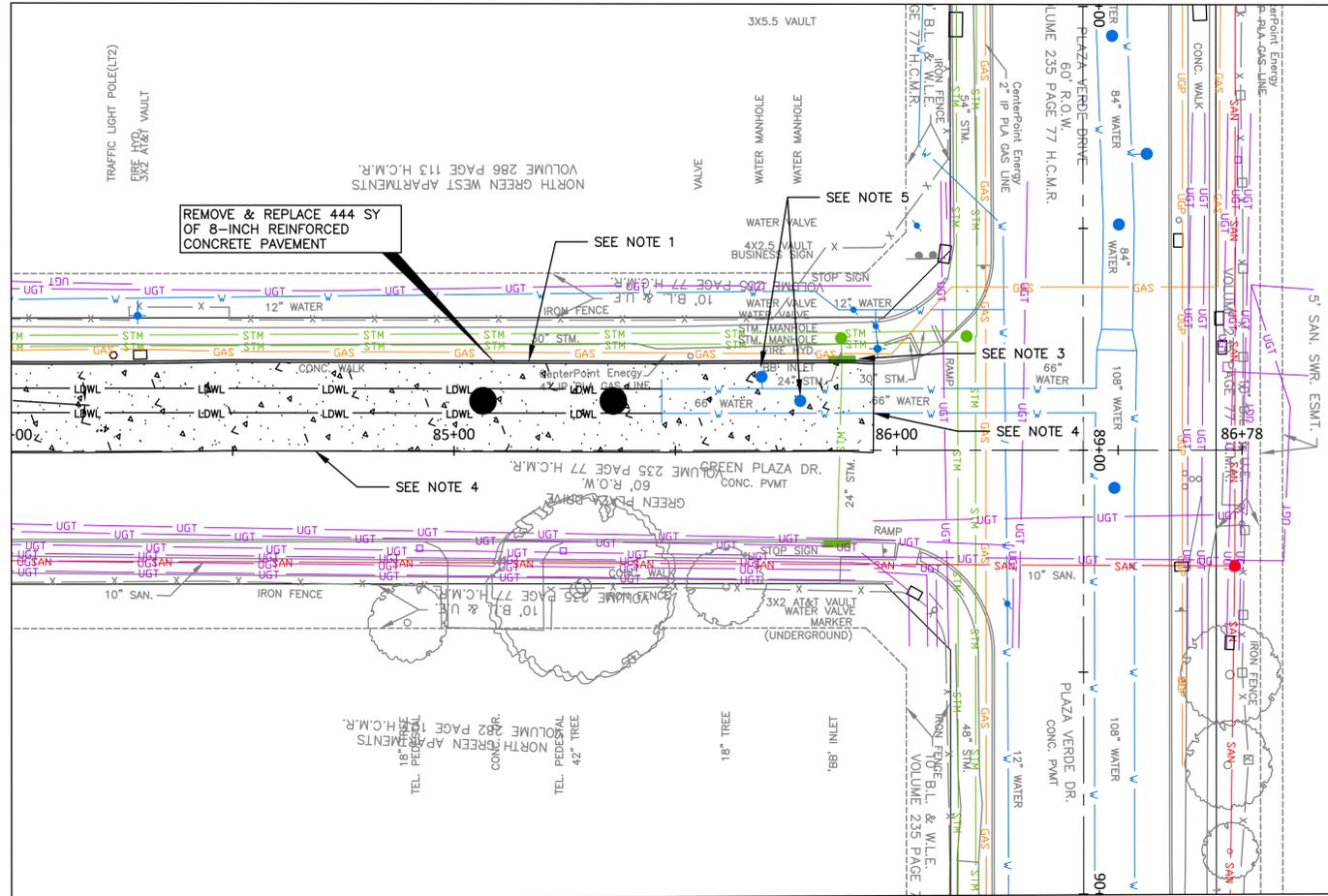
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

PROFILE - GREEN PLAZA
 DR STA 79+50 TO STA
 84+00 (SHEET 10 OF 12)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 70 OF 176	

MATCH LINE STA 84+00
SEE SHEET 69

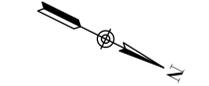


LEGEND:

PROPOSED CONCRETE PAVEMENT

BENCHMARK:

CITY OF HOUSTON MONUMENT
5264-8415: A BRASS DISK IN CONCRETE,
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WEST BOUND FRONTAGE ROAD
ELEV 86.05' NAVD 1988 (CORS96, GEOID
12A)



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

NO.	DATE	REVISION	APP.

NOTES:

1. REMOVE AND REPLACE 6" CURB. SEE SHEET 109.
2. SAW CUT EXISTING PAVEMENT, REFERENCE SHEET 111.
3. REMOVE AND REPLACE STM INLET IF DAMAGED.
4. ENSURE PROP PAVEMENT MATCHES EXISTING ELEVATION.
5. ENSURE MH COVER ELEVATION MATCHES PROPOSED PAVEMENT ELEVATION.

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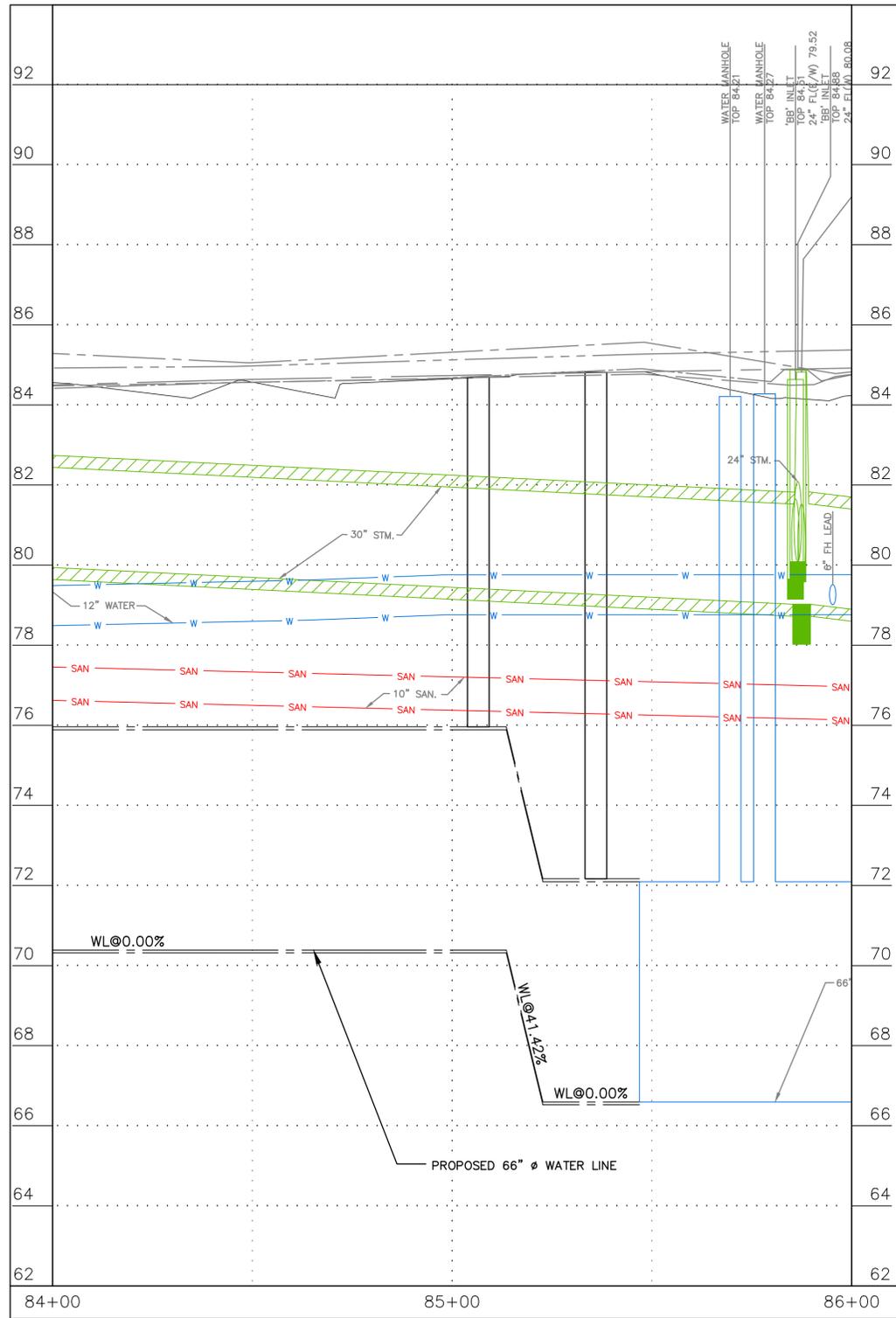
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

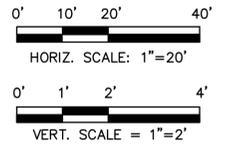
66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

PLAN - GREEN PLAZA DR
STA 84+00 TO STA
86+78 (SHEET 11 OF 12)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 71 OF 176	



BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)



NO.	DATE	REVISION	APP.

FREES & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

Aurora Technical Services, LLC
 2121 SAGE ROAD, SUITE 150
 HOUSTON, TEXAS 77058
 PHONE: 281-453-7700
 TX FIRM NO: F-2059

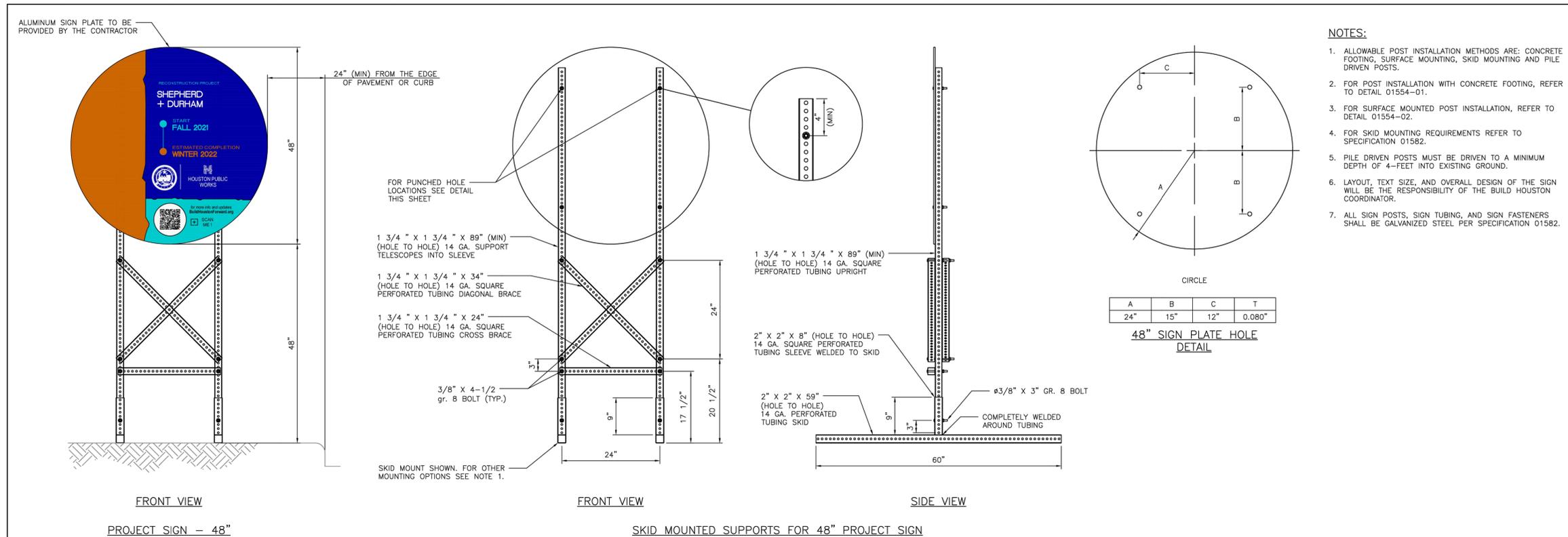
INTERIM REVIEW ONLY
 Document incomplete; not intended for
 regulatory approval, permit, or construction.
 JEFFREY HAY
 147887
 Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

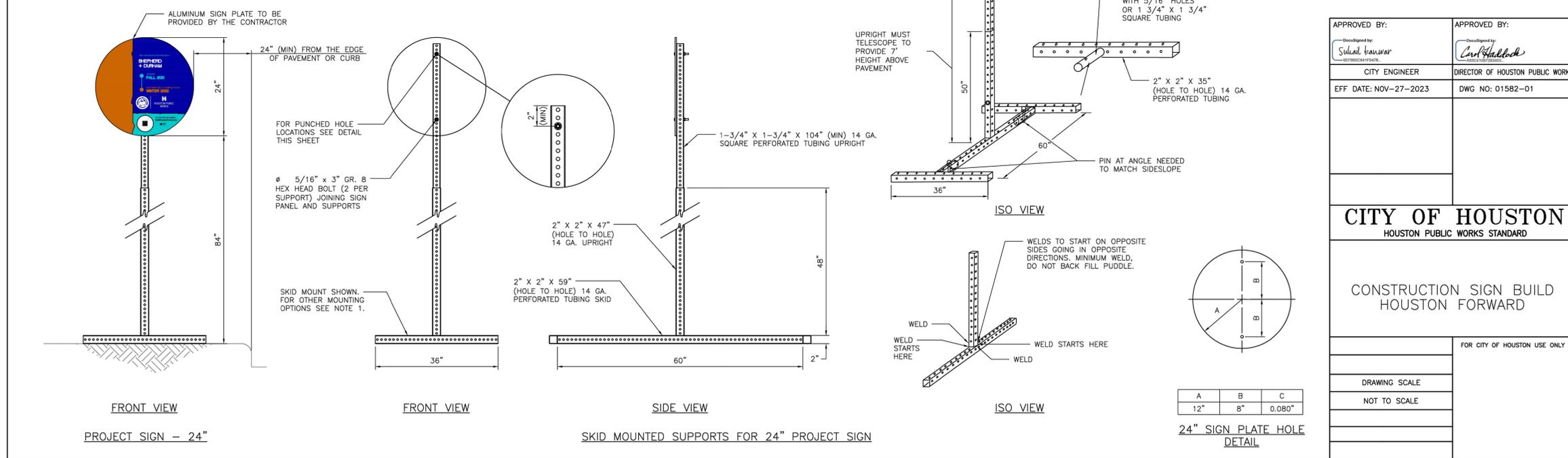
66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

PROFILE - GREEN PLAZA
 DR STA 84+00 TO STA
 86+00 (SHEET 12 OF 12)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 72 OF 176	



- 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.



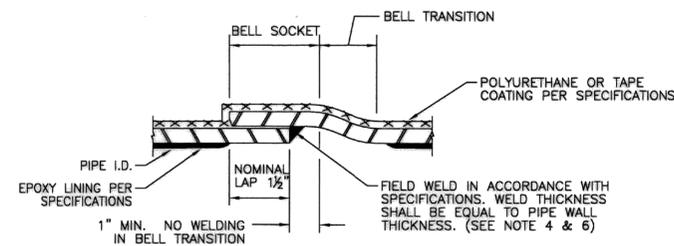
APPROVED BY: <i>Sulaim Alkawasir</i> CITY ENGINEER	APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: NOV-27-2023	DWG NO: 01582-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
CONSTRUCTION SIGN BUILD HOUSTON FORWARD	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p>	
<p>CONSTRUCTION SIGN BUILD HOUSTON FORWARD</p>	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 073 OF 176	

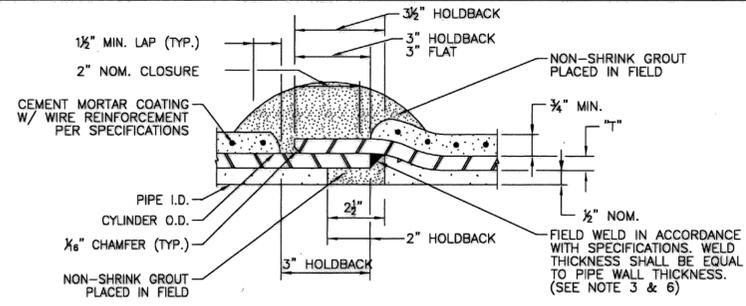
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PLOT STYLE: Coh_ctb_230809.ctb

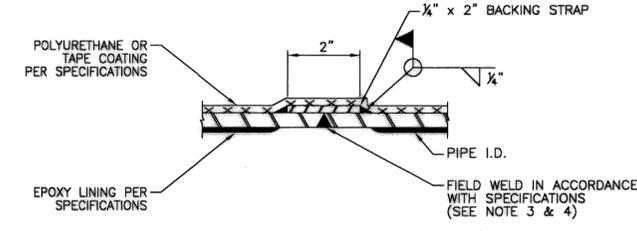
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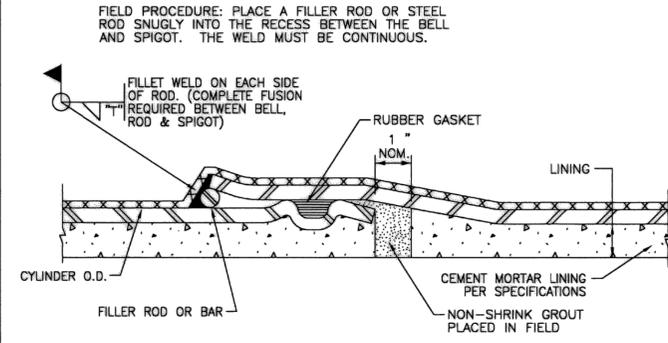
1 LAP-WELD FIELD JOINT - STEEL PIPE JOINT
FLEXIBLE COATING AND LINING



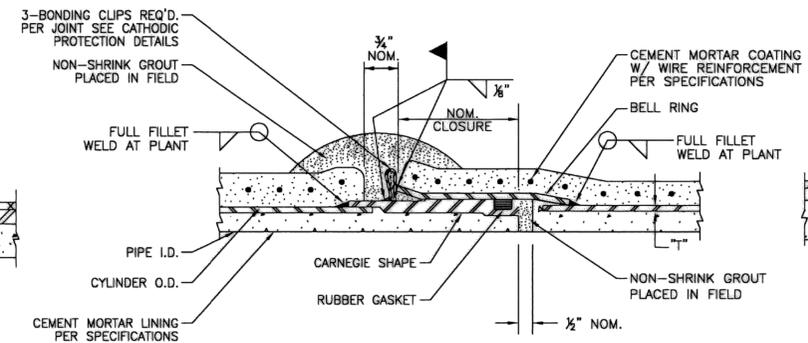
2 LAP-WELD FIELD JOINT - STEEL PIPE JOINT
CEMENT MORTAR LINED & CEMENT MORTAR COATED



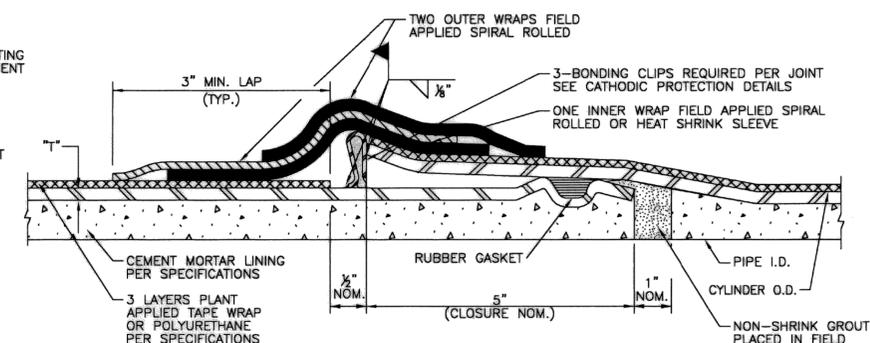
3 BUTT WELD FIELD JOINT - STEEL PIPE JOINT
FLEXIBLE COATING AND LINING



4 FIELD WELDED O-RING - STEEL PIPE JOINT
FLEXIBLE COATING AND CEMENT MORTAR 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.

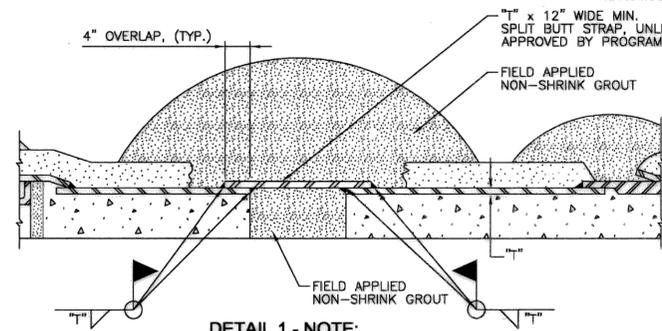
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

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

 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com	<p style="text-align: center;">NOT FOR CONSTRUCTION</p> <p style="font-size: small;">THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.</p>
SURVEYED BY: LANDTECH, INC. FB NO. P-6342	
<p style="font-size: large;">CITY OF HOUSTON</p> HOUSTON PUBLIC WORKS <p style="font-size: large;">66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p> <p style="font-size: large;">STANDARD LDWL</p> <p style="font-size: large;">STEEL PIPE DETAILS</p> <p style="font-size: large;">(SHEET 1 OF 2)</p>	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE NOT TO SCALE	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 074 OF 176	

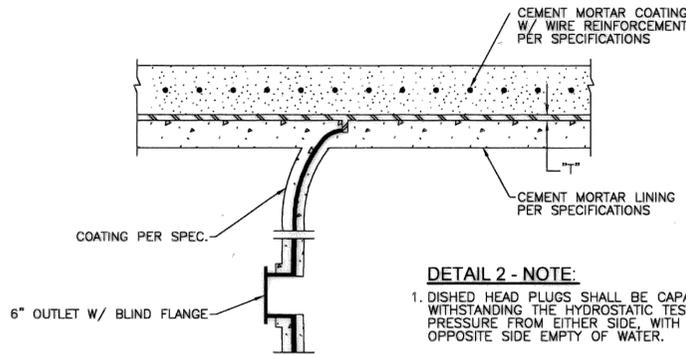


DETAIL 1 - NOTE:

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)

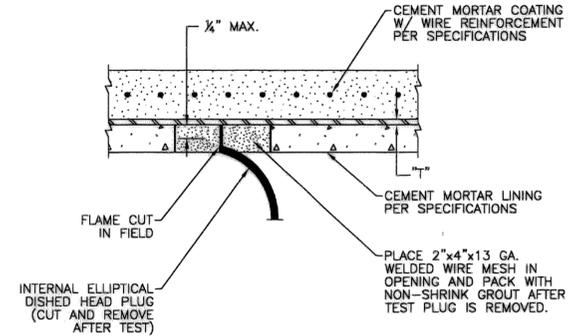


DETAIL 2 - NOTE:

1. DISHED HEAD PLUGS SHALL BE CAPABLE OF WITHSTANDING THE HYDROSTATIC TEST PRESSURE FROM EITHER SIDE, WITH THE OPPOSITE SIDE EMPTY OF WATER.

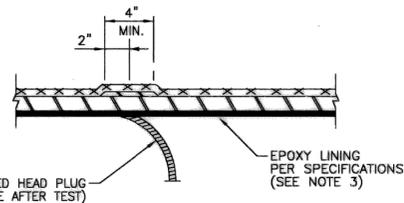
2 INTERNAL ELLIPTICAL DISHED HEAD PLUG

CEMENT MORTAR LINING AND CEMENT MORTAR COATED STEEL PIPE SPECIAL



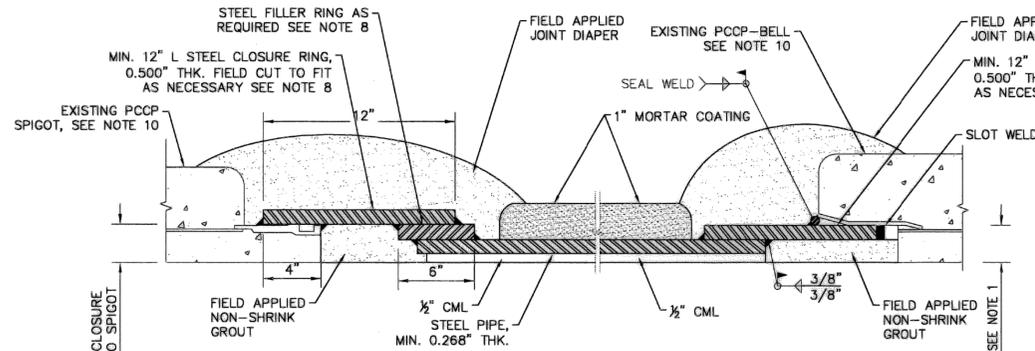
3 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL

CEMENT MORTAR LINING AND CEMENT MORTAR COATED STEEL PIPE SPECIAL



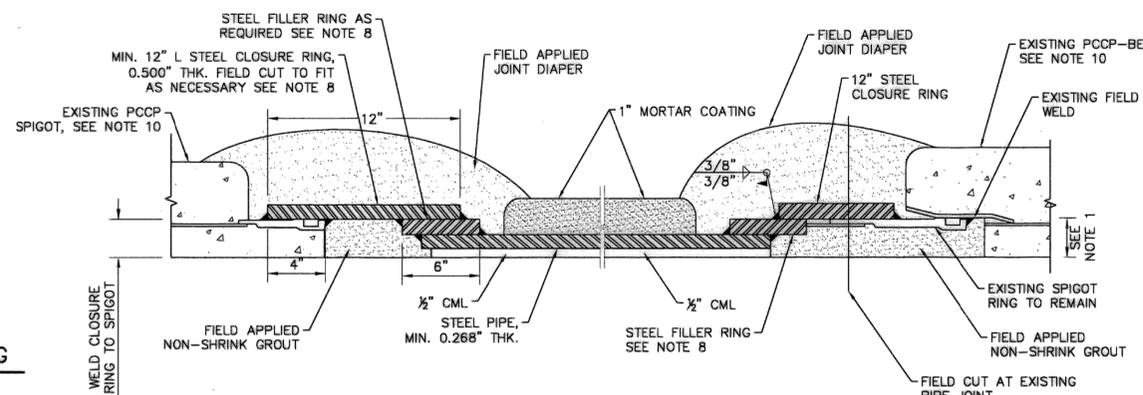
4 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL

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)

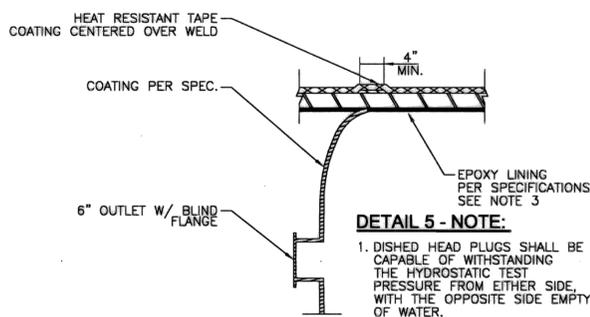


7 CONNECTION PIECE DETAIL STEEL-TO-PCCP BELL/SPIGOT

(OPTION 2: IF EXISTING PIPE JOINT IS 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 ENGASEMENT 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

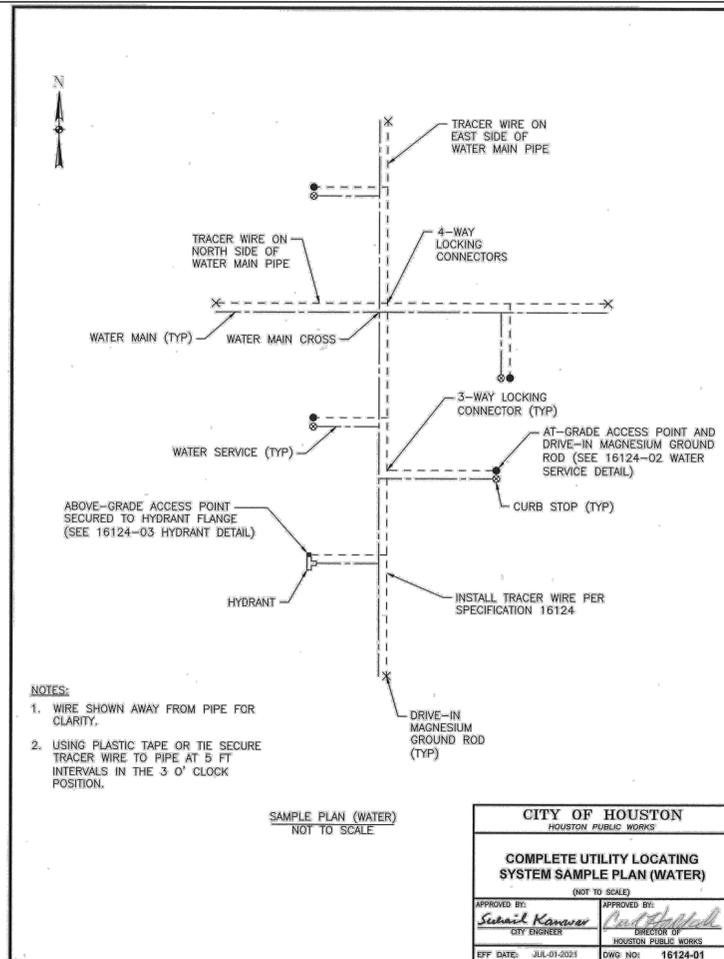
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD LDWL STEEL PIPE DETAILS (SHEET 2 OF 2) (NOT TO SCALE)	
APPROVED BY: ACTING CITY ENGINEER	APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02518-02

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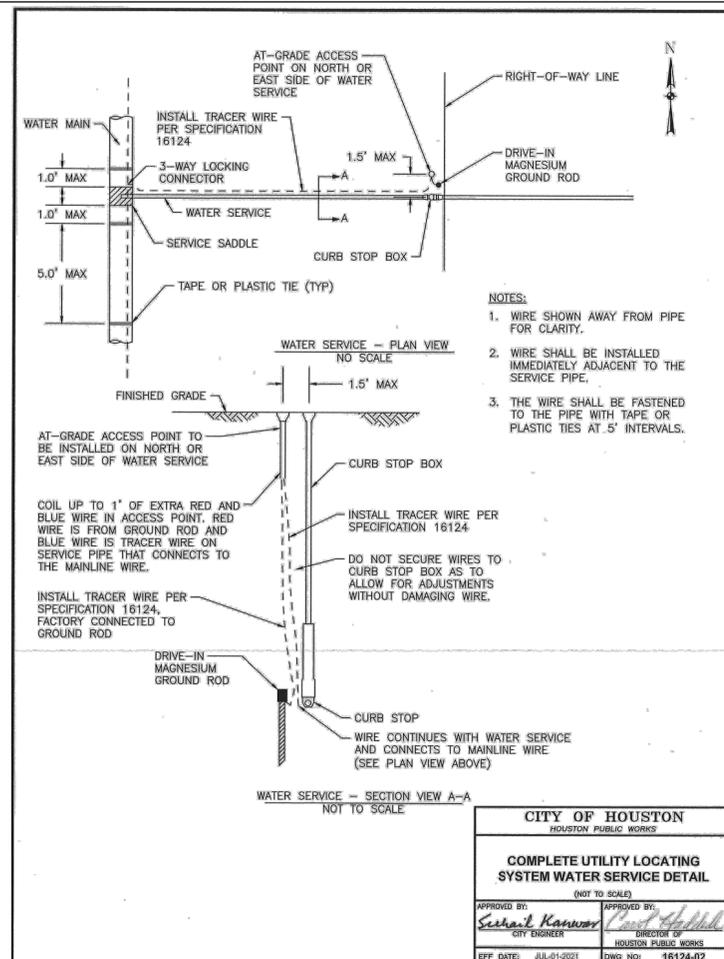
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL
STEEL PIPE DETAILS
 (SHEET 2 OF 2)

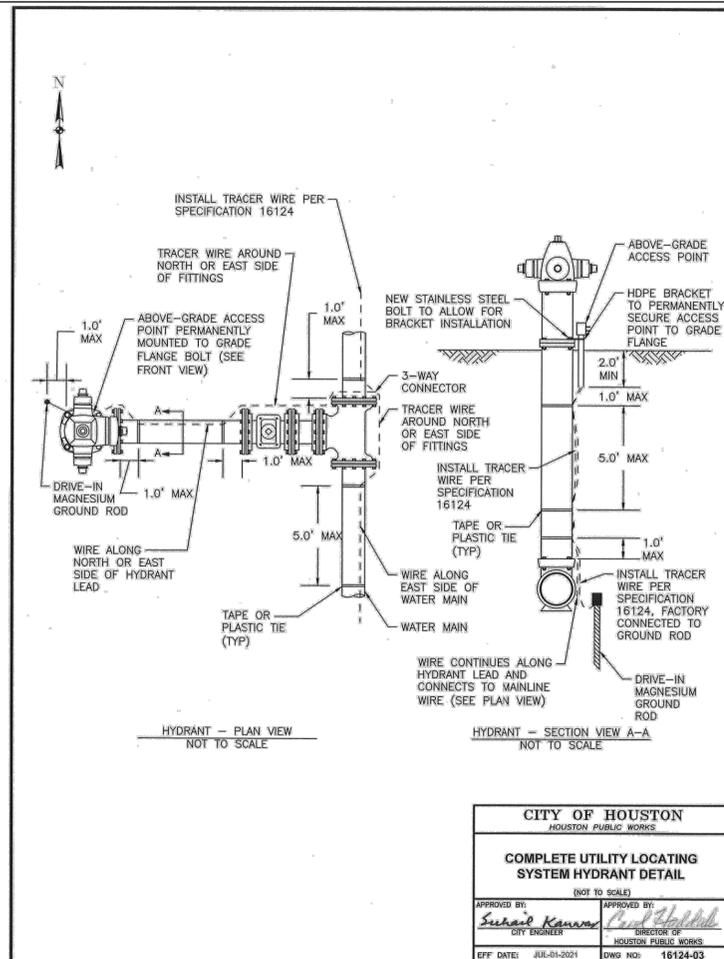
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 075 OF 176	



CITY OF HOUSTON HOUSTON PUBLIC WORKS	
COMPLETE UTILITY LOCATING SYSTEM SAMPLE PLAN (WATER)	
(NOT TO SCALE)	
APPROVED BY: <i>Sehar Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Paul Haddad</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 16124-01



CITY OF HOUSTON HOUSTON PUBLIC WORKS	
COMPLETE UTILITY LOCATING SYSTEM WATER SERVICE DETAIL	
(NOT TO SCALE)	
APPROVED BY: <i>Sehar Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Paul Haddad</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 16124-02



CITY OF HOUSTON HOUSTON PUBLIC WORKS	
COMPLETE UTILITY LOCATING SYSTEM HYDRANT DETAIL	
(NOT TO SCALE)	
APPROVED BY: <i>Sehar Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Paul Haddad</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 16124-03

NO.	DATE	REVISION	APP.

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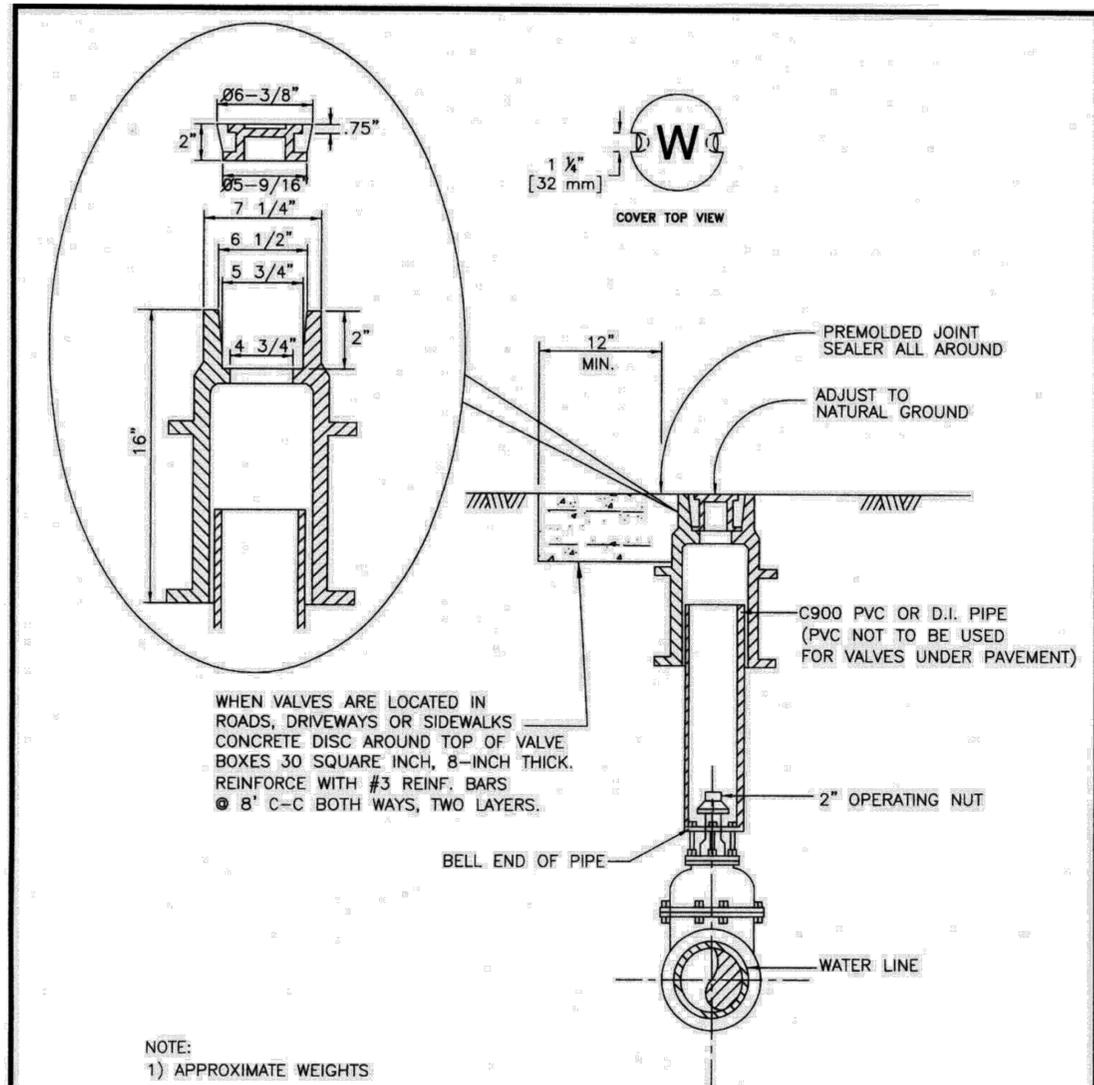
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
COMPLETE UTILITY LOCATING SYSTEM DETAILS-SAMPLE PLAN, WATER SERVICE AND HYDRANT

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DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 076 OF 176	

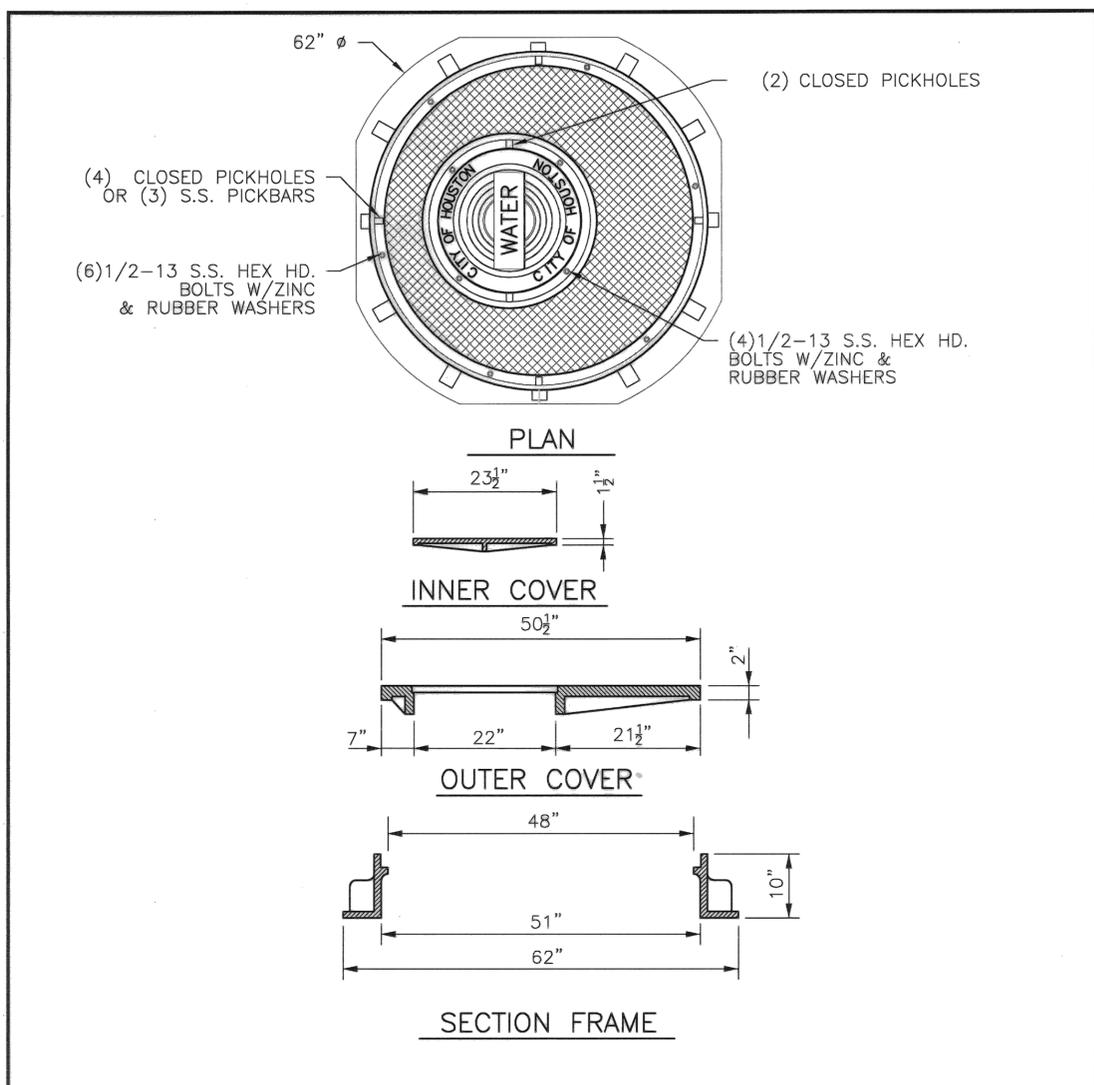
NO.	DATE	REVISION	APP.



WHEN VALVES ARE LOCATED IN ROADS, DRIVEWAYS OR SIDEWALKS CONCRETE DISC AROUND TOP OF VALVE BOXES 30 SQUARE INCH, 8-INCH THICK. REINFORCE WITH #3 REINF. BARS @ 8" C-C BOTH WAYS, TWO LAYERS.

- NOTE:
 1) APPROXIMATE WEIGHTS
 FRAME = 46 LBS
 COVER = 10 LBS
 2) MATERIAL = GRAY IRON ASTM A48 CL35B

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
VALVE BOX DETAIL	
(NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: JULY 01, 2010	DWG. NO: 02085-03



- NOTES:
 1. MATERIAL - GRAY IRON ASTM A48 CL35B / DUCTILE IRON ASTM A536 70-50-05
 2. CASTING TO MEET M306 PROOF LOAD SPECIFICATION
 3. EJIW MODEL V-7048-2 OR APPROVED EQUAL.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD LDWL 48" DIA HEAVY DUTY MANHOLE FRAME AND COVER DETAIL	
(NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> ACTING CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF. DATE: MAR-20-2018	DWG. NO: 02090-12

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	SURVEYED BY: LANDTECH, INC. FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

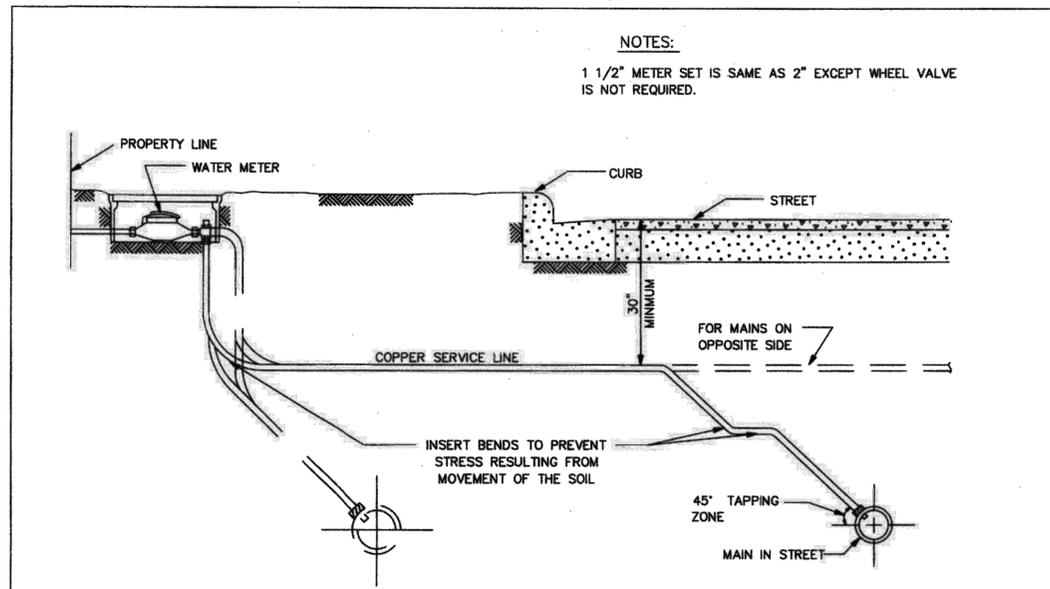
VALVE BOX AND HEAVY DUTY MANHOLE COVER/FRAME DETAIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 077 OF 176	

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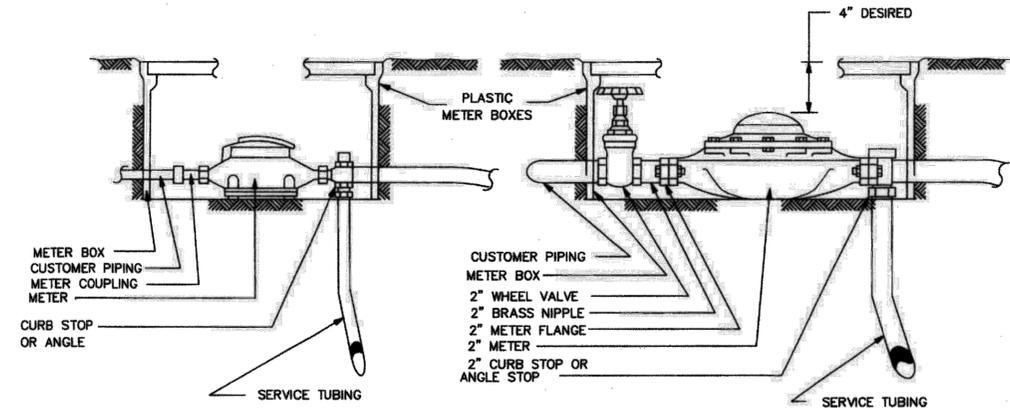
PLOT STYLE: Coh_ctb_230809.ctb

FILE PATH: N:\VTU\Drawings\CV-ALL-DT-MISC04.dwg



NOTES:
 1 1/2" METER SET IS SAME AS 2" EXCEPT WHEEL VALVE IS NOT REQUIRED.

TYPICAL SECTION SERVICE LINE



5/8", 3/4" AND 1" METER SET

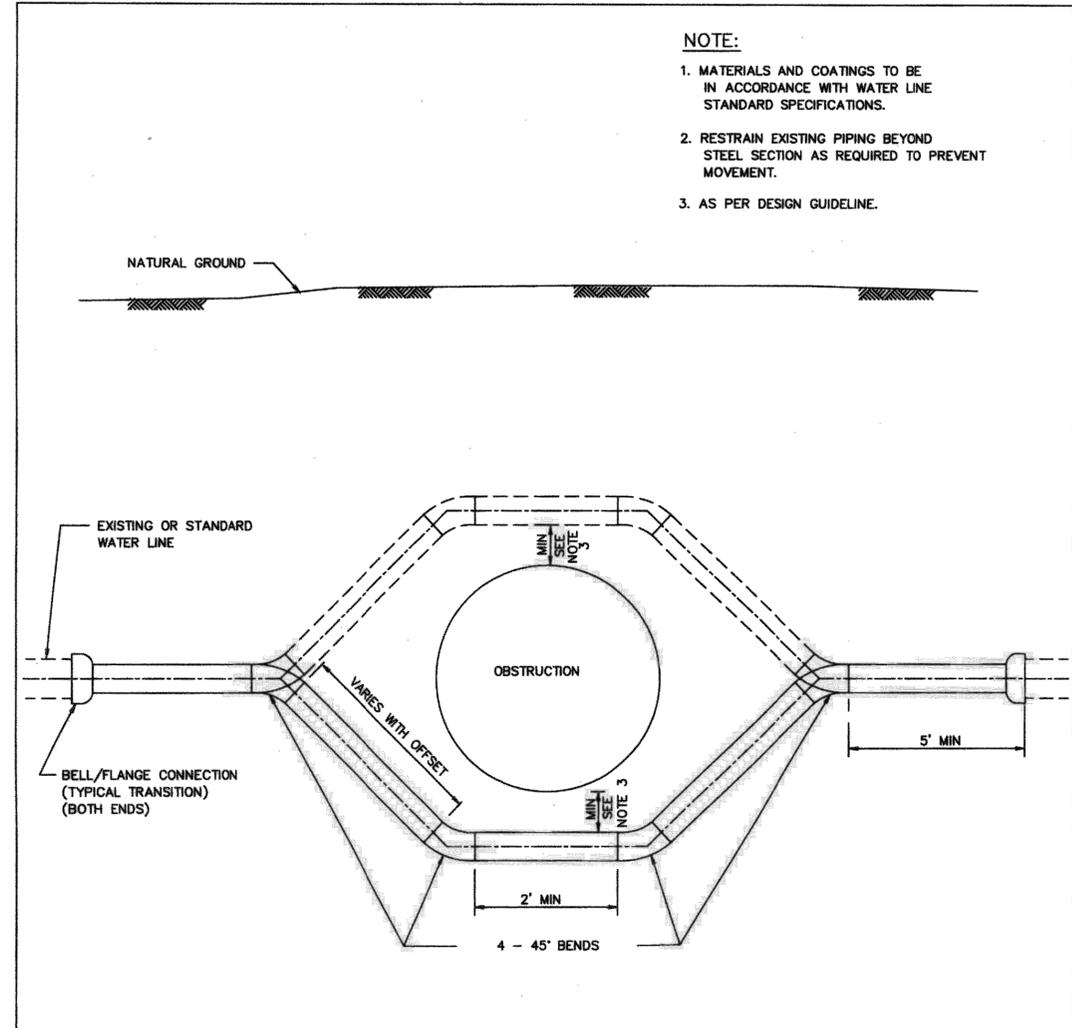
2" METER SET

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL METER SETTINGS
 (NOT TO SCALE)

APPROVED BY: [Signature] CITY ENGINEER
 APPROVED BY: [Signature] DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 DWG NO: 02526-01



NOTE:
 1. MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER LINE STANDARD SPECIFICATIONS.
 2. RESTRAIN EXISTING PIPING BEYOND STEEL SECTION AS REQUIRED TO PREVENT MOVEMENT.
 3. AS PER DESIGN GUIDELINE.

- PIPE OFFSET ALTERNATES**
- DUCTILE IRON PIPE PRESSURE 250 PSI WITH APPROVED RESTRAINED JOINTS.
 - PVC PIPE WITH INTEGRAL RESTRAINED JOINT SYSTEM, OR DUCTILE - IRON RESTRAINED JOINT FITTINGS, EPOXY LINED AND COATED. USE 250 PSI AWWA C900 DR 14 FOR PVC RESTRAINED JOINTS.
 - PVC NOT ALLOWED FOR GREATER THAN 20 FT OF COVER OR FOR DIAMETER LARGER THAN 20 IN.
 - USE ONLY DUCTILE IRON AND PVC PRODUCTS LISTED ON OCE DIVISION APPROVED PRODUCTS LIST AND IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL STEEL PIPE OFFSET SECTION FOR WATER LINES
 (NOT TO SCALE)

APPROVED BY: [Signature] CITY ENGINEER
 APPROVED BY: [Signature] DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 DWG NO: 02511-01

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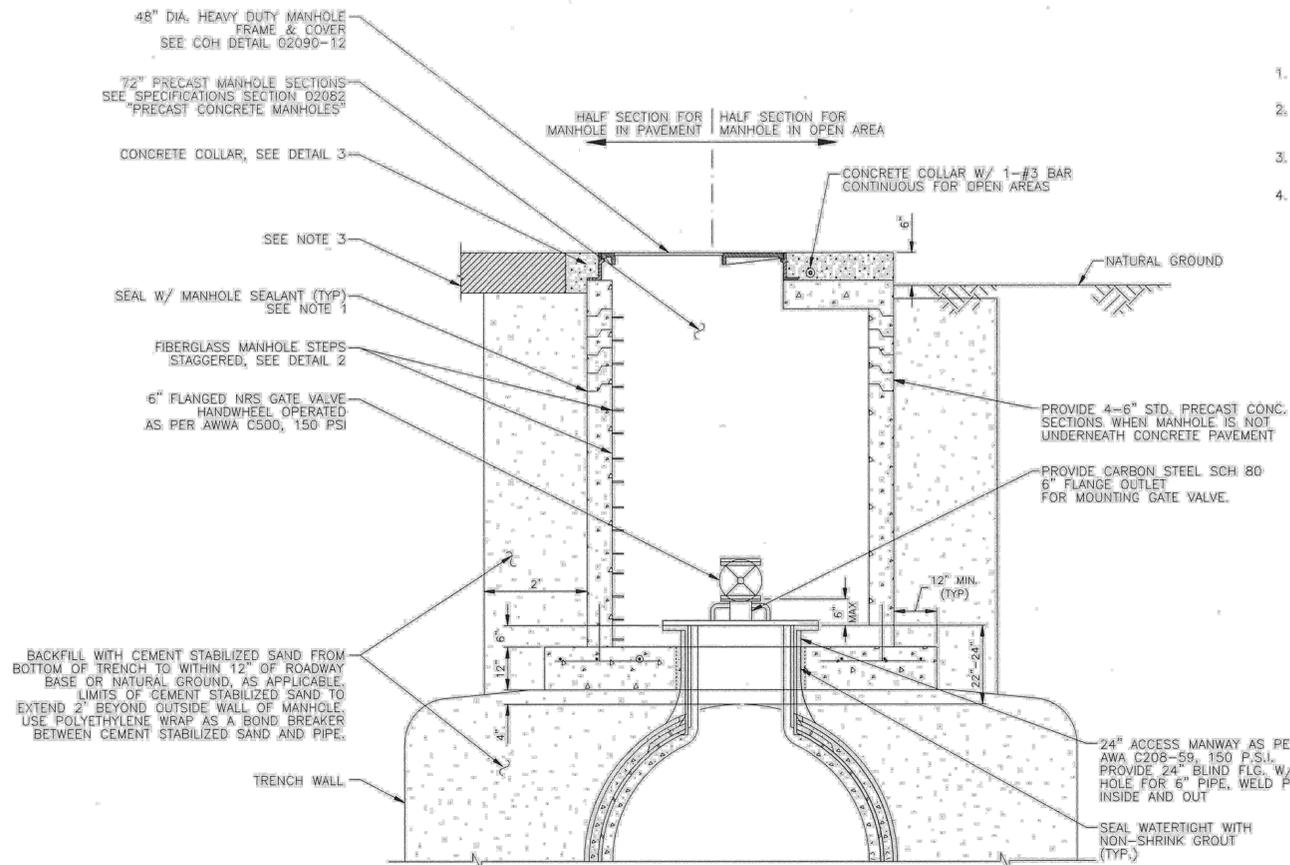
SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 TYPICAL METER SETTINGS &
 STEEL PIPE OFFSET SECTION
 FOR WATER LINES

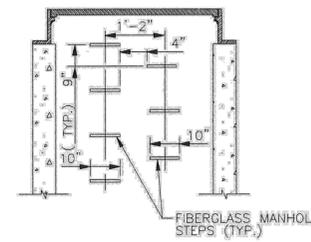
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 078 OF 176	

NO.	DATE	REVISION	APP.



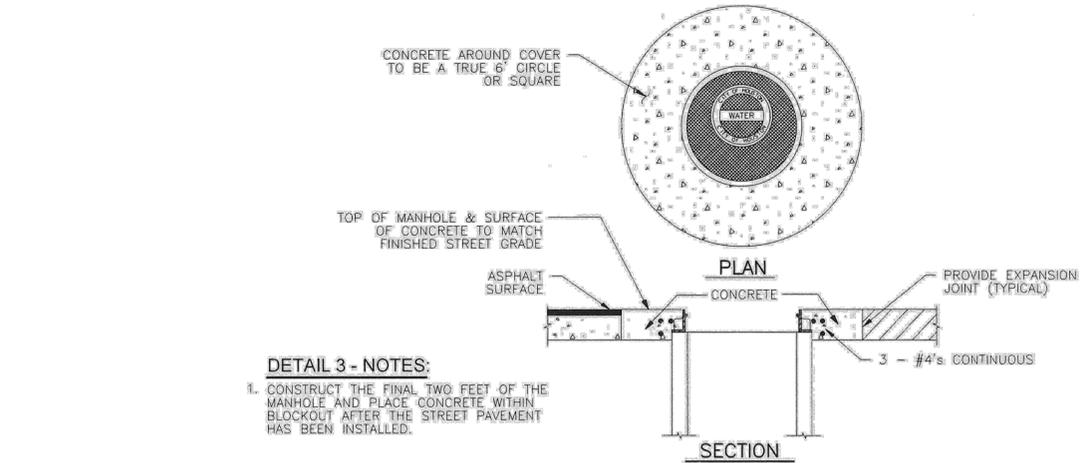
1 ACCESS MANWAY IN ACCESS MANHOLE
(FOR WATER LINES 36-INCH TO 96-INCH DIAMETER)

- 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.



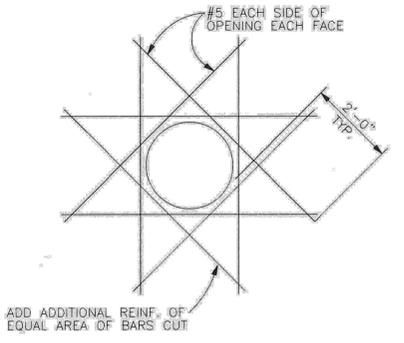
- DETAIL 2 - NOTES:**
1. PROVIDE MODEL PS1-PF STEPS AS MANUFACTURED BY M.A. INDUSTRIES INC. OR APPROVED EQUAL.
 2. BOTTOM MANHOLE STEP SHALL BE NO HIGHER THAN 12\"/>

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: <i>Suhail Kanner</i> CITY ENGINEER	APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JULY - 01 - 2021	DWG NO: 02082-10

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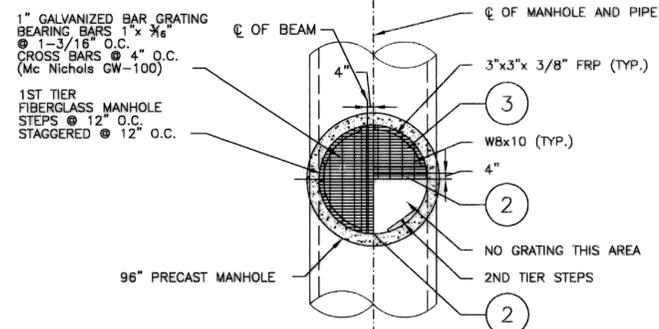
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FB NO. P-6342

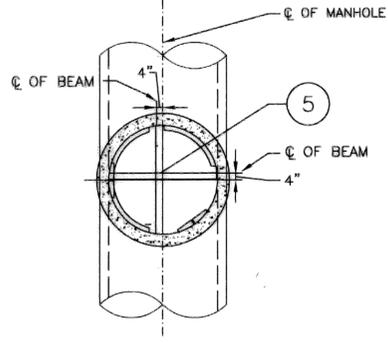
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL
ACCESS MANHOLE DETAILS

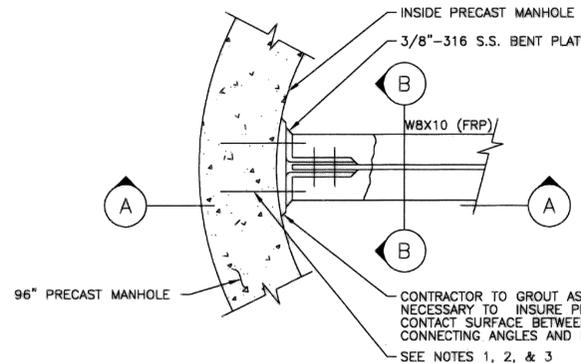
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NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 079 OF 176	



PLAN VIEW OF LANDING (W/GRATING SHOWN)

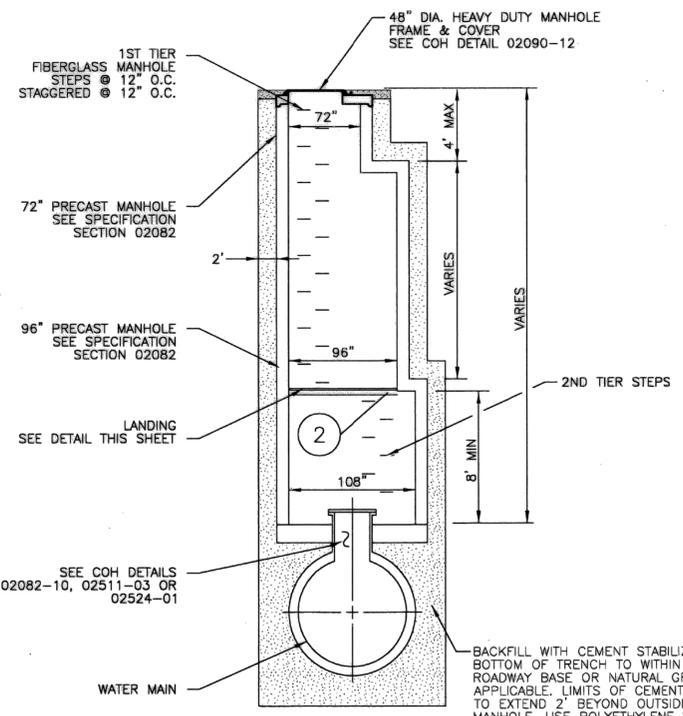


PLAN VIEW OF LANDING (W/O GRATING SHOWN)

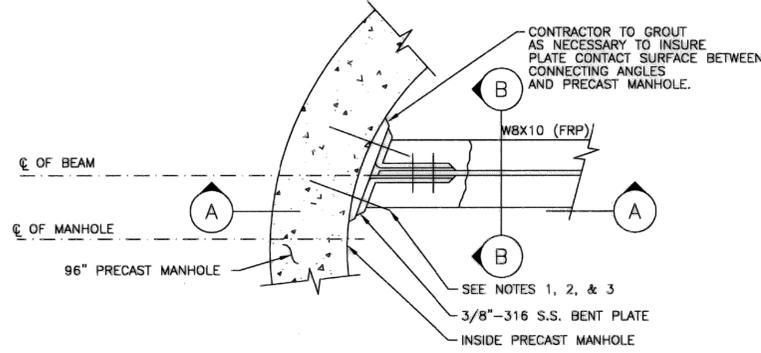


2 BEAM CONNECTION DETAIL NO SCALE

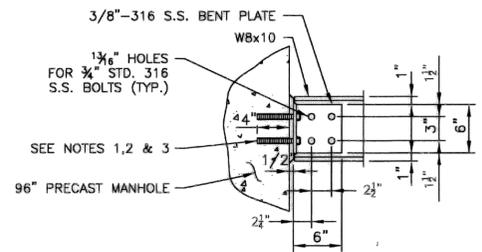
- NOTES:**
- CONTRACTOR TO DRILL 1/4" DIAMETER HOLES 4" DEEP, INTO PRECAST MANHOLE FOR 3/8" DIAMETER ANCHOR BOLTS.
 - GROUT IN 3/4" DIAMETER ANCHOR BOLTS WITH GRUTEM 435 AS MANUFACTURED BY I.W. INDUSTRIES, OR APPROVED EQUAL, MANUFACTURERS INSTRUCTIONS IN THE USE OF ALL MATERIALS SPECIFIED SHALL BE FOLLOWED IN STRICT ACCORDANCE.
 - ANCHOR BOLTS SHALL BE 3/4" DIAMETER x 6" LONG 316 S.S. ALL THREAD BOLTS WITH 2" PROJECTION.
 - ALL STEEL TO BE GRADE 40.
 - ALL CONCRETE TO BE CLASS "A".
 - COORDINATE THE LOCATION AND TYPE JOINTS BETWEEN OFFSET BOX AND PRECAST SECTIONS.
 - PROVIDE RAMNEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.



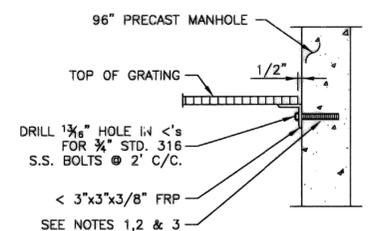
1 EXTRA DEPTH - ACCESS MANHOLE (SEE PLANS FOR LOCATION) NO SCALE



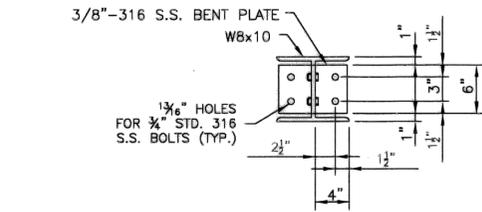
3 BEAM CONNECTION DETAIL NO SCALE



A SECTION NO SCALE



4 ANGLE CONNECTION DETAIL NO SCALE



B SECTION NO SCALE

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**STANDARD LDWL
SAF-T-CLIMB DETAILS FOR
EXTRA DEPTH MANHOLE**
(NOT TO SCALE)

APPROVED BY: <i>[Signature]</i> ACTING CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02082-11

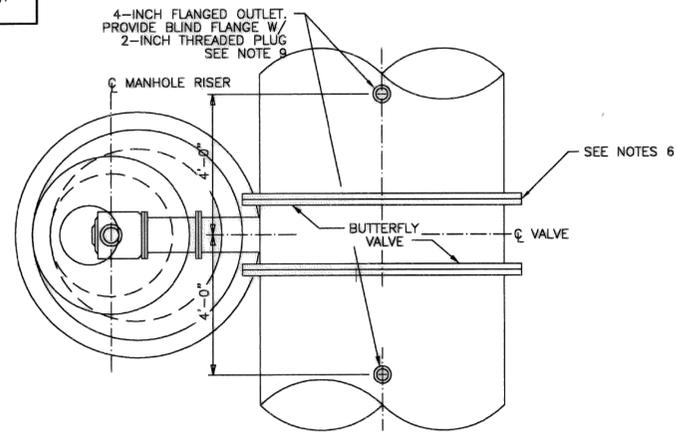
<p>10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com</p>	<p>NOT FOR CONSTRUCTION</p> <p>THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.</p>
	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

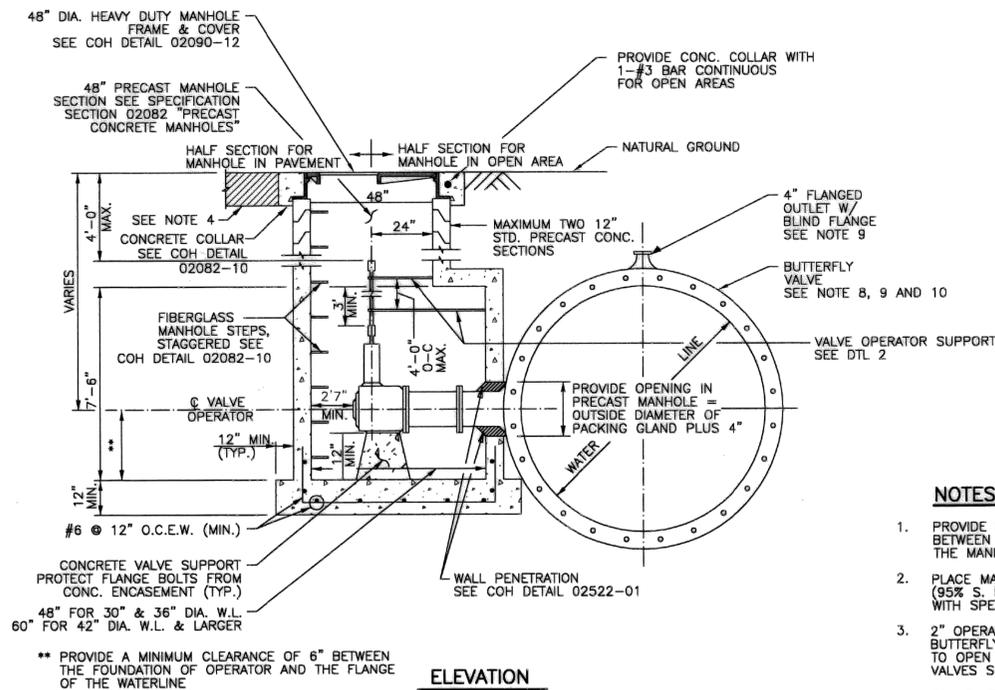
66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL
SAF-T-CLIMB DETAILS
FOR EXTRA DEPTH MANHOLE

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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 080 OF 176	

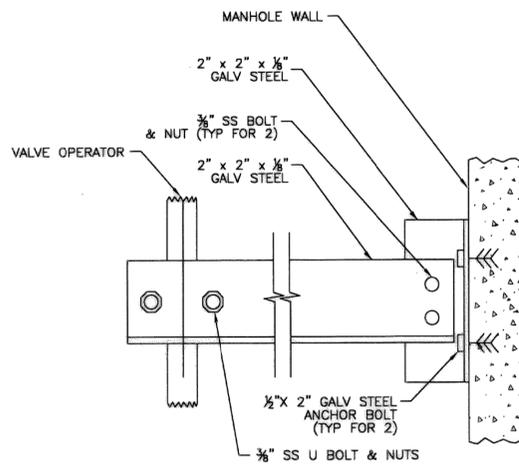
NOTE:
 SHOULD CONTRACTOR DESIRE TO USE VALVES IN A THROTTLED POSITION FOR FILLING OF LINE SEGMENTS, CONTRACTOR IS CAUTIONED TO OBSERVE RECOMMENDATIONS OF VALVE MANUFACTURER IN ORDER TO PRECLUDE DAMAGE ASSOCIATED WITH THIS MODE OF OPERATION.



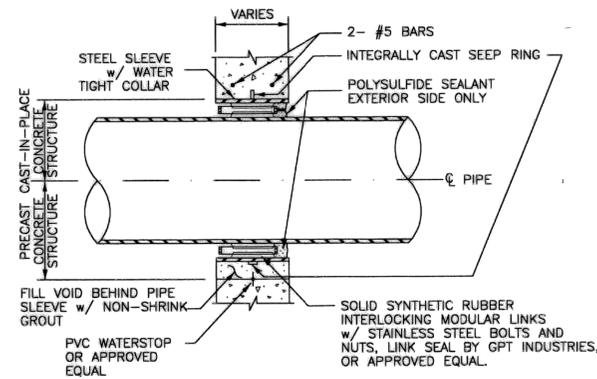
PLAN



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. 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-1-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: <i>[Signature]</i> ACTING CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02522-01

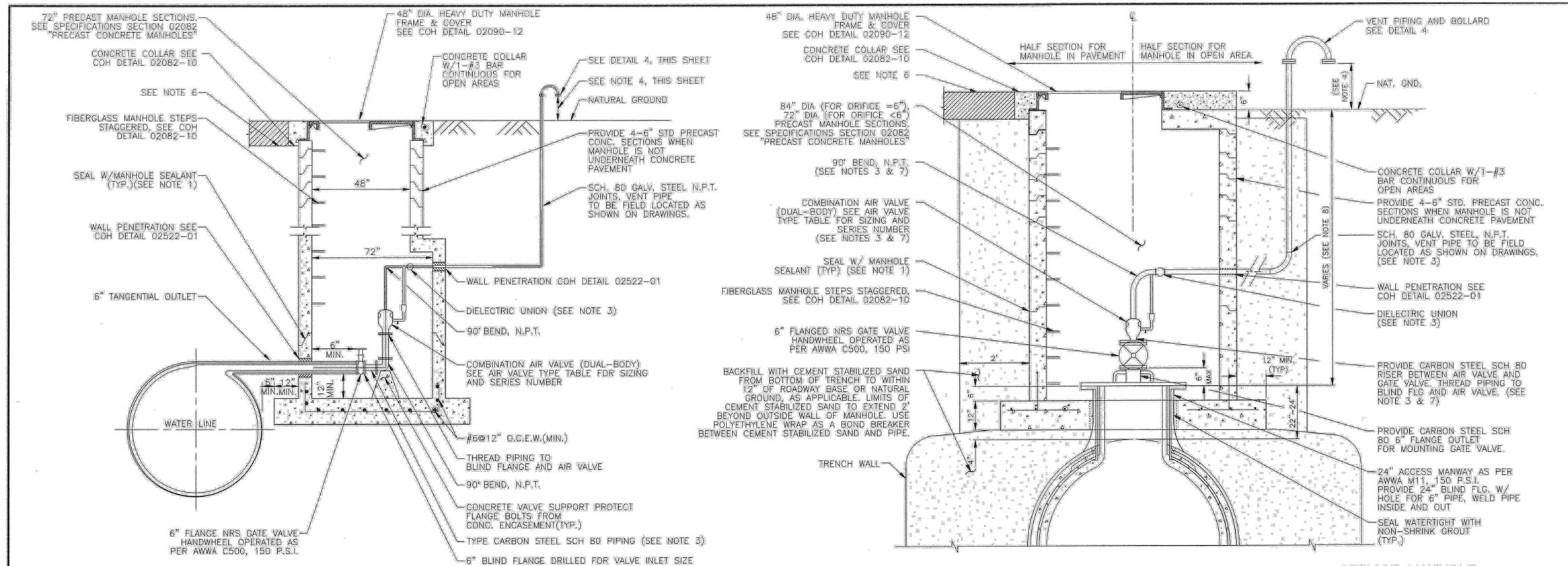
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SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL
BUTTERFLY VALVE AND
OPERATOR MANHOLE DETAILS

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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 081 OF 176	

NO.	DATE	REVISION	APP.



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)

DETAILS 1 & 2 - NOTES:

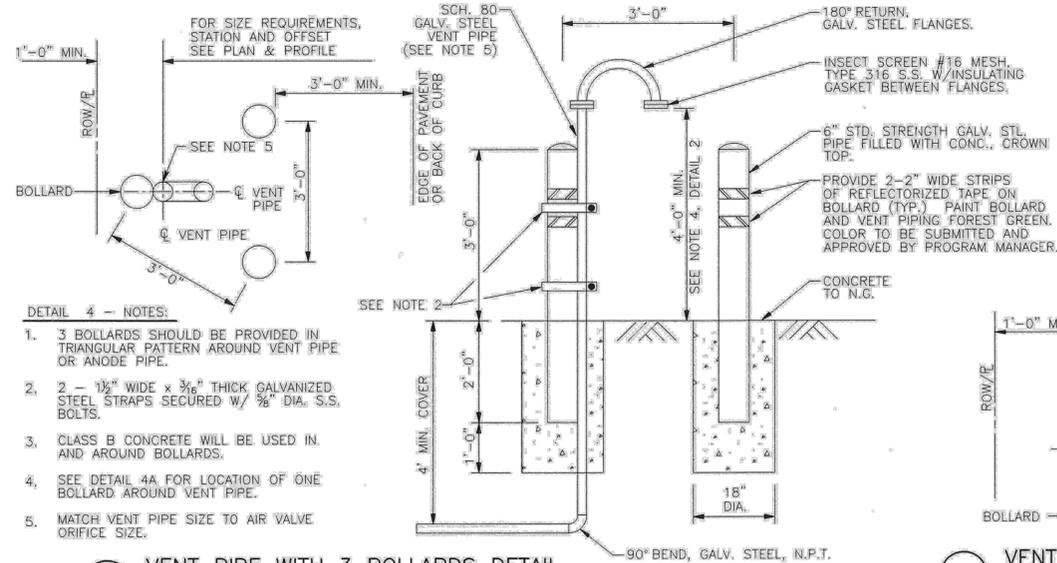
1. PROVIDE RAM-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. FOR MANHOLES DEEPER THAN 20 FEET, SAFETY CLIMBING RAIL MUST BE PROVIDED (SAF-T-CLIMB OR APPROVED EQUAL). SEE COH DETAIL 02082-11.
3. PIPING AND APPURTENANCES OF THE SAME DIAMETER AND CONSTRUCTED OF THE SAME MATERIAL AND 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

WATER MAIN DIAMETER	MANUFACTURER (1)	VACUUM (A/VR)		AIR RELEASE	
		SERIES	ORIFICE SIZE	SERIES	INLET SIZE (NPT)
>=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.



4 VENT PIPE WITH 3 BOLLARDS DETAIL

4A VENT PIPE WITH 1 BOLLARD DETAIL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LDWL
AIR VALVE ASSEMBLY IN
SERVICE MANHOLE DETAIL
(NOT TO SCALE)

APPROVED BY: <i>Seahail Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Carl Shilline</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL - 01 - 2021	DWG NO: 02524-03

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Web - www.freese.com

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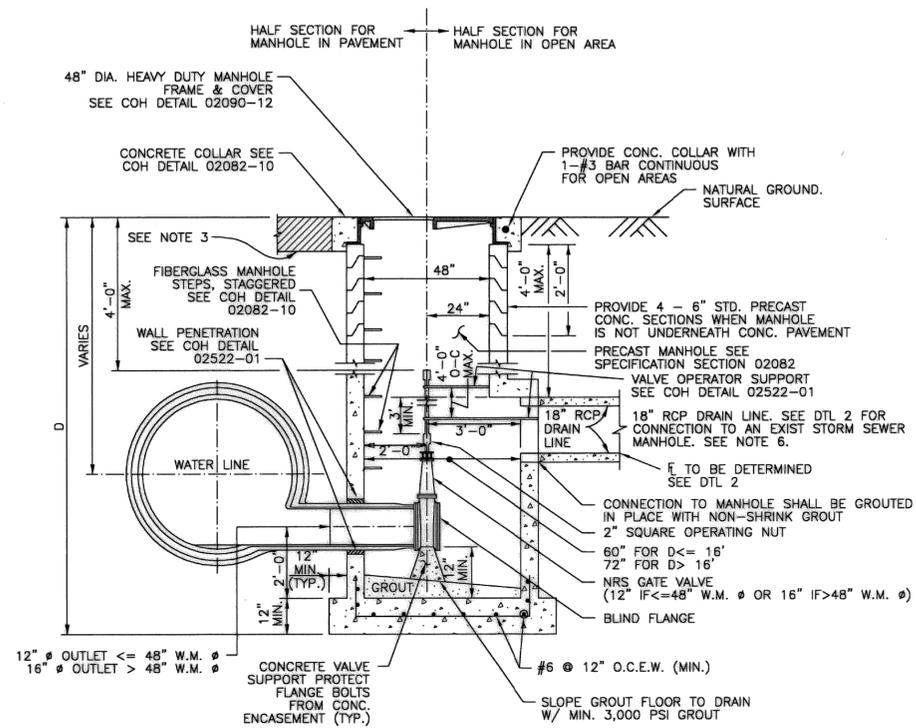
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FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
LDWL AIR VALVE ASSEMBLY
IN SERVICE MANHOLE DETAIL

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JOAQUIN LOPEZ	
SHEET NO. 082 OF 176	

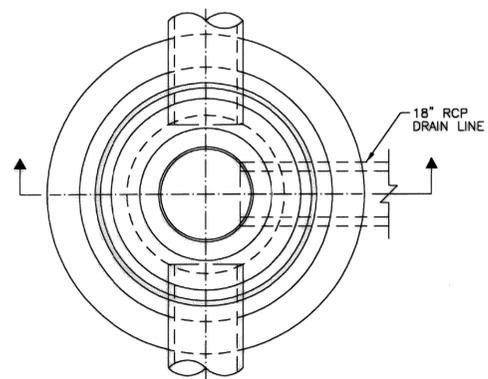
NO.	DATE	REVISION	APP.



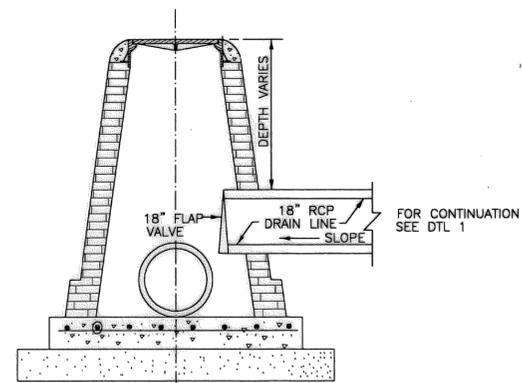
1 SERVICE MANHOLE FOR DRAINLINE VALVE CONNECTION

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.



