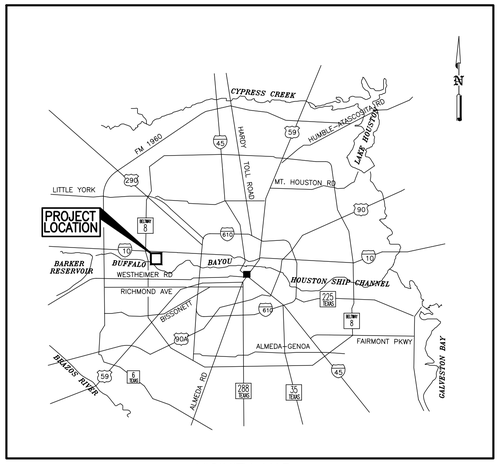
CITY OF HOUSTON

TIRZ 17
MEMORIAL CITY AREA
DETENTION BASIN

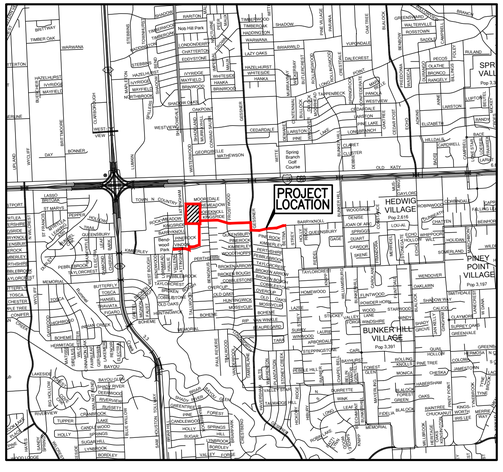
WBS NO. M-430296-0017-3

90% SUBMITTAL

FEBRUARY 2026



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

KEY MAP NO: 413X, 413Y, 453B, AND 453C
FEMA FIRM MAP NO: 48201C0645L
FEMA FIRM MAP DATE: 06/18/2007
GIMS TITLE NO: 5361B, 5361D
COUNCIL DISTRICT: G

TDLR EABPR _____

MAYOR
JOHN WHITMIRE

CONTROLLER
CHRIS HOLLINS

DISTRICT
COUNCIL MEMBERS

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

COUNCIL MEMBERS
AT-LARGE

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

NO.	DATE	REVISION	APP.

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO.

Parks–Forestry Dept.

Metro

Houston Water

Transportation & Drainage Operations

Capital Projects

Survey

FOR CITY OF HOUSTON USE ONLY

CITY ENGINEER DATE

DIRECTOR OF HOUSTON PUBLIC WORKS DATE

SHEET NO 01 OF 343 SHEETS

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No.	Date	Revisions	App.

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NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INDEX OF SHEETS

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

NOT TO SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 02 OF 343

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GENERAL CONSTRUCTION NOTES (OUTSIDE 610)

1. UNLESS OTHERWISE NOTED AND APPROVED ON DRAWINGS, CONSTRUCT CIVIL INFRASTRUCTURE IN ACCORDANCE WITH THE EFFECTIVE EDITION OF THE HOUSTON PUBLIC WORKS STANDARD CONSTRUCTION SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, AND SUPPLEMENTS, ADDENDA AND AMENDMENTS THERETO. THE LATEST EDITION OF THE ABOVE PUBLICATIONS CAN BE FOUND AT: HTTP://WWW.HOUSTONPERMITTINGCENTER.ORG/OFFICE-CITY-ENGINEER/DESIGN-AND-CONSTRUCTION-STANDARDS.

2. THE DESIGN MUST BE CONSISTENT WITH THE EFFECTIVE EDITION OF HOUSTON PUBLIC WORKS INFRASTRUCTURE DESIGN MANUAL AND TCEQ (TEXAS COMMISSION ON ENVIRONMENTAL QUALITY) REQUIREMENTS.

3. THE GEOTECHNICAL INVESTIGATION FOR THIS PROJECT WAS CONDUCTED IN ACCORDANCE WITH CHAPTER 11 OF THE LATEST EDITION OF THE PUBLICATION INFRASTRUCTURE DESIGN MANUAL, PUBLISHED BY HOUSTON PUBLIC WORKS. SOILS REPORT WAS PREPARED BY HVJ ASSOCIATES,INC REPORT NO.HG2110495.1, DATED MARCH 6, 2025.

4. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567/811 OR 800-344-8377 AND LONE STAR NOTIFICATION CENTER AT 800-669-8344 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION. UTILITIES MARKED WITHIN THE PUBLIC RIGHT OF WAY OR IN EASEMENTS SHALL COMPLY WITH TAC TITLE 16, PART 1, CHAPTER 18, RULE §18.6 AND THE AMERICAN PUBLIC WORKS ADMINISTRATION (APWA) UNIFORM COLOR CODE.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE EFFECTIVE EDITION OF HOUSTON PUBLIC WORKS, STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC, REFERENCED ABOVE AND SUPPLEMENTS, ADDENDA AND AMENDMENTS THERETO, AT NO ADDITIONAL COST TO THE CITY OF HOUSTON.

6. CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, HOUSTON PUBLIC WORKS @ 832-394-9098 OR VIA FAX AT 832-395-4424 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.

7. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITIONS OR BETTER AND TO THE SATISFACTION OF THE OWNING AUTHORITY.

8. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.

9. CONTRACTOR SHALL COMPLY WITH LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.

10. CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS AND RECORD AS-BUILT CONDITIONS DURING CONSTRUCTION. THESE AS-BUILT DRAWINGS WILL BE SUBMITTED TO THE DESIGN CONSULTANT WHO WILL MAKE THE CHANGES ON THE ORIGINAL TRACINGS, LABEL EACH SHEET IN THE SET AS "RECORD DRAWINGS", AND RETURN IT TO THE OFFICE OF THE CITY ENGINEER.

SANITARY SEWER NOTES

1. ALL SEWERS SHALL BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 217, "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS" SHALL GOVERN WHERE CONFLICTS EXIST EXCEPT WHERE CITY REQUIREMENTS ARE MORE STRINGENT.

2. ALL MANHOLES ARE TO BE PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02082-01, 02082-02, 02082N-02, 02082-03, AND 02082N-03 UNLESS OTHERWISE NOTED. USE THE LATEST VERSION AS APPLICABLE.

3. SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHWISE NOTED.

4. THE SANITARY SEWER PVC PIPE SHALL BE ASTM D 3034 TYPE PSM SDR 26 GRAVITY SEWER PIPE, ASTM D2241 SDR 26 PRESSURE RATED SEWER PIPE OR AWWA C-900 DR-18 GREEN PVC PRESSURE RATED SEWER PIPE BASED ON CONSTRUCTION CONDITION REQUIREMENT AND CONFORMING TO ASTM D1784 AND CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02506 POLYVINYL CHLORIDE PIPE.

5. WHEN SS PRESSURE RATED PVC PIPE IS USED ON WATERLINE (WL) CROSSING UNDER CONDITION 1 OF COH IDM TABLE 7.3, THE SAME TYPE OF D2241 SDR 26 PVC PIPE OR C-900 GREEN DR-18 PVC GREEN PRESSURED TO BE UTILIZING IN-BETWEEN TWO SS MH'S, OR TO UTILIZE A DI TRANSITION ADAPTER FOR THE CONNECTING OF ASTM D-3034 PVC GRAVITY PIPE TO DI-OD AWWA C-900 PVC PIPE CENTERED AT WL WHEN CONNECTING TWO DIFFERENT TYPES OF PVC PIPES FOR SEWER CONSTRUCTION.

6. AWWA C-900 DR-18 PVC PIPE USES EITHER AWWA C900 DR-18 PVC FITTINGS OR DIP FITTINGS.

7. ALL SANITARY SEWER LINES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1 ½ SACK CEMENT/CY STABILIZED SAND IN ACCORDANCE WITH SECTION 02317-EXCAVATION AND BACKFILL FOR UTILITIES, CITY STANDARD DETAILS DRAWING NUMBERS 02317-03 THROUGH 07,AND THE GEOTECHNICAL REPORT REFERENCED IN GENERAL CONSTRUCTION NOTE3. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.

8. ALL NEW SANITARY SEWERS CROSSING WATER LINES WITH A CLEARANCE BETWEEN 12 INCHES AND 9 FEET SHALL HAVE A MINIMUM OF ONE 18' JOINT OF DUCTILE IRON OR (GREEN) C900 PVC PIPE MEETING ASTM SPECIFICATION D2241 CENTERED ON WATER LINE. WHEN WATER LINE IS BELOW SANITARY SEWER, PROVIDE MINIMUM 2 FOOT SEPARATION.

9. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.

10. SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" – 6" ABOVE THE SURROUNDING LEVEL FINISHED GRADE AFTER PAVING WITH SLOPED BACKFILL ADDED FOR STORM WATER TO DRAIN AWAY FROM MANHOLE RIM.

11. IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBER 02317-02.

12. DEFLECTION TEST: DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIGID SEWER PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5% IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE TEST SHALL BE PERFORMED AS PER 30 TAC 217.57 LATEST AMENDMENT AND WITHOUT MECHANICAL PULLING DEVICES. NO BALL-TYPE MANDREL IS ALLOWED.

13. INFILTRATION, EXFILTRATION OR LOW-PRESSURE AIR TEST: EITHER OF THE FOLLOWING TESTS SHALL BE PERFORMED AS PER TAC, TITLE 30 217.57 WITHIN THE SPECIFIED TOLERANCES ON ALL GRAVITY SEWERS.

A. INFILTRATION OR EXFILTRATION TEST: TOTAL LEAKAGE AS DETERMINED BY A HYDROSTATIC HEAD TEST SHALL NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO (2) FEET.

B. LOW-PRESSURE AIR TEST: PERFORM TEST ACCORDING TO UNI-B-6-90 OR OTHER APPROPRIATE PROCEDURES. FOR SECTIONS OF PIPE LESS THAN 36" (INCH) AVERAGE INSIDE DIAMETER, THE MINIMUM ALLOWABLE TIME FOR PRESSURE DROP FROM 3.5 P.S.I.G. TO 2.5 P.S.I.G. SHALL BE AS FOLLOWS:
6" 340 SECONDS OR 0.855(L) FOR TEST LENGTHS GREATER THAN 398'
8" 454 SECONDS OR 1.520(L) FOR TEST LENGTHS GREATER THAN 298'
10" 567 SECONDS OR 2.374(L) FOR TEST LENGTHS GREATER THAN 239'
12" 680 SECONDS OR 3.419(L) FOR TEST LENGTHS GREATER THAN 199'
15" 850 SECONDS OR 5.342(L) FOR TEST LENGTHS GREATER THAN 159'
18" 1020 SECONDS OR 7.693(L) FOR TEST LENGTHS GREATER THAN 133'

WHERE L = LENGTH OF LINE OF SAME PIPE SIZE IN FEET.

14. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"

15. FOR SANITARY MANHOLE (MH) RIMS SET INSIDE OF OR @ CURB & GUTTER PAVEMENT AND/OR BELOW T.C., MH RIMS WILL BE SET FLUSHED WITH AN ABUTTING PAVED SURFACE. THE (VALCUN, NEENAH OR EQUAL) HEAVY DUTY BOLTED SOLID MH COVER SHALL BE PROPERLY (AND SECURELY) ATTACHED AND SEALED TO ITS COMPATIBLE GASKETED FRAME BY USING BOTH A NEOPRENE GASKET AND (AT LEAST) 4 COUNTER-SUNK HEX-HEAD COARSE THREADED ½"-13 UNC STAINLESS STEEL BOLTS. THE HEAVY DUTY FRAME MH COVER SHALL BE SOLID (NO AIR HOLES). SAID FRAME SHALL BE BOTH EMBEDDED INTO THE MH'S TOP ALSO SECURELY ANCHORED TO THE UNDERLYING MH STRUCTURE WITH EITHER SECURELY ATTACHED EMBEDDED ANCHOR BOLTS OR THE CONCRETE MH'S EXPOSED REBARS WELDED TO THE FRAME OR OTHER EQUALLY SECURED METHODS TO PREVENT MH COVER/FRAME BLOW-OFFS/EJECTIONS.

STORM NOTES

1. STORM SEWER SHALL BE REINFORCED CONCRETE PIPE (C-76, CLASS III), AND SHALL BE INSTALLED, BEDDED, AND BACK FILLED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 2317-02, 02317-3, 02317-05, 02317-06, AND 02317-07 (JULY 2019) AS APPLICABLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

2. ALL STORM SEWER CONSTRUCTED IN SIDELOT EASEMENT SHALL BE R.C.P (C-76, CLASSIII) AND SHALL BE EMBEDDED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06, AND 02317-07 AS APPLICABLE.

3. ALL STORM SEWER PIPES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1 ½ SACK CEMENT/CY STABILIZED SAND IN ACCORDANCE WITH SECTION 02317-EXCAVATION AND BACKFILL FOR UTILITIES, CITY STANDARD DETAILS DRAWING NUMBERS 02317-03 THROUGH 07,AND THE GEOTECHNICAL REPORT REFERENCED IN GENERAL CONSTRUCTION NOTE3. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.

4. ALL TRENCH BACKFILL SHALL BE IN 8" LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHNICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).

5. CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINT CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY.

6. ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24" AND LARGER R.C.P. (C-76, CLASSIII).
7. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.

8. MINIMUM HORIZONTAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 48-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES. MINIMUM VERTICAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 24-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES.

9. ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02086-ADJUSTING MANHOLES, INLETS, AND VALVE BOXES TO GRADE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACK SLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.

11. ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED, AND FERTILIZED.

12. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.

STREET AND BRIDGE NOTES

1. FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY PRIOR TO INSTALLATION OF WATER LINE AND FILL AREA SHALL BE SEEDED AND FERTILIZED WITHIN 10 WORKING DAYS.

2. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURBED INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.

3. CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.

4. EXISTING PAVEMENTS, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF HOUSTON STANDARDS, WITH LATEST ADDENDA AND AMENDMENTS THERETO.

5. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.

6. EXPOSED 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BARS 24" LONG 24" C-C DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.

7. WHEELCHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF HOUSTON STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST AND THE EXISTING CURB OR SIDEWALK IS DAMAGED OR REMOVED DURING CONSTRUCTION.

8. PRIOR TO STREET CONSTRUCTION, THE CONTRACTOR SHALL CONTACT HOUSTON PUBLIC WORKS AT (PHONE) 832-394-9578 AND COMPLY WITH ALL REQUIREMENTS FOR THE ISSUANCE OF NECESSARY PERMITS/WORK ORDERS FOR STREET CONSTRUCTION.

9. DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 6-INCHES OFFSET OF THE CENTERLINE OF ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.

SWPPP CONSTRUCTION NOTES

1. CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES AND REINFORCED FILTER FABRIC BARRIER ALONG ROAD AND SIDE DITCHES AT LOCATIONS SHOWN ON THE TYPICAL STORM WATER POLLUTION PREVENTION (SWPP) PLANS TO KEEP SILT AND OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM WATER INLETS AND DITCHES EVENTUALLY POLLUTING THE RECEIVING STORM.

2. DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATION MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FROM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEPT BACK INTO THE EXCAVATED AREA.

3. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FORM THE EXCAVATED AREA.

4. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.

5. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.

- DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
- AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
- STRUCTURAL CONTROL MEASURES.
- LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

6. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION ON BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 4:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.

STANDARD HCFCD NOTES FOR CONSTRUCTION DRAWINGS

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AND APPROVALS, WITH ASSISTANCE FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.
2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS OF ENGINEERS INDIVIDUAL SECTION 404 PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON, TEXAS 77092, ATTN: PROPERTY MANAGEMENT DEPT. BY HAND DELIVERY, OR FAX TO 346-286-4192 (FAX NUMBER).
3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE STAKED AND FLAGGED.
4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.
5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4"
7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATION, SECTION 02315 – EXCAVATING AND BACKFILLING, OR EQUIVALENT.
8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.
9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION.
10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILL IS TO BE PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GENERAL CONSTRUCTION NOTES

SHEET 1 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 03 OF 343

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TRAFFIC NOTES

CONTRACTOR OR OWNER SHALL SUBMIT TRAFFIC CONTROL PLANS WITH THE MOBILITY PERMIT APPLICATION. THE PLANS SHALL BE DRAWN TO SCALE AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS.

THE GENERAL NOTES THAT SHALL BE INCLUDED ON THE TRAFFIC CONTROL PLAN CAN BE FOUND IN CHAPTER 15 (15.12 TRAFFIC CONTROL PLAN) OF THE CITY OF HOUSTON'S (CITY) INFRASTRUCTURE DESIGN MANUAL (IDM). BELOW ARE SEVERAL KEY NOTES FROM THE IDM TO BE AWARE OF:

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. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00PM TO 7:00AM.

3.CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLAINT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO THE BUS STOP.

4.CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.

5.CONTRACTOR SHALL SECURE ROADWAY/SIDEWALK/STREET/BICYCLE FACILITY PERMITS AS DESCRIBED IN CITY OF HOUSTON ORDINANCE, CHAPTER 40 – STREETS & SIDEWALKS, SECTION 40-361 FROM HOUSTON PERMITTING CENTER (MOBILITY PERMIT SECTION AT HTTPS://GEOHUB.HOUSTONTX.GOV) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN BUSINESS DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.

6.CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES

7.ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAY, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE CITY OF HOUSTON.

ADDITIONAL OFF DUTY POLICE OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DIRECTION OF THE CITY EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.

TRAFFIC SIGNAL NOTES

1. ALL EQUIPMENT / MATERIALS AND CONSTRUCTION SHALL MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CURRENT CITY OF HOUSTON STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, THE PROJECT SPECIFIC SPECIFICATIONS AND THE PLANS.

2. ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE PROVISIONS AND REQUIREMENTS OF THE CITY ELECTRICAL CODE.

3. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

4. THE CONTRACTOR SHALL ARRANGE THE INSTALLATION OF SIGNALS, POLES AND CONDUIT SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF TRAFFIC IN ALL DIRECTIONS AT ALL TIMES. THE CONTRACTOR SHALL NOT CLOSE MORE THAN ONE LANE OF A ROADWAY AT ONE TIME WITHOUT PRIOR APPROVAL OF THE CITY.

5. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ALL LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS EACH DAY PRIOR TO WORK BEING SUSPENDED FOR THAT DAY.

6. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE TO ARRANGE FOR METER AND ELECTRICAL SERVICE CONNECTION FROM THE POWER COMPANY.

7. ALL PEDESTRIAN PUSH BUTTON ASSEMBLIES SHALL MEET ADA REQUIREMENTS. THE SIGNS THAT SHALL BE USED ARE IDENTIFIED IN THE TMUTCD AS R10-3E. CITY OF HOUSTON STANDARDS FOR PEDESTRIAN FACILITIES SHALL BE MET IN ADDITION TO ANY TEXAS ACCESSIBILITY STANDARDS BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).

8. PEDESTRIANS PUSH BUTTONS SHALL BE SEPARATED BY A MINIMUM OF 10 FEET. EXCEPTIONS ONLY AS SPECIFIED BY THE ENGINEER WITH AUTHORIZATION FROM THE APPROVED CITY OF HOUSTON REPRESENTATIVE.

9. OVERHEAD STREET NAME SIGNS SHALL BE INSTALLED SUCH THAT THE BOTTOM OF THE SIGN IS NO LESS THAN 17 FEET ABOVE THE ROADWAY PAVEMENT OR NO LESS THAN 16 FEET ABOVE THE FINISHED GRADE BEYOND THE SHOULDER.

10. THE LOCATION OF EACH NEW POLE FOUNDATION, PULL BOX, CONTROLLER CABINET FOUNDATION, UPS CABINET FOUNDATION AND ELECTRIC SERVICE PEDESTAL FOUNDATION SHALL BE MARKED IN THE FIELD AS SHOWN ON THE PLANS. THE EXACT LOCATION SHALL BE APPROVED BY THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE PRIOR TO BEGINNING INSTALLATION OF THE FOUNDATION.

11. NO POLES SHALL BE LOCATED IN WHEELCHAIR RAMPS OR SUCH THAT THEY ARE AN OBSTRUCTION TO PEDESTRIANS OR WHEELCHAIRS.

12. THE TOP OF THE POLE FOUNDATION SHALL BE LEVELED WITH THE FINISHED GRADE. IF THE SLOPE OR SHOULDER DROPS OFF FROM FINISHED GRADE, THE CONTRACTOR SHALL GRADE AROUND POLE FOUNDATION. THE TOP OF THE FOUNDATION SHALL EXTEND NO MORE THAN 4 INCHES ABOVE SURROUNDING GRADE. GROUTING SHALL BE USED TO FILL ANY GAP BETWEEN THE POLE BASE AND FOUNDATION.

13. POLES SHALL BE LOCATED SUCH THAT ALL PORTIONS OF THE POLES AND ATTACHED EQUIPMENT HAVE CLEARANCES FROM OVERHEAD UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY AND THE NATIONAL ELECTRICAL SAFETY CODE (NESC).

14. ALL CONCRETE USED FOR TRAFFIC SIGNAL POLE AND CABINET FOUNDATIONS SHALL BE CLASS "A" (REFER TO THE CITY OF HOUSTON SPECIFICATION FOR CONCRETE).

15. MAST ARM AND STRAIN POLES SHALL NOT BE INSTALLED ON THE FOUNDATIONS LESS THAN SEVEN DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR THE FOUNDATION.

16. ANCHOR BOLTS FOR SIGNAL POLES SHALL BE SET SO THAT TWO ARE IN COMPRESSION AND TWO ARE IN TENSION. PRIOR TO THE INSTALLATION OF THE NUT, THE THREADS OF THE ANCHOR BOLT SHALL BE COATED WITH PIPE JOINT COMPOUND.

17. ALL UNDERGROUND CONSTRUCTION (CONDUIT, FOUNDATIONS AND PULL BOXES) FOR THE INTERSECTION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF POLES, SIGNALS AND CABINETS. THE CONTRACTOR SHALL NOT PROCEED TO ABOVE GROUND WORK UNTIL THE ENGINEER AND/OR APPROVED CITY OF HOUSTON REPRESENTATIVE HAD CONFIRMED THAT THE MATERIALS FOR A COMPLETE INSTALLATION ARE AVAILABLE.

18. UNDERGROUND CONDUIT FOR SIGNAL CABLE SHALL BE EITHER RIGID STEEL, HOT-DIPPED GALVANIZED CONDUIT OR SCHEDULE 80 ELECTRICAL PVC CONDUIT OF THE DIAMETER SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF.

19. ALL ABOVE GROUND CONDUIT FOR SIGNAL CABLE AND INTERCONNECT MEDIA SHALL BE HOT DIPPED GALVANIZED STEEL RIGID METAL CONDUIT OF THE DIAMETERS SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF.

20. ONLY NEW CONDUIT AND CABLE SHALL BE INSTALLED.

21. CONDUIT INSTALLED UNDER EXISTING PAVED DRIVEWAYS, ROADWAYS OR SIDEWALKS, WHICH ARE NOT SCHEDULED TO BE RECONSTRUCTED AS PART OF THIS PROJECT, SHALL BE INSTALLED BY MEANS OF BORING. THE CONTRACTOR SHALL NOT CUT OPEN ANY STREET OR DRIVEWAY FOR CONDUIT INSTALLATION WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE.

22. CONDUIT NOT PLACED UNDER PAVED DRIVEWAYS, ROADWAY PAVEMENT OR SIDEWALK MAY BE PLACED BY CUTTING A TRENCH, INSTALLING THE CONDUIT AND BACKFILLING. ANY TRENCHING FOR CONDUIT WIDER THAN THREE (3) INCHES SHALL BE RESODDED.

23. PULL BOXES SHALL NOT BE INSTALLED WITHIN CONCRETE CURB ACCESS RAMPS. IN ADDITION, ANY PULL BOXES INSTALLED BEHIND CURBS SHALL BE INSTALLED BETWEEN THE CURB AND THE PROPOSED / FUTURE SIDEWALK OR BEYOND THE PROPOSED / FUTURE SIDEWALK. AN EXCEPTION TO THIS NOTE WOULD BE PULL BOXES INSTALLED IN A MEDIAN. ANY PULL BOXES INSTALLED ALONG AN UNCURBED ROADWAY SHALL BE INSTALLED ADJACENT TO, BUT NOT WITHIN, THE SHOULDER. DRAINAGE AREAS SHOULD BE AVOIDED WHEN PLACING JUNCTION BOXES.