PLAN
(COVER NOT SHOWN)



SECTION

2 DRAIN LINE CONNECTION TO EXISTING STORM SEWER MANHOLE

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD LDWL DRAIN LINE VALVE DETAILS	
(NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> ACTING CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 02511-03

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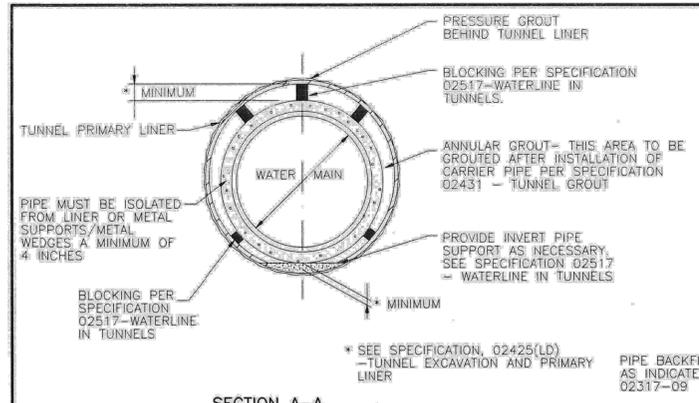
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

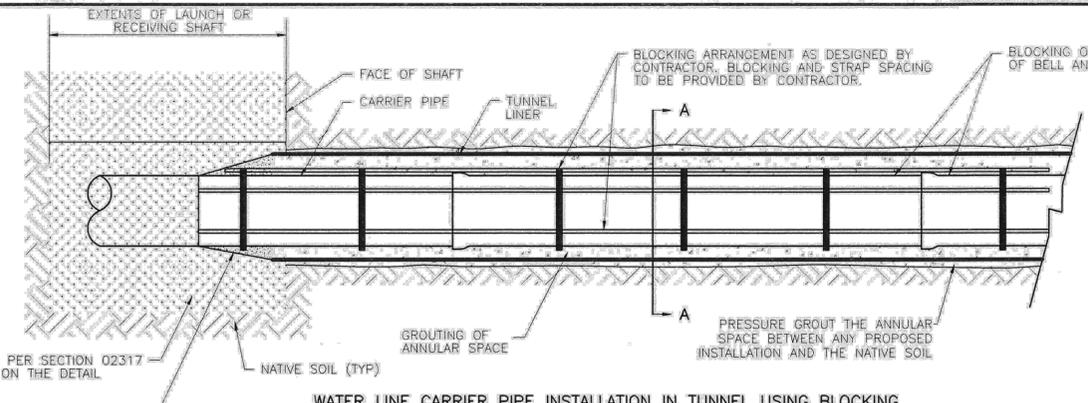
STANDARD LDWL
DRAIN LINE VALVE DETAILS

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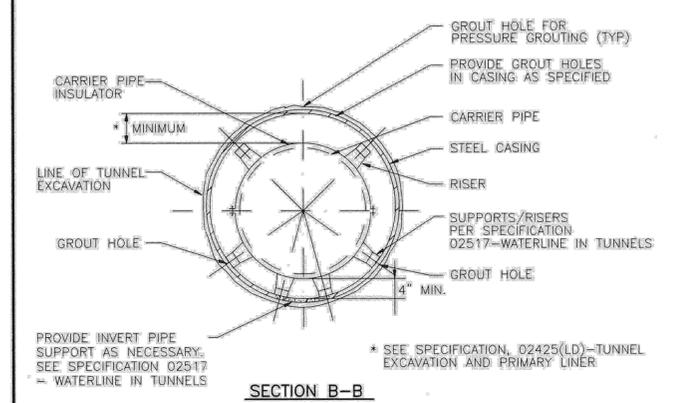


1 WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING BLOCKING



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.



2 WATER LINE CARRIER PIPE INSTALLATION IN TUNNEL USING CASING SPACERS

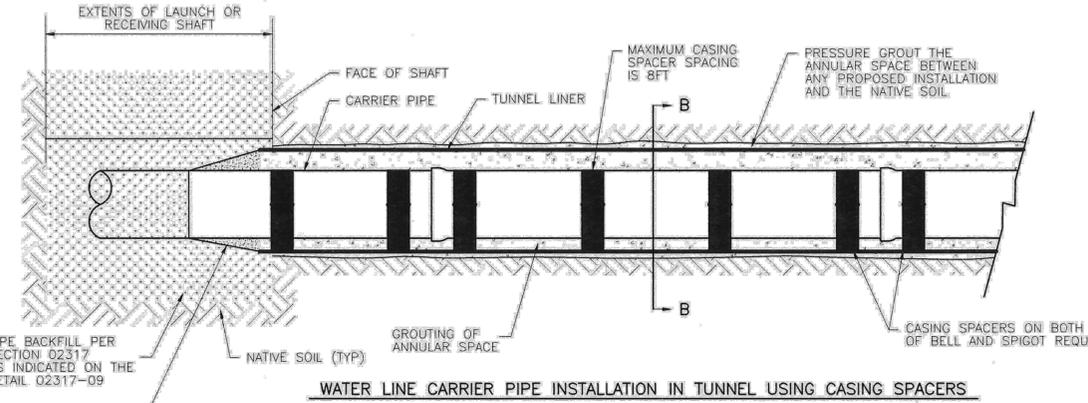
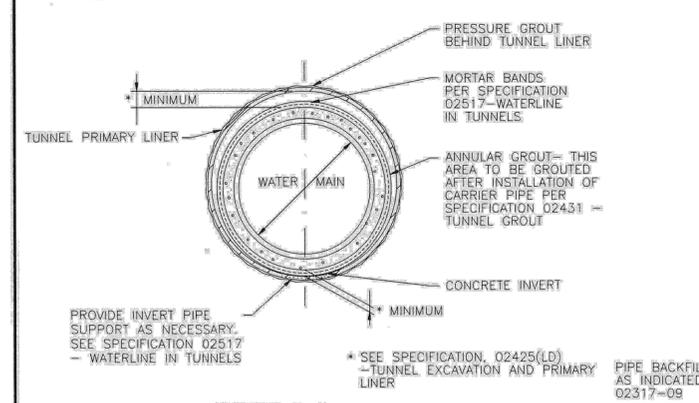
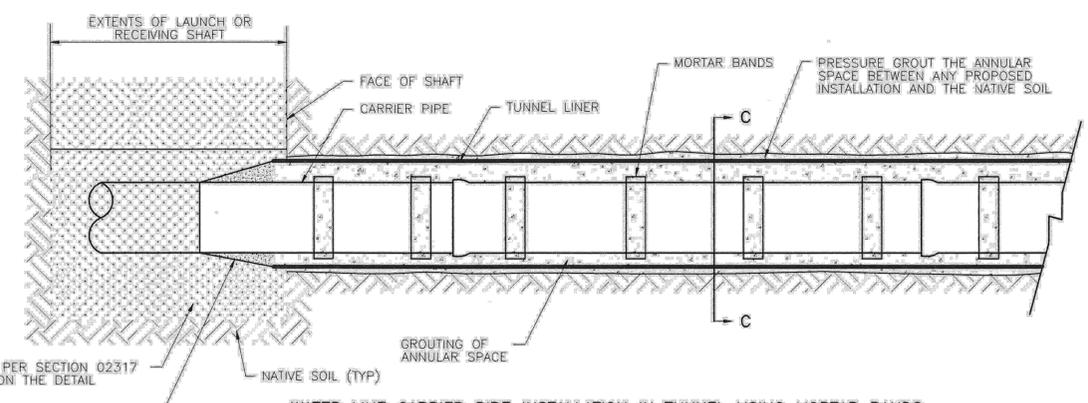


TABLE 1 - NOTES:

1. DIAMETER OF LINER PLATE IS AT NEUTRAL AXIS.
2. LINER PLATE IS TWO FLANGE AND NOMINALLY 2-INCH CORRUGATION BY 6-INCH PROFILE.



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:
Subail Kanwar
CITY ENGINEER

APPROVED BY:
Paul Giddard
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL - 01 - 2021 DWG NO: **02517-01**

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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

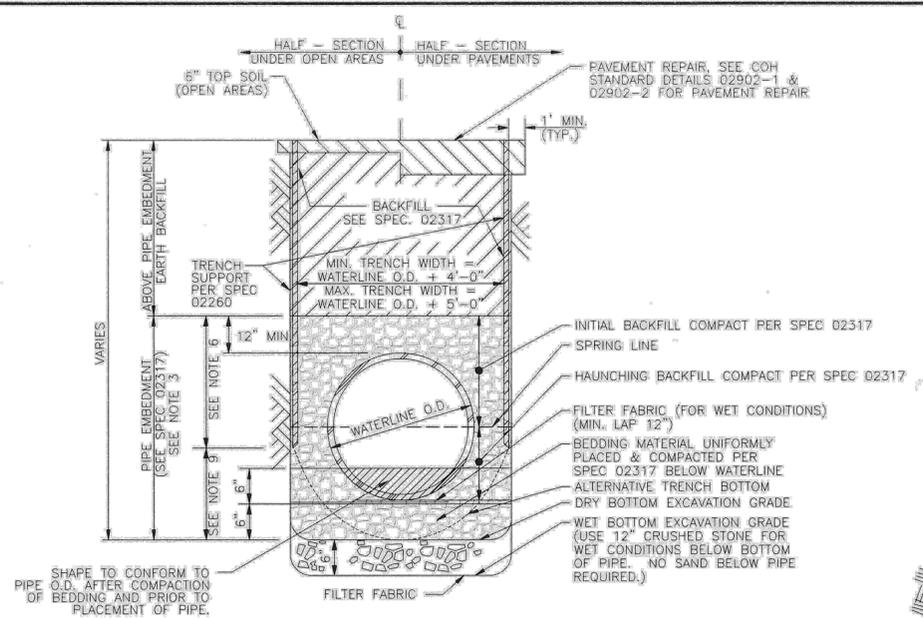
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR LDWL TUNNEL AND CASING DETAILS FOR WATER LINES 24-INCH AND LARGER

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SHEET NO. 084 OF 176	

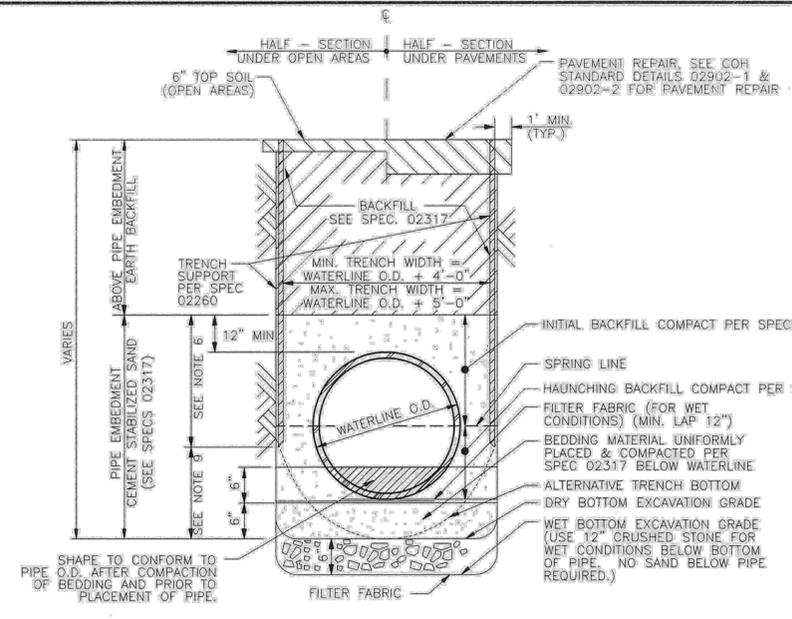
Location	Water Main Dia.	Pipe Material	Nomial Dia (in.)(Casing OD) / Wall Thickness (in.)		
			2-Flange Liner Plate	4-Flange Liner Plate	Steel Casing
Deer Trail Dr STA: 3+00 to 3+63	66 Inch	Steel	84	87	0.1046
Deer Trail Dr STA: 25+07 to 25+43	66 Inch	Steel	84	87	0.1046
Crossing Deer Trail Along Gillespie Rd STA: 30+28 to 31+78	66 Inch	Steel	84	87	0.1345
Gillespie Rd STA: 35+96 to 37+51	66 Inch	Steel	84	87	0.1046
Crossing Gillespie Rd Along Pipeline Easement STA: 40+16 to 41+15	66 Inch	Steel	84	87	0.1345
Pipeline Easement STA: 48+13 to 48+78	66 Inch	Steel	84	87	0.1046
Crossing Fallbrook Dr Along Green Plaza Dr STA: 71+04 to 71+49	66 Inch	Steel	84	87	0.1046

NO.	DATE	REVISION	APP.

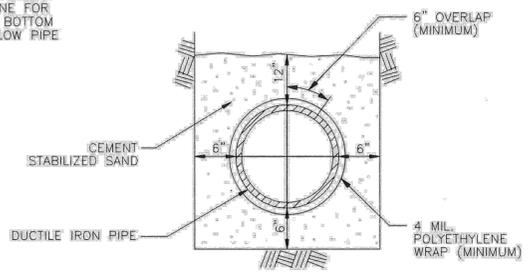


1 EXCAVATION & BACKFILL DETAIL
 NO SCALE
 DETAIL APPLICABLE IN FOLLOWING LIMITS:
 - WATER MAIN WITH DEPTH OF COVER LESS THAN 16 FT

- 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.

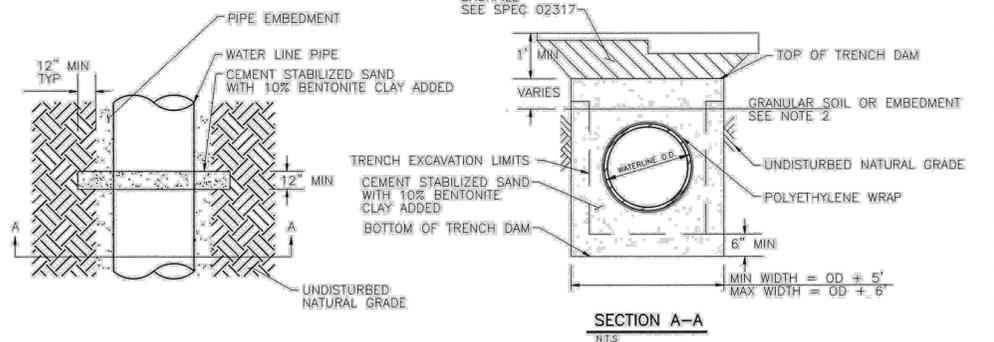


2 EXCAVATION & BACKFILL DETAIL
 NO SCALE
 DETAIL APPLICABLE IN FOLLOWING LIMITS:
 - WATER MAIN WITH DEPTH OF COVER GREATER THAN 16 FT
 - TUNNEL SHAFT LIMITS
 - PPCA LIMITS



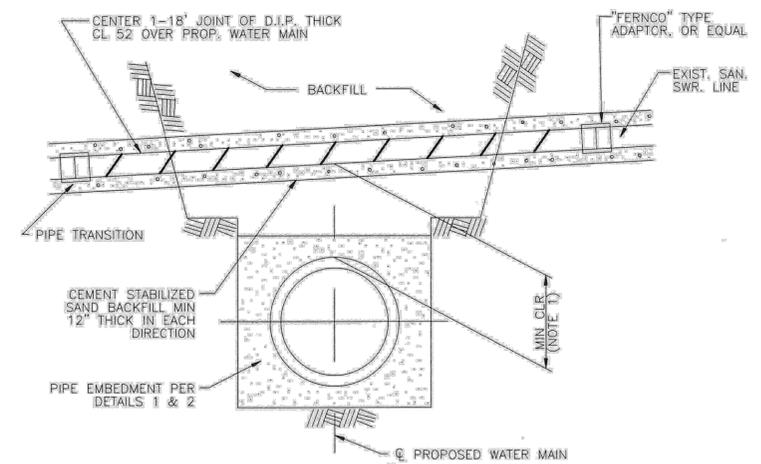
EMBEDMENT AND CORROSION PROTECTION FOR SANITARY SEWER DUCTILE IRON PIPE

- 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 3/8" STAINLESS STEEL BANDS. END LAPS TO BE AS SPECIFIED FOR TRENCH SECTIONS.
 4. REFER TO SPECIFICATION SECTION 02528 - POLYETHYLENE ENCASEMENT/WRAP.



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.



3 EXISTING SANITARY CROSSING OVER/UNDER PROPOSED WATER LINE
 NO SCALE
DETAIL 3 - NOTES:

1. REFER TO MINIMUM CLEARANCE REQUIRED IN DRAWINGS.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

STANDARD LDWL
EXCAVATION AND BACKFILL
DETAIL
 (NOT TO SCALE)

APPROVED BY: *Seshail Kanwar* CITY ENGINEER
 APPROVED BY: *Paul Haldar* DIRECTOR OF HOUSTON PUBLIC WORKS

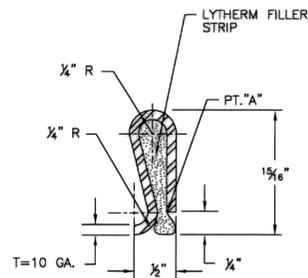
EFF DATE: JUL - 01 - 2021 DWG NO: 02317-09

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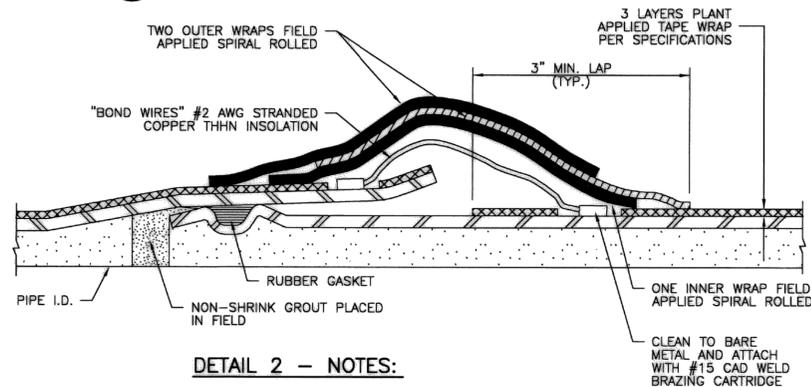
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR STANDARD LDWL EXCAVATION AND BACKFILL DETAILS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 085 OF 176	



DETAIL 1 - NOTES:

1. STEEL BONDING CLIP: MATERIAL SPECIFICATION --- ASTM A366, (COMMERCIAL QUALITY) CUT LENGTH --- $2\frac{1}{2} \pm \frac{1}{16}$ " WIDTH --- $\frac{1}{4} \pm \frac{1}{16}$ "
2. LYTHERM FILLER STRIP TO BE $1" \times \frac{1}{2}"$ WIDE TO OVERLAP SIDES OF CLIP.
3. CRIMP JUMPER OVER FILLER AT "A" TO COMPRESS FILLER CLOSE AT PT. "A" AS MUCH AS POSSIBLE WITHOUT CUTTING FILLER PAD.
4. THREE BONDING CLIPS ARE REQUIRED PER GASKETED JOINT (TYPICAL).
5. BONDING NOT REQUIRED FOR WELDED JOINTS.

1 STEEL BONDING CLIP DETAIL

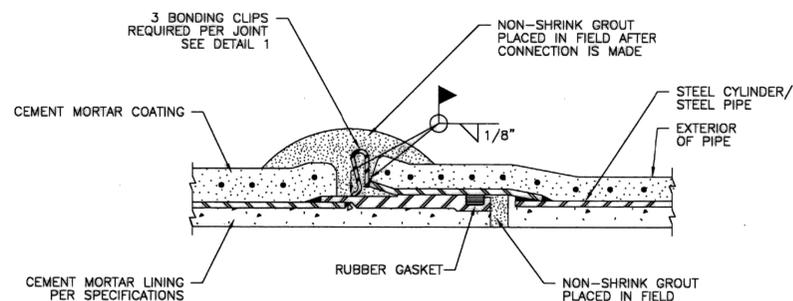


DETAIL 2 - NOTES:

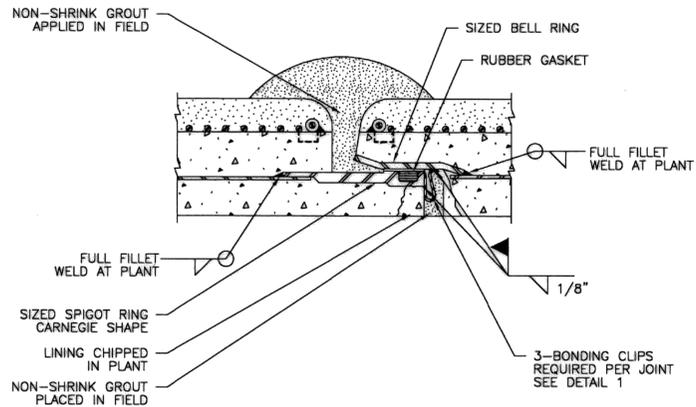
1. STEEL BONDING CLIP IS OPTIONAL TO BOND WIRE.
2. A MINIMUM OF TWO BOND WIRES OR THREE BONDING CLIPS ARE REQUIRED FOR RUBBER GASKETED STEEL PIPE. CLIPS ARE TO BE PROVIDED IN ACCORDANCE WITH DETAILS.
3. BONDING NOT REQUIRED FOR WELDED JOINTS.

4 O-RING STEEL PIPE JOINT DETAIL

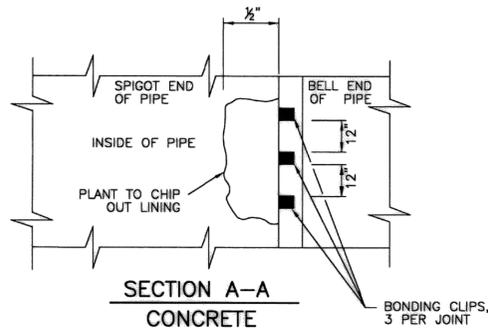
(CEMENT MORTAR LINED & TAPE WRAPPED SHOWN. FLEXIBLE LINING SIMILAR)



5 BONDED JOINT - MORTAR COATED STEEL PIPE



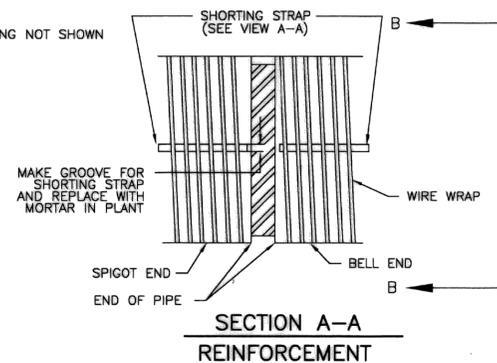
2 BONDED JOINT - EMBEDDED CYLINDER PIPE



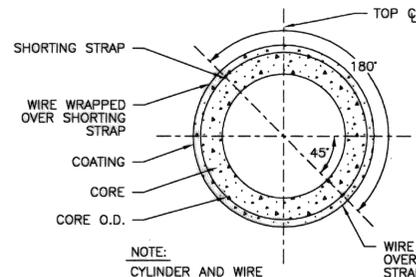
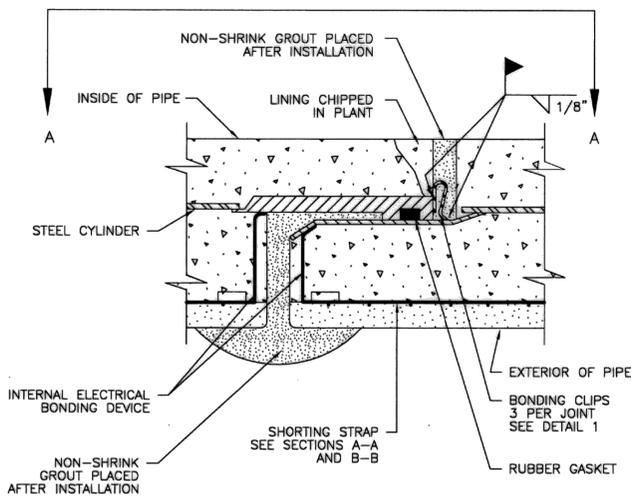
3 BONDED JOINT - BAR WRAPPED CYLINDER PIPE

(SIMILAR FOR LINED CYLINDER PIPE)

NOTE: COATING NOT SHOWN



SECTION A-A REINFORCEMENT



NOTE: CYLINDER AND WIRE WRAP NOT SHOWN

SECTION B-B

DETAIL 6 - NOTES:

- PLACE BONDING CLIPS IN INTERIOR JOINT RECESS AS SHOWN. WELD CLIPS TO BELL AND SPIGOT USING $\frac{1}{2}$ " FILLET WELD. REMOVE SLAG FROM WELD AND FILL RECESS WITH CEMENT MORTAR, COVERING ALL EXPOSED STEEL.

6 ELECTRICAL CONTINUITY BONDING OF EMBEDDED CYLINDER PIPE

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL CATHODIC PROTECTION DETAILS FOR JOINT BONDING (SHEET 1 OF 2)
(NOT TO SCALE)

APPROVED BY: *[Signature]*
ACTING CITY ENGINEER

APPROVED BY: *[Signature]*
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: MAR-20-2018

DWG NO: 15640-01

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10497 Town and Country Way, Suite 500
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Phone - (713) 600-6800
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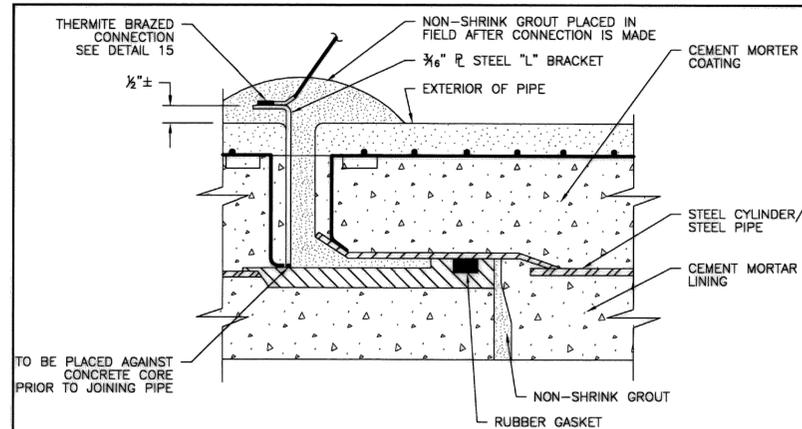
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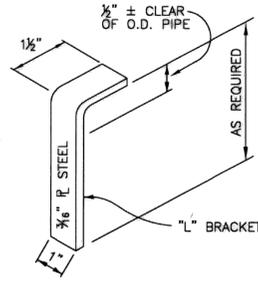
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL CATHODIC PROTECTION DETAILS FOR JOINT BONDING (SHEET 1 OF 2)

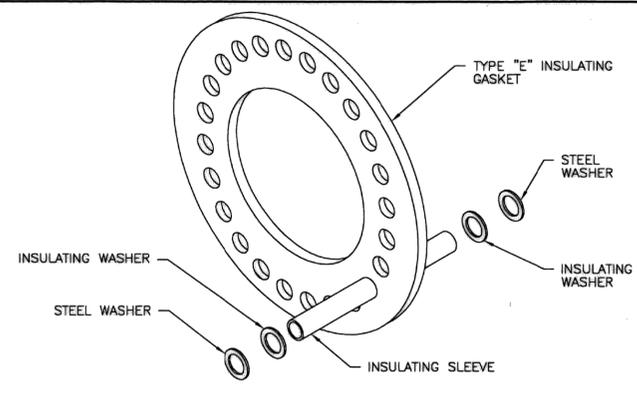
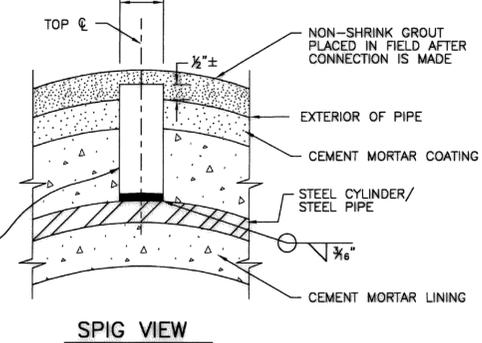
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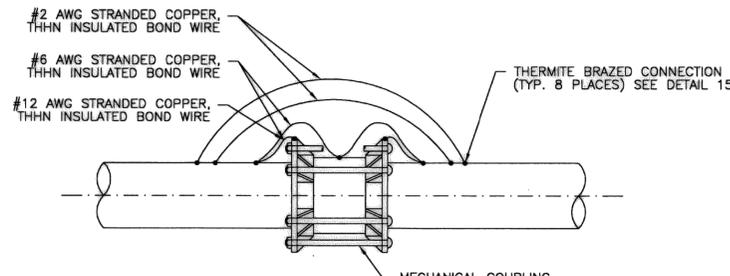
7 TEST LEAD CONNECTION DETAIL



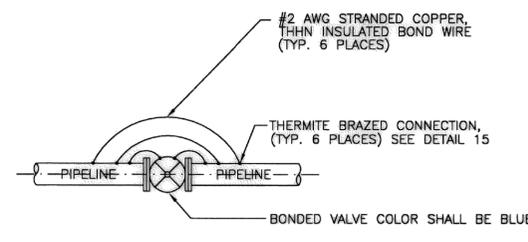
8 "L" BRACKET DETAIL



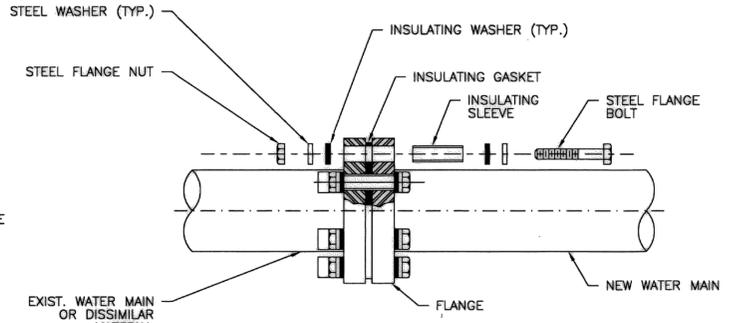
9 ISOLATION FLANGE ASSEMBLY
SEE AWWA M11 FOR FLANGE BOLT TIGHTENING SEQUENCE



10 MECHANICAL COUPLING BOND DETAIL

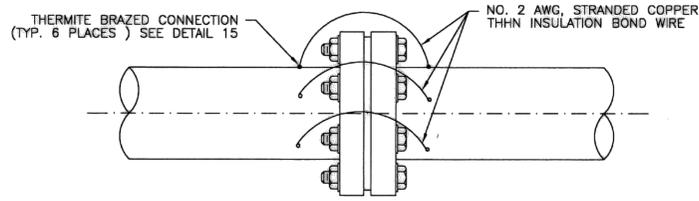


11 VALVE BONDING ARRANGEMENT
MAINLINE WITH CATHODIC PROTECTION

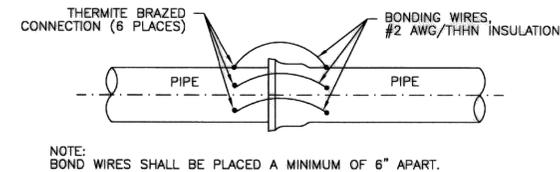


12 ISOLATION FLANGE

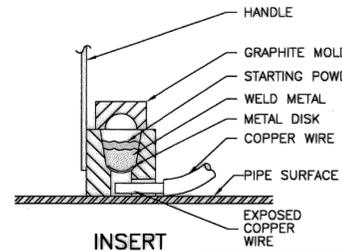
DETAIL 12 - NOTES:
1. DETAILS SHOW BONDING ARRANGEMENTS ONLY. SEE JOINT DETAIL FOR PIPE JOINT REQUIREMENTS.



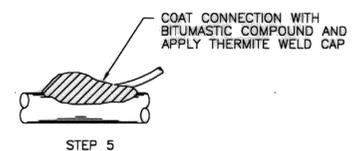
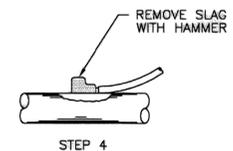
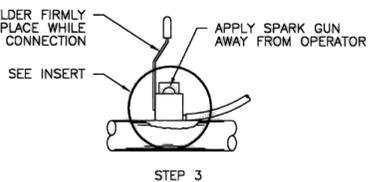
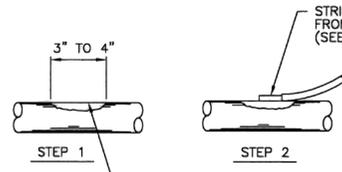
13 ELECTRICAL BONDING ACROSS FLANGE
NOTE: BOND WIRES SHALL BE PLACED A MINIMUM OF 6" APART.



14 BELL & SPIGOT BONDING ARRANGEMENT
DUCTILE IRON PIPE



INSERT

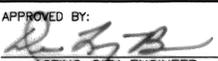
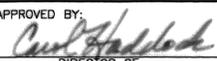


15 THERMITE BRAZED CONNECTION DETAIL

DETAIL 15 - NOTES:
1. WHEN #14 SOLID TO #10 WIRE IS USED, IT WILL BE NECESSARY TO INSTALL A COPPER SLEEVE OF ADEQUATE SIZE OVER BARE SECTION OF WIRE BEFORE CONNECTION IS ATTEMPTED.
2. THERMITE WELD PROCEDURES SIMILAR FOR "L" BRACKETS.
3. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG. RECOMMENDATIONS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
CATHODIC PROTECTION
DETAILS FOR JOINT BONDING
(SHEET 2 OF 2)
(NOT TO SCALE)

APPROVED BY:  ACTING CITY ENGINEER	APPROVED BY:  DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 15640-02

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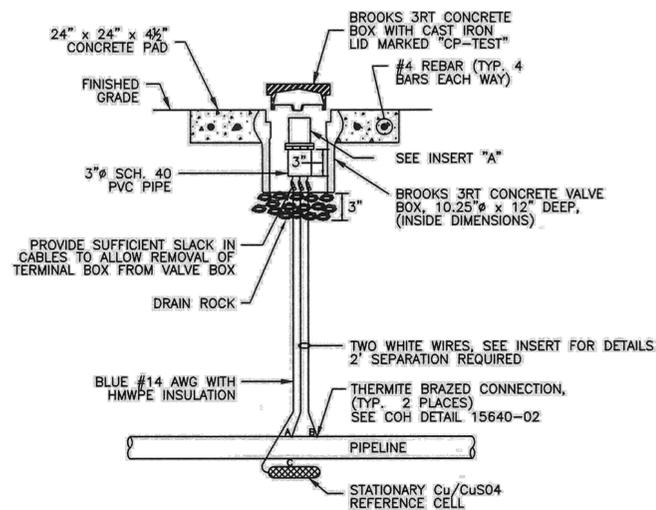
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STANDARD LDWL CATHODIC PROTECTION DETAILS FOR JOINT BONDING (SHEET 2 OF 2)

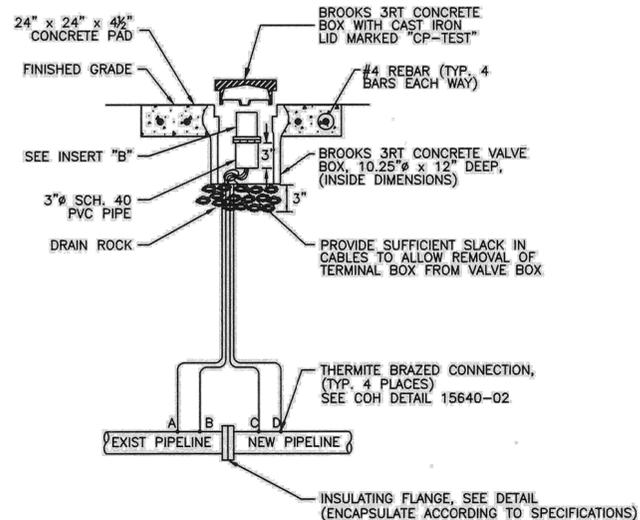
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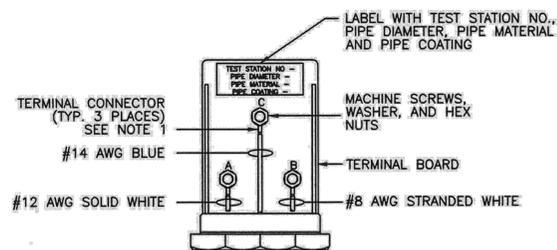
1 FLUSH MOUNTED POTENTIAL TEST STATION

- WIRE CODING:
 * WIRES A & B ARE WHITE, WIRE C IS BLUE
 * WIRE A IS #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
 * WIRE B IS #8 AWG TW STRANDED SINGLE CONDUCTOR
 * WIRES C IS #14 AWG WITH HMWPE INSULATION



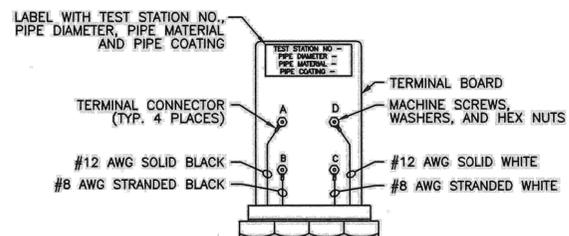
2 FLUSH MOUNTED FLANGE ISOLATION TEST STATION

- WIRE CODING:
 * WIRES A & B ARE BLACK, WIRES C & D ARE WHITE
 * WIRES A & D ARE #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
 * WIRES B & C ARE #8 AWG TW STRANDED SINGLE CONDUCTOR
 * BLACK WIRES ATTACHED TO UNPROTECTED OR EXISTING PIPE
 * WHITE WIRES ATTACHED TO PROTECTED OR NEW PIPE



- INSERT A - NOTES:
 1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH " 1/4" STUD SIZE

INSERT "A"



- INSERT B - NOTES:
 1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH " 1/4" STUD SIZE

INSERT "B"

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD LDWL CATHODIC PROTECTION DETAILS FOR TEST STATIONS (SHEET 1 OF 3) (NOT TO SCALE)	
APPROVED BY: <i>Suhail Kamran</i> CITY ENGINEER	APPROVED BY: <i>Carl Haddad</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 15641-01

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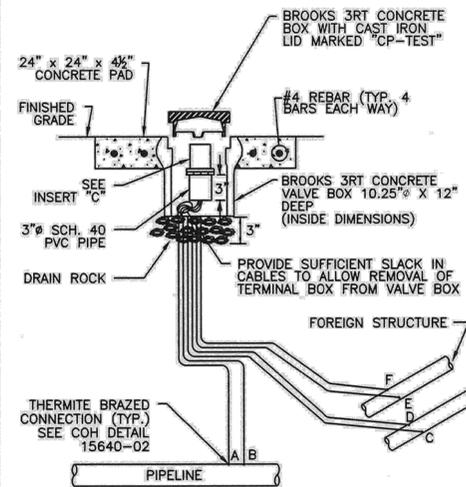
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 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 CATHODIC PROTECTION DETAILS
 FOR TEST STATIONS
 (SHEET 1 OF 3)

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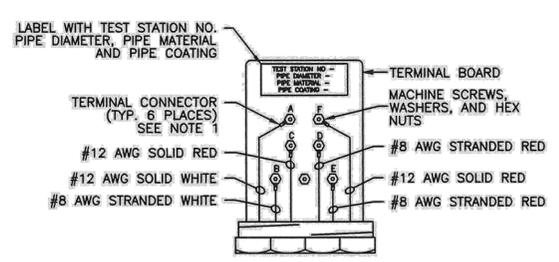
NO.	DATE	REVISION	APP.



- DETAIL 3 - NOTES:
1. TEST STATION SHALL BE MOUNTED DIRECTLY ABOVE THE NEW WATER LINE.
 2. FOR MORE THAN TWO (2) FOREIGN LINES, INSTALL A COTTBOX TYPE TEST STATION. (UP TO 20 TERMINALS)

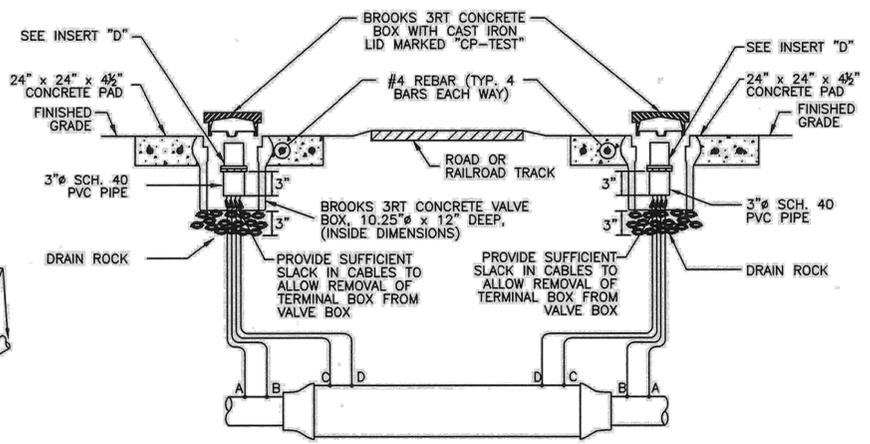
3 FLUSH MOUNTED FOREIGN LINE TEST STATION

- WIRING CODE:
- * WIRES A & B ARE WHITE
 - * WIRES C, D, E & F ARE RED
 - * WIRES A, C, F ARE #12 AWG TW SOLID COPPER WIRE
 - * WIRES B, D, E ARE #8 AWG TW STRANDED COPPER WIRE
 - * RED WIRES ATTACHED TO FOREIGN OWNED PIPE
 - * WHITE WIRES ATTACHED TO NEW PIPE



- INSERT C - NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH 1/4" STUD SIZE.

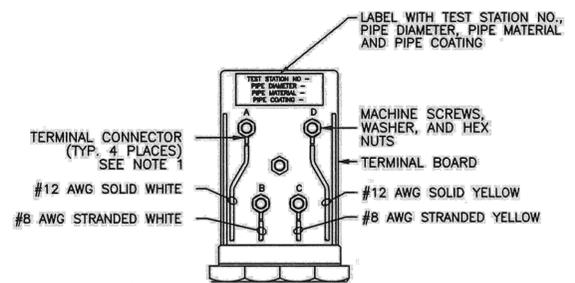
INSERT "C"



- DETAIL 4 - NOTES:
1. FOR PARALLEL CASSED CROSSINGS, INSTALL A COTTBOX TYPE TEST STATION. (UP TO 20 TERMINALS)

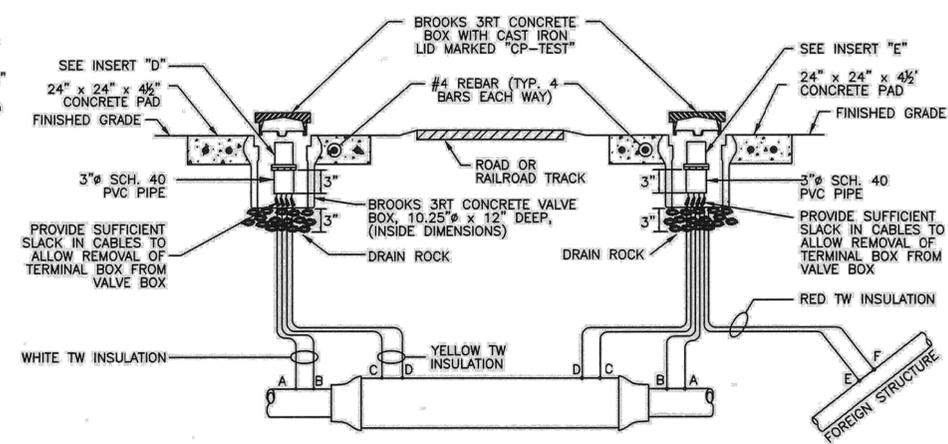
4 FLUSH MOUNTED CASSED CROSSING TEST STATION

- WIRE CODING:
- * WIRES A & B ARE WHITE, WIRES C & D ARE YELLOW
 - * WIRES A & D ARE #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
 - * WIRES B & C ARE #8 AWG TW STRANDED SINGLE CONDUCTOR
 - * YELLOW WIRES ATTACHED TO CASING
 - * WHITE WIRES ATTACHED TO PROTECTED OR NEW PIPE



- INSERT D - NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH 1/4" STUD SIZE.

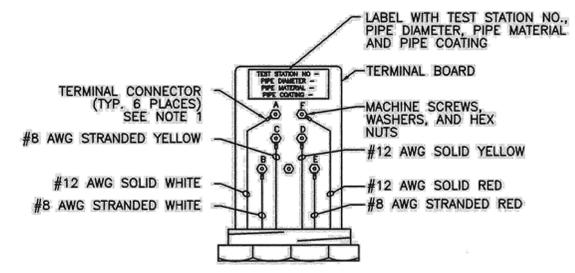
INSERT "D"



- DETAIL 5 - NOTES:
1. TEST STATION SHALL BE MOUNTED DIRECTLY ABOVE THE NEW WATER LINE.
 2. FOR MORE THAN ONE (1) FOREIGN LINE, INSTALL A COTTBOX TYPE TEST STATION. (UP TO 20 TERMINALS)

5 FLUSH MOUNTED CASSED CROSSING AND FOREIGN LINE TEST STATION

- WIRE CODING:
- * WIRES A & B ARE WHITE, WIRES C & D ARE YELLOW
 - * WIRES E & F ARE RED
 - * WIRES A, D & F ARE #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
 - * WIRES B, C & E ARE #8 AWG TW STRANDED SINGLE CONDUCTOR
 - * WHITE WIRES ATTACHED TO PROTECTED OR NEW PIPE
 - * YELLOW WIRES ATTACHED TO CASING
 - * RED WIRES ATTACHED TO FOREIGN OWNED PIPE



- INSERT E - NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH 1/4" STUD SIZE.

INSERT "E"

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
STANDARD LDWL
CATHODIC PROTECTION
DETAILS FOR TEST STATIONS
(SHEET 2 OF 3)
(NOT TO SCALE)

APPROVED BY: *Suhail Kamwar* CITY ENGINEER
APPROVED BY: *Paul H. ...* DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL - 01 - 2021 DWG NO: 15641-02

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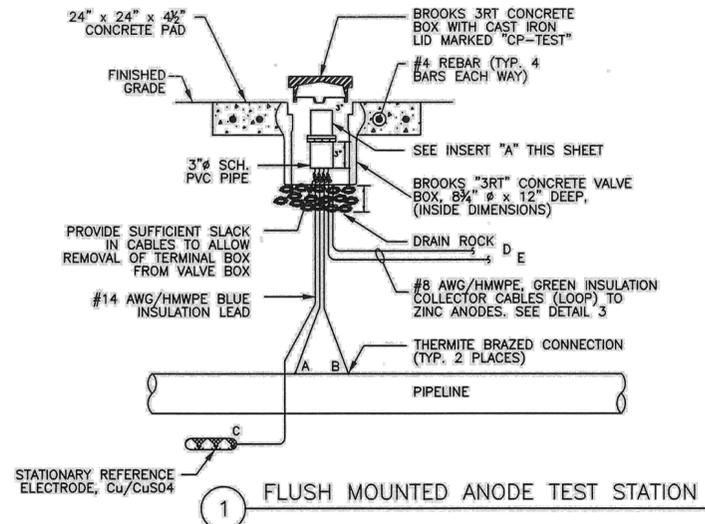
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TEXAS NO: 94948 ON DATE: 2/6/2025
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SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
CATHODIC PROTECTION DETAILS
FOR TEST STATIONS
(SHEET 2 OF 3)

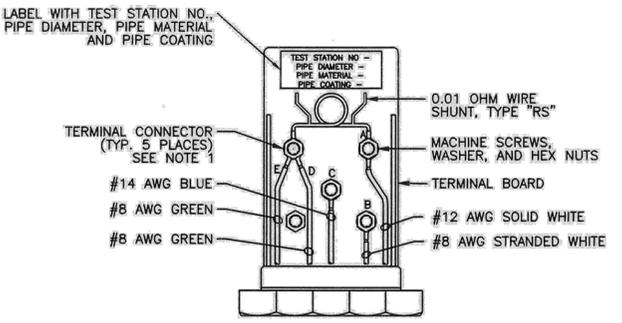
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S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 089 OF 176	

NO.	DATE	REVISION	APP.



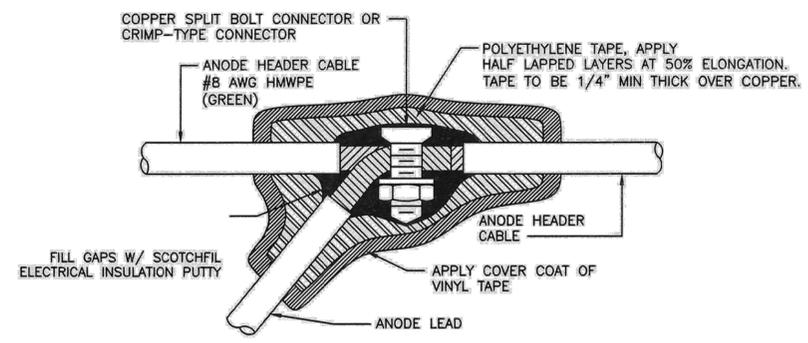
1 FLUSH MOUNTED ANODE TEST STATION

- WIRE CODING:
- * WIRES A & B ARE WHITE
 - * WIRE A IS #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
 - * WIRE B IS #8 AWG TW STRANDED SINGLE CONDUCTOR WIRE
 - * WIRE C IS BLUE #14 AWG/HMWPE LEAD WIRE TO REFERENCE ELECTRODE
 - * WIRES D & E ARE GREEN #8 AWG ANODE LEAD WIRE TO ANODE GROUND BED



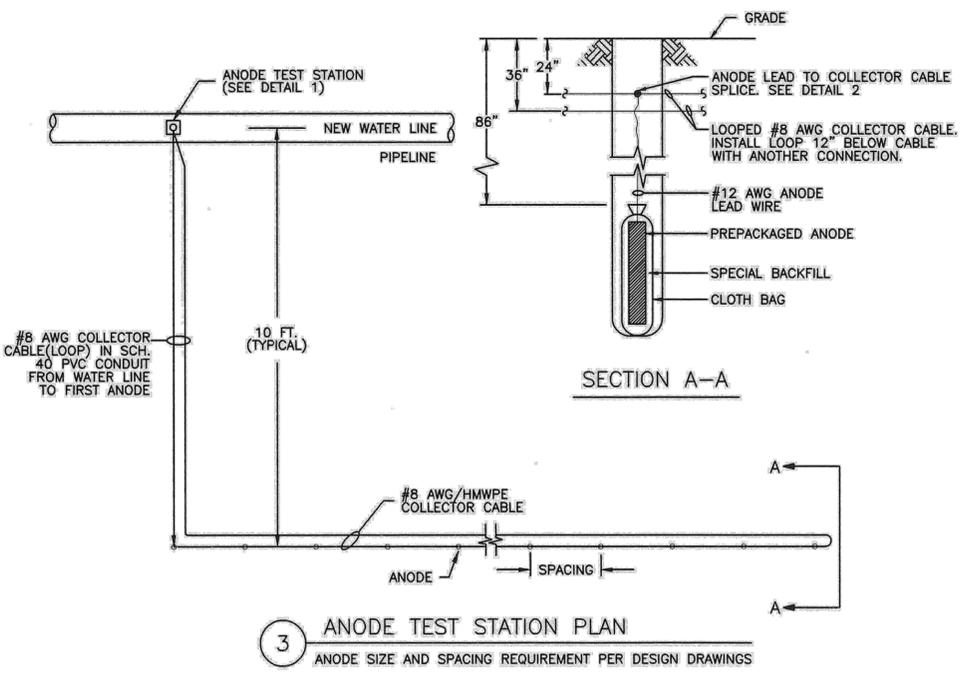
- INSERT A - NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH 1/4" STUD SIZE

INSERT "A"

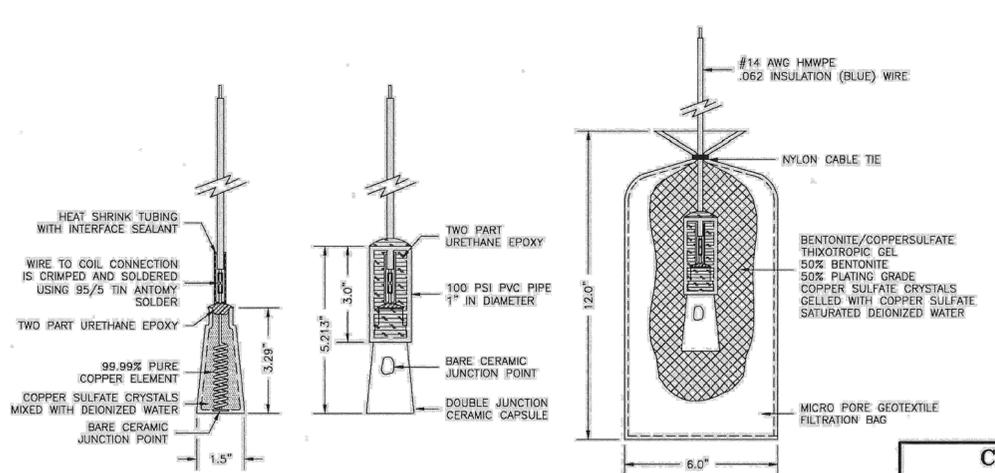


- DETAIL 2 - NOTES:
1. MAKE SPLICE WATERPROOF
 - A. SMOOTH ALL IRREGULAR SURFACES WITH ELECTRICAL INSULATION PUTTY.
 - B. APPLY 2 LAYERS OF HALF LAPPED RUBBER SPLICING TAPE.
 - C. APPLY 2 LAYERS OF HALF LAPPED VINYL ELECTRICAL TAPE.
 2. NUMBER OF WIRES MAY VARY PER SPLICE

2 SPLICE DETAIL



3 ANODE TEST STATION PLAN
ANODE SIZE AND SPACING REQUIREMENT PER DESIGN DRAWINGS



4 Cu/CuSO4 PERMACELL PLUS STATIONARY REFERENCE CELL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
CATHODIC PROTECTION DETAILS FOR
TEST STATIONS & ANODES

(NOT TO SCALE)

APPROVED BY: <i>Suhail Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Paul G. Haddad</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL - 01 - 2021	DWG NO: 16640-01

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Phone - (713) 600-6800
Web - www.freese.com

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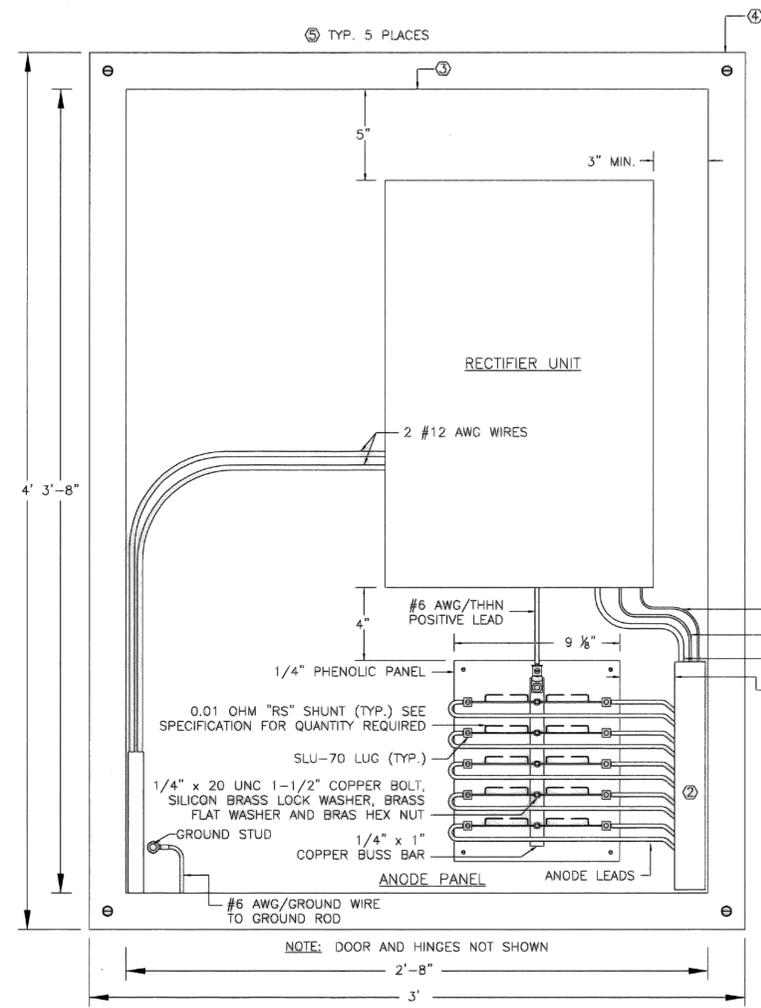
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

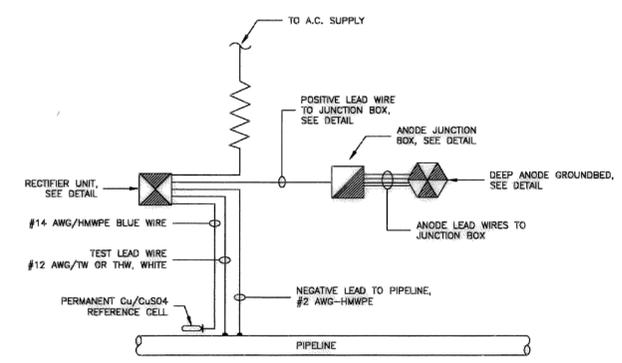
66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR
CATHODIC PROTECTION DETAILS
FOR TEST STATIONS
& ANODES

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 091 OF 176	

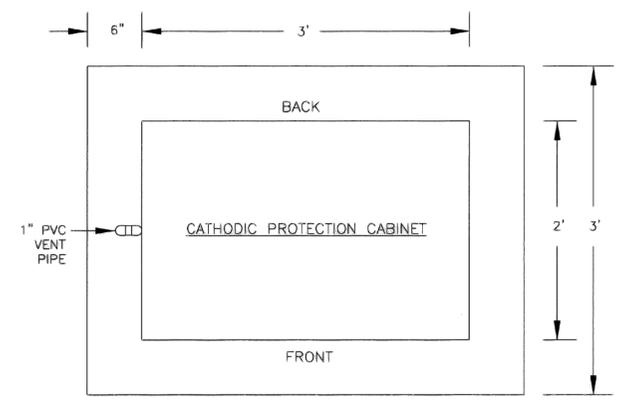
NO.	DATE	REVISION	APP.



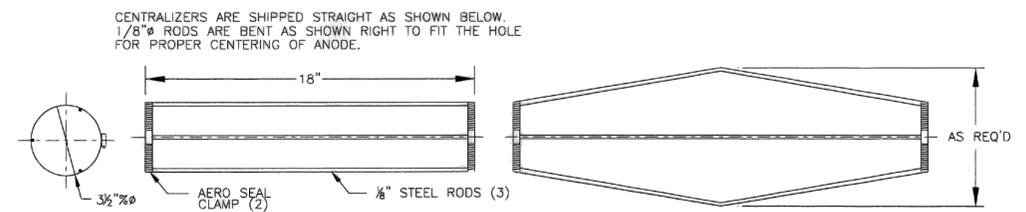
① CATHODIC PROTECTION CABINET
NO SCALE
FOR ○ NOTES, SEE COH DETAIL 16640-03.



③ ELECTRICAL DIAGRAM SCHEMATIC FOR IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM
NOT TO SCALE



④ PLAN VIEW OF CONCRETE PAD WITH CATHODIC PROTECTION CABINET
NO SCALE



② ANODE CENTRALIZER
NO SCALE

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD LDWL
CATHODIC PROTECTION RECTIFIER & DEEP ANODE GROUND BED DETAILS
(SHEET 1 OF 2)
(NOT TO SCALE)

APPROVED BY: <i>[Signature]</i> ACTING CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-20-2018	DWG NO: 16640-02

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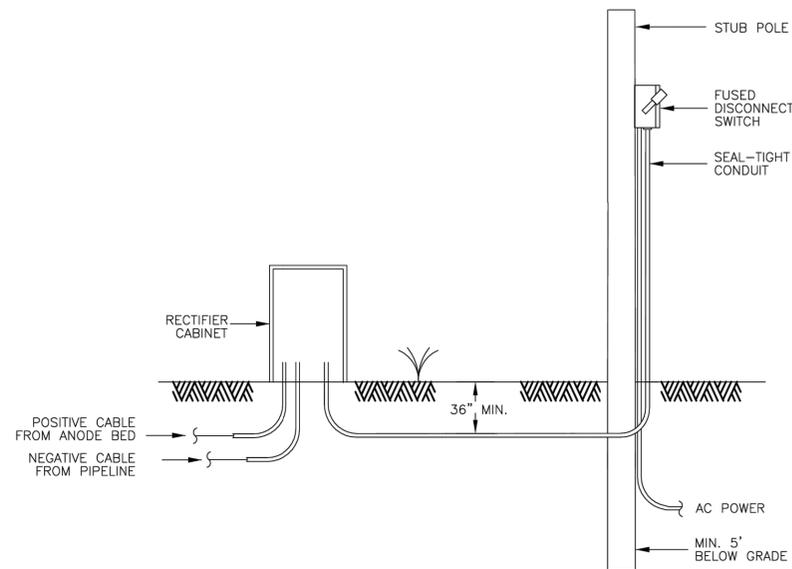
SURVEYED BY: LANDTECH, INC.
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
CATHODIC PROTECTION RECTIFIER & DEEP ANODE GROUND BED DETAILS (SHEET 1 OF 2)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 092 OF 176	

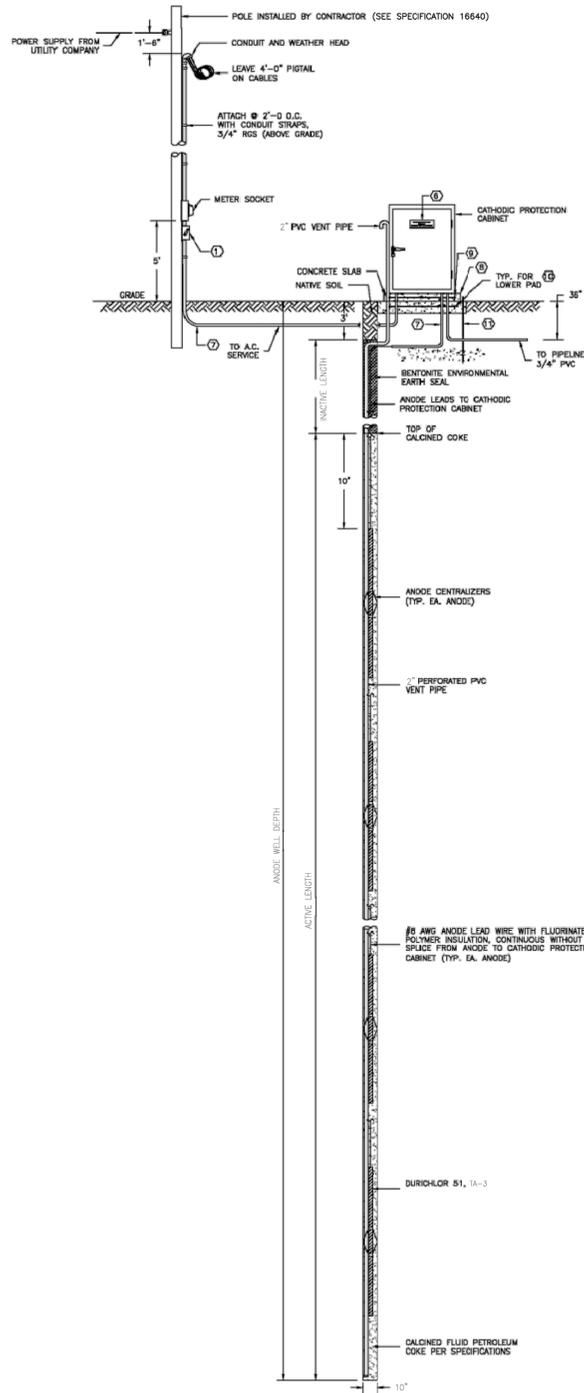
NO.	DATE	REVISION	APP.



5 AC SERVICE FOR RECTIFIER
NO SCALE

RECTIFIER INFORMATION

PIPE MATERIAL	RECTIFIER NO.	STATION NO.	SIZE OF RECTIFIERS (AMPS/VOLTS)	NUMBER OF ANODES	ANODE WELL DEPTH	ACTIVE LENGTH	INACTIVE LENGTH
DIELECTRIC COATED STEEL PIPE							
CEMENT MORTAR COATED STEEL PIPE							
PRESTRESSED CONCRETE CYLINDER OR BAR WRAPPED PIPE							
DUCTILE IRON PIPE WITH POLY WRAP							



6 TYPICAL DEEP ANODE GROUND BED AND A.C. SERVICE FOR CATHODIC PROTECTION CABINET
NO SCALE (SEE SPECIFICATION 16640 FOR DETAILS)

KEYED NOTES:

- FUSED DISCONNECT SWITCH IN A NEMA 1 ENCLOSURE WITH 1-30A FUSED DISCONNECT SWITCH.
- PLASTIC WIRING DUCT (PANDUIT OR EQUAL) 2" W. x 4" H. (MIN.) LENGTH AS REQUIRED. FURNISH WITH COVERS.
- BACK PANEL LOCATED INSIDE OF ENCLOSURE.
- ENCLOSURE: 36" W. x 48" H. x 24" D., 12 GA. TYPE 304 S.S. NEMA 4X, SINGLE DOOR, FREE STANDING, PROVISIONS TO PADLOCK UNIT, LIFTING EYES AND GROUNDING STUD ON DOOR. PROVIDE LOUVERED DOOR TO VENTILATE RECTIFIER UNIT. PROVIDE DRIP SHIELD AND INSIDE SCREEN TO REPEL INSECTS.
- PLACE STICKERS THAT READ:
"DANGER
HIGH VOLTAGE
KEEP OUT"
ON ALL FOUR SIDES AND TOP OF ENCLOSURE.
- PROVIDE PERMANENT ENGRAVED NAME PLATE (BLACK LETTERS ON WHITE BACKGROUND) THAT READS: "CATHODIC PROTECTION CABINET, PROPERTY OF CITY OF HOUSTON, IN CASE OF EMERGENCY CALL 311"
- MAKE TRANSITION FROM PVC CONDUIT (UNDERGROUND TO RGS CONDUIT) ABOVE GROUND.
- COORDINATE SIZE OF CONCRETE PAD WITH SIZE OF CABINET. THE CONCRETE PEDESTAL THAT THE CABINET RESTS ON TO BE 3" WIDER THAN THE CABINET ON ALL SIDES.
- #4 GRADE 60 REBAR @12" OC BOTH WAYS.
- #5 GRADE 60 REBAR @12" OC BOTH WAYS.
- 3/4" x 10" GROUND ROD AND #6 COPPER GROUND CABLE.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
**STANDARD LDWL
CATHODIC PROTECTION RECTIFIER &
DEEP ANODE GROUND BED DETAILS
(SHEET 2 OF 2)**
(NOT TO SCALE)

REVISED ON: _____
REVISED BY: _____

EFF DATE: MAR-20-2018 DWG NO: 16640-03

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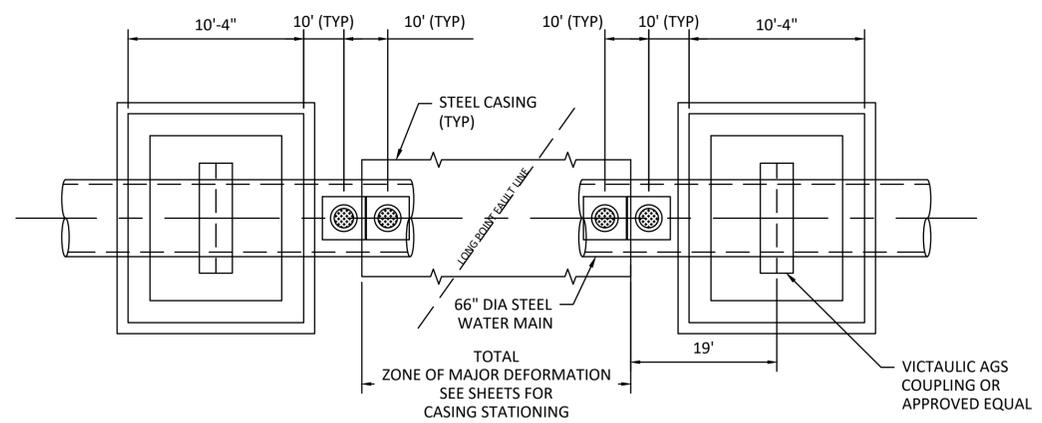
CITY OF HOUSTON
HOUSTON PUBLIC WORKS
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
CATHODIC PROTECTION RECTIFIER & DEEP ANODE GROUND BED DETAILS (SHEET 2 OF 2)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 093 OF 176	

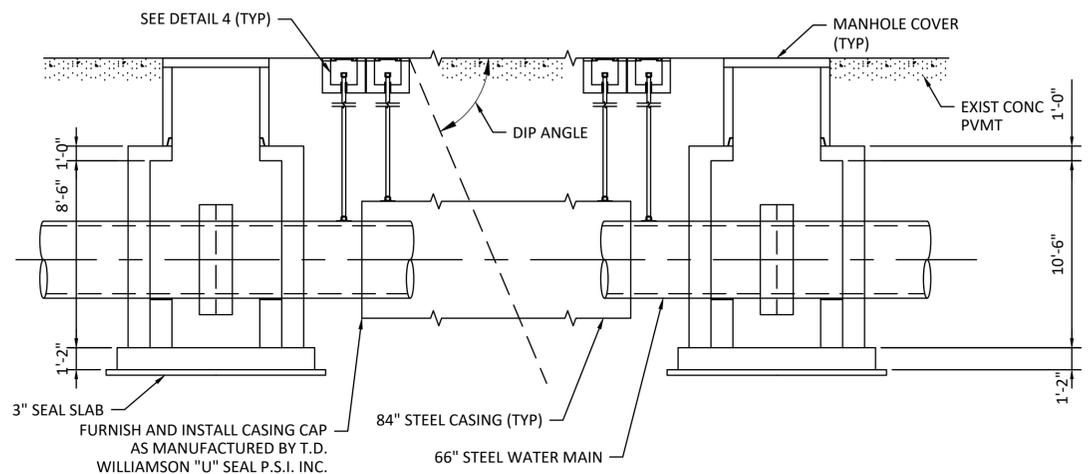
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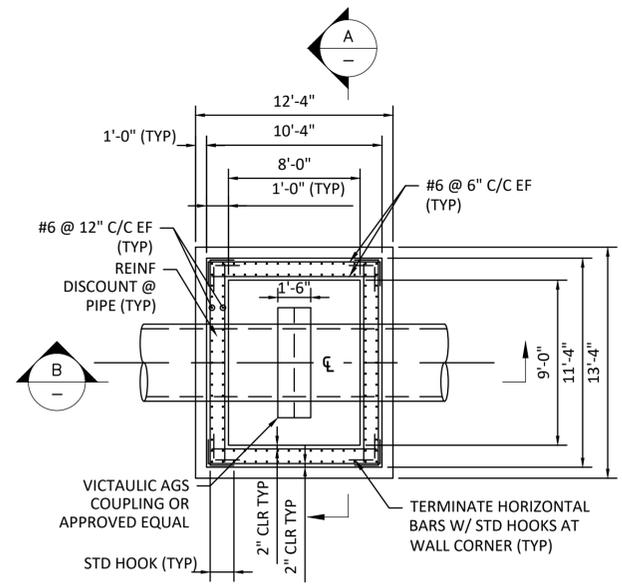
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1 PIPE SUPPORT VAULT - PLAN
SCALE: NTS

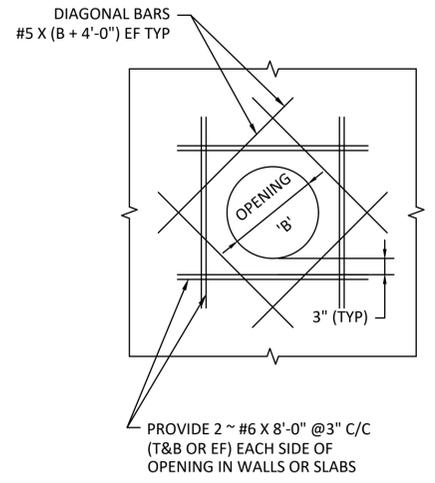


2 ELEVATION
SCALE: NTS



1. FLEXIBLE JOINT TO BE VICTAULIC W77 AGS COUPLING OR APPROVED EQUAL.
2. COAT AND LINE EXPANSION JOINT WITH AN ASF APPROVED EXPOXY CONFORMING TO REQUIREMENTS OF SECTION 02502-STEEL PIPE, AND APPLIED IN ACCORDANCE WITH AWWA C210.
3. USE CATHODIC PROTECTION BOND FOR EXPANSION COUPLING AS SHOWN ON SHEET 86.

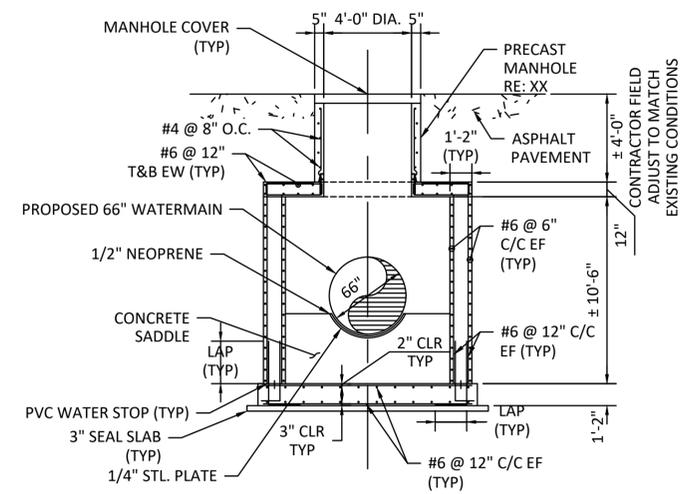
3 EXPANSION VAULT - PLAN
SCALE: NTS



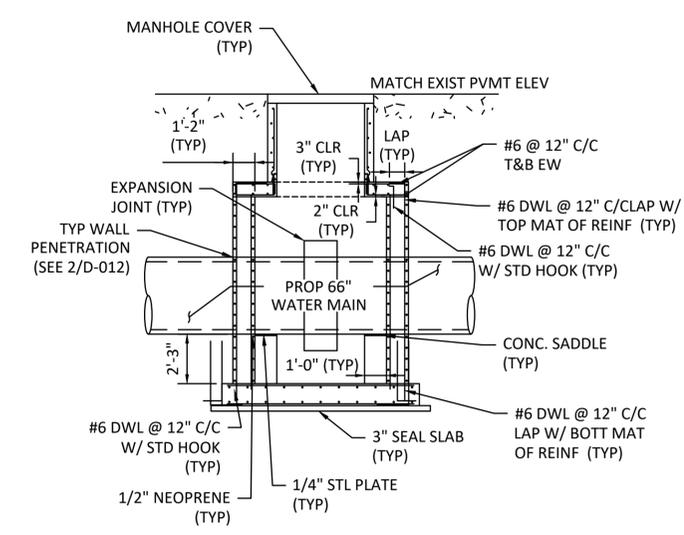
4 ADDITIONAL REINFORCING AT OPENING IN WALLS AND TOP
SCALE: NTS

STRUCTURAL CONCRETE NOTES:

1. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI, UNLESS SPECIFIED OTHERWISE.
2. ALL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60, DEFORMED.
3. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE AS LISTED BELOW, UNLESS NOTED OTHERWISE.
A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
B. TOP SURFACES OF FOUNDATION SLABS: 3"
C. ALL OTHER: 2"
D. SEE DRAWINGS FOR EXCEPTIONS.
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS ON SLABS UNLESS NOTED OTHERWISE.
5. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PURPOSELY ROUGHENED TO 1/4" PRIOR TO PLACING ADJACENT CONCRETE.
6. ADDITIONAL CONSTRUCTION JOINTS SHALL HAVE PRIOR APPROVAL OF THE ENGINEER.
7. PENETRATIONS OTHER THAN SHOWN SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
8. IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
9. CONDUITS AND PIPING EMBEDDED IN CONCRETE SHALL BE SPACED A MINIMUM OF FOUR DIAMETERS AND THE OUTSIDE DIAMETER SHALL BE LESS THAN 30 PERCENT OF THE MEMBER THICKNESS PLACED BETWEEN LAYERS OF REINFORCING.
10. UNLESS NOTED OTHERWISE, HOOKS SHOWN ON DRAWINGS SHALL BE ASSUMED TO BE STANDARD HOOKS PER ACI 318.
11. UNLESS NOTED OTHERWISE, LAP SPLICES IN WALLS SHALL BE STAGGERED.
12. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL LAP 48 BAR DIAMETERS OF SMALLER BAR LAPPED, UNLESS NOTED OTHERWISE. ALL REBAR EMBEDMENT LENGTHS SHALL BE 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING, TEMPORARY BRACING AND SHORING.



A SECTION A
SCALE: NTS



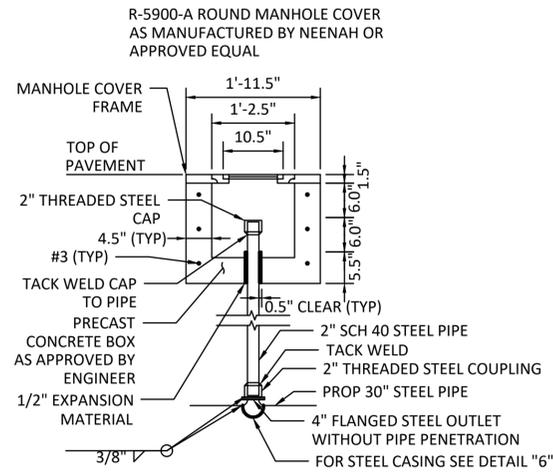
B SECTION B
SCALE: NTS

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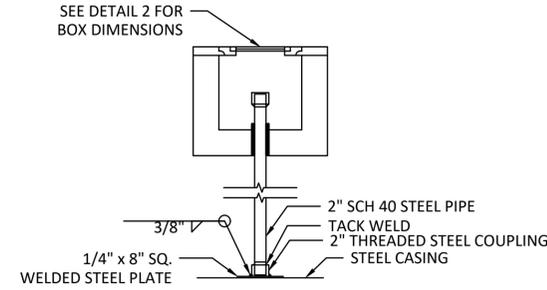
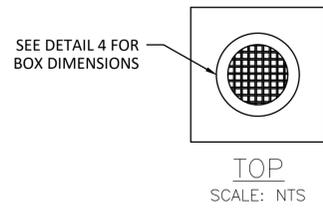
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
FAULT CROSSING DETAILS (SHEET 1 OF 2)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 094 OF 176	

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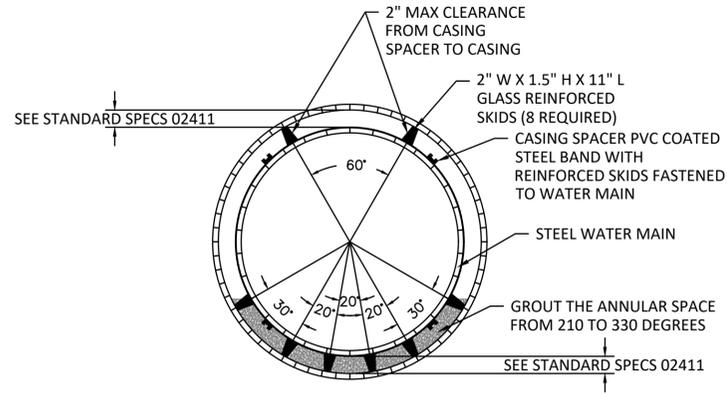
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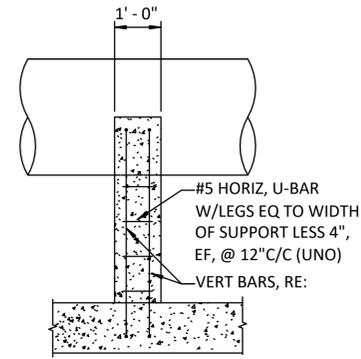
1
-
STEEL SURVEY PIPE AT 66" WATER MAIN PIPE
SCALE: NTS



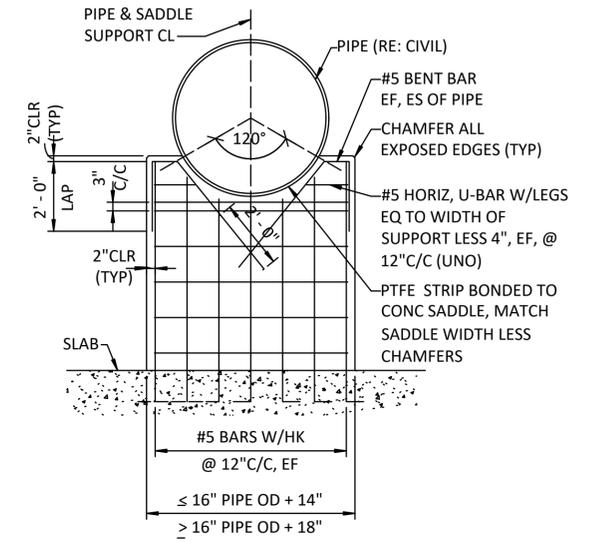
2
-
STEEL SURVEY PIPE AT STEEL CASING
SCALE: NTS



3
-
FAULT CASING DETAIL
SCALE: NTS



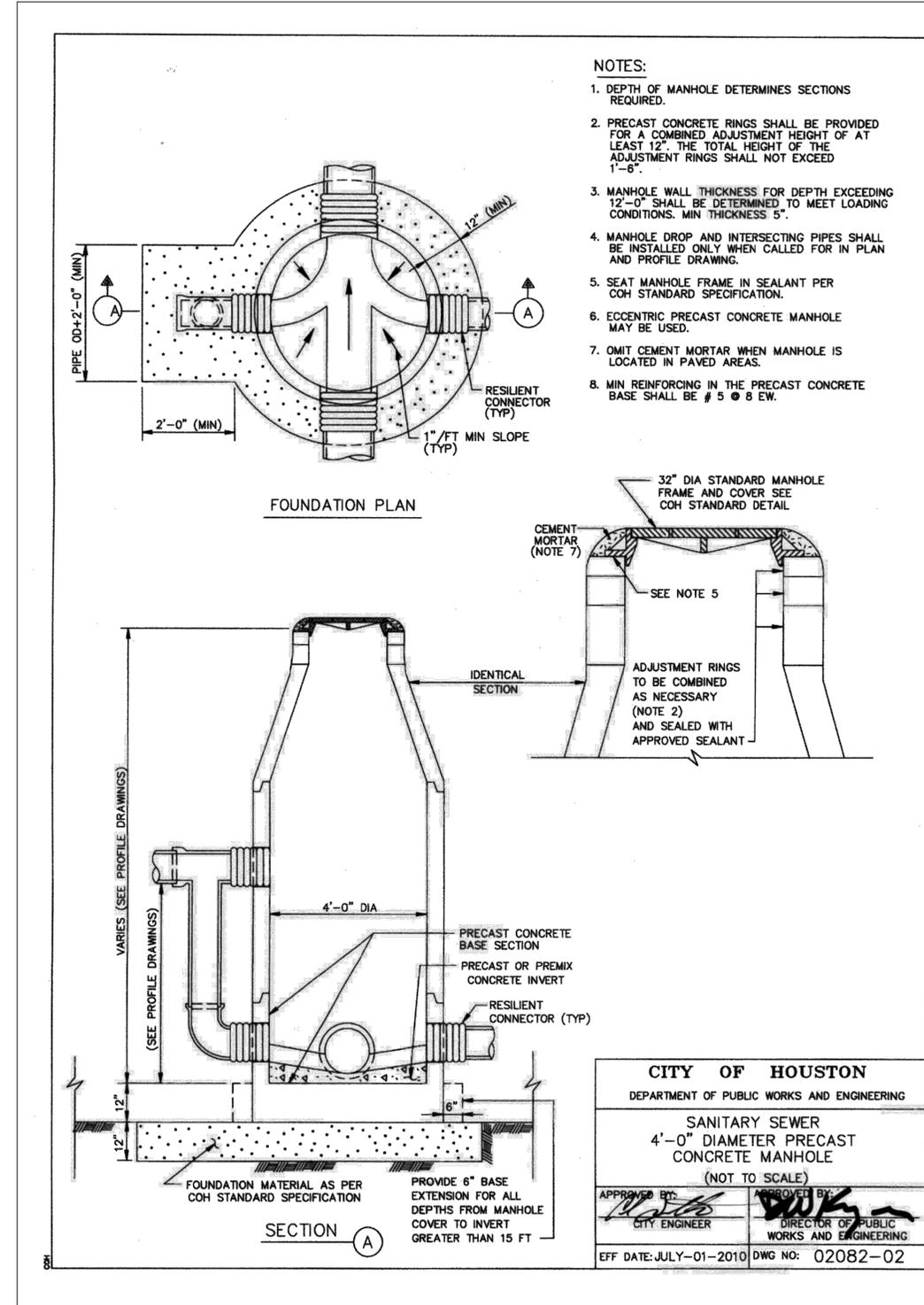
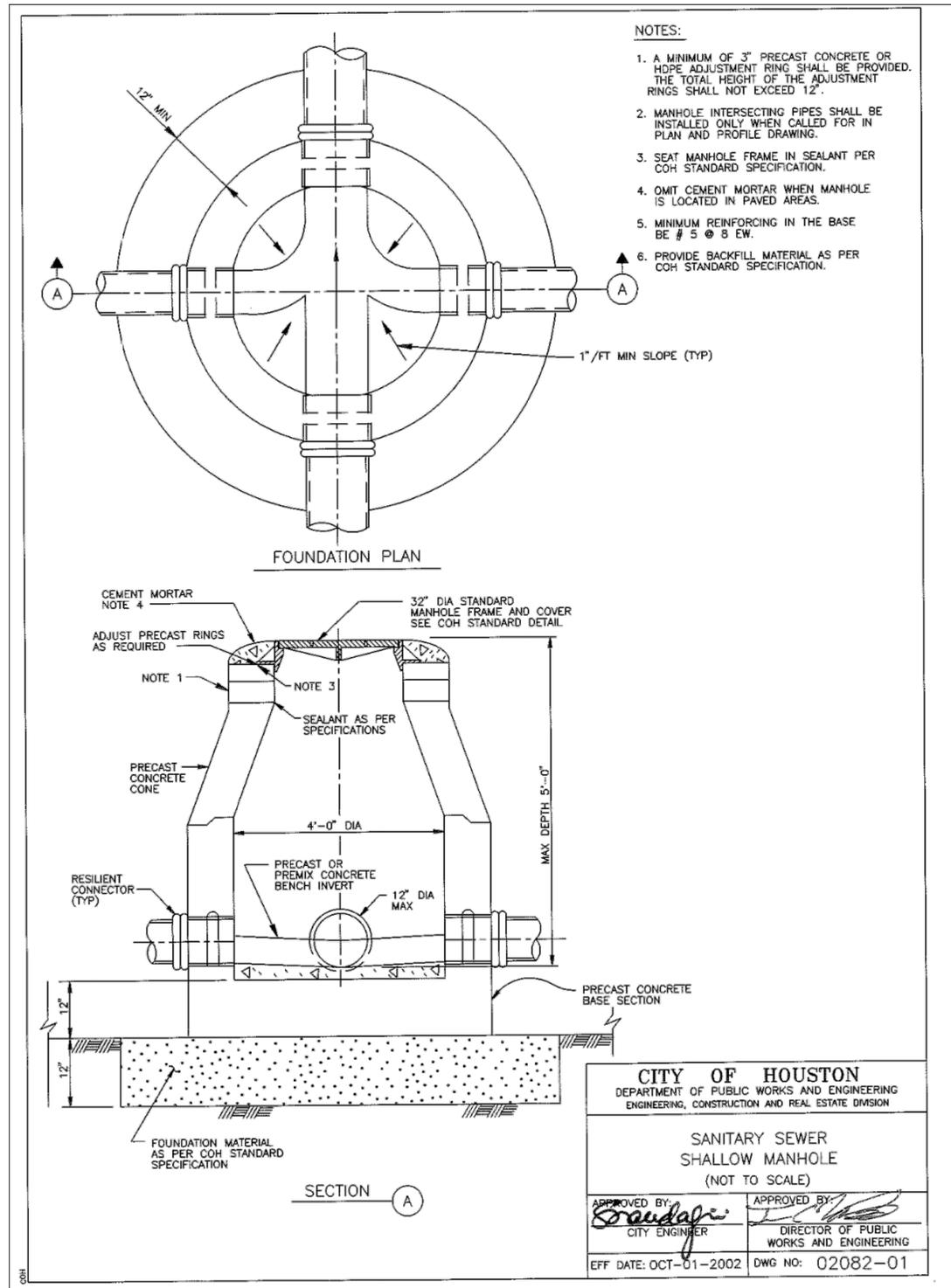
4
-
TYP SECTION AT PIPE SUPPORT PAD
SCALE: NTS



5
-
PIPE SUPPORT PAD
SCALE: NTS

- NOTES:**
1. INSTALL WATER MAIN WITH PROPOSED CASING SPACERS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 2. WELD THE JOINTS.
 3. APPLY HEAT SHRINK WRAP IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
 4. THREAD THE WATER MAIN INTO THE CASING
 5. REPEAT THIS PROCEDURE UNTIL THE WATER MAIN IS INSTALLED
 6. GROUT ANNULAR SPACE IN ACCORDING TO THIS DETAIL AND SECTION 02431.

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<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p>	
<p>FAULT CROSSING DETAILS (SHEET 2 OF 2)</p>	
<p>WBS NUMBER S-000900-0178-4</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE NOT TO SCALE</p>	
<p>CITY OF HOUSTON PM JOAQUIN LOPEZ</p>	
<p>SHEET NO. 095 OF 176</p>	



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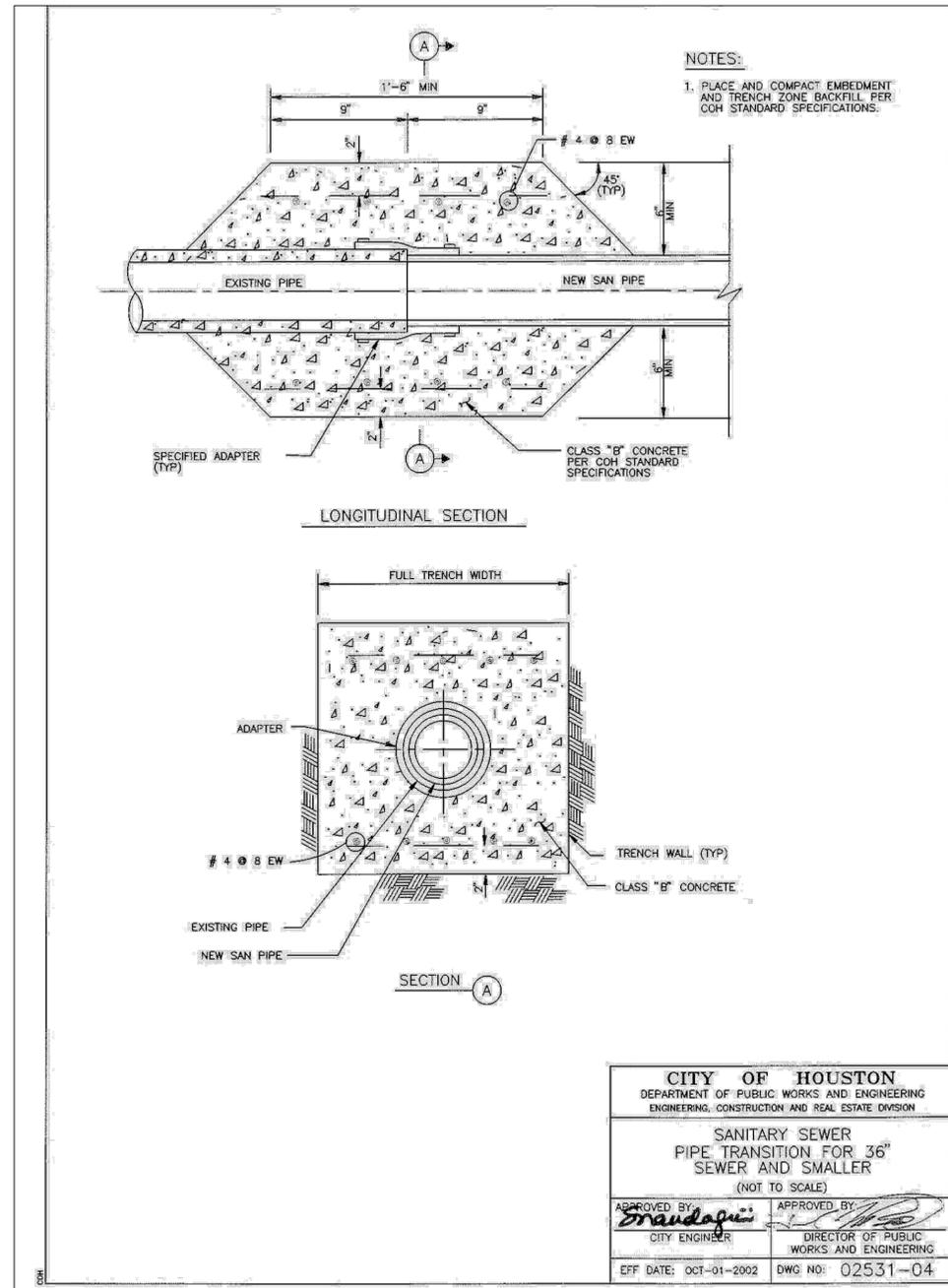
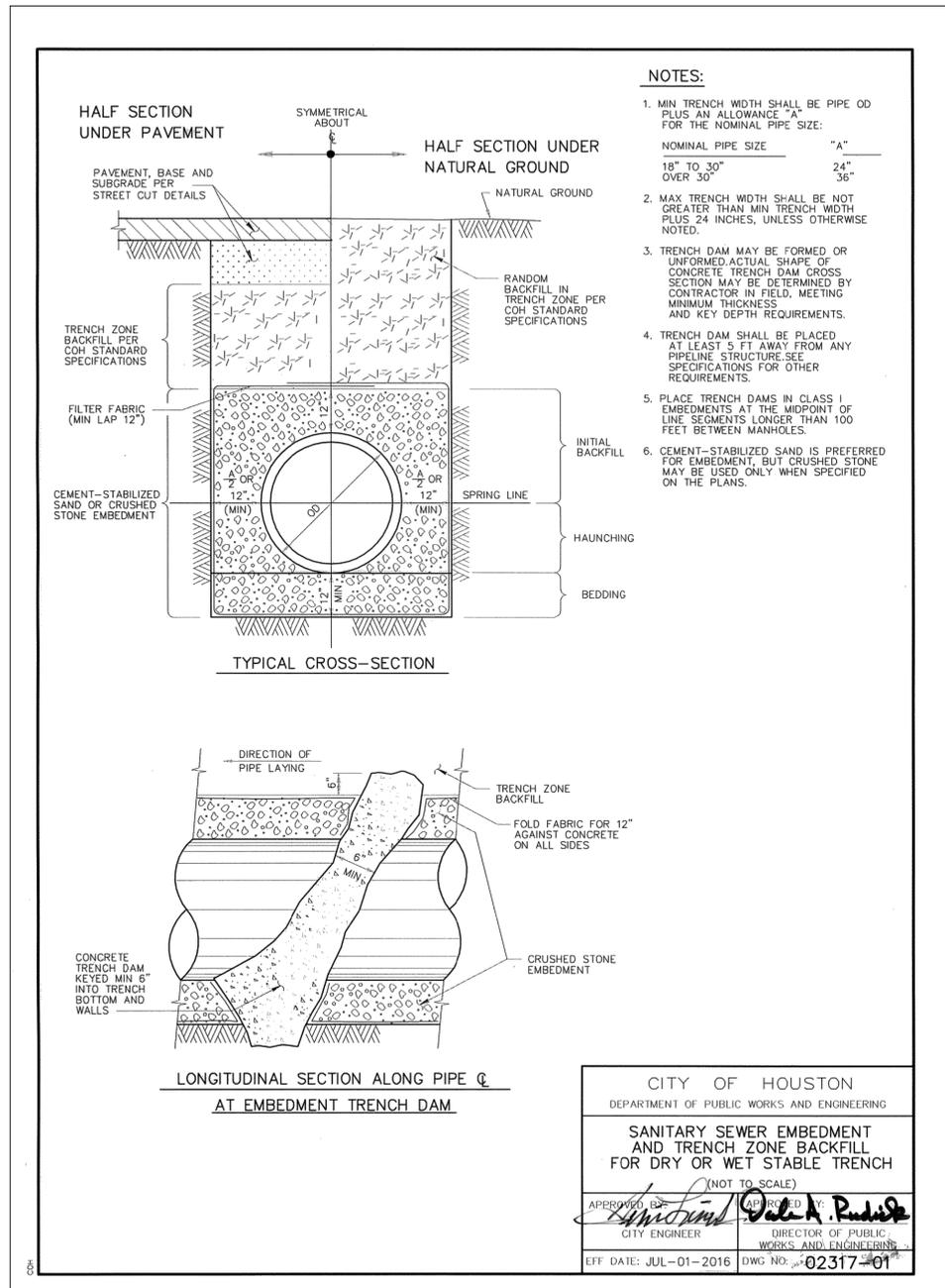
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FB NO. P-6342

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HOUSTON PUBLIC WORKS

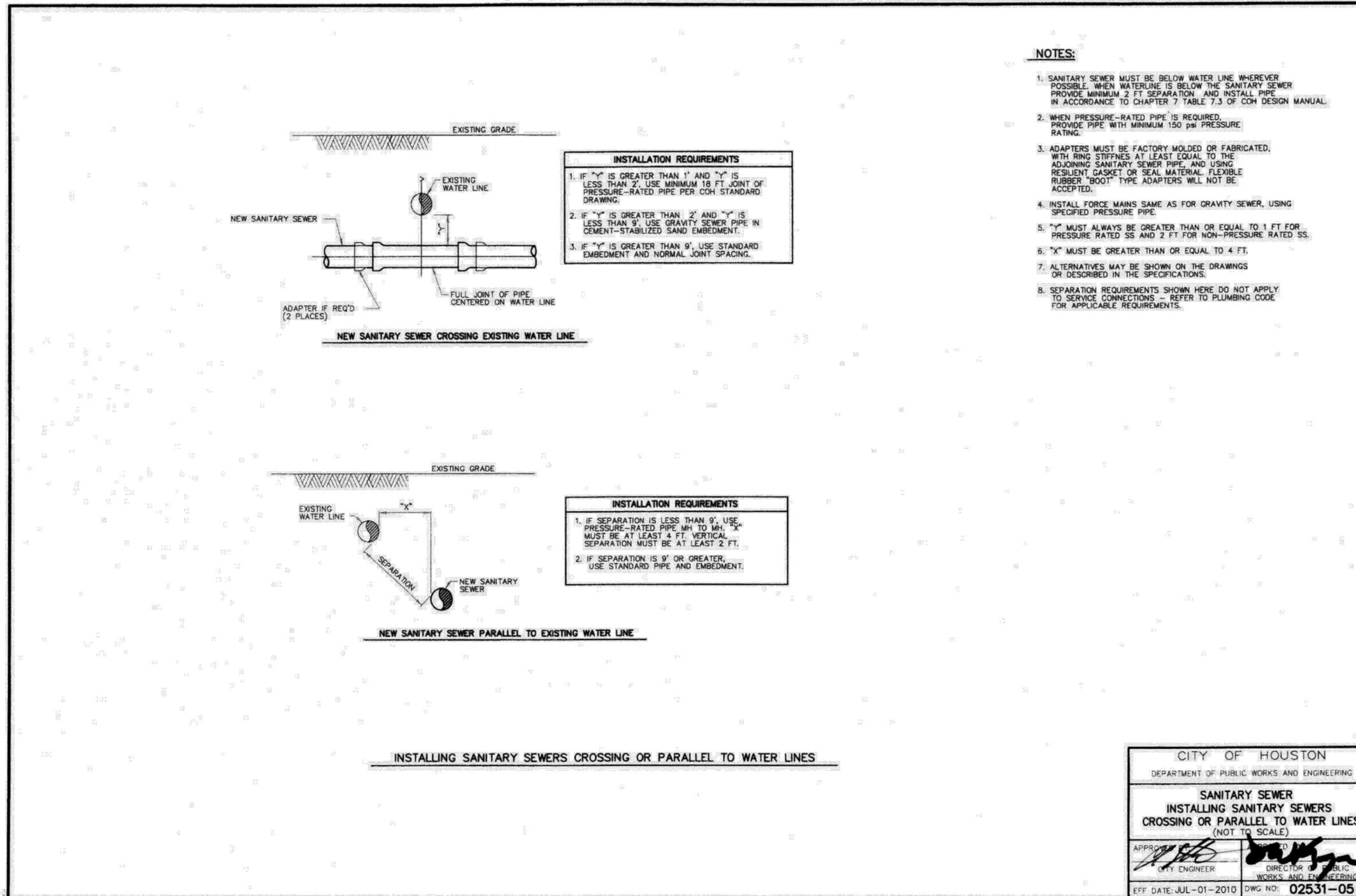
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

STANDARD SANITARY SEWER DETAILS
(SHEET 1 OF 4)

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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR STANDARD SANITARY SEWER DETAILS (SHEET 2 OF 4)	
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CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 097 OF 176	



NOTES:

- SANITARY SEWER MUST BE BELOW WATER LINE WHEREVER POSSIBLE. WHEN WATERLINE IS BELOW THE SANITARY SEWER PROVIDE MINIMUM 2 FT SEPARATION AND INSTALL PIPE IN ACCORDANCE TO CHAPTER 7 TABLE 7.3 OF COH DESIGN MANUAL.
- WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
- ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNESS AT LEAST EQUAL TO THE ADJOINING SANITARY SEWER PIPE, AND USING RESILIENT GASKET OR SEAL MATERIAL. FLEXIBLE RUBBER "BOOT" TYPE ADAPTERS WILL NOT BE ACCEPTED.
- INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
- "Y" MUST ALWAYS BE GREATER THAN OR EQUAL TO 1 FT FOR PRESSURE RATED SS AND 2 FT FOR NON-PRESSURE RATED SS.
- "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
- ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
- SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS - REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
SANITARY SEWER INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES (NOT TO SCALE)	
APPROVED: CITY ENGINEER	DESIGNED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02531-05

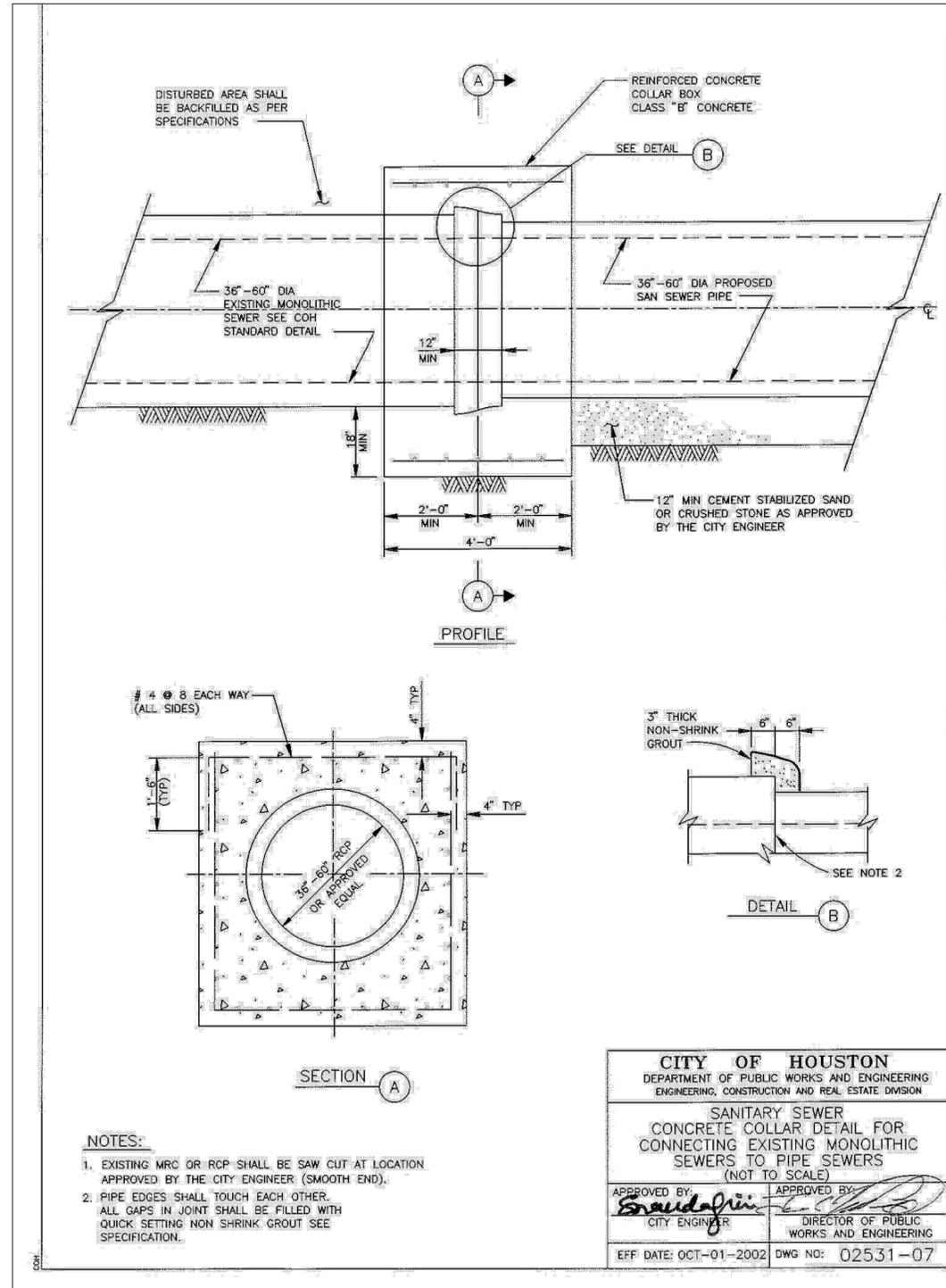
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FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

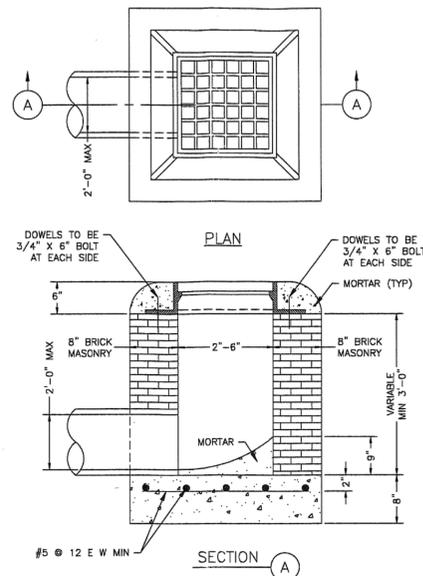
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STANDARD SANITARY SEWER DETAILS
(SHEET 3 OF 4)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 098 OF 176	



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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR STANDARD SANITARY SEWER DETAILS (SHEET 4 OF 4)</p>	
<p>WBS NUMBER S-000900-0178-4</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE NOT TO SCALE</p>	
<p>CITY OF HOUSTON PM JOAQUIN LOPEZ</p>	
<p>SHEET NO. 099 OF 176</p>	

02632-01

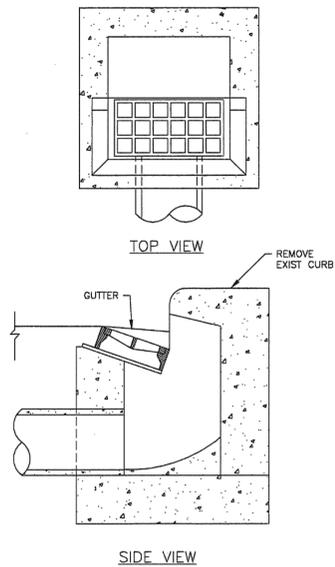


COH IS PHASING OUT BRICK. NEW DETAILS TO BE POSTED END OF 2019

STORM SEWER TYPE "A" GRATE INLET
NTS

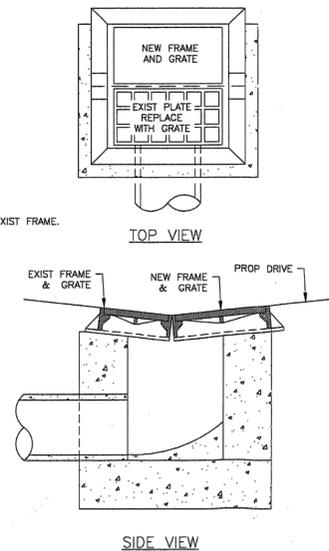
02632-03

STEP 1: EXIST TYPE "B" INLET

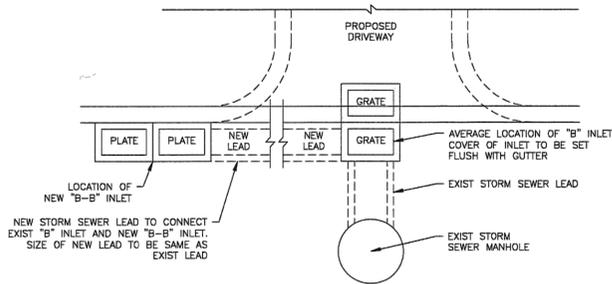


STEP 2:

- NOTES:
1. AFTER REMOVING EXIST CURB, RAISE EXIST FRAME TO GUTTER GRADE. REPLACE EXIST PLATE WITH A GRATE.
 2. ADD NEW FRAME AND GRATE NEXT TO EXIST FRAME.
 3. BACKFILL INLET TO A POINT ONE FOOT BEHIND THE CURB WITH 1 SACK/TON CEMENT STABILIZED SAND.



STEP 3: CONSTRUCT NEW TYPE "B-B" INLET ON CURB RETURN OF PROPOSED DRIVEWAY



STORM SEWER TYPE "B" INLET RELOCATION
NTS

FIRM INFORMATION		ENGINEER'S SEAL	
CITY OF HOUSTON HOUSTON PUBLIC WORKS			
STORM SEWER 02632-01 AND 03			
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR		
APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING			
EFFECTIVE DATE: JUL-01-2019 FOR CITY OF HOUSTON USE ONLY			
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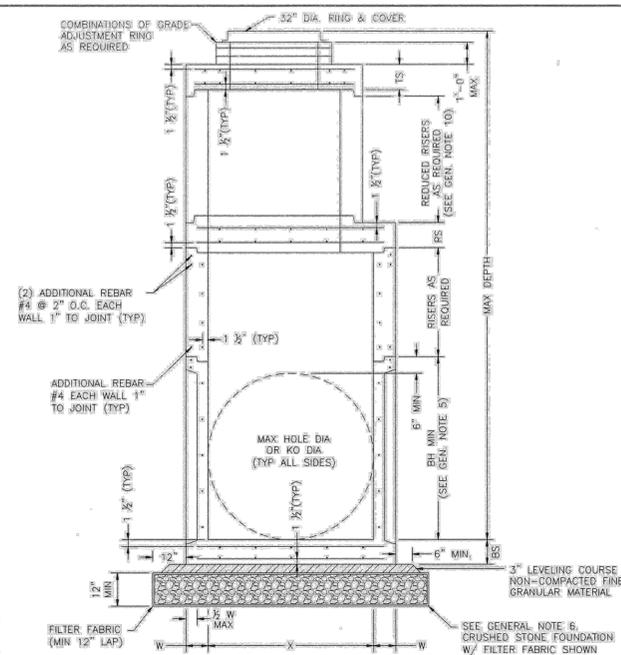
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HOUSTON PUBLIC WORKS

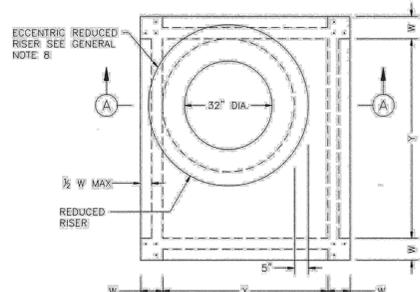
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STANDARD STORM SEWER DETAILS
(SHEET 1 OF 4)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 100 OF 176	

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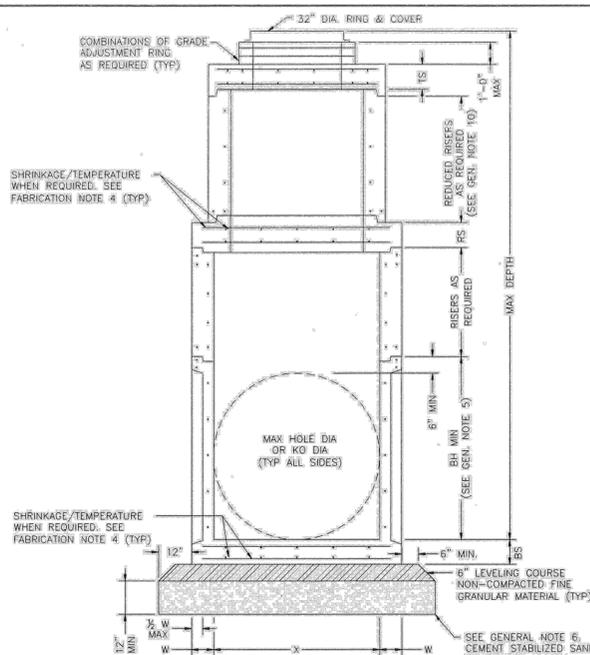


ELEVATION A-A
FLAT SLAB TOP WITH SHIP
LOOSE RING & COVER OPTION

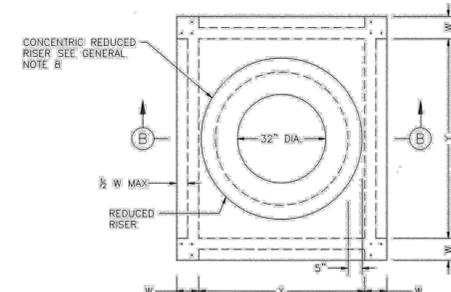


PLAN VIEW A
COVER NOT SHOWN

ECCENTRIC MANHOLE
(PREFERRED CONFIGURATION)



ELEVATION B-B
FLAT SLAB TOP WITH SHIP
LOOSE RING & COVER OPTION



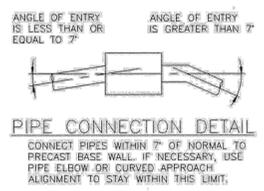
PLAN VIEW B
COVER NOT SHOWN

CONCENTRIC MANHOLE
(ALTERNATE CONFIGURATION)

TABLE 1

PBM	SIZE	BASE SLAB THICKNESS		BASE UNIT OR RISER THICKNESS		REDUCED RISER DIA.		REDUCING SLAB THICKNESS		TOP SLAB THICKNESS		MAX DEPTH TO TOP OF BASE SLAB		MIN HEIGHT (SEE GEN. NOTE 5)		MAX HOLE DIA (SEE FAB. NOTE 11)		MAX KO DIA (SEE FAB. NOTE 11)	
		BS	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
	X & Y	6	6	6	6	N/A	N/A	9	9	9	9	25	3.50	36	36	36	36	36	36
	3x3	6	6	6	6	N/A	N/A	9	9	9	9	25	4.50	48	48	48	48	48	48
	4x4	6	6	6	6	N/A	N/A	9	9	9	9	25	3.50	36/60	36/60	36/60	36/60	36/60	36/60
	4x5	6	6	6	6	48 IN.	48 IN.	9	9	9	9	25	4.50	48/60	48/60	48/60	48/60	48/60	48/60
	5x5	6	6	6	6	48 IN.	48 IN.	9	9	9	9	25	5.50	60	60	60	60	60	60
	6x6	9	9	9	9	48 IN.	48 IN.	9	9	9	9	25	6.50	60/72	60/72	60/72	60/72	60/72	60/72
	6x6	9	9	9	9	48 IN.	48 IN.	9	9	9	9	25	6.50	72	72	72	72	72	72
	8x8	9	9	9	9	48 IN.	48 IN.	12	12	12	12	25	8.50	96	96	96	96	96	96

TABLE 1 NOTES:
1. (1) ROUND MANHOLES ARE PREFERRED FOR THESE SIZES.
2. (*) UNLESS OTHERWISE INDICATED.
3. TABLE IS VALID FOR UP TO 25 FT OF INSTALLATION DEPTH.



- FABRICATION NOTES:**
1. PROVIDE CLASS "H" CONCRETE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION ITEM 421 AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
 2. PROVIDE GRADE 60 REINFORCING STEEL OR EQUIVALENT AREA OF WWR. PROVIDE CIRCUMFERENTIAL REINFORCING STEEL IN VERTICAL WALLS OF RISER AND CONE IN ACCORDANCE WITH ASTM C478.
 3. PROVIDE TYPICAL MINIMUM CONCRETE CLEAR COVER OF 1 1/2" TO REINFORCING STEEL AT INTERIOR OR EXTERIOR WALLS.
 4. SLABS WITH A THICKNESS OF 8" OR GREATER REQUIRE SHRINKAGE AND TEMPERATURE REINFORCING STEEL. PROVIDE STEEL AREA = 0.11 IN²/FT EACH WAY.
 5. MANUFACTURE BASE AND RISERS TO NEAREST 3" INCREMENT.
 6. DESIGN TONGUE AND GROOVE JOINTS FOR FULL CLOSURE ON BOTH SHOULDERS. MINIMUM SPIGOT DEPTH IS 3/4".
 7. PROVIDE LIFTING DEVICES IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 8. PROVIDE CAST IRON SOLID COVER, UNLESS NOTED OTHERWISE ELSEWHERE IN THE PLANS.
 9. MAXIMUM SPACING OF REINFORCEMENT IS 8".
 10. AT MANUFACTURER'S OPTION, PROVIDE CAST OR CORED HOLES OR THIN WALL PANELS (KO) TO THE MAXIMUM DIA SHOWN FOR EACH. WHEN NO PENETRATION IS REQUIRED, IT IS ACCEPTABLE TO PROVIDE A WALL WITH NO SECTIONAL REDUCTION.
 11. THREE DIFFERENT OPTIONS FOR CAPPING THE MANHOLE RISER NEAR THE FINISHED GRADE ARE ALLOWED. CONES CAN BE USED WHEN COVER IS SUFFICIENT TO ALLOW FOR PROPER PLACEMENT. FLAT LIDS ARE TO BE USED WHERE COVER IS LIMITED. REFER TO 02082-12 FOR OPTIONS.
 12. BASES AND RISERS MAY HAVE CAST, CUT OR THIN WALL PANEL (KO) THAT ARE ROUND AND DO NOT EXTEND INTO THE FLOOR, INTO WALLS, OR WITHIN 6" OF THE JOINT ABOVE OR BELOW.

- INSTALLATION NOTES:**
1. IF REQUIRED ELSEWHERE, INVERTS (BENCHING) TO BE PROVIDED BY CONTRACTOR. CONCRETE OR MORTAR USED FOR INVERT IS SUBSIDIARY TO MANHOLE. REFER TO CITY OF HOUSTON SPECIFICATION SECTION 02082 FOR INVERT (BENCHING) REQUIREMENTS.
 2. SEAL TONGUE AND GROOVE JOINTS WITH PREFORMED OR BULK MASTIC IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. TONGUE AND GROOVE JOINTS MAY BE GROUDED NO MORE THAN 1" BETWEEN EACH SECTION, OR 1/2 THE JOINT DEPTH, WHICHEVER IS GREATER.
 3. DO NOT GROUT RUBBER GASKET JOINTS WITHOUT MANUFACTURER'S RECOMMENDATION.
 4. FOR RIGID PIPE, CUT HOLE IN THIN WALL PANEL (KO) 4" MAX, 2" MIN LARGER THAN PIPE OD.
 5. FOR FLEXIBLE PIPE, CONSULT BOOT/SEAL MANUFACTURER'S SPECIFICATION FOR PLACEMENT TOLERANCE AND HOLE SIZE. CENTER PIPE IN HOLE AND INSTALL BOOT/SEAL PER MANUFACTURER'S SPECIFICATION.
 6. INITIAL INSTALLATION OF GRADE ADJUSTMENT RINGS IS LIMITED TO 1'-0" MAX AS SHOWN.
 7. GRADE ADJUSTMENT RINGS MAY BE INCREASED TO 1'-6" MAX WHEN FUTURE CONSTRUCTION AFFECTS FINAL GRADE OF STRUCTURE. MAKE ADJUSTMENTS GREATER THAN 1'-6" WITH ADDITIONAL RISERS. ADJUSTMENTS MAY BE MADE UP TO THE MAX DEPTH OF 25'-0". STRUCTURE MUST BE EVALUATED IF MAX DEPTH WILL BE EXCEEDED.

- GENERAL NOTES:**
1. SEE TABLE 1 FOR MINIMUM DESIGN REQUIREMENTS. CONCENTRIC RISER WITH RESPECT TO BASE (ALTERNATIVE CONFIGURATION) FALLS OUTSIDE THE SCOPE OF REQUIREMENTS PROVIDED. ENGINEER OF RECORD ACCEPTS RESPONSIBILITY FOR SAFETY AND ADEQUACY OF MANHOLE IF THE ALTERNATIVE CONFIGURATION IS USED.
 2. DESIGNED ACCORDING TO ASTM C478 AND/OR ASTM C913.
 3. PAYMENT FOR PRECAST MANHOLE PER SECTION 02082 "PRECAST CONCRETE MANHOLES."
 4. PRECAST BASE CONSISTS OF BASE SLAB, BASE UNIT, RISERS (AS REQUIRED), REDUCING SLAB (AS REQUIRED), AND REDUCED RISERS (AS REQUIRED).
 5. MIN HEIGHT SHOWN FOR STOCK BASE UNITS. USE STOCK BASE UNITS WHENEVER PRACTICAL. SMALLER HEIGHT BASE UNITS CAN BE USED IN SPECIAL INSTALLATION CIRCUMSTANCES, WHEN NOTED ELSEWHERE IN THE PLANS. ABSOLUTE MINIMUM HEIGHT OF BASE UNITS IS 2'-0".
 6. FOUNDATION/SUBGRADE TO BE DESIGNED BY ENGINEER AND MEET MINIMUM REQUIREMENTS ACCORDING TO SECTION 02082.
 7. ALL STORM WATER MANHOLES ARE TO BE PRECAST CONCRETE, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.
 8. ECCENTRIC REDUCED RISER WITH RESPECT TO BASE IS THE PREFERRED MANHOLE CONFIGURATION. CONCENTRIC REDUCED RISER WITH RESPECT TO BASE MANHOLE CONFIGURATION IS AN ALTERNATIVE DESIGN THAT WILL BE ACCEPTED BASED ON THE NEEDS OF THE CITY OF HOUSTON.
 9. MANHOLE SIZE SHALL CONSIDER ENGINEERING ECONOMY. THIS DETAIL IS NOT APPLICABLE TO BOX MANHOLES LARGER THAN 8'-FOOT.
 10. REFER TO STORM SEWER TYPE "C" PRECAST ROUND MANHOLE DETAIL (02082-12) FOR REDUCED RISER DESIGN REQUIREMENTS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER PRECAST BOX MANHOLE
(NOT TO SCALE)

APPROVED BY: *Subail Kanwar* CITY ENGINEER
APPROVED BY: *Carl Haddock* DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2021 DWG NO: 02082-13

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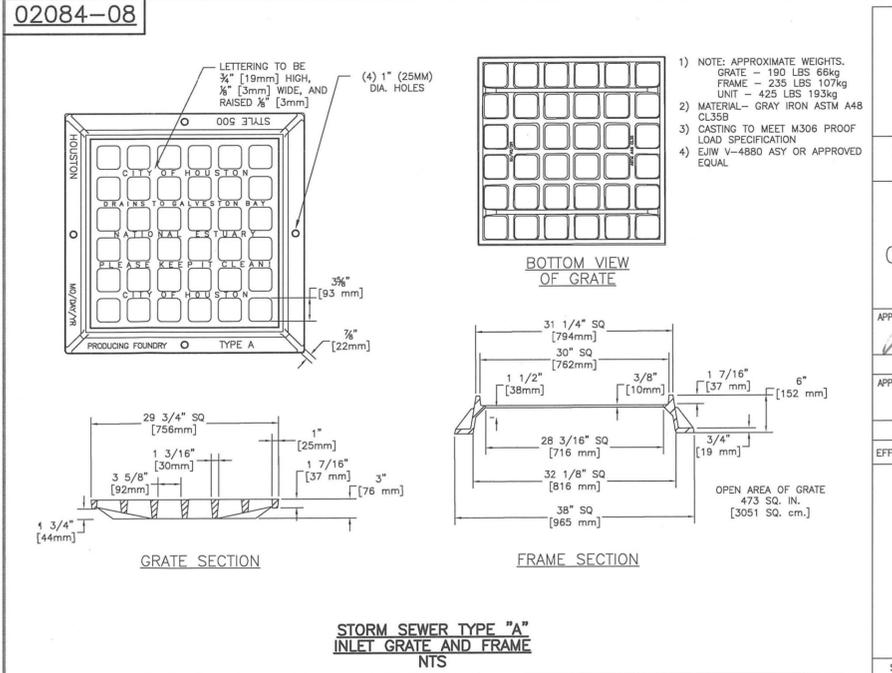
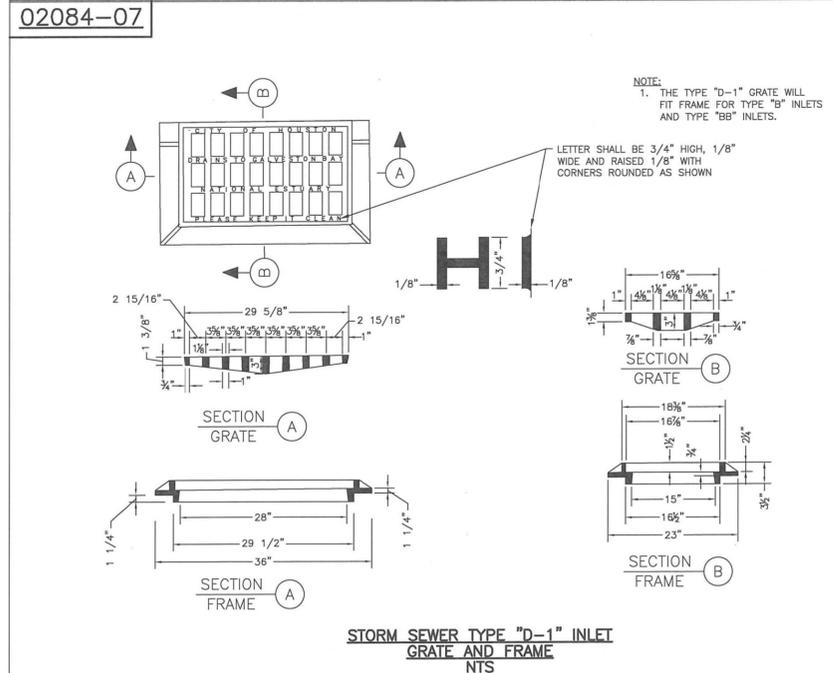
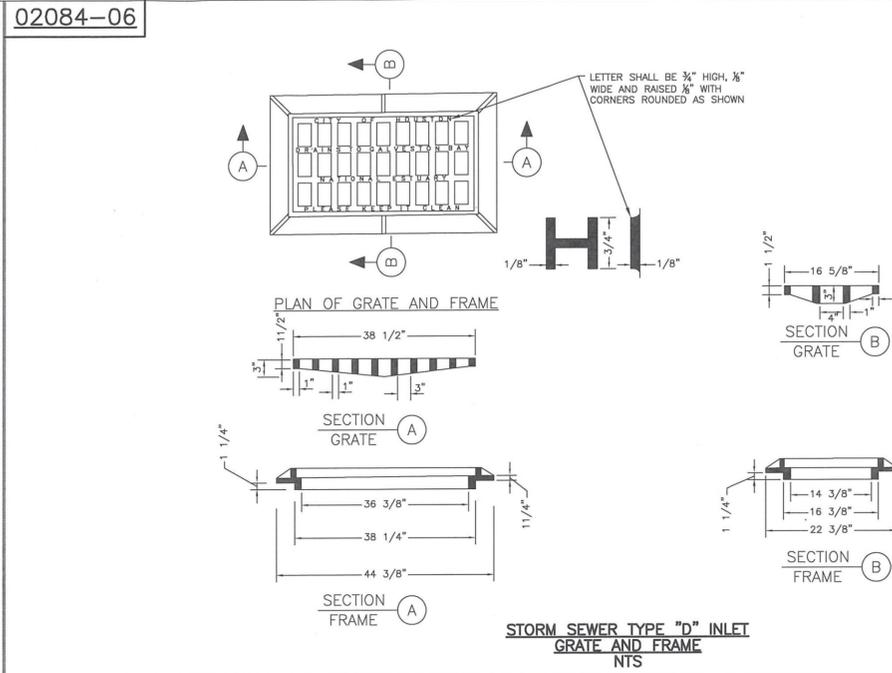
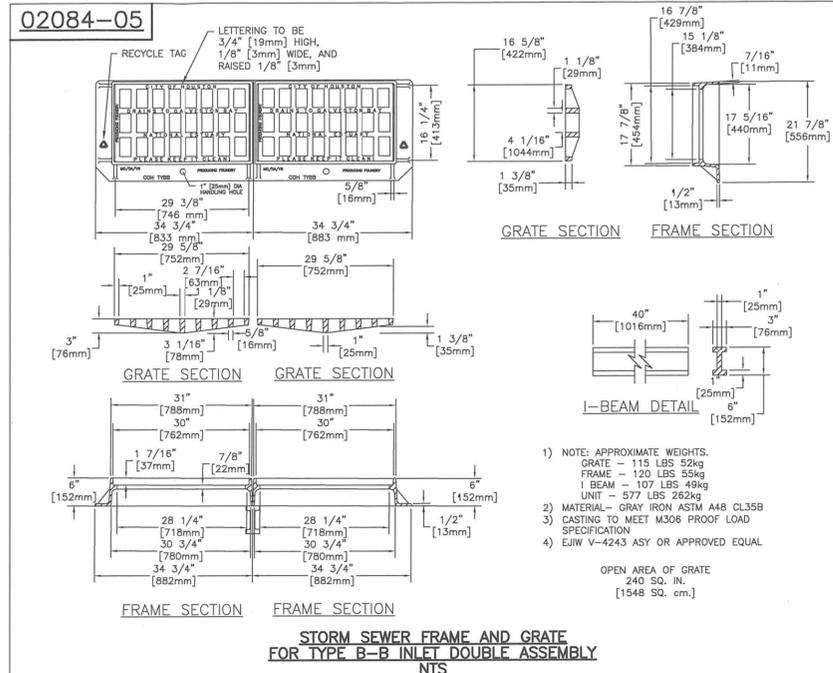
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

STANDARD STORM SEWER DETAILS
(SHEET 2 OF 4)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 101 OF 176	



FIRM INFORMATION	ENGINEER'S SEAL
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02084-05 THROUGH 08	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR
APPROVED BY: <i>[Signature]</i> DIRECTOR	
EFFECTIVE DATE: JUL-01-2019	
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

STANDARD STORM SEWER DETAILS
(SHEET 3 OF 4)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JOAQUIN LOPEZ	
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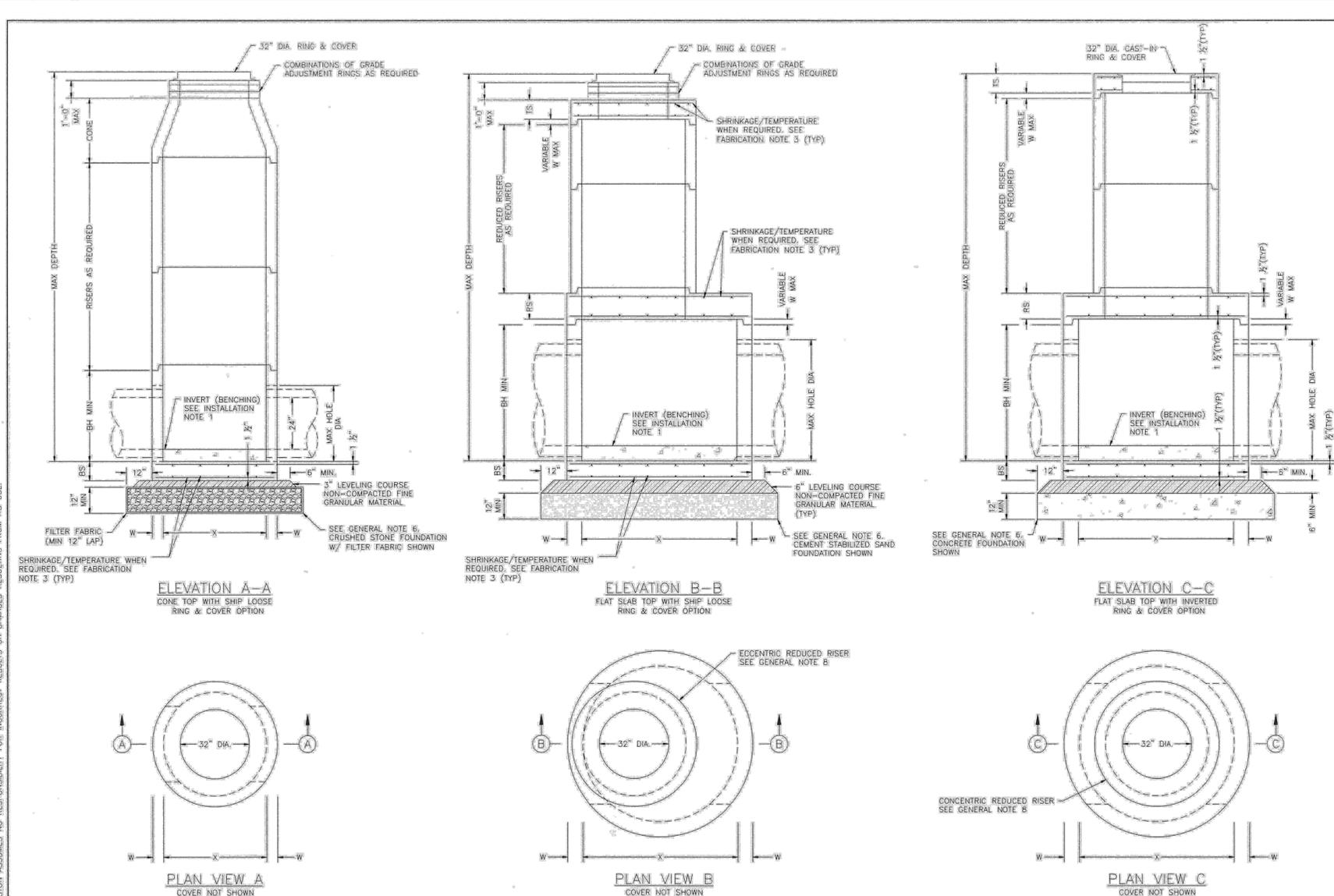


TABLE 1
PRECAST ROUND MANHOLE (PRM) MINIMUM REQUIREMENTS FOR 24 IN. TO 42 IN. INTERNAL DIA STORM SEWER PIPES

SIZE	BASE SLAB THICKNESS		REDUCED RISER DIA	REDUCING SLAB THICKNESS	TOP SLAB THICKNESS	MAX DEPTH TO TOP OF BASE SLAB	MIN HEIGHT		MAX HOLE DIA
	X	BS					BH MIN	MAX HOLE DIA	
4	9	5	5	9	9	25	42	35	35
5	9	6	6	9	9	25	42	42	42
6	9	7	7	12	9	25	42	56	56

(*) 60-IN REDUCED RISER IS TO BE USED WHEN DEEMED NECESSARY TO SATISFY WALL PENETRATION SPACING REQUIREMENTS.

- FABRICATION NOTES:**
1. PROVIDE CLASS "H" CONCRETE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION ITEM 421 AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
 2. PROVIDE GRADE 60 REINFORCING STEEL OR EQUIVALENT AREA OF WWR. PROVIDE CIRCUMFERENTIAL REINFORCING STEEL IN VERTICAL WALLS OF BASE, RISER AND CONE IN ACCORDANCE WITH ASTM C675.
 3. SLABS WITH A THICKNESS OF 8" OR GREATER REQUIRE SHRINKAGE AND TEMPERATURE REINFORCING STEEL. PROVIDE STEEL AREA = 0.11 IN²/FT EACH WAY.
 4. MANUFACTURE BASE AND RISERS TO NEAREST 3" INCREMENT.
 5. DESIGN TONGUE AND GROOVE JOINTS FOR FULL CLOSURE ON BOTH SHOULDERS. MINIMUM SPIGOT DEPTH IS 3/4".
 6. PROVIDE LIFTING DEVICES IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 7. PROVIDE CAST IRON SOLID COVER, UNLESS NOTED OTHERWISE ELSEWHERE IN THE PLANS.
 8. THREE DIFFERENT OPTIONS FOR CAPPING THE MANHOLE RISER NEAR THE FINISHED GRADE ARE SHOWN. CONES CAN BE USED WHEN COVER IS SUFFICIENT TO ALLOW FOR PROPER PLACEMENT. FLAT LIDS ARE TO BE USED WHERE COVER IS LIMITED.
- INSTALLATION NOTES:**
1. IF REQUIRED ELSEWHERE, INVERTS (BENCHING) TO BE PROVIDED BY CONTRACTOR. CONCRETE OR MORTAR USED FOR INVERT IS SUBSIDIARY TO THIS ITEM. REFER TO CITY OF HOUSTON SPECIFICATION SECTION 02022 FOR INVERT (BENCHING) REQUIREMENTS.
 2. SEAL TONGUE AND GROOVE JOINTS WITH PREFORMED OR BULK MASTIC IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. TONGUE AND GROOVE JOINTS MAY BE GROUTED NO MORE THAN 1" BETWEEN EACH SECTION, OR 1/2 THE JOINT DEPTH, WHICHEVER IS GREATER.
 3. DO NOT GROUT RUBBER GASKET JOINTS WITHOUT MANUFACTURER'S RECOMMENDATION.
 4. INITIAL INSTALLATION OF GRADE ADJUSTMENT RINGS IS LIMITED TO 1'-0" MAX AS SHOWN.
 5. GRADE ADJUSTMENT RINGS MAY BE INCREASED TO 1'-6" MAX WHEN FUTURE CONSTRUCTION AFFECTS FINAL GRADE OF STRUCTURE. MAKE ADJUSTMENTS GREATER THAN 1'-6" WITH ADDITIONAL RISERS. ADJUSTMENTS MAY BE MADE UP TO THE MAX DEPTH OF 25'-0". STRUCTURE MUST BE EVALUATED IF MAX DEPTH WILL BE EXCEEDED.
- GENERAL NOTES:**
1. SEE TABLE 1 FOR MINIMUM DESIGN REQUIREMENTS. CONCENTRIC RISER WITH RESPECT TO BASE (ALTERNATE CONFIGURATION) FALLS OUTSIDE THE SCOPE OF REQUIREMENTS PROVIDED. ENGINEER OF RECORD ACCEPTS RESPONSIBILITY FOR SAFETY AND ADEQUACY OF MANHOLE IF THE ALTERNATE CONFIGURATION IS USED.
 2. PAYMENT FOR PRECAST MANHOLE PER SECTION 02082 "PRECAST CONCRETE MANHOLES".
 3. PIPE OD + PLACEMENT TOLERANCE MUST BE EQUAL OR LESS THAN MAX HOLE DIA. FOR RIGID PIPE, PLACEMENT TOLERANCE IS 4" MAX. 2" MIN. FOR FLEXIBLE PIPE, CONSULT BOOT/SEAL MANUFACTURER'S SPECIFICATION FOR PLACEMENT TOLERANCE.
 4. STORM WATER SEWER PIPE INTERNAL DIA SHALL NOT BE LESS THAN 24".
 5. FOUNDATION/SUBGRADE TO BE DESIGNED BY ENGINEER AND MEET MINIMUM REQUIREMENTS ACCORDING TO SECTION 02082.
 6. ALL STORM WATER MANHOLES ARE TO BE PRECAST CONCRETE, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.
 7. ECCENTRIC REDUCED RISER WITH RESPECT TO BASE IS THE PREFERRED MANHOLE CONFIGURATION. CONCENTRIC REDUCED RISER WITH RESPECT TO BASE MANHOLE CONFIGURATION IS AN ALTERNATIVE DESIGN THAT WILL BE ACCEPTED BASED ON THE NEEDS OF THE CITY OF HOUSTON.
 8. CONES MAY BE CONCENTRIC OR ECCENTRIC. REDUCTION CONES ARE ACCEPTABLE. REFER TO MANUFACTURER FOR CONE DIMENSIONS.
 9. MANHOLE SIZE SHALL CONSIDER ENGINEERING ECONOMY. THIS DETAIL IS NOT APPLICABLE TO ROUND MANHOLES LARGER THAN 6-FOOT DIA.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**STORM SEWER TYPE 'C'
PRECAST ROUND MANHOLE**
(NOT TO SCALE)

APPROVED BY:
Suhail Kanwar
CITY ENGINEER

APPROVED BY:
Carl Stallard
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2021 DWG NO: 02082-12

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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

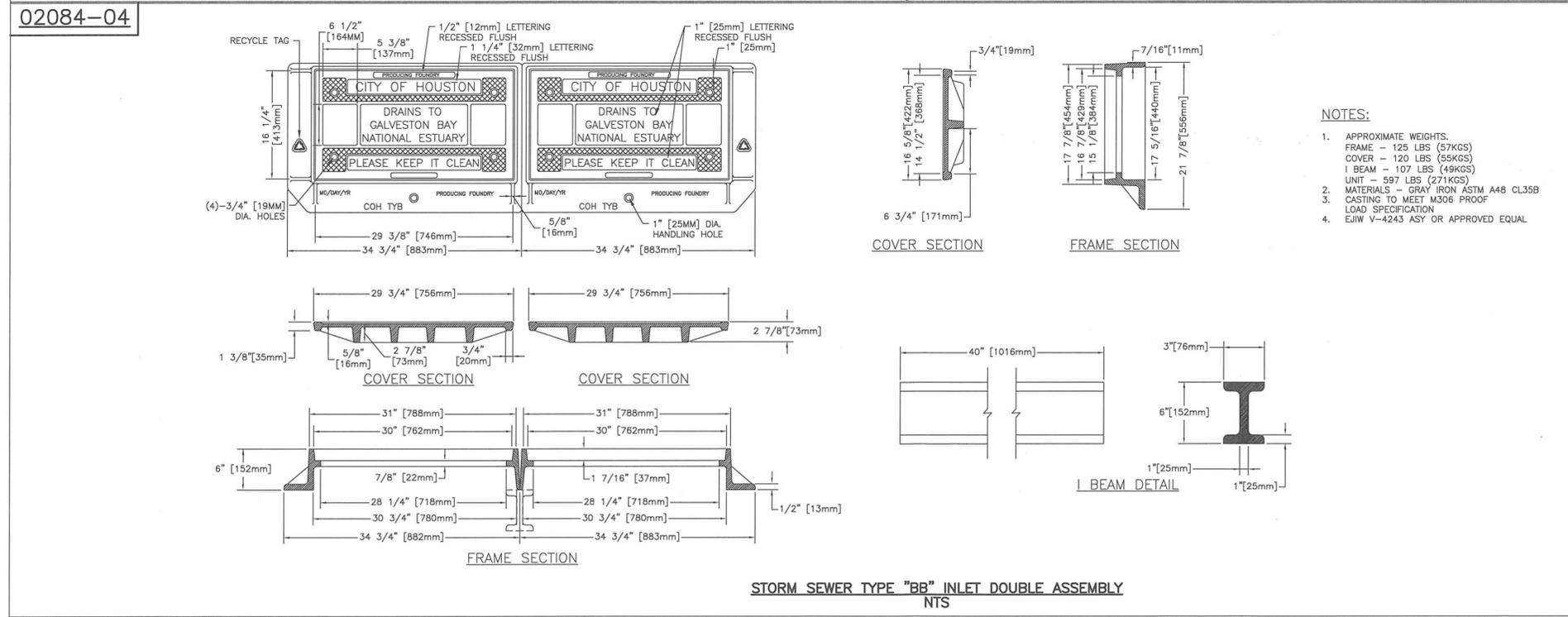
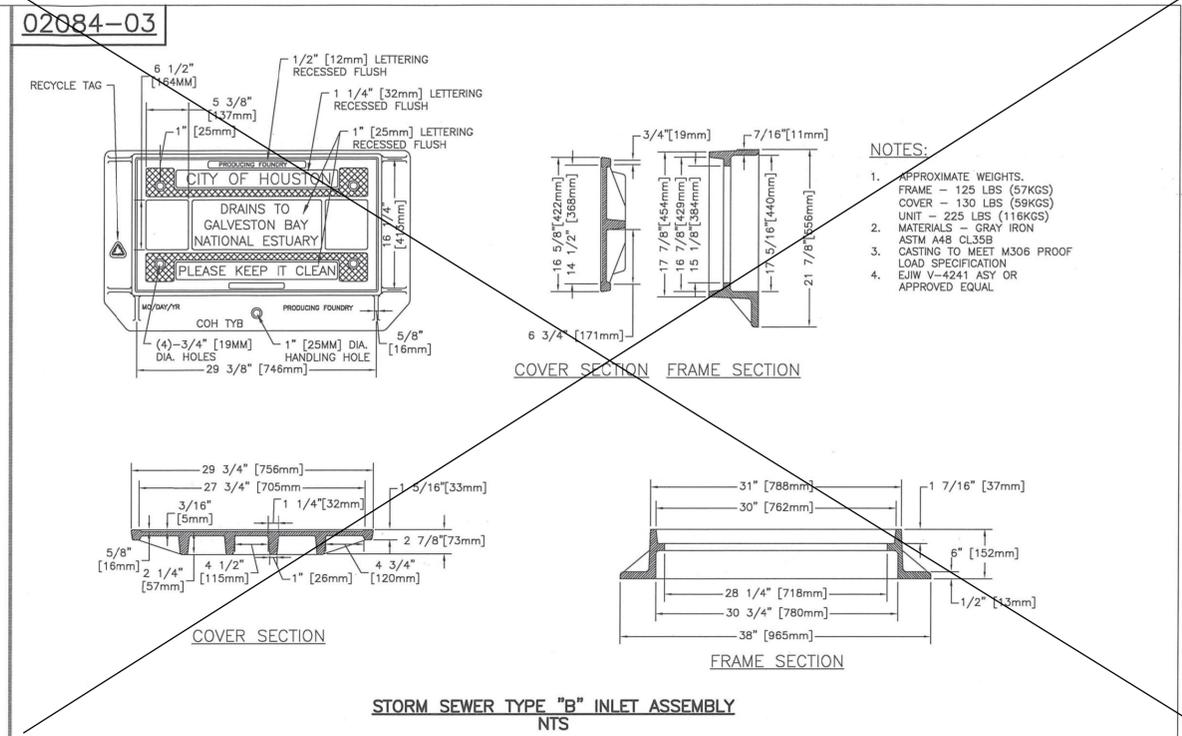
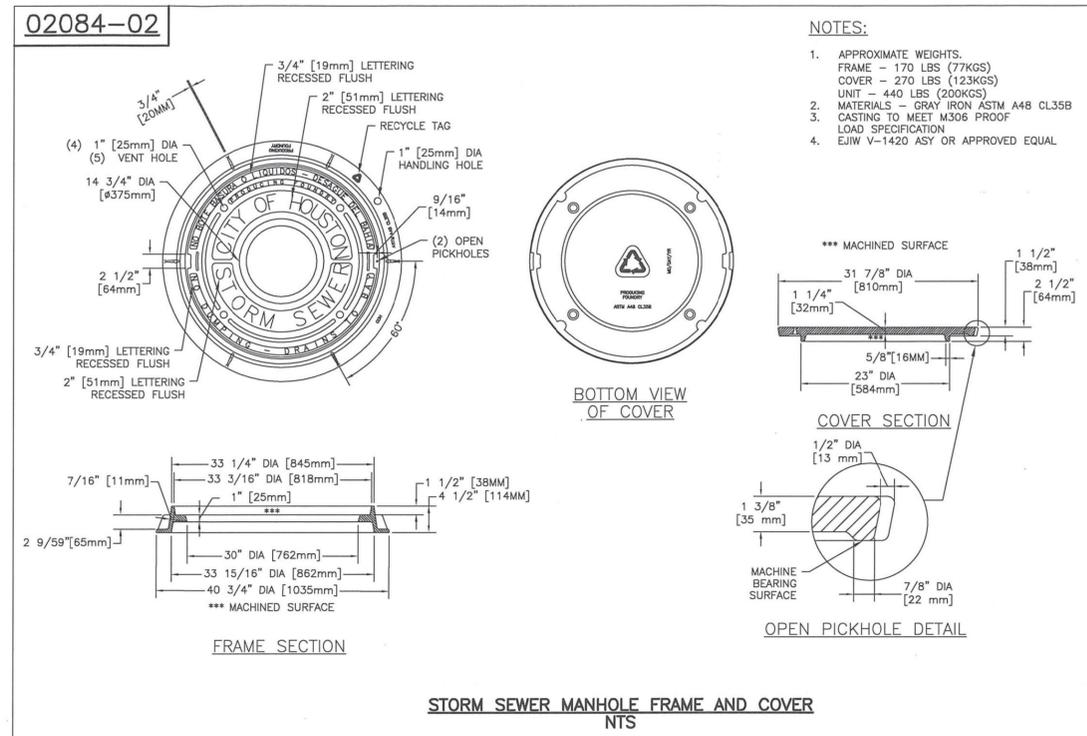
STANDARD STORM SEWER DETAILS
(SHEET 4 OF 4)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 103 OF 176	

BENCHMARK:
 CITY OF HOUSTON MONUMENT
 5264-8415: A BRASS DISK IN CONCRETE,
 LOCATED AT THE SOUTHEAST CORNER OF
 THE INTERSECTION OF ESPLANADE
 BOULEVARD AND NORTH FREEWAY (IH 45)
 WEST BOUND FRONTAGE ROAD
 ELEV 86.05' NAVD 1988 (CORS96, GEOID
 12A)

NO.	DATE	REVISION	APP.

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FIRM INFORMATION	ENGINEER'S SEAL
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02084-02 THROUGH 04	
APPROVED BY: <i>Amel T. M...</i> CITY ENGINEER	APPROVED BY: <i>J...</i> DEPUTY DIRECTOR
APPROVED BY: <i>Carl Haddock</i> DIRECTOR	
EFFECTIVE DATE: JUL-01-2019 FOR CITY OF HOUSTON USE ONLY	
SHEET NO.	

FREES & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

Aurora Technical Services, LLC
 2121 SAGE ROAD, SUITE 150
 PHONE: 281-453-7700
 TX FIRM NO: F-2059

INTERIM REVIEW ONLY
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 JEFFREY HAY
 147887
 Registration Number
 01/21/2025
 Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

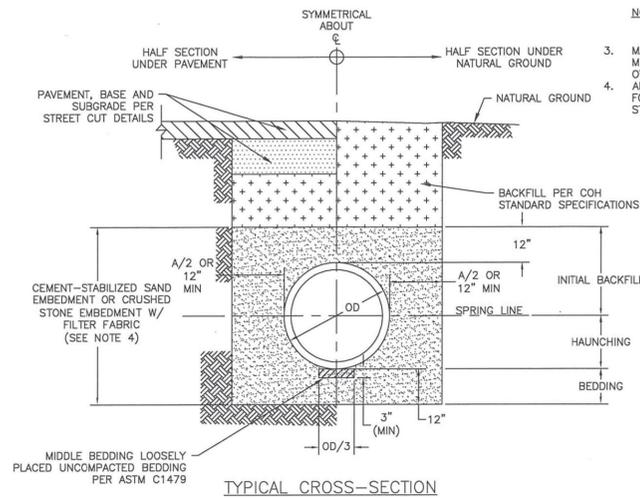
STANDARD
 STORM SEWER
 DETAILS 5 OF 7

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AS NOTED	
CITY OF HOUSTON PM	
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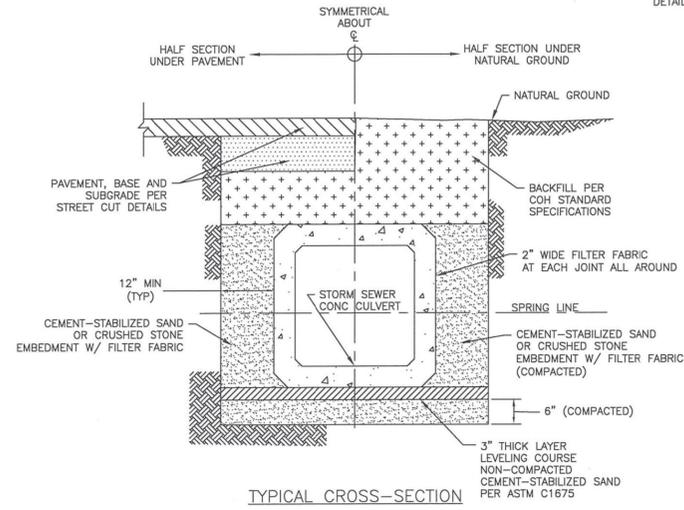
02317-03



- NOTES:**
- THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
 - MIN. TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:
 NOMINAL PIPE SIZE "A"
 18" TO 30" 24"
 OVER 30" 36"
 - MAX. TRENCH WIDTH SHALL BE NOT GREATER THAN MIN. TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
 - ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.

SANITARY OR STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH NTS

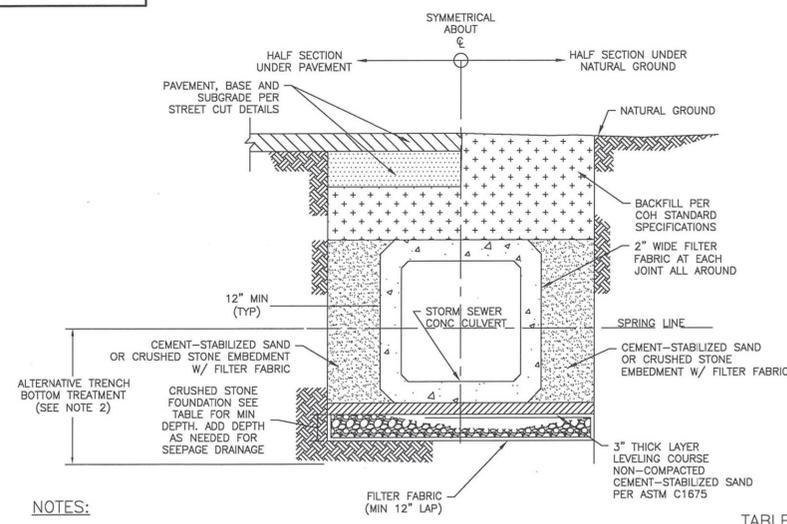
02317-05



- NOTES:**
- WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
 - SUBGRADE AND PAVEMENT FOR STREET CUT DETAILS - 02951.

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH NTS

02317-06



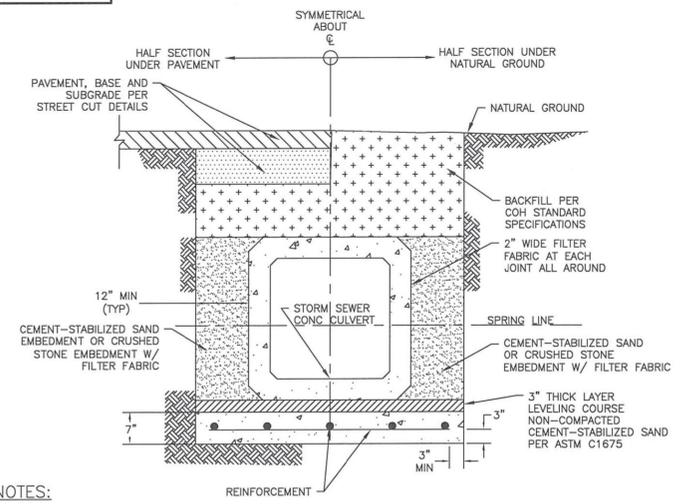
- NOTES:**
- WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
 - ALTERNATIVE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY OF ENGINEERS AND AS PAID FOR IN THE PROPOSAL.

TABLE

CULVERT SIZE (FT)	FOUNDATION DEPTH(INCHES)
3' X 2' TO 6' X 6'	12
6' X 6' AND LARGER	18

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR WET STABLE TRENCH NTS

02317-07



- NOTES:**
- WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
 - REINFORCED CONCRETE SLAB PIPE BEDDING TO BE PLACED IN DRY TRENCH ONLY.
 - CONCRETE IN SLAB TO REACH MIN COMPRESSIVE STRENGTH OF 1000 PSI BASED ON MAX DESIGN BEFORE PIPE IS LAID.
 - PRECAST SEAL SLAB MAYBE USED AS APPROVED BY CITY ENGINEER.

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL WITH SEAL SLAB NTS

FIRM INFORMATION		ENGINEER'S SEAL	
CITY OF HOUSTON HOUSTON PUBLIC WORKS			
STORM SEWER 02317-03 THROUGH 07			
APPROVED BY:	<i>[Signature]</i>	APPROVED BY:	<i>[Signature]</i>
	CITY ENGINEER		DEPUTY DIRECTOR
APPROVED BY:	<i>[Signature]</i>		
	DIRECTOR		
EFFECTIVE DATE: JUL-01-2019			
FOR CITY OF HOUSTON USE ONLY			
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 HOUSTON, TEXAS 77059
 PHONE: 281-453-7700
 TX FIRM NO: F-2059

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 JEFFREY HAY
 147887
 08/15/2019
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 Texas Registered Engineering Firm
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

STANDARD STORM SEWER DETAILS 6 OF 7

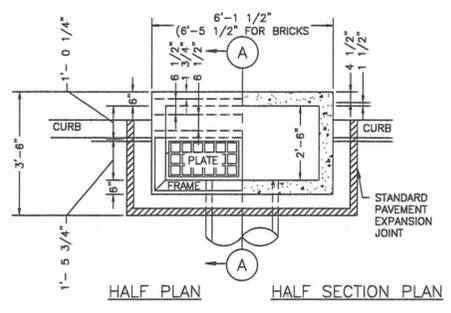
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JOAQUIN LOPEZ	
SHEET NO. 105 OF 176	

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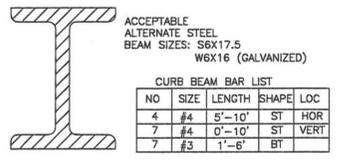
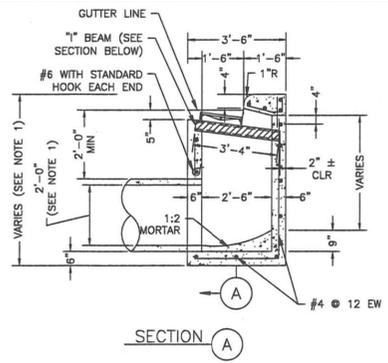
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NO.	DATE	REVISION	APP.

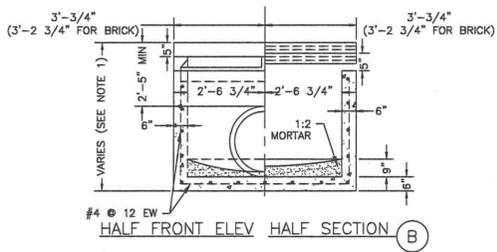
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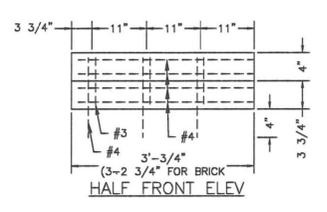
GENERAL NOTES:
 USE STANDARD CAST IRON FRAME & PLATES.
 LEAD SHALL LEAVE INLET AT LOCATION AND
 GRADE REQUIRED.



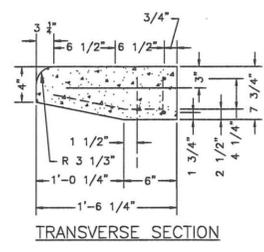
NOTES:
 1. DIMENSION VARIES BASED ON PIPE
 DIAMETER AND WALL THICKNESS.
 2. CENTER REINFORCING IN SLAB AND WALLS.
 CENTER STEEL BEAM ON INLET AND CAST
 INTO WALLS AS SHOWN.
 3. WHEN TOP OF CURB TO FLOWLINE IS
 GREATER THAN 8 FEET USE TYPE "C"
 INLET.



STORM SEWER TYPE "B-B" INLET
 NTS



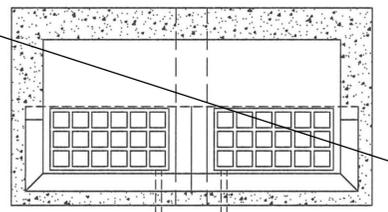
PRECAST CURB BEAM



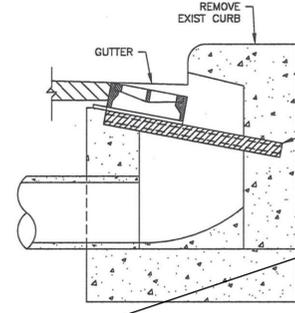
TRANSVERSE SECTION

02632-05

STEP 1: EXIST TYPE "B" INLET



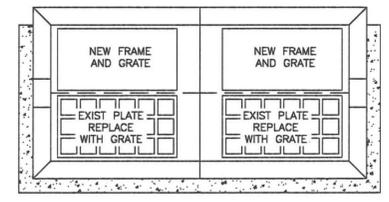
TOP VIEW



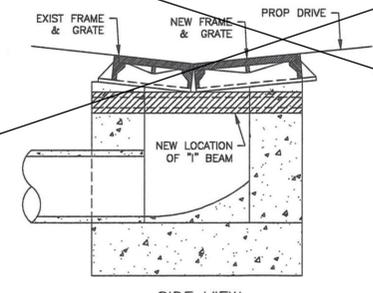
SIDE VIEW

NOTES:
 1. AFTER REMOVING EXIST CURB, RAISE EXIST FRAME TO
 GUTTER GRADE.
 2. REPLACE EXIST PLATE WITH A GRATE.
 3. ADD NEW FRAME AND GRATE NEXT TO EXIST FRAME.
 4. BACKFILL INLET TO A POINT ONE FOOT BEHIND THE
 CURB WITH 1 SACK/TON CEMENT STABILIZED SAND.