24. A 5/8 IN. X 10 FT. GROUND ROD SHALL BE INSTALLED IN ALL PULL BOXES. A GROUND ROD CLAMP SHALL BE FURNISHED FOR GROUNDING THE GROUND WIRE.

25. ALL CONDUITS SHALL BE CLEANED BY COMPRESSED AIR AND A PROPERLY SIZED CONDUIT PISTON OR MANDREL SHALL BE PULLED THROUGH THE CONDUIT PRIOR TO CABLE INSTALLATION.

26. WHEN PULLING TRAFFIC SIGNAL SYSTEM CABLES THROUGH CONDUIT, THE CABLES SHALL BE LUBRICATED WITH A LUBRICANT NORMALLY USED FOR THIS PURPOSE. ANY ABRASION TO ANY CONDUCTOR INSULATION WHICH OCCURS WHILE PULLING CABLE FOR THE TRAFFIC SIGNAL SYSTEM WILL BE CAUSE FOR THE IMMEDIATE REJECTION OF THE CABLE. IF THIS OCCURS, THE CONTRACTOR SHALL REMOVE AND REPLACE THE ENTIRE CABLE RUN AT THEIR EXPENSE.

27. A MINIMUM OF THREE (3) FEET OF EACH WIRE AND CABLE MEASURED FROM THE TOP OF THE PULL BOX SHALL BE LEFT IN EACH PULL BOX AND AT EACH POLE BASE.

28. ALL CABLES SHALL BE STRIPPED, FORMED AND TERMINATED IN A NEAT AND UNIFORM MANNER WHETHER IN THE SIGNAL HEAD OR CONTROLLER CABINET. ALL CABLE SHALL BE BROUGHT INTO THE TERMINAL HOUSING OF SIGNALS AND/OR CONTROLLER CABINETS AND A SUFFICIENT LENGTH OF CABLE SHALL BE LEFT SO THAT ALL TERMINAL CONNECTIONS MAY BE MADE WITHOUT THE NECESSITY OF SPLICING THE CABLE.

29. THE HIGH VOLTAGE CABLES SHOULD BE SEPARATED FROM THE LOW VOLTAGE CABLES EXCEPT IN ENCLOSURES.

30. NO LOOP DETECTOR SHALL BE CUT IN A PARALLEL EXPANSION JOINT. LOOPS CUT ACROSS EXPANSION JOINTS SHALL HAVE A SLACK IN THE CABLE FOR EXPANSION.

31. ALL VEHICLE ROADWAY DETECTION LOOP CABLES SHALL BE #14 AWG IMSA 51-5-1985 CABLE. LEAD-IN CABLES SHALL BE #16 AWG IMSA 50-2-1984 CABLE. NO SPLICES SHALL BE ALLOWED IN THE ROADWAY DETECTION LOOP CABLE EXCEPT AT THE PULL BOX ADJACENT TO LOOP. THE DETECTOR LEAD-IN CABLE SHALL NOT BE SPLICED.

32. DETECTION LOOP SAW CUTS SHALL BE FLUSHED WITH WATER UNDER PRESSURE AND THEN DRIED WITH AIR UNDER PRESSURE.

33. THERE SHALL BE NO SPLICING IN CONDUCTORS EXCEPT FOR THE NECESSARY SPLICE BETWEEN ROADWAY LOOP WIRE AND DETECTOR LEAD-IN CABLE IN THE PULL BOX ADJACENT TO THE DETECTOR. THESE SPLICES SHALL BE WATERPROOF AND SHALL BE IN COMPLIANCE WITH THE CITY OF HOUSTON STANDARD DRAWINGS FOR TRAFFIC SIGNAL CONSTRUCTION. THESE SPLICES SHALL BE MADE BY THE CONTRACTOR. DO NOT GROUND THE CABLE SHIELD AT THE PULL BOX.

34. TWO #10 AWG-XHHW CONDUCTORS SHALL BE INSTALLED FROM EACH LUMINAIRE TO THE SERVICE PEDESTAL, LEAVING THREE FEET OF SLACK FOR EACH CONDUCTOR (MEASURED FROM THE TOP OF THE PULL BOX) IN EACH PULL BOX. ROUTE FOUR CONDUCTORS TO THE LUMINAIRE WITH THE PHOTOELECTRIC CELL. AN IN-LINE FUSE SHALL BE INSTALLED FOR EACH LUMINAIRE IN THE ASSOCIATED PULL BOX.

35. THE EMERGENCY VEHICLE PRE-EMPTION SENSOR CABLE SHALL BE OPTICOM DETECTOR CABLE MODEL NO. 138. THE CABLE SHALL NOT BE SPLICED.

36. ALL VEHICLE AND PEDESTRIAN INDICATIONS SHALL BE LED.

37. THE CONTRACTOR SHALL BAG ALL NEWLY INSTALLED VEHICULAR AND/OR PEDESTRIAN TRAFFIC SIGNAL HEADS WITH BURLAP OR OTHER APPROVED MATERIAL UNTIL THE FINAL INSPECTION AND ACCEPTANCE BY THE CITY TRAFFIC ENGINEER AND/OR APPROVED CITY OF HOUSTON REPRESENTATIVE. THE BURLAP OR OTHER APPROVED MATERIAL/DEVICE SHALL COMPLETELY COVER THE TRAFFIC SIGNAL HEAD AND SHALL OBSCURE THE VIEW OF THE TRAFFIC SIGNAL INDICATIONS SO THAT THEY CANNOT BE SEEN UNTIL THE TRAFFIC SIGNAL IS PLACED IN OPERATION. DURING CONSTRUCTION, THE TRAFFIC SIGNAL WILL BE DE-ENERGIZED WHILE NOT IN USE FOR TESTING.

38. THE TRAFFIC SIGNAL OPERATION AT EXISTING SIGNALIZED INTERSECTIONS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT.

39. ALL STRIPING AND PAVEMENT MARKINGS ARE TO BE DONE UNDER THIS CONTRACT AND SHALL BE IN PLACE PRIOR TO THE ACTIVATION OF THE TRAFFIC SIGNAL. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL STOP LINES PRIOR TO THE INSTALLATION OF LOOP DETECTORS.

40. ALL CROSSWALK MARKINGS SHALL BE 10-FT. WIDE, FROM INSIDE OF MARKINGS, FOLLOWING CITY OF HOUSTON STANDARD DETAILS

41. ALL CONSTRUCTION SIGNING AND CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

GRADING NOTES

1. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.

2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.

3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.

4. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.

5. ALL EXISTING CONCRETE PAVING, SIDEWALK, AND CURB DEMOLITION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE AT AN APPROVED OFF-SITE, LAWFUL LOCATION, UNLESS DIRECTED OTHERWISE BY THE OWNER

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:_____2/17/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GENERAL CONSTRUCTION NOTES

SHEET 2 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 04 OF 343

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PRIVATE UTILITY NOTES:

AT&T TEXAS/ SWBT FACILITIES:

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

2. THE CONTRACTOR SHALL CALL 1–800–344–8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON–MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.

4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.

6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER KEVIN RAY AT (713) 614–1983 OR EMAIL HIM AT KR7896@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

CENTERPOINT ENERGY NOTES:

CAUTION: UNDERGROUND GAS FACILITIES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1–800–545–6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
   - –WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL 713–945–8036 OR 713–945–8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
   - –WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON–MECHANIZED EXCAVATION PROCEDURES.
   - –WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
   - –FOR EMERGENCIES REGARDING GAS LINES CALL 713–659–3552 OR 713–207–4200

2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES:

1. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
   - –ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
   - –OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

2. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT 713–207–2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

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

WARNING: UNDERGROUND ELECTRICAL UTILITY:

THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATION COMMITTEE AT 1–800–545–6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

1. ALL INFORMATION CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTORS ARE RESPONSIBLE MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTACTING OWNERS OF UNDERGROUND UTILITIES OR BY EXCAVATING IN ADVANCE OF CONSTRUCTION.

2. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES WHEN AND WHERE THEY FALL IN THE PATH OF CONSTRUCTION.

3. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTACTING THE UTILITY COORDINATING COMMITTEE AT (713) 223–4567 AND TEXAS ONE CALL AT 1–800–245–4545, FORTY –EIGHT (48) HOURS PRIOR ANY CONSTRUCTION.

4. THE LOCATION OF ANY CENTERPOINT ENERGY UTILITIES ARE SHOWN IN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. THEY AGREE TO BE FULLY RESPONSIBLE FOR NAY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

5. ALL PROPOSED FACILITIES SHALL MAINTAIN 12" CLEAR FROM ALL EXISTING UTILITIES.

METRO:

1. CONTRACTOR SHALL NOTIFY METRO AT 713–615–6195 TWO WEEKS PRIOR TO DISTURBING EXISTING BUS STOPS.

2. CONTRACTOR SHALL COORDINATE WITH METRO TO REMOVE EXISTING AMENITIES.

3. BUS STOPS SHALL CONSTRUCTED PER CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL AND MEET CURRENT ADA REQUIREMENTS

GENERAL

1. CITY OF HOUSTON STANDARD DETAILS FOR WASTWATER COLLECTION STSTEM, WATERLINES, STORM DRAINAGE AND STREET PAVING ARE INCORPORATED IN PLANS BY REFERANCE AS IF COPIED VERBATIM. STANDARD DETAILS ARE AVAILABLE FOR DOWNLOAD AT THE FOLLOWING WEB ADDRESS: http://edocs.publicworks.houstontx.gov/engineering–and–construction.html

2. DETAILS INCLUDED IN PLAN SET SUPERSEDE COH STANDERD DETAILS

No.	Date	Revisions	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PRIVATE UTILITY NOTES

SHEET NO 1 OF 1

WBS NO. M–430296–0017–3	
DRAWING SCALE	
NOT TO SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 05 OF 343	

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EXISTING PLAN VIEW

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

PROPOSED PLAN VIEW

- WATER METER
- WATER VALVE (GATE)
- WATER VALVE (BUTTERFLY)
- FIRE HYDRANT/FLUSHING VALVE
- TAPPING SLEEVE & VALVE
- REDUCER
- ROUND CONNECTION
- SANITARY SEWER CLEANOUT & MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER INLETS
- CULVERT PIPE AND HEADWALL
- TOP OF CURB ELEVATION
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- TOP OF PAVEMENT ELEVATION
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- ROW LINE
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- CENTER LINE OF ROW
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- CENTER LINE OF DITCHES
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- FENCE LINE, WOOD
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- FENCE LINE, BARBED WIRE
- FENCE LINE, HOG WIRE
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- RAILROAD LINE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON-POTABLE WATER LINE
- GAS METER
- GAS VALVE
- PROPANE LINE
- STEAM LINE
- MISC UNDERGROUND PIPELINE LABLE
- MATCHLINE

EXISTING PLAN VIEW

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

PROPOSED PLAN VIEW

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

MISC STANDARD ELEMENTS

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

EXISTING PROFILE VIEW

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

PROPOSED PROFILE VIEW

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

ABBREVIATIONS

AB	–	ALL BELL FITTINGS	CT	–	COURT	GT	–	GUTTER	MIN	–	MINIMUM	RCB	–	REINFORCED CONCRETE BOX	STM	–	STORM	@	–	AT
AC	–	ACRES/ACREAGE	DET	–	DETAIL	GV	–	GATE VALVE	MON	–	MONUMENT	RCP	–	REINFORCED CONCRETE PIPE	SWR	–	SEWER	&	–	AND
ADJ	–	ADJUSTMENT	DIA	–	DIAMETER	H	–	HORIZONTAL	N	–	NORTH	RD	–	ROAD	SY	–	SQUARE YARD	%	–	PERCENT
ASPH	–	ASPHALT	DR	–	DRIVE	IN	–	INLET	NE	–	NORTHEAST	ROW	–	RIGHT OF WAY	TC	–	TOP OF CURB	"	–	INCH
ASSY	–	ASSEMBLY	E	–	EAST	INV	–	INVERT	NTS	–	NOT TO SCALE	R&S	–	REMOVE AND SALVAGE	TR	–	TOP OF RIM	°	–	DEGREE
BC–BC	–	BACK OF CURB TO BACK OF CURB	EL	–	ELEVATION	IP	–	IRON PIPE	NW	–	NORTHWEST	RT	–	RIGHT	TS&V	–	TAPPING SLEEVE & VALVE			
BFWV	–	BUTTER FLY WATER VALVE	ELEC	–	ELECTRIC	JT	–	JOINT	PC	–	POINT OF CURVATURE	S	–	SOUTH	TX	–	TEXAS			
BH	–	BOREHOLE	EXIST	–	EXISTING	L	–	LENGTH	PL PL	–	PROPERTY LINE	SAN	–	SANITARY	TXDOT	–	TEXAS DEPART OF TRANSPORTATION			
BM	–	BENCHMARK	FL	–	FLOW LINE	LF	–	LINEAL FEET	PRC	–	POINT OF RADIAL CURVATURE	SE	–	SOUTHEAST	TYP	–	TYPICAL			
C	–	CENTER	F–F	–	FACE OF CURB TO FACE OF CURB	LN	–	LANE	PROP	–	PROPOSED	SW	–	SOUTHWEST	V	–	VERTICAL			
℄ CL	–	CENTERLINE	FH	–	FIRE HYDRANT	LT	–	LEFT	PVC	–	POLYVINYL CHLORIDE	SHT	–	SHEET	W	–	WEST			
CMP	–	CORRUGATED METAL PIPE	FT '	–	FEET	MAX	–	MAXIMUM	PVI	–	POINT OF VERTICAL INFLECTION	ST	–	STREET	WL	–	WATERLINE			
CONC	–	CONCRETE	GM	–	GAS METER	MH	–	MANHOLE	R	–	RADIUS	STA	–	STATION	WM	–	WATERMAIN			

No.	Date	Revisions	App.

HRGreen
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SYMBOLS

SHEET 1 OF 1

WBS NO.	M-430296-0017-3
DRAWING SCALE	NOT TO SCALE
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	06 OF 343

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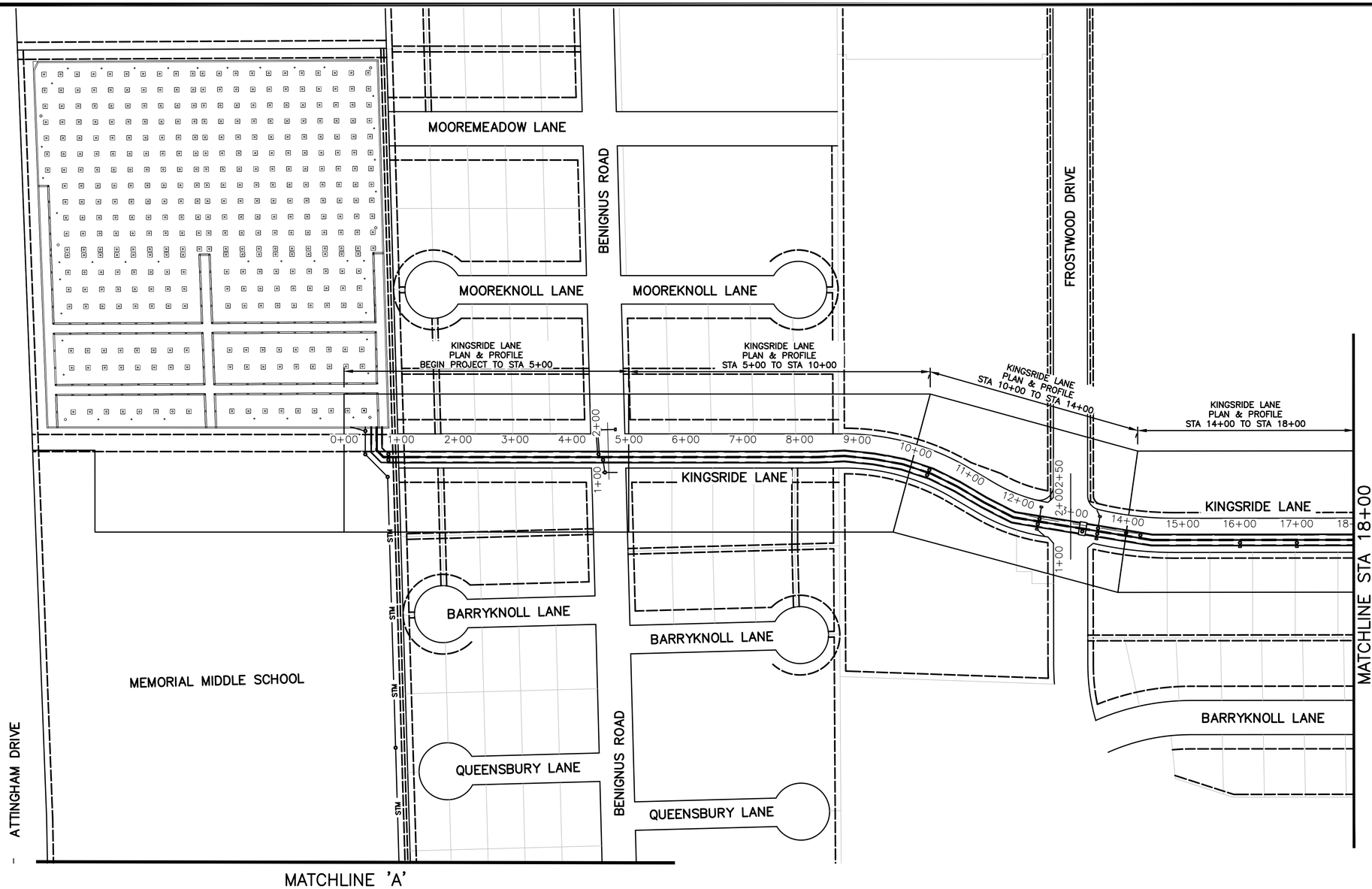

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BY: DAVID G. GREANEY
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DATE: 2/19/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=100' (FULL)
V: N/A

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 07 OF 343

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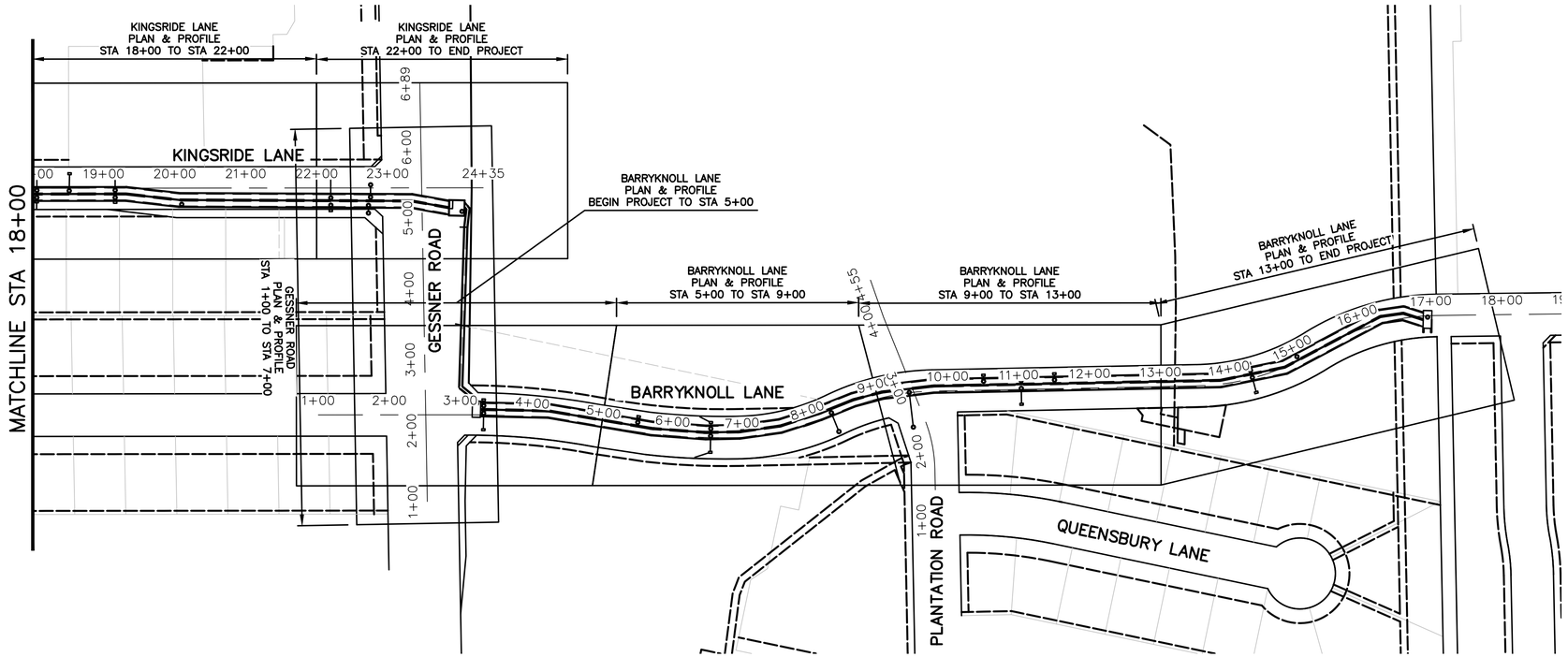

0 100 200
SCALE IN FEET

No.	Date	Revisions	App.