STEP 2:



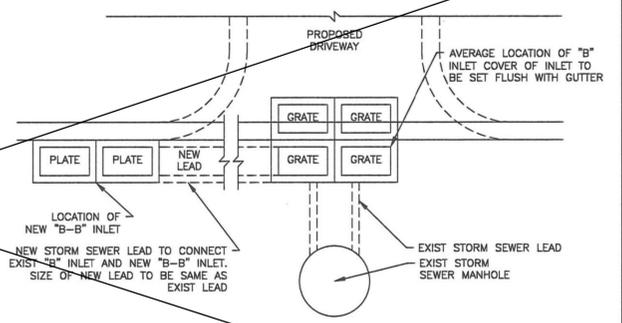
TOP VIEW



SIDE VIEW

STORM SEWER TYPE "B" INLET RELOCATION
 NTS

STEP 3: CONSTRUCT NEW TYPE "B-B" INLET ON
 CURB RETURN OF PROPOSED DRIVEWAY



FIRM INFORMATION	ENGINEER'S SEAL
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02632-04 THROUGH 05	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR
APPROVED BY: <i>[Signature]</i> DIRECTOR	
EFFECTIVE DATE: JUL-01-2019 FOR CITY OF HOUSTON USE ONLY	
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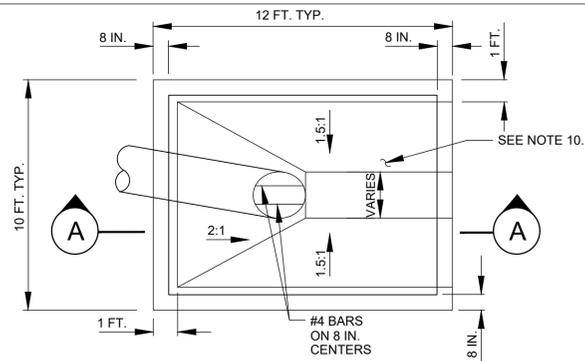
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 JEFFREY HAY
 147887
 05/18/2019
 Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR
 STANDARD
 STORM SEWER
 DETAILS 7 OF 7

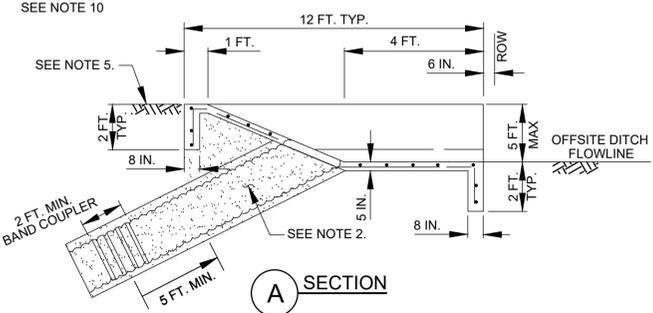
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 106 OF 176	

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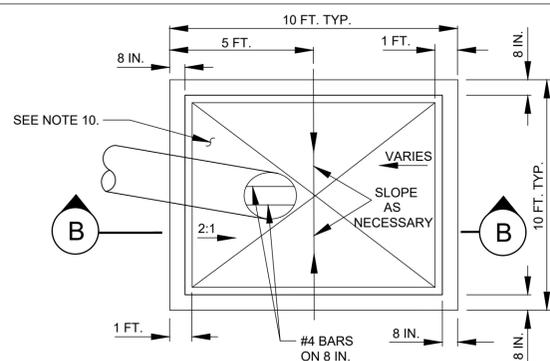


PLAN

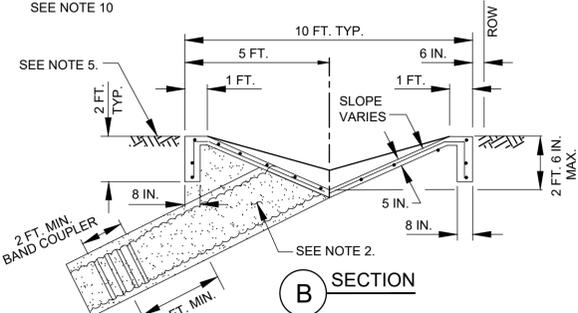


SECTION A

TYPICAL OFFSITE DITCH INTERCEPTOR STRUCTURE (42 INCH MAX.)

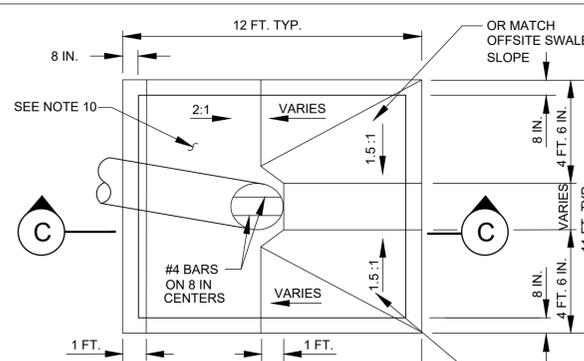


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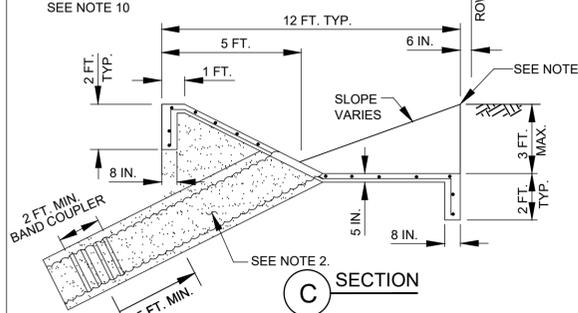


SECTION B

TYPICAL BACKSLOPE INTERCEPTOR STRUCTURE (24 INCH & 30 INCH ONLY)

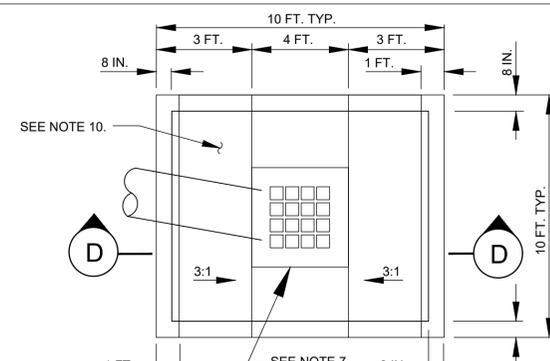


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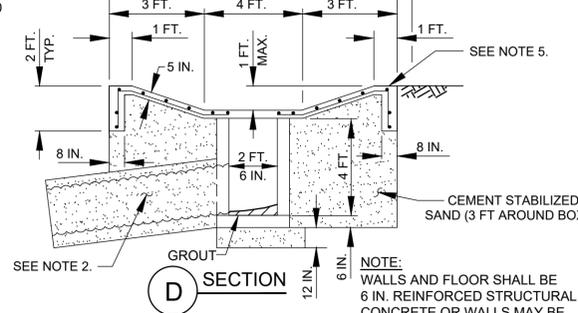


SECTION C

COMBINATION BACKSLOPE & OFFSITE DITCH INTERCEPTOR STRUCTURE (42 INCH MAX.)



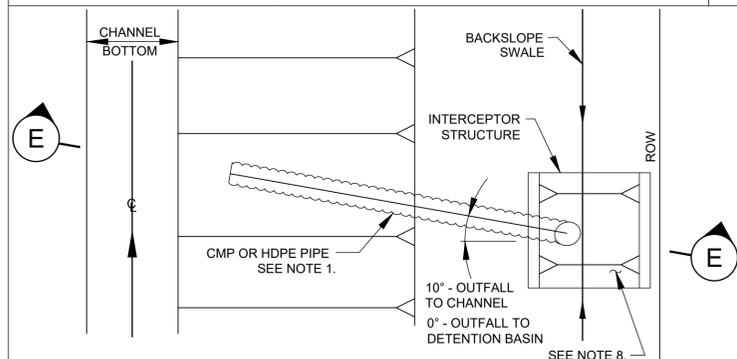
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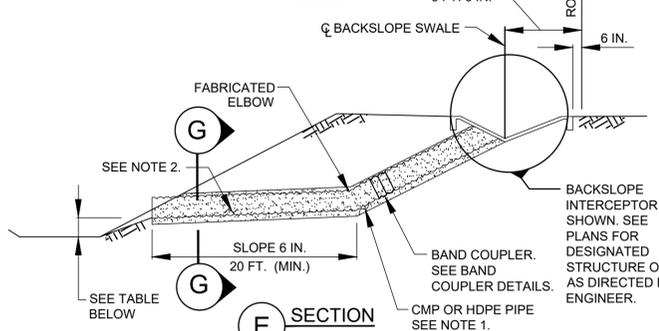
SECTION D

URBAN BACKSLOPE INTERCEPTOR STRUCTURE (24 INCH ONLY)

NOTE: WALLS AND FLOOR SHALL BE 6 IN. REINFORCED STRUCTURAL CONCRETE OR WALLS MAY BE 8 IN. CONCRETE BRICK CONSTRUCTION



PLAN



SECTION E

TYPICAL INTERCEPTOR OUTFALL STRUCTURE LAYOUT

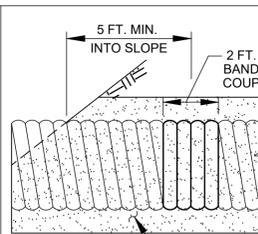
PIPE OUTFALL IN CHANNELS

BOTTOM WIDTH	PIPE OUTLET INVERT
6 FEET ≤ BW ≤ 20 FT	1 FOOT ABOVE FLOWLINE *
20 FEET < BW ≤ 60 FT	AT TOE OF SLOPE *
BW > 60 FT	AT TOE OF SLOPE *

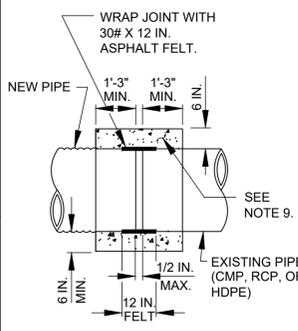
* OR 1 FOOT ABOVE NORMAL WATER LEVEL, WHICHEVER IS HIGHER

PIPE OUTFALL IN DETENTION BASINS

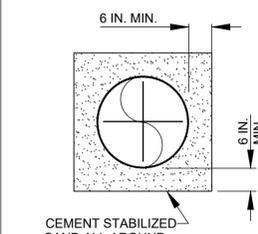
AT TOE OF SLOPE



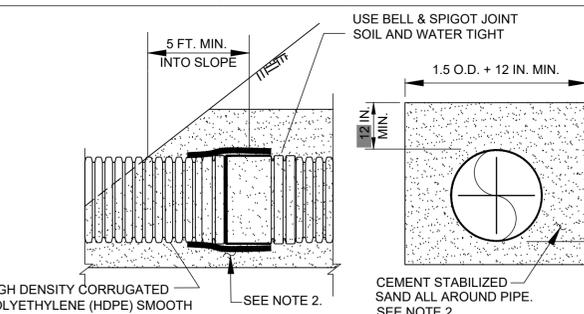
CMP BAND COUPLER DETAIL



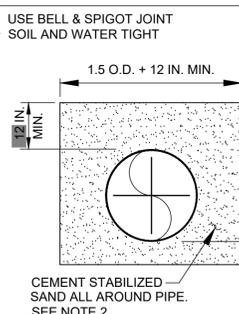
CONCRETE COLLAR DETAIL



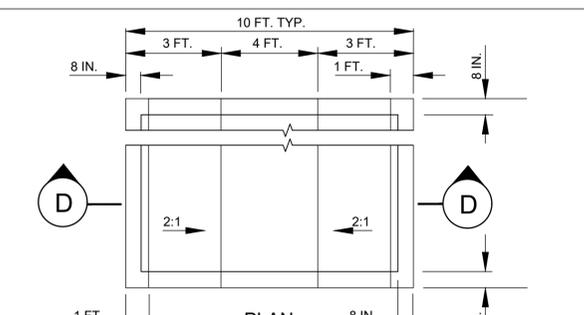
BEDDING CMP DETAIL



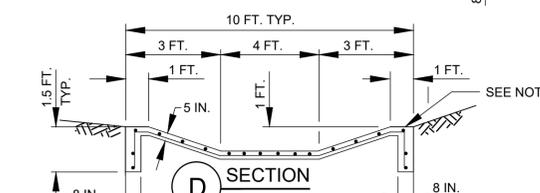
HDPE PIPE COUPLER DETAIL



BEDDING HDPE PIPE DETAIL



PLAN



SECTION D

CONCRETE PILOT CHANNEL - DETENTION BASIN

- NOTES:
- INTERCEPTOR OUTFALL PIPES WITHIN THE HCFC RIGHT-OF-WAY SHALL BE CMP OR HDPE PIPE IN ACCORDANCE WITH SPECIFICATION SECTION 02642- CORRUGATED METAL PIPE, HIGH DENSITY POLYETHYLENE (HDPE) PIPE IN ACCORDANCE WITH SPECIFICATION SECTION 2505-HIGH DENSITY POLYETHYLENE, OR APPROVED EQUAL. USE TABLE ON STORM SEWER AND RIPRAP DETAILS SHEET FOR CORRUGATED GALVANIZED STEEL PIPE THICKNESS.
 - PROVIDE AND PLACE CEMENT STABILIZED SAND IN ACCORDANCE WITH SPECIFICATION SECTION 02321-CEMENT STABILIZED SAND AND SECTION 02316 - STRUCTURAL EXCAVATING.
 - EXCAVATION, FILL AND BACKFILL FOR INTERCEPTOR OUTFALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02316-STRUCTURAL EXCAVATING AND BACKFILLING.
 - CONCRETE SHALL BE STRUCTURAL CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 03310-CONCRETE.
 - INTERCEPTOR STRUCTURES:
 - ADJUST LENGTH AND WIDTH IN FIELD AS NECESSARY.
 - 2-FEET DEEP X 8-INCH WIDE TOE ALL AROUND THE STRUCTURE.
 - STEEL REINFORCING-#4 BARS (GRADE 60) AT 12 INCHES ON CENTER EACH WAY.
 - ANY INTERCEPTOR OUTFALL PIPE LARGER THAN MAXIMUM SIZE INDICATED REQUIRES A SEPARATE DETAIL.
 - MATCH TOP OF CONCRETE WITH NATURAL GROUND.
 - CONCRETE PILOT CHANNEL
 - 1.5 FEET DEEP X 8-INCH WIDE TOE ALL AROUND THE STRUCTURE.
 - STEEL REINFORCING - #4 BARS (GRADE 60) AT 12 INCHES ON CENTER EACH WAY.
 - MATCH TOP OF CONCRETE WITH BOTTOM OF DETENTION BASIN.
 - CONCRETE PAD AROUND URBAN BACKSLOPE INTERCEPTOR: PAID FOR AS CONCRETE INTERCEPTOR STRUCTURE PER UNIT PRICE SCHEDULE. TYPE "A" INLET BOX, COH DWG. NO. 2084-08 WITH GRATE TOP. VULCAN FOUNDRY COMPANY, V-4880-1 OR APPROVED EQUAL, APPROX. 473 SQ. IN. OPENING. PAID 2632-05
 - BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
 - STRUCTURAL CONCRETE WITH #4 BARS (GRADE 60) 12 INCH O.C. EACH WAY, 3 ROWS MIN. EACH WAY. - FOR COLLARS ONLY. WAIT A MINIMUM OF 24 HOURS AFTER PLACING CONCRETE TO BACKFILL.
 - EPOXY "CLEAN WATER CLEAR CHOICE" LOGO BUTTON ON INTERCEPTORS. LOCATION TO BE DETERMINED BY THE ENGINEER.

THIS DETAIL SHEET HAS BEEN PREPARED FOR USE ON HCFC PROJECTS OR PROJECTS TO BE MAINTAINED BY THE HCFC WHEN COMPLETED BY OTHERS. AN ENGINEER WHO INCORPORATES THE DETAILS ON THIS SHEET BECOMES RESPONSIBLE FOR ITS USE IN THE END PRODUCT IN ACCORDANCE WITH RULE 137.33 (b) AND (c) OF THE TEXAS BOARD OF PROFESSIONAL ENGINEERS.

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/16/2025 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

DATE	APPR
DESCRIPTION	
REV	

HOU20673
66" WL FROM GREENS CROSSING TO PLAZA VERDE
INTERCEPTOR STRUCTURE AND
CONCRETE PILOT CHANNEL
DETAILS

PREPARED:
CHECKED:
APPROVED:

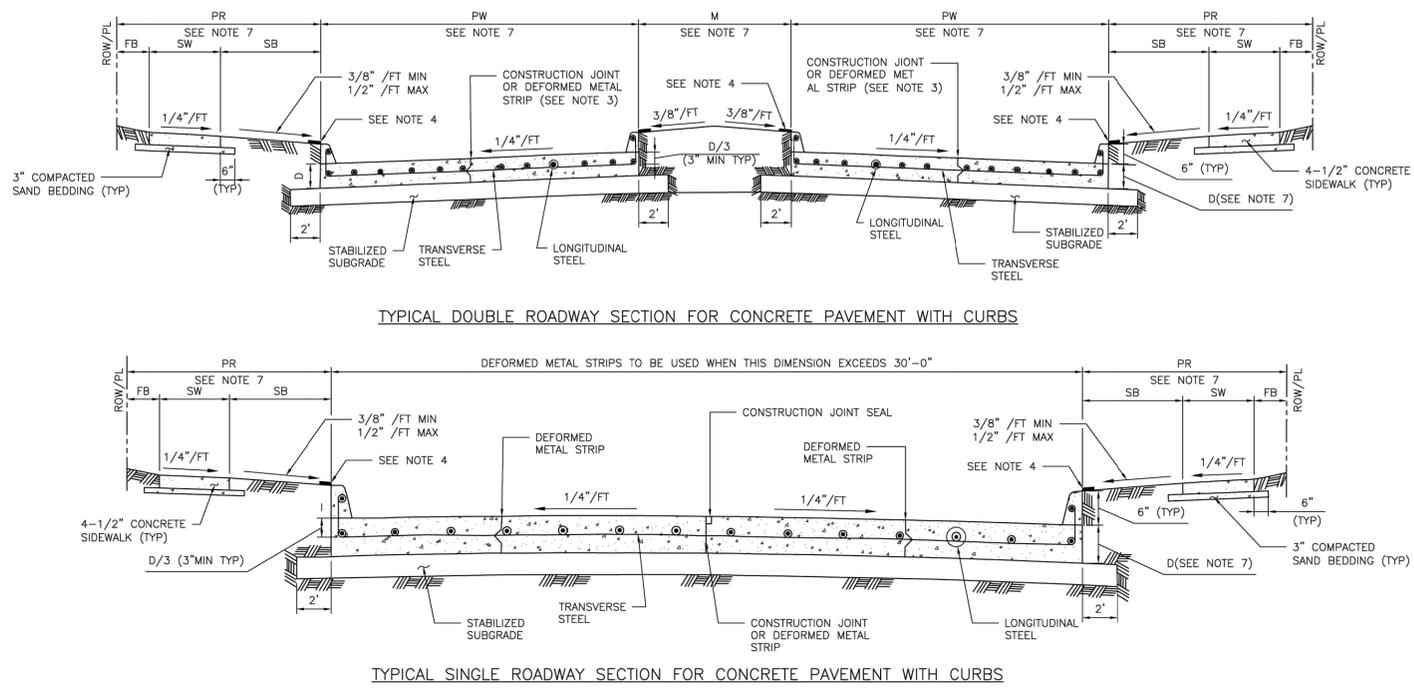
FRESE & NICHOLS
10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.frese.com

HARRIS COUNTY FLOOD CONTROL DISTRICT
9900 Northwest Freeway
Houston, Texas 77092

DATE: 10-23-2018
SCALE: AS NOTED

SHEET NUMBER
107 OF 176

DISCLAIMER: THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE 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.



- NOTES:**
1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
 2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
 3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
 4. USE STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.
 5. AN EQUAL OR LARGER AREA OF WELDED REINFORCEMENT BAR CONFORMING TO ASTM A497, MAY BE SUBSTITUTED FOR REBARS LISTED IN TABLE 1.
 6. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.
 7. REFER TO CONTRACT DRAWINGS FOR PAVEMENT WIDTH (PW) AND PAVEMENT THICKNESS (D), MEDIAN (M), PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

TABLE 1
REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH: MAXIMUM TRANSVERSE CONTROL JOINT SPACING = 20'-0"
MAXIMUM EXPANSION JOINT SPACING = 80'-0"
f'c = 4,000 PSI/28 DAYS AND Fy = 60,000 PSI

PAVEMENT THICKNESS 'D' (IN)	PAVEMENT WIDTH 'PW' (FT)	LONGITUDINAL STEEL									TRAVERSE STEEL		
		#4 BARS			#5 BARS			#6 BARS			#4 BARS	#5 BARS	#6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	20.50	4.00	-	-	-	-	-	-	36	-	-
7	25	17	18.25	4.00	-	-	-	-	-	-	36	-	-
7	35	24	18.00	3.00	-	-	-	-	-	-	36	-	-
7	36	25	17.75	3.00	-	-	-	-	-	-	36	-	-
7	37	25	18.25	3.00	-	-	-	-	-	-	36	-	-
7	41	28	18.00	3.00	-	-	-	-	-	-	36	-	-
7	45	31	17.75	3.75	-	-	-	-	-	-	36	-	-
8	25	20	15.50	2.75	13	24.50	3.00	-	-	-	36	36	-
8	34	27	15.50	2.50	17	25.00	4.00	-	-	-	36	36	-
8	35	27	16.00	2.00	18	24.25	4.00	-	-	-	36	36	-
8	36	28	15.75	3.25	18	25.00	3.00	-	-	-	30	36	-
8	44	24	15.75	4.00	22	24.75	4.00	-	-	-	30	36	-
8	45	35	15.75	2.25	23	24.25	3.00	-	-	-	30	36	-
9	25	22	14.00	3.00	14	22.50	4.00	-	-	-	36	36	-
9	34	31	13.50	2.00	19	22.25	3.5	-	-	-	30	36	-
9	35	31	13.75	3.75	20	21.75	3.5	-	-	-	30	36	-
9	36	32	13.75	3.00	21	21.25	3.5	-	-	-	30	36	-
9	44	39	13.75	2.75	25	21.75	3.00	-	-	-	24	36	-
9	45	39	14.00	4.00	26	21.25	4.5	-	-	-	24	36	-
10	25	24	12.75	3.50	17	18.25	4.00	-	-	-	36	36	36
10	34	33	12.50	4.00	21	20.00	4.00	-	-	-	30	36	36
10	35	34	12.50	3.75	23	18.75	4.00	-	-	-	30	36	36
10	36	35	12.50	3.50	24	18.50	3.00	-	-	-	30	36	36
10	44	44	12.00	4.00	29	18.50	4.5	-	-	-	24	36	36
10	45	44	12.50	3.00	29	19.00	3.00	-	-	-	24	36	36
11	25	27	11.25	3.00	17	18.25	4.00	12	26.75	3	36	36	36
11	34	36	11.50	2.75	24	17.50	2.5	17	25.00	4	24	36	36
11	35	37	11.50	3.00	24	18.00	3.00	17	25.75	4	24	36	36
11	36	40	11.00	2.00	25	17.75	3.00	17	26.50	4	24	36	36
11	44	48	11.125	2.50	30	18.00	3.00	21	26.00	4	24	36	36
11	45	49	11.125	3.00	31	17.75	4.00	22	25.50	3	24	36	36
12	25	-	-	-	19	16.25	4.00	13	24.50	3	36	36	36
12	34	-	-	-	26	16.00	4.00	18	23.50	4	24	36	36
12	35	-	-	-	26	16.50	4.00	19	23.00	3	24	36	36
12	36	-	-	-	27	16.25	4.5	20	22.25	4.5	24	36	36
12	44	-	-	-	33	16.25	4.00	24	22.50	5	24	30	36
12	45	-	-	-	35	15.75	3.00	25	22.25	3	24	30	36

MINIMUM LAP LENGTH (L):
A. # 4 BARS ; L = 22 INCHES
B. # 5 BARS ; L = 27 INCHES
C. # 6 BARS ; L = 32 INCHES

APPROVED BY: <i>Sulaim Banwar</i> CITY ENGINEER	APPROVED BY: <i>BRAND NAUHEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carla Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02751-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
CONCRETE PAVEMENT DETAILS	
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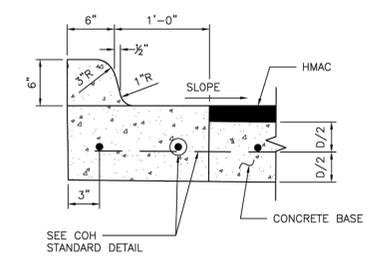
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 1 OF
14

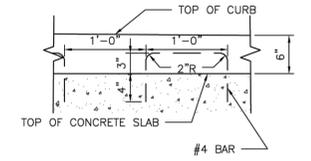
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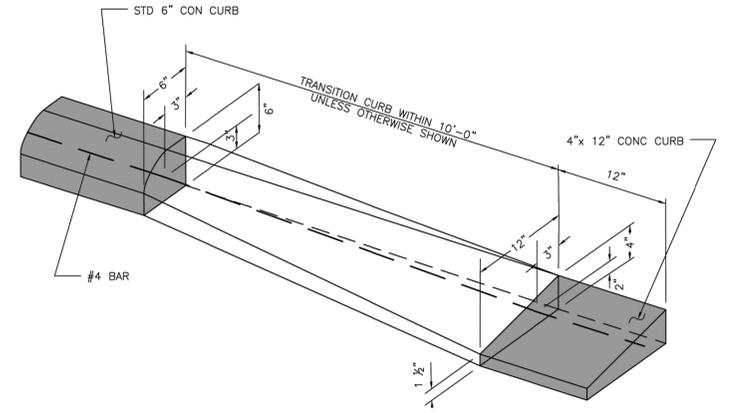
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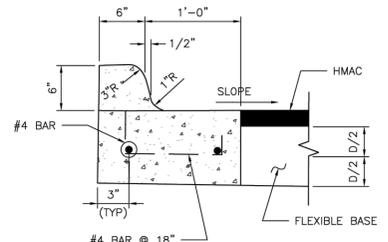
ESPLANADE CURB CONNECTED TO CONCRETE BASE



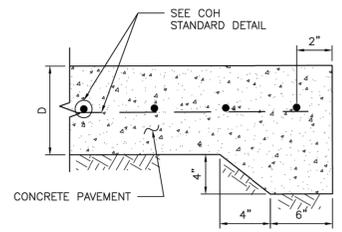
ALTERNATE CONCRETE CURB REINFORCEMENT



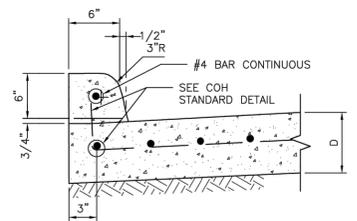
CURB TRANSITION
(SEE NOTES)



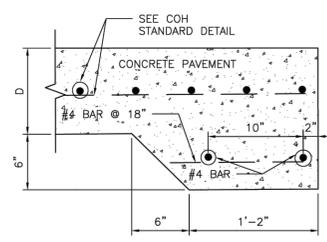
ESPLANADE CURB CONNECTED TO FLEXIBLE BASE



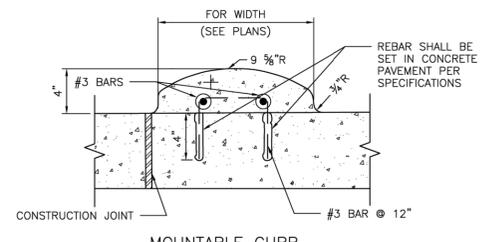
STANDARD CONCRETE PAVING HEADER



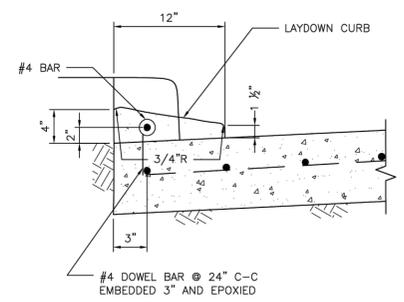
CONCRETE CURB



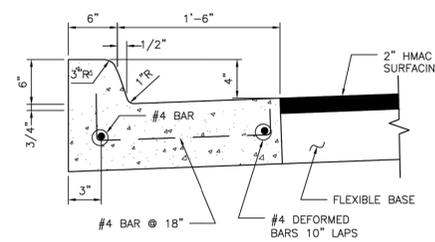
STANDARD RAILROAD HEADER



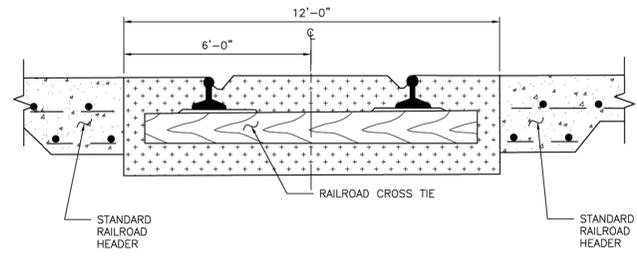
MOUNTABLE CURB



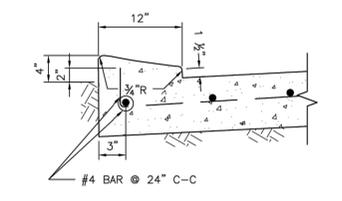
4-INCH x 12-INCH TRANSITION CURB
(SEE NOTES)



MONOLITHIC CURB AND GUTTER



STANDARD RAILROAD CROSSING - SINGLE TRACK



4-INCH x 12-INCH MONOLITHIC CURB
(SEE NOTES)

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

- 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS, NON-RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
- TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10-FOOT TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" IS TO BE INSTALLED.

APPROVED BY:  CITY ENGINEER	APPROVED BY:  CITY TRAFFIC ENGINEER
APPROVED BY:  DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02771-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
CURB, CURB AND GUTTER AND HEADER DETAILS	
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JEFFREY HAY
Professional Engineer
147887
Registration Number
Date

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 2 OF 14

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 109 OF 176	

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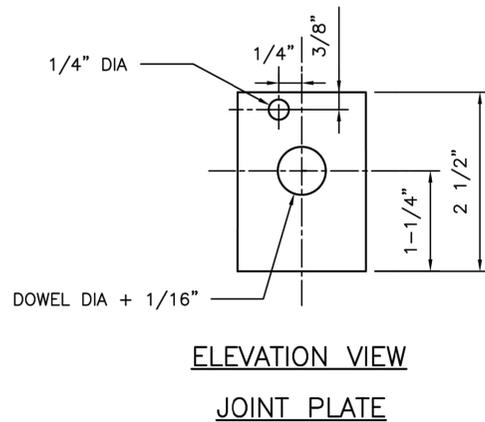
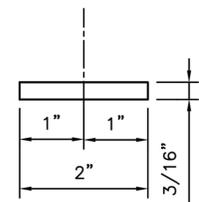
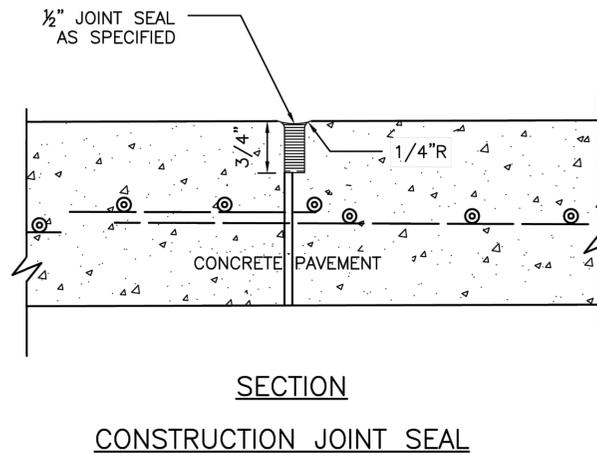
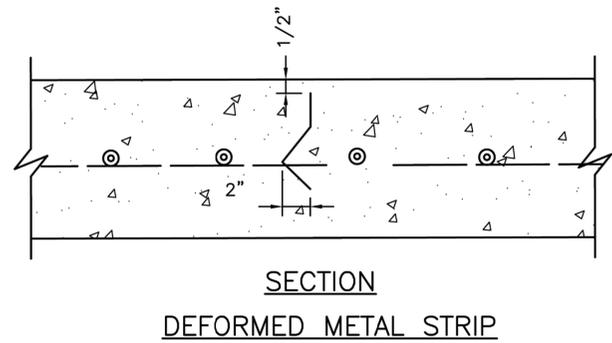
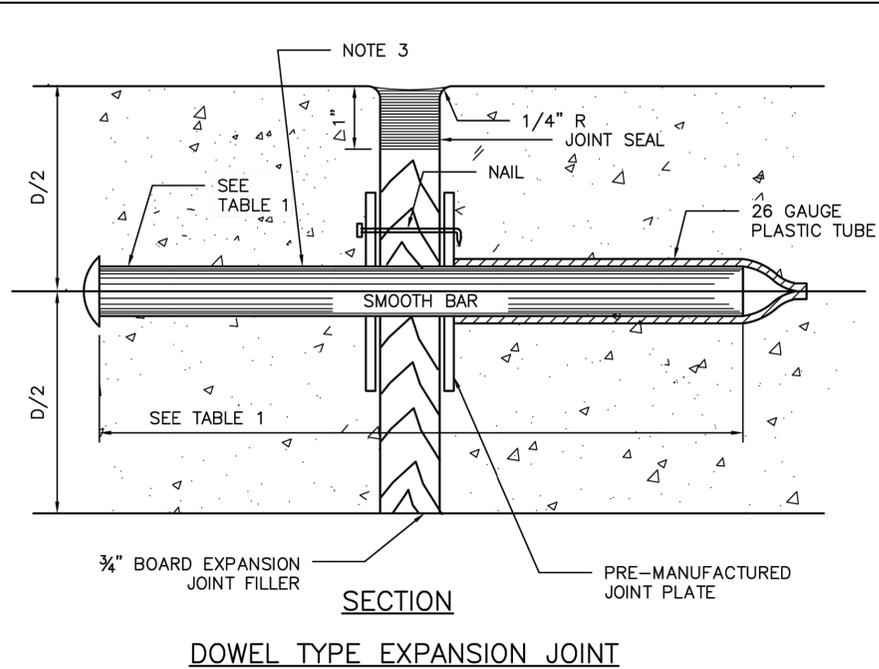


TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED 12" CENTER ON CENTER.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN COVER.
5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulrat Kanwar</i> SEFB80C641F5478 CITY ENGINEER	DocuSigned by: <i>Carl Haddock</i> A93C410B72B3453 DIRECTOR OF HPW
DocuSigned by: <i>KARINE NEUFEN</i> 95A29EFD7594CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02752-01

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147887
10/15/2024
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT DETAILS 3 OF 14

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JOAQUIN LOPEZ	
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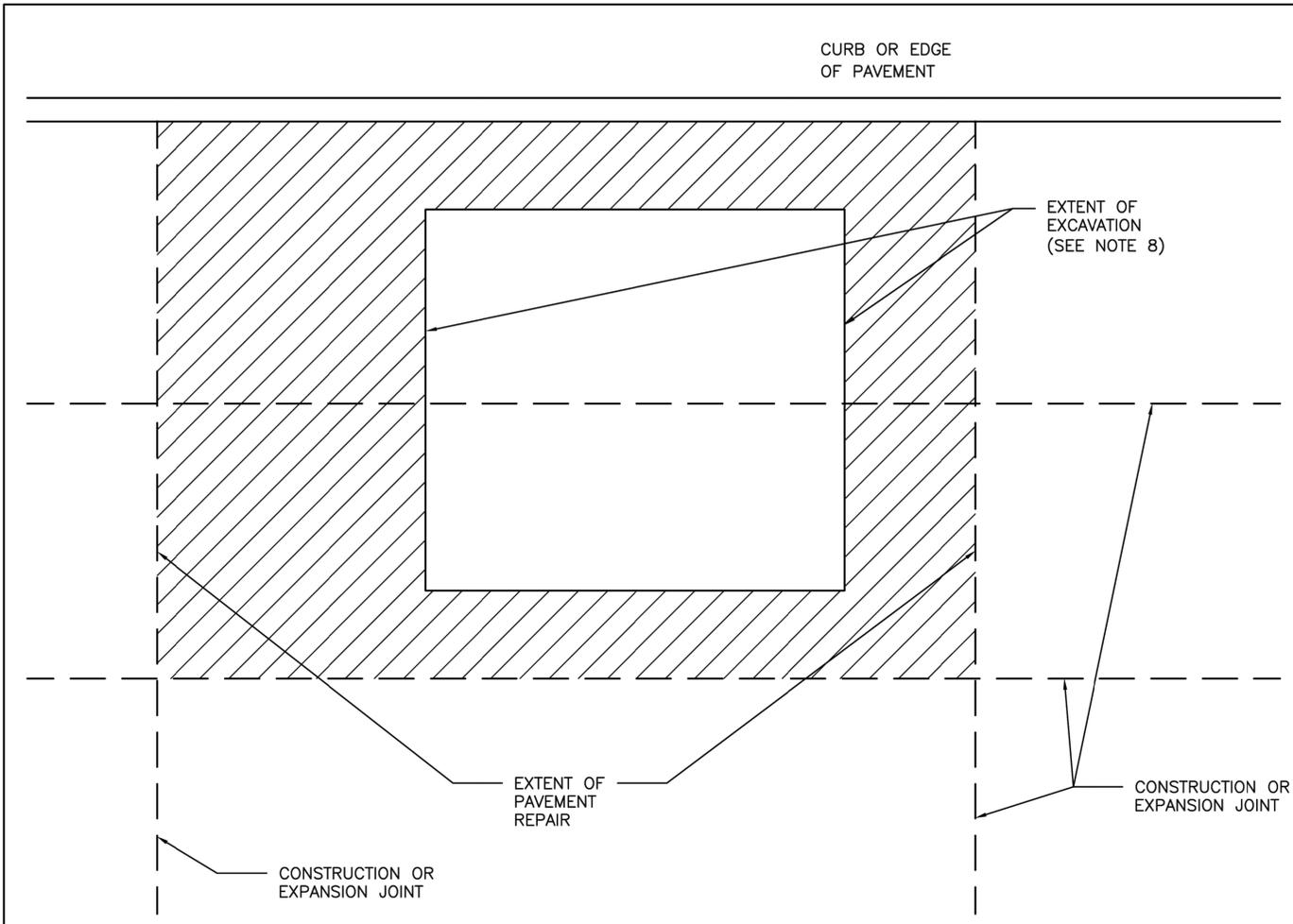
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NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. REPLACE ENTIRE PANEL WIDTH AND LENGTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL WITHIN EXISTING PAVEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951-PAVEMENT REPAIR AND RESTORATION) IF EXISTING REINFORCING IS BROKEN OFF.
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
6. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
7. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764-RAISED PAVEMENT MARKERS AND 02767-THERMOPLASTIC PAVEMENT MARKINGS.
8. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951-04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT & CONCRETE PAVEMENT).

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT ≤ 5YRS
(SCALE: NOT TO SCALE)

APPROVED BY:

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DocuSigned by: 95A29EFD7594CD CITY TRAFFIC ENGINEER	

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 Aurora Technical Services, LLC <small>engineering • construction management</small> 2121 SAGE ROAD, SUITE 150 HOUSTON, TEXAS 77059 PHONE: 281-453-7700 TX FIRM NO: F-2059	INTERIM REVIEW ONLY <small>Document incomplete; not intended for regulatory approval, permit, or construction.</small> SIGNED BY: JEFFREY HAY 147887 <small>Registration Number</small> Date:
	SIGNED BY: LANDTECH FB NO. P-6342 <small>Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059</small>

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

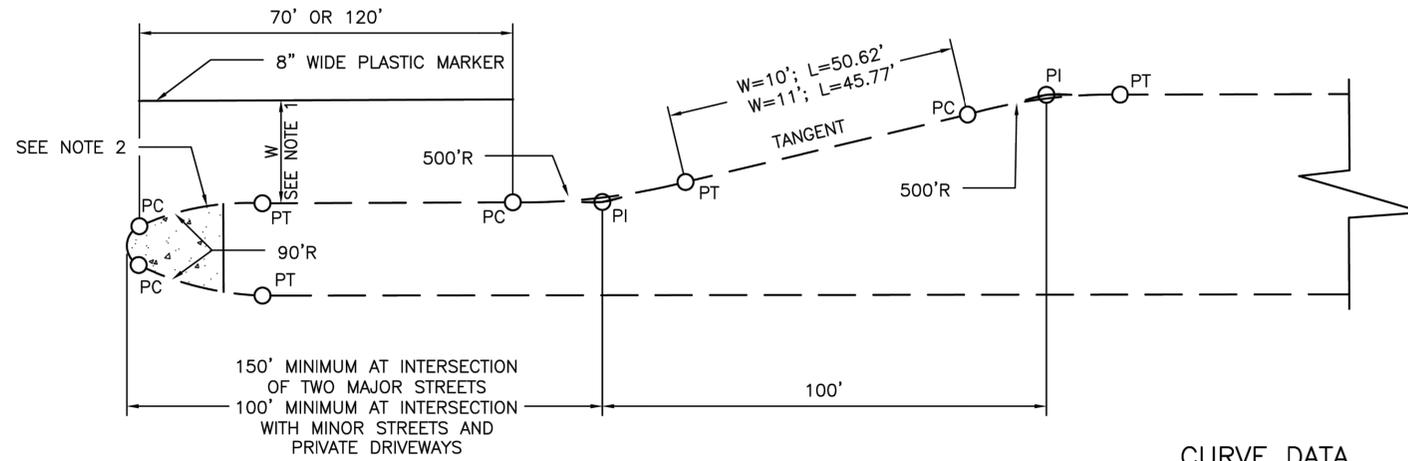
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 4 OF 14

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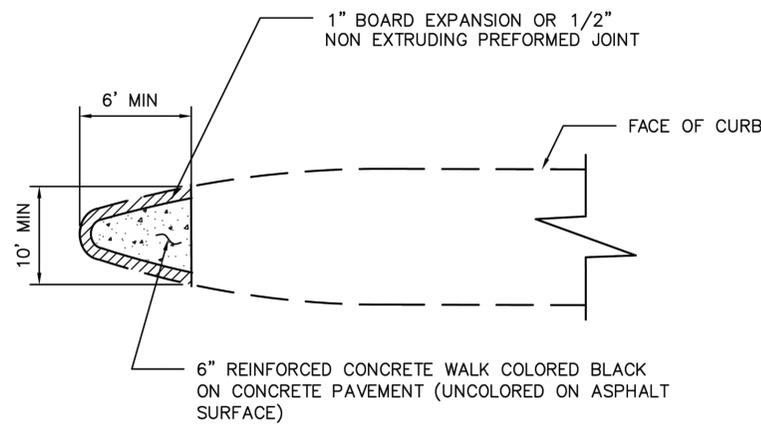
DETAIL OF LEFT TURN LANE

CURVE DATA

W=10'	W=11'
R=500'	R=500'
$\Delta = 5^{\circ}42'38.14''$	$\Delta = 6^{\circ}16'38.27''$
L = 49.83'	L = 54.78'
T=24.94'	T=27.42'

NOTES:

- 10 FT FOR 80 FT ROW; 11 FT FOR 100 FT ROW.
- FOR MEDIANS WITH BULLET NOSE CONFIGURATION, PAINT CURB WITH YELLOW REFLECTORIZED PAINT AROUND THE ESPLANADE NOSE TO THE PT OF THE 90 FT R. FOR MEDIANS WITHOUT BULLET NOSE CONFIGURATION, PAINT CURB FROM PC TO PT AND 30 FT BACK OF PC/PT.



ESPLANADE NOSE

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

ESPLANADE NOSE AND LEFT TURN DETAILS
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulrat Kanwar</i> 9EF8B0C641F5478 CITY ENGINEER	DocuSigned by: <i>Carl Hallock</i> A93C410B72B3453 DIRECTOR OF HPW
DocuSigned by: <i>KAJANE NEUHEN</i> 95A29EFD7594CD CITY TRAFFIC ENGINEER	

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 5 OF
14

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JOAQUIN LOPEZ	
SHEET NO. 112 OF 176	

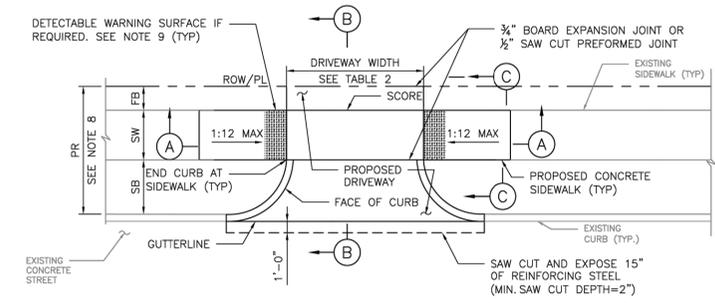
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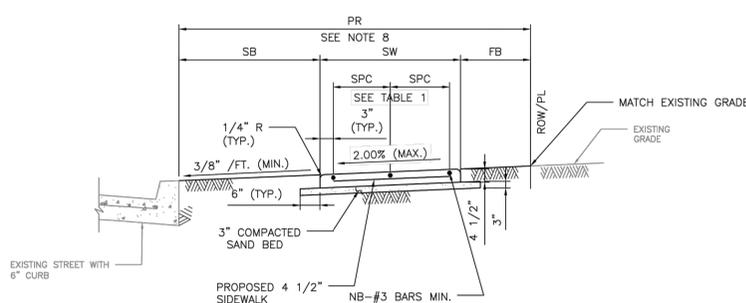
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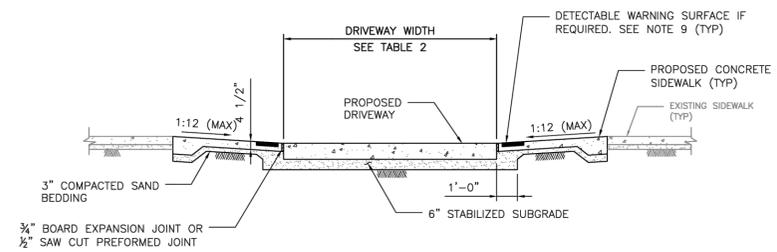
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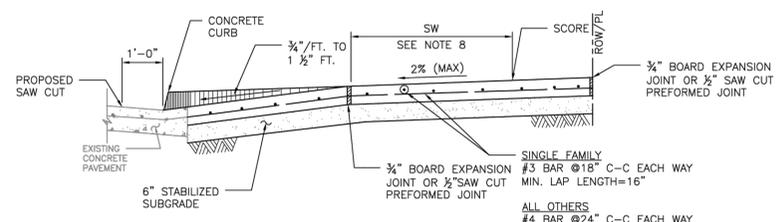
PLAN VIEW DRIVEWAY



SECTION C-C TYPICAL SIDEWALK SECTION



SECTION A-A PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE WITH EXISTING SIDEWALK



SECTION B-B TYPICAL DRIVEWAY SECTION

NOTES:

- REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40-552.
- FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
 - EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
 - THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
 - EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
 - THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
 - 20 FOOT TOTAL LENGTH IS DEFINED AS:
 - UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
 - UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
- ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752-02 AND SPECIFICATION 02752.
- 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.)
- DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
- 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.
- CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
- REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
- DETECTABLE WARNING SURFACES:
 - SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
 - SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
 - SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
 - 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).
 - REFER TO STANDARD DETAILS 02775-06 TO 02775-07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS EXPANSION JOINT SPACING = 40 FT fc' = 3,500 PSI and fy = 60,000 PSI REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		NO. OF BARS "NB"	"SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

TRAFFIC TYPE	DRIVEWAY DESIGN CRITERIA (1)(2)									
	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)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE-WAY	10	12	4	10	12 ⁽³⁾	16 ⁽³⁾	4 ⁽³⁾	10 ⁽³⁾	15	20
TWO-WAY	10 ⁽³⁾	24 ⁽⁴⁾	4	10	16 ⁽³⁾	24	4	10	24	35

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEEP PATH ANALYSIS.
 (2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
 (3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
 (4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
 (5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE-WAY DRIVEWAYS.
 (6) REFER TO CHAPTER 42, SECTION 42-146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

APPROVED BY: <i>Sulal Karamar</i> CITY ENGINEER	APPROVED BY: <i>KEANE NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02754-01B
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
DRIVEWAY DETAIL WITH 6" CURBED STREETS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

10497 Town and Country Way, Suite 500
Houston, Texas 77024
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JEFFREY HAY
Professional Engineer
147887
Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
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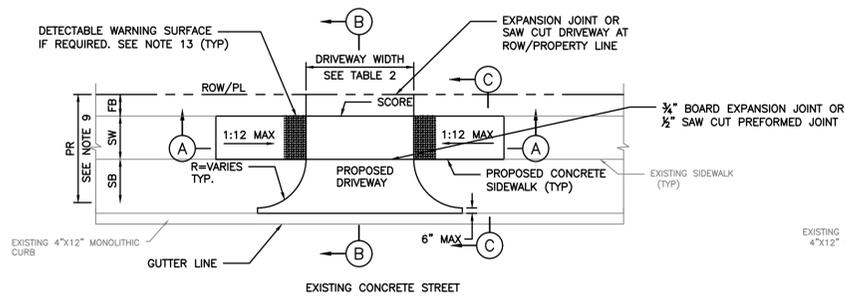
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 6 OF
14

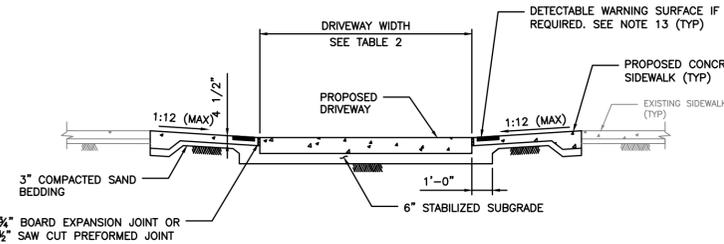
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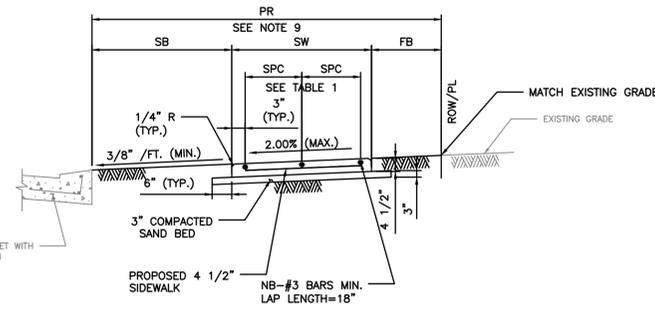
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PLAN VIEW DRIVEWAY



SECTION A-A PROPOSED SIDEWALK, THROUGH DRIVEWAY WITH EXCESSIVE GRADES



SECTION C-C TYPICAL SIDEWALK SECTION

TABLE 1

REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS EXPANSION JOINT SPACING = 40 FT fc' = 3,500 PSI AND fy = 60,000 PSI REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

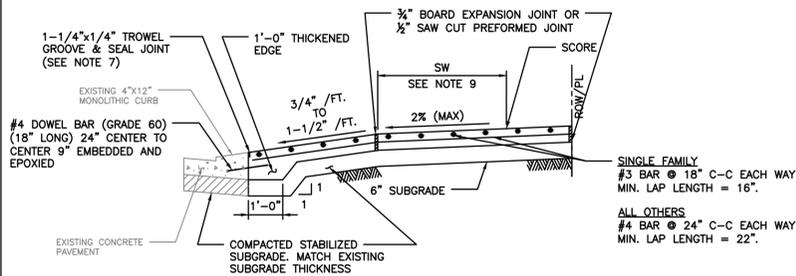
SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

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)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	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 SWEEP PATH ANALYSIS.
 (2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLES 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.



SECTION B-B TYPICAL DRIVEWAY SECTION

NOTES:

- REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40-552.
- FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
 - EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
 - THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
 - THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
 - 20 FOOT TOTAL LENGTH IS DEFINED AS:
 - UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
 - UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
- IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.
- DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY OR DUPLEXES.
- DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
- THE OUTER DOWEL BARS ARE TO BE LOCATED 12" FROM END OF PROPOSED EDGE OF DRIVEWAY RETURN, EXTEND DOWEL 3" INCHES INTO PROPOSED DRIVEWAY AND BEND REMAINING BAR TO EXTEND TO RADIUS RETURN BOTH SIDES.
- TROWEL GROOVE SEALANT SHALL BE LOW MODULUS SILICONE OR POLYURETHANE SEALANT.
- ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752-02 AND SPECIFICATION 02752.
- REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
- CEMENT STABILIZED SAND 1.5 SACKS OF CEMENT PER TON OF DRY SAND.
- ALL RAMP 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.
- CURB RAMP THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
- DETECTABLE WARNING SURFACES:
 - SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
 - SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD OR TRAFFIC SIGNAL CONTROLLED; OR
 - SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
 - 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).
 - REFER TO STANDARD DETAILS 02775-06 TO 02775-07 FOR DETECTABLE WARNING SURFACE STANDARDS.

APPROVED BY:  CITY ENGINEER

APPROVED BY:  CITY TRAFFIC ENGINEER

APPROVED BY:  DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 DWG NO: 02754-01A

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD

DRIVEWAY DETAIL WITH 4"x12" CURB FOR LOCAL RESIDENTIAL STREETS

FOR CITY OF HOUSTON USE ONLY

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 Houston, Texas 77024
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CITY OF HOUSTON HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT DETAILS 7 OF 14

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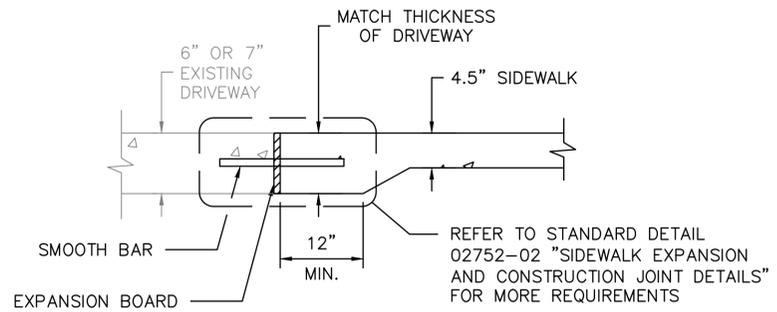
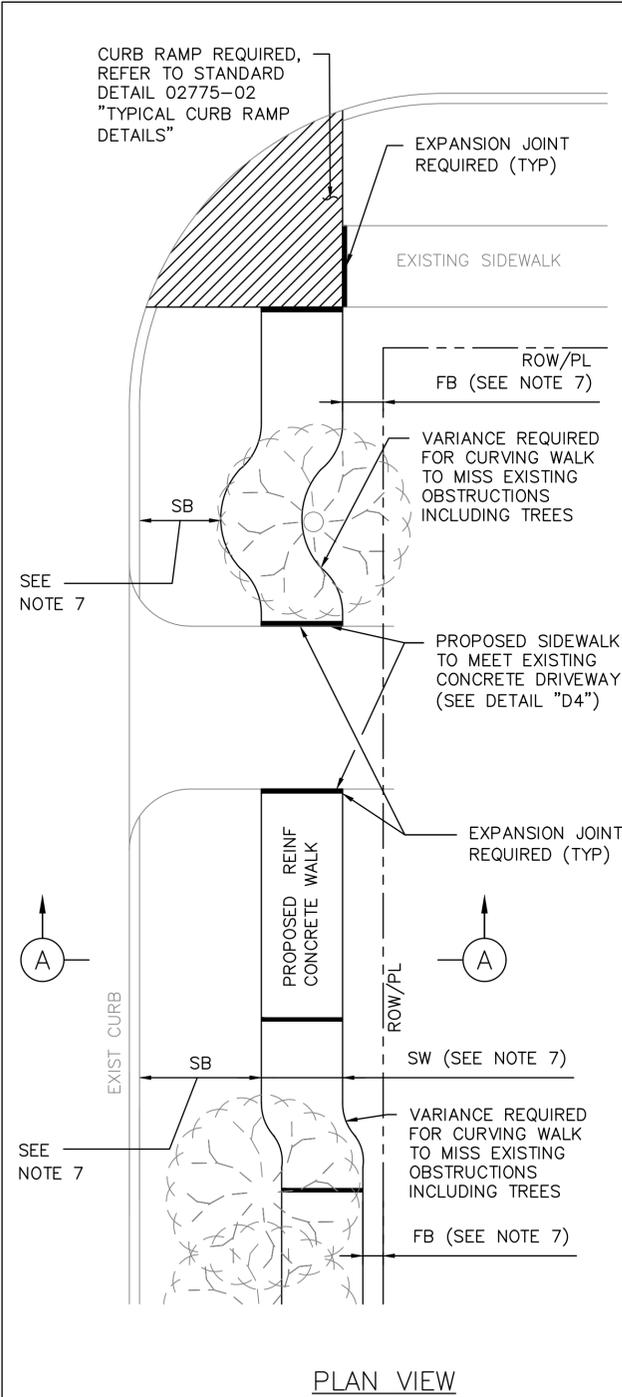
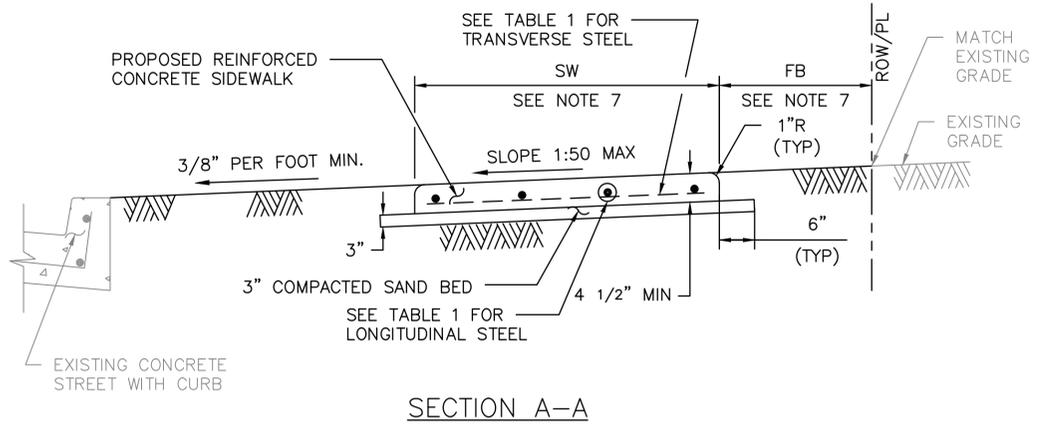


TABLE 1

REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
f_c' = 3,500 PSI AND f_y = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		#3 BARS			
		NO. OF BARS	SPACING (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48



- NOTES:
- 6X6 - W2.9XW2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL GIVEN IN TABLE 1.
 - REINFORCED CONCRETE SIDEWALKS THRU DRIVEWAYS OPENINGS SHALL BE EITHER 6" THICK OR 7" THICK AS SPECIFIED ON 6" STABILIZED SUBGRADE. FOR THE REINFORCING STEEL REQUIREMENTS, SEE CITY OF HOUSTON STANDARD DETAILS 02754-01A, 02754-01B, 02754-03, AND 02754-04.
 - MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.
 - CONTRACTOR SHALL CONSTRUCT SIDEWALK IN A MANNER NOT TO BLOCK THE NATURAL DRAINAGE FROM ADJACENT PROPERTY.
 - 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.
 - CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
 - REFER TO CONTRACT DRAWINGS FOR SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIDEWALK LAYOUT AND DETAILS FOR STREETS WITH CURBS
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Sulail Kanwar 9EF8B0C841F5478	DocuSigned by: Carol Hallod A08C410B72B3453
CITY ENGINEER	DIRECTOR OF HPW
DocuSigned by: LEANG NGUYEN 95A29EFD475B4CD	
CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02775-01

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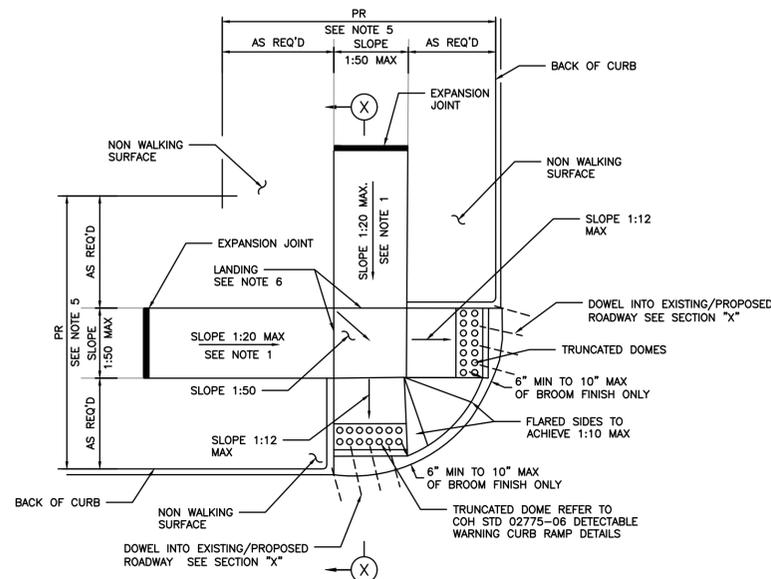
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 8 OF
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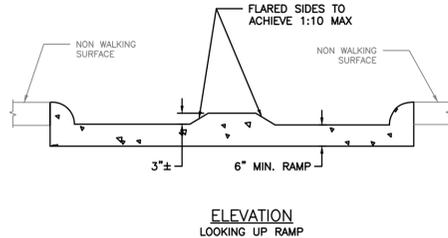
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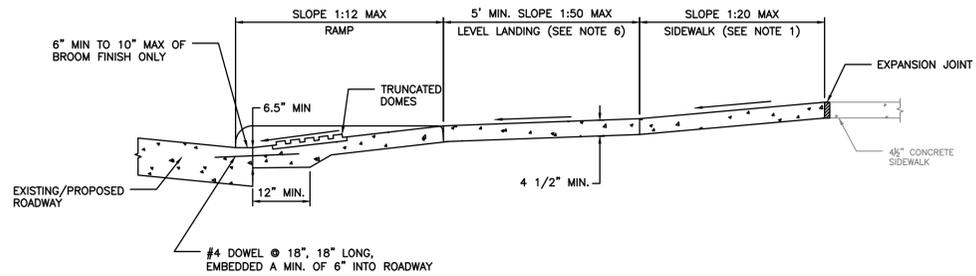
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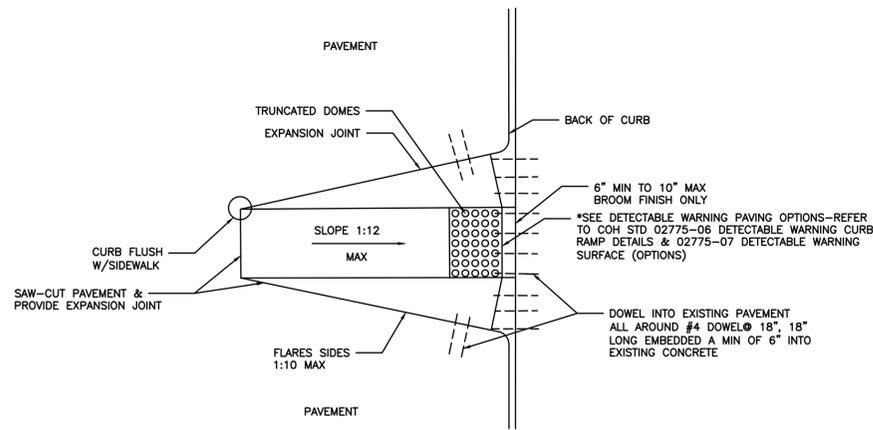
STREETS WITH NON- WALKING SURFACE BEHIND CURB
SEE NOTE-7



ELEVATION
LOOKING UP RAMP



SECTION X-X



CURB RAMP CONSTRUCTION FOR EXISTING PAVEMENT

NOTES:

1. REPLACE EXISTING SIDEWALK FROM LEVEL LANDING AS NECESSARY TO ACHIEVE 1:20 SLOPE
2. BROOM FINISH IS MEASURED FROM FACE OF CURB.
3. ALL RAMP 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.
4. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
5. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR) WIDTH.
6. MINIMUM 5'x5' LANDING PAD ACCORDING TO ADA REQUIREMENTS, WHEN THE APPROACHING SIDEWALK IS WIDER THAN 5', THE LANDING PAD AND RAMP WIDTH MUST MATCH THE SIDEWALK WIDTH.
7. FOR STREETS WITH WALKABLE SURFACES IMMEDIATELY BEHIND THE CURB A FLARE IS REQUIRED ON BOTH SIDES OF THE RAMP.

APPROVED BY: CITY ENGINEER	APPROVED BY: CITY TRAFFIC ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02775-02
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CURB RAMP DETAILS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
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REGISTERED PROFESSIONAL ENGINEER
JEFFREY HAY
147887
Registration Number
Date

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F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

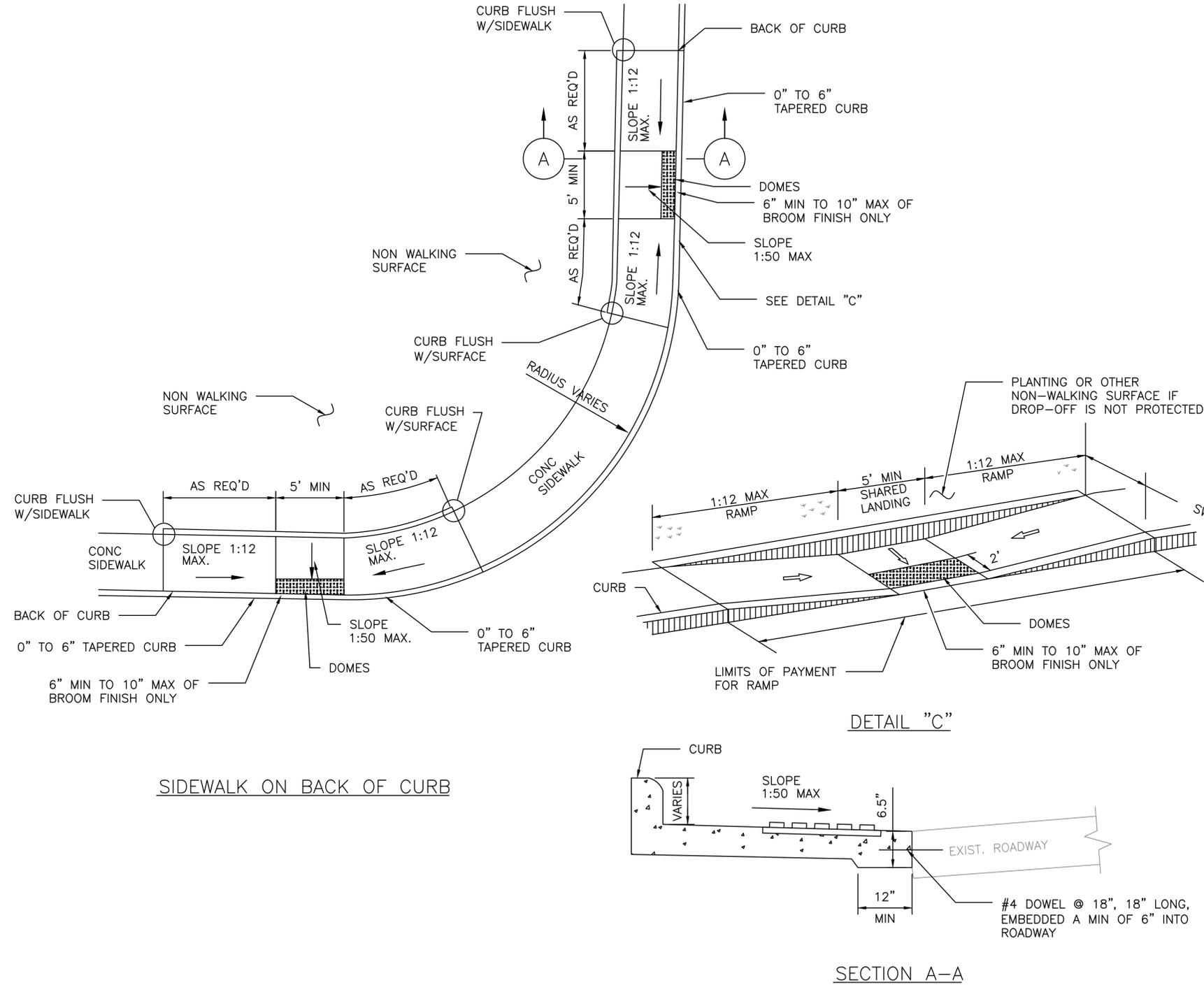
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 9 OF
14

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 116 OF 176	

NO.	DATE	REVISION	APP.

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NOTES:

1. 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.
2. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
3. REFER TO CONTRACT DRAWINGS FOR S-DIMENSION (S), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PARALLEL CURB RAMP

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by:
Suhail Kanwar
9EF8B0C841F5478
CITY ENGINEER

DocuSigned by:
Carl Haddock
A93C410B72B3453
DIRECTOR OF HPW

EFF DATE: NOV-27-2023

DWG NO: 02775-03



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JEFFREY HAY
147887
Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

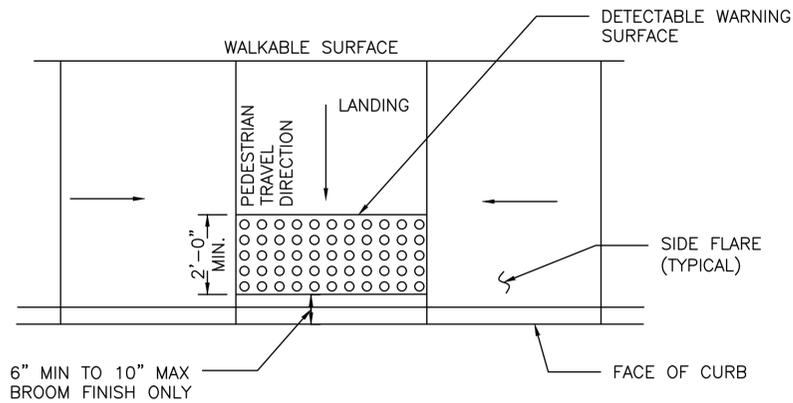
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVEMENT
DETAILS 10 OF
14

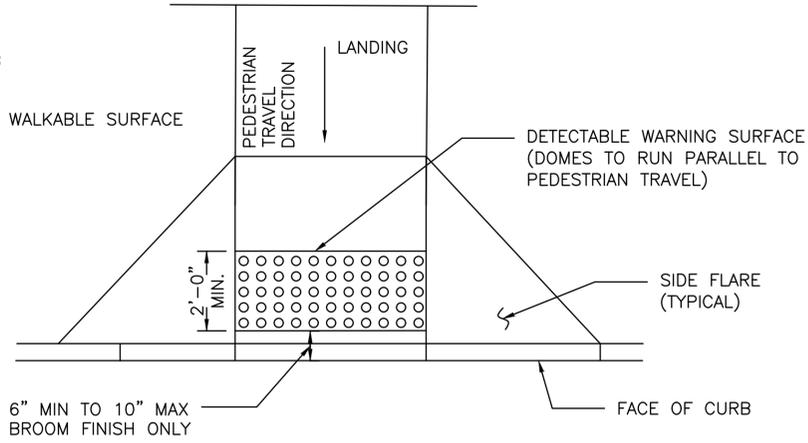
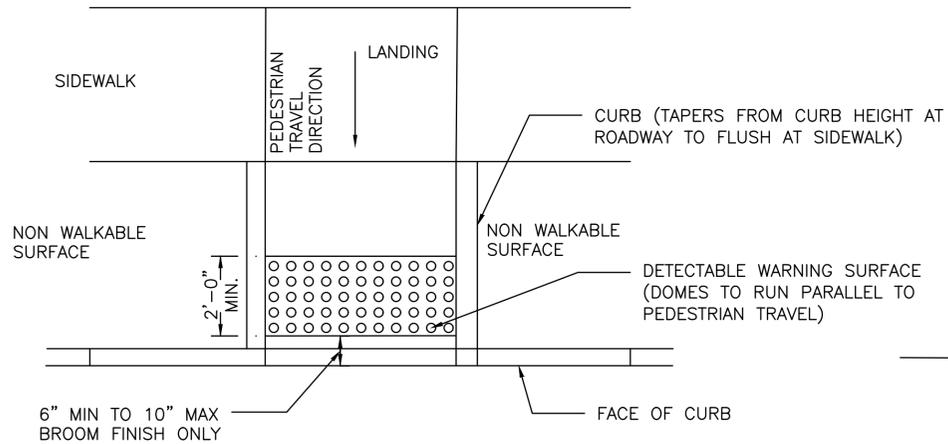
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 117 OF 176	

NO.	DATE	REVISION	APP.

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TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN

GENERAL NOTES FOR DETECTABLE WARNINGS:

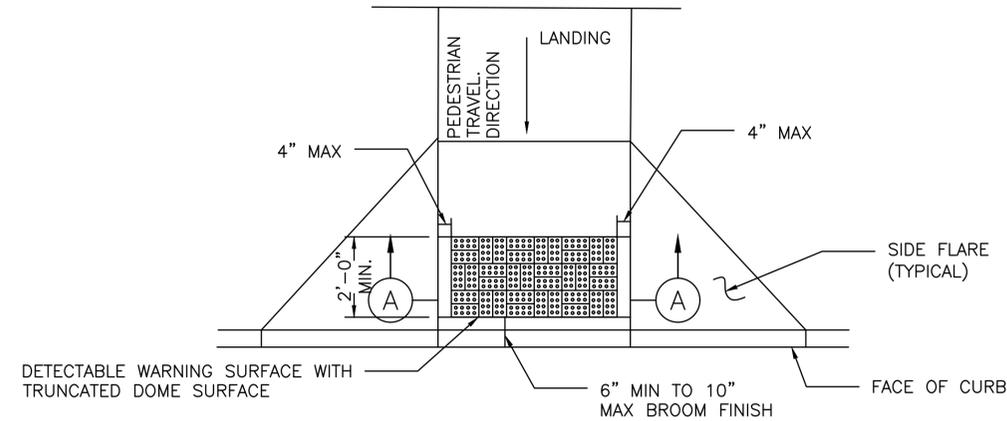
1. DETECTABLE WARNING SURFACES MUST BE FULLY ADA COMPLIANT.
2. ALL NEW CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES. THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACE, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
3. DETECTABLE WARNING SURFACES MUST MAINTAIN A SLIP RESISTANCE WITH FA-VALUE OF EQUAL TO OR GREATER THAN 0.8.
4. DETECTABLE WARNING SURFACES MUST MAINTAIN A WATER ABSORPTION RATE OF LESS THAN 1%, DETECTABLE WARNING SHALL NOT ALLOW WATER TO ACCUMULATE.
5. DETECTABLE WARNINGS INSTALLED INTO FRESH CONCRETE SHALL BE WITHOUT VOIDS AND UTILIZING AN ACCEPTABLE ANCHORING SYSTEM.
6. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
7. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
8. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6" MIN TO 10" MAX FROM THE DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
9. 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.
10. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
DETECTABLE WARNING CURB RAMP DETAILS (SCALE: NOT TO SCALE)	
APPROVED BY:	
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DocuSigned by: 95A29EFD75B4CD CITY TRAFFIC ENGINEER	
EFF DATE: NOV-27-2023	DWG NO: 02775-06

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 AURORA TECHNICAL SERVICES, LLC 2121 SAGE ROAD, SUITE 150 PHONE: 281-453-7700 TX FIRM NO: F-2059	INTERIM REVIEW ONLY Document incomplete; not intended for regulatory approval, permit, or construction. JEFFREY HAY 147887 Registration Number 03/
SURVEYED BY: LANDTECH FB NO. P-6342	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PAVEMENT DETAILS 11 OF 14	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 118 OF 176	

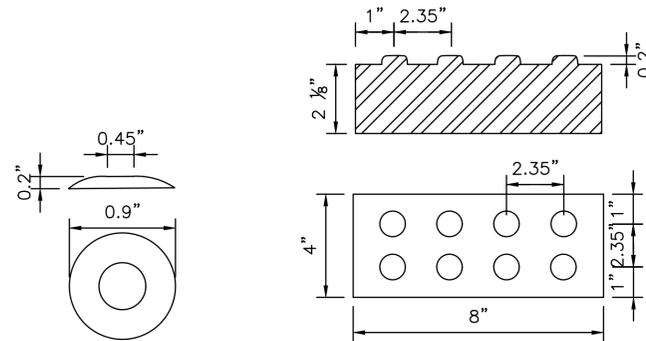
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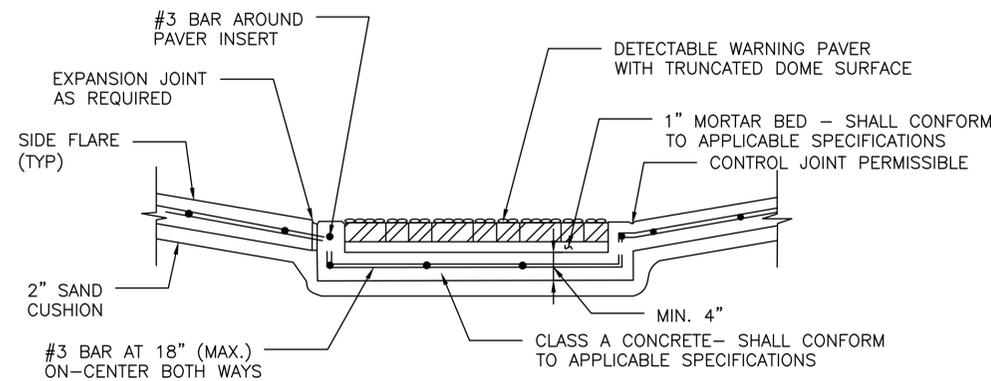
PLAN VIEW

DETECTABLE WARNING SURFACE

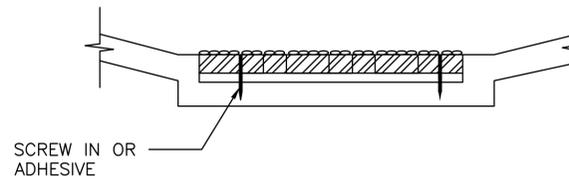


DETAIL

DETECTABLE WARNING PAVER



SECTION A-A
PAVER



DETAIL A-5

NOTES:

GENERAL NOTES

1. 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.
2. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.

PAVERS

1. FURNISH DETECTABLE WARNING SURFACE UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
2. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING POWER UNITS USING A POWER SAW.

POLYMER CONCRETE

1. DETECTABLE WARNING TILES SHALL BE MADE OF POLYMER CONCRETE MATERIALS.
2. DETECTABLE WARNING TILES SHALL BE INSTALLED INTO FRESH CONCRETE (CAST-IN-PLACE) UTILIZING AN ANCHORING SYSTEM.
3. DETECTABLE WARNING TILES SHALL BE OF TERRACOTTA (BRICK-RED) COLOR AND COLORED THROUGHOUT TO GUARANTEE THE ADA REQUIRED COLOR CONTRAST.
4. DETECTABLE WARNING TILES SHALL MEET OR EXCEED THE FOLLOWING ASTM-BASED "STANDARDS" FOR CONCRETE MATERIALS.
 - A. COMPRESSION STRENGTH > 12,500 PSI PER ASTM C 39-04
 - B. WATER ABSORPTION < 0.25% PER ASTM C 97-09

PADS

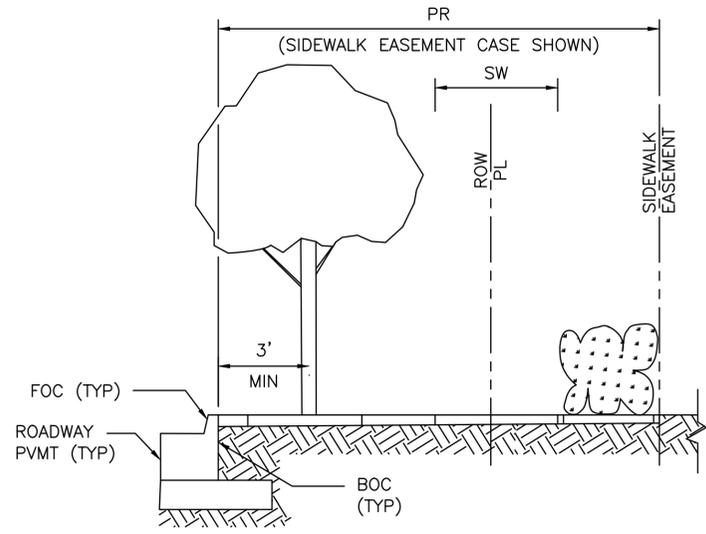
1. FURNISH REQUIREMENTS OF ADAAG (MARCH 2003).
2. OTHER MATERIALS MAY BE USED IF APPROVED BY THE CITY ENGINEER

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
DETECTABLE WARNING SURFACE (OPTIONS) (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: 9EF8B0C641F5478 CITY ENGINEER 95A29EFD75B4CD CITY TRAFFIC ENGINEER	DocuSigned by: A93C410B72B3453 DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 02775-07

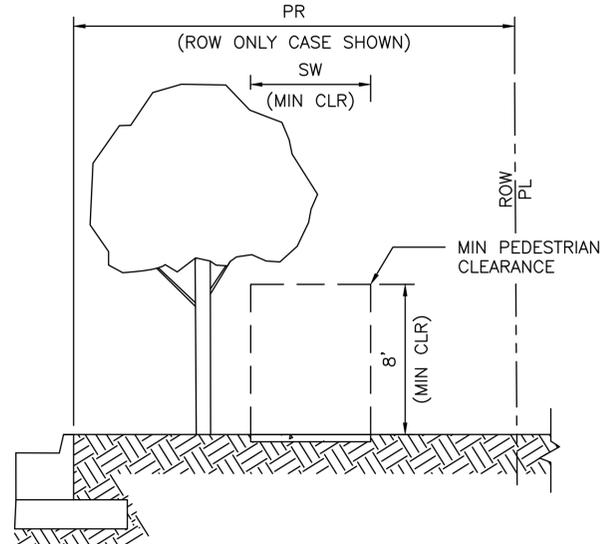
 FREES & NICHOLS 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com	
 Aurora Technical Services, LLC 2121 SAGE ROAD, SUITE 150 PHONE: 281-453-7700 TX FIRM NO: F-2059 SURVEYED BY: LANDTECH FB NO. P-6342	INTERIM REVIEW ONLY Document incomplete; not intended for regulatory approval, permit, or construction. JEFFREY HAY 147887 02/05/2025 Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PAVEMENT DETAILS 12 OF 14	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 119 OF 176	

NO.	DATE	REVISION	APP.