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FIRM NO. F-11278
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HOUSTON, TX 77079
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=100' (FULL) V: N/A
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 08 OF 343

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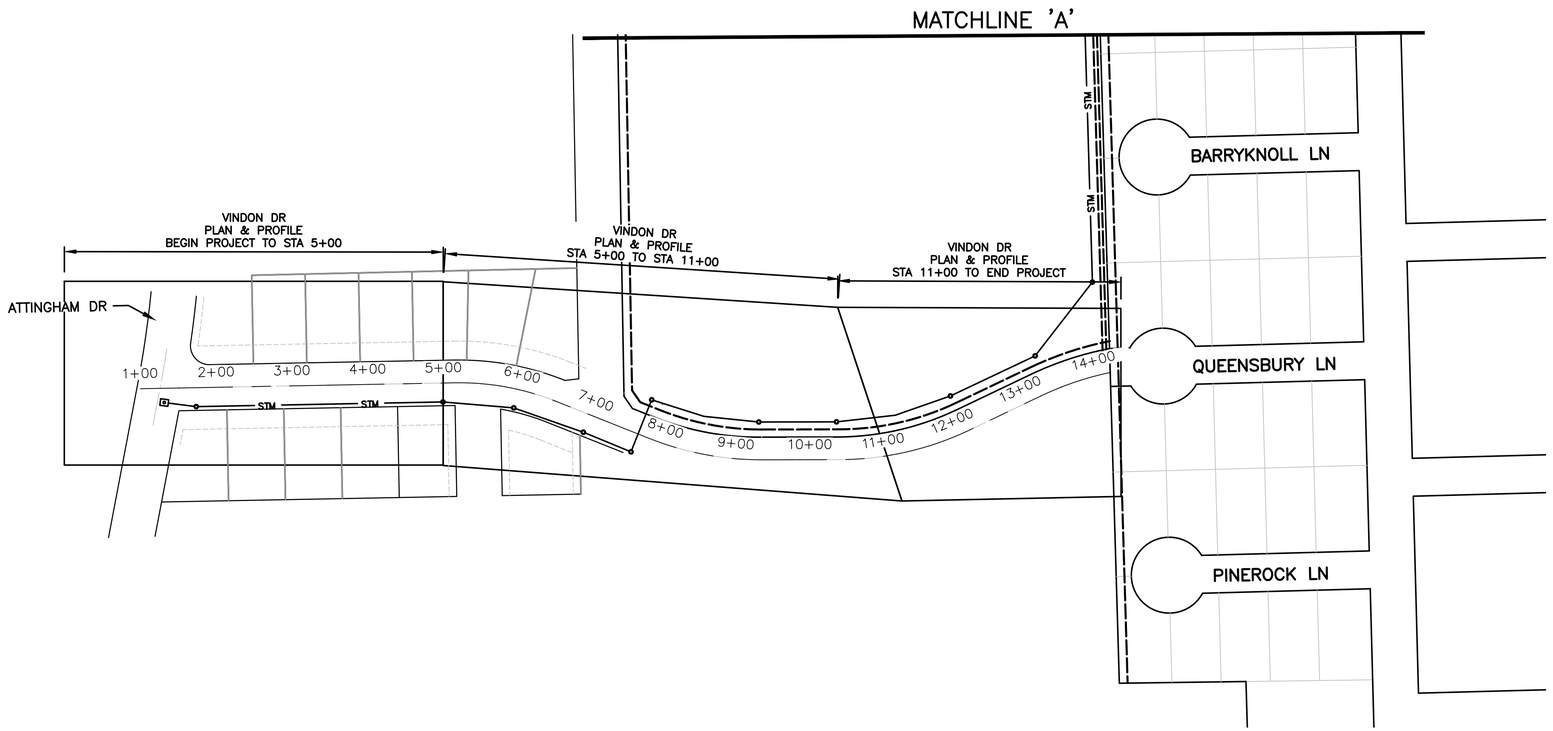

0 100 200
SCALE IN FEET

N

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 3 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=100' (FULL) V: N/A
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 09 OF 343

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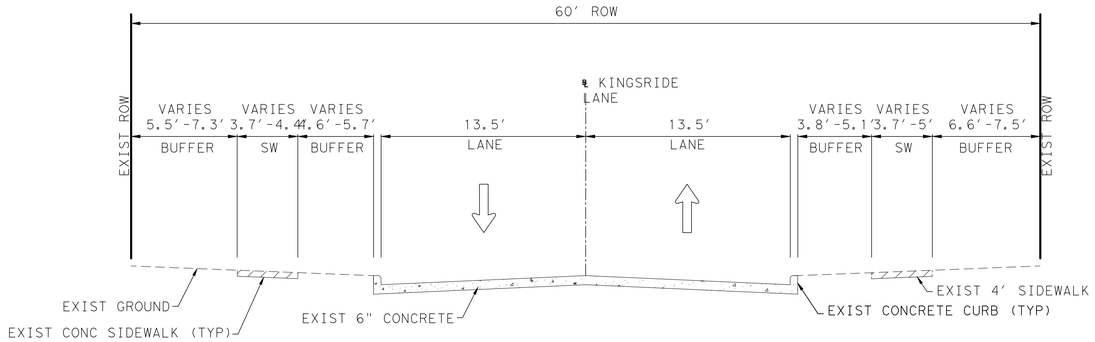
LEGEND

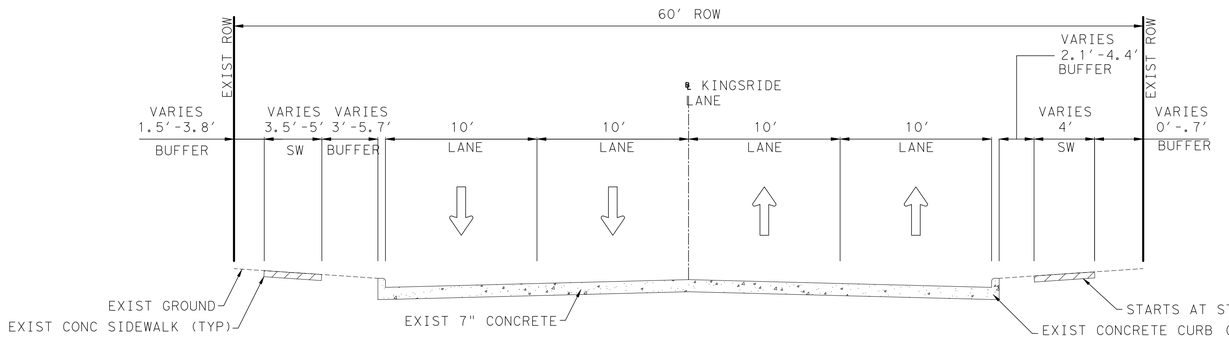
DIRECTION OF TRAFFIC



KINGSRIDE LANE

STA 1+00 TO STA 9+00

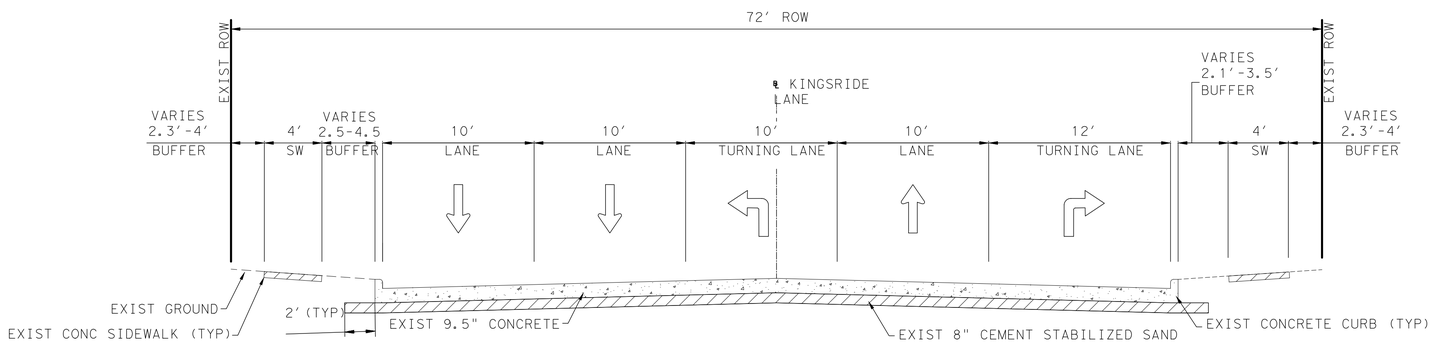
N.T.S



KINGSRIDE LANE

STA 9+00 TO STA 19+00

N.T.S



KINGSRIDE LANE

STA 19+00 TO STA 23+00

N.T.S

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TYPICAL SECTIONS

SHEET 1 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 10 OF 343

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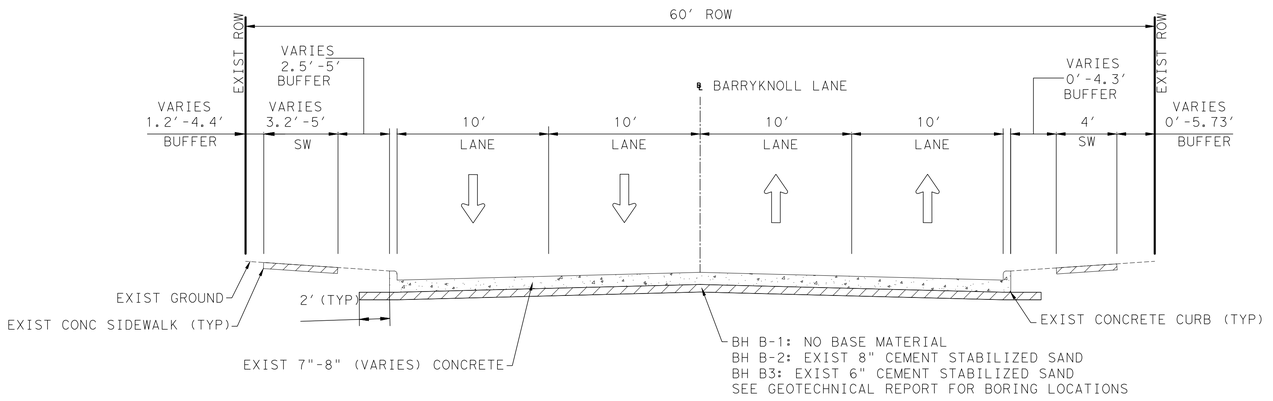
LEGEND

DIRECTION OF TRAFFIC



BARRYKNOLL LANE

STA 4+00 TO STA 17+00

N.T.S

No.	Date	Revisions	Appd

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:_____2/19/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TYPICAL SECTIONS

SHEET 2 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 11 OF 343	

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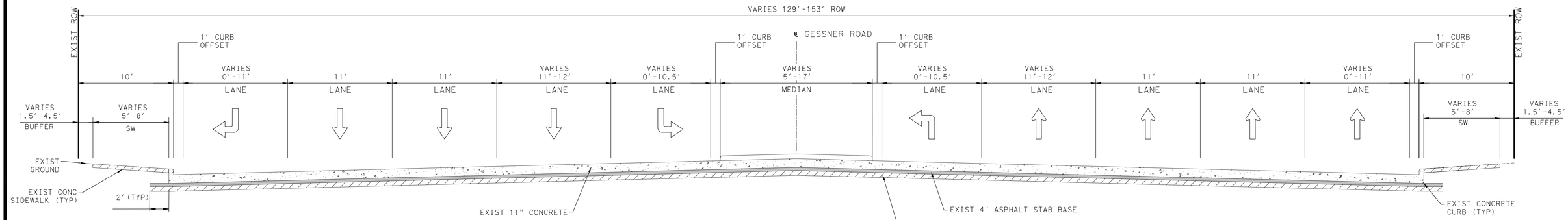
LEGEND

⇨ DIRECTION OF TRAFFIC



GESSNER ROAD

STA 1+00 TO STA 6+00
N.T.S

No.	Date	Revisions	Appd.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TYPICAL SECTIONS

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 12 OF 343

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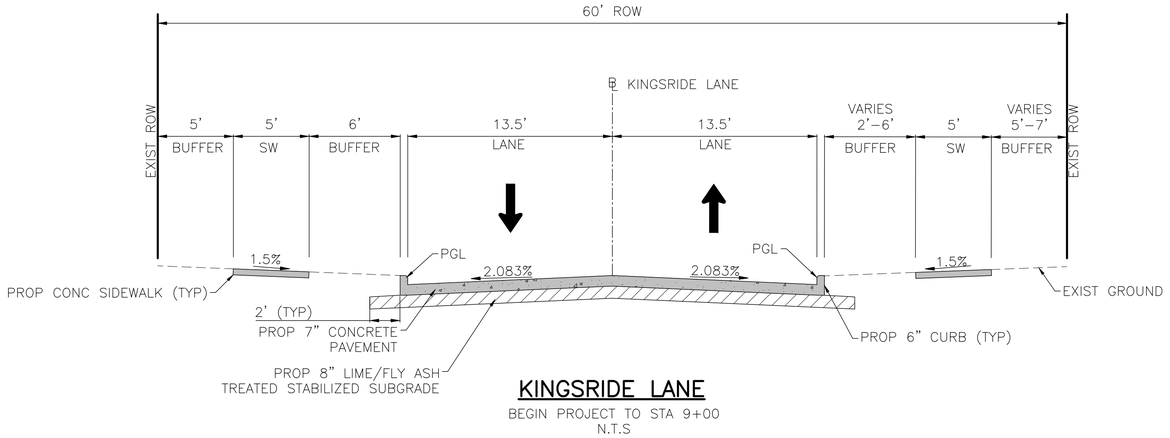
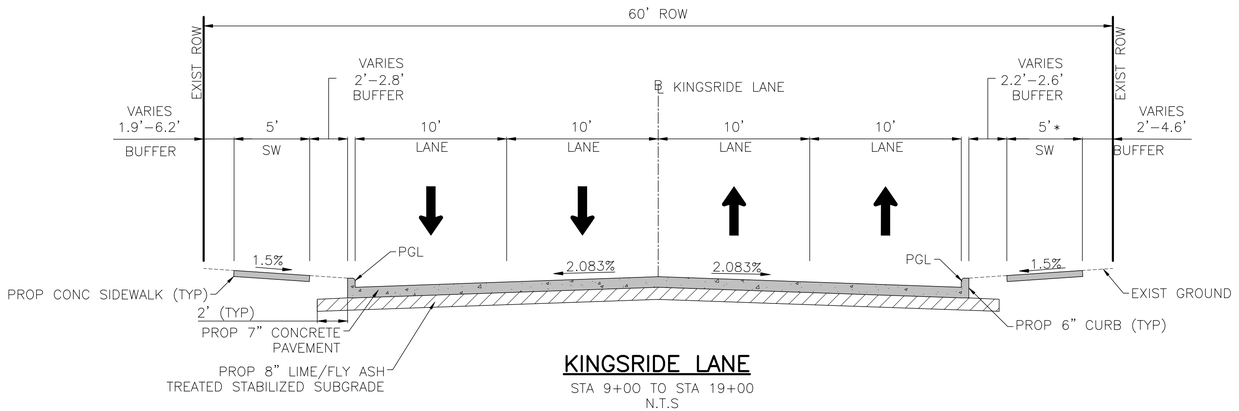


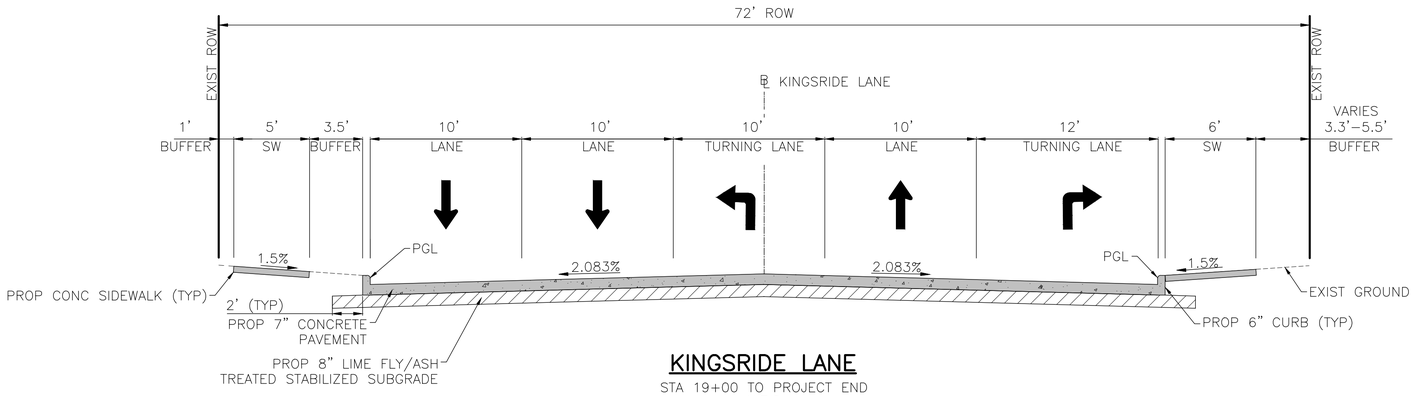
KINGSRIDE LANE

BEGIN PROJECT TO STA 9+00
N.T.S



KINGSRIDE LANE

STA 9+00 TO STA 19+00
N.T.S



KINGSRIDE LANE

STA 19+00 TO PROJECT END
N.T.S

*SIDEWALK SHIFTS CLOSER TO ROADWAY TO PRESERVE TREES

LEGEND

DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE

No.	Date	Revisions	App.

NOTES:

1. FOR STABILIZED SUBGRADE, REFER TO GEOTECHNICAL REPORT MARCH 06, 2025

HRGreen
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:_____2/19/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TYPICAL SECTIONS

SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 13 OF 343	

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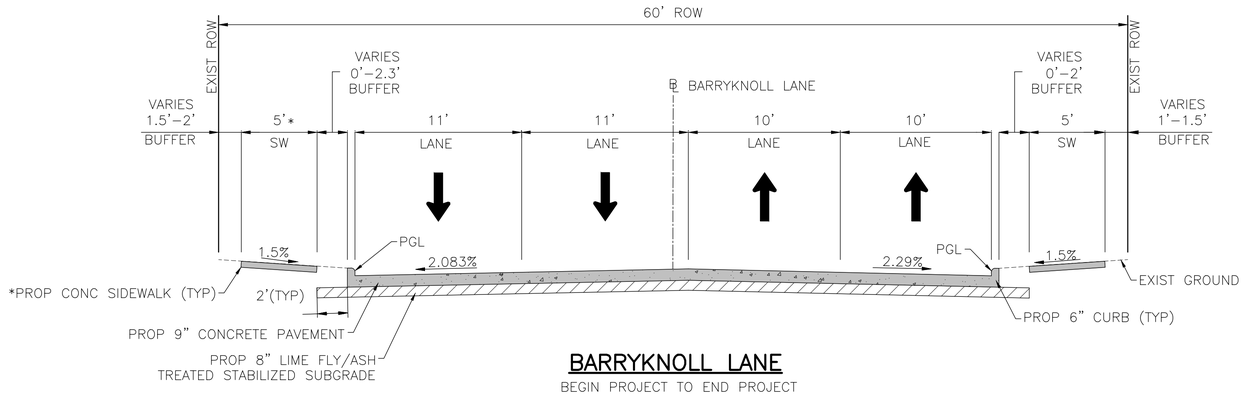
LEGEND

DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE



BARRYKNOLL LANE

BEGIN PROJECT TO END PROJECT
N.T.S

*SIDEWALK SHIFTS
CLOSER TO ROADWAY
TO PRESERVE TREES

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TYPICAL SECTIONS

SHEET 2 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 14 OF 343	

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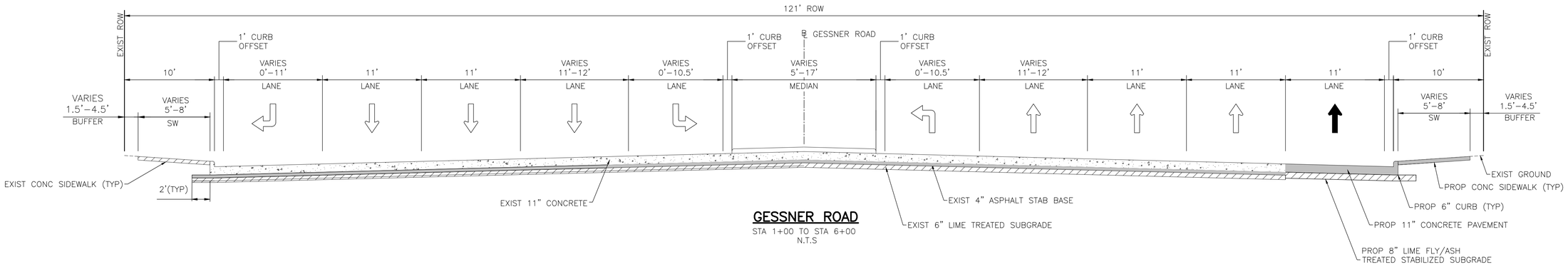
LEGEND

DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE



GESSNER ROAD

STA 1+00 TO STA 6+00
N.T.S

NOTES:

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TYPICAL SECTIONS

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 15 OF 343

No.	Date	Revisions	App.

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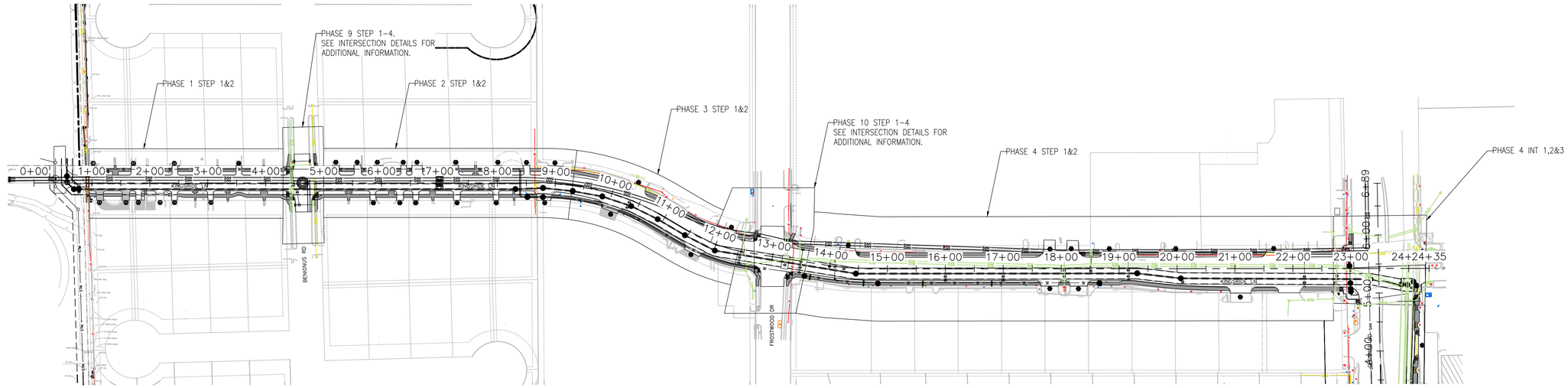

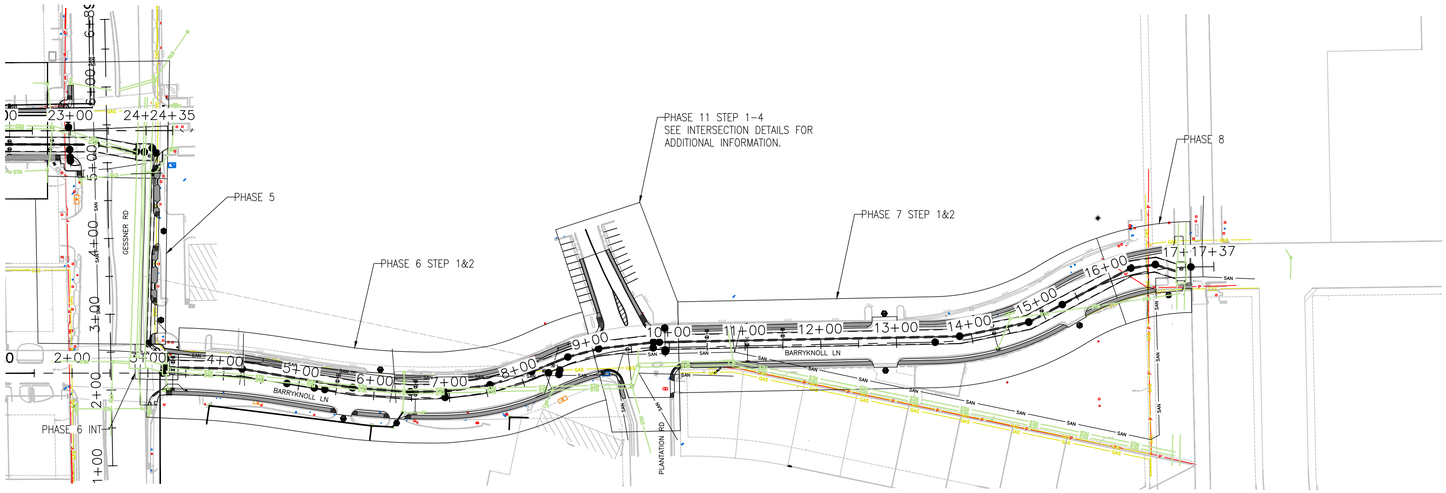

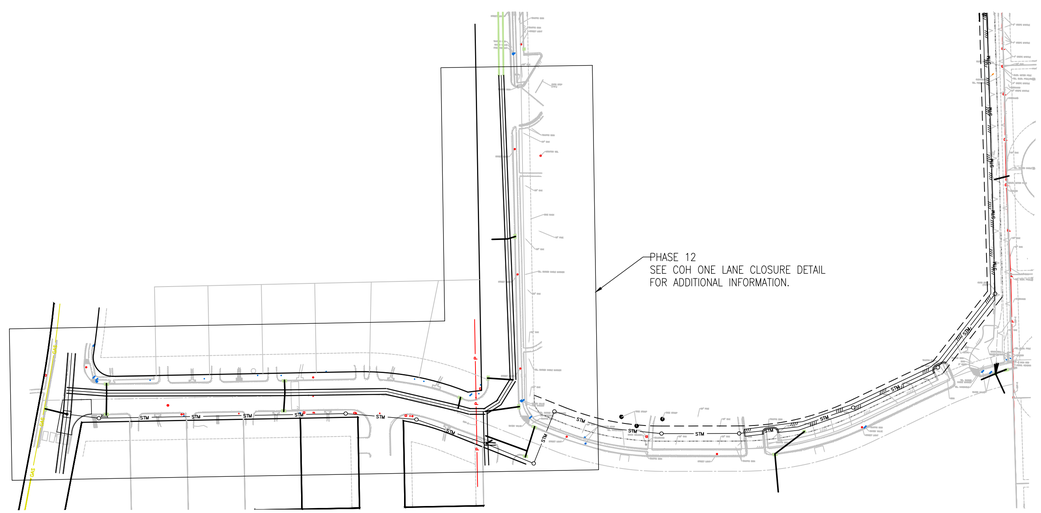

NOTES

1. WORK SECTION LIMITED TO 800FT MAXIMUM.
2. NO TWO CONSECUTIVE CROSS STREET CLOSURES ALLOWED.
3. INTERSECTION WORK TO BE COMPLETED ON WEEKENDS ONLY. REFER TO DRAWINGS FOR USE OF HIGH EARLY STRENGTH CONCRETE.
4. MINIMUM OF 10FT TRAVEL LANE SHALL BE PROVIDED FOR ALL TRAFFIC CONTROL PLANS.