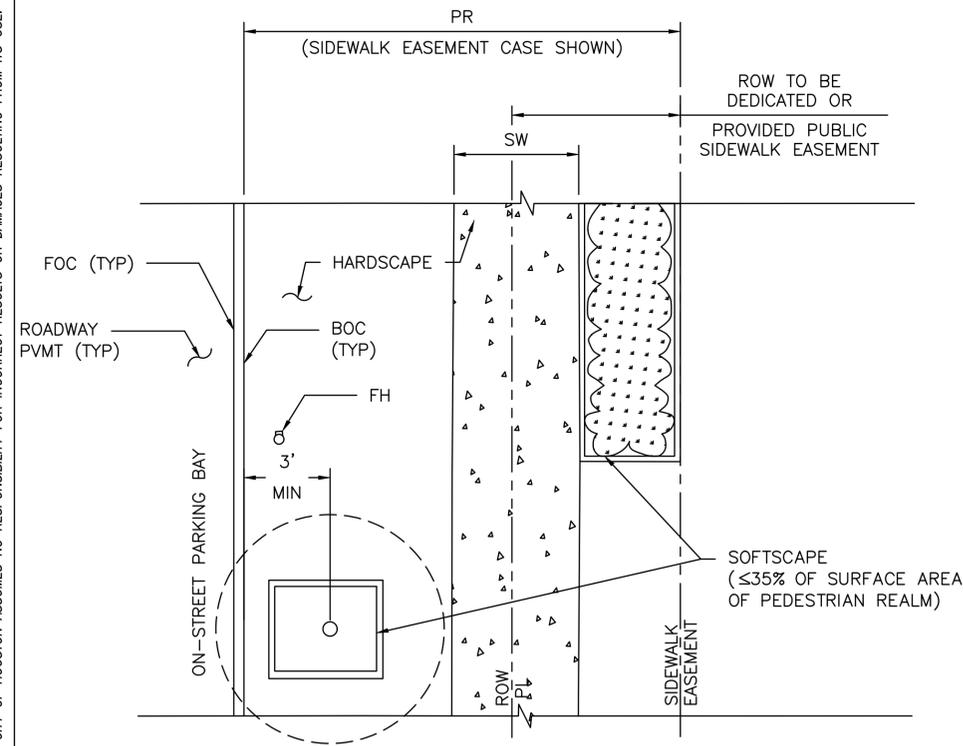
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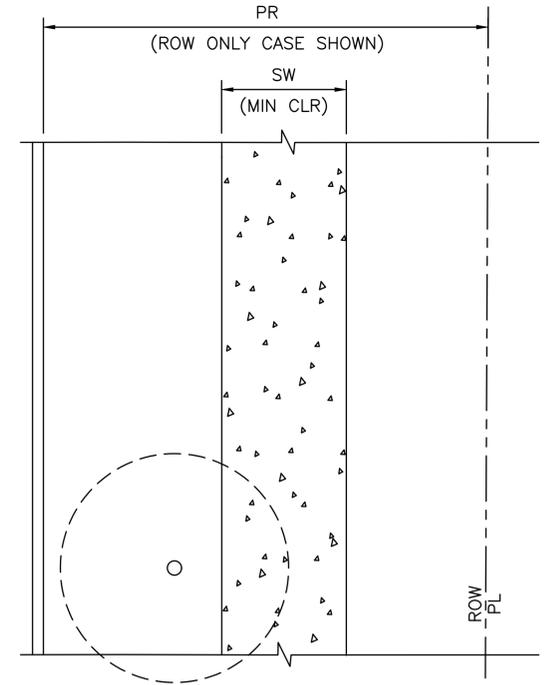
ELEVATION



ELEVATION



PLAN
PEDESTRIAN REALM PERFORMANCE STANDARD



PLAN
SIDEWALK & CLEAR PEDESTRIAN ZONE
MANDATORY MINIMUM REQUIREMENT

NOTES

- REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), AND SIDEWALK (SW) WIDTHS.
- THE MINIMUM UNOBSTRUCTED VERTICAL CLEARANCE OF A SIDEWALK IS EIGHT (8) FEET AS MEASURED VERTICALLY FROM THE SURFACE OF THE SIDEWALK. FOR VERTICAL CLEARANCE TO IMPROVEMENTS CONSTRUCTED OVER A SIDEWALK WITHIN THE PEDESTRIAN REALM, REFER TO THE CONTRACT DRAWINGS.
- FOR PEDESTRIAN REALM DESIGN BACKGROUND, REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES, ARTICLE IV – ENHANCED PEDESTRIAN REALM STANDARDS AND THE USERS' GUIDE FOR WALKABLE PLACES AND TRANSIT-ORIENTED DEVELOPMENT.
- FOR ADDITIONAL PLANTING REQUIREMENTS, REFER TO CHAPTER 33 OF THE CODE OF ORDINANCES, SECTION 129 – GENERAL PLANTING STANDARDS.

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
SIDEWALK AND CLEAR ZONE TRANSIT CORRIDOR STREET (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: <i>Sulail Kanwar</i> 9EF8B0C841F5478 CITY ENGINEER	DocuSigned by: <i>Carol Hallbrook</i> A93C410B72B3453 DIRECTOR OF HPW
DocuSigned by: <i>Lehang Nguyen</i> 95A29EFD75B4CD CITY TRAFFIC ENGINEER	
EFF DATE: NOV-27-2023	DWG NO: 02775-08

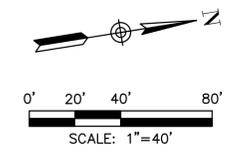
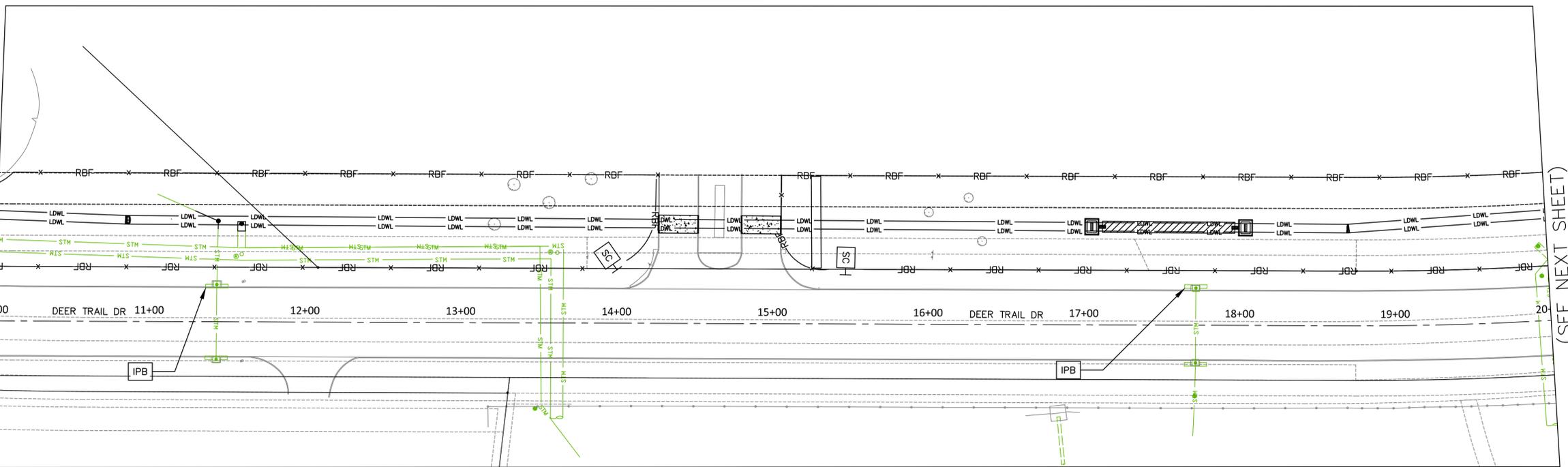
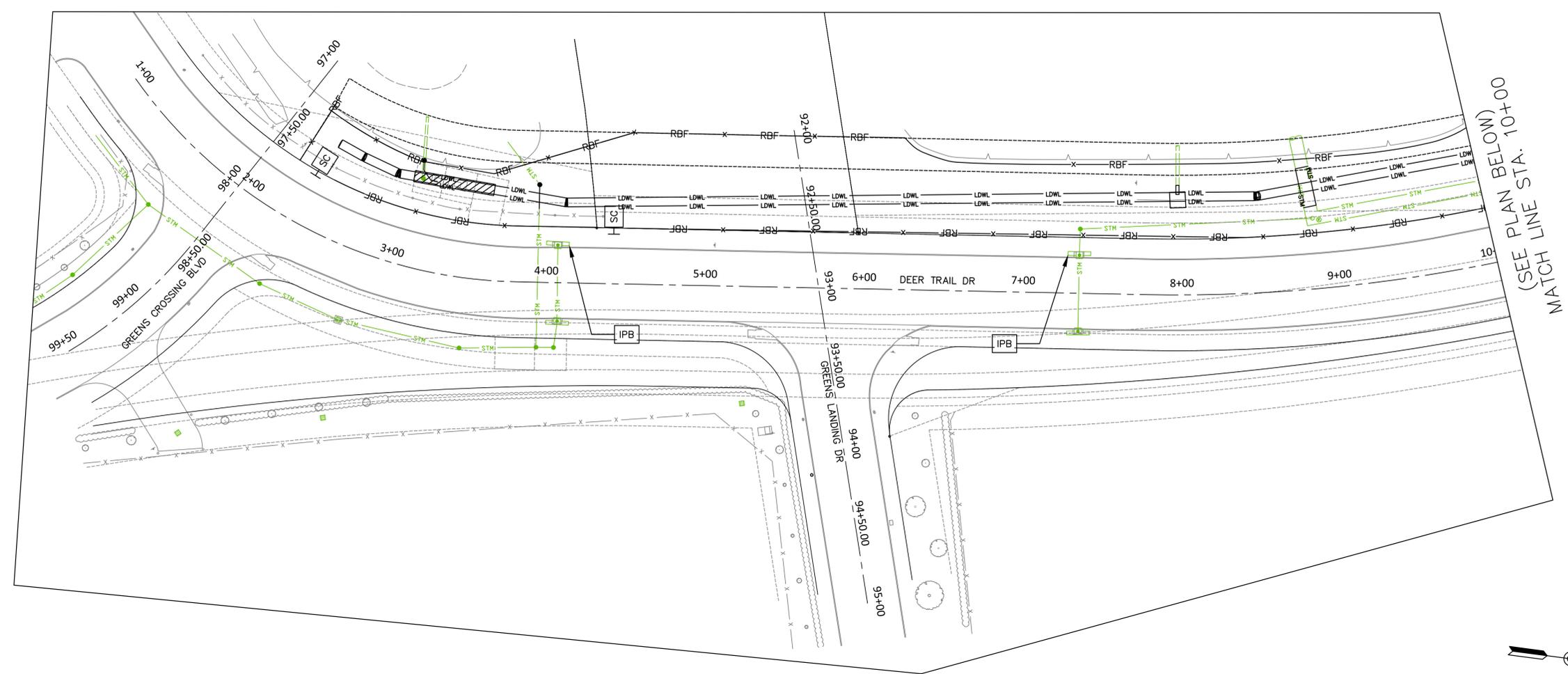
FREES & NICHOLS 10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com	
Aurora Technical Services, LLC <small>engineering & construction management</small>	INTERIM REVIEW ONLY <small>Document incomplete; not intended for regulatory approval, permit, or construction.</small> JEFFREY HAY <small>Signature</small> 147887 <small>Registration Number</small> date Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059
AURORA TECHNICAL SERVICES, LLC 2121 SAGE ROAD, SUITE 150 PHONE: 281-453-7700 TX FIRM NO: F-2059	
SURVEYED BY: LANDTECH FB NO. P-6342	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PAVEMENT DETAILS 13 OF 14	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 120 OF 176	

NO.	DATE	REVISION	APP.

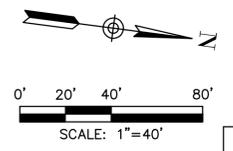
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- LEGEND:**
- X-RFB-X REINFORCED FILTER FABRIC BARRIER
 - [IPB] INLET PROTECTION BARRIER
 - [SC] STABILIZED CONSTRUCTION ACCESS



(SEE PLAN ABOVE)
MATCH LINE STA. 10+00

(SEE NEXT SHEET)
MATCH LINE STA. 20+00

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 Houston, Texas 77024
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Aurora Technical Services, LLC
ENGINEERING & CONSTRUCTION MANAGEMENT
 2121 SAGE ROAD, SUITE 150
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 147887
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

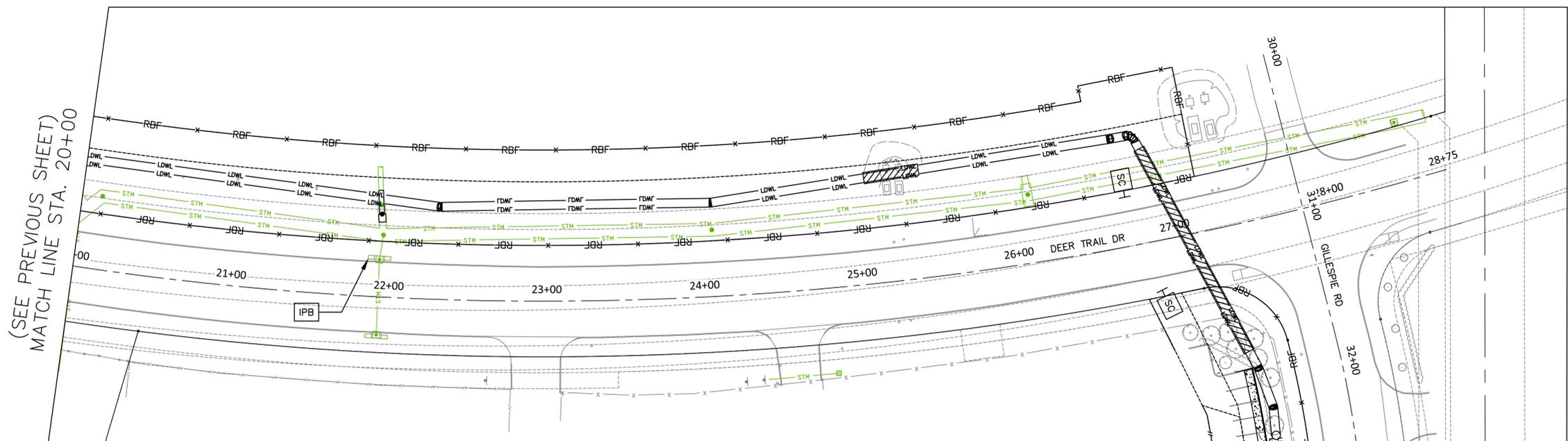
SWPPP SHEET 1 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 122 OF 176	

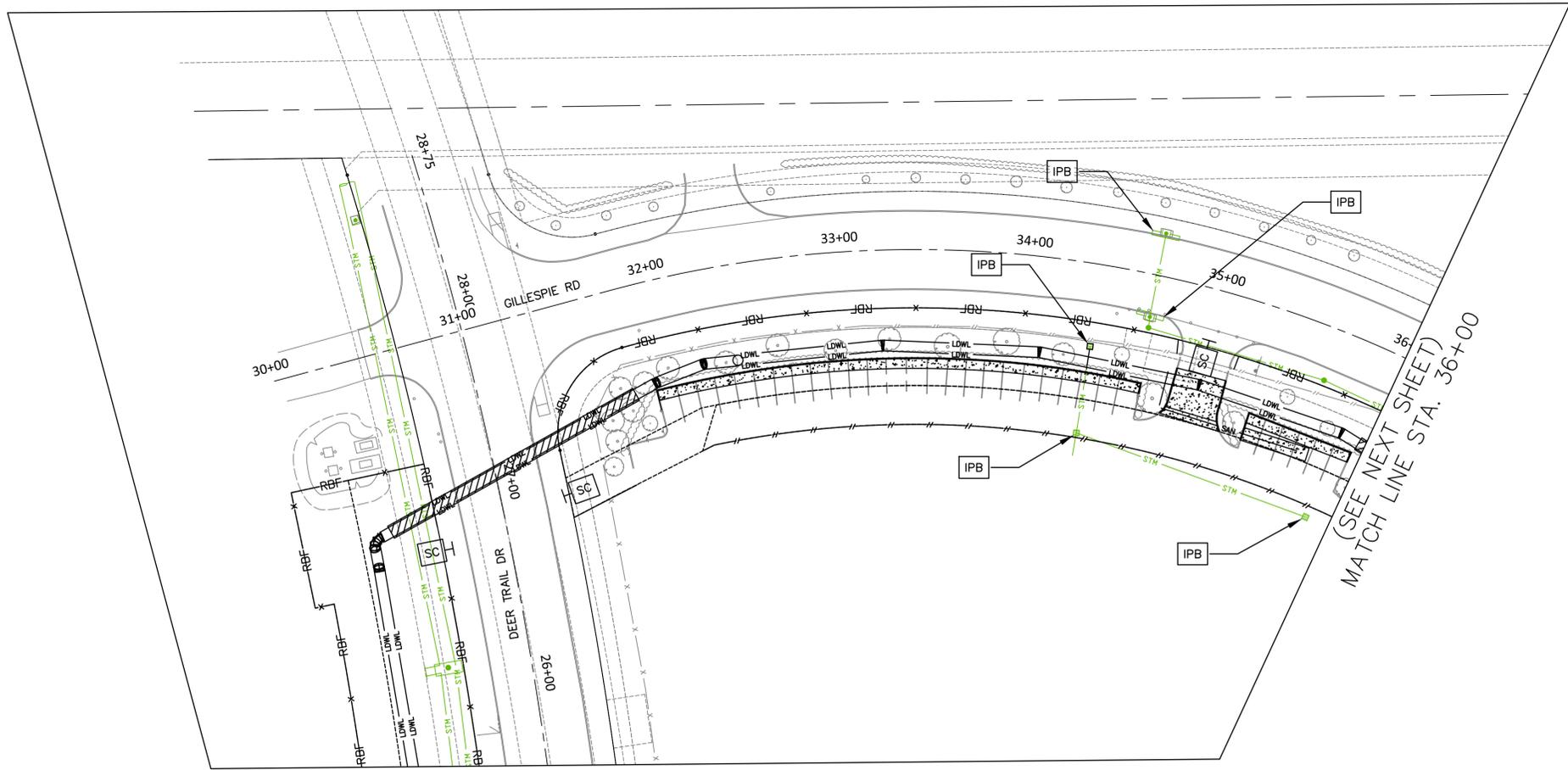
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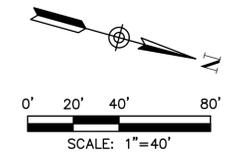
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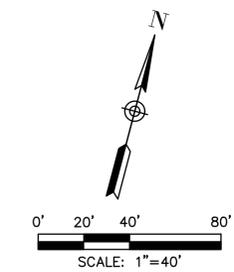
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 - IPB INLET PROTECTION BARRIER
 - SC STABILIZED CONSTRUCTION ACCESS



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 F-2059

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

SWPPP SHEET 2 Of 6

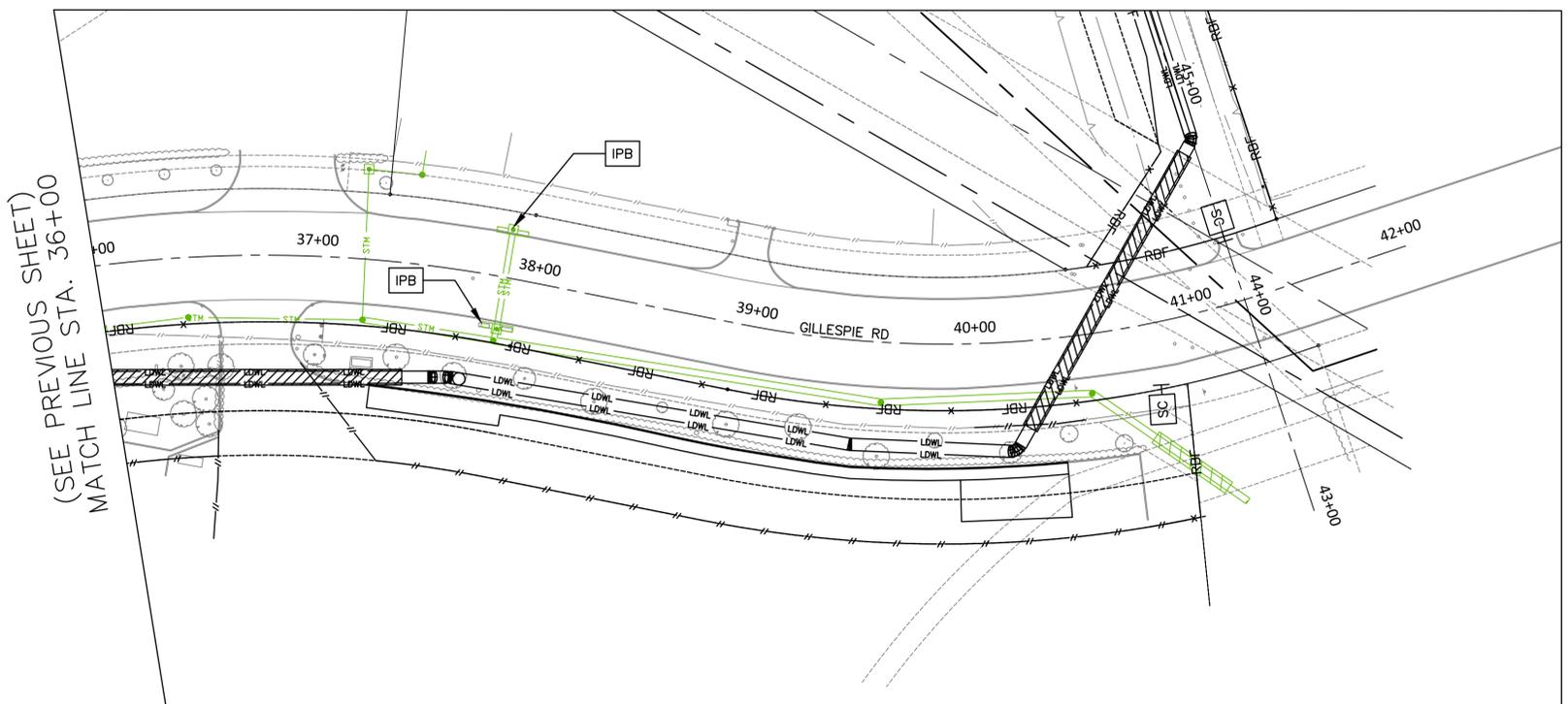
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 123 OF 176	

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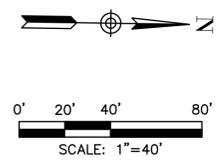
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PLAN BELOW

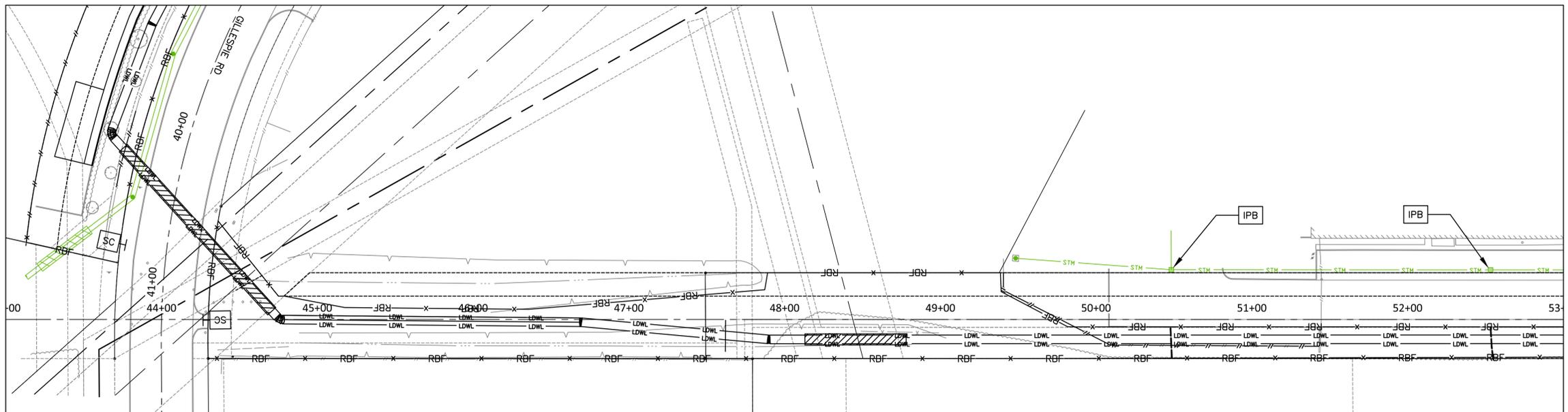


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- LEGEND:
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 - IPB INLET PROTECTION BARRIER
 - SC STABILIZED CONSTRUCTION ACCESS



CONTINUATION ON
PLAN ABOVE



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Web - www.freese.com

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Aurora Technical Services, LLC
engineering • construction management

JEFFREY HAY
Professional Engineer
147887
Registration Number

Signature

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

Aurora Technical Services, LLC
2121 SAGE ROAD, SUITE 150
PHONE: 281-453-7700
TX FIRM NO: F-2059

SURVEYED BY: LANDTECH
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

SWPPP SHEET 3 OF 6

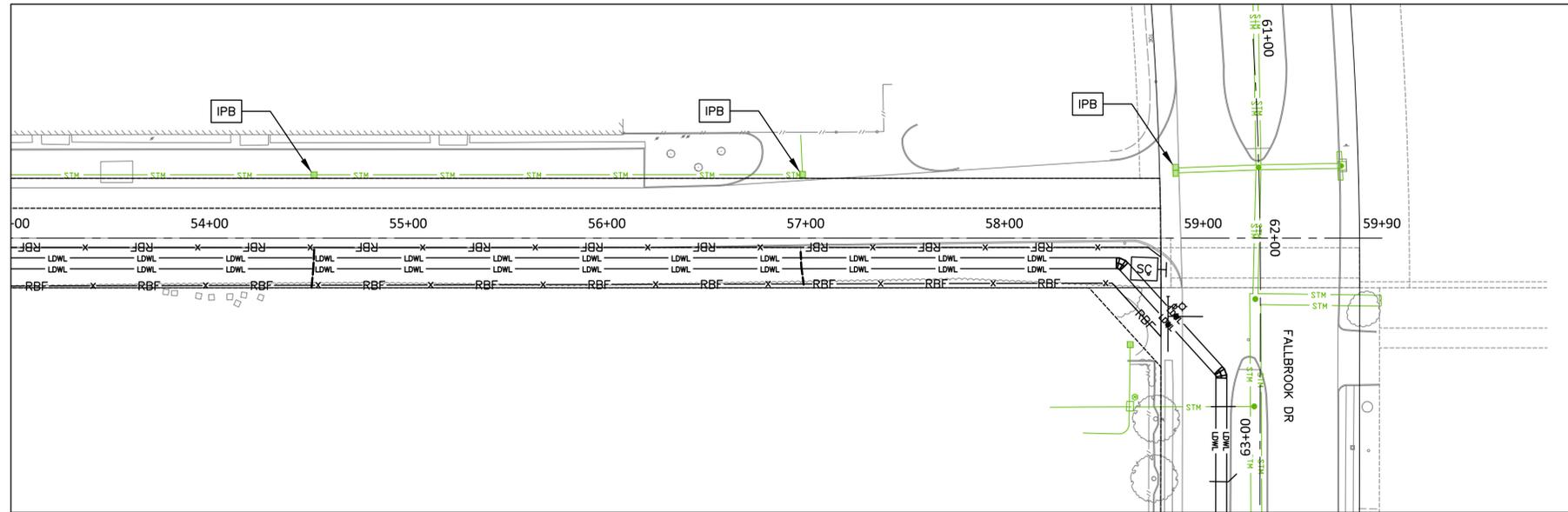
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AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 124 OF 176	

FILE PATH: K:\freese & nichols\66-inch WI Along Green Plaza Dr\4-0 Production\4-1 Drawings\SWPPP_Landscaping\SWPPP.dwg

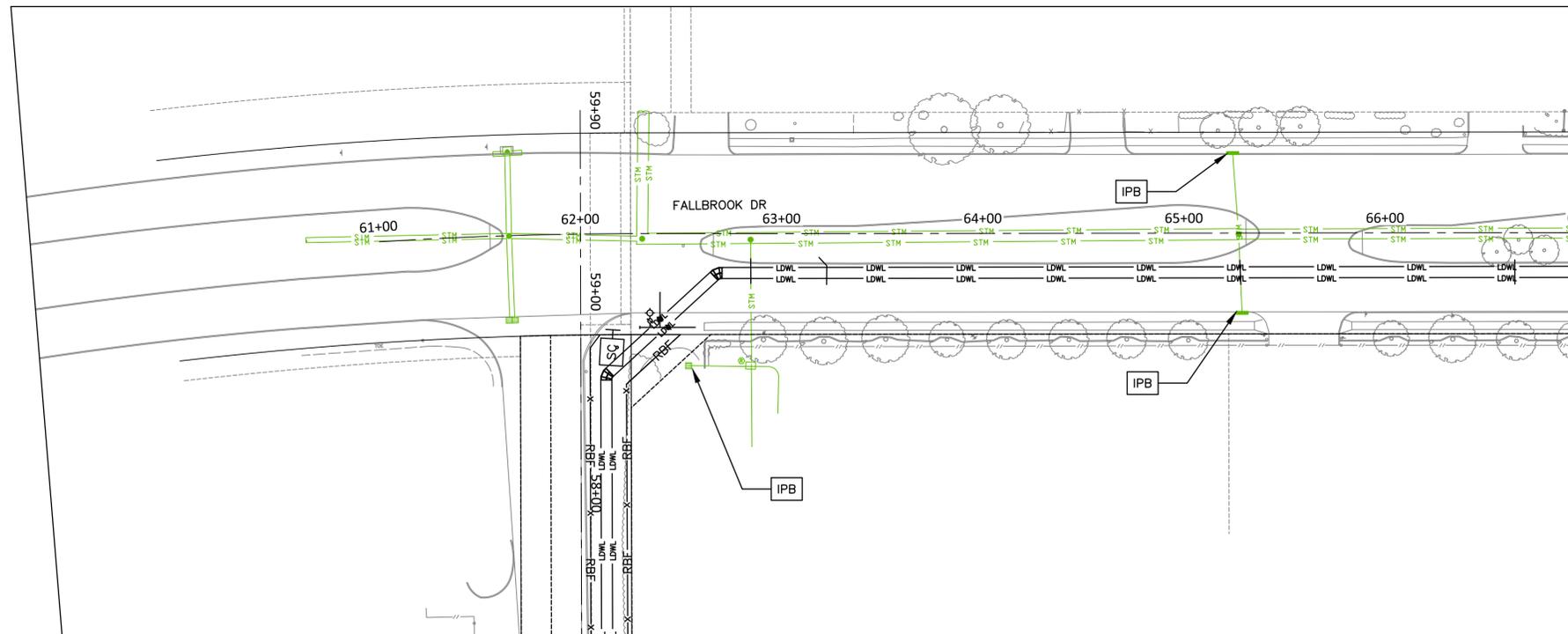
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PLOTTED: 2/5/2025 7:24 PM

(SEE PREVIOUS SHEET)
MATCH LINE STA. 53+00



CONTINUATION ON
PLAN BELOW



CONTINUATION ON
PLAN ABOVE

(SEE NEXT SHEET)
MATCH LINE STA. 67+00



0' 20' 40' 80'
SCALE: 1"=40'

LEGEND:

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



0' 20' 40' 80'
SCALE: 1"=40'

FREESSE & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
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 2121 SAGE ROAD, SUITE 150
 PHONE: 281-453-7700
 TX FIRM NO: F-2059

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 JEFFREY HAY
 147887
 Registration Number
 008
 Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

SWPPP SHEET 4 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 125 OF 176	

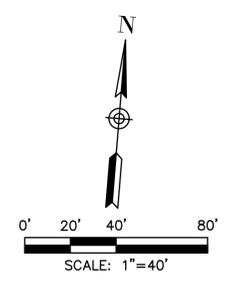
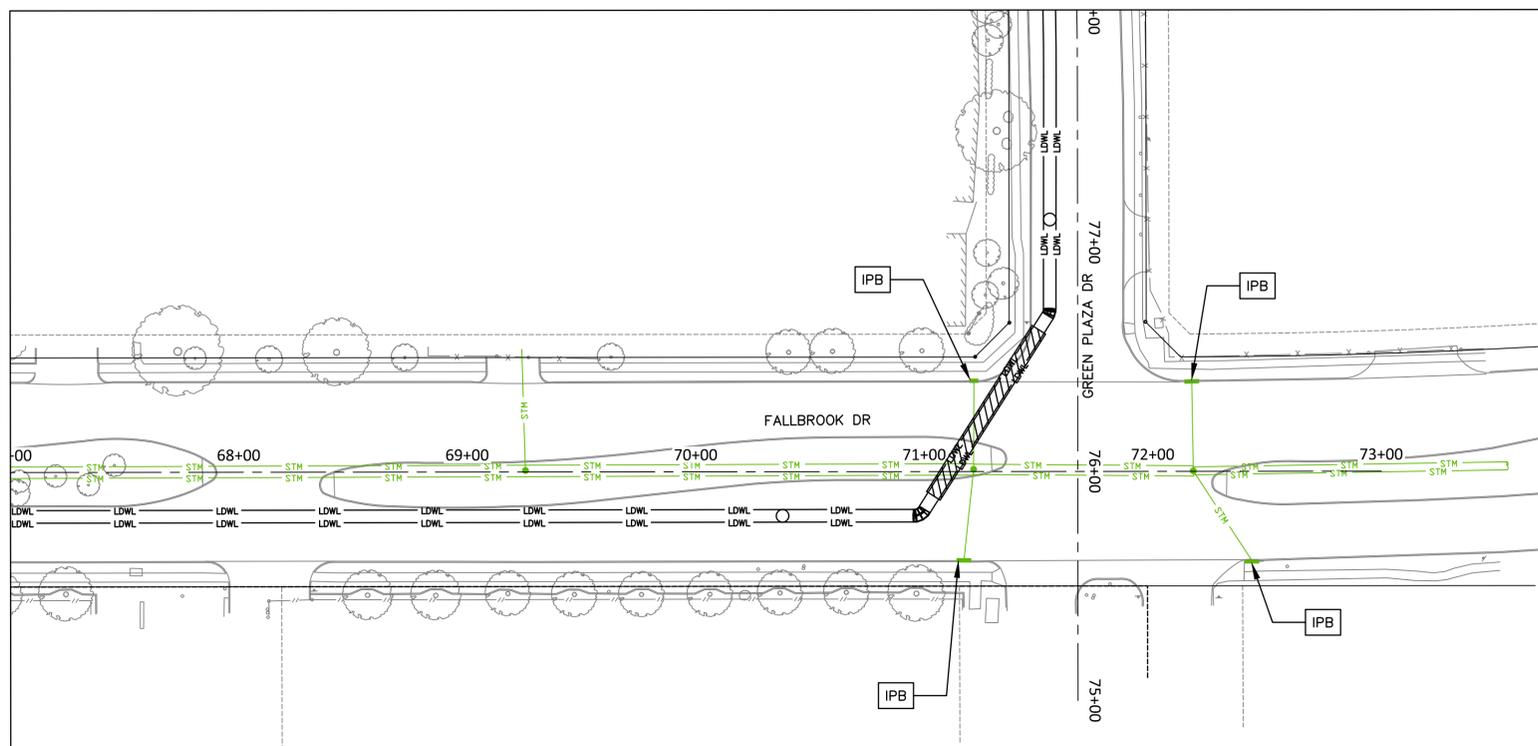
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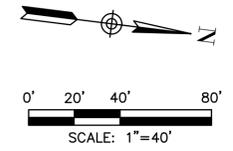
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CONTINUATION ON PLAN BELOW

(SEE PREVIOUS SHEET)
MATCH LINE STA. 67+00

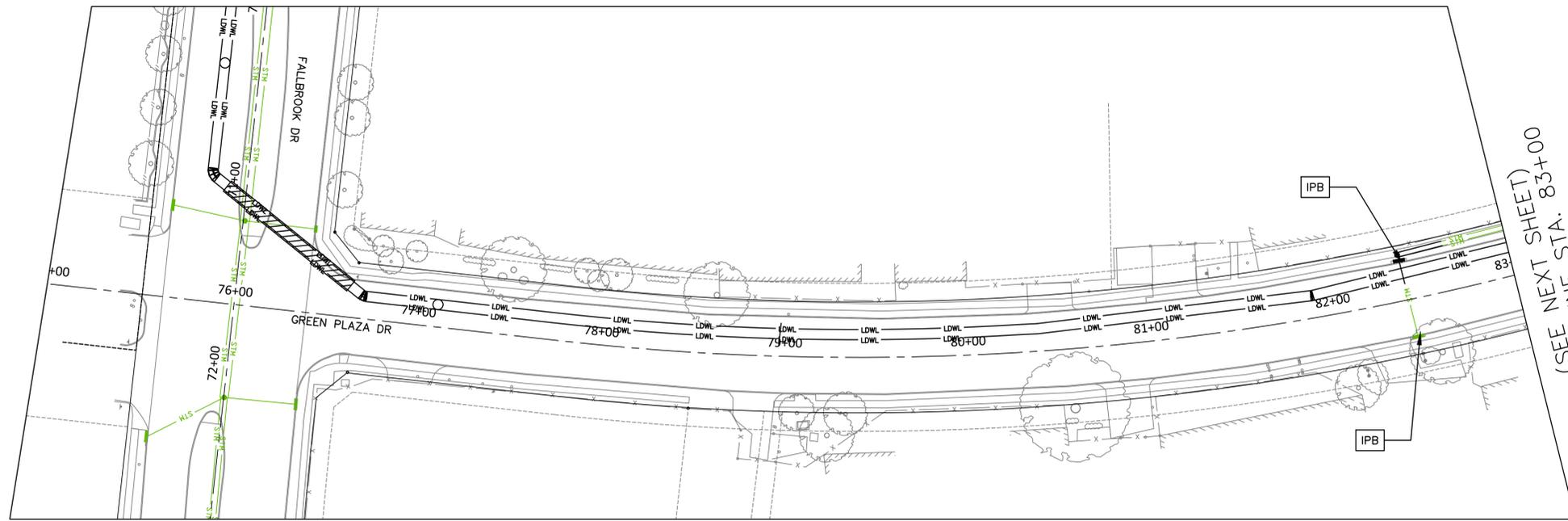


- LEGEND:
- X RFB-X REINFORCED FILTER FABRIC BARRIER
 - [IPB] INLET PROTECTION BARRIER
 - [SC] STABILIZED CONSTRUCTION ACCESS



CONTINUATION ON PLAN ABOVE

(SEE NEXT SHEET)
MATCH LINE STA. 83+00



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 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

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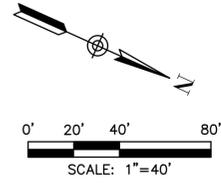
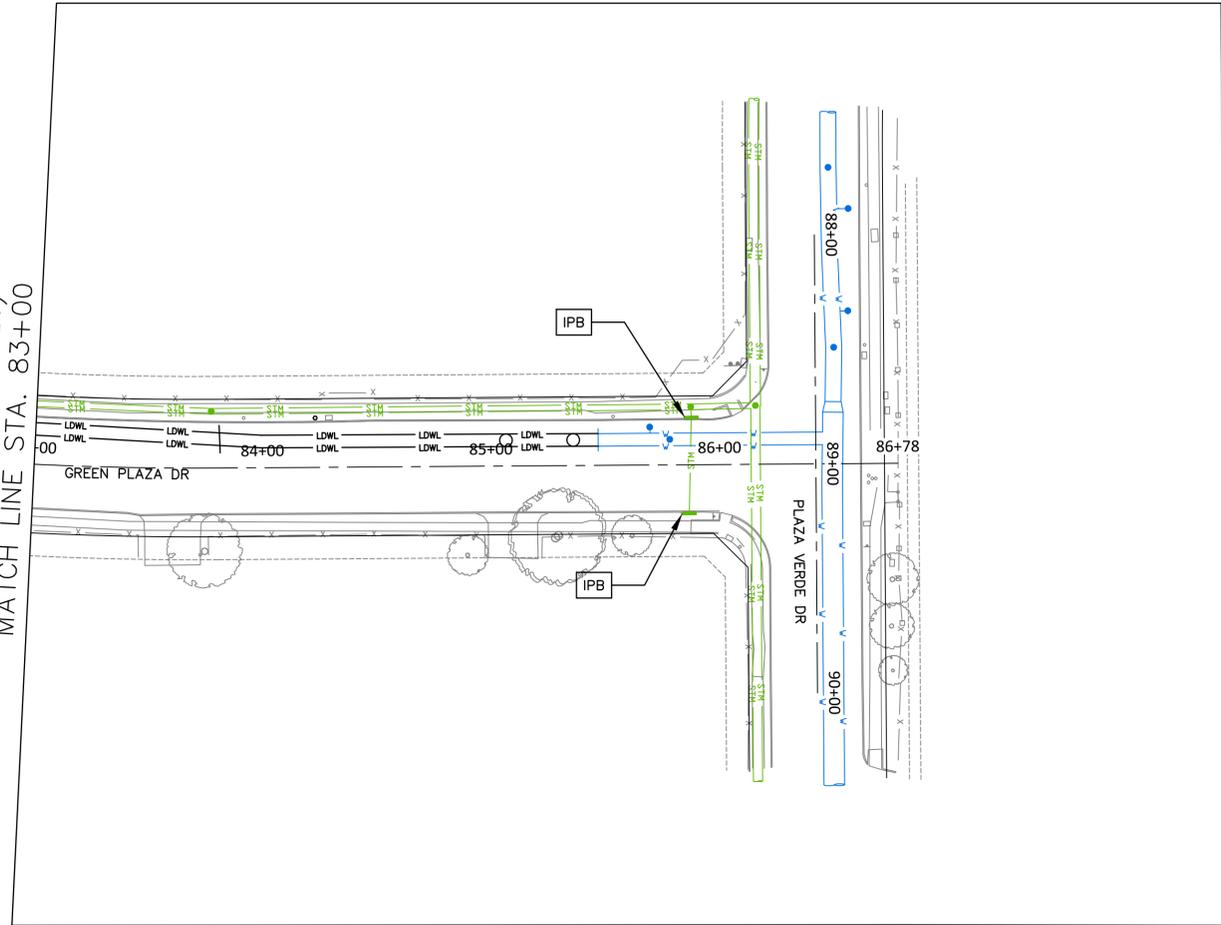
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

SWPPP SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 126 OF 176	

(SEE PREVIOUS SHEET)
MATCH LINE STA. 83+00



LEGEND:

- X RFB—X REINFORCED FILTER FABRIC BARRIER
- [IPB] INLET PROTECTION BARRIER
- [SC] STABILIZED CONSTRUCTION ACCESS

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FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

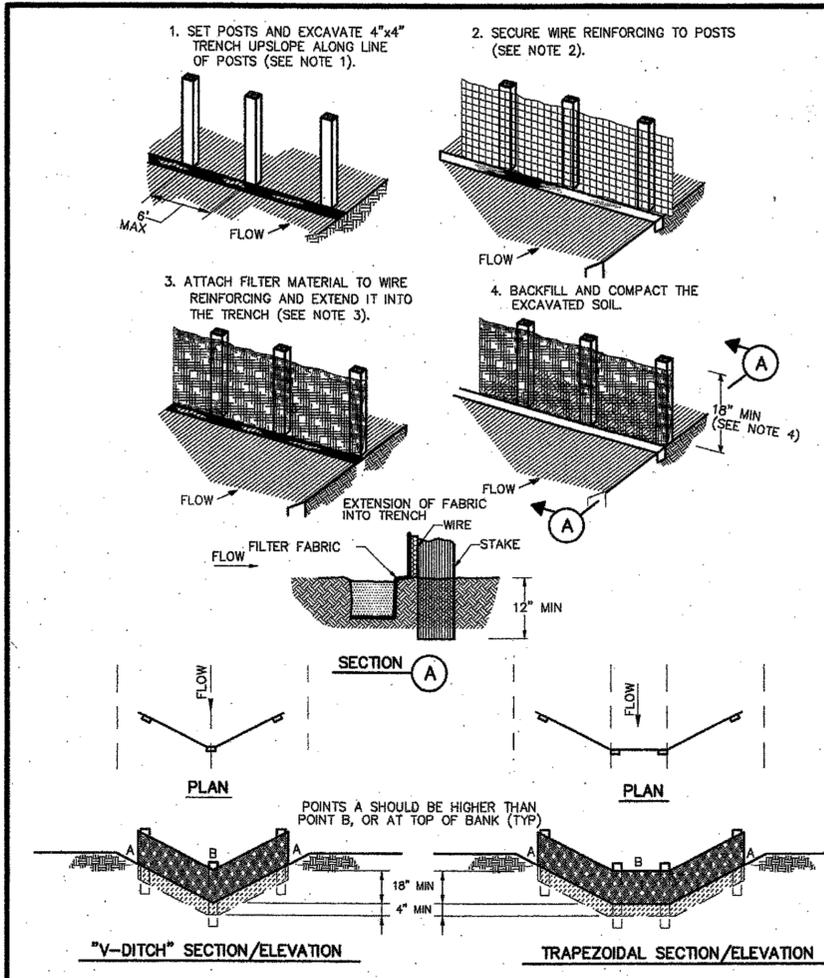
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WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 127 OF 176	

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PLOT STYLE: COH.ctb

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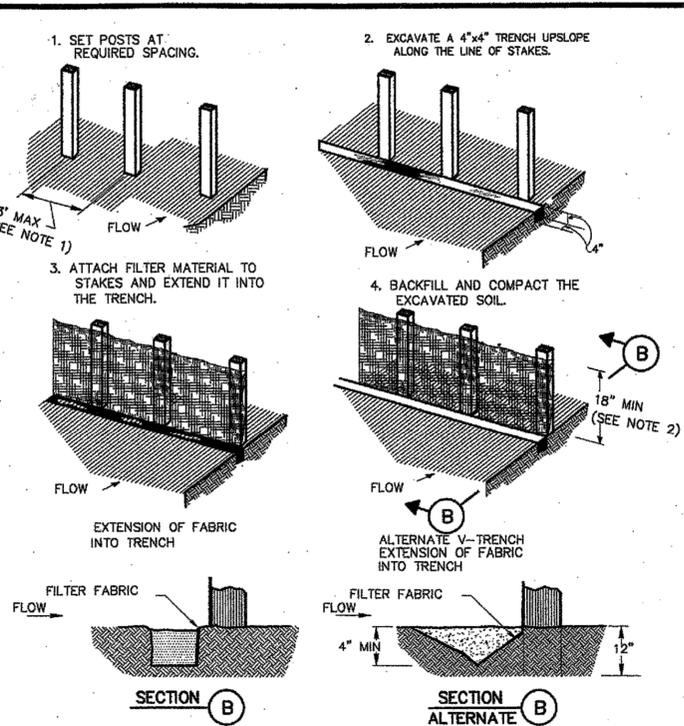
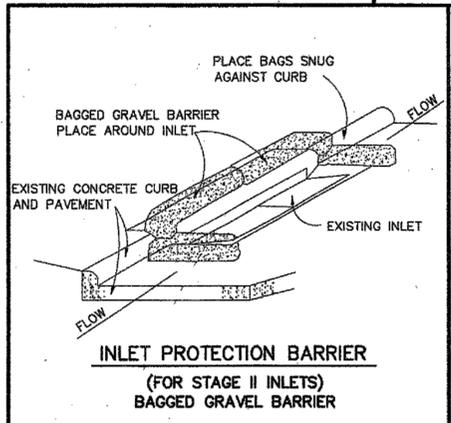


CONSTRUCTION NOTES:

- SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
- WOVEN WIRE REINFORCING TO BE FASTENED SECURELY TO BARRIER POSTS WITH STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE REINFORCING, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
- MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
- SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

REINFORCED FILTER FABRIC BARRIER

SYMBOL: (RFB)

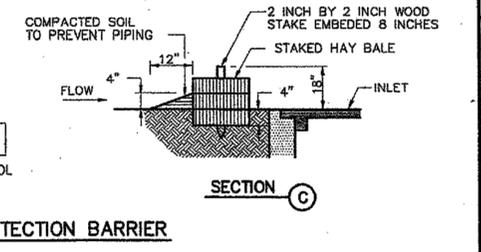
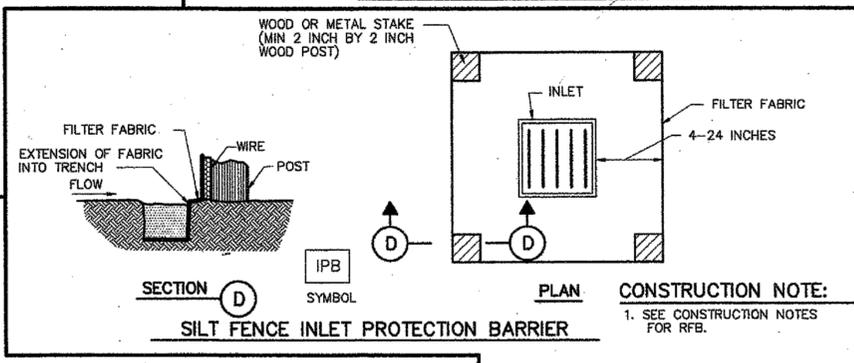
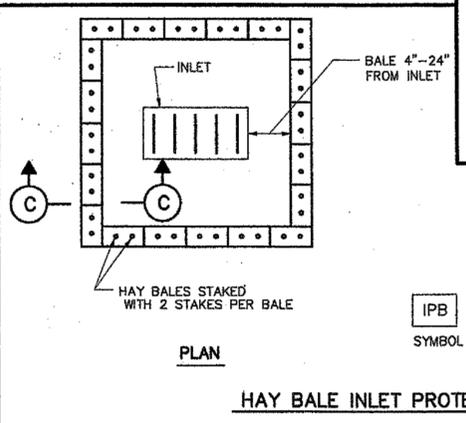


CONSTRUCTION NOTES:

- 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.
- 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.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
- SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

FILTER FABRIC BARRIER

SYMBOL: (FF)



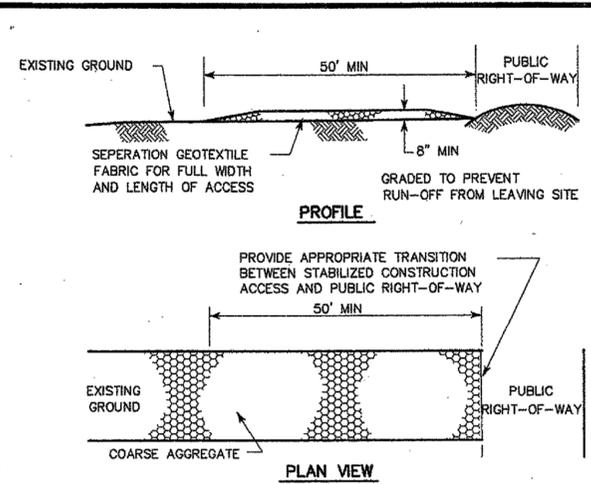
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS
(NOT TO SCALE)

APPROVED: [Signature] CITY ENGINEER

APPROVED: [Signature] DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 DWG NO: 01571-01



CONSTRUCTION NOTES:

- LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
- THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
- WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
- 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.
- STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
- COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
- STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

STABILIZED CONSTRUCTION ACCESS

SYMBOL: (SC)

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Aurora Technical Services, LLC
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HOUSTON, TEXAS 77059
PHONE: 281-453-7700
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SURVEYED BY: LANDTECH
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

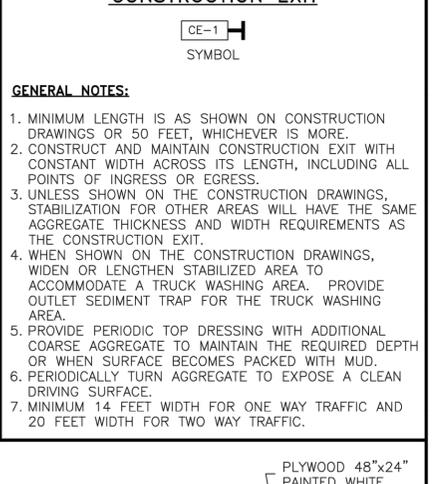
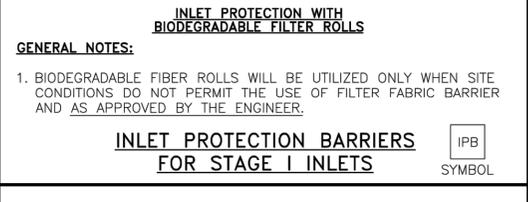
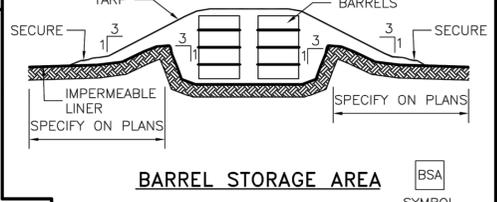
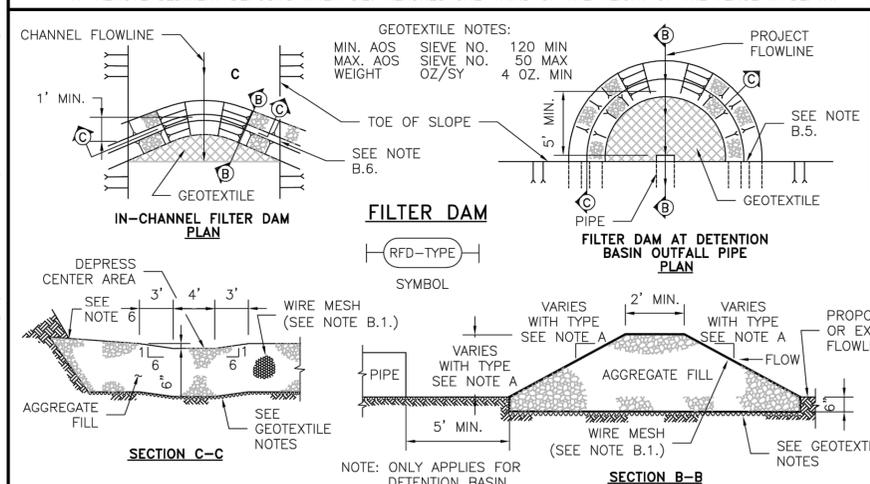
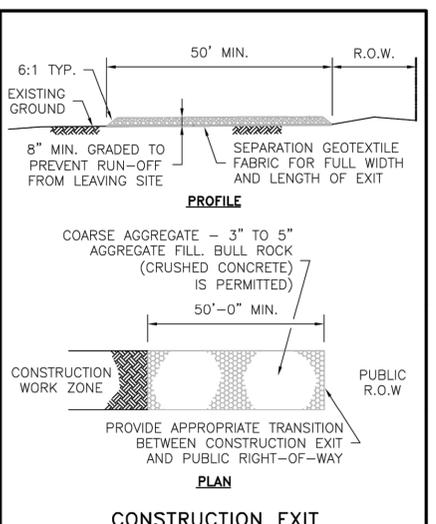
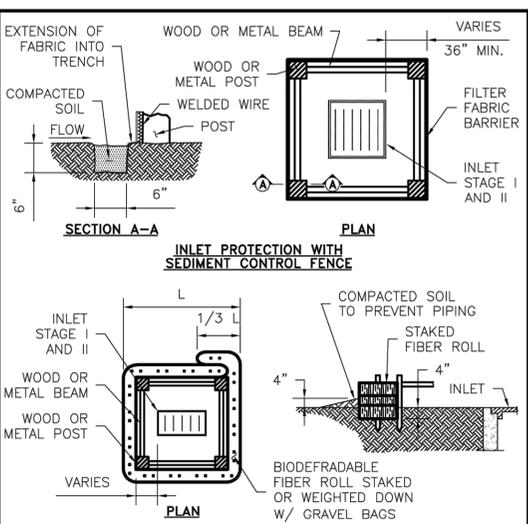
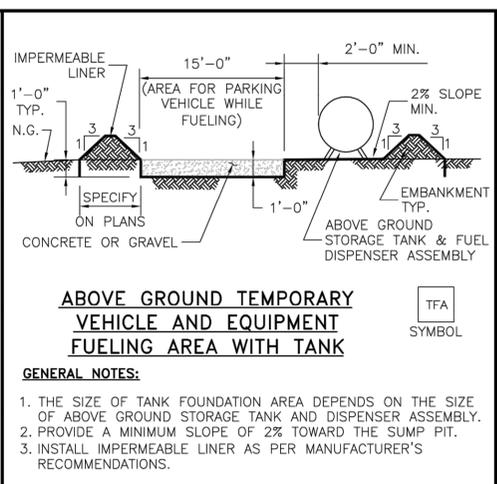
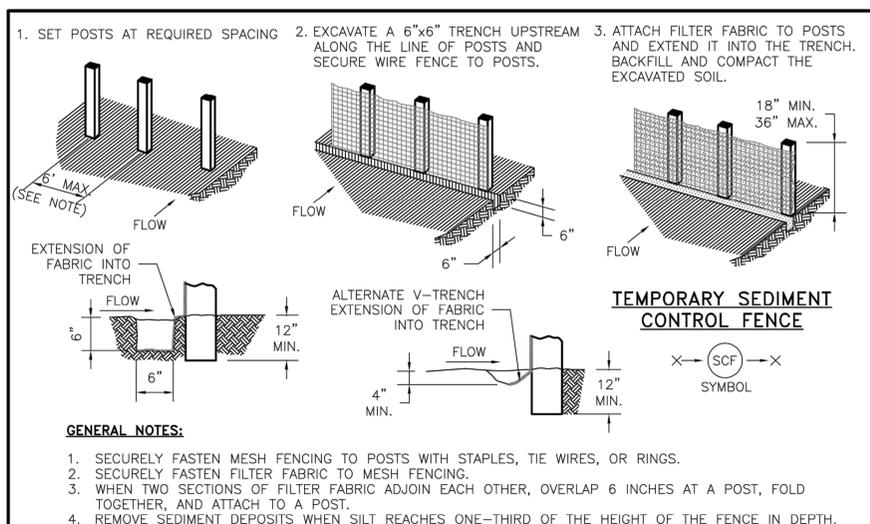
SWPPP DETAILS SHEET
1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 128 OF 176	

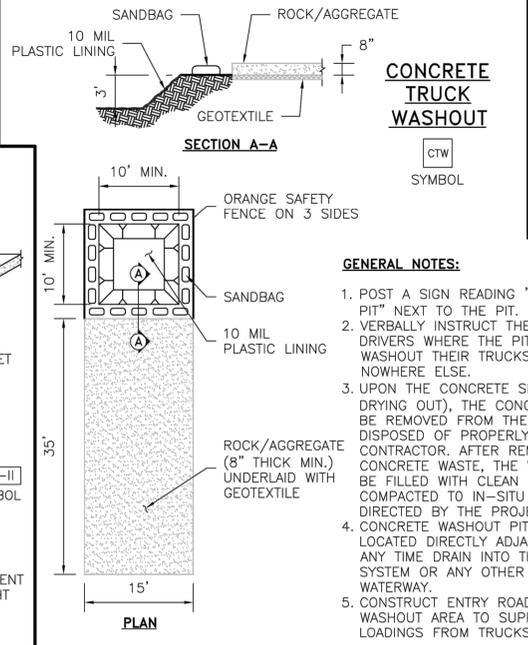
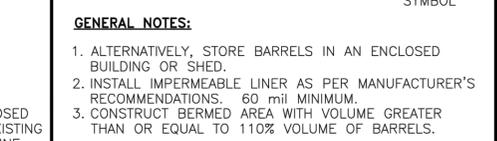
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PLOT STYLE: COH.ctb

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- A. TYPES OF FILTER DAMS**
- TYPE 1 (NON-REINFORCED)
 - HEIGHT - 18-24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - TOP WIDTH - 2 FEET (MINIMUM).
 - SLOPES - 2:1 (MAXIMUM).
 - TYPE 2 (REINFORCED)
 - HEIGHT - 18-36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - TOP WIDTH - 2 FEET (MINIMUM).
 - SLOPES - 2:1 (MAXIMUM).
 - TYPE 3 (REINFORCED)
 - HEIGHT - 36-48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - TOP WIDTH - 2 FEET (MINIMUM).
 - SLOPES - 3:1 (MAXIMUM).
 - TYPE 4 (GABION)
 - HEIGHT - 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - TOP WIDTH - 2 FEET (MINIMUM).
 - TYPE 5. AS SHOWN ON THE PLANS.
- B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.**
- TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
 - PLACE AGGREGATE FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
 - 3-5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
 - 4-8 INCHES FOR ROCK FILTER DAM TYPE 3.
 - FOLD WIRE MESH AT UPSTREAM SIDE OVER AGGREGATE FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR RINGS.
 - IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
 - EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.



NO.	REVISIONS	DATE	NAME

HARRIS COUNTY ENGINEERING DEPARTMENT

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ENGINEER: NAME / /
P.E. SERIAL No. NUMBER / /
DATE: / /

CIVIL STANDARD SW3P

DATE: 10/10/23

SHEET NO. /

PROJECT TITLE:	STORM WATER POLLUTION PREVENTION
SHEET DESCRIPTION:	PLAN DETAILS
DRAWN BY:	JDZ
CK'D BY:	NR
SCALE:	NONE

FRESE & NICHOLS

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Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

Aurora Technical Services, LLC

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PHONE: 281-453-7700
TX FIRM NO: F-2059

SURVEYED BY: LANDTECH
FB NO. P-6342

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Texas Registered Engineering Firm
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

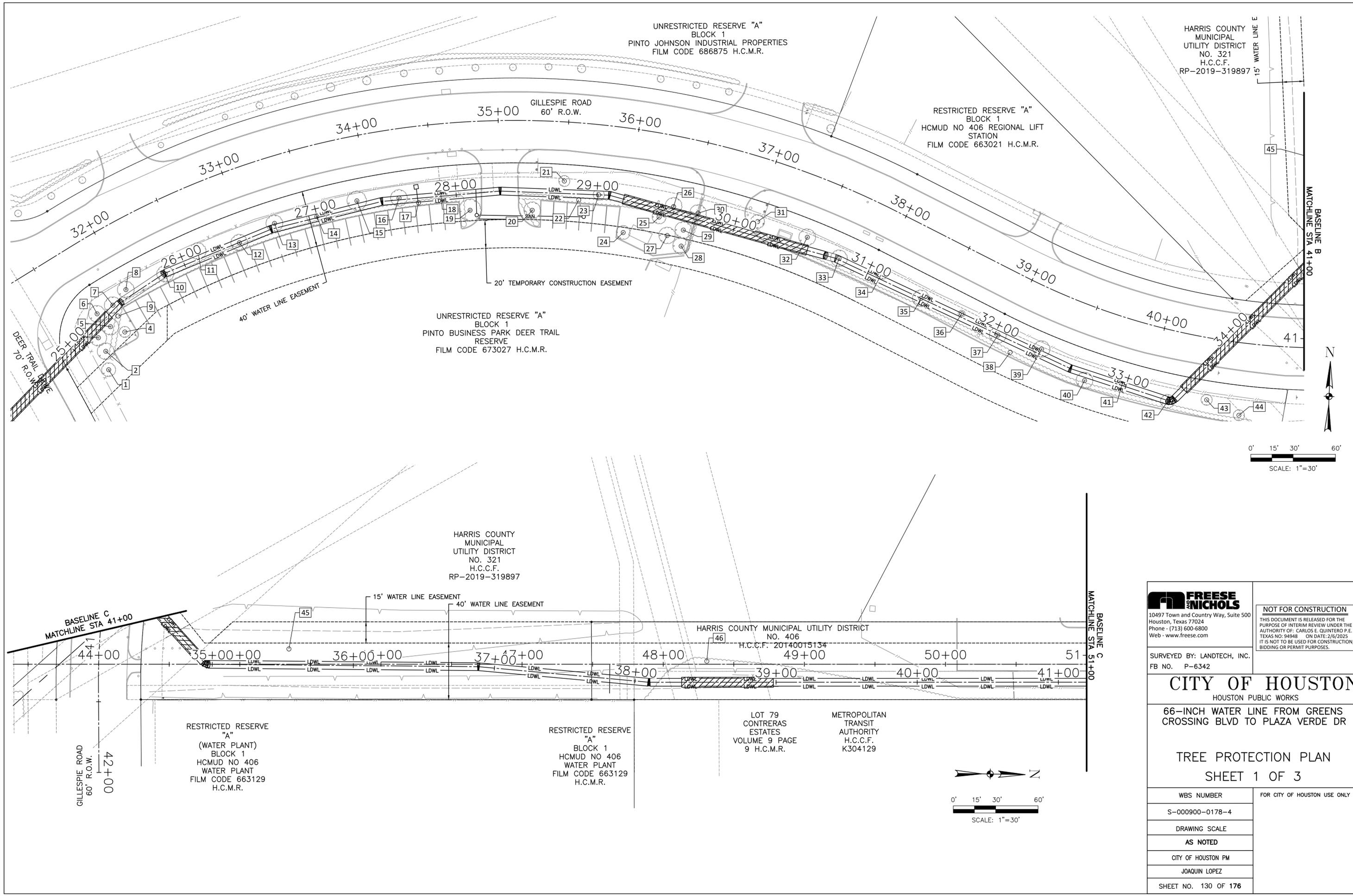
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2 OF 2

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JOAQUIN LOPEZ	
SHEET NO. 129	OF 176

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UNRESTRICTED RESERVE "A"
BLOCK 1
PINTO JOHNSON INDUSTRIAL PROPERTIES
FILM CODE 686875 H.C.M.R.

HARRIS COUNTY
MUNICIPAL
UTILITY DISTRICT
NO. 321
H.C.C.F.
RP-2019-319897

RESTRICTED RESERVE "A"
BLOCK 1
HCMUD NO 406 REGIONAL LIFT
STATION
FILM CODE 663021 H.C.M.R.

UNRESTRICTED RESERVE "A"
BLOCK 1
PINTO BUSINESS PARK DEER TRAIL
RESERVE
FILM CODE 673027 H.C.M.R.

HARRIS COUNTY
MUNICIPAL
UTILITY DISTRICT
NO. 321
H.C.C.F.
RP-2019-319897

HARRIS COUNTY MUNICIPAL UTILITY DISTRICT
NO. 406
H.C.C.F. 20140015134
49+00

RESTRICTED RESERVE "A"
(WATER PLANT)
BLOCK 1
HCMUD NO 406
WATER PLANT
FILM CODE 663129
H.C.M.R.

RESTRICTED RESERVE "A"
BLOCK 1
HCMUD NO 406
WATER PLANT
FILM CODE 663129
H.C.M.R.

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VOLUME 9 PAGE
9 H.C.M.R.

METROPOLITAN
TRANSIT
AUTHORITY
H.C.C.F.
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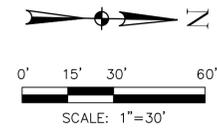
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

TREE PROTECTION PLAN
SHEET 1 OF 3

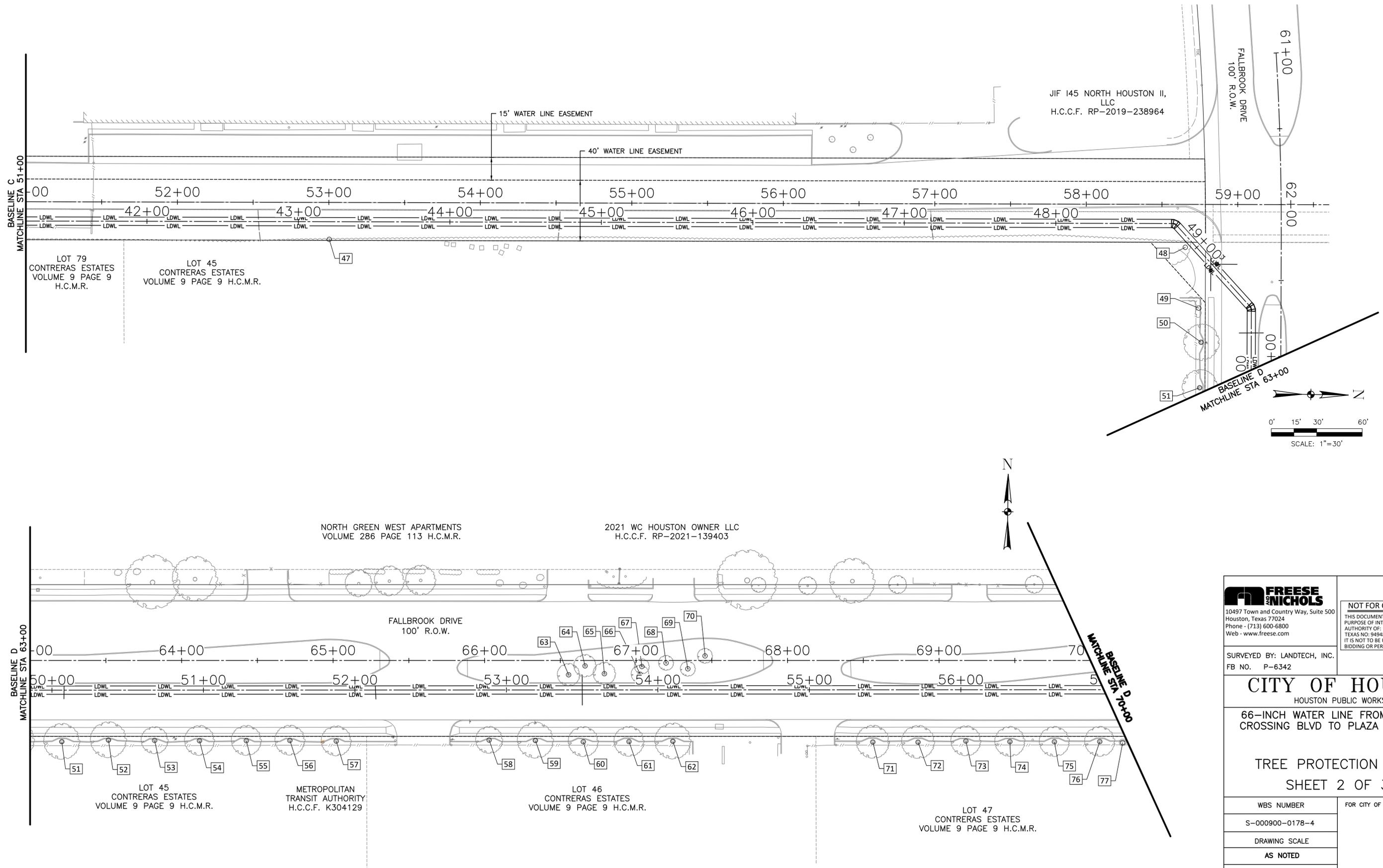
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 130 OF 176	



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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

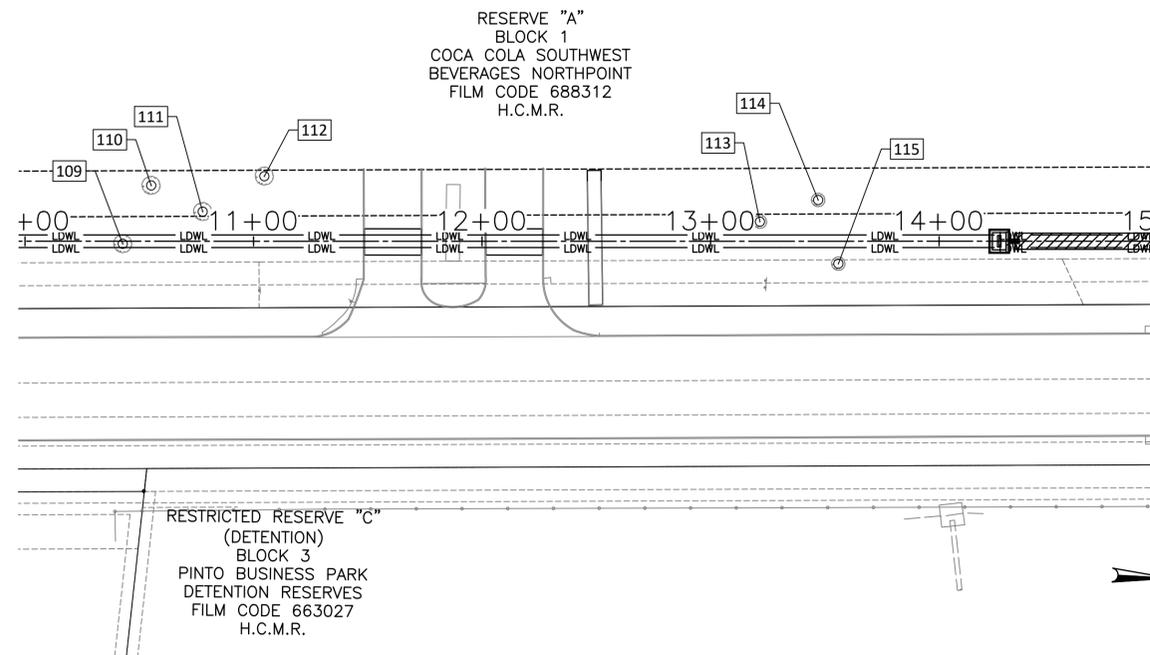
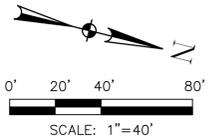
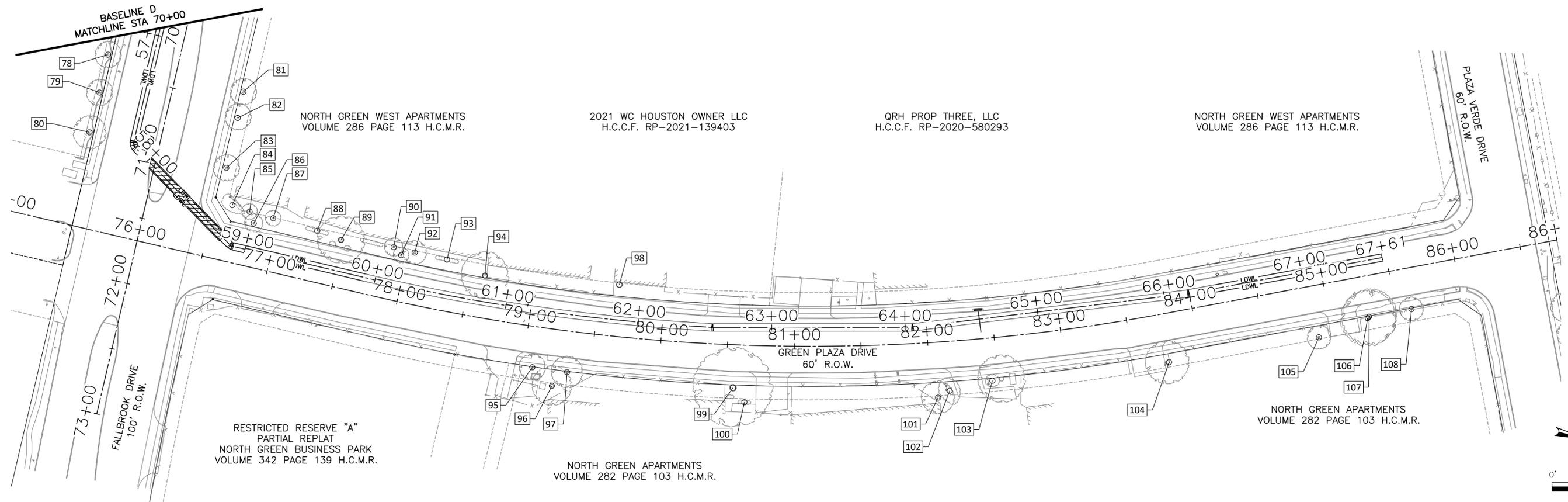
TREE PROTECTION PLAN
 SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 131 OF 176	

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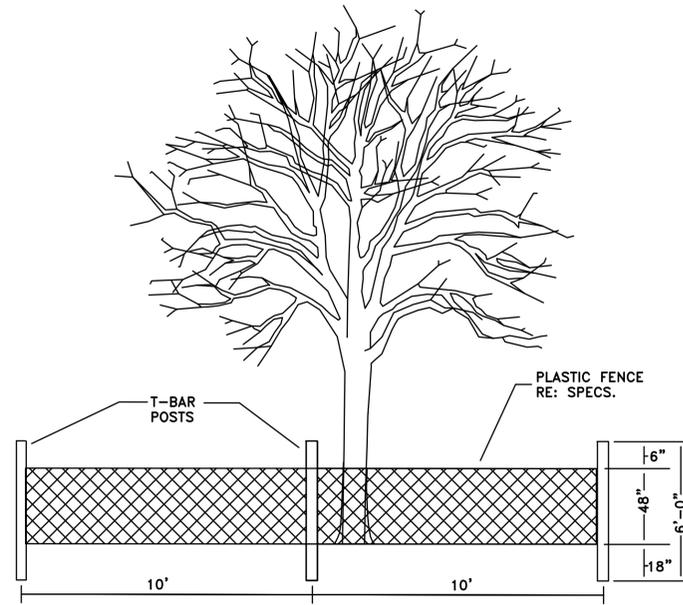
<p>10497 Town and Country Way, Suite 500 Houston, Texas 77024 Phone - (713) 600-6800 Web - www.freese.com</p>	<p>NOT FOR CONSTRUCTION</p> <p>THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: CARLOS E. QUINTERO P.E. TEXAS NO: 94948 ON DATE: 2/6/2025. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.</p>
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<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p> <p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p> <p>TREE PROTECTION PLAN SHEET 3 OF 3</p>	
<p>WBS NUMBER S-000900-0178-4</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JOAQUIN LOPEZ</p>	
<p>SHEET NO. 132 OF 176</p>	

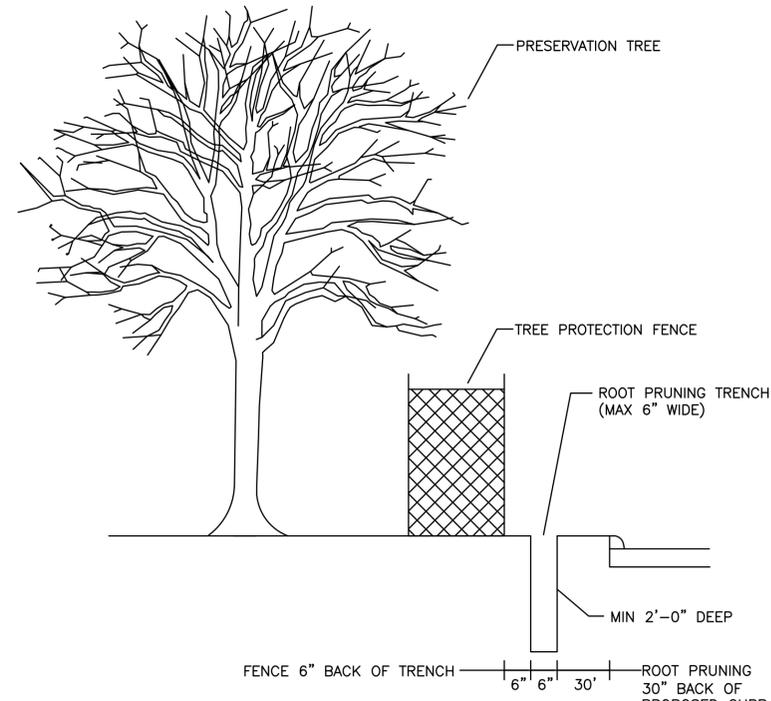
Tree No.	Location	Description	Treatment
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2	GILLESPIE RD BASELINE	12" CREPE MYRTLE	NOT IMPACTED
3	GILLESPIE RD BASELINE	12" CREPE MYRTLE	NOT IMPACTED
4	GILLESPIE RD BASELINE	12" CREPE MYRTLE	NOT IMPACTED
5	GILLESPIE RD BASELINE	12" CREPE MYRTLE	NOT IMPACTED
6	GILLESPIE RD BASELINE	8" OAK	NOT IMPACTED
7	GILLESPIE RD BASELINE	12" CREPE MYRTLE	REMOVE
8	GILLESPIE RD BASELINE	12" OAK	REMOVE
9	GILLESPIE RD BASELINE	BUSHES	REMOVE
10	GILLESPIE RD BASELINE	12" OAK	REMOVE
11	GILLESPIE RD BASELINE	12" OAK	REMOVE
12	GILLESPIE RD BASELINE	12" CEDAR	REMOVE
13	GILLESPIE RD BASELINE	12" CEDAR	REMOVE
14	GILLESPIE RD BASELINE	14" CEDAR	REMOVE
15	GILLESPIE RD BASELINE	14" CEDAR	REMOVE
16	GILLESPIE RD BASELINE	12" OAK	REMOVE
17	GILLESPIE RD BASELINE	BUSHES	REMOVE
18	GILLESPIE RD BASELINE	8" OAK	NOT IMPACTED
19	GILLESPIE RD BASELINE	16" OAK	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
20	GILLESPIE RD BASELINE	12" OAK	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
21	GILLESPIE RD BASELINE	8" OAK	REMOVE
22	GILLESPIE RD BASELINE	BUSHES	REMOVE
23	GILLESPIE RD BASELINE	8" OAK	REMOVE
24	GILLESPIE RD BASELINE	10" PINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
25	GILLESPIE RD BASELINE	10" PINE	NOT IMPACTED
26	GILLESPIE RD BASELINE	12" PINE	NOT IMPACTED
27	GILLESPIE RD BASELINE	12" OAK	NOT IMPACTED
28	GILLESPIE RD BASELINE	12" OAK	NOT IMPACTED
29	GILLESPIE RD BASELINE	12" OAK	NOT IMPACTED
30	GILLESPIE RD BASELINE	12" OAK	NOT IMPACTED
31	GILLESPIE RD BASELINE	10" OAK	REMOVE
32	GILLESPIE RD BASELINE	12" OAK	REMOVE
33	GILLESPIE RD BASELINE	12" OAK	REMOVE
34	GILLESPIE RD BASELINE	10" CEDAR	REMOVE
35	GILLESPIE RD BASELINE	12" CEDAR	REMOVE
36	GILLESPIE RD BASELINE	5" CEDAR	REMOVE
37	GILLESPIE RD BASELINE	12" OAK	REMOVE
38	GILLESPIE RD BASELINE	BUSHES	REMOVE
39	GILLESPIE RD BASELINE	12" OAK	REMOVE
40	GILLESPIE RD BASELINE	12" OAK	REMOVE
41	GILLESPIE RD BASELINE	7" CEDAR	REMOVE
42	GILLESPIE RD BASELINE	10" CEDAR	REMOVE
43	GILLESPIE RD BASELINE	8" CEDAR	REMOVE
44	GILLESPIE RD BASELINE	8" CEDAR	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
45	EASEMENT BASELINE	BUSHES	REMOVE
46	EASEMENT BASELINE	TREE LINE	REMOVE, ROOT PRUNE, CLEARANCE PRUNE, FENCE
47	EASEMENT BASELINE	TREE LINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
48	EASEMENT BASELINE	TREE LINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
49	FALLBROOK DRIVE BASELINE	HEDGE	NOT IMPACTED
50	FALLBROOK DRIVE BASELINE	24" OAK	CLEARANCE PRUNE
51	FALLBROOK DRIVE BASELINE	24" OAK	CLEARANCE PRUNE
52	FALLBROOK DRIVE BASELINE	24" OAK	CLEARANCE PRUNE
53	FALLBROOK DRIVE BASELINE	18" OAK	CLEARANCE PRUNE
54	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
55	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
56	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
57	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
58	FALLBROOK DRIVE BASELINE	18" OAK	CLEARANCE PRUNE
59	FALLBROOK DRIVE BASELINE	24" OAK	CLEARANCE PRUNE

Tree No.	Location	Description	Treatment
60	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
61	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
62	FALLBROOK DRIVE BASELINE	24" OAK	CLEARANCE PRUNE
63	FALLBROOK DRIVE BASELINE	15" CREPE MYRTLE	REMOVE
64	FALLBROOK DRIVE BASELINE	15" CREPE MYRTLE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
65	FALLBROOK DRIVE BASELINE	15" CREPE MYRTLE	REMOVE
66	FALLBROOK DRIVE BASELINE	10" CREPE MYRTLE	REMOVE
67	FALLBROOK DRIVE BASELINE	10" CREPE MYRTLE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
68	FALLBROOK DRIVE BASELINE	10" CREPE MYRTLE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
69	FALLBROOK DRIVE BASELINE	10" CREPE MYRTLE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
70	FALLBROOK DRIVE BASELINE	10" CREPE MYRTLE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
71	FALLBROOK DRIVE BASELINE	22" OAK	CLEARANCE PRUNE
72	FALLBROOK DRIVE BASELINE	22" OAK	CLEARANCE PRUNE
73	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
74	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
75	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
76	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
77	FALLBROOK DRIVE BASELINE	BUSH	NOT IMPACTED
78	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
79	FALLBROOK DRIVE BASELINE	20" OAK	CLEARANCE PRUNE
80	FALLBROOK DRIVE BASELINE	25" OAK	CLEARANCE PRUNE
81	FALLBROOK DRIVE BASELINE	20" OAK	NOT IMPACTED
82	FALLBROOK DRIVE BASELINE	20" OAK	NOT IMPACTED
83	FALLBROOK DRIVE BASELINE	20" OAK	NOT IMPACTED
84	GREEN PLAZA DRIVE BASELINE	PLANTS	NOT IMPACTED
85	GREEN PLAZA DRIVE BASELINE	12" PINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
86	GREEN PLAZA DRIVE BASELINE	14" PINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
87	GREEN PLAZA DRIVE BASELINE	12" PINE	ROOT PRUNE FOR WATER LINE, FENCE, CLEARANCE PRUNE
88	GREEN PLAZA DRIVE BASELINE	FLOWER BED	NOT IMPACTED
89	GREEN PLAZA DRIVE BASELINE	36" OAK	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
90	GREEN PLAZA DRIVE BASELINE	14" PINE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
91	GREEN PLAZA DRIVE BASELINE	12" PIEN	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
92	GREEN PLAZA DRIVE BASELINE	18" PINE	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
93	GREEN PLAZA DRIVE BASELINE	FLOWER BED	NOT IMPACTED
94	GREEN PLAZA DRIVE BASELINE	36" OAK	ROOT PRUNE FOR WATER LINE, CLEARANCE PRUNE
95	GREEN PLAZA DRIVE BASELINE	20" OAK	NOT IMPACTED
96	GREEN PLAZA DRIVE BASELINE	30" OAK	NOT IMPACTED
97	GREEN PLAZA DRIVE BASELINE	24" OAK	NOT IMPACTED
98	GREEN PLAZA DRIVE BASELINE	BUSH	NOT IMPACTED
99	GREEN PLAZA DRIVE BASELINE	60" OAK	NOT IMPACTED
100	GREEN PLAZA DRIVE BASELINE	BUSHES	NOT IMPACTED
101	GREEN PLAZA DRIVE BASELINE	25" OAK	NOT IMPACTED
102	GREEN PLAZA DRIVE BASELINE	GARDEN	NOT IMPACTED
103	GREEN PLAZA DRIVE BASELINE	GARDEN	NOT IMPACTED
104	GREEN PLAZA DRIVE BASELINE	33" OAK	NOT IMPACTED
105	GREEN PLAZA DRIVE BASELINE	18" OAK	NOT IMPACTED
106	GREEN PLAZA DRIVE BASELINE	30" OAK	NOT IMPACTED
107	GREEN PLAZA DRIVE BASELINE	30" OAK	NOT IMPACTED
108	GREEN PLAZA DRIVE BASELINE	15" OAK	NOT IMPACTED
109	DEERTRAILDRIVEBASELINE	8" PINE	REMOVE
110	DEERTRAILDRIVEBASELINE	8" PINE	FENCE
111	DEERTRAILDRIVEBASELINE	8" PINE	FENCE
112	DEERTRAILDRIVEBASELINE	8" PINE	FENCE
113	DEERTRAILDRIVEBASELINE	68" PINE	REMOVE
114	DEERTRAILDRIVEBASELINE	68" PINE	FENCE
115	DEERTRAILDRIVEBASELINE	68" PINE	REMOVE

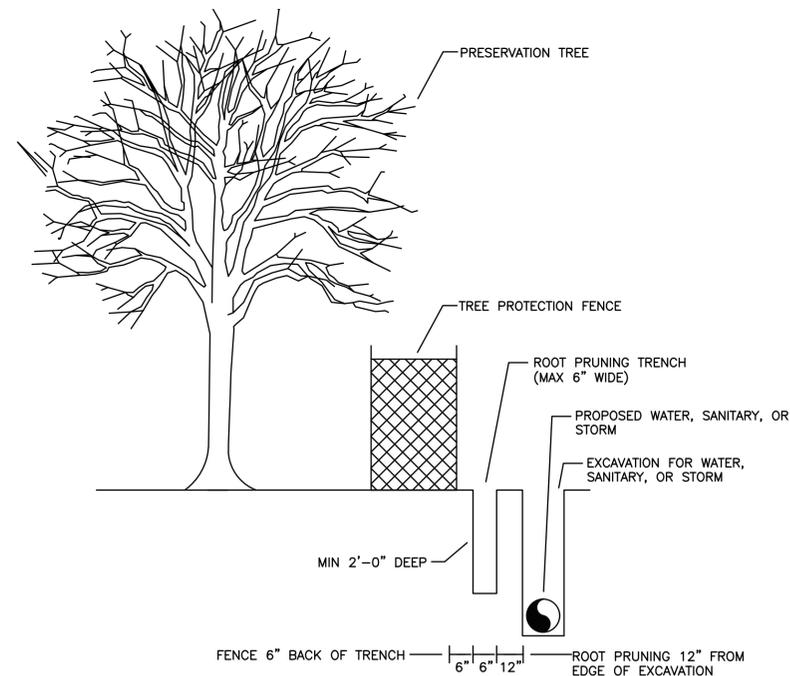
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	<p>SURVEYED BY: LANDTECH, INC. FB NO. P-6342</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR</p>	
<p>TREE PROTECTION TABLE</p>	
<p>WBS NUMBER</p> <p>S-000900-0178-4</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p> <p>NOT TO SCALE</p>	
<p>CITY OF HOUSTON PM</p> <p>JOAQUIN LOPEZ</p>	
<p>SHEET NO. 133 OF 176</p>	



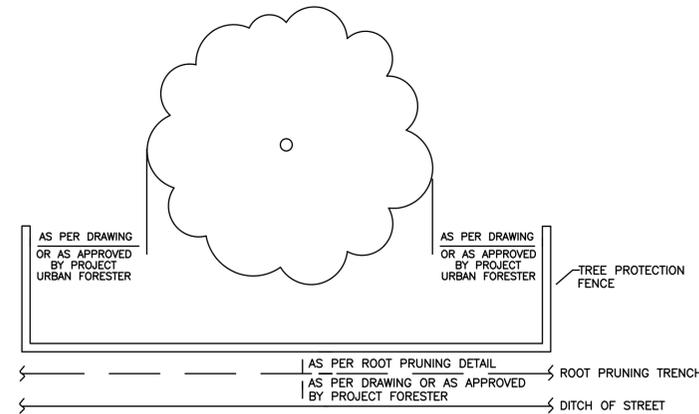
TREE PROTECTION FENCING DETAIL A
 NOT TO SCALE



ROOT PRUNE FOR STREET-CURB & GUTTER - NO OC
 NOT TO SCALE



ROOT PRUNE FOR WATER, SANITARY, OR STORM LINE
 NOT TO SCALE



TREE PROTECTION FENCING DETAIL B
 NOT TO SCALE

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

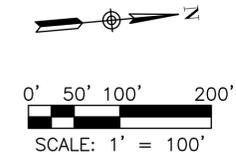
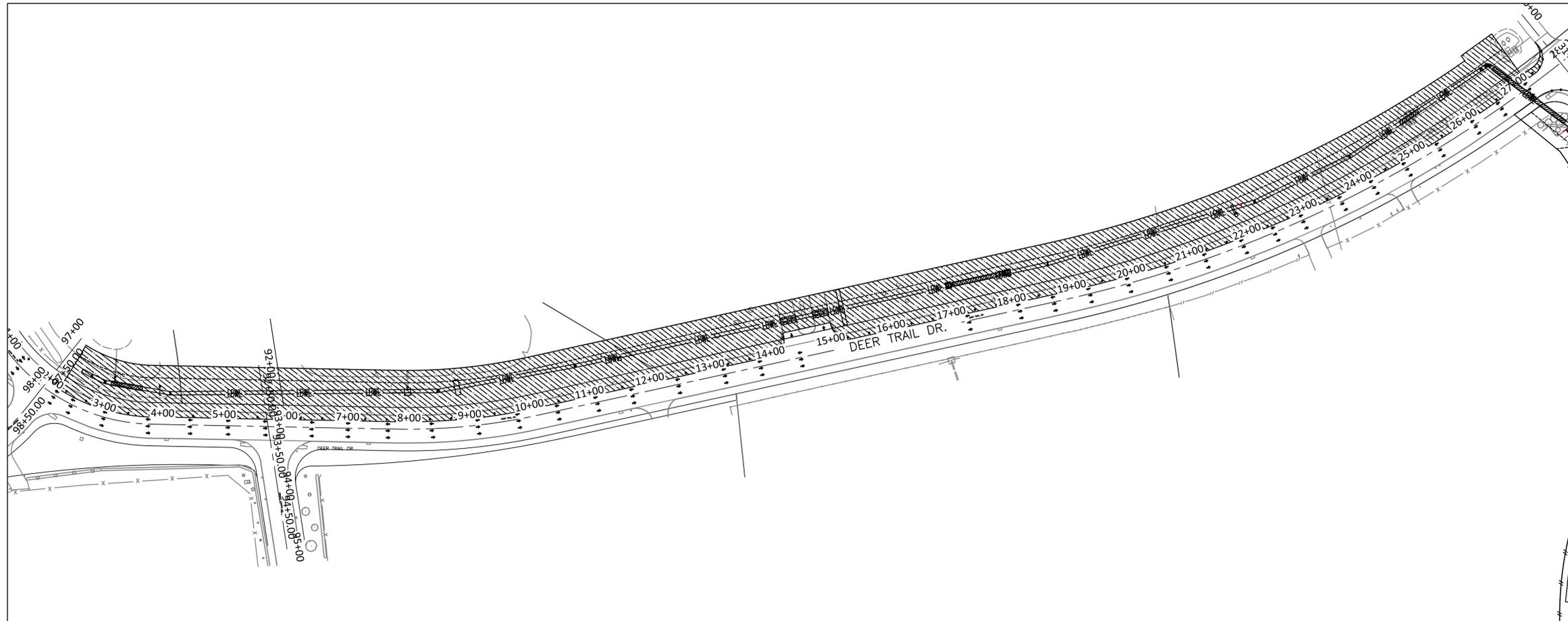
TREE PROTECTION DETAILS

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JOAQUIN LOPEZ	
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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



LEGEND

 PHASE 1

PHASE 1 CONSTRUCTION:
CONSTRUCT 66" WATERLINE ALONG DEER TRAIL DR.

STEP 1:
(CONSTRUCT WATERLINE & RELATED DRIVEWAY IMPROVEMENTS)

- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUTS.
- INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE CITY OF HOUSTON STANDARD TCP DETAIL (ONE LANE CLOSURE PHASE 1&2).
- COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE FROM STA 2+50 TO STA 14+65.
- MAINTAIN ACCESS TO ENTRANCE FOR THE COCA COLA FACILITY AT STA 14+95.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES

STEP 2:
(CONSTRUCT WATERLINE & RELATED DRIVEWAY IMPROVEMENTS)

- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUTS.
- INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE CITY OF HOUSTON STANDARD TCP DETAIL (ONE LANE CLOSURE PHASE 1&2).
- COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE FROM STA 14+65 TO STA 27+00.
- MAINTAIN ACCESS TO ENTRANCE FOR THE COCA COLA FACILITY AT STA 14+40.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

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Aurora Technical Services, LLC
engineering • construction management
 2121 SAGE ROAD, SUITE 150
 PHONE: 281-453-7700
 TX FIRM NO: F-2059

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 JEFFREY HAY
Professional Engineer
 147887
Registration Number
 005
 Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

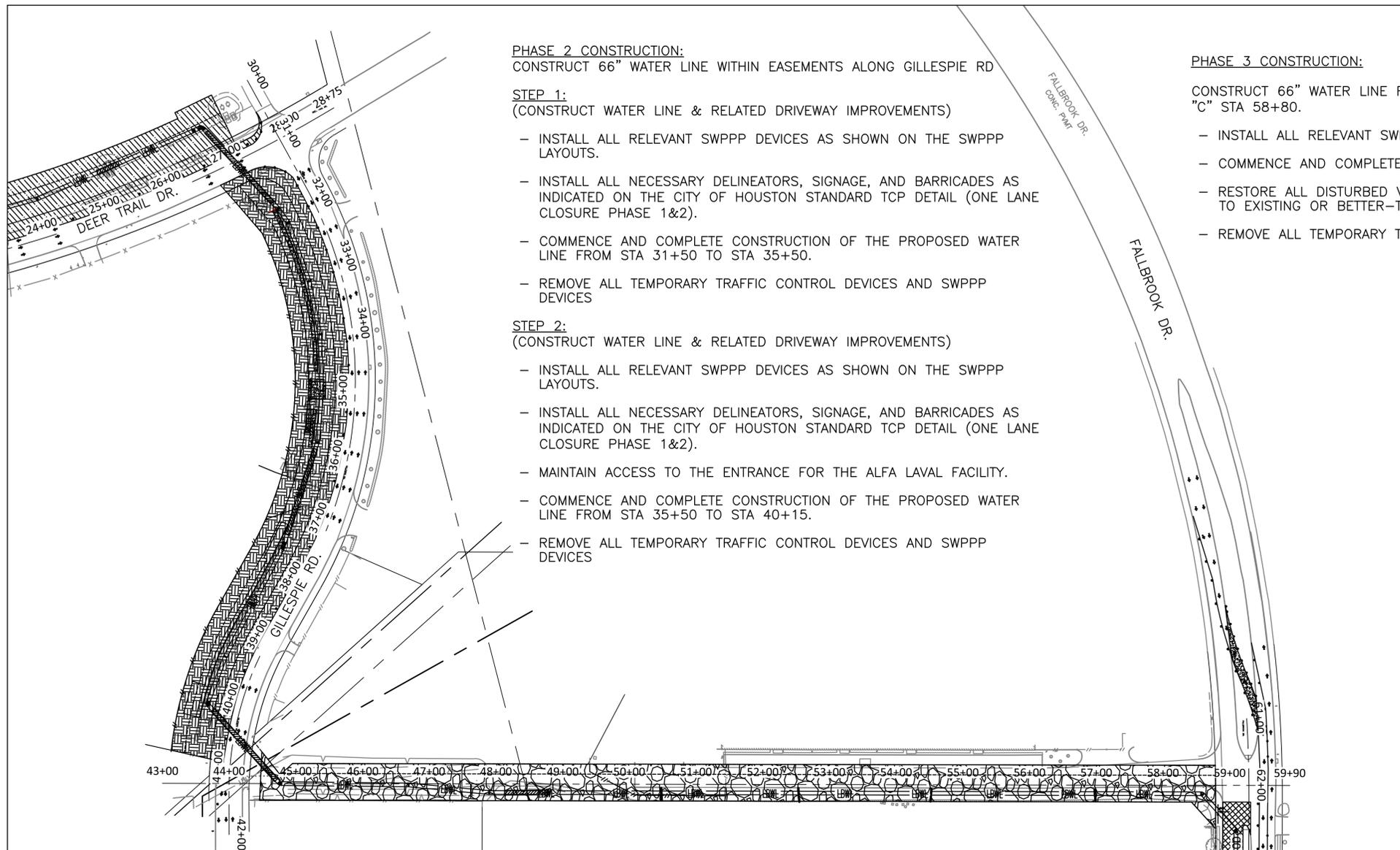
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
 TCP -- PHASE 1

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PHASE 2 CONSTRUCTION:
CONSTRUCT 66" WATER LINE WITHIN EASEMENTS ALONG GILLESPIE RD

STEP 1:
(CONSTRUCT WATER LINE & RELATED DRIVEWAY IMPROVEMENTS)

- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUTS.
- INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE CITY OF HOUSTON STANDARD TCP DETAIL (ONE LANE CLOSURE PHASE 1&2).
- COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE FROM STA 31+50 TO STA 35+50.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES

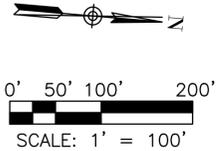
STEP 2:
(CONSTRUCT WATER LINE & RELATED DRIVEWAY IMPROVEMENTS)

- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUTS.
- INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE CITY OF HOUSTON STANDARD TCP DETAIL (ONE LANE CLOSURE PHASE 1&2).
- MAINTAIN ACCESS TO THE ENTRANCE FOR THE ALFA LAVAL FACILITY.
- COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE FROM STA 35+50 TO STA 40+15.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES

PHASE 3 CONSTRUCTION:

CONSTRUCT 66" WATER LINE FROM ALIGNMENT "C" STA 44+75 TO ALIGNMENT "C" STA 58+80.

- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUTS.
- COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE.
- RESTORE ALL DISTURBED VEGETATION, HARDSCAPE, AND LANDSCAPE AREAS TO EXISTING OR BETTER-THAN EXISTING CONDITIONS.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.



LEGEND

-  PHASE 1
-  PHASE 2
-  PHASE 3
-  PHASE 4

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JEFFREY HAY
147887
10/1

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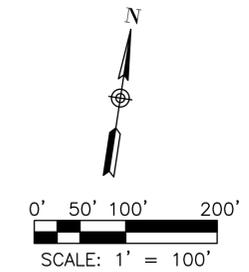
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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP -- PHASE 2-3

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SHEET NO. 136 OF 176	



LEGEND

	PHASE 3
	PHASE 4
	PHASE 5
	PHASE 6

PHASE 4 CONSTRUCTION:
CONSTRUCT 66" WATER LINE ALONG FALLBROOK DR.

- STEP 1:**
(CONSTRUCT DETOUR/TRANSITION PAVEMENT APPROX. 250' BEFORE STA 62+50 AND AT STA 72+00)
- INSTALL SWPPP DEVICES AROUND THE PROPOSED TEMPORARY DETOUR/TRANSITION AREAS LOCATED APPROX 250' BEFORE STA 62+50 AND AT 72+00.
 - SAW CUT CONCRETE PAVEMENT 1' FROM THE FACE OF EXISTING MEDIAN CURB AND COMPLETE CONSTRUCTION OF TEMPORARY ASPHALT DETOUR/TRANSITION PAVEMENT WITHIN THE LIMITS INDICATED ON THE TCP SHEETS.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

- (RECONFIGURE LANES AND SHIFT EXISTING TRAFFIC FOR TWO-LANE TWO-WAY FLOW)
- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE LAYOUTS.
 - INSTALL ALL NECESSARY TEMPORARY PAVEMENT MARKINGS, DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE TCP PLANS FOR TWO-LANE TWO-WAY TRAFFIC FLOW.
 - SHIFT EB TRAFFIC ONTO THE NORTHERN HALF OF FALLBROOK DR. FOR TWO-LANE TWO-WAY TRAFFIC FLOW.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

- (CONSTRUCT WATER LINES & RELATED PAVEMENT IMPROVEMENTS)
- COMMENCE AND COMPLETE CONSTRUCTION OF PROPOSED WATER LINE FROM STA 61+91 TO STA 67+00.
 - MAINTAIN OPEN DRIVEWAYS FOR THE METRO FACILITY AT STA 68+15.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

- STEP 2:**
(CONSTRUCT WATER LINE & RELATED PAVEMENT IMPROVEMENTS)
- INSTALL ALL NECESSARY TEMPORARY PAVEMENT MARKINGS, DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE TCP PLANS.
 - COMMENCE AND COMPLETE CONSTRUCTION OF PROPOSED WATER LINE FROM STA 67+00 TO STA 70+90.
 - MAINTAIN OPEN DRIVEWAYS FOR THE METRO FACILITY AT STA 65+60.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

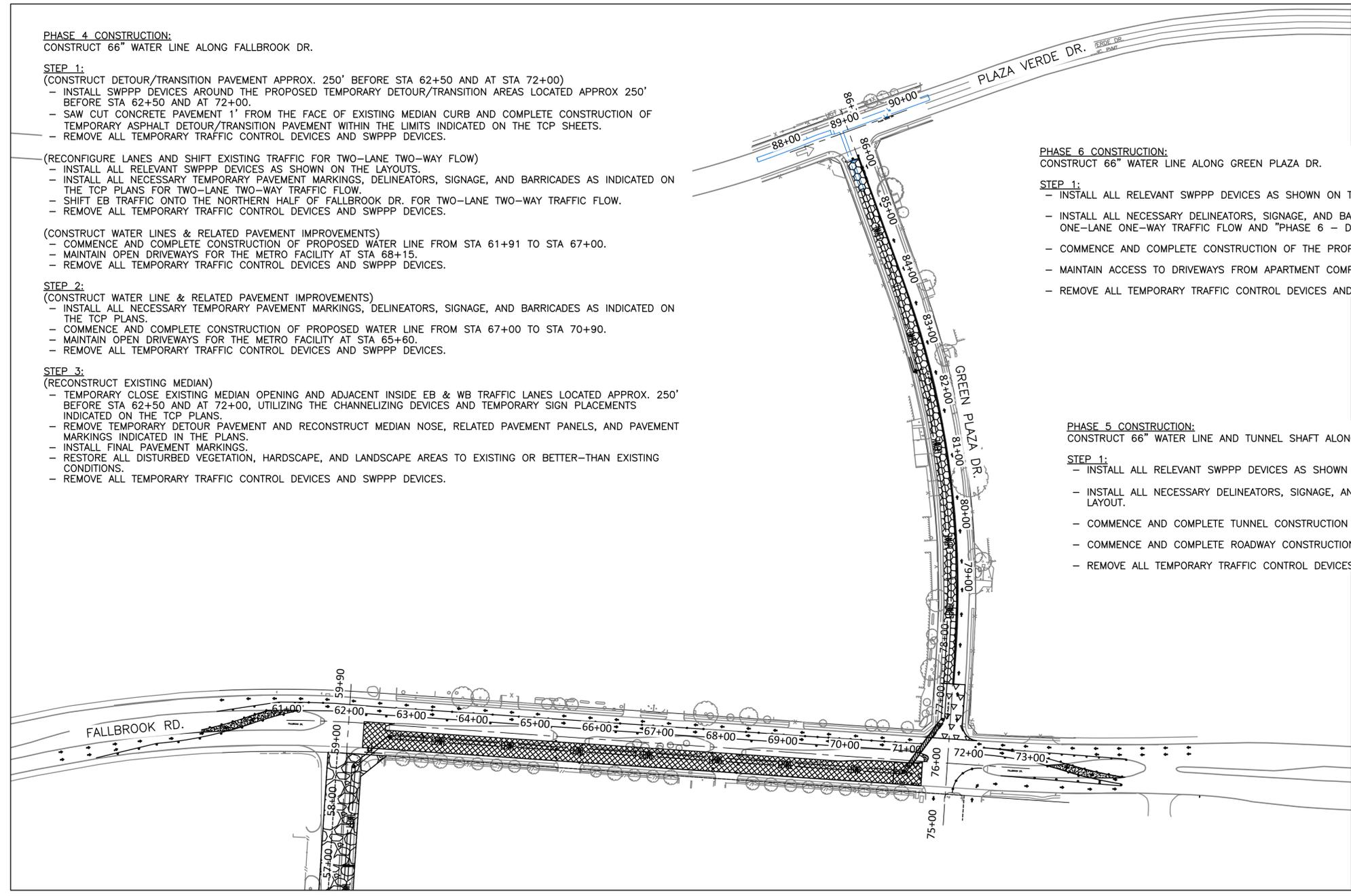
- STEP 3:**
(RECONSTRUCT EXISTING MEDIAN)
- TEMPORARY CLOSE EXISTING MEDIAN OPENING AND ADJACENT INSIDE EB & WB TRAFFIC LANES LOCATED APPROX. 250' BEFORE STA 62+50 AND AT 72+00, UTILIZING THE CHANNELIZING DEVICES AND TEMPORARY SIGN PLACEMENTS INDICATED ON THE TCP PLANS.
 - REMOVE TEMPORARY DETOUR PAVEMENT AND RECONSTRUCT MEDIAN NOSE, RELATED PAVEMENT PANELS, AND PAVEMENT MARKINGS INDICATED IN THE PLANS.
 - INSTALL FINAL PAVEMENT MARKINGS.
 - RESTORE ALL DISTURBED VEGETATION, HARDSCAPE, AND LANDSCAPE AREAS TO EXISTING OR BETTER-THAN EXISTING CONDITIONS.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

PHASE 6 CONSTRUCTION:
CONSTRUCT 66" WATER LINE ALONG GREEN PLAZA DR.

- STEP 1:**
- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUT.
 - INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON THE TCP PLANS FOR ONE-LANE ONE-WAY TRAFFIC FLOW AND "PHASE 6 - DETOUR" LAYOUT.
 - COMMENCE AND COMPLETE CONSTRUCTION OF THE PROPOSED WATER LINE.
 - MAINTAIN ACCESS TO DRIVEWAYS FROM APARTMENT COMPLEXES.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.

PHASE 5 CONSTRUCTION:
CONSTRUCT 66" WATER LINE AND TUNNEL SHAFT ALONG GREEN PLAZA DR.

- STEP 1:**
- INSTALL ALL RELEVANT SWPPP DEVICES AS SHOWN ON THE SWPPP LAYOUT.
 - INSTALL ALL NECESSARY DELINEATORS, SIGNAGE, AND BARRICADES AS INDICATED ON "PHASE - 5 DETOUR" LAYOUT.
 - COMMENCE AND COMPLETE TUNNEL CONSTRUCTION OF THE PROPOSED WATER LINE.
 - COMMENCE AND COMPLETE ROADWAY CONSTRUCTION.
 - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SWPPP DEVICES.



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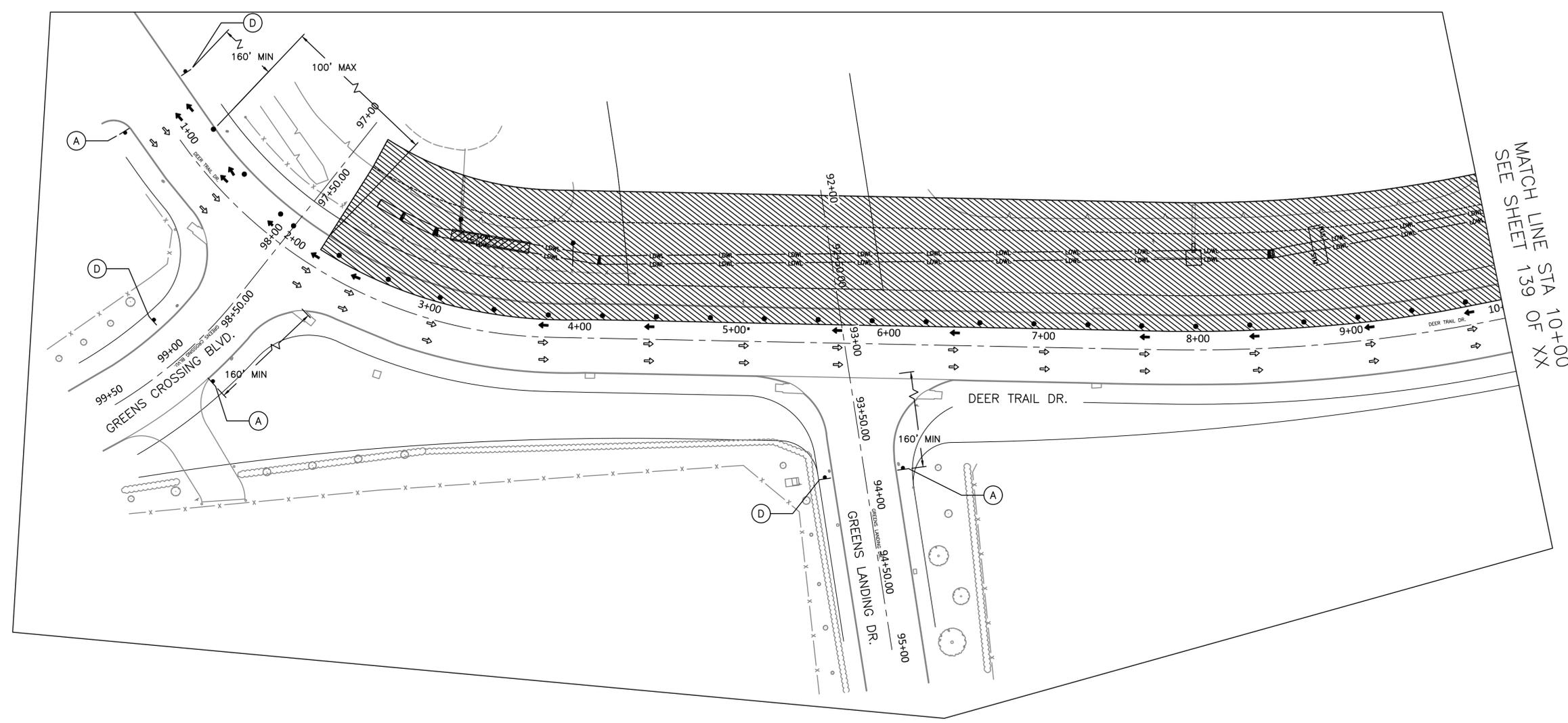
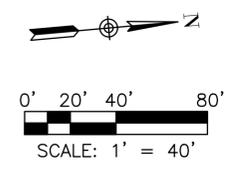
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 AURORA TECHNICAL SERVICES, LLC 2121 SAGE ROAD, SUITE 150 PHONE: 281-453-7700 TX FIRM NO: F-2059	INTERIM REVIEW ONLY <small>Document incomplete; not intended for regulatory approval, permit, or construction.</small> JEFFREY HAY <small>Professional Engineer</small> 147887 <small>Registration Number</small> AUSA <small>State</small> Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059
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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
TCP - PHASE 4-6	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
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MATCH LINE STA 10+00
SEE SHEET 139 OF XX

- LEGEND:**
- CURRENT PHASE
 - PREVIOUS PHASE
 - SIGN
 - CHANNELIZING DEVICE
 - PROPOSED TRAFFIC FLOW
 - EXISTING TRAFFIC FLOW
- POSTED SPEED LIMITS**
- DEER TRAIL: 35 MPH

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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 1
 SHEET 1 OF 3

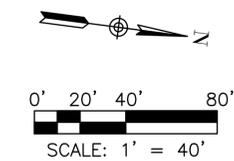
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JOAQUIN LOPEZ	
SHEET NO. 138 OF 176	

A	CW20-1	B	CW20-3	C	CW20-2	D	G20-2	E	M4-9R	F	M4-9L	G	M4-8a	H	M4-9T	I	CW20-5(2) CW16-3	J	CW20-5(1) CW16-3	
K	R6-2(L)	L	R6-2(R)	M	R5-1	N	R11-2	O	M4-10(L)	P	R3-1	Q	R3-2	R	R6-6	R	NO PARKING (ALL TYPES)			

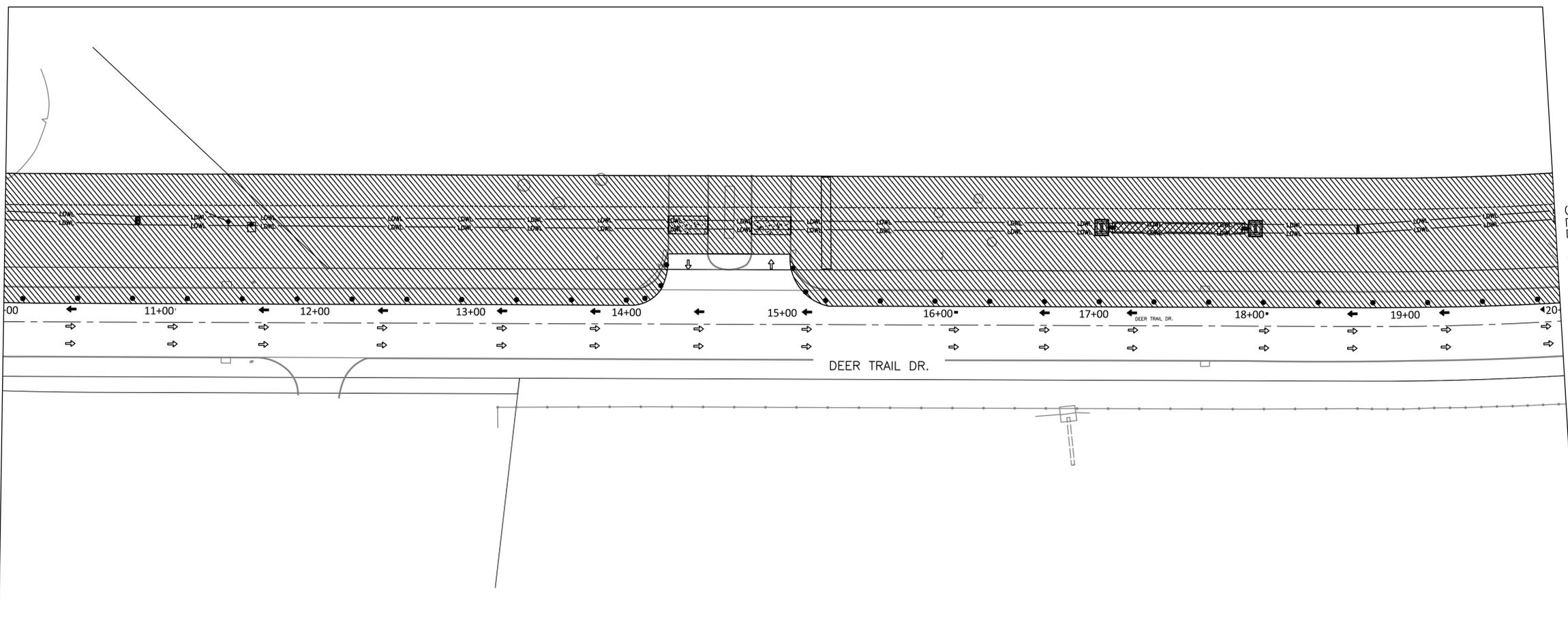
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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



MATCH LINE STA 10+00
SEE SHEET XX OF XX



MATCH LINE STA 20+00
SEE SHEET XX OF XX

LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

- 1. DEER TRAIL: 35 MPH

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 Phone - (713) 600-6800
 Web - www.freese.com

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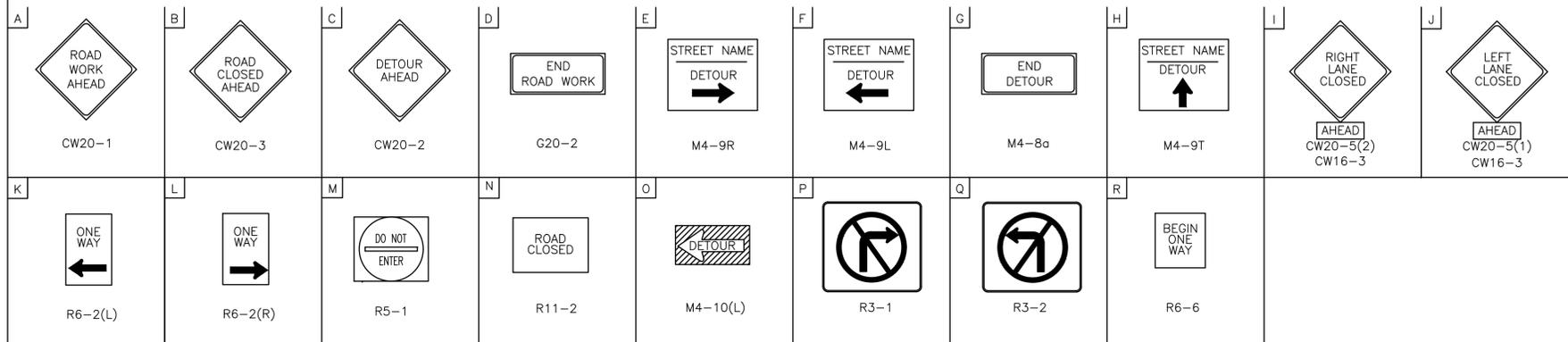
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 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 1
 SHEET 2 OF 3

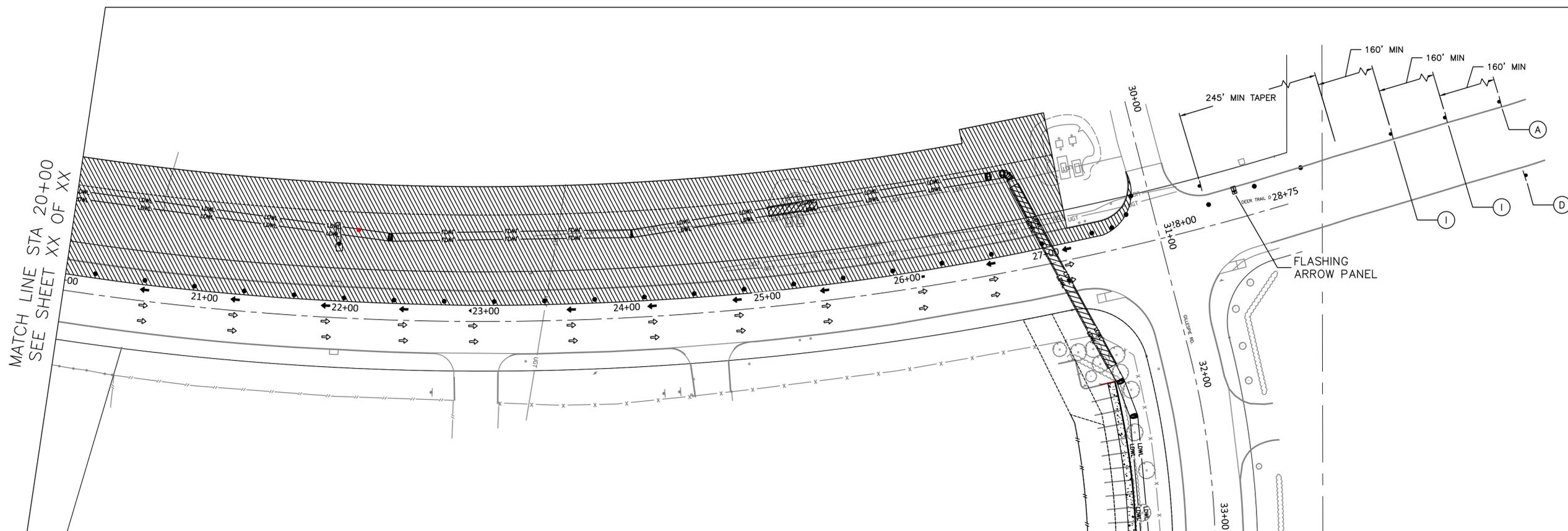
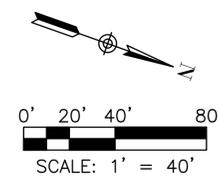
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 139 OF 176	



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PLOT STYLE: COH.ctb

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- LEGEND:**
- CURRENT PHASE
 - PREVIOUS PHASE
 - SIGN
 - CHANNELIZING DEVICE
 - PROPOSED TRAFFIC FLOW
 - EXISTING TRAFFIC FLOW

- POSTED SPEED LIMITS**
1. DEER TRAIL: 35 MPH
 2. GILLESPIE: 35 MPH

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 1
 SHEET 3 OF 3

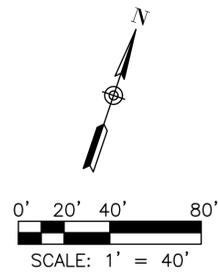
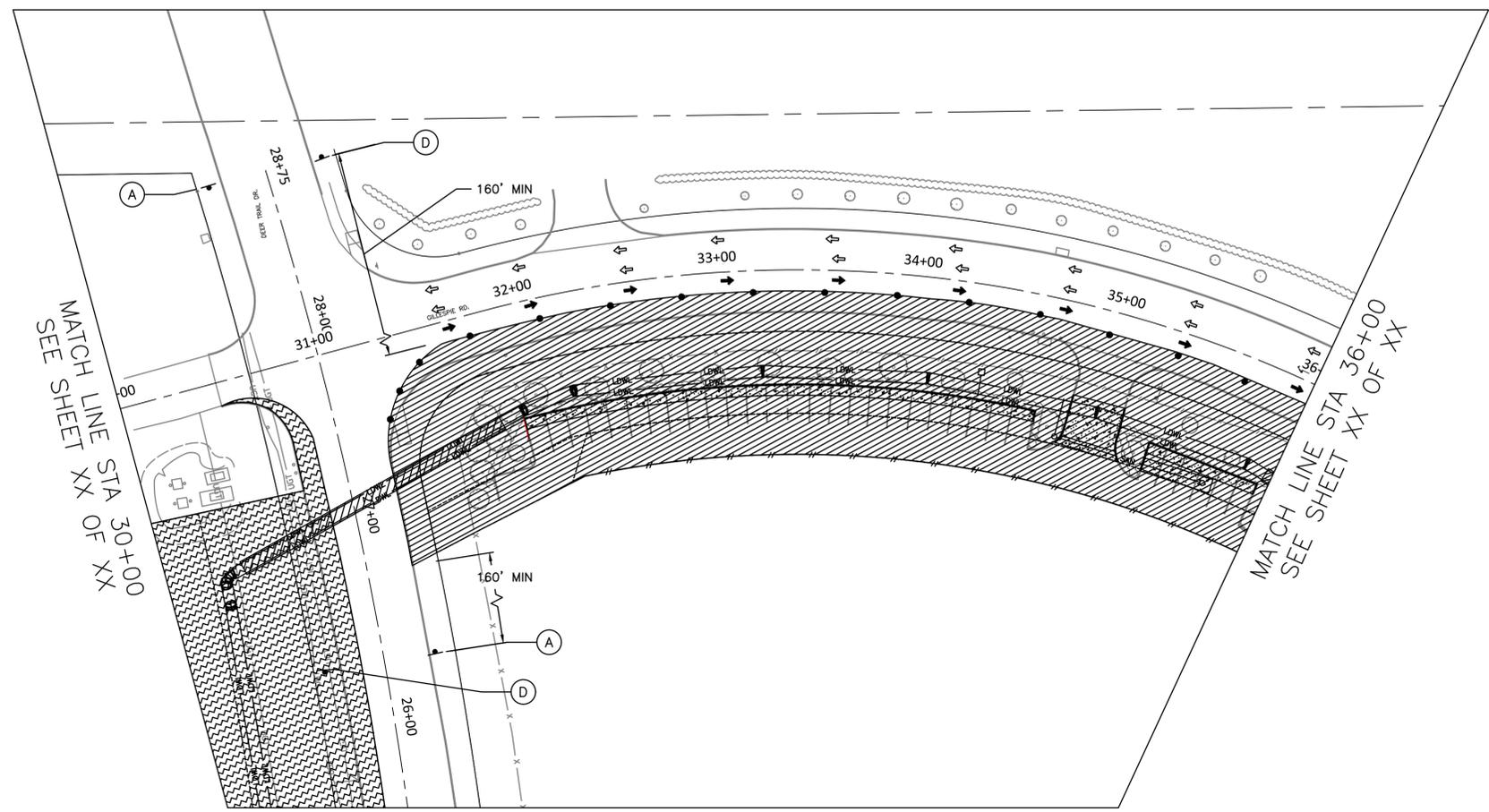
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 140 OF 176	

A	ROAD WORK AHEAD CW20-1	B	ROAD CLOSED AHEAD CW20-3	C	DETOUR AHEAD CW20-2	D	END ROAD WORK G20-2	E	STREET NAME DETOUR M4-9R	F	STREET NAME DETOUR M4-9L	G	END DETOUR M4-8a	H	STREET NAME DETOUR M4-9T	I	RIGHT LANE CLOSED AHEAD CW20-5(2) CW16-3	J	LEFT LANE CLOSED AHEAD CW20-5(1) CW16-3
K	ONE WAY R6-2(L)	L	ONE WAY R6-2(R)	M	DO NOT ENTER R5-1	N	ROAD CLOSED R11-2	O	DETOUR M4-10(L)	P	R3-1	Q	R3-2	R	BEGIN ONE WAY R6-6				

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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



- LEGEND:**
- CURRENT PHASE
 - PREVIOUS PHASE
 - SIGN
 - CHANNELIZING DEVICE
 - PROPOSED TRAFFIC FLOW
 - EXISTING TRAFFIC FLOW

- POSTED SPEED LIMITS**
1. DEER TRAIL: 35 MPH
 2. GILLESPIE: 35 MPH

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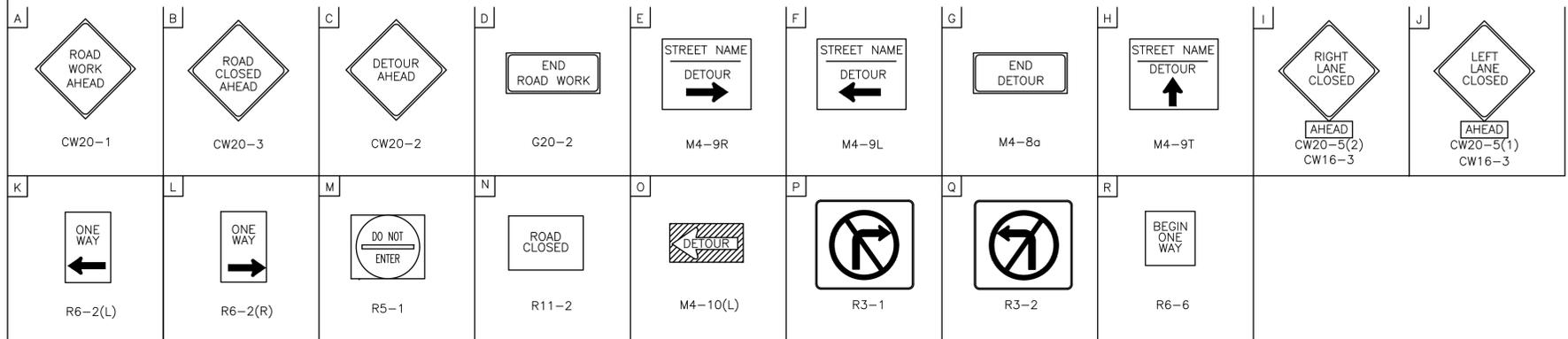
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 2
 SHEET 1 OF 2

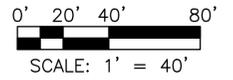
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 141 OF 176	



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PLOT STYLE: COH.ctb

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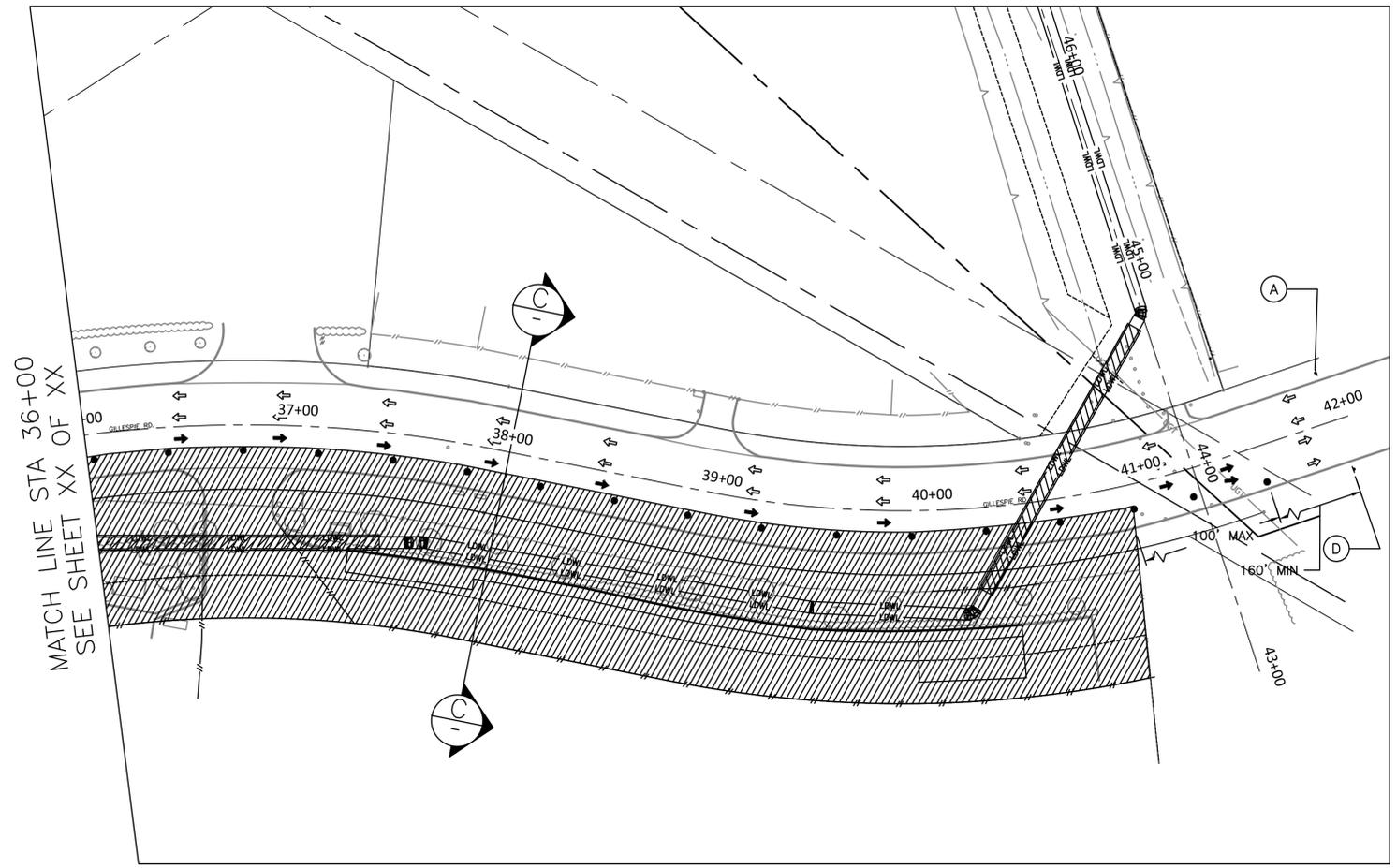


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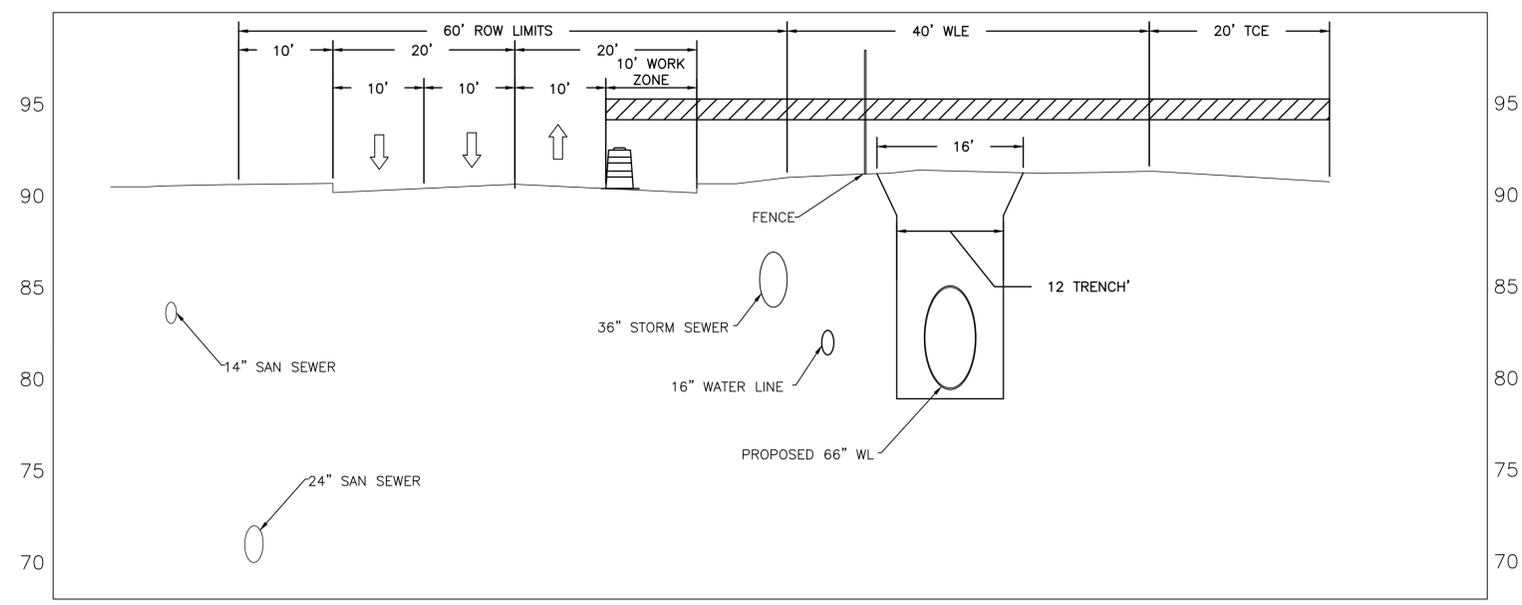
- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

- 1. GILLESPIE: 35 MPH



SECTION C-C GILLESPIE RD
STA 38+00



A CW20-1	B CW20-3		
C CW20-2	D G20-2	E M4-9R	F M4-9L
G M4-8a	H M4-9T	I AHEAD CW20-5(2) CW16-3	J AHEAD CW20-5(1) CW16-3
K R6-2(L)	L R6-2(R)	M R5-1	N R11-2
O M4-10(L)	P R3-1	Q R3-2	R R6-6

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Registration Number: 147887
Date: 02/05/25

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CITY OF HOUSTON

HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

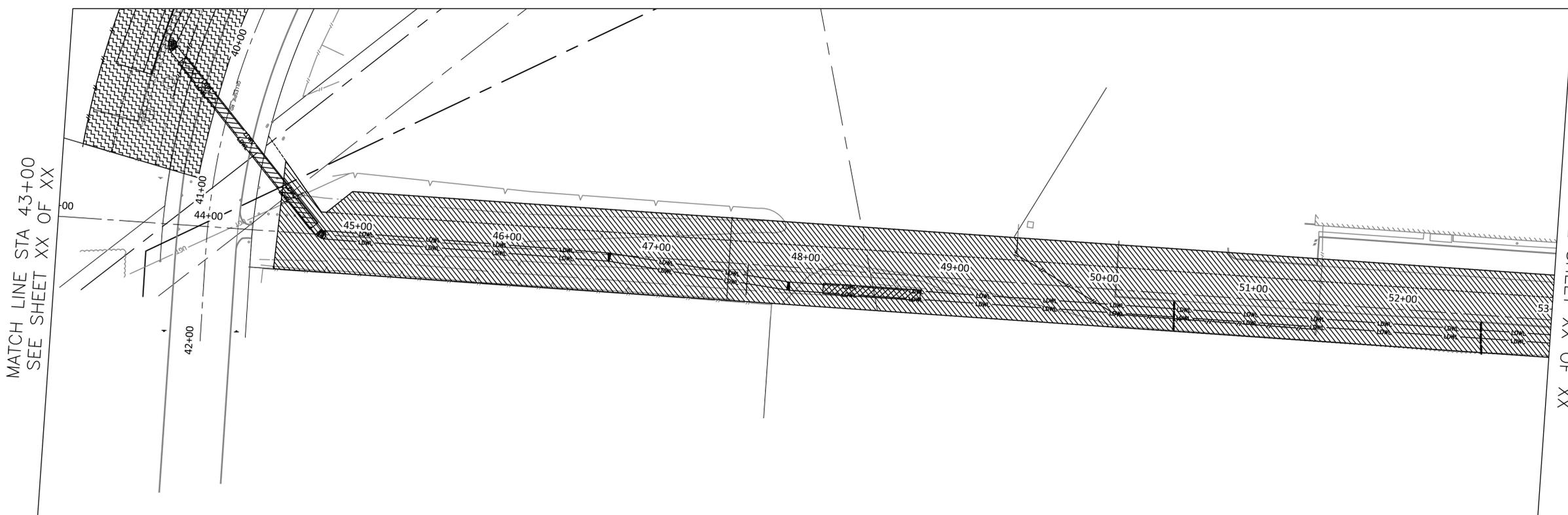
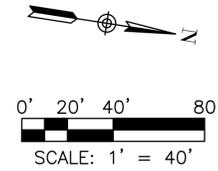
TCP - PHASE 2
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 142 OF 176	

PLOTTED: 2/5/2025 6:08 PM

PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. DEER TRAIL: 35 MPH
2. GILLESPIE: 35 MPH
3. FALLBROOK: 35 MPH
4. GREEN PLAZA DR: 30 MPH

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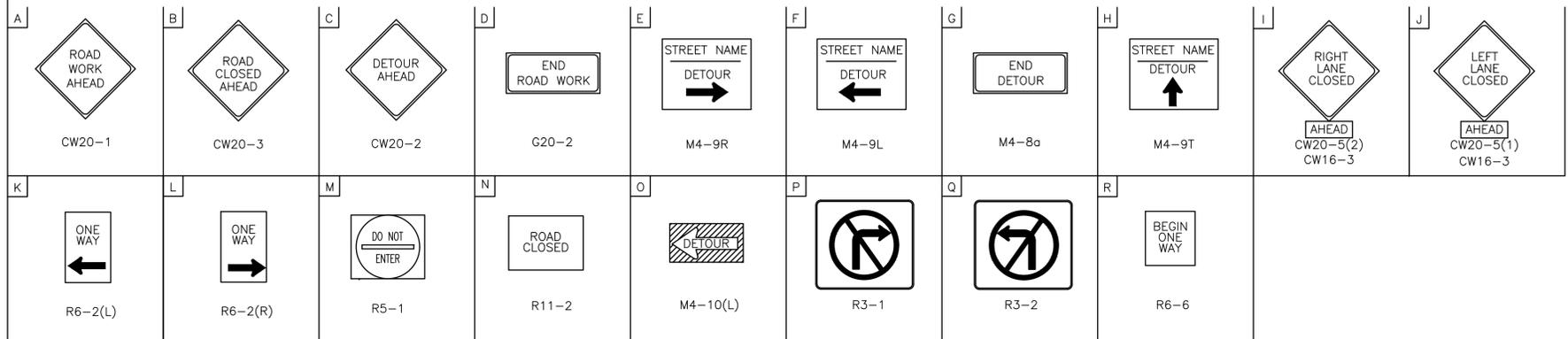
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 3
SHEET 1 OF 2

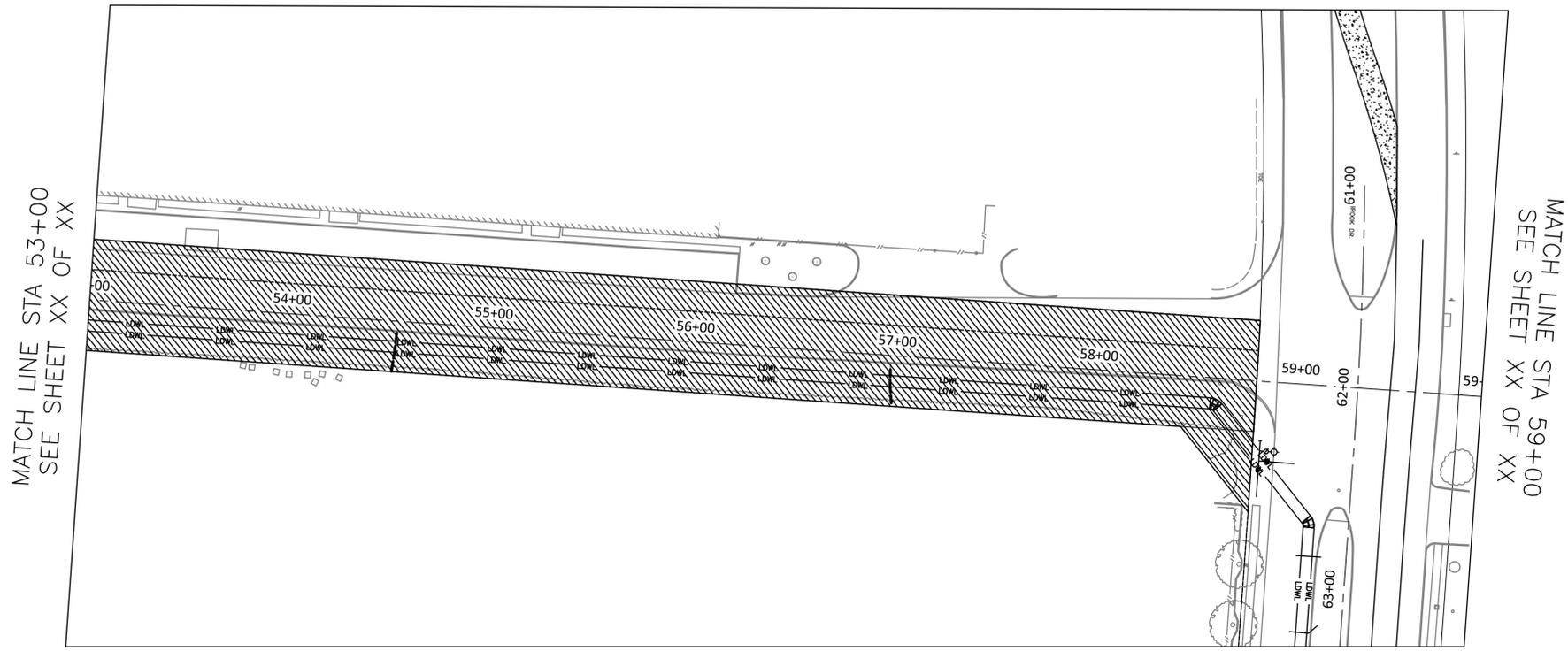
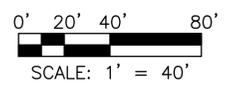
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 143 OF 176	



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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



MATCH LINE STA 53+00
SEE SHEET XX OF XX

MATCH LINE STA 59+00
SEE SHEET XX OF XX

LEGEND:

-  CURRENT PHASE
-  PREVIOUS PHASE
-  SIGN
-  CHANNELIZING DEVICE
-  PROPOSED TRAFFIC FLOW
-  EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. DEER TRAIL: 35 MPH
2. GILLESPIE: 35 MPH
3. FALLBROOK: 35 MPH
4. GREEN PLAZA DR: 30 MPH

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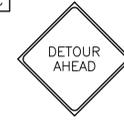
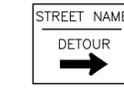
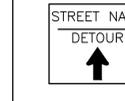
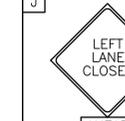
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 3
SHEET 2 OF 2

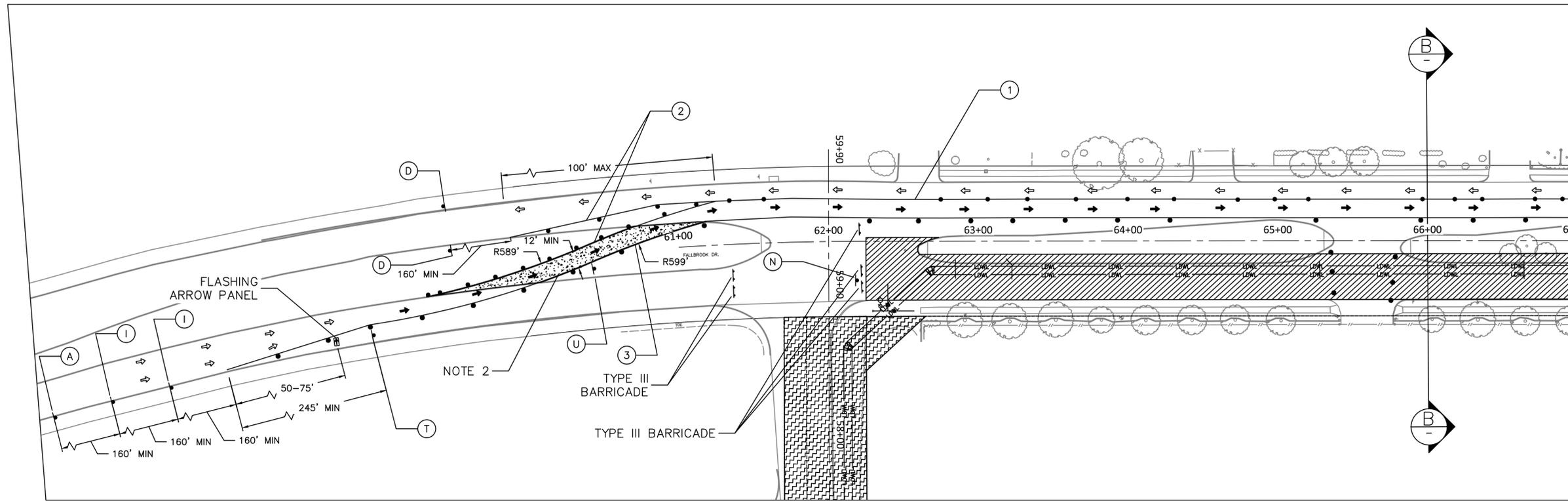
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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 144 OF 176	

A	 CW20-1	B	 CW20-3	C	 CW20-2	D	 G20-2	E	 M4-9R	F	 M4-9L	G	 M4-8a	H	 M4-9T	I	 AHEAD CW20-5(2) CW16-3	J	 AHEAD CW20-5(1) CW16-3
K	 R6-2(L)	L	 R6-2(R)	M	 R5-1	N	 R11-2	O	 M4-10(L)	P	 R3-1	Q	 R3-2	R	 R6-6				

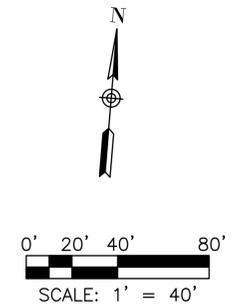
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PLOT STYLE: COH.ctb

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MATCH LINE STA 67+00
SEE SHEET XX OF XX



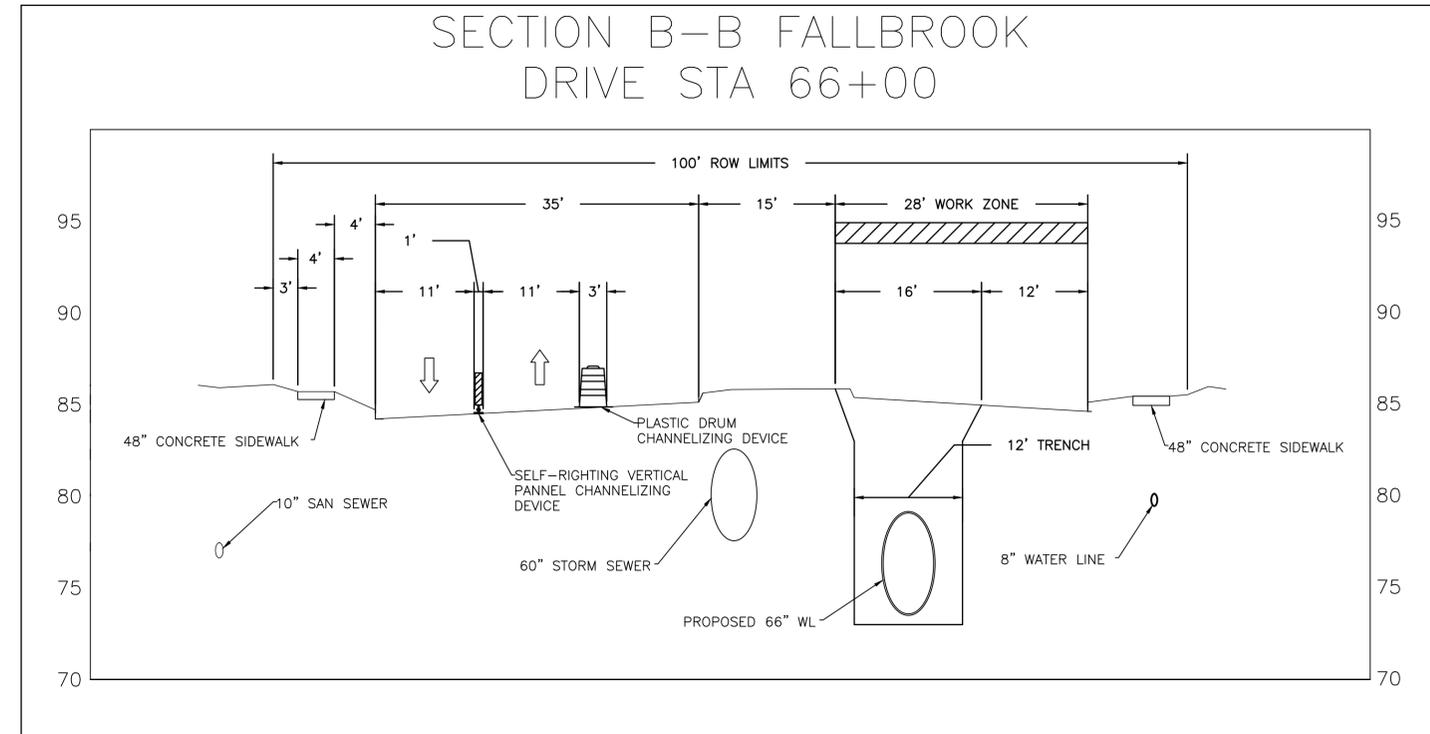
- LEGEND:**
- CURRENT PHASE
 - PREVIOUS PHASE
 - SIGN
 - CHANNELIZING DEVICE
 - PROPOSED TRAFFIC FLOW
 - EXISTING TRAFFIC FLOW
 - TEMPORARY PAVEMENT
- POSTED SPEED LIMITS**
- FALLBROOK: 35 MPH

PAVEMENT MARKINGS

- DOUBLE NO PASSING LINE (REMOVABLE)
- SINGLE NO-PASSING LINE YELLOW (REMOVABLE)
- SINGLE NO PASSING LINE WHITE (REMOVABLE)

NOTE:

- FLAGGERS ARE TO BE PLACED AT METRO ENTRANCE/EXIT DRIVEWAYS IN ORDER TO MAINTAIN ACCESS AND DIRECT TRAFFIC.
- SEE SHEET XX FOR HARRIS COUNTY TEMPORARY PAVEMENT MARKINGS.
- WHEN CROSSING IN FRONT OF DRIVEWAYS, STEEL PLATES ARE TO BE INSTALLED TO MAINTAIN ACCESS.



A ROAD WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2
E STREET NAME DETOUR M4-9R	F STREET NAME DETOUR M4-9L	G END DETOUR M4-8a	H STREET NAME DETOUR M4-9T
I RIGHT LANE CLOSED AHEAD CW20-5(2) CW16-3	J LEFT LANE CLOSED AHEAD CW20-5(1) CW16-3	K ONE WAY R6-2(L)	L ONE WAY R6-2(R)
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O DETOUR M4-10(L)	P NO RIGHT TURN R3-1
Q NO LEFT TURN R3-2	R BEGIN ONE WAY R6-6	S ONE WAY W1-4R	T ONE WAY W1-4L
			U ONE WAY W1-4L

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 4
SHEET 1 OF 2

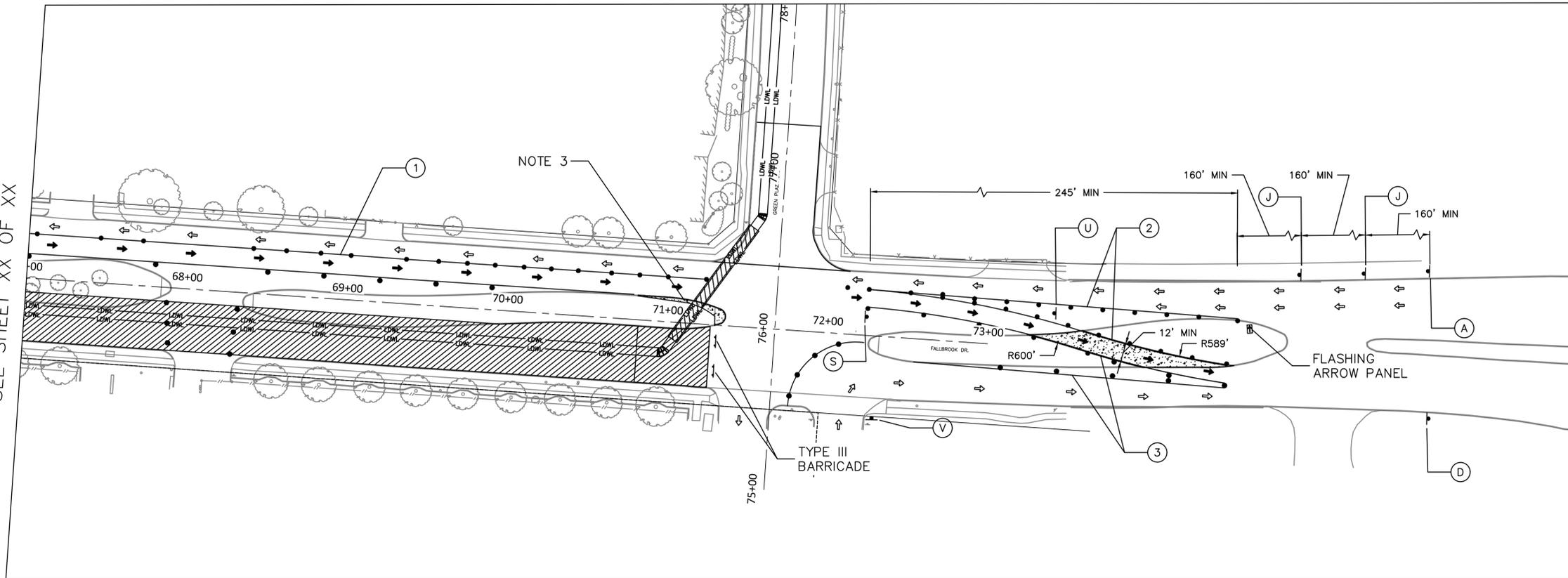
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 145 OF 176	

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PLOT STYLE: COH.ctb

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MATCH LINE STA 67+00
SEE SHEET XX OF XX



0' 20' 40' 80'
SCALE: 1' = 40'

LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW
- TEMPORARY PAVEMENT

POSTED SPEED LIMITS

1. FALLBROOK: 35 MPH
2. GREEN PLAZA DR: 30 MPH

PAVEMENT MARKINGS

1. DOUBLE NO PASSING LINE YELLOW (REMOVABLE)
2. SINGLE NO-PASSING LINE YELLOW (REMOVABLE)
3. SINGLE NO PASSING LINE WHITE (REMOVABLE)

NOTE:

1. FLAGGERS ARE TO BE PLACED AT METRO ENTRANCE/EXIT DRIVEWAYS IN ORDER TO MAINTAIN ACCESS AND DIRECT TRAFFIC.
2. WHEN CROSSING IN FRONT OF DRIVEWAYS, STEEL PLATES ARE TO BE INSTALLED TO MAINTAIN ACCESS.
3. CONTRACTOR SHALL INSTALL TEMPORARY PAVEMENT TO ALLOW METRO BUSES TO ENTER FACILITY. REMOVE AFTER CONSTRUCTION ACTIVITIES ARE COMPLETE. CURB AND ESPLANADE TO BE REPLACED TO EXISTING CONDITION OR BETTER.
4. SEE SHEET XX FOR HARRIS COUNTY TEMPORARY PAVEMENT MARKINGS.