NOTES

PHASING AND CONSTRUCTION NOTE:

1. CONSTRUCTION ON ADJACENT HALVES OF ROADS SHALL BE COMPLETED AND RE-OPENED TO TRAFFIC BEFORE MOVING TO NEXT SEGMENT. NO ADJACENT WORK ZONES SHALL BE CLOSED SIMULTANEOUSLY AND ANY WORK ON MULTIPLE WORK ZONES WILL REQUIRE PRIOR APPROVAL FROM CITY OF HOUSTON.

No.	Date	Revisions	App.

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN OVERALL LAYOUT

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 16 OF 343

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STREET NAME - PHASE #	STEP #	NOTES
KINGSRIDE LANE - PHASE 1 (STA 1+00 TO STA 4+30)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN PROPOSED DETENTION BASIN AND BENIGNUS ROAD FOR CONSTRUCTION OF PROPOSED WATERLINE AND STORM BOXES AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT ON THE NORTH SIDE TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THROUGH TRAFFIC. CONTRACTOR TO ADD YIELD SIGNS FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE.
KINGSRIDE LANE - PHASE 1 (STA 1+00 TO STA 4+30)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN PROPOSED DETENTION BASIN AND BENIGNUS ROAD FOR CONSTRUCTION AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. CONTRACTOR TO ADD YIELD SIGNS FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE.
KINGSRIDE LANE - PHASE 2 (STA 5+00 TO STA 9+30)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION OF PROPOSED WATERLINE AND STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT ON THE NORTH SIDE TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THROUGH TRAFFIC. CONTRACTOR TO PROVIDE ONE WEST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE. DETOUR EAST BOUND TRAFFIC.
KINGSRIDE LANE - PHASE 2 (STA 5+00 TO STA 9+30)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. CONTRACTOR TO PROVIDE ONE EAST BOUND LANE FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE. DETOUR WEST BOUND TRAFFIC.
KINGSRIDE LANE - PHASE 3 (STA 9+30 TO STA 12+40)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION OF PROPOSED STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR WEST BOUND TRAFFIC AND DETOUR EAST BOUND LANE.
KINGSRIDE LANE - PHASE 3 (STA 9+30 TO STA 12+40)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC.
KINGSRIDE LANE - PHASE 4 (STA 19+00 TO STA 22+70)	STEP 1	CLOSE TWO EAST BOUND AND ONE WEST BOUND TRAFFIC LANES ALONG KINGSRIDE LANE BETWEEN FROSTWOOD DRIVE AND GESSNER ROAD FOR CONSTRUCTION OF PROPOSED STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR WEST BOUND TRAFFIC AND DETOUR EAST BOUND LANE. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. ENTRANCE TO MEDICAL PLAZA 3 GARAGE ON KINGSRIDE LN SHOULD NEVER BE CLOSED DURING CONSTRUCTION. CONTRACTOR TO MAKE SURE EMERGENCY RESPONDERS SHOULD ENTER THE HOSPITAL OFF OF GESSNER RD DURING CONSTRUCTION.
KINGSRIDE LANE - PHASE 4 (STA 19+00 TO STA 22+70)	STEP 2	CLOSE TWO WEST BOUND TRAFFIC LANES ALONG KINGSRIDE LANE BETWEEN FROSTWOOD DRIVE AND GESSNER ROAD FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. ENTRANCE TO MEDICAL PLAZA 3 GARAGE ON KINGSRIDE LN SHOULD NEVER BE CLOSED DURING CONSTRUCTION. CONTRACTOR TO MAKE SURE EMERGENCY RESPONDERS SHOULD ENTER THE HOSPITAL OFF OF GESSNER RD DURING CONSTRUCTION.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 1	CLOSE GESSNER ROAD SOUTH BOUND LANES FOR CONSTRUCTION AND SHIFT SOUTH BOUND TRAFFIC LANES TO NORTH BOUND LANES. MAINTAIN A MINIMUM OF TWO (2) SOUTH AND NORTH BOUND LANES AT ALL TIMES FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 2	CLOSE KINGSRIDE LANE WEST BOUND LANES FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 3	CLOSE GESSNER ROAD NORTH BOUND LANES FOR CONSTRUCTION AND SHIFT NORTH BOUND TRAFFIC LANES TO SOUTH BOUND LANES. MAINTAIN A MINIMUM OF TWO (2) SOUTH AND NORTH BOUND LANES AT ALL TIMES FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
GESSNER ROAD - PHASE 5	STEP 1	CLOSE ONE NORTH BOUND OUTER MOST TRAFFIC LANE ALONG GESSNER ROAD FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF TWO NORTH BOUND LANES FOR TRAFFIC.CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
BARRYKNOLL LANE - PHASE 6 (STA 3+40 TO STA 9+00)	STEP 1	CLOSEWEST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN GESSNER RD AND PLANTATION DR FOR STORM BOX CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT EAST BOUND LANE FOR TRAFFIC. DETOUR WEST BOUND TRAFFIC LANES. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
BARRYKNOLL LANE - PHASE 6 (STA 3+40 TO STA 9+00)	STEP 2	CLOSE EAST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN GESSNER RD AND PLANTATION DR FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF TWO (2) 10-FOOT WEST BOUND LANES AND ONE (1) EAST BOUND LANE FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
BARRYKNOLL LANE - PHASE 7 (STA 10+00 TO STA 16+00)	STEP 1	CLOSE WEST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN PLANTATION DR AND PROJECT END FOR STORM BOX CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT WEST AND EAST BOUND LANES FOR TRAFFIC. REMOVE EXISTING CURB ON SOUTH SIDE AND ADD TEMPORARY ASHPHALT TO PROVIDE MIN. 10-FOOT TRAFFIC LANES.
BARRYKNOLL LANE - PHASE 7 (STA 10+00 TO STA 16+00)	STEP 2	CLOSE EAST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN PLANTATION DR AND PROJECT END FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT WEST AND EAST BOUND LANES FOR TRAFFIC.
BARRYKNOLL LANE - PHASE 8 PROJECT END LOCATION	STEP 1	COMPLETELY CLOSE BARRYKNOLL LANE FOR STORM BOX CONSTRUCTION AND DETOUR BOTH EAST AND WEST BOUND TRAFFIC.
BENIGNUS RD & KINSRIDE LN INTERSECTION - PHASE 9	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
FROSTWOOD DR & KINSRIDE LN INTERSECTION - PHASE 10	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
PLANTATION RD & BARRYKNOLL LN INTERSECTION - PHASE 11	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
VINDON DR - PHASE 12	STEP 1	USE COH ONE LANE CLOSURE DETAIL FOR CONSTRUCTION.

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No.	Date	Revisions	App.

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN GENERAL CONSTRUCTION NOTES

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

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GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITIH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM THE LATEST VERSION OF THE TMUTCD.
3. NO LANES SHALL BE CLOSED DURING THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM MONDAY THRU FRIDAY WITHOUT APPROVAL OF THE CITY TRAFFIC ENGINEER.
4. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00 PM TO 7:00 AM.
5. CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF THROUGH LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLIANT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO ALL THE BUS STOPS.
6. CONTRACTOR SHALL MAINTAIN TRAFFIC LANES AND DETOURS ACCORDING TO TRAFFIC CONTROL PLANS DURING WORKING HOURS.
7. CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, AND OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
8. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF TRAFFIC CONTROL PLANS TO THE CITY OF HOUSTON PROJECT MANAGER FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION. THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SHALL BE SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. OFFICE OF CITY ENGINEER, MOBILITY PERMITS SECTION REPRESENTATIVE APPROVAL IS REQUIRED TO ACCEPT THE PROPOSED CHANGES.
9. CONTRACTOR SHALL SECURE LANE/SIDEWALK/BICYCLE FACILITY CLOSURE PERMITS FROM OFFICE OF CITY ENGINEER (MOBILITY PERMIT SECTION AT https://geohub.houstontx.gov) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
10. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
11. DURING PAVEMENT SURFACE RESTORATION PROJECTS; THE CONTRACTOR SHALL NOT OPEN CLOSED LANES UNTIL THE PAVEMENT SURFACE HAS CURED ENOUGH TO ALLOW VEHICULAR TRAFFIC ACCORDING TO CITY OF HOUSTON STANDARD SPECIFICATIONS.
12. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL CONSTRUCTION ACTIVITIES WITH STAKE HOLDERS IN THE VICINITY INCLUDING EMERGENCY RESPONSE AGENCIES SUCH AS HOUSTON POLICE DEPARTMENT, HOUSTON FIRE DEPARTMENT, AND METROPOLITAN TRANSIT AUTHORITY.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ISSUING ALL WORK DIRECTIVES TO ALL SUB-CONTRACTORS, UTILITY COMPANIES, AND ALL OTHER ENTITIES PERFORMING CONSTRUCTION WORK ASSOCIATED WITH THE PROJECT.
14. NOTHING IN THESE NOTES OR PLANS SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT; INCLUDING SAFETY OF ALL MODES OF TRANSPORTATION, PERSONS, AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
15. THE OFFICE OF CITY ENGINEER (MOBILITY PERMITS GROUP) PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER HAVE THE RIGHT TO DEMAND THE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES OR MODIFICATIONS OF THESE PLANS AND NOTES, AS DEEMED NECESSARY TO PROMOTE THE SAFE AND ORDERLY FLOW OF TRAFFIC, INCLUDING PEDESTRIANS AND BICYCLES, THROUGH THE CONSTRUCTION WORK ZONE. THE CONTRACTOR SHALL COMPLY WITH THESE ADDITIONAL REQUESTS OR MODIFICATIONS WITH DUE DILIGENCE.
16. ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED IN VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER) ANY PAVEMENT MARKING OR SIGNING DAMAGE DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMS).
17. WHEN ENTERING OR LEAVING ROADWAYS CARRYING PUBLIC TRAFFIC, THE CONTRACTOR'S EQUIPMENT, WHETHER EMPTY OR LOADED SHALL IN ALL CASES YIELD TO PUBLIC TRAFFIC WITH THE ASSISTANCE OF CONTRACTOR PROVIDED CERTIFIED FLAGGER/PEACE OFFICER.
18. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER.
19. SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
20. THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR TEMPORARY PARKING RESTRICTIONS IF THERE ARE PARKING METERS LOCATED AT THE PROPOSED LANE CLOSURES FROM PARKING MANAGEMENT DIVISION (832-393-8690) AT LEAST TEN BUSINESS DAYS BEFORE IMPLEMENTATION OF LANE CLOSURES. IN ADDITION, TEMPORARY NO PARKING SIGNS SHALL BE POSTED 24 HOURS PRIOR TO COMMENCEMENT OF WORK.
21. ADDITIONAL OFF DUTY OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DISCRETION OF THE CITY PROJECT MANAGER EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.
22. THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
23. IN GENERAL, A SOLAR POWERED FLASHING ARROW BOARD SHALL BE REQUIRED ON ALL MAJOR THOROUGHFARE LANES CLOSURES. EXCEPTIONS TO FLASHING ARROW BOARDS AND/OR IMPLEMENTATION ON RESIDENTIAL LANE CLOSURES SHALL BE APPROVED BY CITY TRAFFIC ENGINEER.
24. APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
25. WATER FILLED BARRIERS CAN BE USED AS INSTRUCTED BY THE ENGINEER AND APPROVED BY THE CITY FOR PROJECTS WHERE SPACE IS LIMITED AND HEAVY EQUIPMENT TO PLACE CONCRETE BARRIERS IS NOT FEASIBLE. WATER FILLED BARRIERS SHALL NOT BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT MORE THAN 45 MPH.
26. WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
27. IF WATER FILLED BARRIER IS PROVIDED, USE ENVIRONMENTALLY SAFE ANTI-FREEZING AGENT IN THE WATER WHEN IT IS APPLICABLE PER MANUFACTURER SPECIFICATIONS AND RECOVER AGENT WHEN THE BARRIER IS DRAINED.
28. DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
29. PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
30. PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON-REDIRECTIVE END TREATMENT.
31. WHEN WATER FILLED BARRIERS ARE USED TO CHANNELIZE PEDESTRIANS, THEY MUST HAVE A CONTINUOUS DETECTABLE BOTTOM FOR USERS OF LONG CANES AND THE TOP OF THE UNIT SHALL NOT BE LESS THAN 32 INCHES IN HEIGHT.
32. ANY CLOSURE OF A PEDESTRIAN OR BICYCLE FACILITY SHALL REQUIRE THE SHORTEST DETOUR THAT MAINTAINS THE SAFETY OF PEDESTRIAN AND/OR BICYCLISTS.

SPACING FOR CHANNELIZING DEVICES

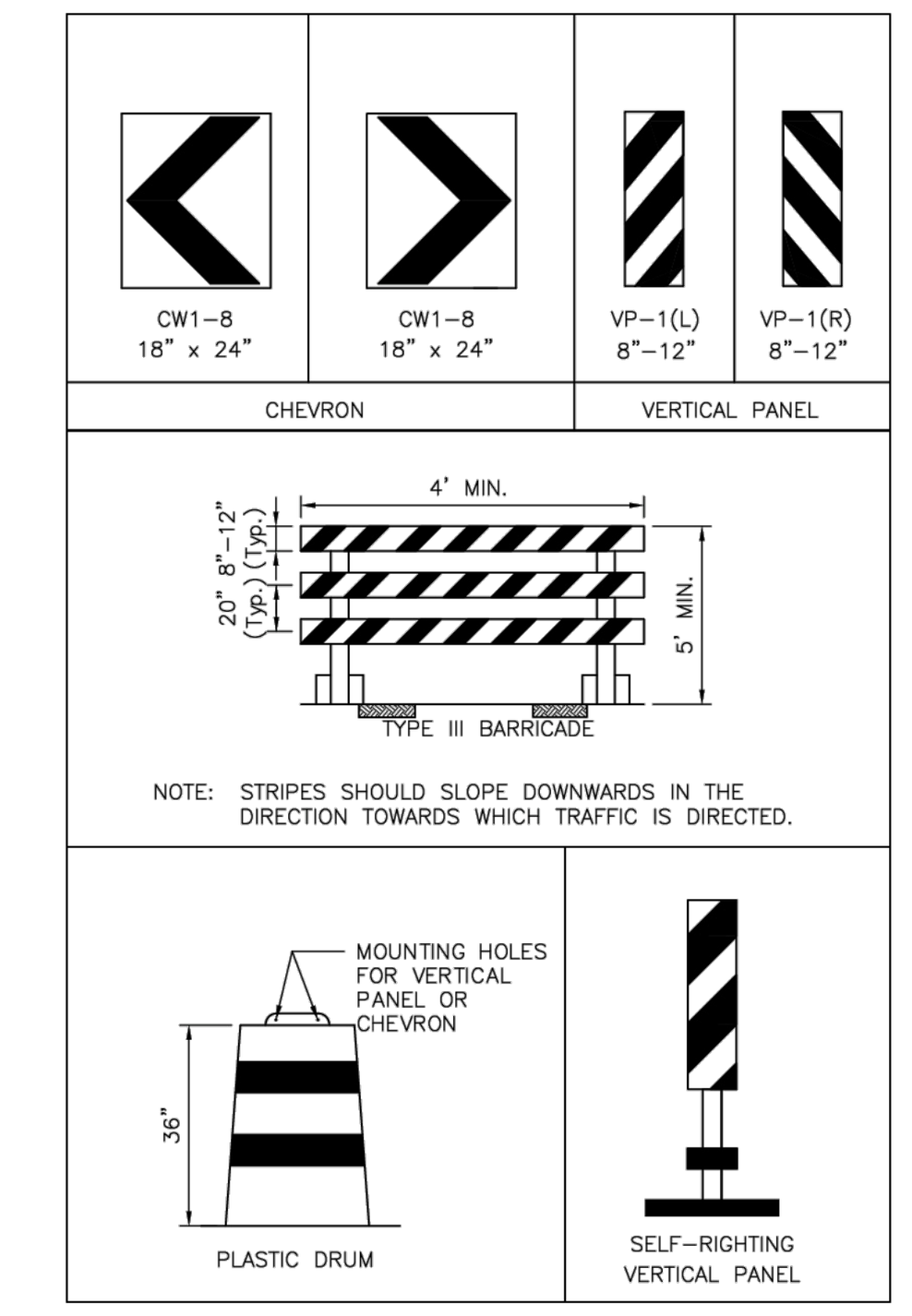
A. PLASTIC DRUMS ON MERGING TAPER @ 30' C - C WITH CHEVRON SIGN @ 60' C - C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 30' C - C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)
C. PLASTIC DRUMS ON RADII @ 35' C -C.
D. PLASTIC DRUMS ON TANGENT @ 35' C - C WITH VERTICAL PANEL AT 70' C - C AND APPROVED WARNING LIGHT @ 70' C - C (FOR OVERNIGHT CLOSURE).
E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C - C WITH VERTICAL PANEL AT 40' C - C AND APPROVED WARNING LIGHT @ 40' C - C (FOR OVERNIGHT CLOSURE).
F. CONCRETE TRAFFIC BARRIER (CTB) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB) WITH APPROVED REFLECTORS @ 10' C - C IF PAVEMENT DROP IS GREATER THAN 1 FOOT.
G. PLASTIC DRUMS W/GUARD RAIL MOUNTED.
H. SELF- RIGHTING VERTICAL PANEL SPACING.
   - 4 LANES TO 2 LANES UNDIVIDED ROADWAY SECTION @ 20' C - C.
   - 4 LANES DIVIDED ROADWAY TO ONE SIDE TWO WAY ROADWAY @ 20' C - C.
   - LEFT LANE AND RIGHT LANE STORAGE BAYS @ 15' C - C.
I. SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.
J. SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

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

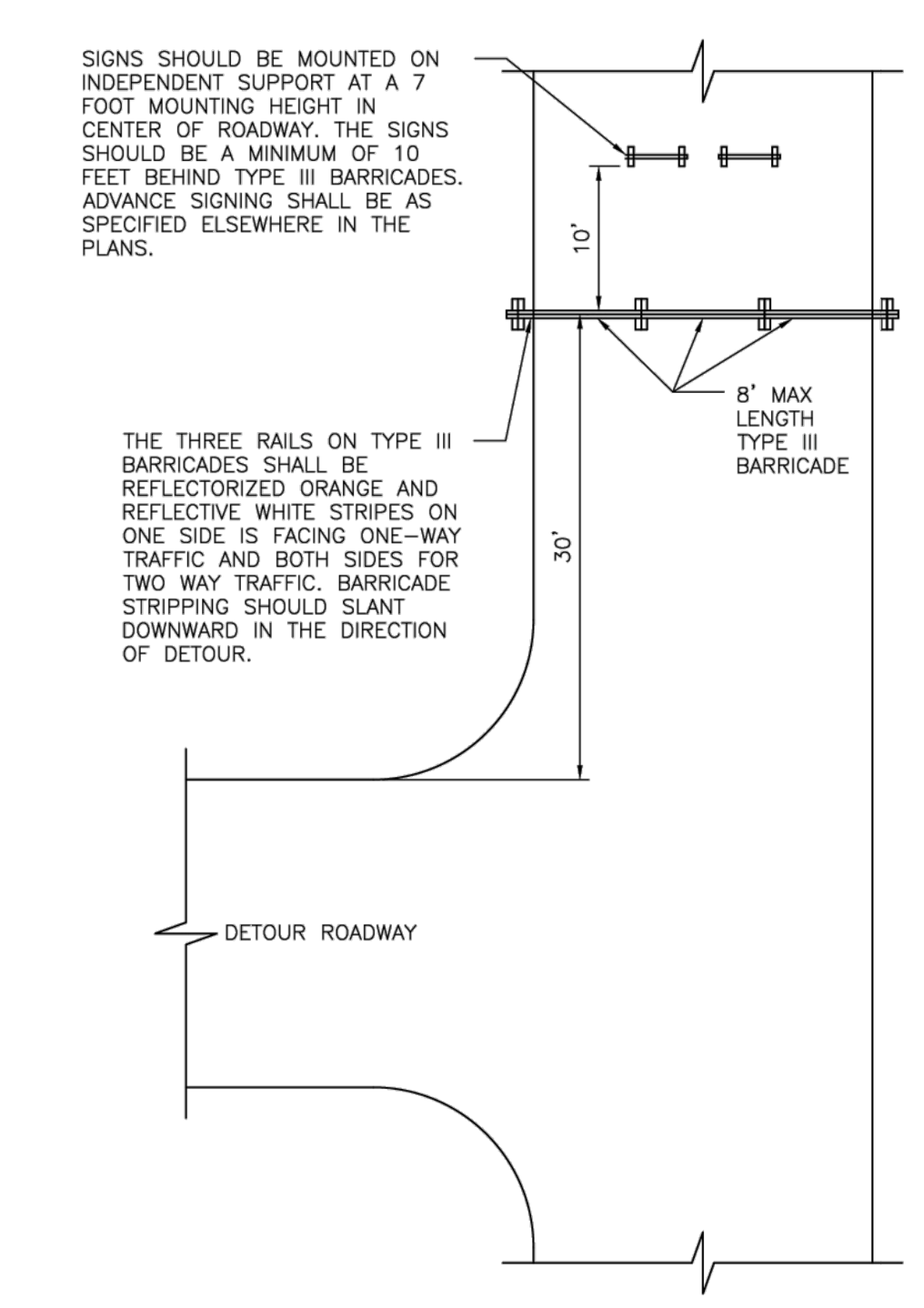
POSTED SPEED (MPH)	SIGN SPACING "X" (FEET)	MIN. DESIRABLE TAPER LENGTH "L"			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	120'	150'	165'	180'	30'	60'-75'
35	160'	205'	225'	245'	35'	70'-90'
40	240'	265'	295'	320'	40'	80'-100'
45	320'	450'	495'	540'	45'	90'-110'
50	400'	500'	550'	600'	50'	100'-125'
55	500'	550'	605'	660'	55'	110'-140'

TABLE C4 - STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

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



CHANNELIZATION AND BARRICADES



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: *Suhail Kanwar*	APPROVED BY: *KHANG NGUYEN*
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APPROVED BY: *Carol Haddock*	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP NOTES CHANNELIZING DEVICES AND BARRICADES

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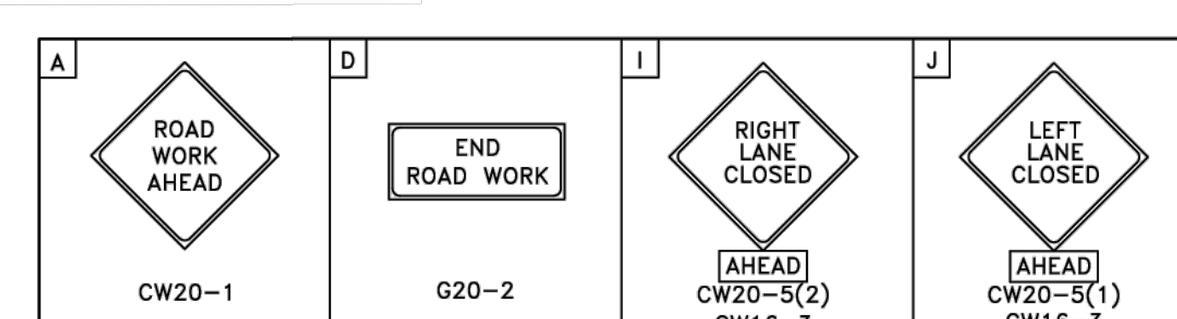

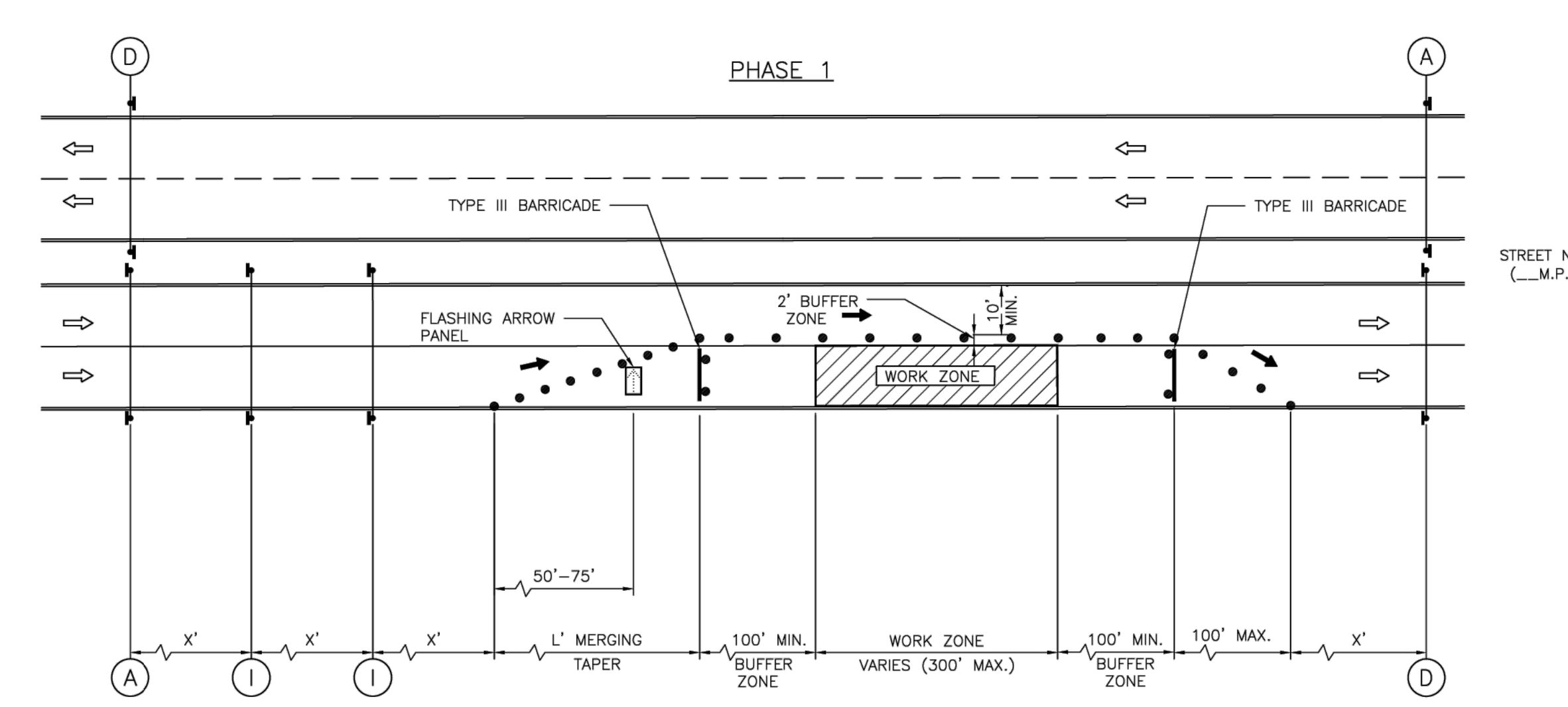

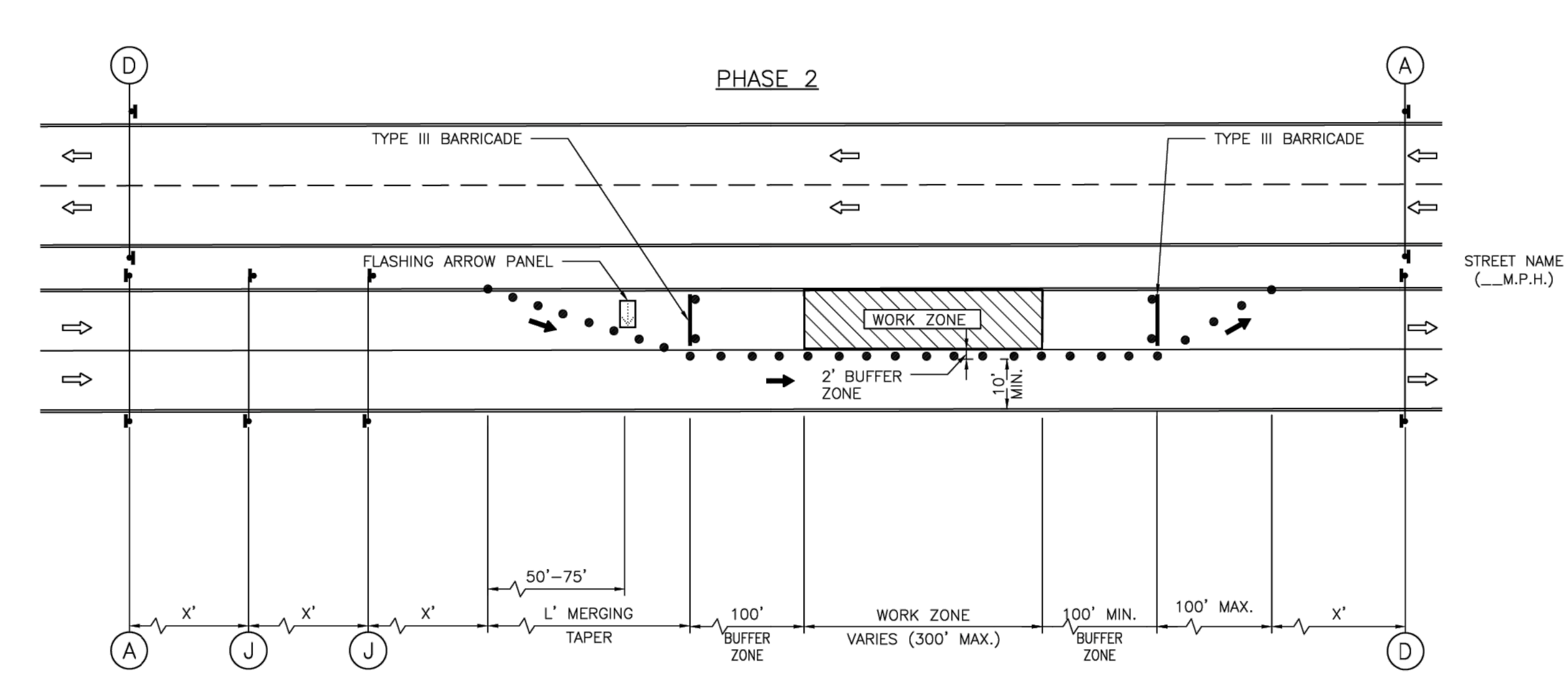

LEGEND:
- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
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NOTES:

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: *Suhail Kanwar*	APPROVED BY: *KHANG NGUYEN*
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: *Carol Haddock*	
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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NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: ----

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

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

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MOH'D WARRAD, P.E.

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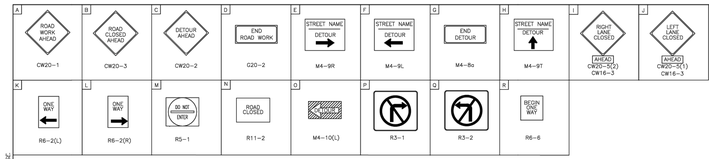

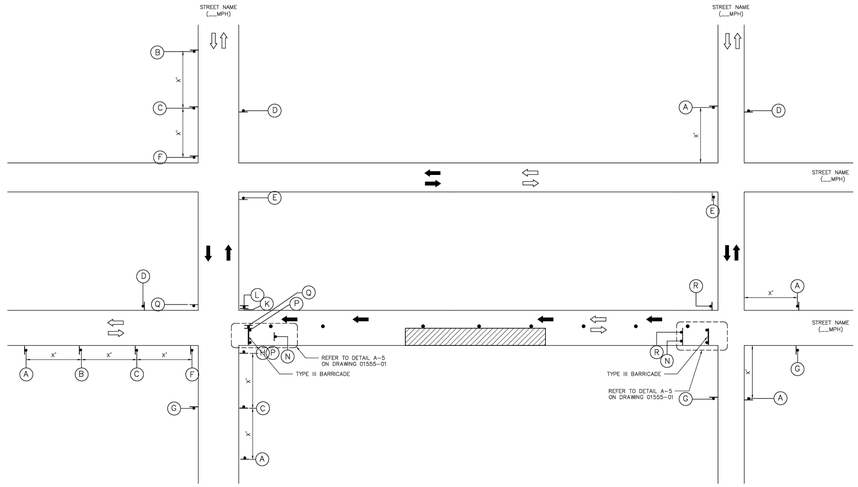

LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. 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: (Docusigned by: Sahak Kaviani)	APPROVED BY: (Docusigned by: Hiking Nguyen)
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: (Docusigned by: Carol Haddock)	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-05

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL DETOUR ROUTING WITH ONE LANE CLOSURE (ONE BLOCK)

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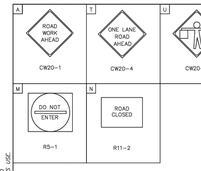

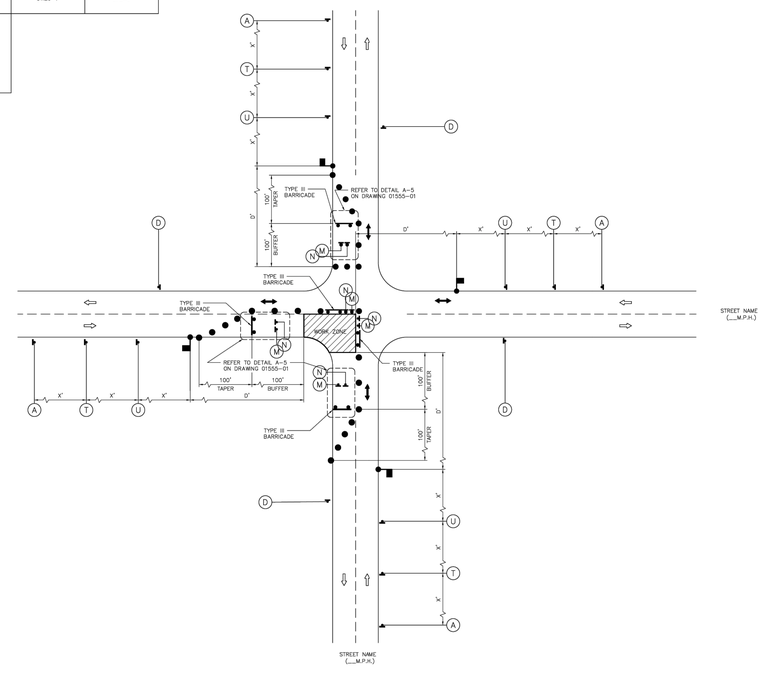

LEGEND:

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- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. MINOR WORK AND DAYTIME OPERATIONS ONLY.
2. REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY: (Docusigned by: Sahak Kaviani)	APPROVED BY: (Docusigned by: Hiking Nguyen)
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: (Docusigned by: Carol Haddock)	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-09

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 1 OF 4

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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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FB NO. xxxxx

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

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CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 19 OF 343

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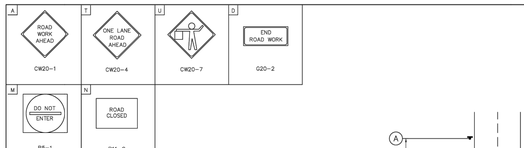

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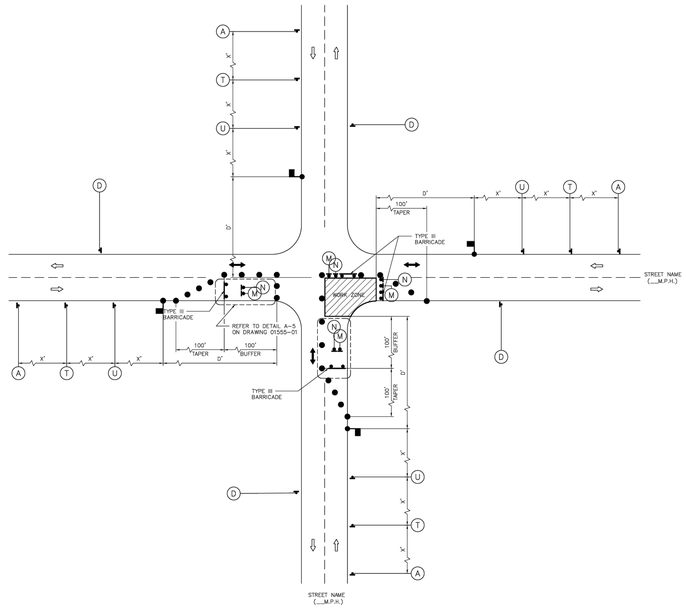

LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. MINOR WORK AND DAYTIME OPERATIONS ONLY.
2. REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:	APPROVED BY:
Salud Iruarrizaga	Hiding Mcshiffrey
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-10

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 2 OF 4

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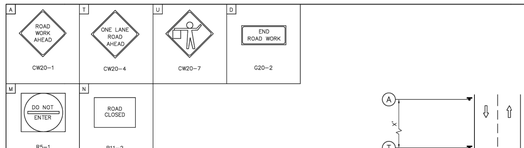

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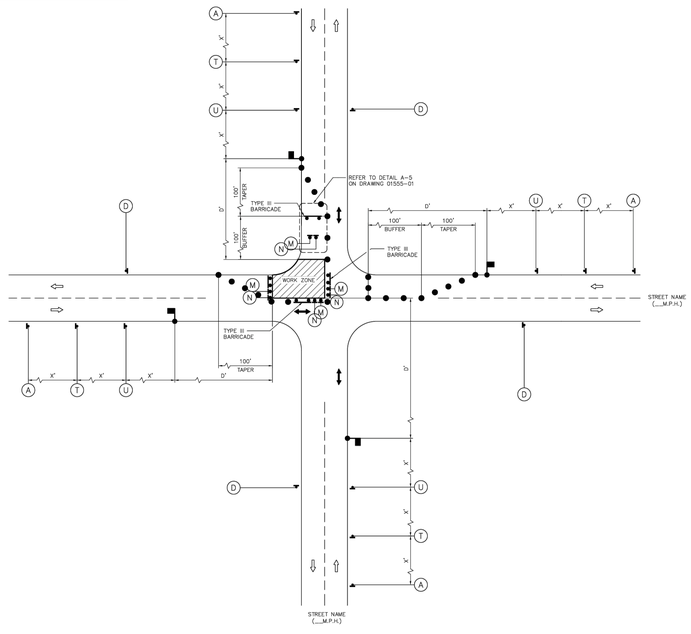

LEGEND:

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NOTES:

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5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:	APPROVED BY:
Salud Iruarrizaga	Hiding Mcshiffrey
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-11

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 3 OF 4

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NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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

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Tx Firm No. 13481

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

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CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 20 OF 343

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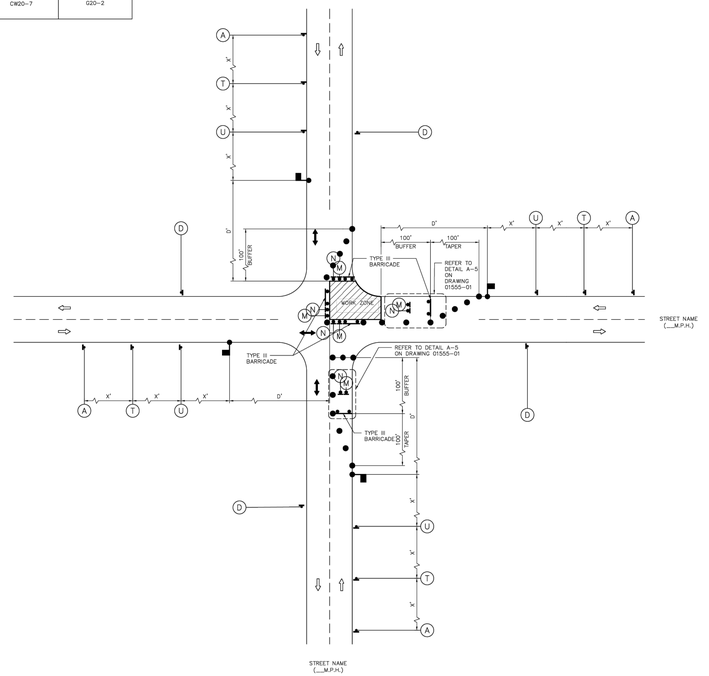
A	T	U	D
ROAD WORK AHEAD CW20-1	ONE LANE ROAD AHEAD CW20-4	CW20-7	END ROAD WORK G20-2

M	N
DO NOT ENTER R5-1	ROAD CLOSED R11-2



LEGEND:

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NOTES:

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4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:	APPROVED BY:
Salud Ibarra	Hiang Nguyen
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-12

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 4 OF 4

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NOT TO SCALE	

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 DESIGN REQUIREMENTS AND BY AUTHORIZING ITS USE, NO RESPONSIBILITY FOR WORKERS' SAFETY IS ASSUMED BY THE CITY OF HOUSTON. ISSUANCE OF ANY PERMIT DOES NOT CONSTITUTE APPROVAL OF ANY PROCEDURE WHICH VIOLATES OR APPEARS TO VIOLATE STATE OR FEDERAL LAW.

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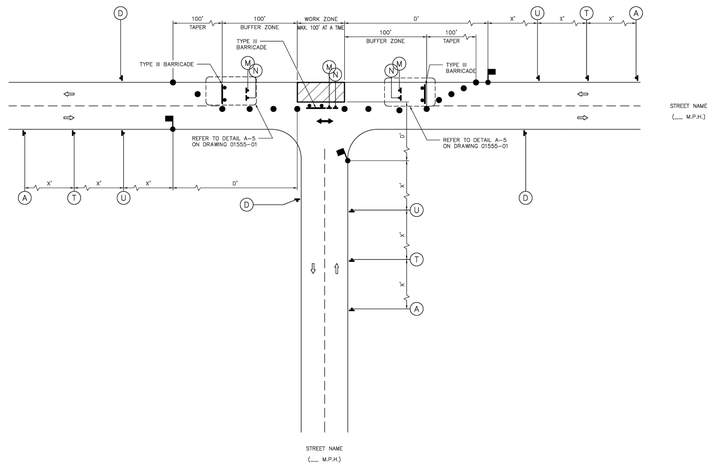
A	T	U	D	M	N
ROAD WORK AHEAD CW20-1	ONE LANE ROAD AHEAD CW20-4	CW20-7	END ROAD WORK G20-2	DO NOT ENTER R5-1	ROAD CLOSED R11-2



LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. MINOR WORK AND DAYTIME OPERATIONS ONLY.
2. REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:	APPROVED BY:
Salud Ibarra	Hiang Nguyen
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-06

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 1 OF 3

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

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No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
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F- 713-706-4410
Tx Firm No. 13481

INTERIM REVIEW ONLY
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 21 OF 343

c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp -details.dwg Plotted February 11, 2026 at 2:10 AM by Pavan n

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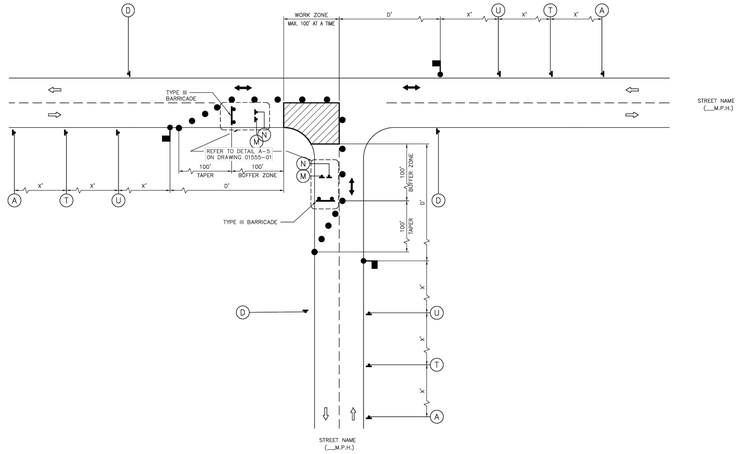
A	T	U	D	M	N
ROAD WORK AHEAD	ONE LANE ROAD AHEAD		END ROAD WORK	DO NOT ENTER	ROAD CLOSED
CW20-1	CW20-4	CW20-7	G20-2	R5-1	R11-2



LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

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4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:	APPROVED BY:
Signed by: Sukut Iswaran	Signed by: Hanns Kollmyer
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Signed by: Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-07

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 2 OF 3

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

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THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE SEVERA REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY GOVERNING ASSOCIATED WITH THEIR USE. THE OWNER'S OR PERSON'S USE OF, REVIEW OR REFERENCE TO THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR PROPER SAFETY, ACCURACY AND SPECIFIC NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSE WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR IMPROPER RESULTS OR DAMAGES RESULTING FROM ITS USE

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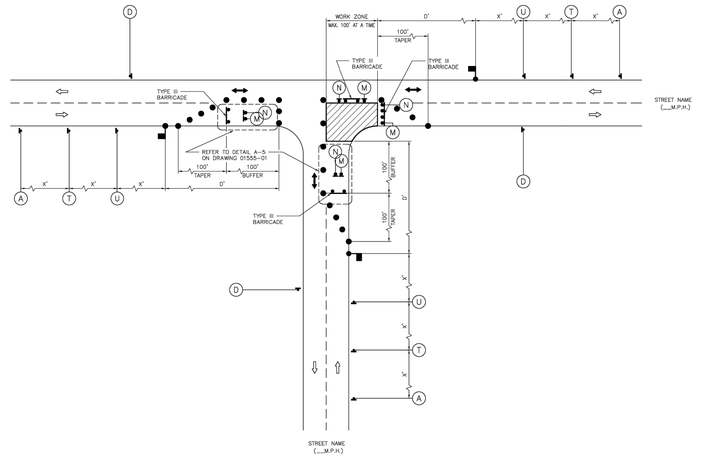
A	T	U	D	M	N
ROAD WORK AHEAD	ONE LANE ROAD AHEAD		END ROAD WORK	DO NOT ENTER	ROAD CLOSED
CW20-1	CW20-4	CW20-7	G20-2	R5-1	R11-2



LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

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APPROVED BY:	APPROVED BY:
Signed by: Sukut Iswaran	Signed by: Hanns Kollmyer
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Signed by: Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-08

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 3 OF 3

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

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No.	Date	Revisions	Appd.