A CW20-1	B CW20-3	C CW20-2	D G20-2	
E M4-9R	F M4-9L	G M4-8a	H M4-9T	
I [AHEAD] CW20-5(2) CW16-3	J [AHEAD] CW20-5(1) CW16-3	K R6-2(L)	L R6-2(R)	
M R5-1	N R11-2	O M4-10(L)	P R3-1	V R3-1
Q R3-2	R R6-6	S W1-4R	T W1-4L	U W1-4L

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

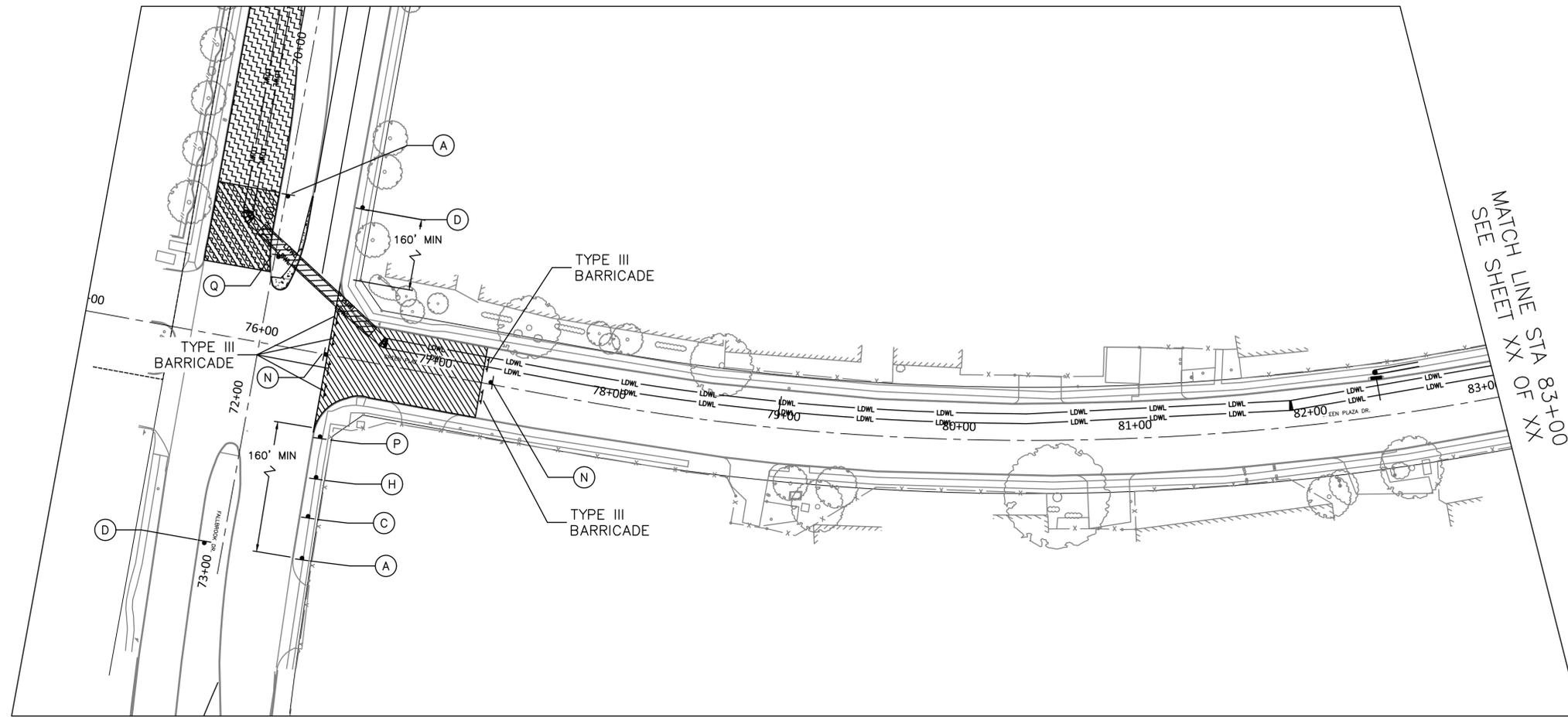
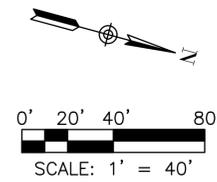
TCP - PHASE 4
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 146 OF 176	

PLOTTED: 2/5/2025 6:08 PM

PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



LEGEND:

-  CURRENT PHASE
-  PREVIOUS PHASE
-  SIGN
-  CHANNELIZING DEVICE
-  PROPOSED TRAFFIC FLOW
-  EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. FALLBROOK: 35 MPH
2. GREEN PLAZA DR: 30 MPH

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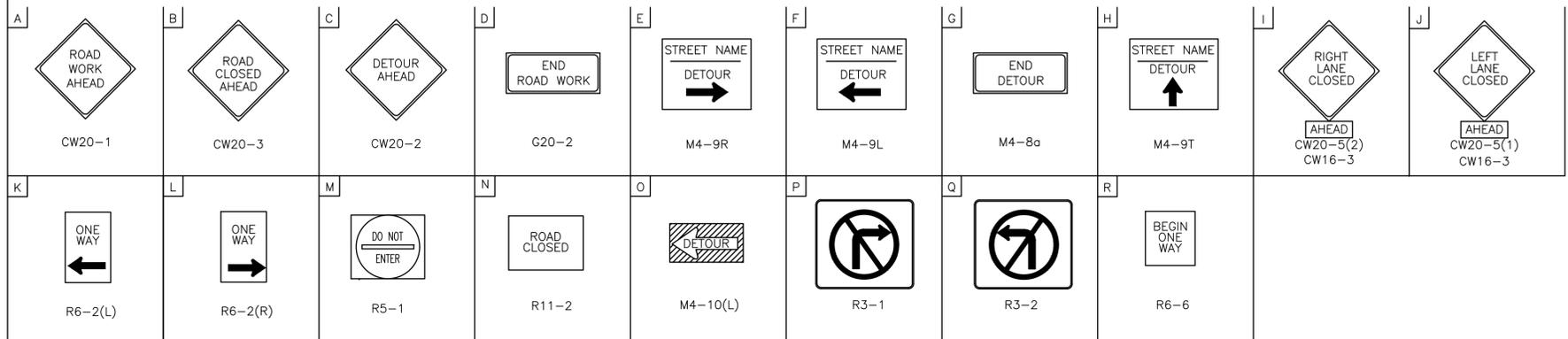
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 HOUSTON PUBLIC WORKS

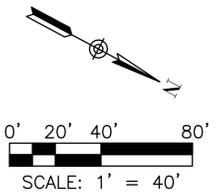
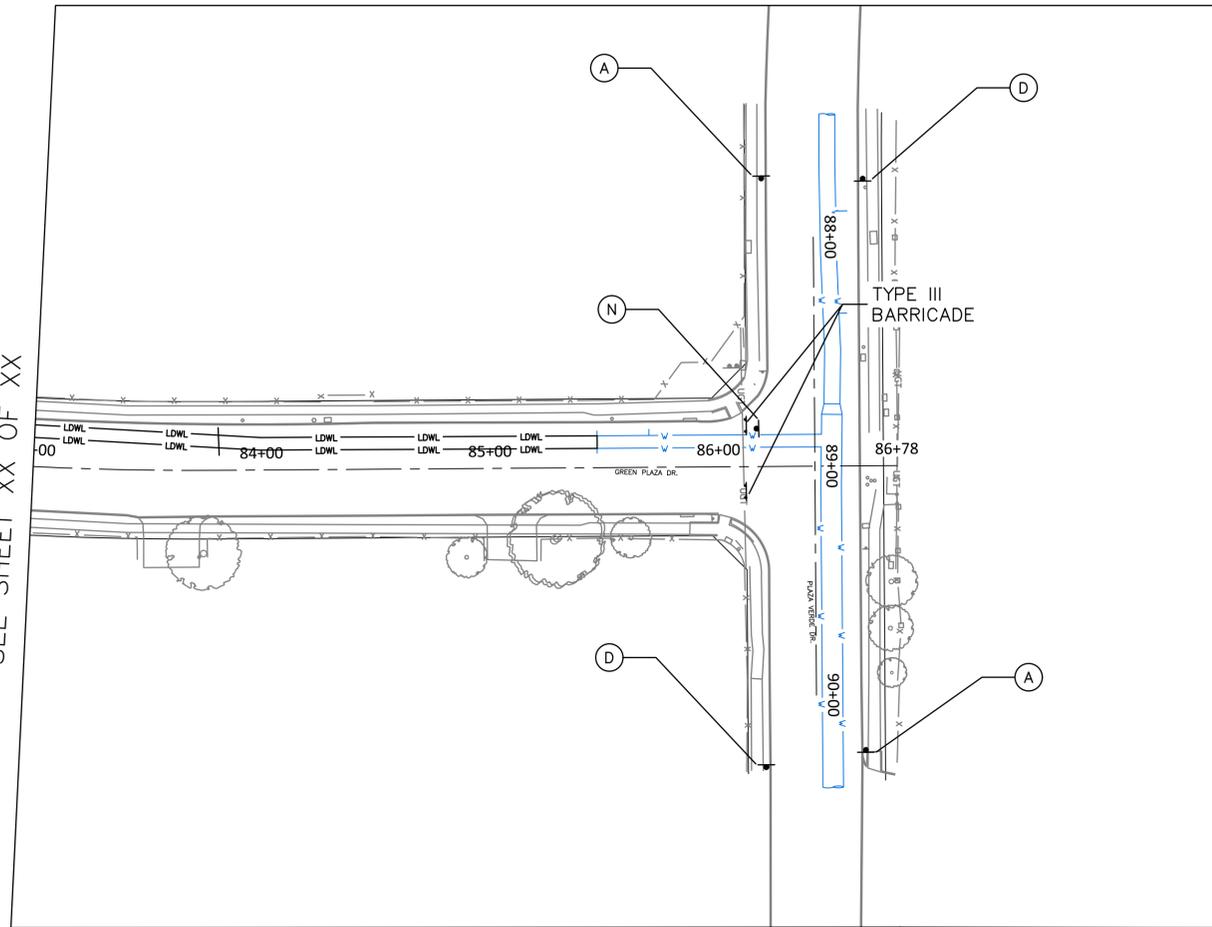
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 5
 SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 147 OF 176	



MATCH LINE STA 83+00
SEE SHEET XX OF XX



LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. GREEN PLAZA DR: 30 MPH

A CW20-1	B CW20-3		
C CW20-2	D G20-2	E M4-9R	F M4-9L
G M4-8a	H M4-9T	I AHEAD CW20-5(2) CW16-3	J AHEAD CW20-5(1) CW16-3
K R6-2(L)	L R6-2(R)	M R5-1	N R11-4
O M4-10(L)	P R3-1	Q R3-2	R R6-6

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TX FIRM NO: F-2059

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JEFFREY HAY
Signature
147887
Registration Number
Date

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

SURVEYED BY: LANDTECH
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

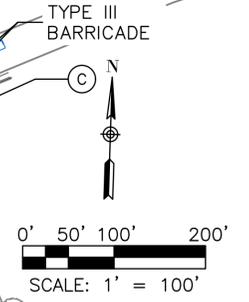
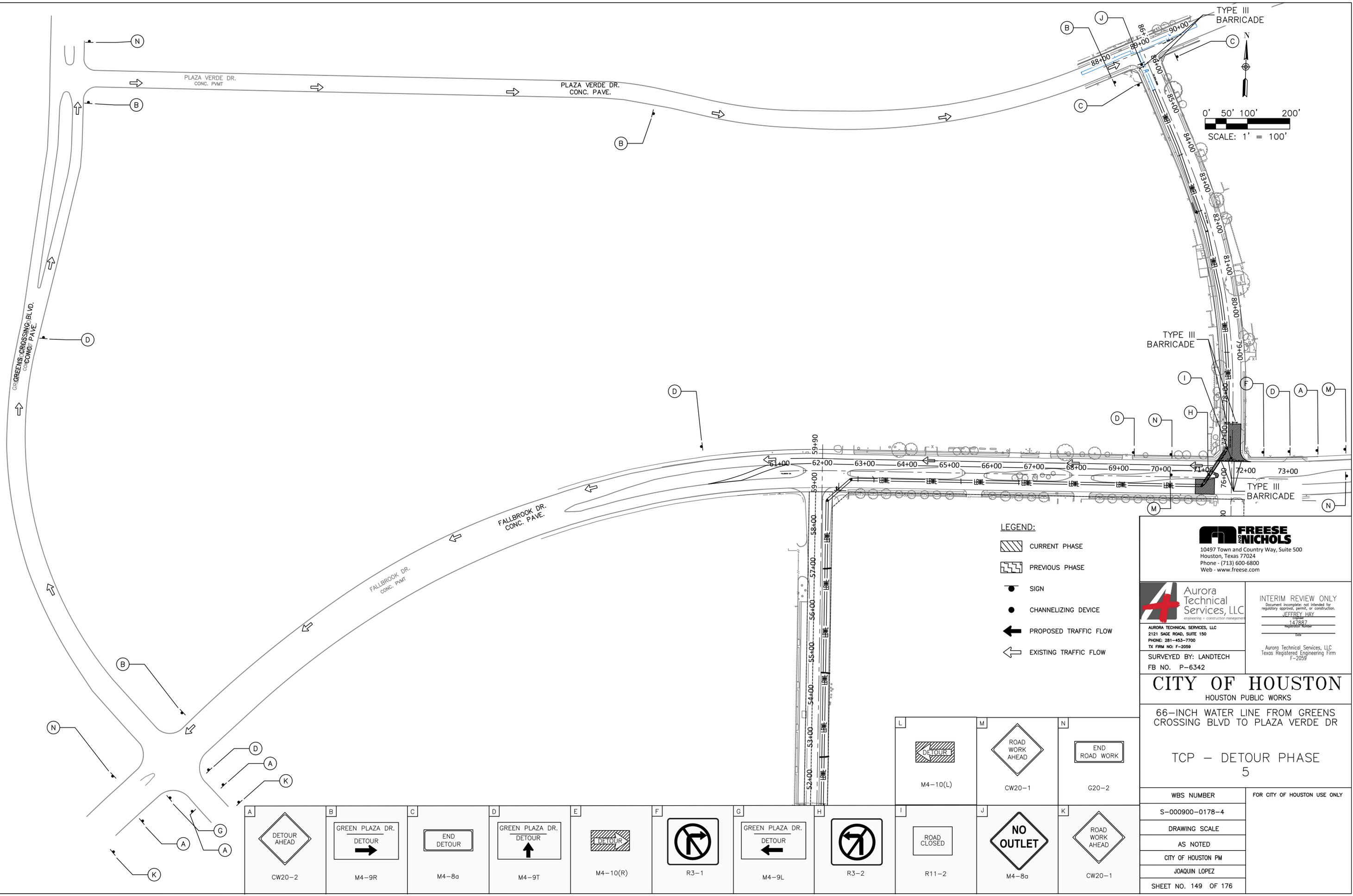
TCP - PHASE 5
SHEET 2 OF 2

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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 148 OF 176	

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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



- LEGEND:**
- CURRENT PHASE
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 - SIGN
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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - DETOUR PHASE
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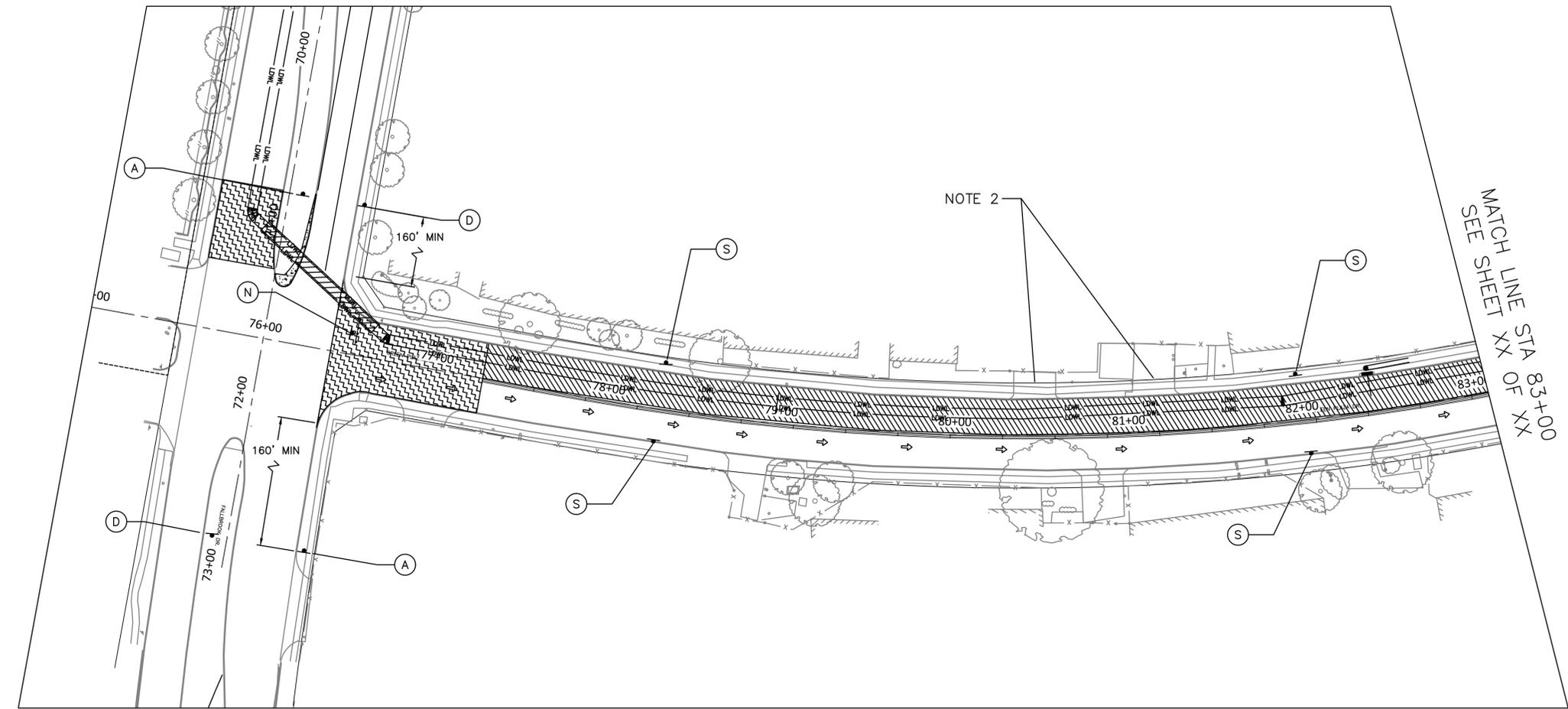
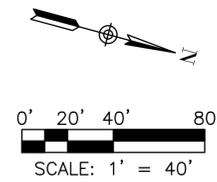
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WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 149 OF 176	

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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. DEER TRAIL: 35 MPH
2. GILLESPIE: 35 MPH
3. FALLBROOK: 35 MPH
4. GREEN PLAZA DR: 30 MPH

NOTE:

1. CONTRACTOR SHALL INSTALL TEMPORARY PEDESTRIAN FENCE ALONG GREEN PLAZA DR. REMOVE AFTER CONSTRUCTION ACTIVITIES ARE COMPLETE. REFER TO THE 01110 DOCUMENT FOR ADDITIONAL INFORMATION.
2. UNIFORM PEACE OFFICERS TO BE PLACED AT THE ENTRANCES OF APARTMENT COMPLEXES.

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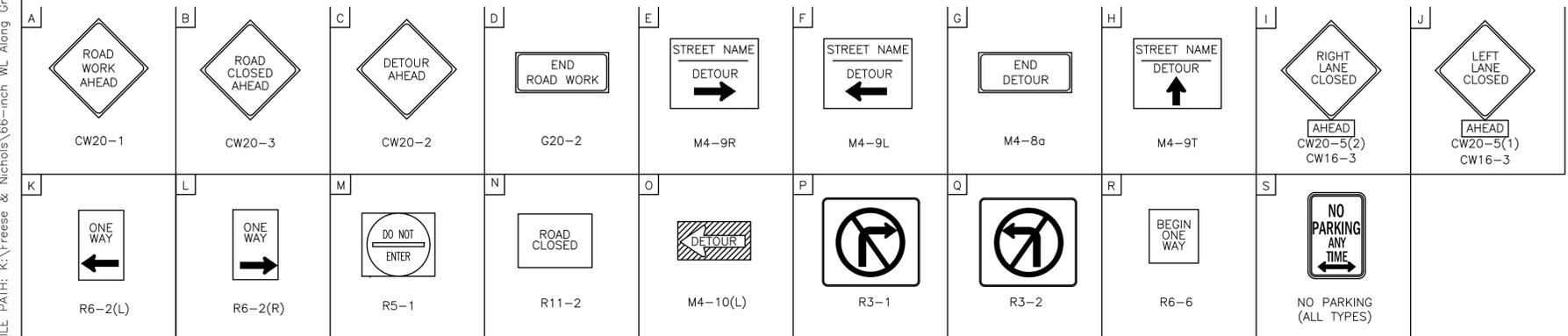
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 6
 SHEET 1 OF 2

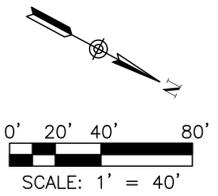
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 150 OF 176	



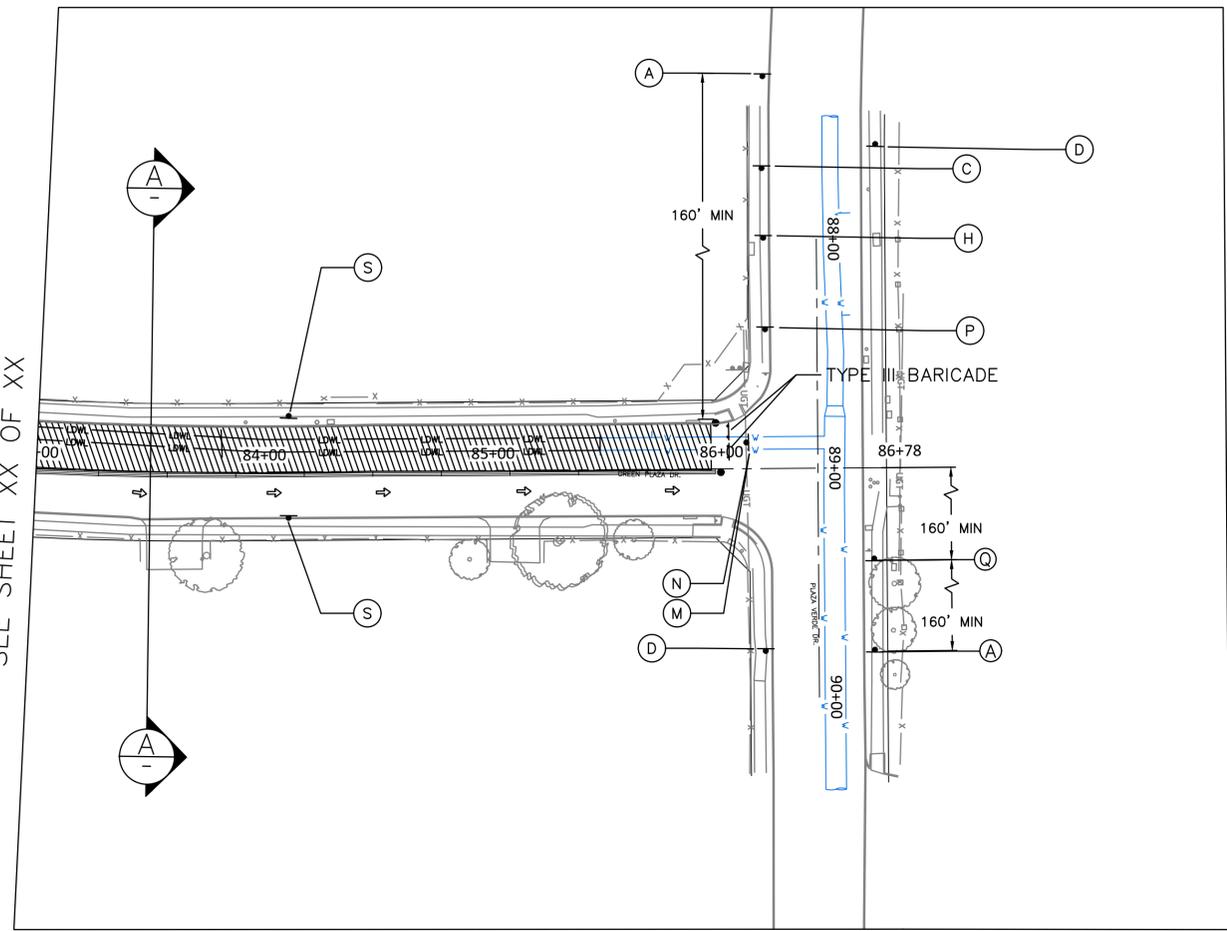
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PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg



MATCH LINE STA 83+00
SEE SHEET XX OF XX



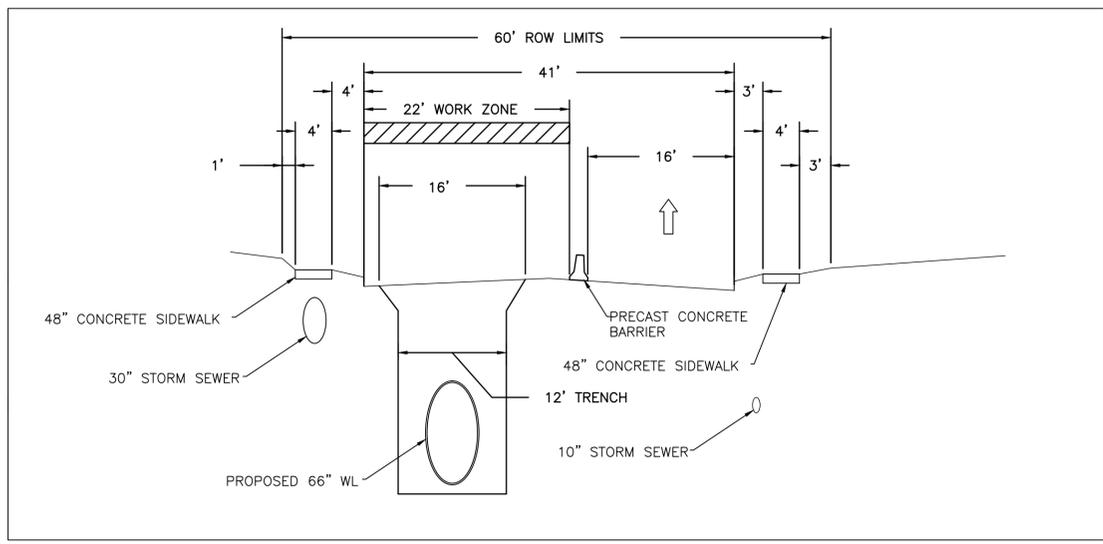
LEGEND:

- CURRENT PHASE
- PREVIOUS PHASE
- SIGN
- CHANNELIZING DEVICE
- PROPOSED TRAFFIC FLOW
- EXISTING TRAFFIC FLOW

POSTED SPEED LIMITS

1. DEER TRAIL: 35 MPH
2. GILLESPIE: 35 MPH
3. FALLBROOK: 35 MPH
4. GREEN PLAZA DR: 30 MPH

**SECTION A-A GREENS PLAZA
STA 83+50**



A CW20-1	B CW20-3	C CW20-2	D G20-2
E M4-9R	F M4-9L	G M4-8a	H M4-9T
I [AHEAD] CW20-5(2) CW16-3	J [AHEAD] CW20-5(1) CW16-3	K R6-2(L)	L R6-2(R)
M R5-1	N R11-2	O M4-10(L)	P R3-1
Q R3-2	R R6-6	S NO PARKING (ALL TYPES)	

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JEFFREY HAY
147887
TX REGISTRATION NUMBER

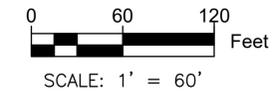
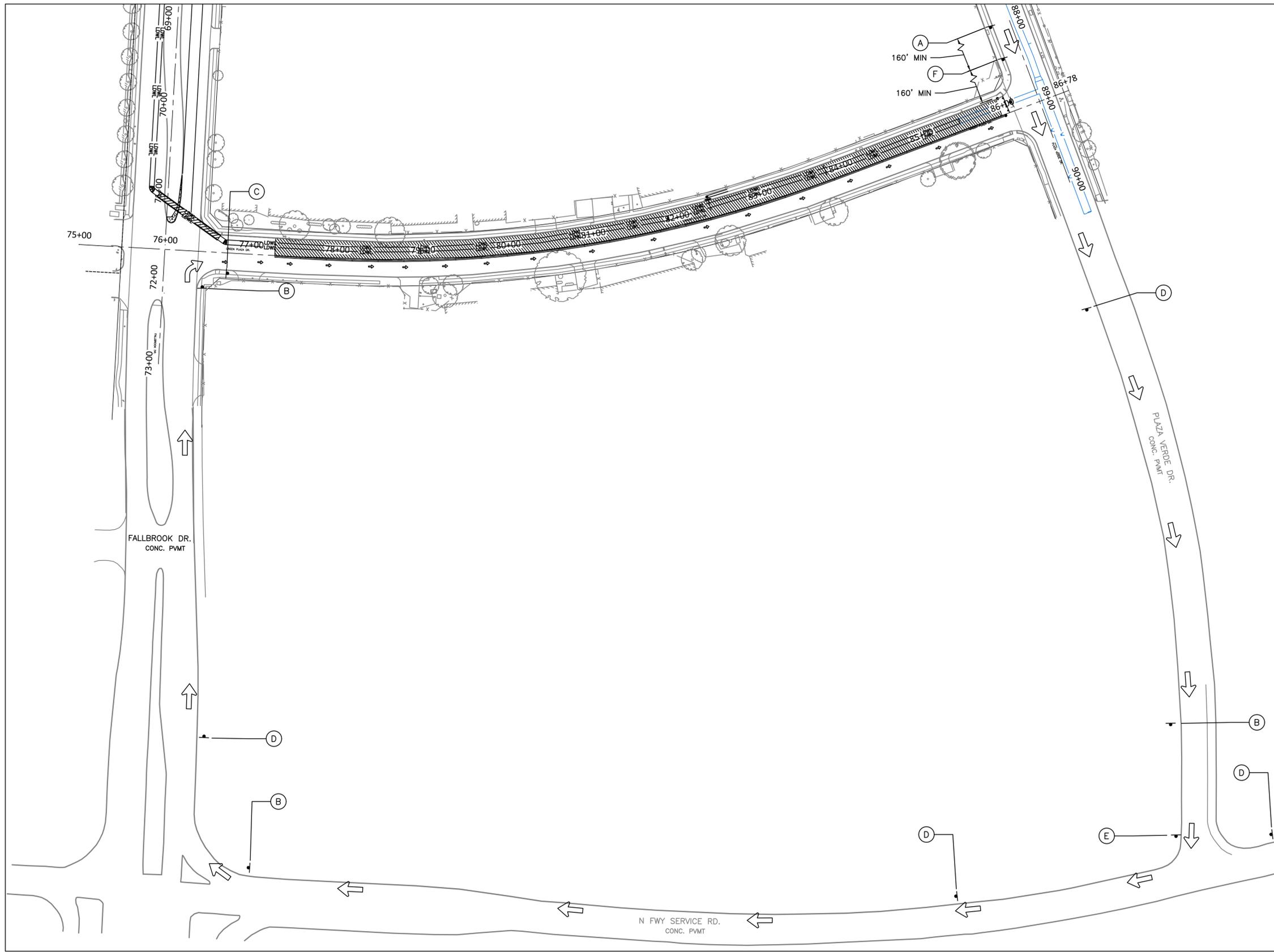
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66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

TCP - PHASE 6
SHEET 2 OF 2

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JOAQUIN LOPEZ	
SHEET NO. 151 OF 176	



LEGEND:

-  CURRENT PHASE
-  PREVIOUS PHASE
-  SIGN
-  CHANNELIZING DEVICE
-  PROPOSED TRAFFIC FLOW
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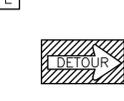
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - DETOUR PHASE
 6

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S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 152 OF 176	

 CW20-2	 M4-9R	 M4-8a	 M4-9T	 M4-10(R)	 R3-1
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DISCLAIMER: THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE OF THE SIGNING AND TRAFFIC CONTROL DEVICES. THE USER OF THIS STANDARD ASSUMES ALL LIABILITY FOR ANY DAMAGE RESULTING FROM ITS USE.

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 WITH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO 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://go.houpub.org>) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
10. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
11. DURING PAVEMENT SURFACE RESTORATION PROJECTS, THE CONTRACTOR SHALL NOT OPEN CLOSED LANES UNTIL THE PAVEMENT SURFACE HAS CURED ENOUGH TO ALLOW VEHICULAR TRAFFIC ACCORDING TO CITY OF HOUSTON STANDARD SPECIFICATIONS.
12. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL CONSTRUCTION ACTIVITIES WITH STAKE HOLDERS IN THE VICINITY INCLUDING EMERGENCY RESPONSE AGENCIES SUCH AS HOUSTON POLICE DEPARTMENT, HOUSTON FIRE DEPARTMENT, AND METROPOLITAN TRANSIT AUTHORITY.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ISSUING ALL WORK DIRECTIVES TO ALL SUB-CONTRACTORS, UTILITY COMPANIES, AND ALL OTHER ENTITIES PERFORMING CONSTRUCTION WORK ASSOCIATED WITH THE PROJECT.
14. NOTHING IN THESE NOTES OR PLANS SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL MODES OF TRANSPORTATION, PERSONS, AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
15. THE OFFICE OF CITY ENGINEER (MOBILITY PERMITS GROUP) PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER HAVE THE RIGHT TO DEMAND THE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES OR MODIFICATIONS OF THESE PLANS AND NOTES, AS DEEMED NECESSARY TO PROMOTE THE SAFE AND ORDERLY FLOW OF TRAFFIC, INCLUDING PEDESTRIANS AND BICYCLES, THROUGH THE CONSTRUCTION WORK ZONE. THE CONTRACTOR SHALL COMPLY WITH THESE ADDITIONAL REQUESTS OR MODIFICATIONS WITH DUE DILIGENCE.
16. ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED IN VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER) ANY PAVEMENT MARKING OR SIGNING DAMAGE DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMs).
17. WHEN ENTERING OR LEAVING ROADWAYS CARRYING PUBLIC TRAFFIC, THE CONTRACTOR'S EQUIPMENT, WHETHER EMPTY OR LOADED SHALL IN ALL CASES YIELD TO PUBLIC TRAFFIC WITH THE ASSISTANCE OF CONTRACTOR PROVIDED CERTIFIED FLAGGER/PEACE OFFICER.
18. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER.
19. SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
20. THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR TEMPORARY PARKING RESTRICTIONS IF THERE ARE PARKING METERS LOCATED AT THE PROPOSED LANE CLOSURES FROM PARKING MANAGEMENT DIVISION (832-393-8690) AT LEAST TEN BUSINESS DAYS BEFORE IMPLEMENTATION OF LANE CLOSURES. IN ADDITION, TEMPORARY NO PARKING SIGNS SHALL BE POSTED 24 HOURS PRIOR TO COMMENCEMENT OF WORK.
21. ADDITIONAL OFF DUTY OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DISCRETION OF THE CITY PROJECT MANAGER EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.
22. THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
23. IN GENERAL, A SOLAR POWERED FLASHING ARROW BOARD SHALL BE REQUIRED ON ALL MAJOR THOROUGHFARE LANES CLOSURES. EXCEPTIONS TO FLASHING ARROW BOARDS AND/OR IMPLEMENTATION ON RESIDENTIAL LANE CLOSURES SHALL BE APPROVED BY CITY TRAFFIC ENGINEER.
24. APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
25. WATER FILLED BARRIERS CAN BE USED AS INSTRUCTED BY THE ENGINEER AND APPROVED BY THE CITY FOR PROJECTS WHERE SPACE IS LIMITED AND HEAVY EQUIPMENT TO PLACE CONCRETE BARRIERS IS NOT FEASIBLE. WATER FILLED BARRIERS SHALL NOT BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT MORE THAN 45 MPH.
26. WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
27. IF WATER FILLED BARRIER IS PROVIDED, USE ENVIRONMENTALLY SAFE ANTI-FREEZING AGENT IN THE WATER WHEN IT IS APPLICABLE PER MANUFACTURER SPECIFICATIONS AND RECOVER AGENT WHEN THE BARRIER IS DRAINED.

28. DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
29. PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
30. PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON-REDIRECTIVE END TREATMENT.
31. WHEN WATER FILLED BARRIERS ARE USED TO CHANNELIZE PEDESTRIANS, THEY MUST HAVE A CONTINUOUS DETECTABLE BOTTOM FOR USERS OF LONG CANES AND THE TOP OF THE UNIT SHALL NOT BE LESS THAN 32 INCHES IN HEIGHT.
32. ANY CLOSURE OF A PEDESTRIAN OR BICYCLE FACILITY SHALL REQUIRE THE SHORTEST DETOUR THAT MAINTAINS THE SAFETY OF PEDESTRIAN AND/OR BICYCLISTS.

SPACING FOR CHANNELIZING DEVICES

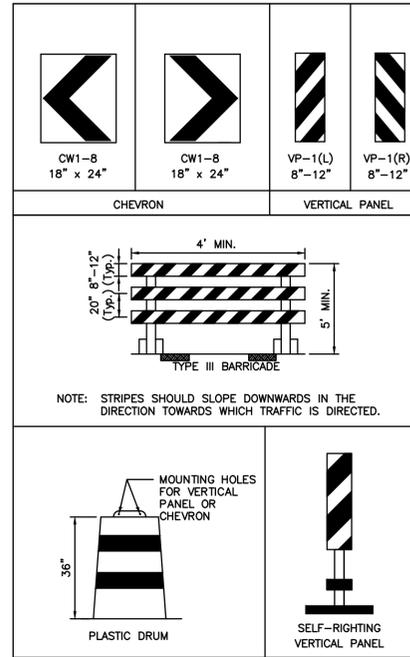
- A. PLASTIC DRUMS ON MERGING TAPER @ 30' C - C WITH CHEVRON SIGN @ 60' C - C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.
- B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 30' C - C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)
- C. PLASTIC DRUMS ON RADII @ 35' C - C.
- D. PLASTIC DRUMS ON TANGENT @ 35' C - C WITH VERTICAL PANEL AT 70' C - C AND APPROVED WARNING LIGHT @ 70' C - C (FOR OVERNIGHT CLOSURE).
- E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C - C WITH VERTICAL PANEL AT 40' C - C AND APPROVED WARNING LIGHT @ 40' C - C (FOR OVERNIGHT CLOSURE).
- F. CONCRETE TRAFFIC BARRIER (CTB) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB) WITH APPROVED REFLECTORS @ 10' C - C IF PAVEMENT DROP IS GREATER THAN 1 FOOT.
- G. PLASTIC DRUMS W/GUARD RAIL MOUNTED.
- H. SELF-RIGHTING VERTICAL PANEL SPACING.
 - 4 LANES TO 2 LANES UNDIVIDED ROADWAY SECTION @ 20' C - C.
 - 4 LANES DIVIDED ROADWAY TO ONE SIDE TWO WAY ROADWAY @ 20' C - C.
 - LEFT LANE AND RIGHT LANE STORAGE BAYS @ 15' C - C.
- I. SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.
- J. SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

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

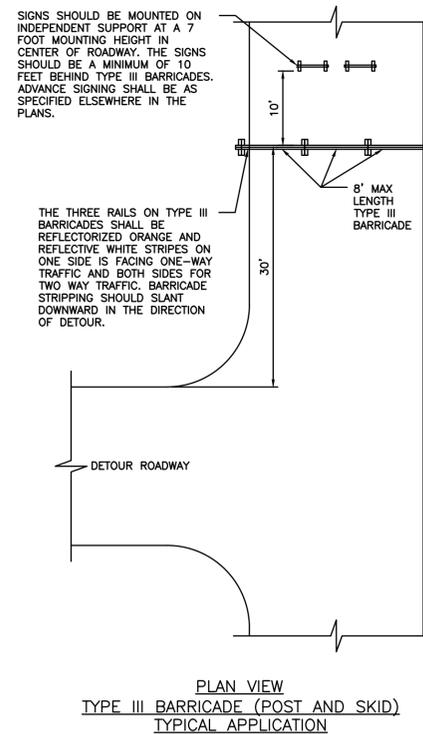
POSTED SPEED (MPH)	SIGN SPACING "X" (FEET)	MIN. DESIRABLE TAPER LENGTH "L"			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	120'	150'	165'	180'	30'	60'-75'
35	160'	205'	225'	245'	35'	70'-90'
40	240'	265'	295'	320'	40'	80'-100'
45	320'	450'	495'	540'	45'	90'-110'
50	400'	500'	550'	600'	50'	100'-125'
55	500'	550'	605'	660'	55'	110'-140'

TABLE C4 - STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

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



CHANNELIZATION AND BARRICADES



**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

APPROVED BY: <i>Suleid Kanwar</i> CITY ENGINEER	APPROVED BY: <i>KEVIN NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP NOTES CHANNELIZING DEVICES AND BARRICADES	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
TCP - STANDARD DETAILS SHEET 1 OF 9	
WBS NUMBER S-000900-0178-4	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JOAQUIN LOPEZ	
SHEET NO. 153 OF 176	

J:\Engineering Specs\HC Standard Traffic Drawings-Master File\2-Pavement Markings and Sign Standards\SSD\SSD_18.3.16.dwg

	* MINIMUM SIZE OF 36X36 SHALL BE USED FOR STOP SIGNS THAT FACE MULTI-LANE APPROACHES										
TMUTCD/SHSD ID	R1-1	R1-2	R1-3P	R2-1	R3-4	R3-5R (L)	R3-7L (R)	R3-8	R4-7	R6-1R, R6-1L	R6-2R (L)
LOCAL	30x30*	30x30	18X6	24x30	24x24	30x36	30x30	Varies x 30	24x30	36x12	24x30
COLLECTOR	36x36	36x36	18X6	24x30	30x30	30x36	36x36	Varies x 30	24x30	36x12	30x36
THOROUGHFARE	36x36	36x36	18X6	24x30	30x30	30x36	36x36	Varies x 36	24x30	36x12	30x36
	* SIGNALIZED LOCATIONS ONLY WHERE APPROVED BY HCED										
TMUTCD/SHSD ID	NO PARKING (ALL TYPES)	R8-8	R10-6R (L)	R10-17T	W1-1R (L)	W1-2R (L)	W1-3R (L)	W1-4R (L)	W1-6R (L), W1-7	W1-7T	W1-8R (L)
LOCAL	18x24	24x30	24x36	30x30	30x30	30x30	30x30	30x30	48x24	48x24	18x24
COLLECTOR	18x24	24x30	24x36	30x30	36x36	36x36	36x36	36x36	48x24	48x24	18x24
THOROUGHFARE	18x24	24x30	24x36	30x30	36x36	36x36	36x36	36x36	48x24	48x24	30x36
TMUTCD/SHSD ID	W2-1	W2-2R (L)	W3-1	W3-3	W4-2R (L)	W6-2	W6-3	W8-13aT	W9-1R (L)	W9-2R (L)	W10-1
LOCAL	30x30	30x30	30x30	30x30	36x36	36x36	36x36	36x36	36x36	36x36	30 dia.
COLLECTOR	30x30	30x30	30x30	30x30	36x36	36x36	36x36	36x36	36x36	36x36	30 dia.
THOROUGHFARE	36x36	36x36	36x36	36x36	36x36	36x36	36x36	36x36	36x36	36x36	30 dia.
TMUTCD/SHSD ID	W11-1 through W11-12	W13-1P	W14-1	W14-2	W16-2aP	W16-7PL (PR)	W16-9	S1-1	S4-3P	ENDSCHOOLZONE SPEED LIMIT XX	I-3
LOCAL	30x30	18x18	30x30	24x24	24x12	30x18	24x12	36x36	24x8	24x36	VARIES X 18
COLLECTOR	36x36	18x18	36x36	24x24	24x12	30x18	24x12	36x36	24x8	24x36	VARIES X 18
THOROUGHFARE	36x36	18x18	36x36	N/A	24x12	30x18	24x12	36x36	24x8	24x36	VARIES X 30
		<p>2" TYP. 2" TYP.</p> <p>6" CLEARVIEW 2-W FONT 3" CLEARVIEW 2-W FONT</p> <p>4" TYP.</p> <p>Huffmeister RD</p> <p>No border, White on Green</p>		<p>Reflective Material</p> <p>Post</p>							
TMUTCD/SHSD ID	OM-3R, OM-3L	GROUND MOUNTED STREET NAME SIGN		TYPES D-DY, D-DW							
LOCAL	12X36	VARIES X 8		36" TALL							
COLLECTOR	12X36	VARIES X 8		36" TALL							
THOROUGHFARE	12X36	VARIES X 8		36" TALL							

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		TRAFFIC STANDARD SSD
SHEET DESCRIPTION: SMALL SIGN DETAILS		DATE: 3/16/18
DRAWN BY: JDZ	SCALE: NONE	SHEET NO.:
CK'D BY: BSH		

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PHONE: 281-453-7700
TX FIRM NO: F-2059

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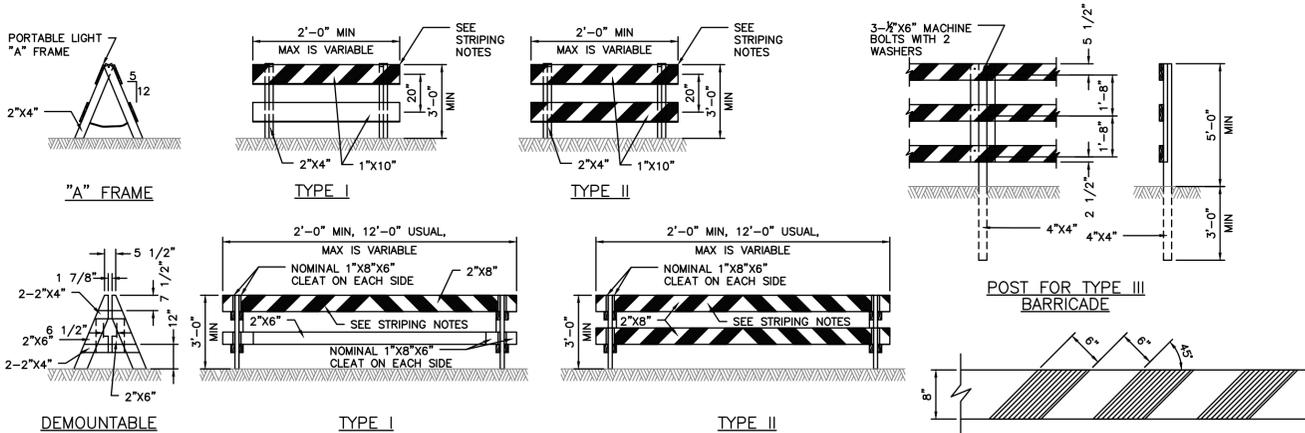
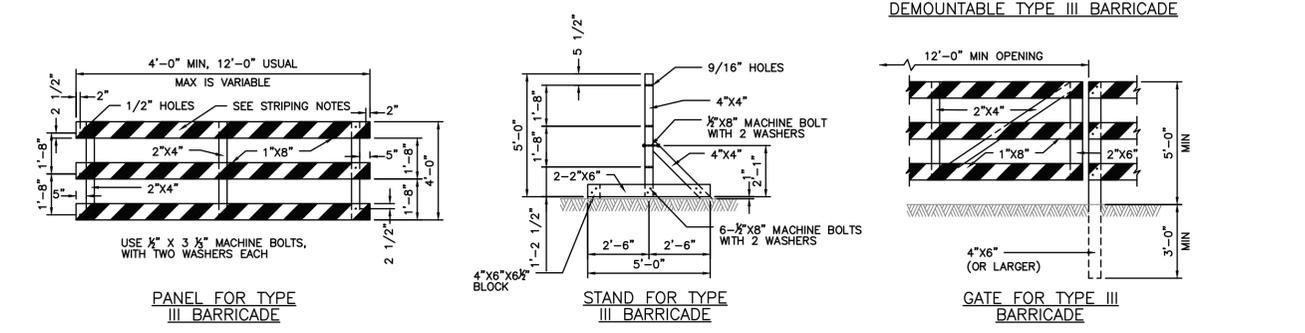
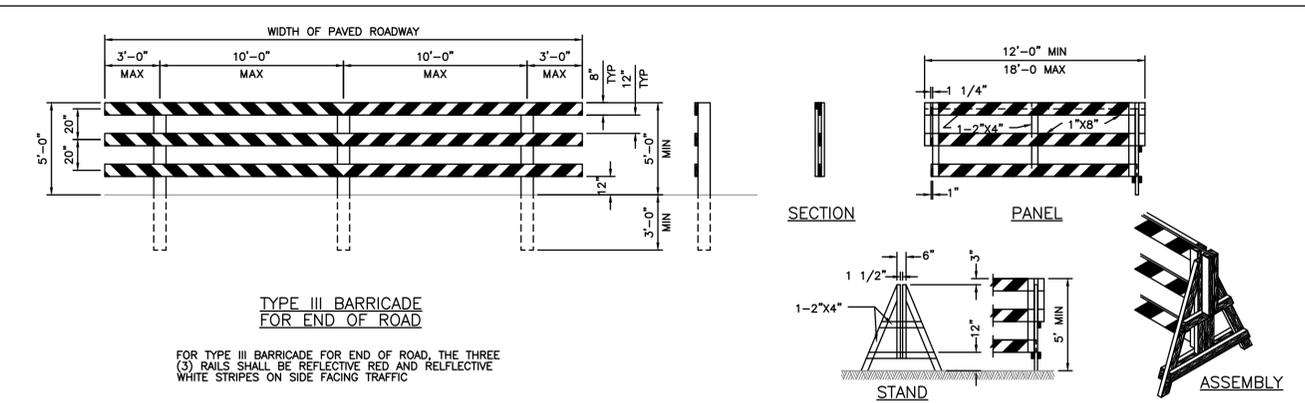
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

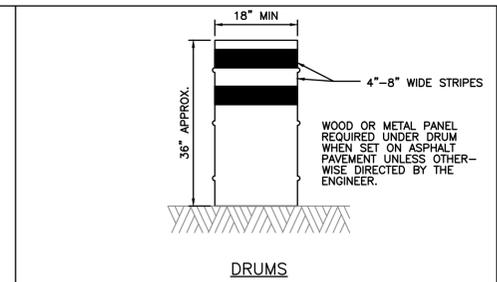
TCP - STANDARD
DETAILS SHEET 2 OF 9

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 154 OF 176	

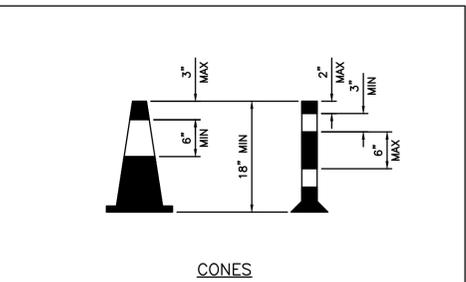
DISCLAIMER: THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE OF CHANNELIZING DEVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES RESULTING FROM ITS USE.



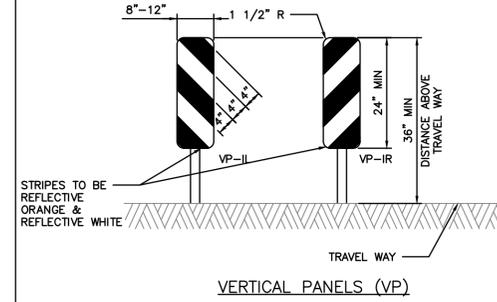
- BARRICADE NOTES:**
- THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND ITS REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.
 - CHANNELIZING DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.
 - BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS, SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.
 - BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL APPROVED BY THE TMTUCD. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL AND ARE SUGGESTED DETAILS FOR WOOD SUPPORT SYSTEMS FOR BARRICADES. THE DETAILS OF RAIL WIDTH AND STRIPING NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.
 - BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.
 - THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOT.
 - THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.
 - BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.



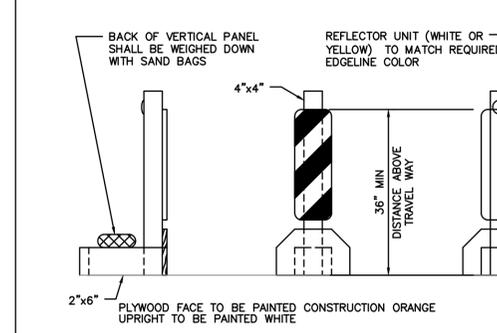
- DRUMS, SET ON END, AND USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE APPROX 36" IN HEIGHT AND A MIN OF 18" IN DIAMETER. THE CONTRACTOR, AT HIS OPTION, MAY USE DRUMS MADE FROM STEEL BARRELS OR BLACK POLYETHYLENE PLASTIC DRUM LINERS WEIGHING APPROX EIGHT POUNDS EACH. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUMFERENTIAL, REFLECTORIZED ORANGE AND REFLECTORIZED WHITE STRIPES, 4 TO 8 INCHES WIDE. THE FIRST REFLECTORIZED STRIPE SHOULD START WITHIN TWO (2) INCHES OF THE TOP OF THE DRUM. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE STRIPES ON EACH DRUM. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, THEY SHALL BE NO MORE THAN 2 INCHES WIDE. METAL DRUMS SHALL BE PAINTED BLACK OR ORANGE BEFORE REFLECTORIZED STRIPES ARE ADDED. ALL DRUMS ON PROJECT WILL BE THE SAME COLOR. WHEN DRUMS ARE PLACED IN THE ROADWAY, APPROPRIATE WARNING SIGNS SHOULD BE USED. DURING HOURS OF DARKNESS, A FLASHING WARNING LIGHT SHOULD BE PLACED ON DRUMS USED AS A WARNING DEVICE. STEADY BURN ELECTRIC LIGHTS OR DELINEATORS SHOULD BE PLACED ON DRUMS USED IN SERIES FOR TRAFFIC CHANNELIZATION. DRUMS SHALL BE WEIGHED WITH SAND TO THE EXTENT INDICATED IN THE PANS.
- CW-8 CHEVRON SIGNS, CW-6A ARROW SIGNS OR VP-1 VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.



- TRAFFIC CONES AND TUBULAR MARKERS SHALL BE A MIN OF 18" INCHES IN HEIGHT WITH A BROADENED BASE AND MAY BE MADE OF VARIOUS MATERIALS TO WITHSTAND IMPACT WITHOUT DAMAGE TO THEMSELVES OR TO VEHICLES. LARGER SIZES SHOULD BE USED ON FREEWAYS AND OTHER ROADWAYS WHERE SPEED ARE RELATIVELY HIGH OR WHERE EVER MORE CONSPICUOUS GUIDANCE IS NEEDED. ORANGE SHALL BE THE PREDOMINANT COLOR ON CONES AND TUBULAR MARKERS. THEY SHOULD BE KEPT CLEAN AND BRIGHT FOR MAX TARGET VALUE. FOR NIGHT TIME USE THEY SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAX VISIBILITY. REFLECTORIZED MATERIAL SHALL HAVE A SMOOTH, SEALED OUTER SURFACE WHICH WILL DISPLAY THE SAME APPROX COLOR DAY AND NIGHT.
- REFLECTORIZATION OF TUBULAR MARKERS SHALL BE A MIN OF TWO THREE-INCH BANDS PLACED A MAX OF 2" FROM THE TOP WITH A MAX OF 6" BETWEEN THE BANDS. REFLECTORIZATION OF CONES SHALL BE PROVIDED BY A MIN 6" BAND PLACED A MAX OF 3" FROM THE TOP.
- CONES OR TUBULAR MARKERS ARE GENERALLY ONLY SUITABLE FOR TEMPORARY USAGE (UP TO 8 HOURS) WITH OTHER CHANNELIZATION DEVICES SUCH AS VERTICAL PANELS OR BARRICADES PREFERRED FOR LONGER TERM USAGE. CARE SHOULD BE TAKEN TO INSURE THAT THEY REMAIN IN THEIR PROPER LOCATION AND IN AN UPRIGHT POSITION.



VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE A GOOD TARGET VALUE OF A DEVICE IS NEEDED IN DAYTIME AS WELL AS AT NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



OTHER SIMILAR SUPPORTS MAY BE USED WHEN APPROVED BY TMTUCD AND DIRECTED BY THE CITY OF HOUSTON.

APPROVED BY: *Sulail Saunwar*
CITY ENGINEER

APPROVED BY: *THANH NGUYEN*
CITY TRAFFIC ENGINEER

APPROVED BY: *Carl Hallock*
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 DWG NO: 01555-14

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

BARRICADE AND CHANNELIZING DEVICES

FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE
NOT TO SCALE

FREES & NICHOLS
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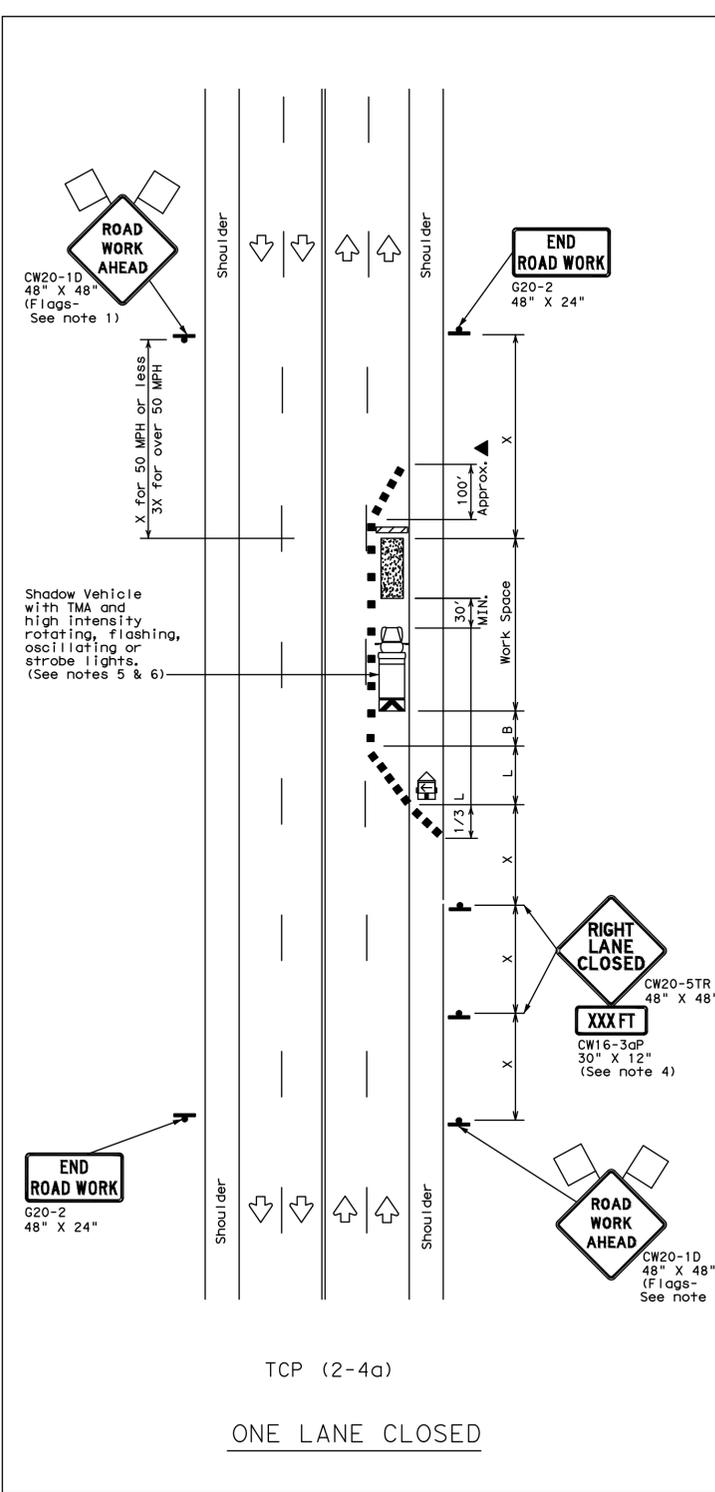
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
DETAILS SHEET 3 OF 9

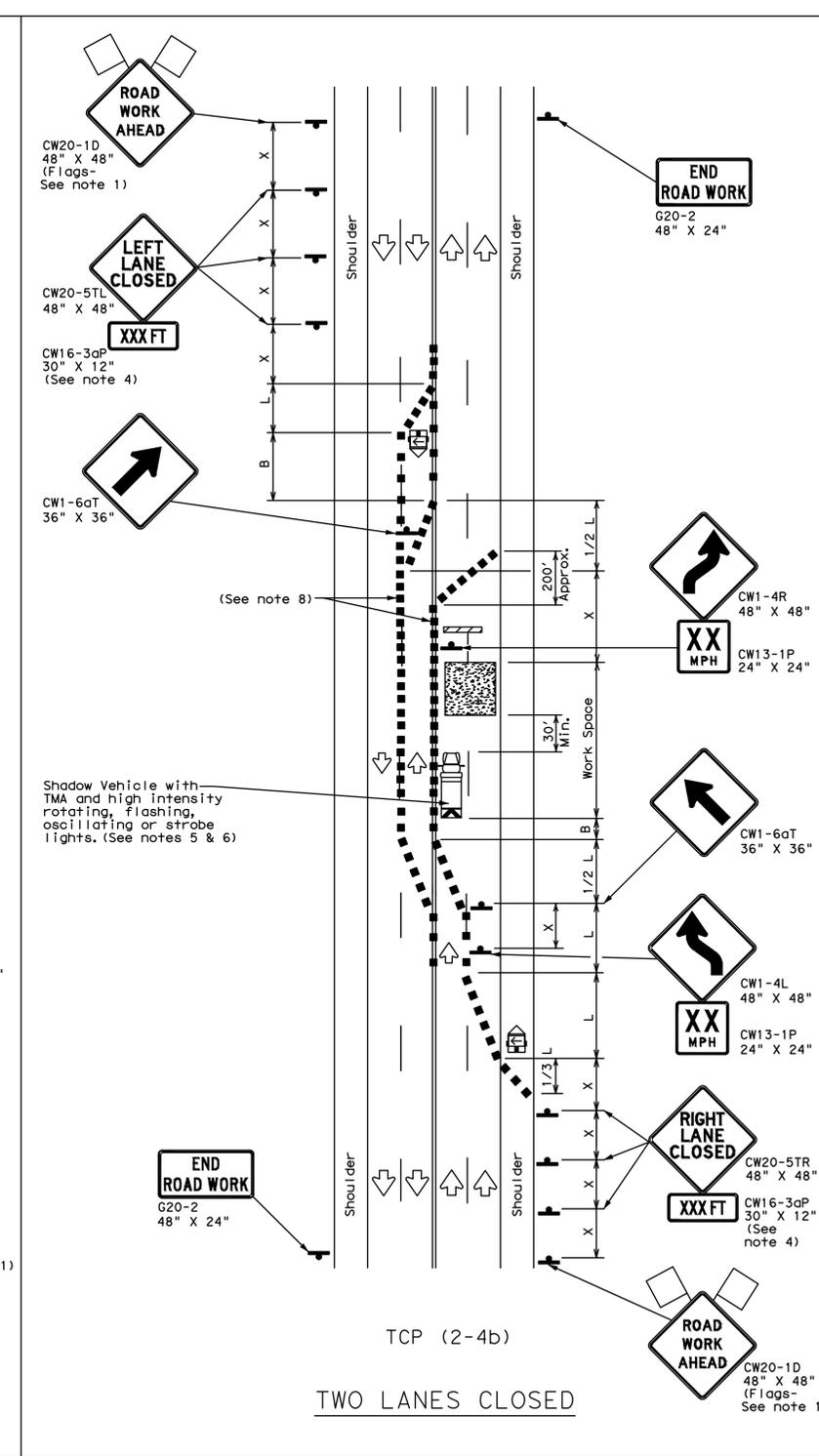
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 155 OF 176	

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DATE: FILE:



TCP (2-4a)
ONE LANE CLOSED



TCP (2-4b)
TWO LANES CLOSED

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

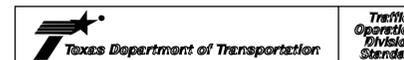
Posted Speed * X	Formula L = WS ² / 60	Minimum Desirable Taper Lengths *X			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30		150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

- GENERAL NOTES
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
 - For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-4a)
- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.
- TCP (2-4b)
- For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.



TRAFFIC CONTROL PLAN
 LANE CLOSURES ON MULTILANE
 CONVENTIONAL ROADS

TCP (2-4) - 18

FILE: top2-4-18.dgn	DW	CK	DW	CK
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
8-95 3-03	REVISONS			
1-97 2-12	DIST	COUNTY	SHEET NO.	
4-98 2-18				
164				

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 Registration Number

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SURVEYED BY: LANDTECH
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
 DETAILS SHEET 4 OF 9

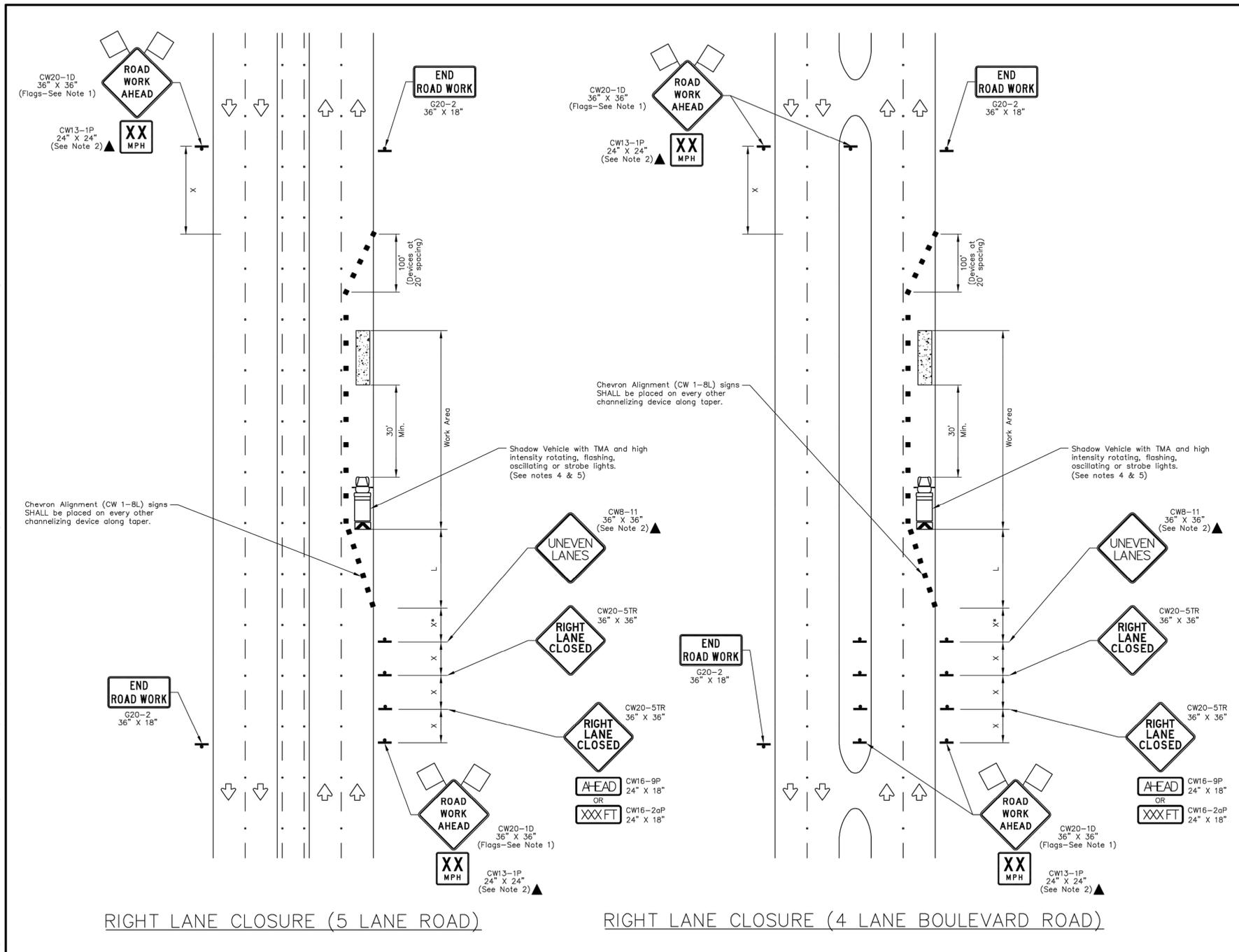
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AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 156 OF 176	

PLOTTED: 2/5/2025 6:09 PM

PLOT STYLE: COH.ctb

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg

J:\Engineering Specs\HC Standard Traffic Drawings-Master File\2023 Update Standard Traffic Drawings\5-Traffic Control Plan\TCP-RL-23.10.10.dwg



TRAFFIC CONTROL PLAN SECTION SHALL BE COMPLETED BY ENGINEER

ROADWAY	POSTED SPEED	TAPER LENGTH	SPACING CHANNELIZING DEVICES		SIGN SPACING	BUFFER SPACE
			TAPER	TANGENT		

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
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65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75	L=WS	750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

- GENERAL NOTES
- Flags attached to signs where shown are OPTIONAL.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol are OPTIONAL.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - Contractor shall provide and install traffic control devices in conformance with part VI of Texas Manual on Uniform Traffic Control Devices (TMUTCD - Latest edition with revisions) during construction.
 - No lanes shall be blocked from 7am to 9am and 4pm to 6:30pm Monday thru Friday.
 - Off duty uniformed law enforcement officers/flaggers are required to direct traffic when applicable.
 - If project to within 400 feet from a signalized intersection, the Contractor shall contact Harris County Engineering Department, Traffic Signal Maintenance at (713) 881-3210 five (5) days prior to the start of construction.

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY
ENGINEERING DEPARTMENT



FOR INTERIM REVIEW ONLY
 DOCUMENT INCOMPLETE:
 NOT INTENDED FOR CONSTRUCTION,
 BIDDING, OR PERMIT PURPOSES
 ENGINEER: NAME
 P.E. SERIAL No. NUMBER
 DATE: / /

PROJECT TITLE:	TRAFFIC CONTROL PLAN	TRAFFIC STANDARD
SHEET DESCRIPTION:	(RIGHT LANE CLOSURE)	TCP-RL
DRAWN BY:	BSH	DATE: 10/10/23
CR'D BY:	BSH	SHEET NO:
SCALE:	NONE	

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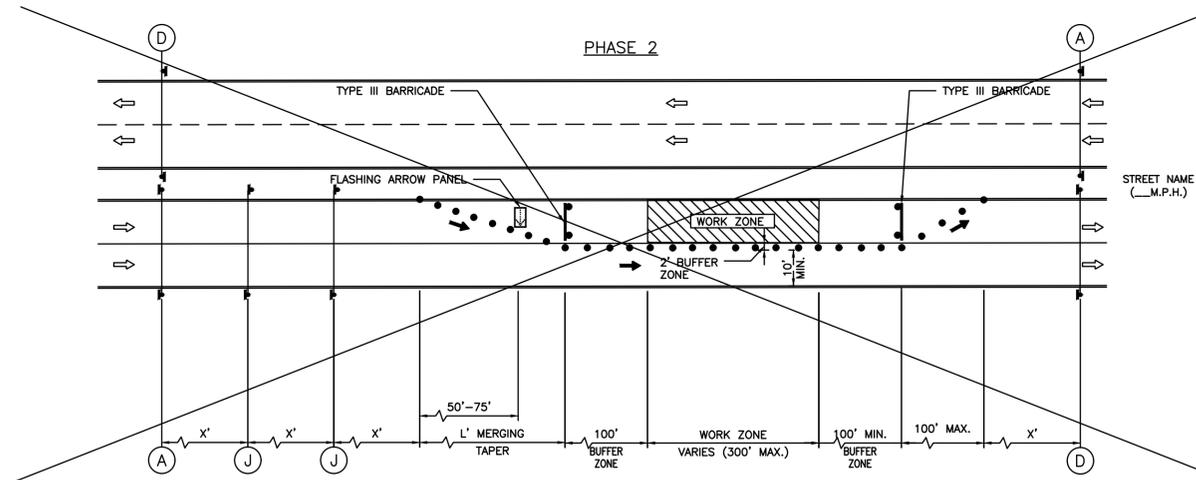
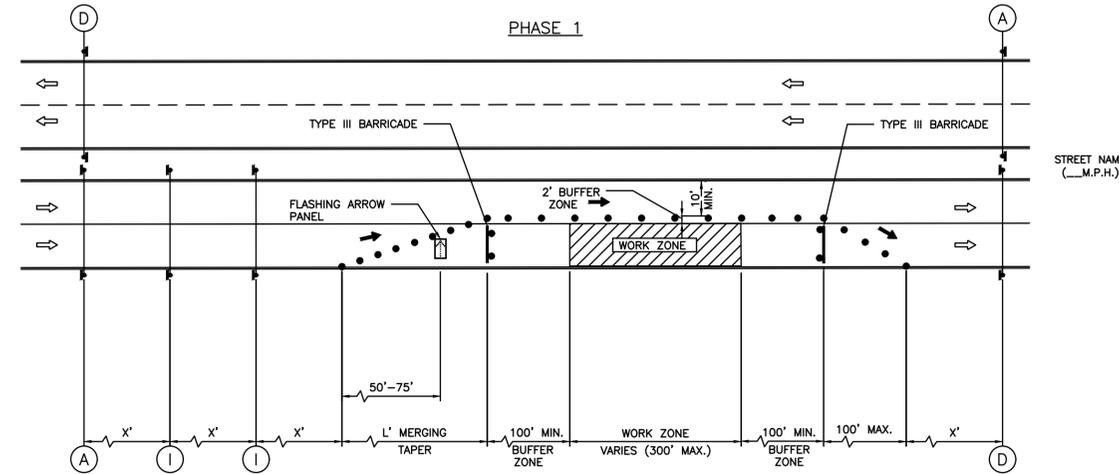
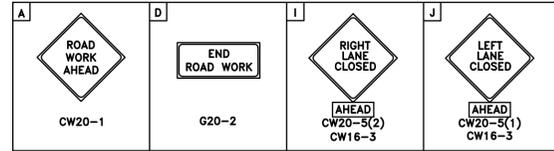
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
DETAILS SHEET 5 OF 9

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JOAQUIN LOPEZ	
SHEET NO. 157 OF 176	

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LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. RETURN TAPERS AND DOWNSTREAM BARRICADES ARE OPTIONAL ON A DIVIDED ROADWAY SECTION.
2. DOUBLE SIGNS SHALL BE USED ONLY ON ROADWAYS WITH MEDIANS.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.

APPROVED BY: CITY ENGINEER	APPROVED BY: CITY TRAFFIC ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-04
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP ONE LANE CLOSURE PHASE 1 & 2	
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TCP ONE LANE CLOSURE
PHASE 1 & 2

CITY OF HOUSTON
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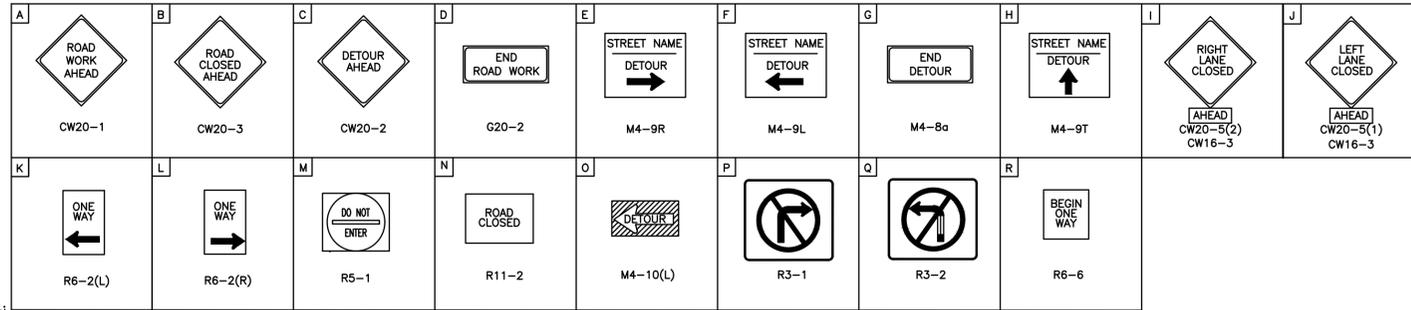
66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
DETAILS SHEET 6 OF 9

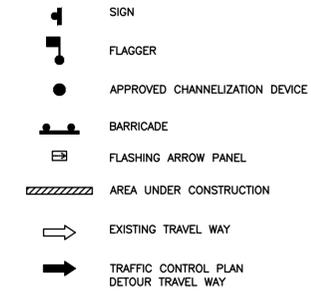
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JOAQUIN LOPEZ	
SHEET NO. 158 OF 176	

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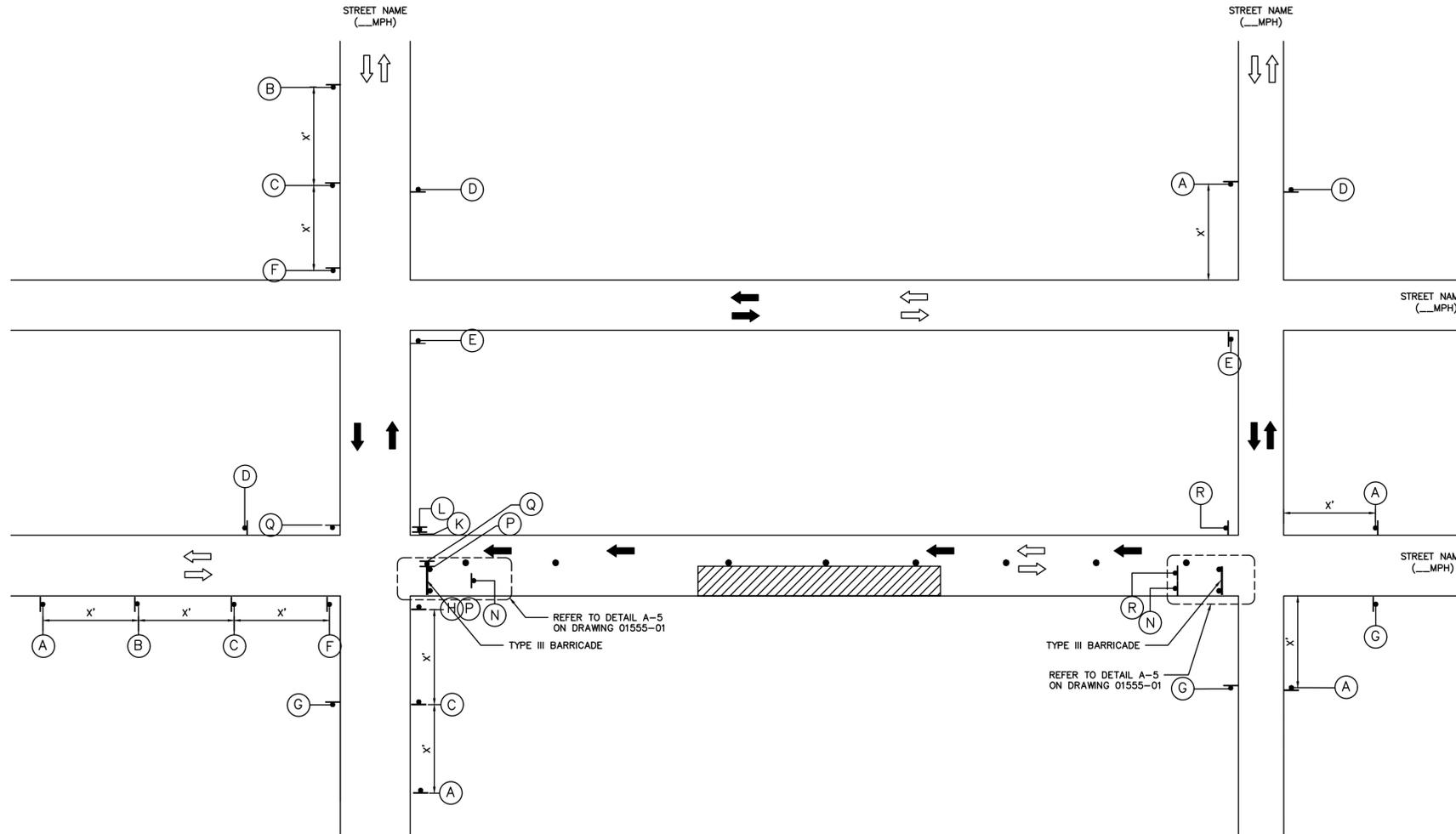


LEGEND:



NOTES:

1. A 10' MINIMUM LANE WIDTH FOR EMERGENCY SHALL BE MADE AVAILABLE AND MAINTAINED BY THE CONTRACTOR AT ALL TIMES.
2. FOR DIMENSIONS REFER TO SHEET 01555-01.
3. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.



APPROVED BY:

 CITY ENGINEER

 CITY TRAFFIC ENGINEER

APPROVED BY:

 DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 DWG NO: 01555-05

CITY OF HOUSTON
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TCP TYPICAL DETOUR ROUTING
 WITH ONE LANE CLOSURE
 (ONE BLOCK)

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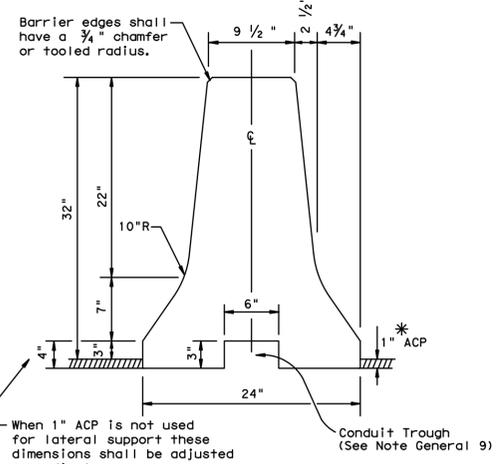
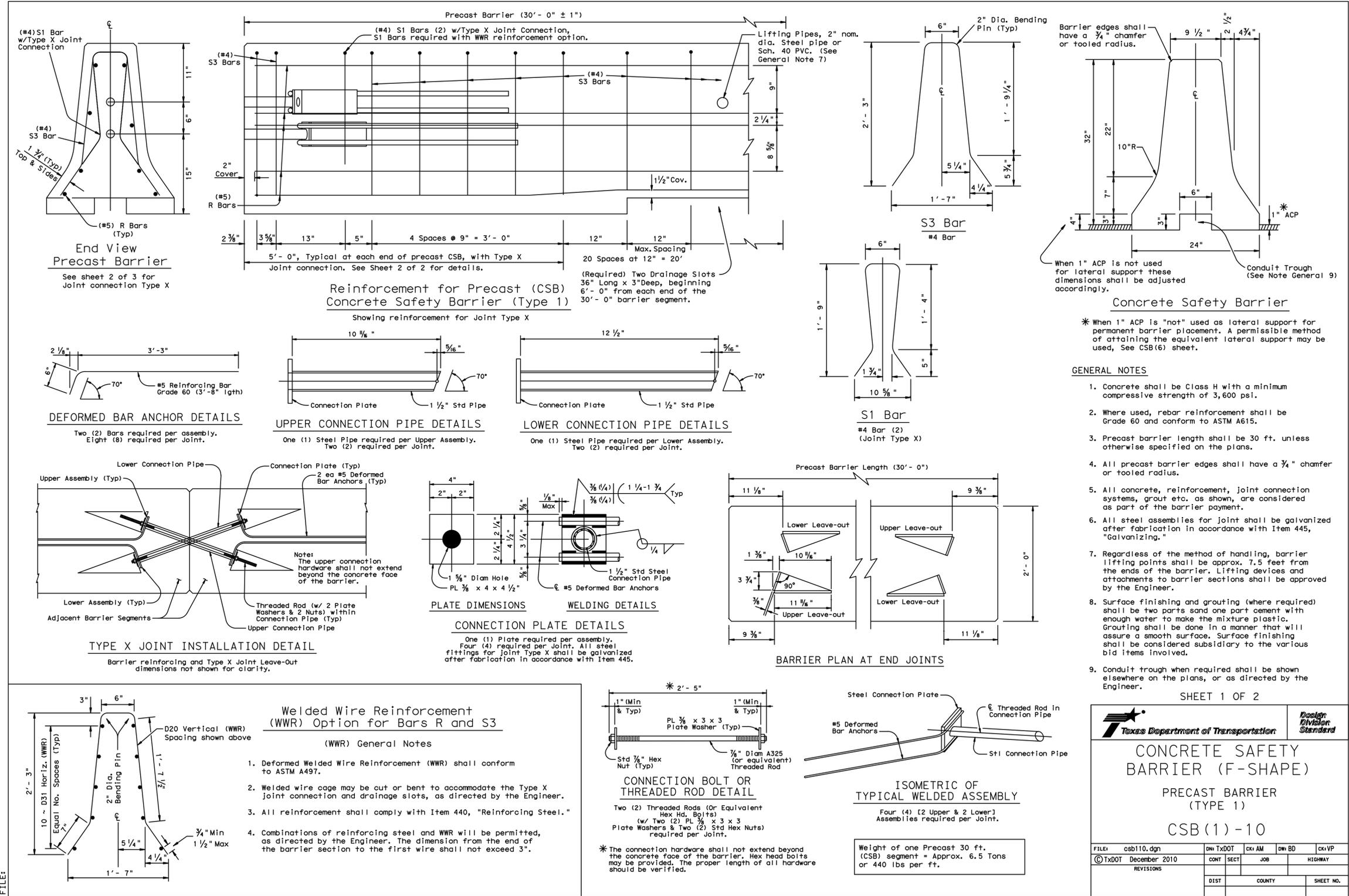
66-INCH WATER LINE FROM GREENS
 CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
 DETAILS SHEET 7 OF 9

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DATE:
FILE:



* When 1" ACP is "not" used as lateral support for permanent barrier placement. A permissible method of attaining the equivalent lateral support may be used, See CSB(6) sheet.