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PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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

FCM Engineers, P.C.
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 22 OF 343

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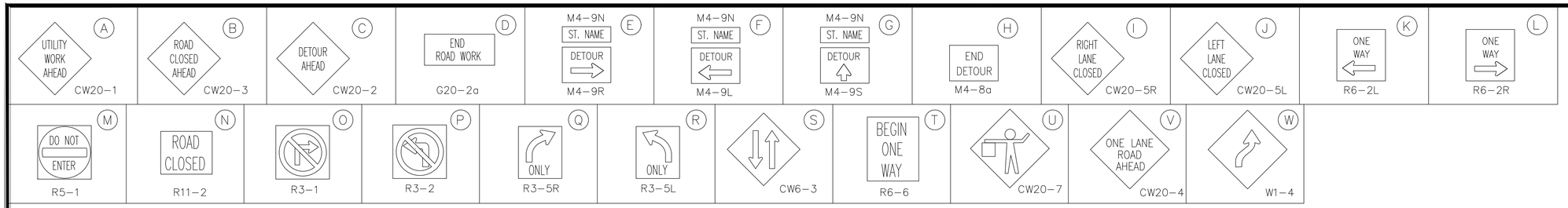
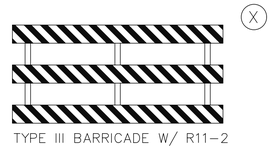
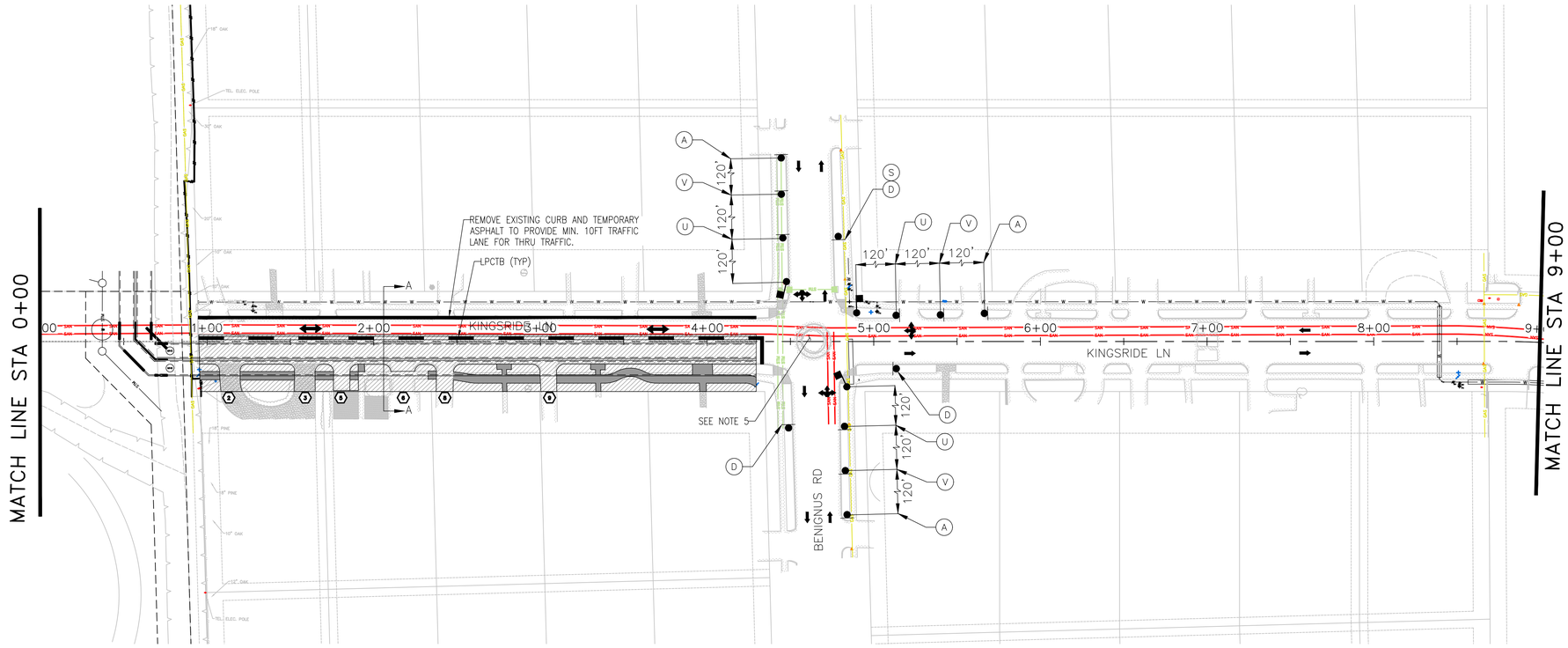
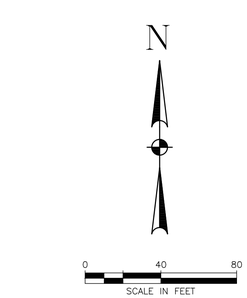


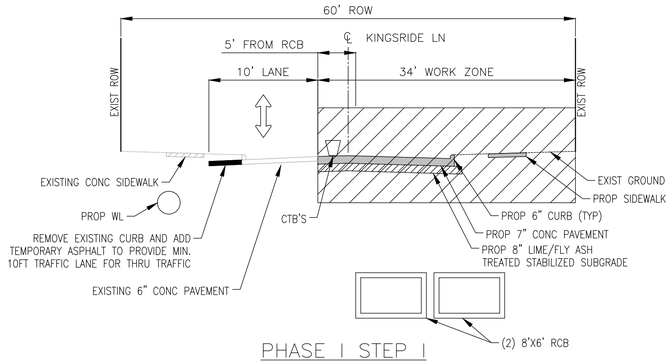






LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT



PHASE I STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO–WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE YIELD SIGNS AT THE END OF EACH CONSTRUCTION DAY FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT HERE.

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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

FCM Engineers, P.C.
3300 S. Gessner Rd.
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 1+00 TO STA 4+30
PHASE 1 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 23 OF 343

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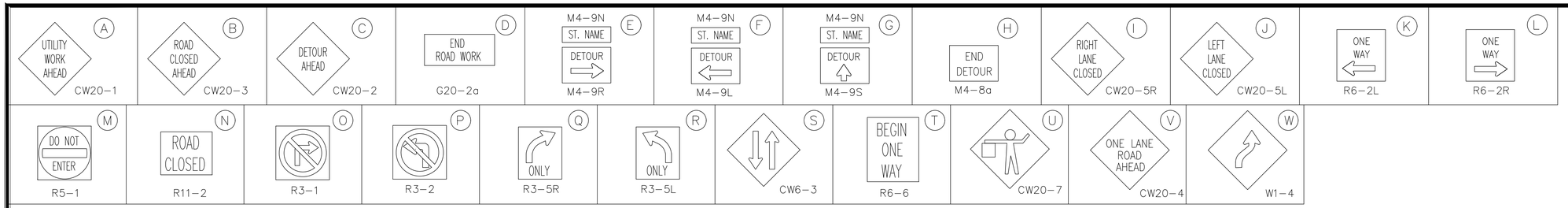
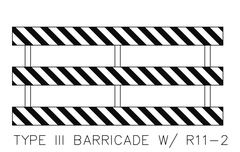
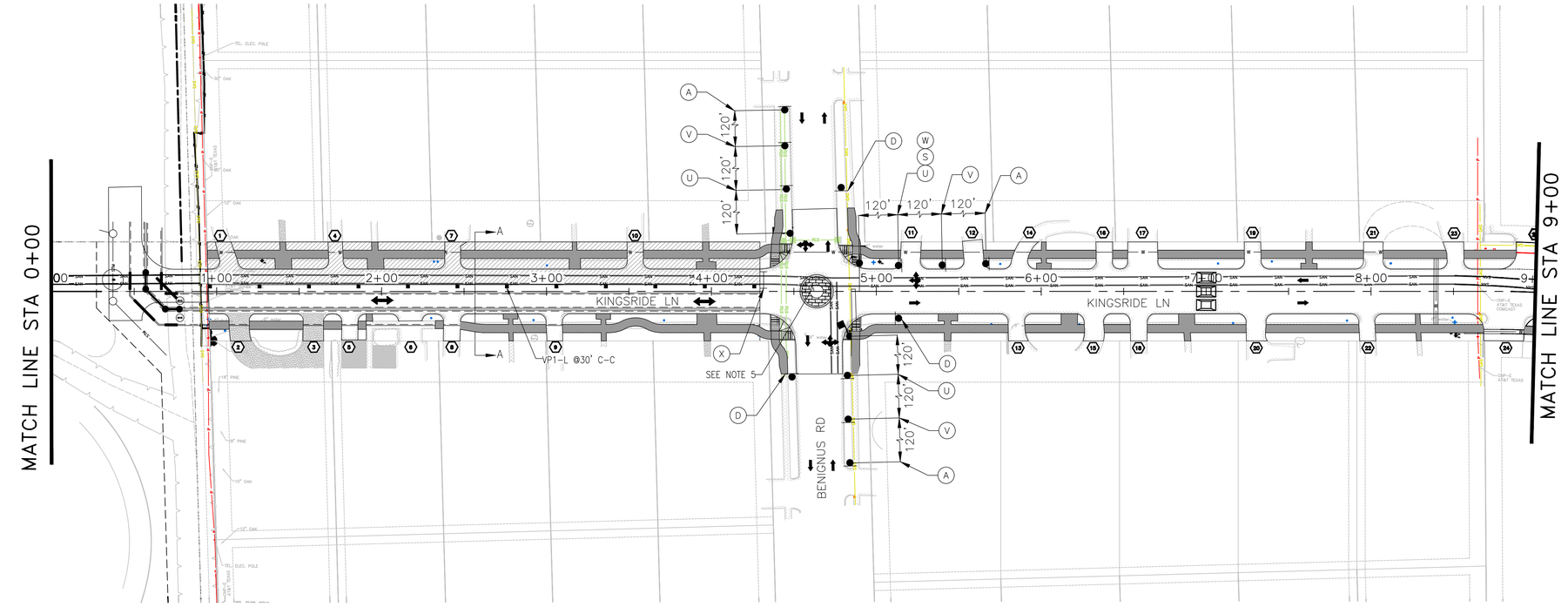
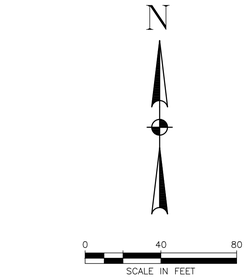


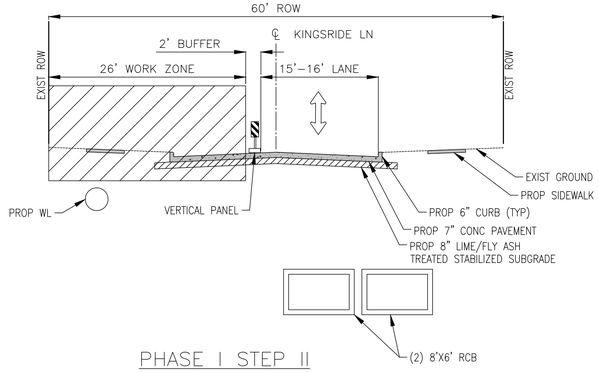






LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT



PHASE I STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE YIELD SIGNS AT THE END OF EACH CONSTRUCTION DAY FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE.

No.	Date	Revisions	App.

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: _____

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

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
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INTERIM REVIEW ONLY
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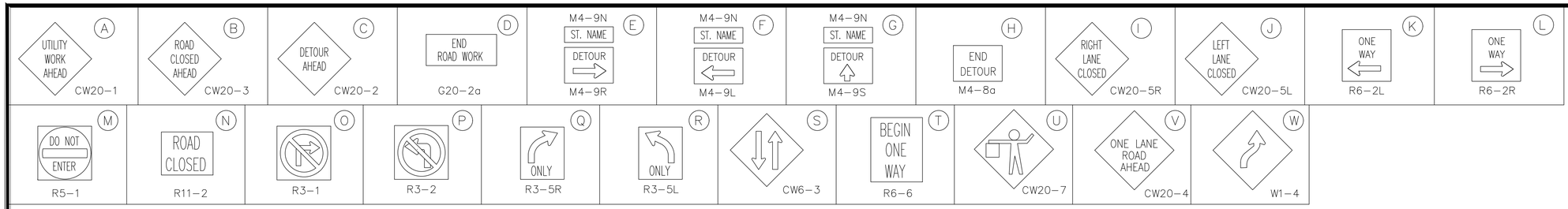
ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

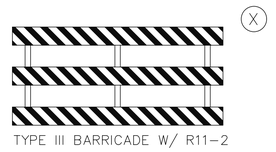
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

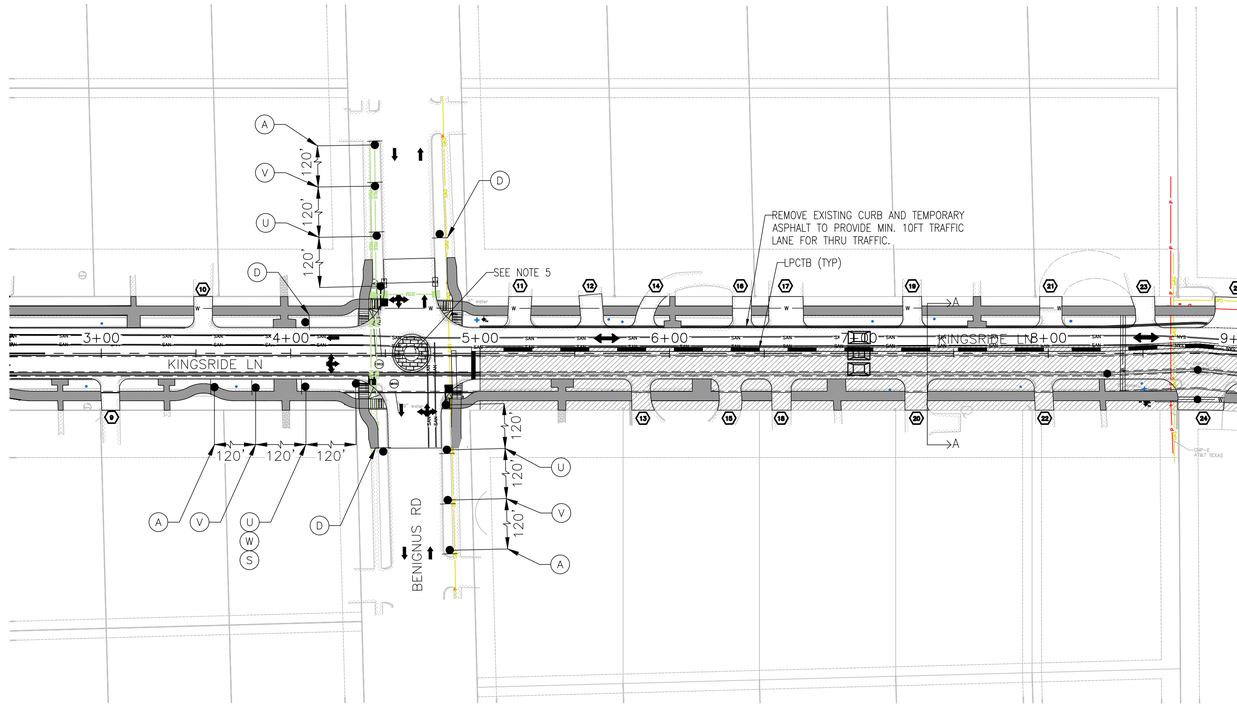
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 1+00 TO STA 4+30
PHASE 1 STEP 2

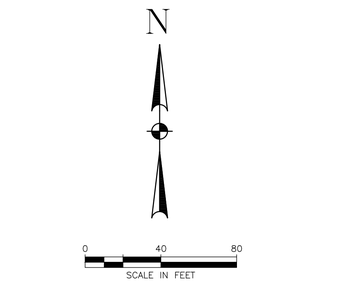
WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 24 OF 343

c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 1 step 2.dwg Plotted February 11, 2026 at 2:08 AM by Pavan n



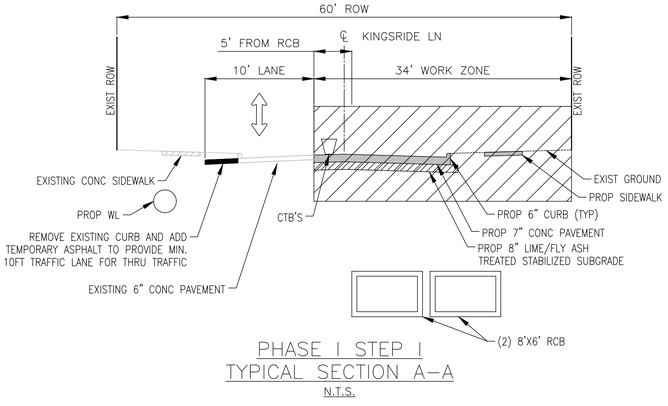






LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT



PHASE I STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO–WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE ONE WEST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE. DETOUR EAST BOUND TRAFFIC.

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 5+00 TO STA 9+30
PHASE 2 STEP 1

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 25 OF 343

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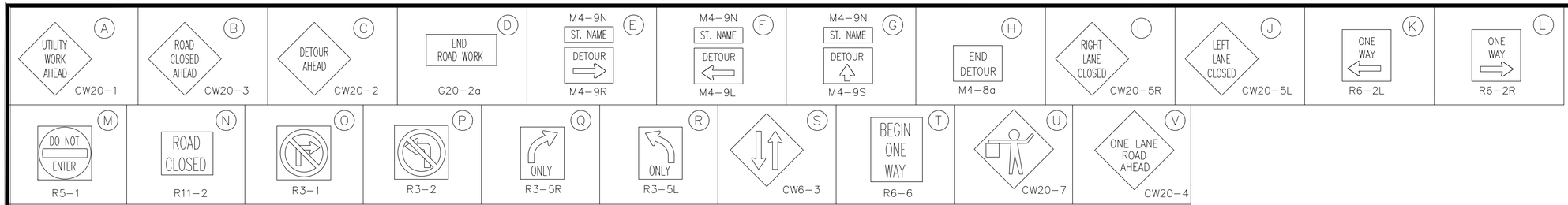
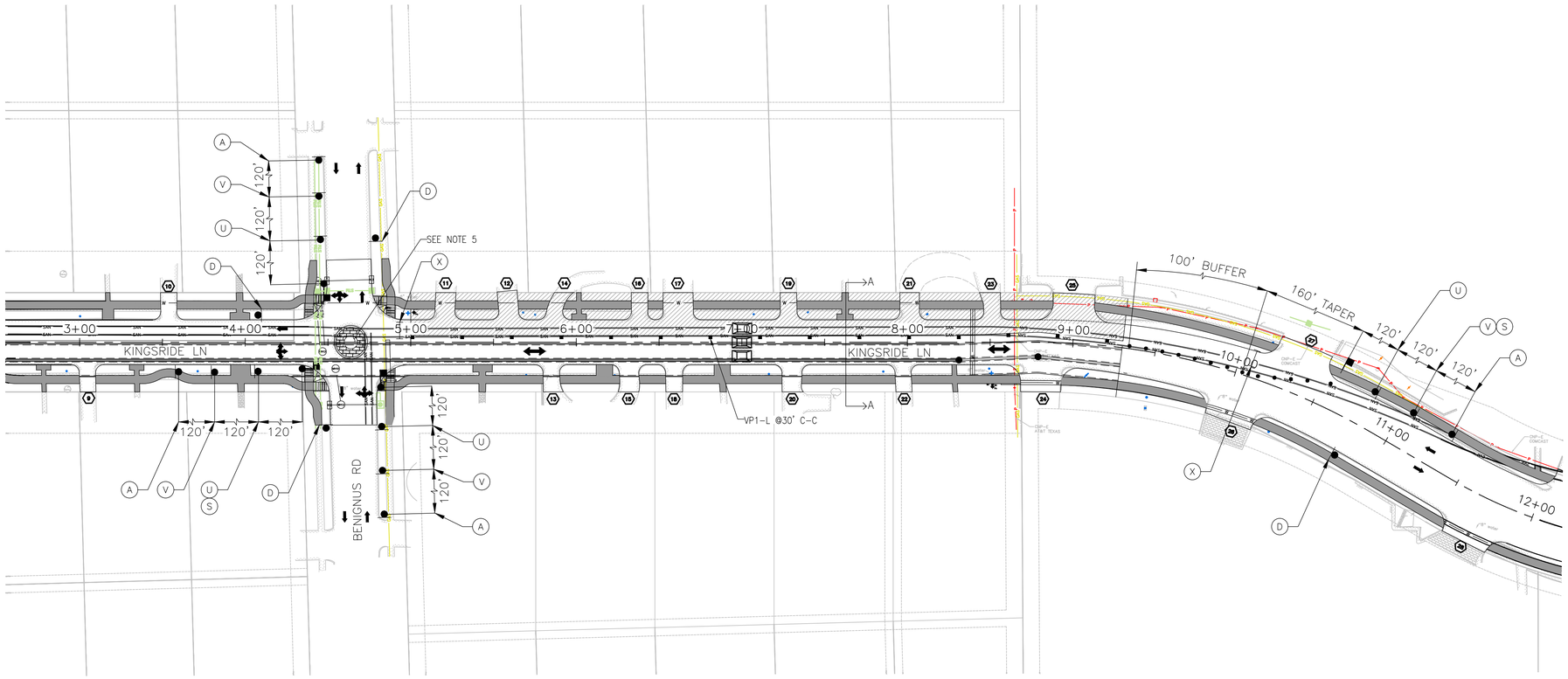
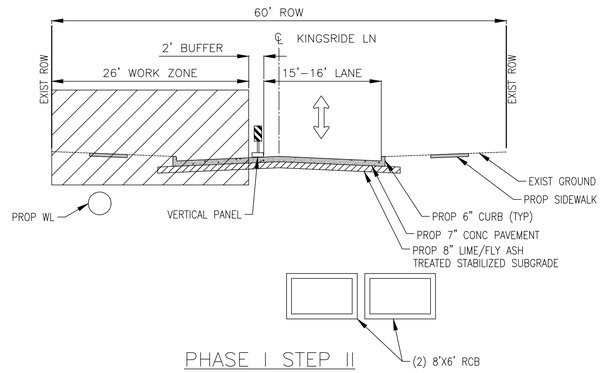
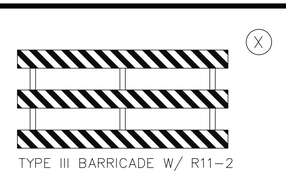
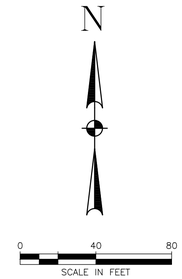






PHASE I STEP II
TYPICAL SECTION A-A
N.T.S.





LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE ONE EAST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE. DETOUR WEST BOUND TRAFFIC.

No.	Date	Revisions	App.