- GENERAL NOTES**
- Concrete shall be Class H with a minimum compressive strength of 3,600 psi.
 - Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
 - Precast barrier length shall be 30 ft. unless otherwise specified on the plans.
 - All precast barrier edges shall have a 3/4" chamfer or tooling radius.
 - All concrete, reinforcement, joint connection systems, grout etc. as shown, are considered as part of the barrier payment.
 - All steel assemblies for joint shall be galvanized after fabrication in accordance with Item 445, "Galvanizing."
 - Regardless of the method of handling, barrier lifting points shall be approx. 7.5 feet from the ends of the barrier. Lifting devices and attachments to barrier sections shall be approved by the Engineer.
 - Surface finishing and grouting (where required) shall be two parts sand one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface. Surface finishing shall be considered subsidiary to the various bid items involved.
 - Conduit trough when required shall be shown elsewhere on the plans, or as directed by the Engineer.

SHEET 1 OF 2

CONCRETE SAFETY BARRIER (F-SHAPE) PRECAST BARRIER (TYPE 1) CSB(1)-10

FILE: csb110.dgn	DN: TxDOT	CK: AM	DR: BD	CR: VP
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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
DETAILS SHEET 8 OF 9

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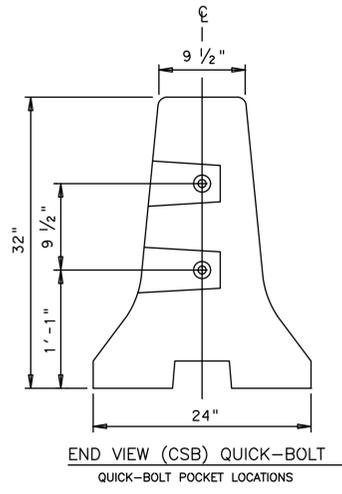
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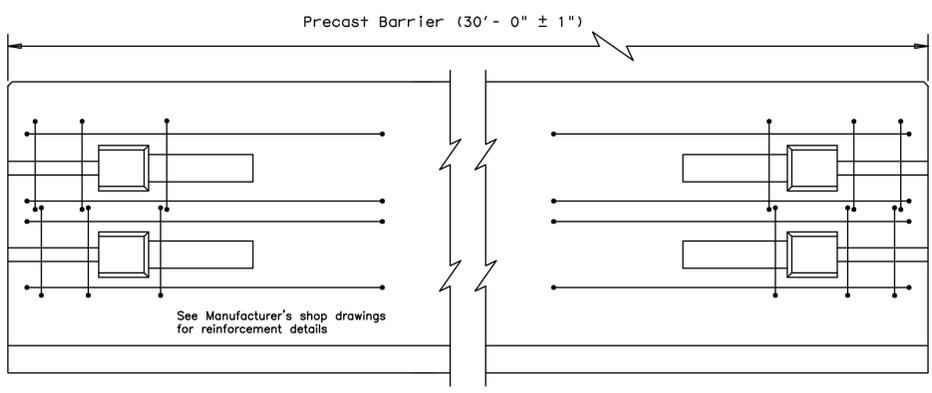
FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\TCP\TCP.dwg

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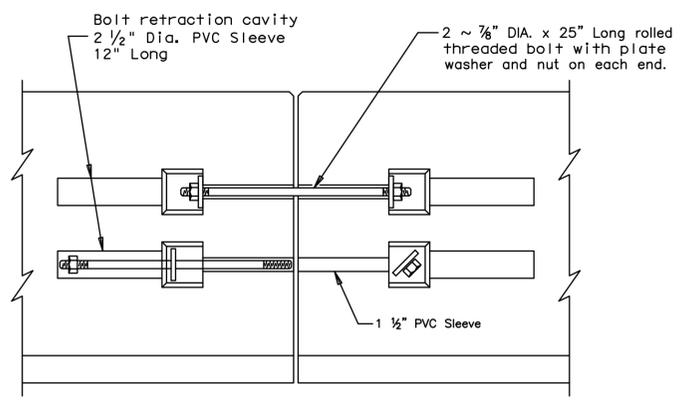
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END VIEW (CSB) QUICK-BOLT
QUICK-BOLT POCKET LOCATIONS

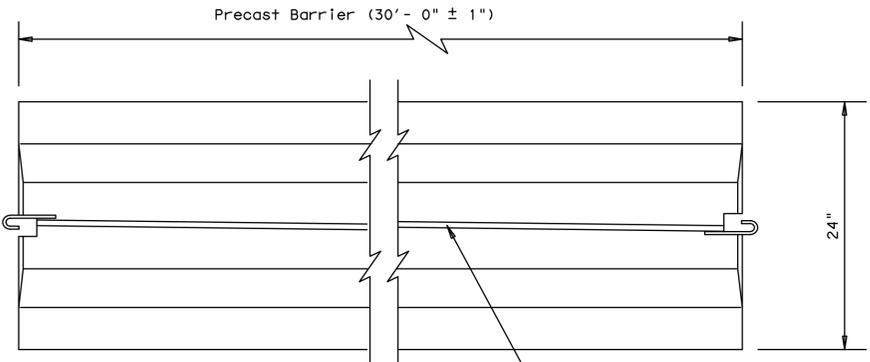


ELEVATION (CSB) QUICK-BOLT
See Manufacturer's shop drawing for additional details

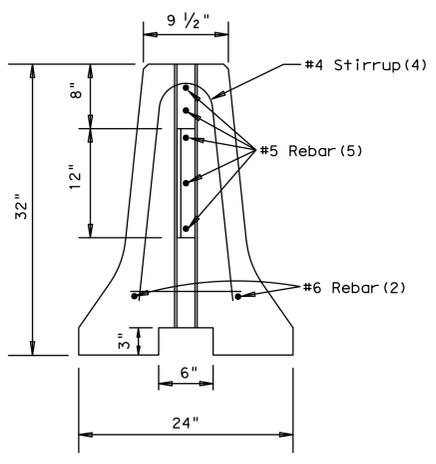


ELEVATION VIEW SHOWING JOINT CONNECTION
"QUICK-BOLT"

Joint Connection (Type Q)

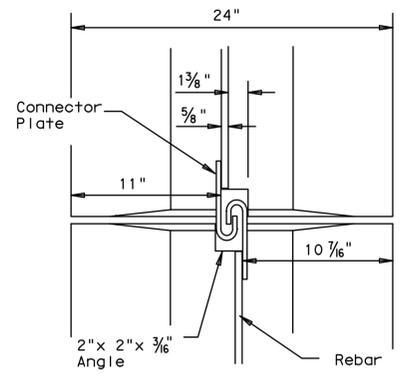


TOP VIEW
PRECAST (CSB) WITH J-J HOOKS
See Manufacturer's shop drawing for additional details



END VIEW
J-J HOOK CONNECTION

Joint Connection (Type J)



VIEW FROM ABOVE
J-J HOOK CONNECTION

Proprietary Joint Connections (CSB)

Two proprietary joint connections are acceptable as alternates to the (Type X) connection shown, here on. These joint connections types are:

J-J Hooks by East-Set Industries, (800)547-4045
Quick-Bolt by Bexar Concrete, (210)497-3773

If one of these connection systems are exclusively specified in the plans, prior approval for sole source use must be obtained. Details of the connection components and barrier reinforcement for these systems, will be shown on the manufacturer's shop drawing(s) furnished to the Engineer.

SHEET 2 OF 2



CONCRETE SAFETY BARRIER (F-SHAPE) PRECAST BARRIER (TYPE 1) CSB (1) - 10				
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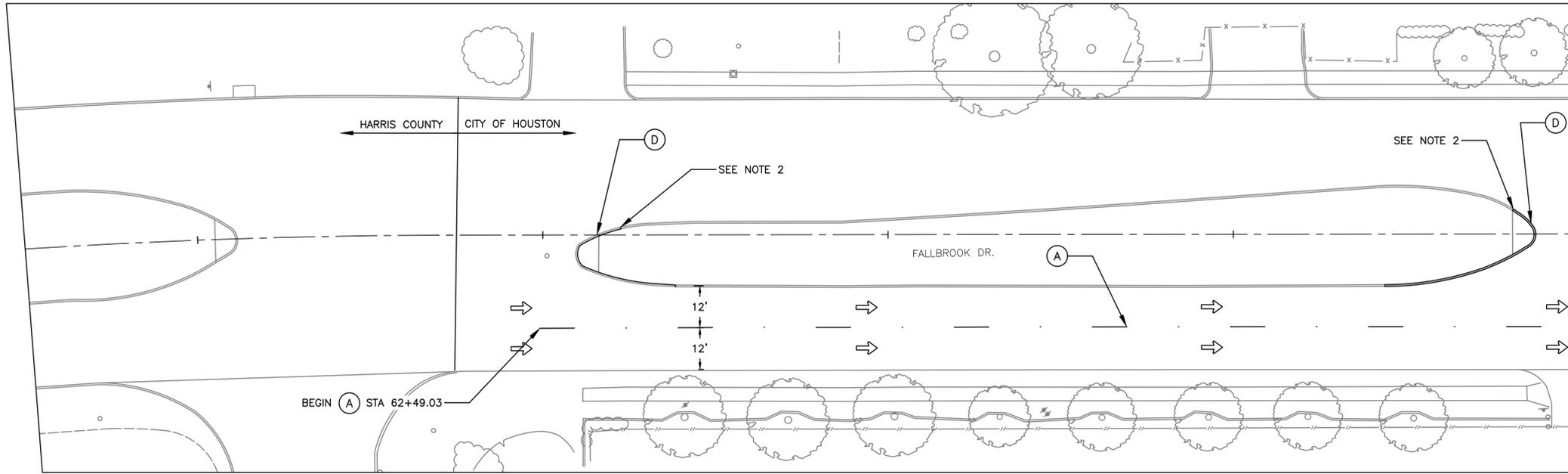
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

TCP - STANDARD
DETAILS SHEET 9 OF 9

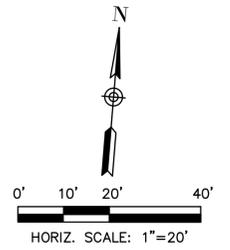
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MATCH LINE STA 65+50
SEE THIS SHEET

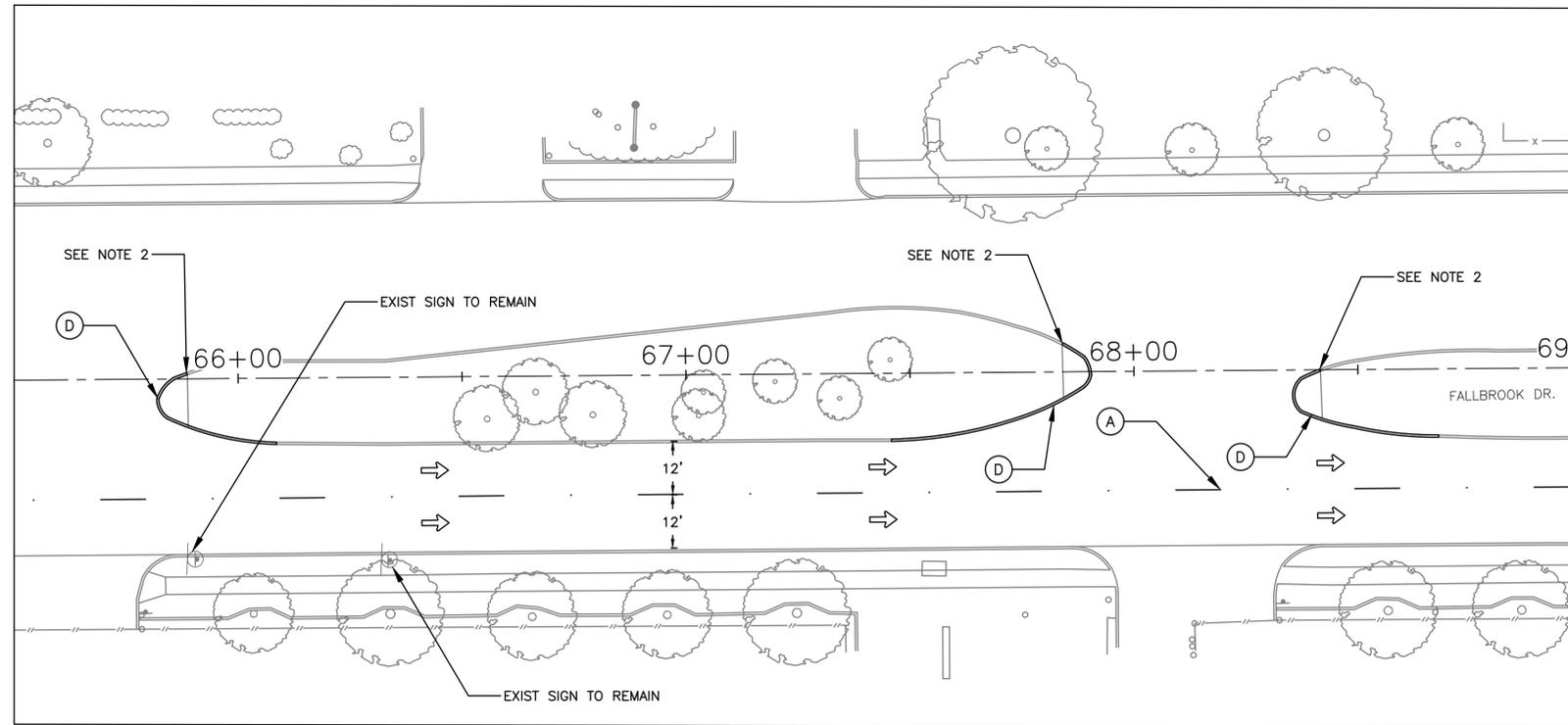
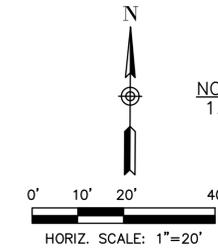


LEGEND:

- (G) EXISTING SIGN
- ← FLOW OF TRAFFIC
- (A) WB4-R40 (40 FT SPA & 10 FT STR, 4")
- (B) YB4-A40 (40 FT SPA & 10 FT STR, 4")
- (C) WS6-R20 (20 FT SPA & 10 FT STR, 4")
- (D) YELLOW CURB
- (E) REFL PAV MKR - TYP 1 SINGLE ARROW-LEFT/RIGHT
- (F) REFL PAV MKR - TYP 1 WORD "ONLY"
- (G) WS24

NOTES:

1. REFERENCE SHEETS 166 - 174 FOR STANDARD PAVEMENT MARKING DETAILS.



MATCH LINE STA 65+50
SEE THIS SHEET

MATCH LINE STA 69+00
SEE SHEET 163

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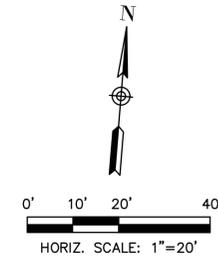
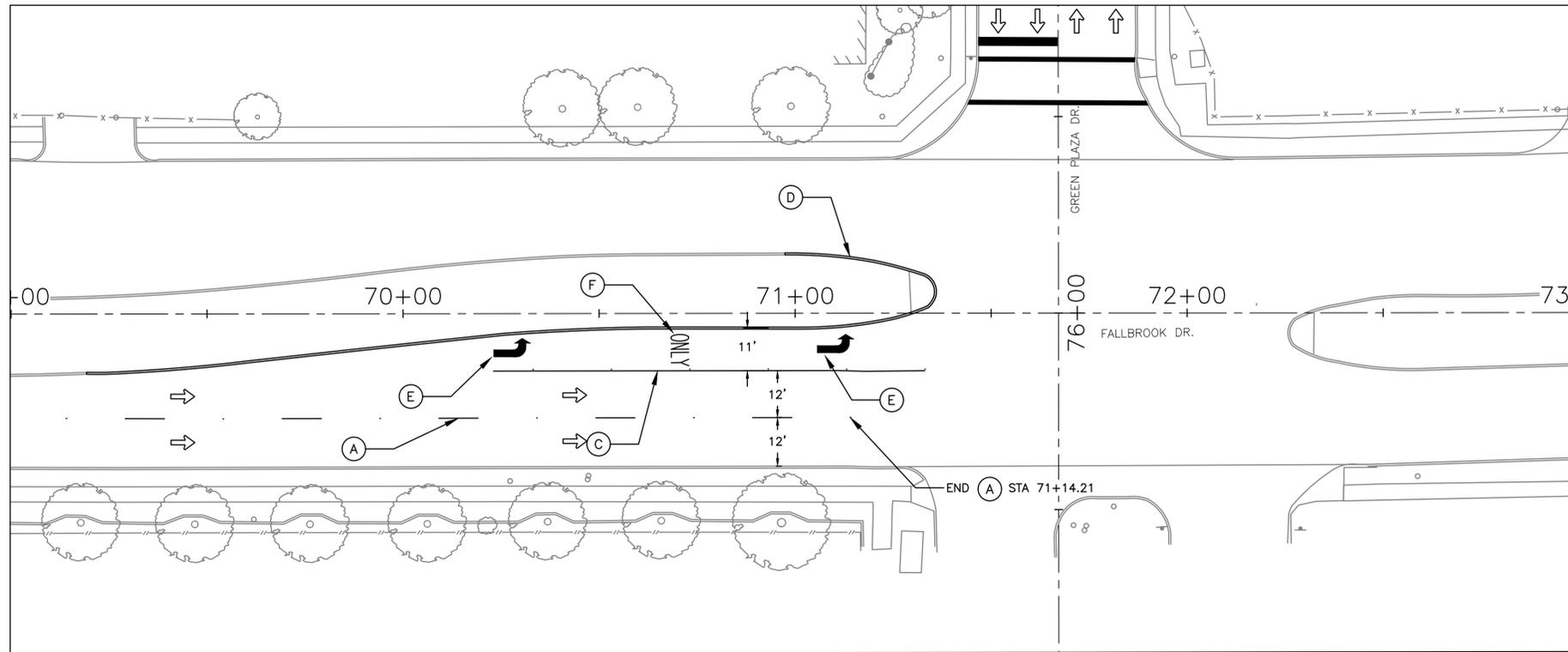
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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
 FALLBROOK SHEET 1
 OF 2

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DRAWING SCALE	
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JOAQUIN LOPEZ	
SHEET NO. 162 OF 176	

MATCH LINE STA 69+00
SEE SHEET 162



LEGEND:

- EXISTING SIGN
- FLOW OF TRAFFIC
- WB4-R40 (40 FT SPA & 10 FT STR, 4")
- YB4-A40 (40 FT SPA & 10 FT STR, 4")
- WS6-R20 (20 FT SPA & 10 FT STR, 4")
- YELLOW CURB
- REFL PAV MRK - TYP 1 SINGLE ARROW-LEFT/RIGHT
- REFL PAV MRK - TYP 1 WORD "ONLY"
- WS24

NOTES:

1. REFERENCE SHEETS 166 - 174 FOR STANDARD PAVEMENT MARKING DETAILS.

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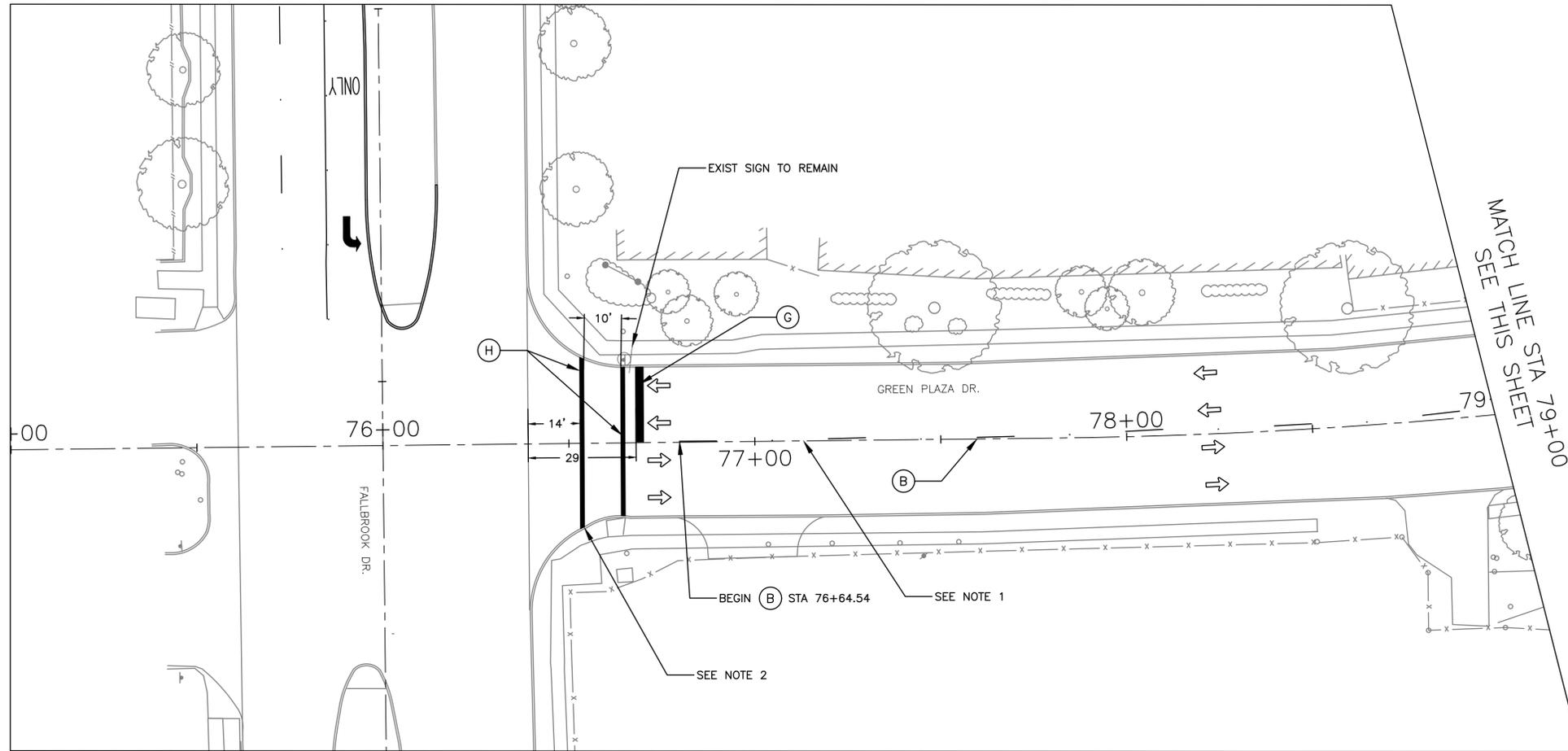
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
FALLBROOK SHEET 2
OF 2

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SHEET NO. 163 OF 176	

FILE PATH: K:\Freese & Nichols\66-inch WL Along Green Plaza Dr\4-0 Production\4-1 Drawings\Pavement Markings.dwg PLOT STYLE: COH.ctb

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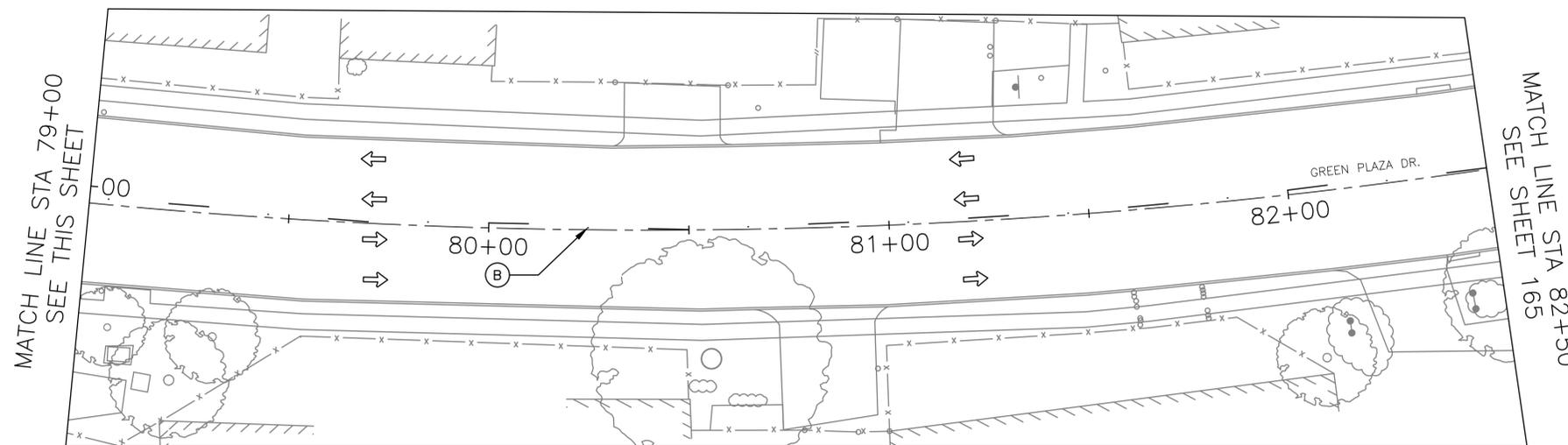


LEGEND:

- EXISTING SIGN
- FLOW OF TRAFFIC
- WB4-R40 (40 FT SPA & 10 FT STR, 4")
- YB4-A40 (40 FT SPA & 10 FT STR, 4")
- WS6-R20 (20 FT SPA & 10 FT STR, 4")
- YELLOW CURB
- REFL PAV MKR - TYP 1 SINGLE ARROW-LEFT/RIGHT
- REFL PAV MKR - TYP 1 WORD "ONLY"
- WS24
- WS12

NOTES:

1. REFERENCE SHEETS 166 - 174 FOR STANDARD PAVEMENT MARKING DETAILS.
2. REFERENCE SHEET 174 FOR CROSS WALK PAVEMENT MARKINGS DETAIL.



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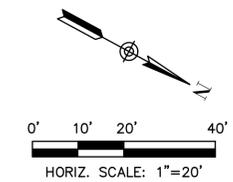
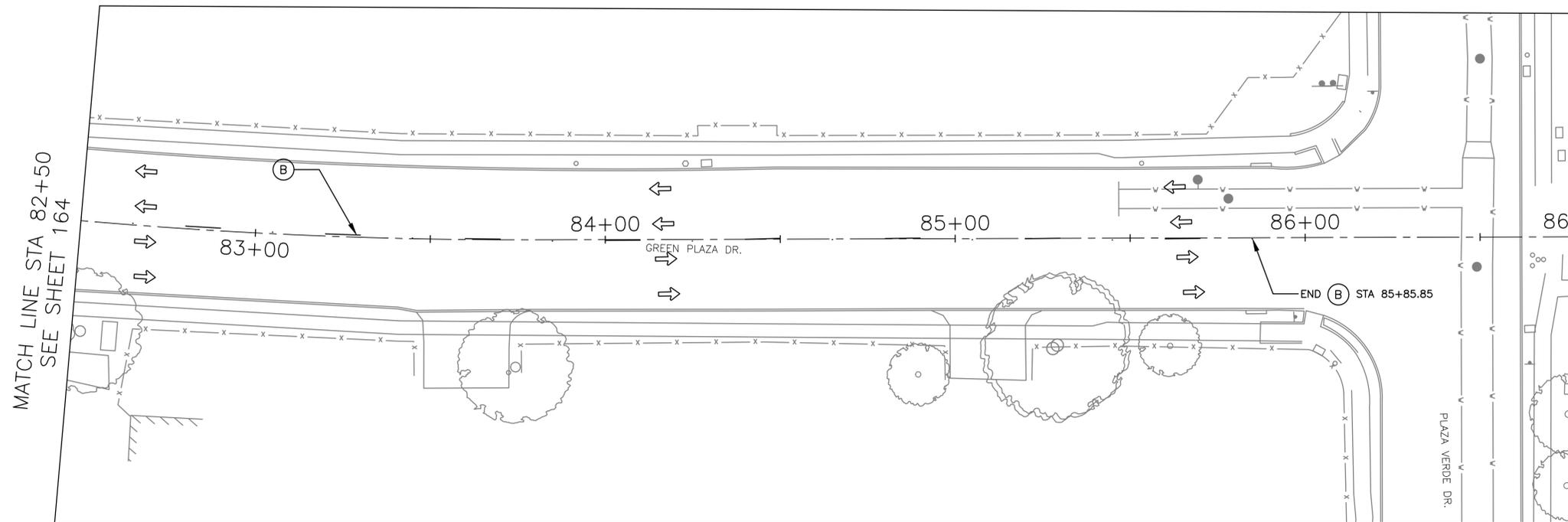
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK. GREEN PLAZA SHEET 1 OF 2

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LEGEND:

- EXISTING SIGN
- FLOW OF TRAFFIC
- WB4-R40 (40 FT SPA & 10 FT STR, 4")
- YB4-A40 (40 FT SPA & 10 FT STR, 4")
- WS6-R20 (20 FT SPA & 10 FT STR, 4")
- YELLOW CURB
- REFL PAV MRK - TYP 1 SINGLE ARROW-LEFT/RIGHT
- REFL PAV MRK - TYP 1 WORD "ONLY"
- WS24

NOTES:

1. REFERENCE SHEETS 166 - 174 FOR STANDARD PAVEMENT MARKING DETAILS.

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66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

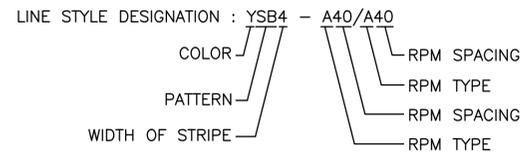
PAVE. MARK. GREEN
 PLAZA SHEET 2 OF 2

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DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES				
LINE SERIES	COLOR	DESCRIPTION	WIDTH (INCHES)	TYPICAL APPLICATIONS
WB	WHITE	BROKEN (10' STRIPE W/30' GAP)	4"	LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS PERMITTED.
WS	WHITE	SOLID	4"	EDGE LINES TO DELINEATE THE RIGHT EDGE OF THE ROADWAY.
			6"	LEFT EDGE OF BICYCLE LANE AND LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS DISCOURAGED.
			12"	PERPENDICULAR CROSSWALK LINES.
			24"	STOP BARS AT INTERSECTIONS (SIGNALIZED AND UNSIGNALIZED).
			12", 24"	HATCHING AT HIGH VISIBILITY CROSSWALKS.
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	GUIDE LINES THROUGH INTERSECTIONS. TAPER LINES FOR TURN LANES. GUIDE LINES FOR BICYCLE LANES.
			4"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
YS	YELLOW	SOLID	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 (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. 02784 EQUIVALENT	DESCRIPTION
C	CLEAR	TYPE I-C	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE DOES NOT REFLECT.
R	CLEAR & RED	TYPE II-C-R	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE REFLECTS RED LIGHT.
A	AMBER & AMBER	TYPE II-A-A	APPROACH FACE AND THE OTHER SIDE BOTH REFLECT AMBER LIGHT.



GENERAL PAVEMENT MARKING NOTES:

- 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.
- 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).
- THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
- THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
- ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
- 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.
- 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.
- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
- ALL RAISED PAVEMENT MARKERS (RPMs) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
- 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.
- THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
- BLUE RPMs MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
- FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
- FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

APPROVED BY: CITY ENGINEER	APPROVED BY: CITY TRAFFIC ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

10497 Town and Country Way, Suite 500
Houston, Texas 77024
Phone - (713) 600-6800
Web - www.freese.com

Aurora Technical Services, LLC
2121 SAGE ROAD, SUITE 150
PHONE: 281-453-7700
TX FIRM NO: F-2059

INTERIM REVIEW ONLY
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JEFFREY HAY
REGISTERED PROFESSIONAL ENGINEER
147887
REGISTRATION NUMBER

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS
CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
STANDARD DETAILS
SHEET 1 OF 9

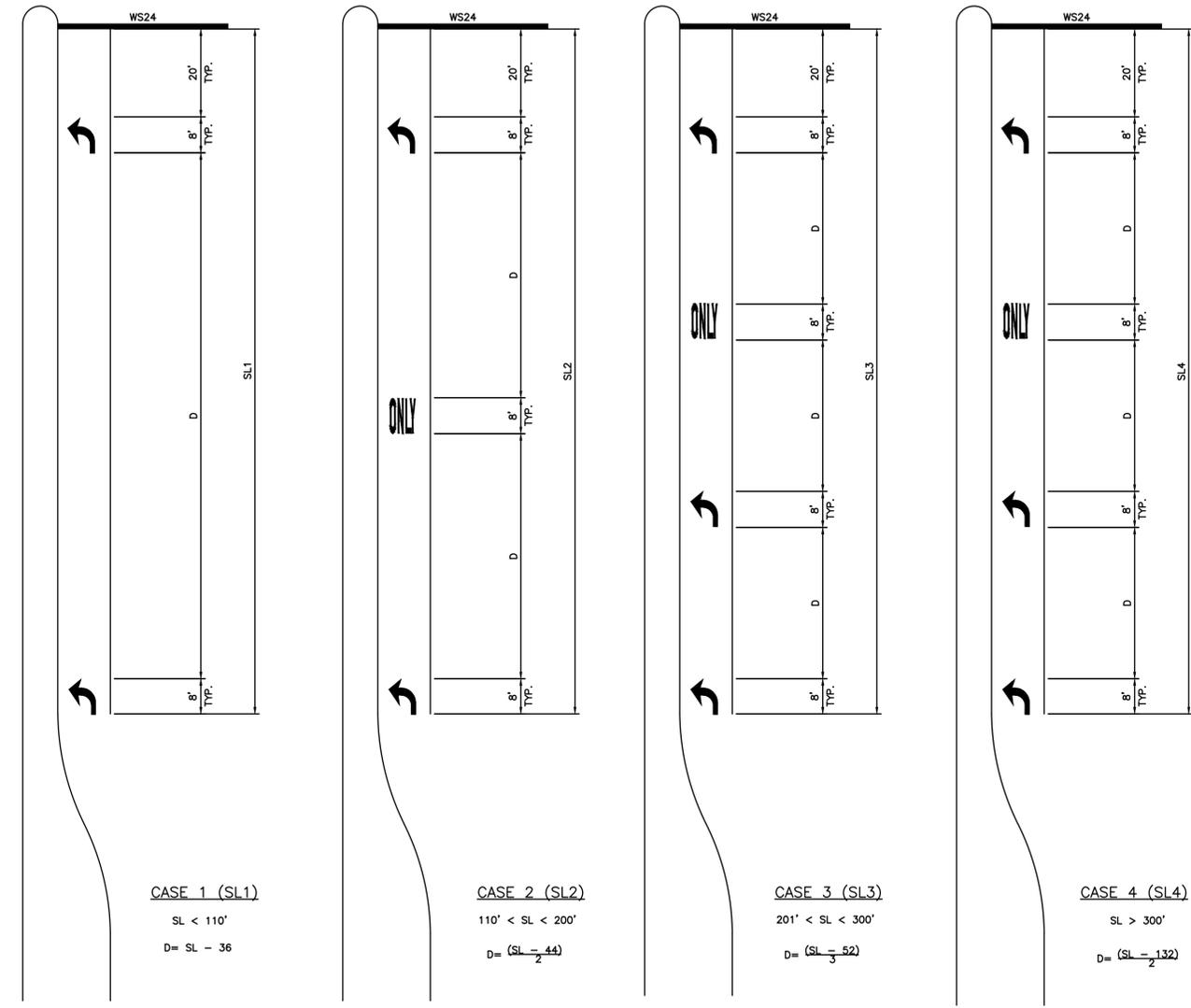
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 166 OF 176	

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: 	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: 	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-03
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STANDARD PAVEMENT MARKING - (WORDS)	
FOR CITY OF HOUSTON USE ONLY	
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NOT TO SCALE	

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 Aurora Technical Services, LLC 2121 SAGE ROAD, SUITE 150 HOUSTON, TEXAS 77059 PHONE: 281-453-7700 TX FIRM NO: F-2059	INTERIM REVIEW ONLY <small>Document incomplete; not intended for regulatory approval, permit, or construction.</small> JEFFREY HAY Professional Engineer 147887 Registration Number 008 Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR	
PAVE. MARK. STANDARD DETAILS SHEET 2 OF 9	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 167 OF 176	

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CASE 1 (SL1)
SL < 110'
D = SL - 36

CASE 2 (SL2)
110' < SL < 200'
D = (SL - 44) / 2

CASE 3 (SL3)
201' < SL < 300'
D = (SL - 52) / 3

CASE 4 (SL4)
SL > 300'
D = (SL - 132) / 2

KEY (FOR TURN LANES ONLY):
SL - STORAGE LENGTH (FEET)
D - DISTANCE BETWEEN ARROWS AND/OR WORDS (FEET)

- GENERAL NOTES:
- ALL CASES AND DETAILS ALSO APPLY TO RIGHT-TURN LANES.
 - FOR DUAL-TURN LANES, DIMENSIONS SHALL BE THE SAME FOR EACH LANE.
 - SL DIMENSION IS FROM BACK OF STOP LINE TO END OF TURN LANE.
NOTE: DO NOT INCLUDE TAPER LENGTH.
 - PAVEMENT ARROWS AND "ONLY" LEGEND MARKINGS ARE TYPICALLY USED AT ALL SIGNALIZED INTERSECTIONS AND AT ALL UNSIGNALIZED INTERSECTIONS THAT HAVE TURN LANES.
 - MINIMUM SL = 100'. SL MAY BE LESS THAN 100 FEET ONLY BY APPROVAL OF THE CITY TRAFFIC ENGINEER.

APPROVED BY: CITY ENGINEER	APPROVED BY: CITY TRAFFIC ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-02
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
LEFT/RIGHT-TURN "ONLY" AND ARROW SPACING	
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JEFFREY HAY
Professional Engineer
147887
Registration Number

Signature

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

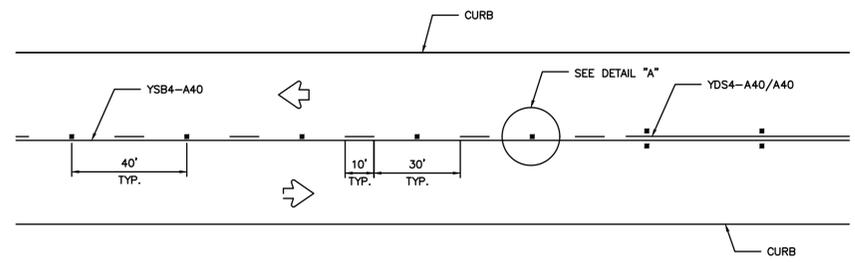
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
STANDARD DETAILS
SHEET 3 OF 9

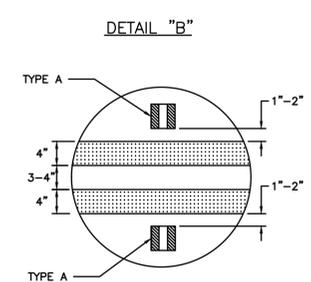
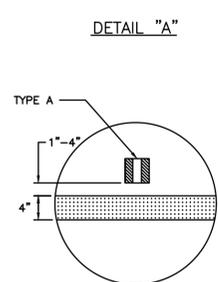
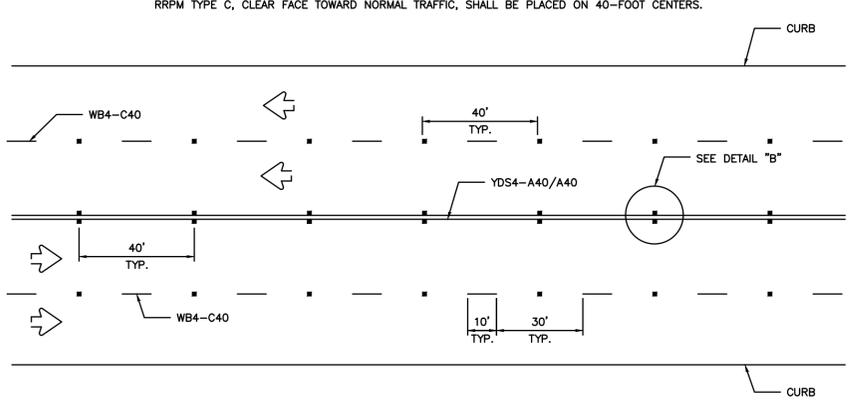
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 168 OF 176	

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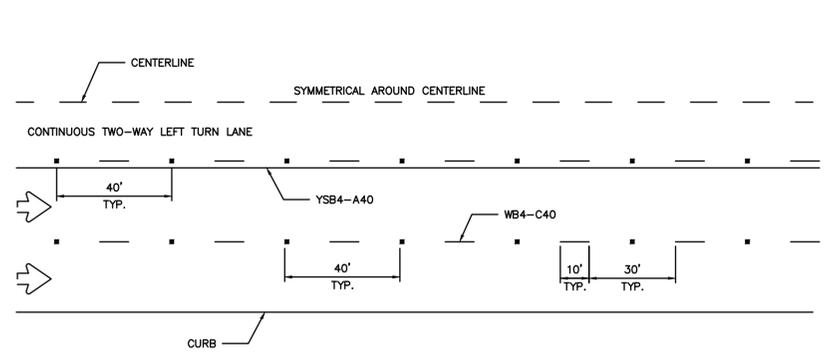
CENTERLINE & FOR ALL TWO LANE STREETS WITH PASSING ZONE



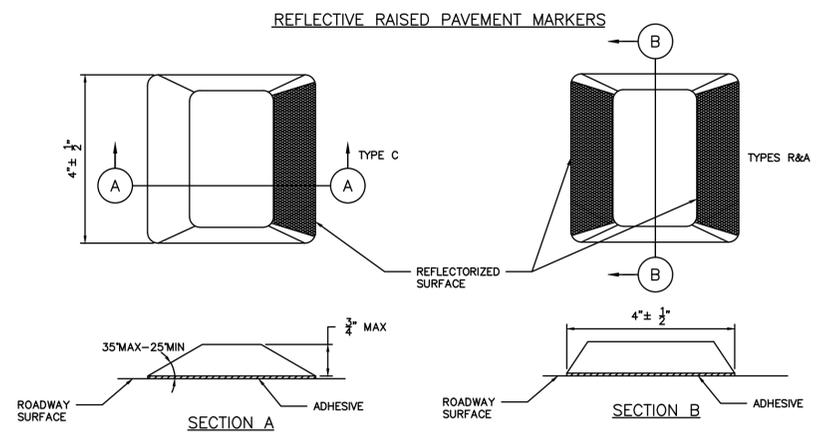
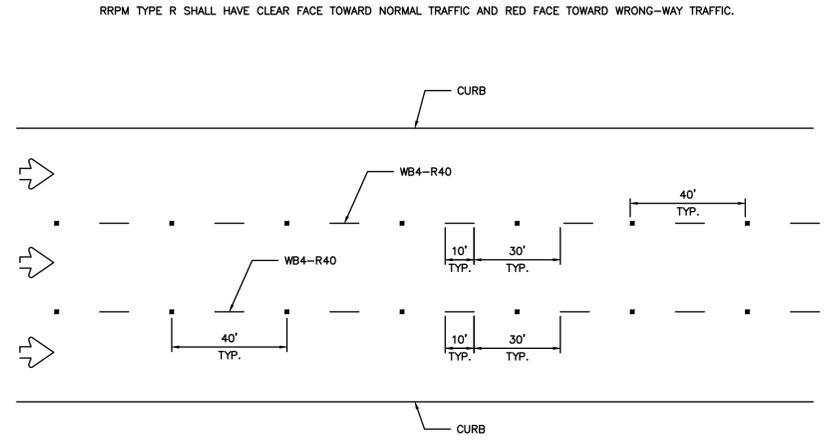
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY STREETS



CENTERLINE & LANE LINES FOR TWO-WAY LEFT TURN LANE



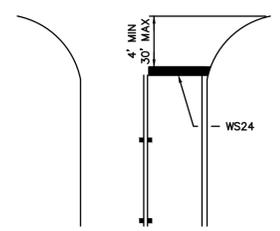
LANE LINES FOR ONE-WAY MULTILANE STREET



GENERAL NOTES:

1. EDGELINE ADJACENT TO CURB AND GUTTER IS NOT REQUIRED IN ALL CASES, HOWEVER SHALL BE PLACED AS DIRECTED BY CITY TRAFFIC ENGINEER.
2. THE TRAVELED WAY INCLUDES ONLY THAT PORTION OF THE ROADWAY USED FOR VEHICULAR TRAVEL AND NOT THE PARKING LANES, SIDEWALKS, BERMS AND SHOULDERS. THE TRAVELED WAY SHALL BE MEASURED FROM THE INSIDE OF EDGELINE TO INSIDE OF EDGELINE OF A TWO LANE ROADWAY.
3. ALL RAISED PAVEMENT MARKERS PLACED IN BROKEN LINES SHALL BE PLACED IN LINE WITH AND MIDWAY 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.

GUIDE FOR PLACEMENT OF STOP LINES & CENTERLINE



APPROVED BY: <i>Sulail Ismail</i> CITY ENGINEER	APPROVED BY: <i>JEFFREY HAY</i> CITY TRAFFIC ENGINEER
---	---

APPROVED BY: <i>Carla Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS
--

EFF DATE: NOV-27-2023	DWG NO: 02760-05
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**CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD**

STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE

FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE
NOT TO SCALE

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TX FIRM NO: F-2059

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JEFFREY HAY
147887
Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

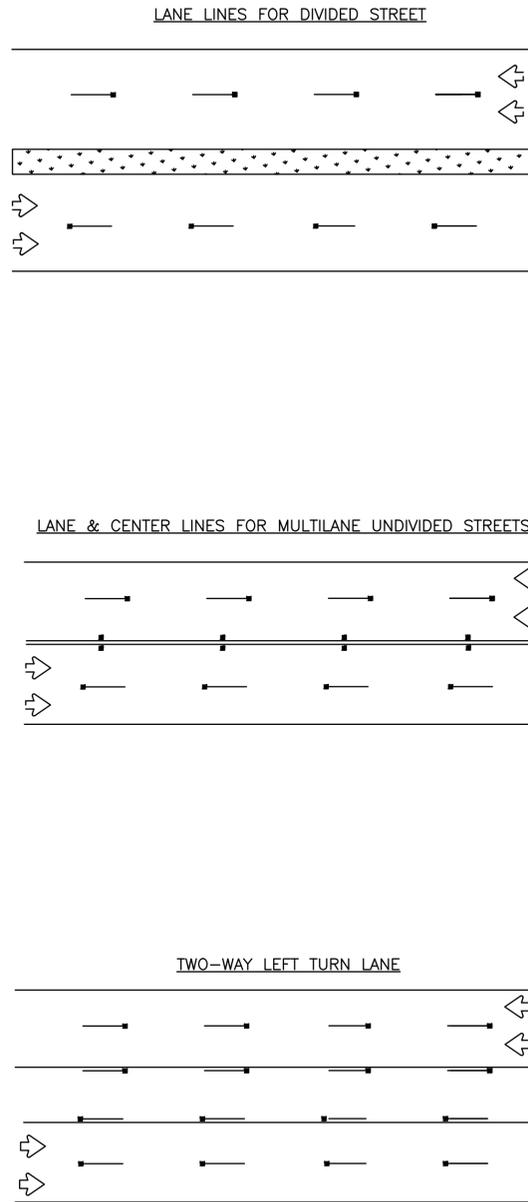
**CITY OF HOUSTON
HOUSTON PUBLIC WORKS**

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

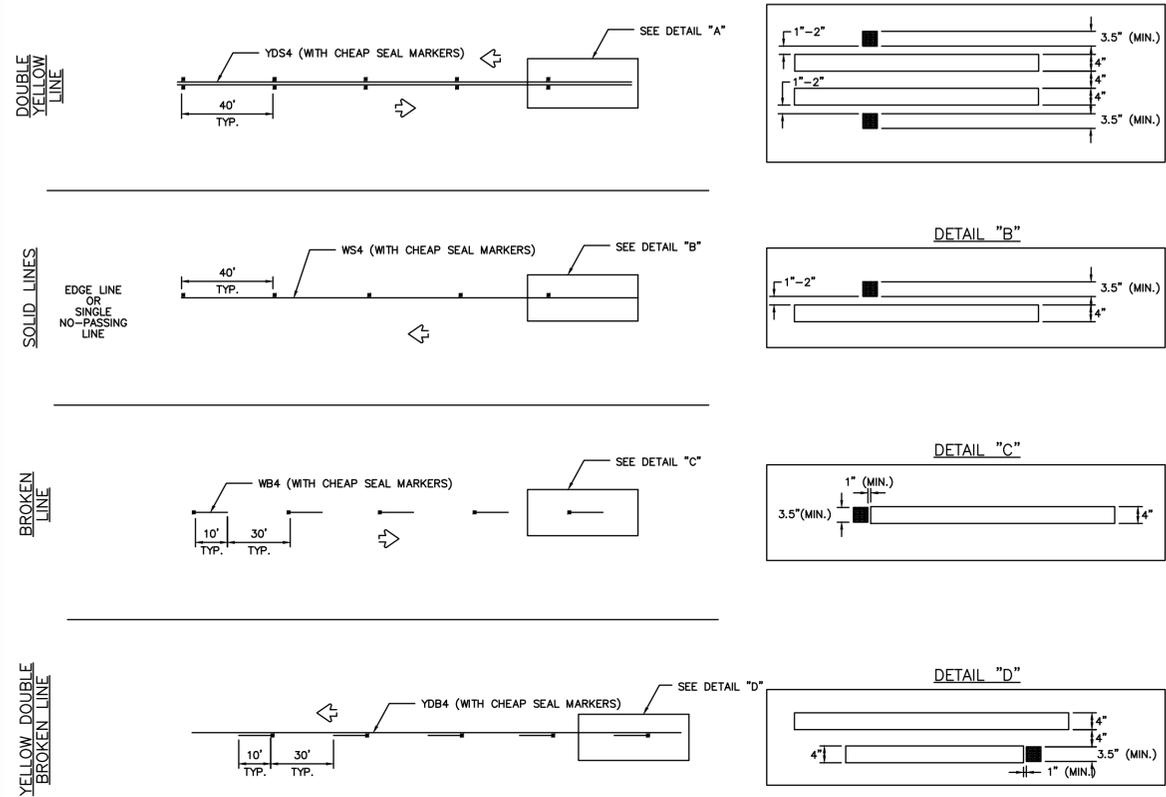
**PAVE. MARK.
STANDARD DETAILS
SHEET 5 OF 9**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 170 OF 176	

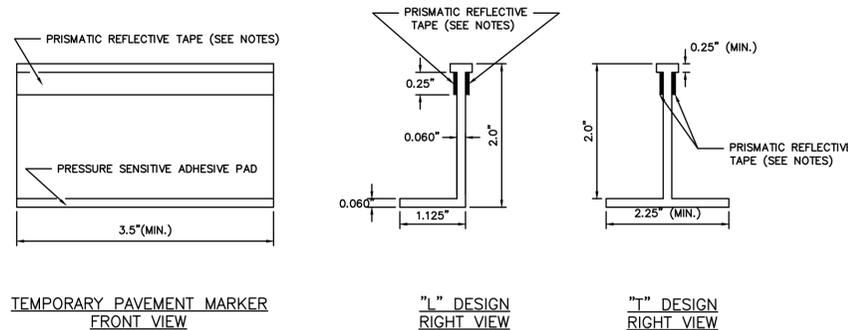
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TEMPORARY PAVEMENT MARKINGS PLACEMENT DETAILS



TEMPORARY CHIP SEAL MARKER DETAIL



NOTES:

1. YELLOW MARKERS SHALL HAVE YELLOW BODIES AND YELLOW REFLECTIVE TAPE.
2. WHITE MARKERS SHALL HAVE WHITE BODIES AND WHITE REFLECTIVE TAPE.
3. ONE-WAY OR TWO-WAY REFLECTIVE SHALL BE USED AS NECESSARY FOR APPLICATION.
4. THE CLEAR PLASTIC COVER MAY VARY FROM ONE MANUFACTURER TO ANOTHER IF DEEMED NECESSARY BY SPECIFIC PROJECT.
5. ALL TEMPORARY PAVEMENT MARKERS SHALL BE PLACED WITH REFLECTIVE SIDE FACING ONCOMING TRAFFIC.
6. ALL TEMPORARY STRIPING SHALL BE WATER BASED PAINT.

APPROVED BY: CITY ENGINEER	APPROVED BY: CITY TRAFFIC ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-06
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
REFLECTIVE CHIP SEAL MARKER USE FOR TEMPORARY MARKINGS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

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JEFFREY HAY
Professional Engineer
Registration Number: 147887

Aurora Technical Services, LLC
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F-2059

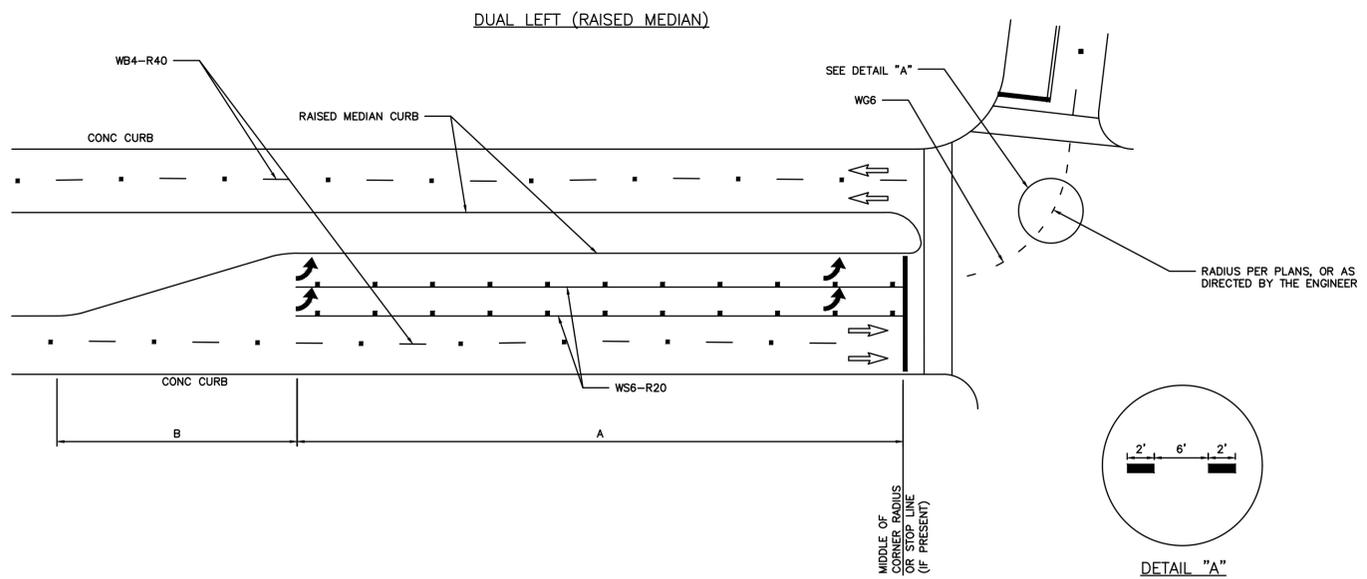
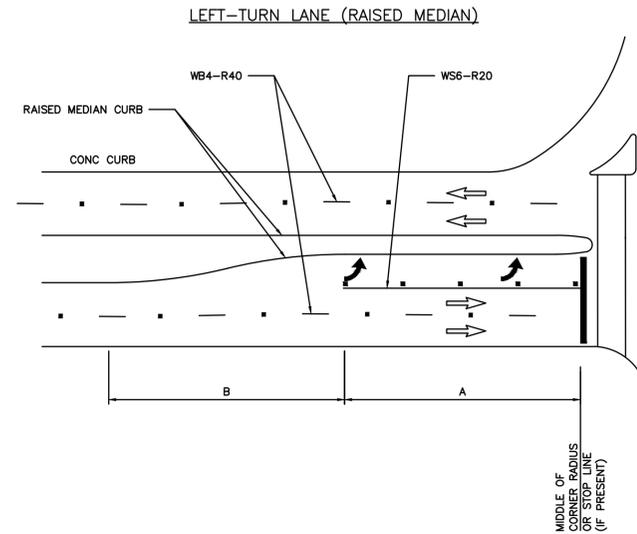
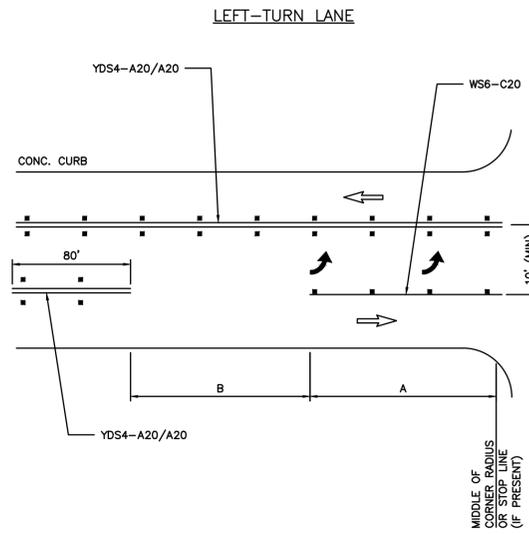
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
STANDARD DETAILS
SHEET 6 OF 9

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 171 OF 176	

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GENERAL NOTES:

1. THE DIMENSIONS GIVEN FOR DUAL LEFT (RAISED MEDIAN) ON THIS SHEET ARE ALSO APPLICABLE FOR DUAL RIGHT-TURN LANES.
2. STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS.
3. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS REFER TO 02760-02 - LEFT/RIGHT TURN "ONLY" AND ARROW SPACING.
4. REFER TO APPLICABLE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE AND LEFT-TURN & RIGHT-TURN LANE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKINGS.
5. REFER TO BICYCLE LANE PAVEMENT MARKINGS STANDARD FOR TYPE AND PLACEMENT.

LEFT TURN BAY NOTES:

1. LEFT TURN BAY DIMENSIONS
 - A = 150' MINIMUM AT INTERSECTION OF TWO (2) MAJOR STREETS WHEN PRACTICAL.
 - = 100' MINIMUM AT ALL OTHER INTERSECTIONS.
 - B = 100' MINIMUM ON STRAIGHT ROADWAYS.
 - *TAPER LENGTH MAY BE SHORTER IF IT IS ON A HORIZONTAL CURVE TO THE LEFT.
 - *TAPER LENGTH MAY BE LONGER IF CURVE IS TO THE RIGHT.
2. DIMENSIONS SHALL BE ADJUSTED AS DETERMINED BY CITY OF HOUSTON TRAFFIC ENGINEER.
3. REFER TO CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL (FIGURE 10.8) FOR DETAILS.

APPROVED BY:  CITY ENGINEER	APPROVED BY:  CITY TRAFFIC ENGINEER
APPROVED BY:  DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-13
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
LEFT-TURN LANE & RIGHT-TURN LANE DESIGN	
SHEET 01 OF 02	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	



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JEFFREY HAY
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147887
Registration Number

Aurora Technical Services, LLC
Texas Registered Engineering Firm F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
STANDARD DETAILS
SHEET 7 OF 9

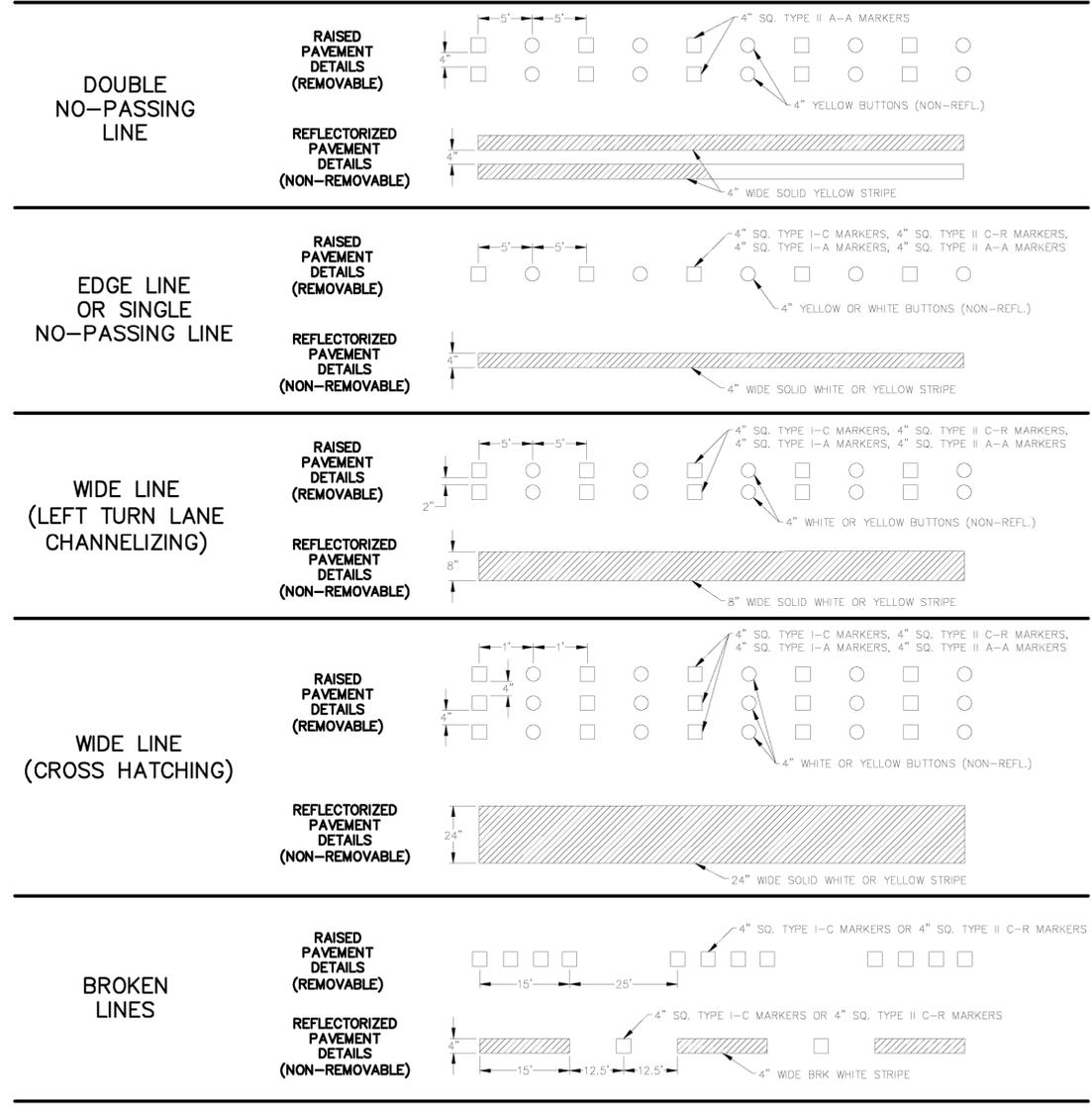
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 172 OF 176	

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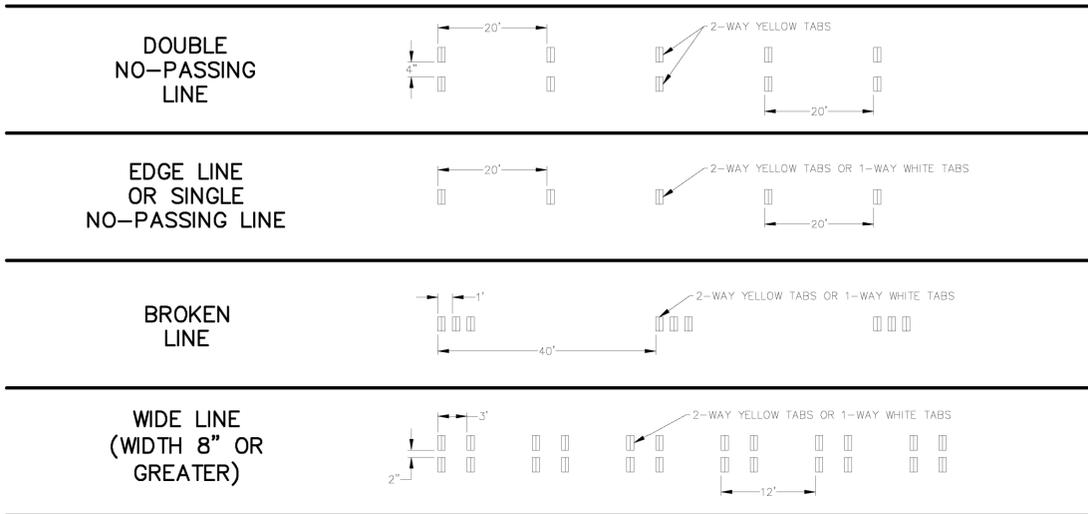
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J:\Engineering Specs\Harris County Standard Traffic Drawings-Master File\20190703 Standard Traffic Drawings\2-Pavement Marking and Sign\PM-T.dwg

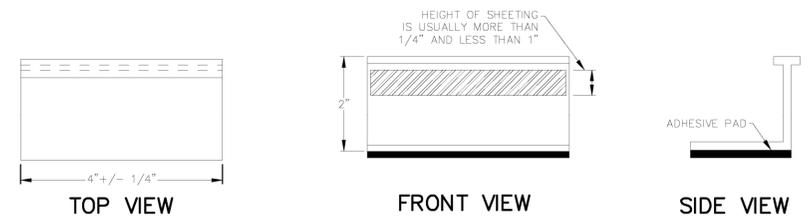
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SHORT TERM WORK ZONE PAVEMENT MARKINGS DETAILS ASPHALT SURFACE TREATMENTS (ONLY)



TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTORIZED ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY ENGINEERING DEPARTMENT



FOR INTERIM REVIEW ONLY
 DOCUMENT INCOMPLETE:
 NOT INTENDED FOR CONSTRUCTION,
 BIDDING, OR PERMIT PURPOSES

ENGINEER: NAME
 P.E. SERIAL No. NUMBER
 DATE: / /

PROJECT TITLE: TEMPORARY PAVEMENT MARKING DETAILS		TRAFFIC STANDARD PM-T
DRAWN BY: BSH	DATE: 7/3/19	SHEET NO.:
CHECKED BY: BSH	SCALE: NONE	

FREES & NICHOLS
 10497 Town and Country Way, Suite 500
 Houston, Texas 77024
 Phone - (713) 600-6800
 Web - www.freese.com

Aurora Technical Services, LLC
 2121 SAGE ROAD, SUITE 150
 HOUSTON, TEXAS 77059
 TX FIRM NO: F-2059

SURVEYED BY: LANDTECH
 FB NO. P-6342

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REGISTERED PROFESSIONAL ENGINEER
JEFFREY HAY
 Registration Number: 147887
 State: TX

Aurora Technical Services, LLC
 Texas Registered Engineering Firm
 F-2059

CITY OF HOUSTON

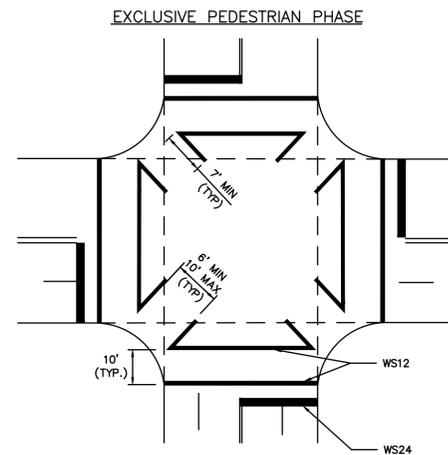
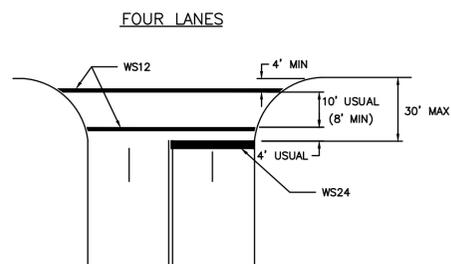
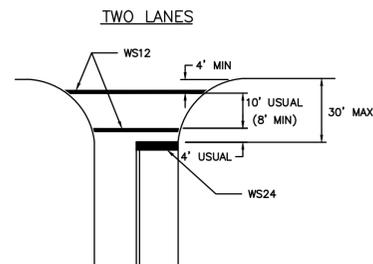
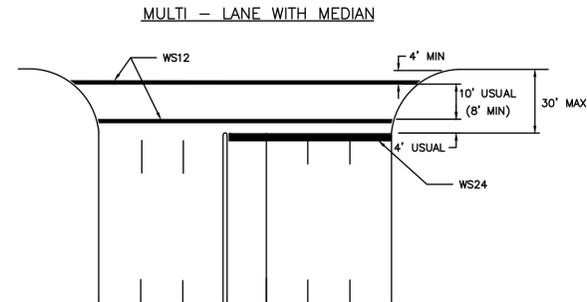
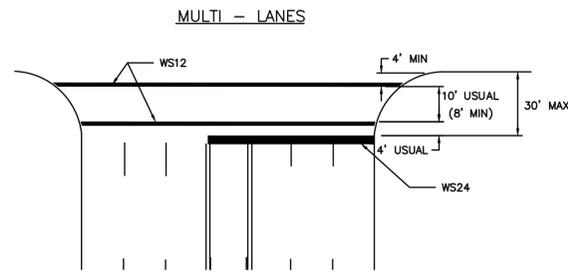
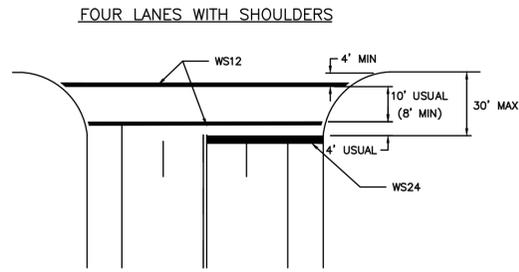
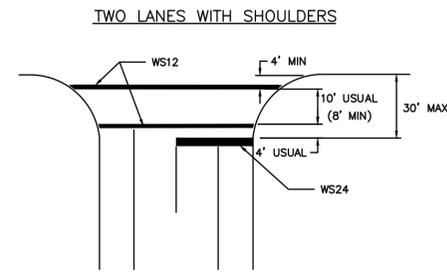
HOUSTON PUBLIC WORKS

66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

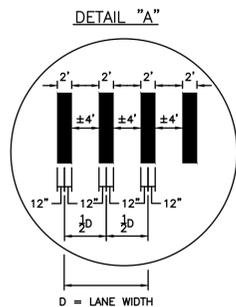
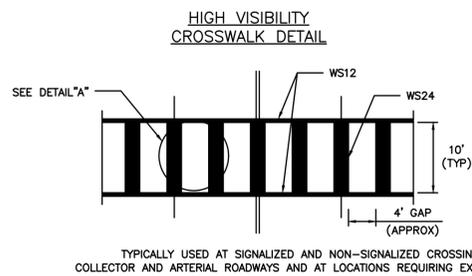
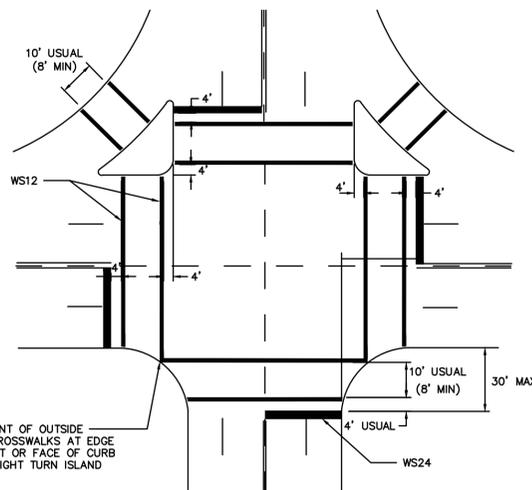
PAVE. MARK. STANDARD DETAILS SHEET 8 OF 9

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 173 OF 176	

DISCLAIMER: THE USE OF THIS STANDARD IS COVERED 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.



INTERSECTION WITH RIGHT-TURN ISLANDS



COMMON POINT OF OUTSIDE EDGES OF CROSSWALKS AT EDGE OF PAVEMENT OR FACE OF CURB WHERE NO RIGHT TURN ISLAND EXIST.

NOTES:

- CROSSWALKS AND STOP LINES SHALL BE WHITE.
- "D" IS EQUAL TO ONE HALF THE WIDTH OF TRAVEL LANE.

APPROVED BY:  CITY ENGINEER	APPROVED BY:  CITY TRAFFIC ENGINEER
APPROVED BY:  DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-12
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CROSSWALK DETAILS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	



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JEFFREY HAY
Professional Engineer
147887
Registration Number
005

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059



2121 SAGE ROAD, SUITE 150
PHONE: 281-453-7700
TX FIRM NO: F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SURVEYED BY: LANDTECH
FB NO. P-6342

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

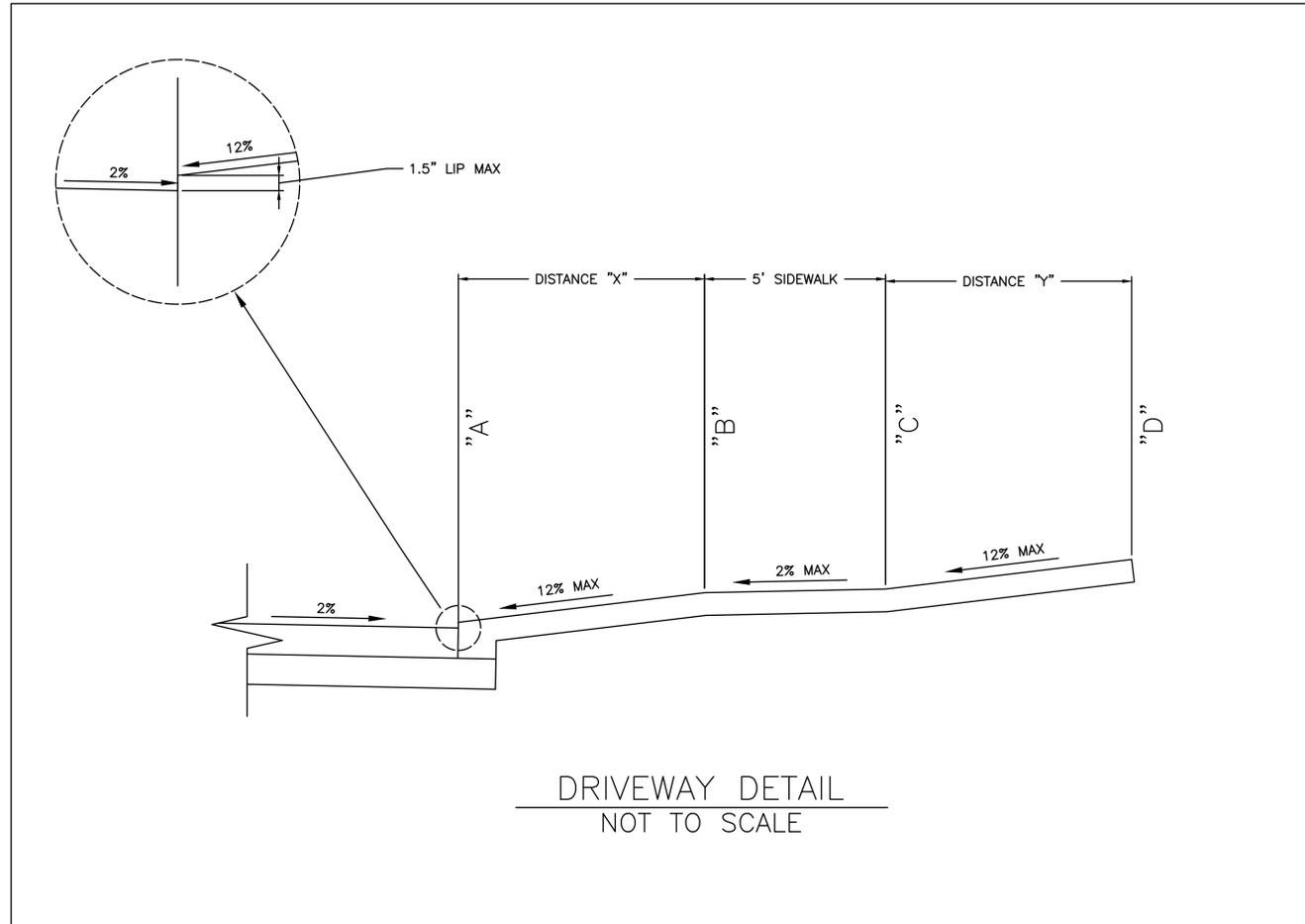
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR

PAVE. MARK.
STANDARD DETAILS
SHEET 9 OF 9

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000900-0178-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 174 OF 176	

DRIVEWAY SCHEDULE

DRIVEWAY NO.	CL STA AT POINT "A"	OFFSET AT POINT "A" (FT)	DRIVEWAY WIDTH "W" (FT)	CENTERLINE ELEVATION	EL AT POINT "A"	EL AT POINT "B"	EL AT POINT "C"	EL AT POINT "D"	DISTANCE "X" (FT)	DISTANCE "Y" (FT)	SIDEWALK WIDTH (FT)	DRIVEWAY THICKNESS (IN)	CONSTRUCTION ZONE
1	65+61.86	39.11	35	85.32	84.67	85.12	85.22	85.40	4.4	1.46	5	9	7
2	68+13.41	39.91	35	85.96	85.31	85.39	85.50	85.70	4.42	1.64	5	9	7
3	76+99.16	19.82	24	85.55	85.28	85.54	85.65	85.75	4.32	0.85	5	9	5
4	80+45.93	20.6	24	84.78	84.49	84.97	85.07	85.29	2.61	1.84	5	9	6
5	81+14.55	20.6	24	84.56	84.28	84.37	84.48	84.61	3.31	1.10	5	9	6



NOTES:
1. REFERENCE SHEETS 113 & 114 FOR STANDARD DRIVEWAY DETAILS.



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F-2059

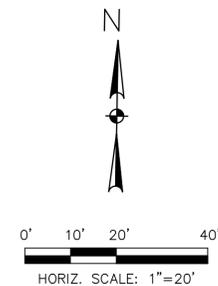
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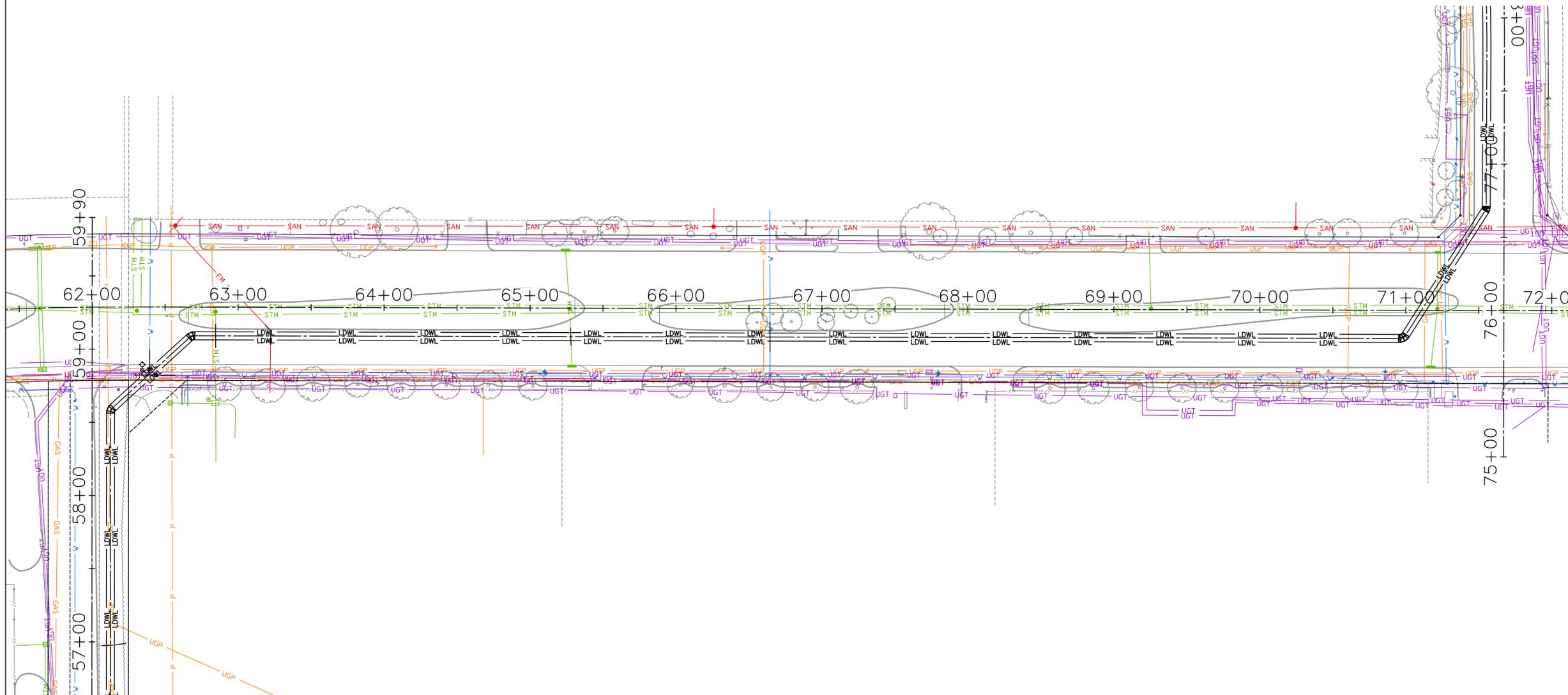
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DRIVEWAY SCHEDULE

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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 175 OF 176	



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

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

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

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 Houston, Texas 77024
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SURVEYED BY: LANDTECH, INC.
 FB NO. P-6342

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
66-INCH WATER LINE FROM GREENS CROSSING BLVD TO PLAZA VERDE DR
STREET LIGHTING PLAN
FALLBROOK DR

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JOAQUIN LOPEZ	
SHEET NO. 176 OF 176	