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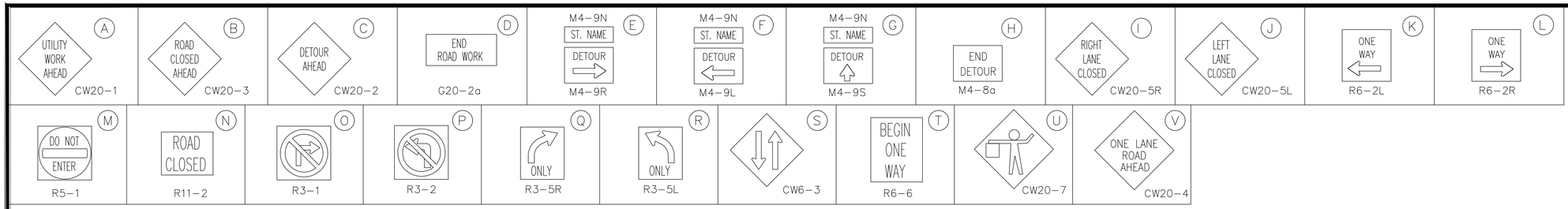
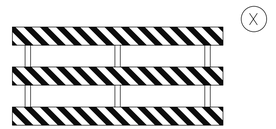
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

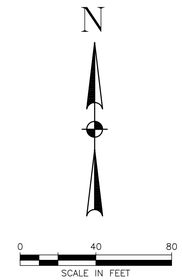
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 5+00 TO STA 9+30
PHASE 2 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 26 OF 343

c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\tirz n 17 detention - kingride ln standard\tcp\tcm tcp - phase 2 step 2.dwg Plotted February 11, 2026 at 2:08 AM by Pavan n







LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
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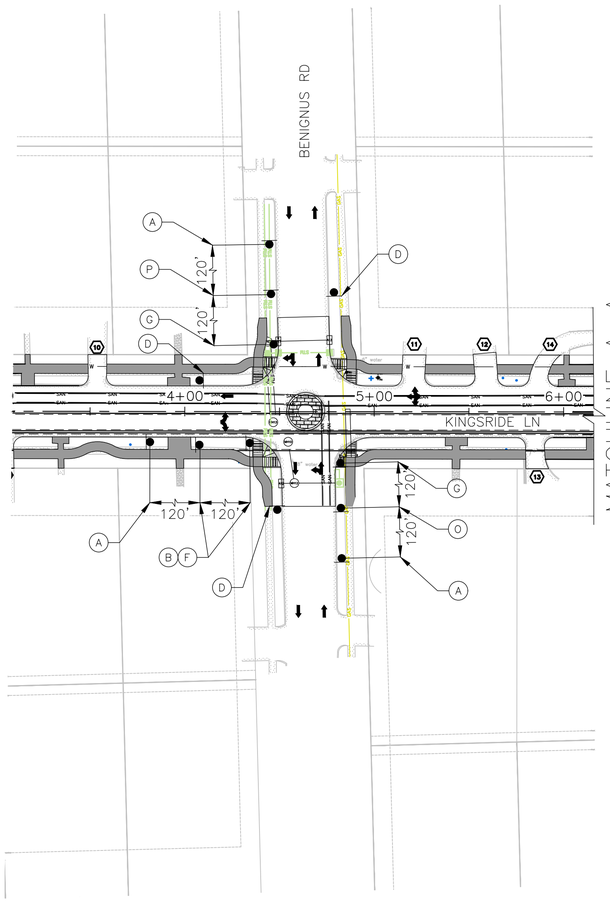
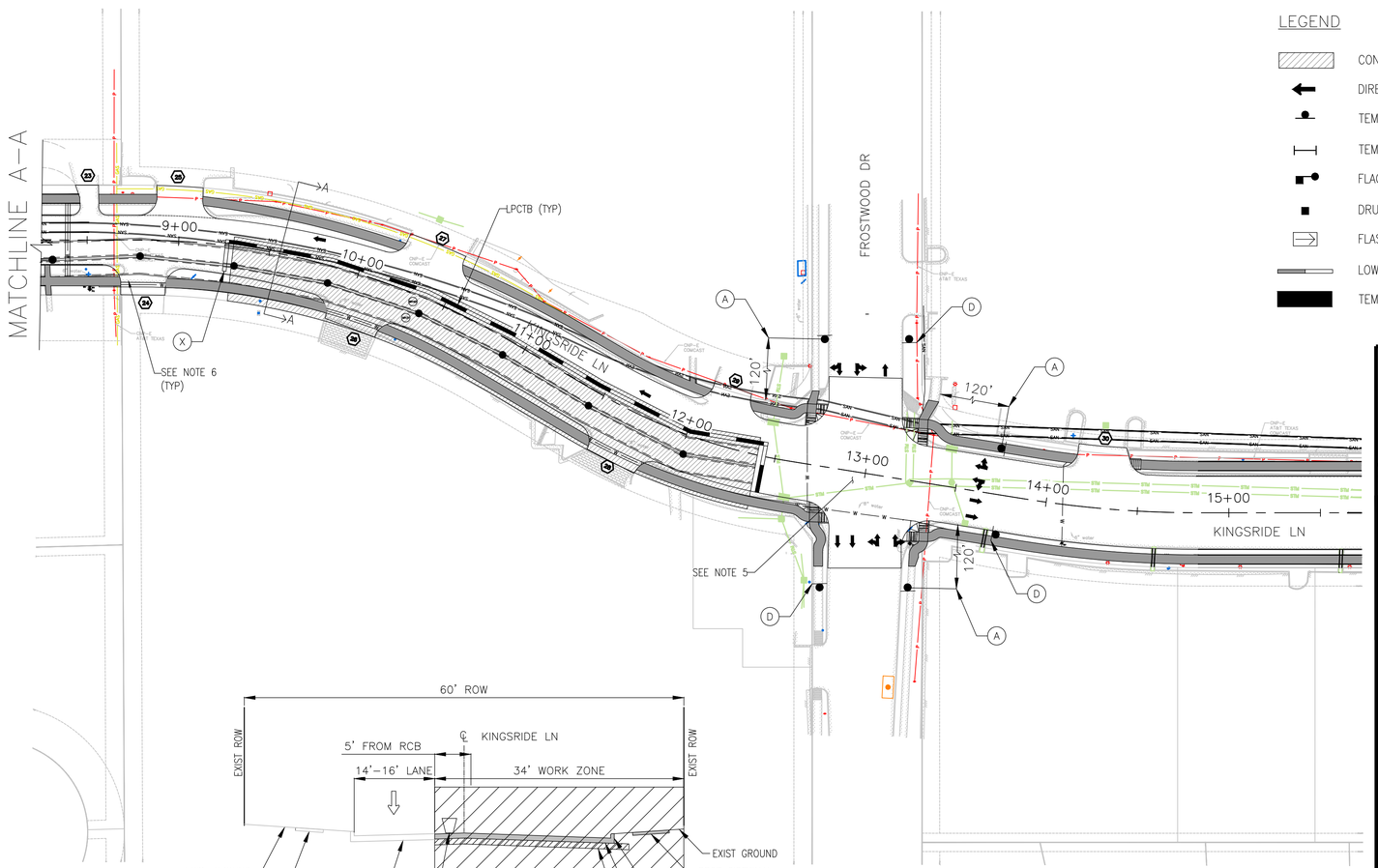
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT





NOTES

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2. ONE-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. EAST BOUND LANE IS CLOSED FOR CONSTRUCTION. INSTALL SIGN "O & P" AT ALL DRIVEWAYS.

PHASE III STEP I
TYPICAL SECTION A-A
N.T.S.

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 9+30 TO STA 12+40
PHASE 3 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 27 OF 343

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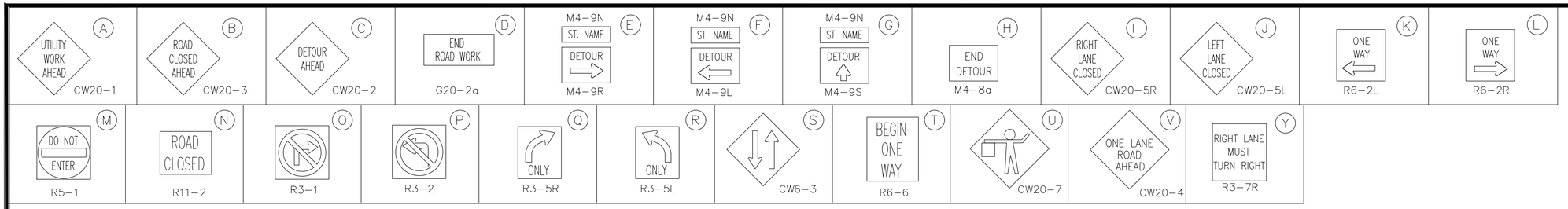



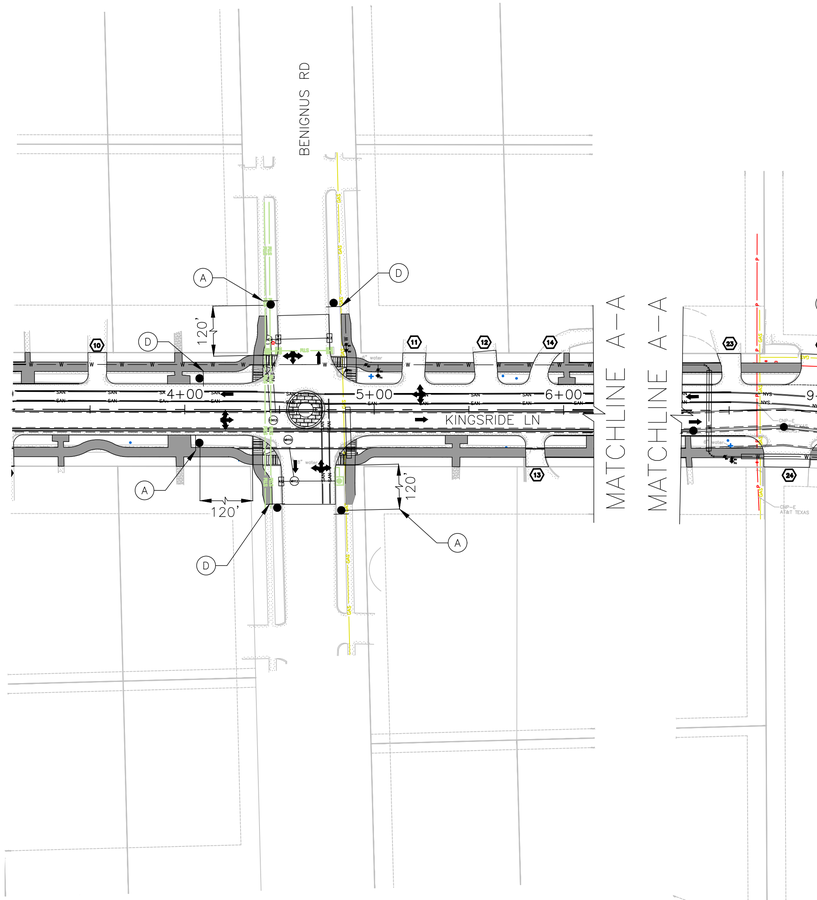

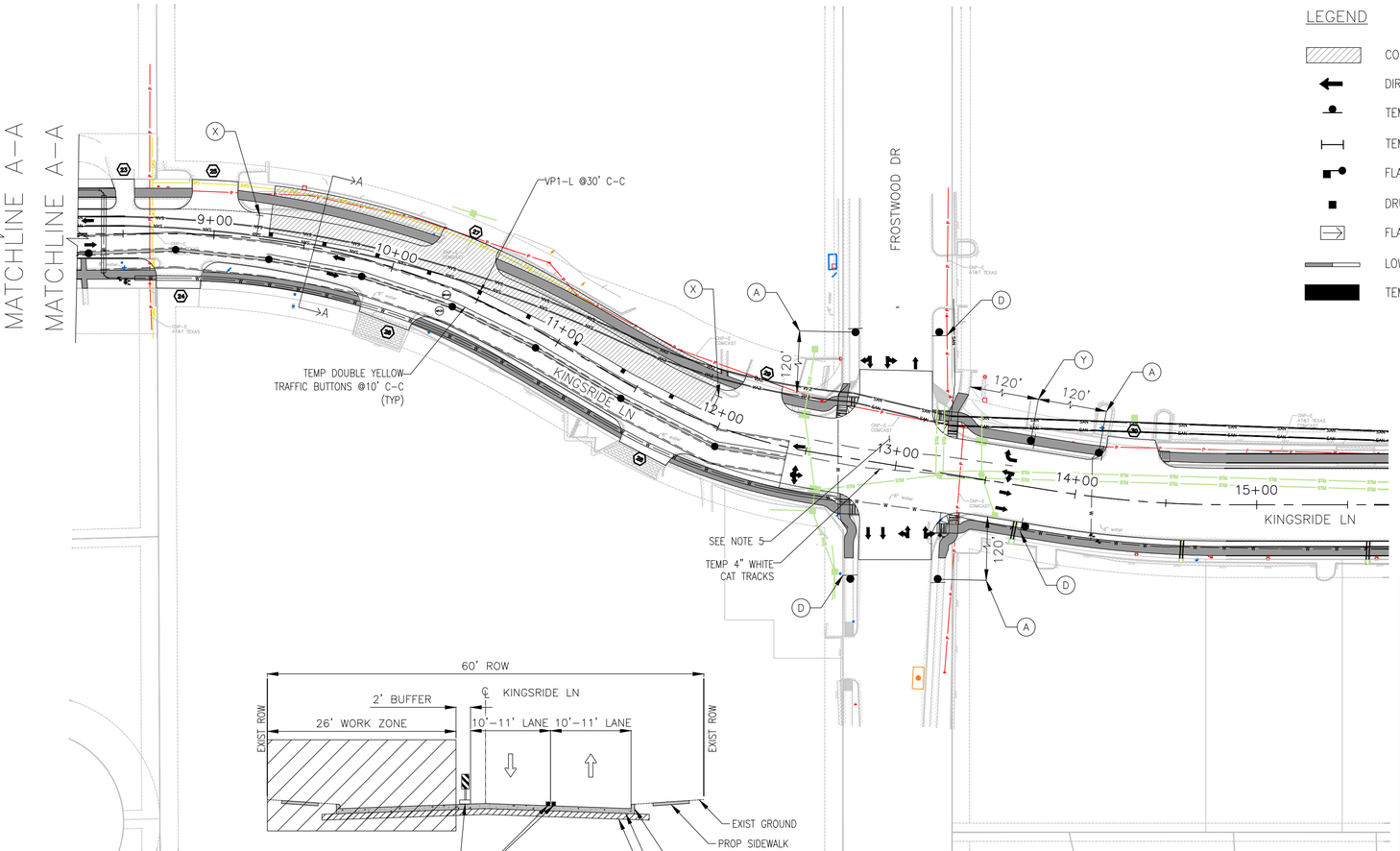

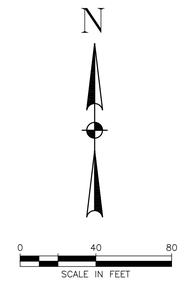

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

PHASE III STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
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5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.

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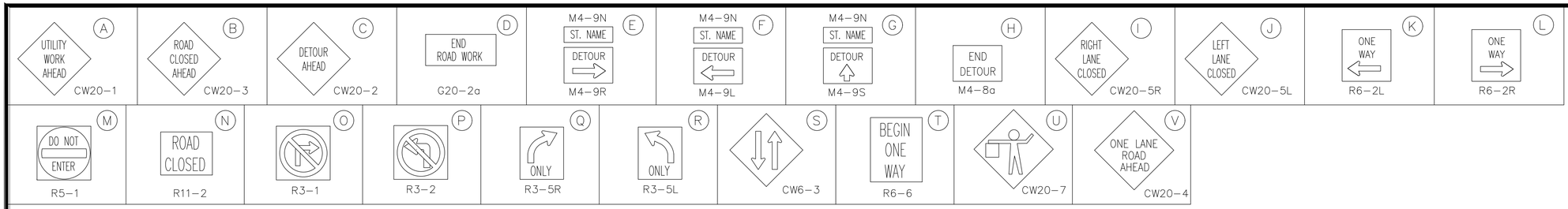
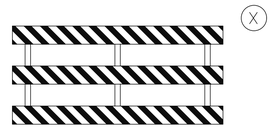
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

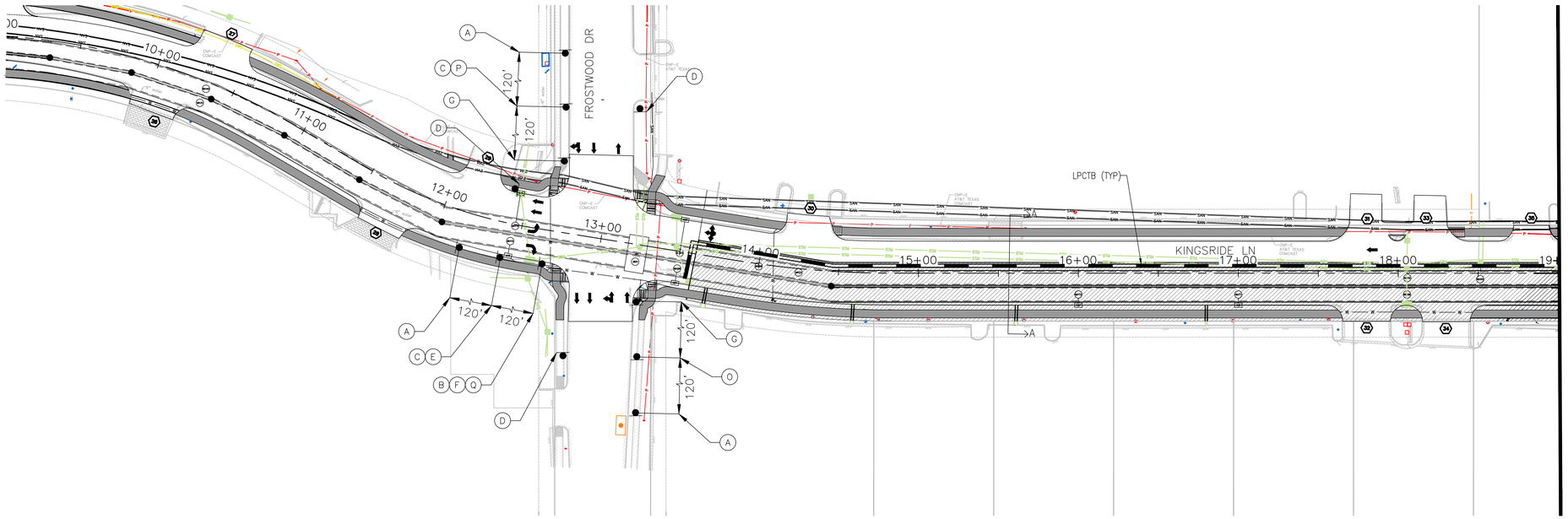
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 9+30 TO STA 11+90
PHASE 3 STEP 2

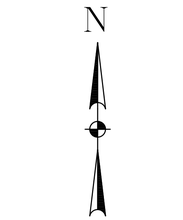
WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 28 OF 343

c:\users\917po\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\tcm tcp - phase 3 step 2.dwg Plotted February 11, 2026 at 2:06 AM by Pavan n









LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
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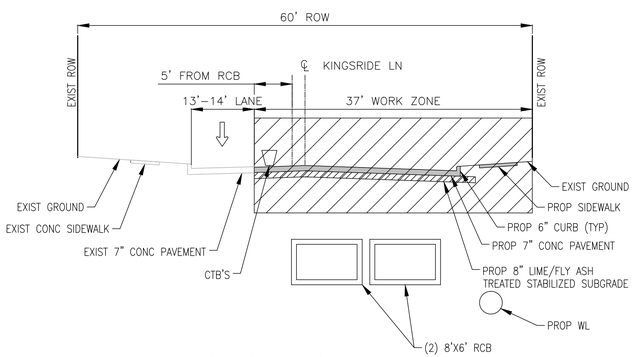
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT



PHASE IV STEP 1
TYPICAL SECTION A-A
N.T.S.

NOTES

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 13+60 TO STA 19+00
PHASE 4 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 29 OF 343

No.	Date	Revisions	App.

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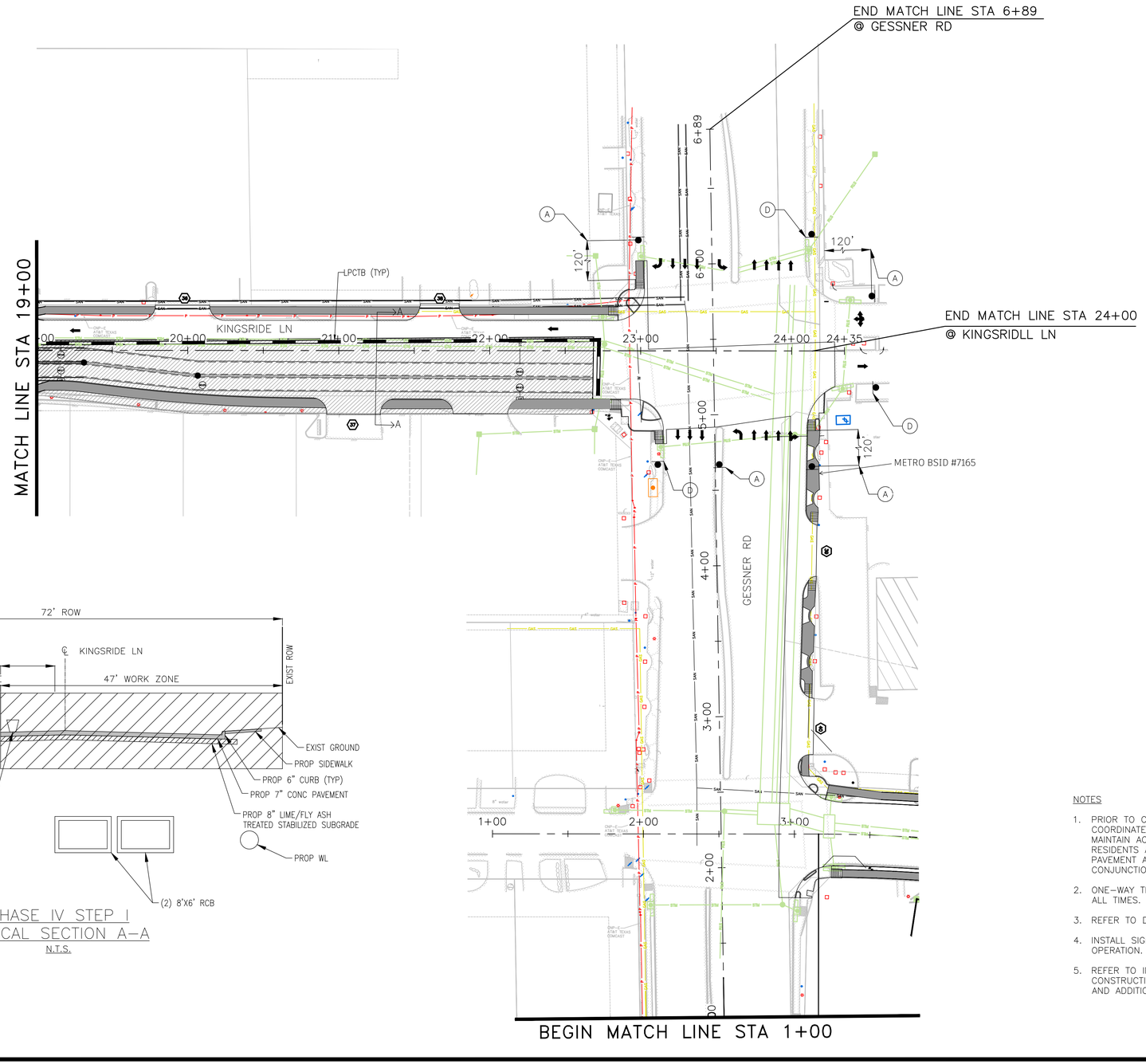
A UTILITY WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2a	E M4-9N ST. NAME DETOUR M4-9R	F M4-9N ST. NAME DETOUR M4-9L	G M4-9N ST. NAME DETOUR M4-9S	H END DETOUR M4-8a	I RIGHT LANE CLOSED CW20-5R	J LEFT LANE CLOSED CW20-5L	K ONE WAY R6-2L	L ONE WAY R6-2R
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O R3-1	P R3-2	Q ONLY R3-5R	R ONLY R3-5L	S CW6-3	T BEGIN ONE WAY R6-6	U CW20-7	V ONE LANE ROAD AHEAD CW20-4		

X



TYPE III BARRICADE W/ R11-2



LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
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PHASE IV STEP I
TYPICAL SECTION A-A
N.T.S.

NOTES

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 19+00 TO STA 22+70
PHASE 4 STEP 1

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 30 OF 343

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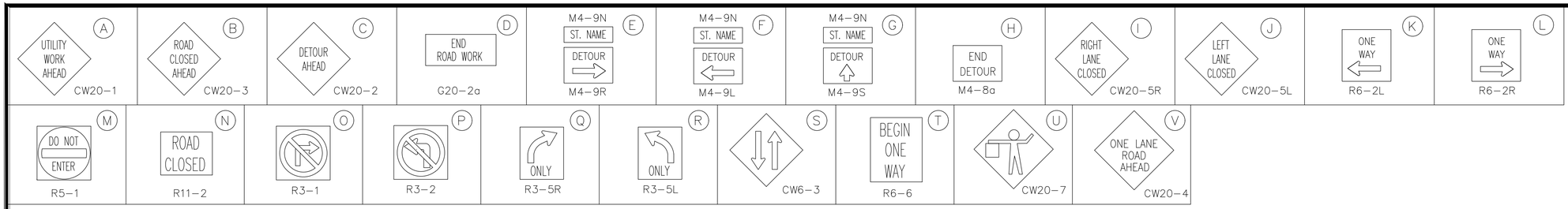

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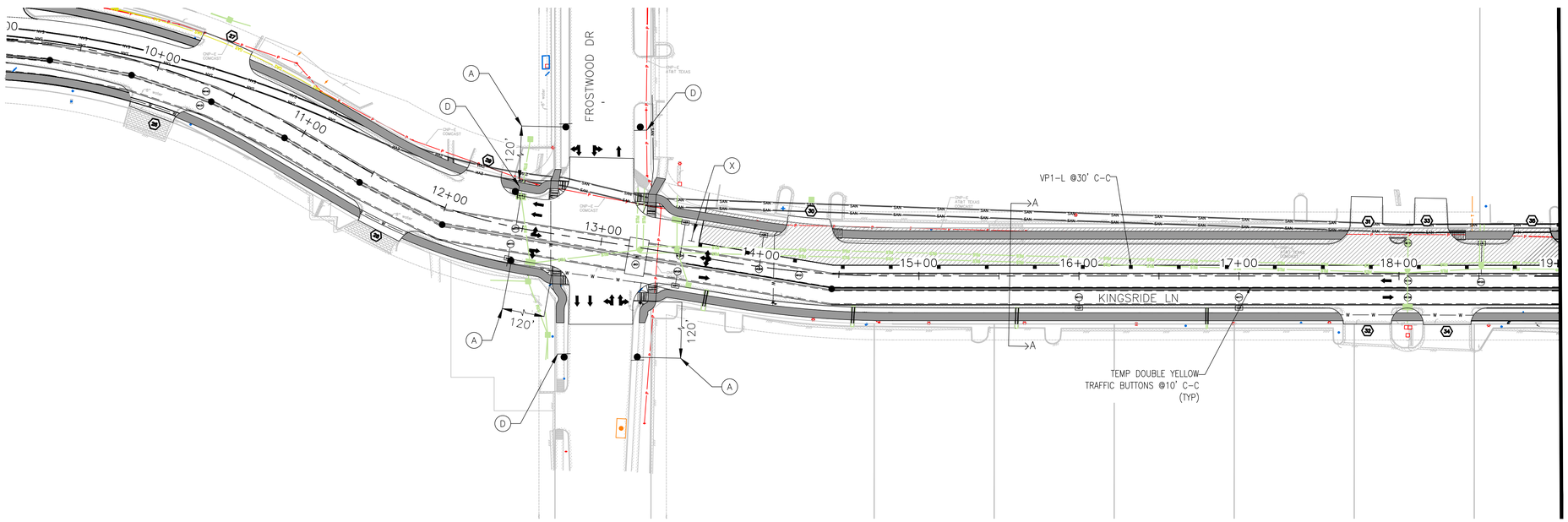
TYPE III BARRICADE W/ R11-2



N

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
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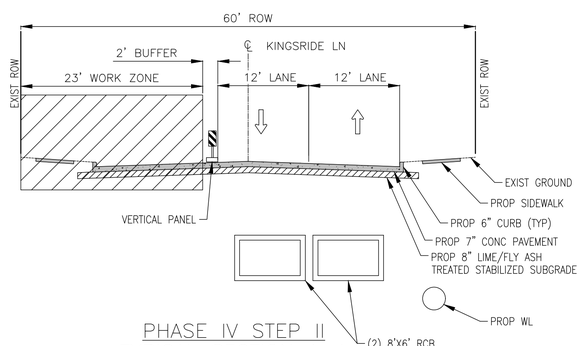

PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

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CITY OF HOUSTON
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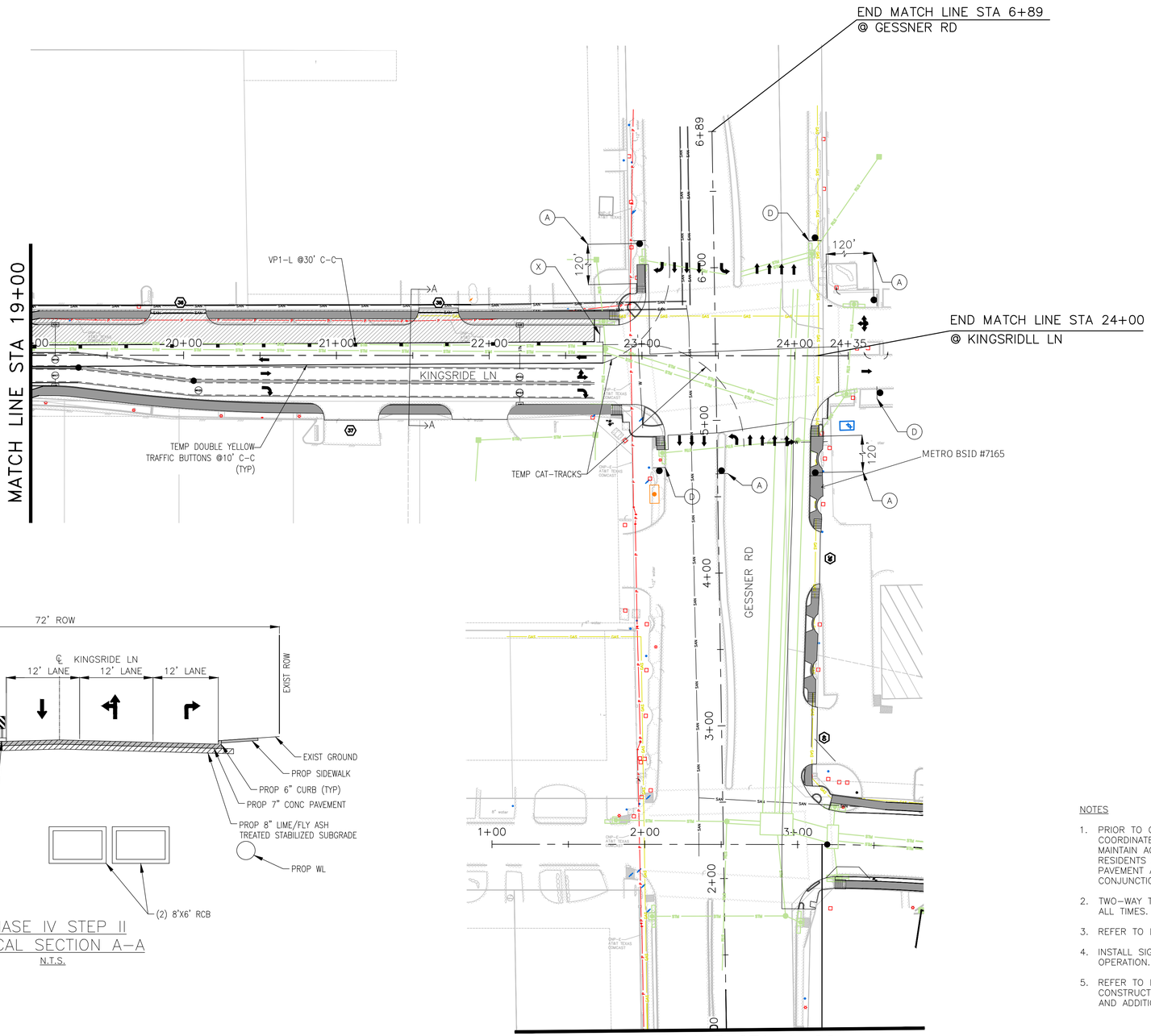
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 13+60 TO STA 19+00
PHASE 4 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 31 OF 343

c:\users\917po\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\tcm tcp - phase 4 step 2.dwg Plotted February 11, 2026 at 2:05 AM by Pavan n

A UTILITY WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2a	E M4-9N ST. NAME DETOUR M4-9R	F M4-9N ST. NAME DETOUR M4-9L	G M4-9N ST. NAME DETOUR M4-9S	H END DETOUR M4-8a	I RIGHT LANE CLOSED CW20-5R	J LEFT LANE CLOSED CW20-5L	K ONE WAY R6-2L	L ONE WAY R6-2R
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O R3-1	P R3-2	Q ONLY R3-5R	R ONLY R3-5L	S CW6-3	T BEGIN ONE WAY R6-6	U CW20-7	V ONE LANE ROAD AHEAD CW20-4		

X
TYPE III BARRICADE W/ R11-2



PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.

N

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.

No.	Date	Revisions	App.

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DATE:

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
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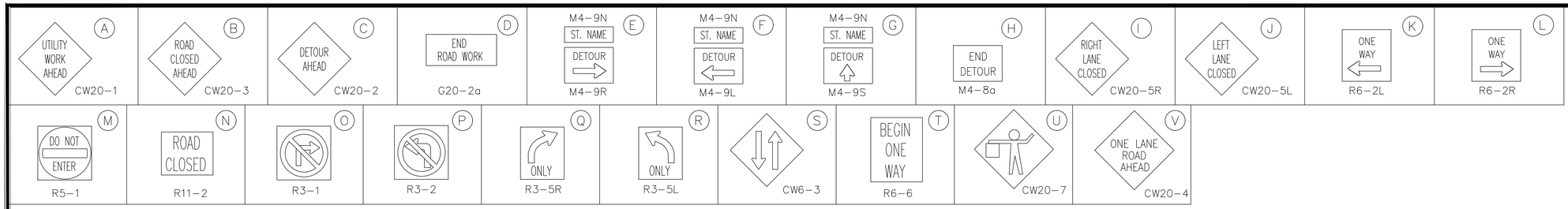
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

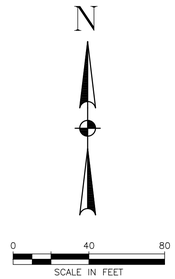
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 19+00 TO STA 22+70
PHASE 4 STEP 2

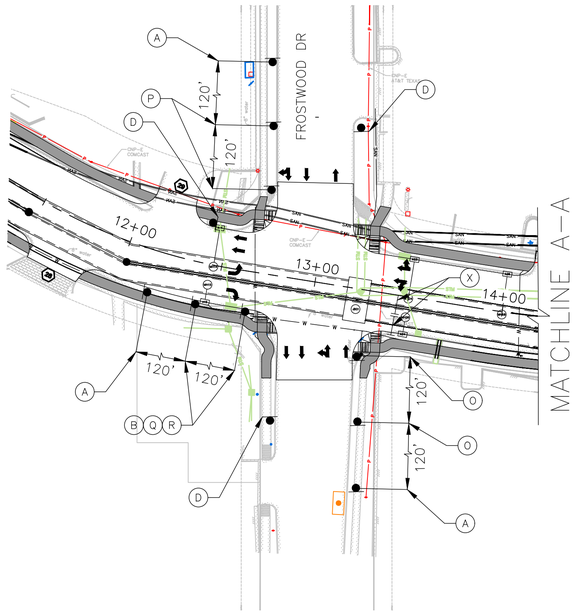
WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 32 OF 343

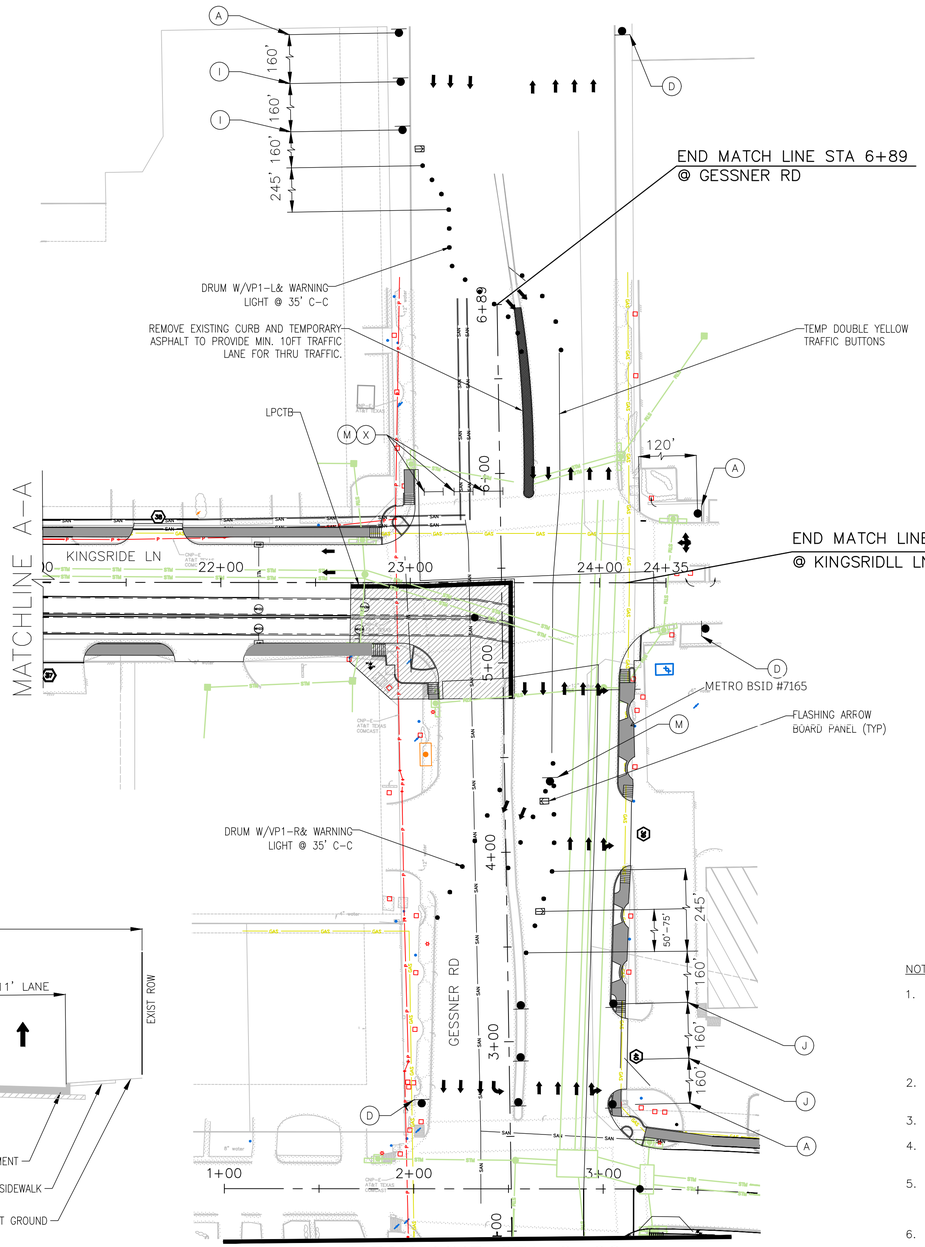
c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 4 step 2.dwg Plotted February 11, 2026 at 2:08 AM by Pavan n

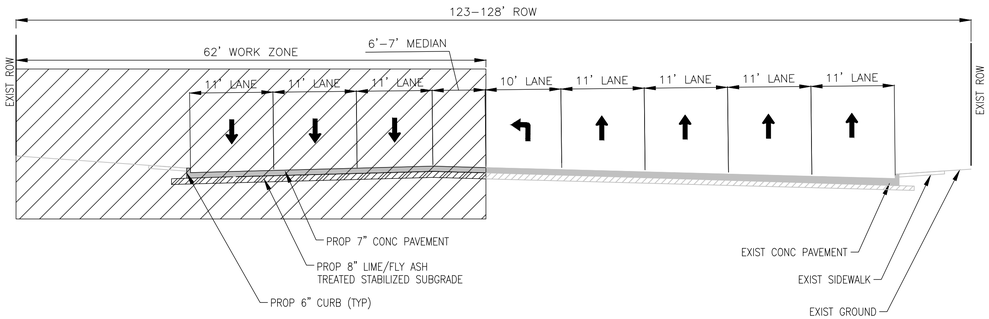












PHASE IV INT 1

N.T.S.

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO ADJUST THE SIGNAL HEAD AS NECESSARY FOR CONSTRUCTION. REFER TO TEMPORARY SIGNAL DESIGN SHEETS FOR REFERENCE.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
MOH'D WARRAD, P.E.	
SHEET NO. 33 OF 343	

No.	Date	Revisions	App.

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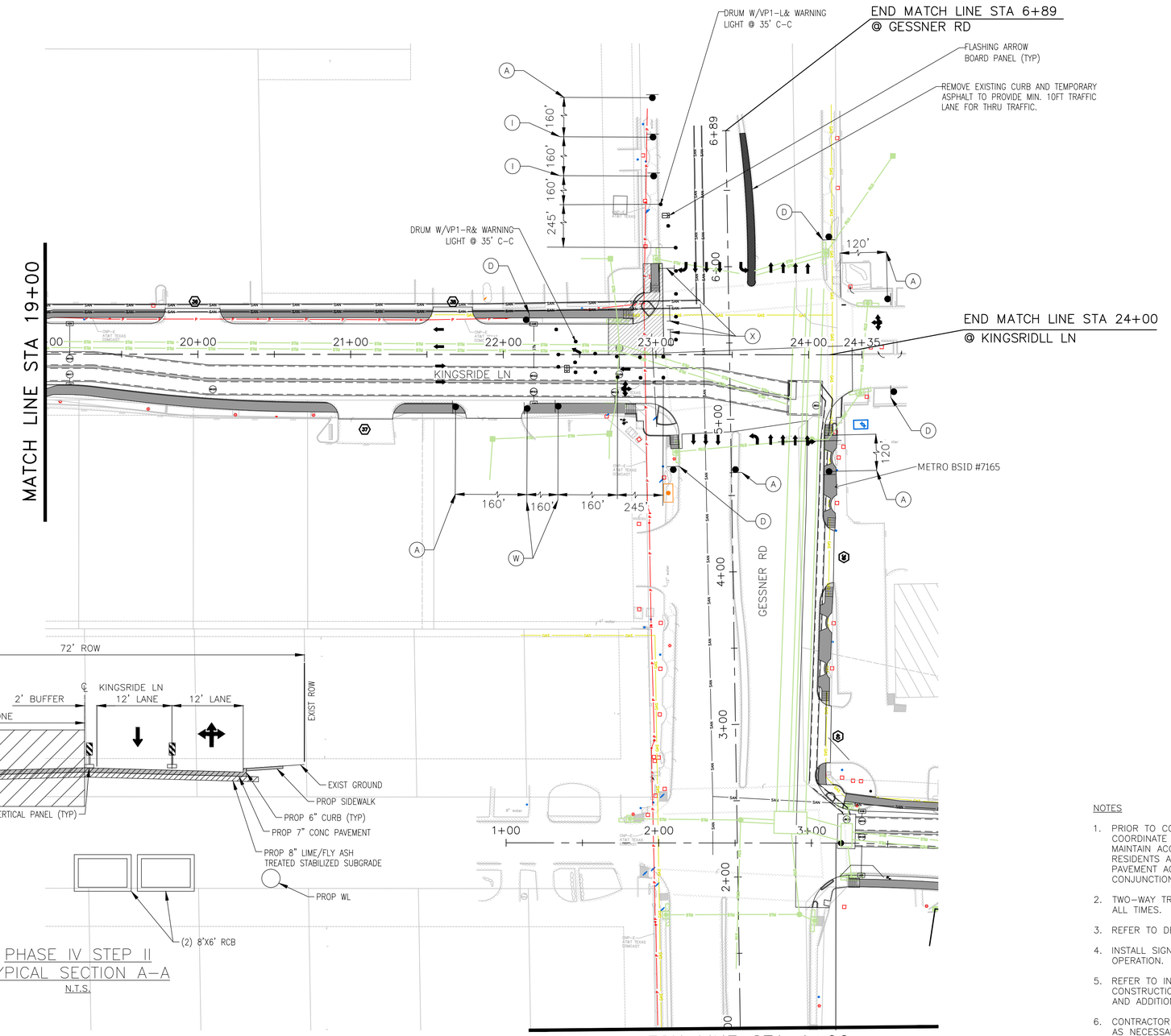
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O R3-1	P R3-2	Q ONLY R3-5R	R ONLY R3-5L	S CW6-3	T BEGIN ONE WAY R6-6	U CW20-7	V ONE LANE ROAD AHEAD CW20-4	W CENTER LANE CLOSED CW20-5L	Y W1-4

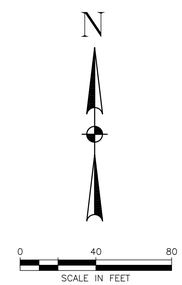
X



TYPE III BARRICADE W/ R11-2



PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.



LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 2

WBS NO. M-430296-0017-3

DRAWING SCALE

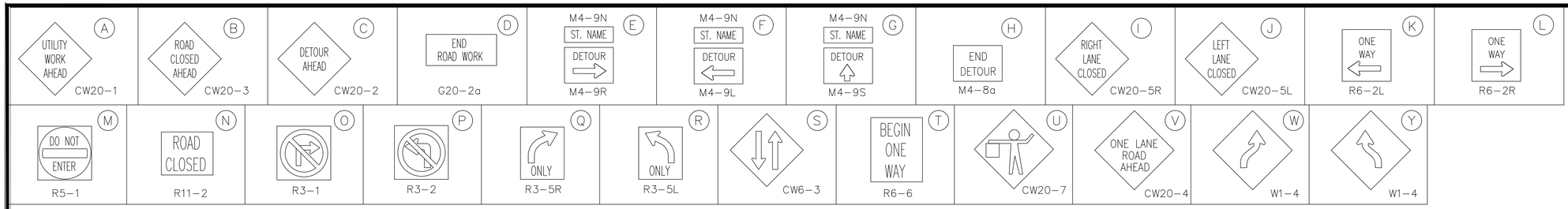
CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

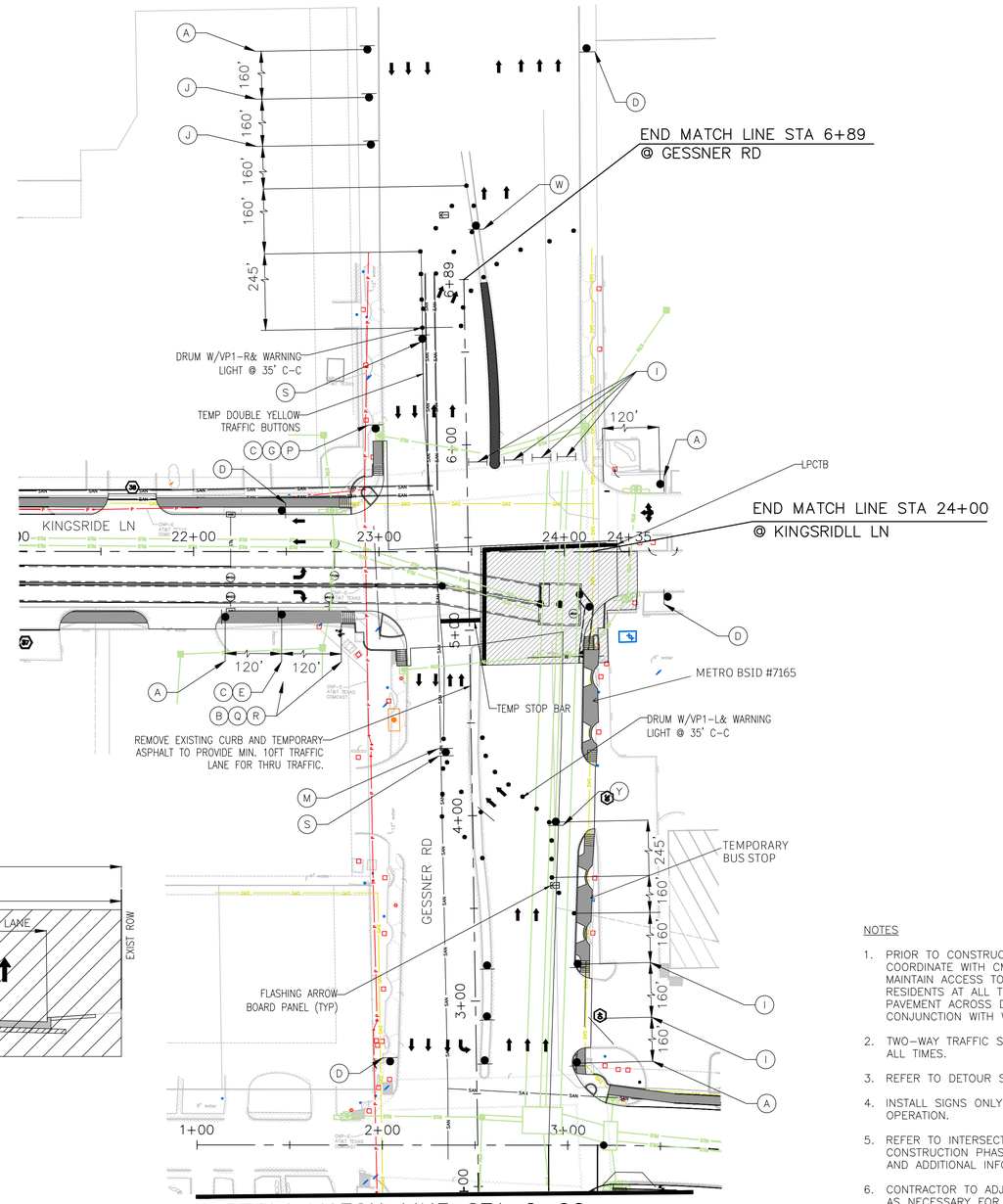
SHEET NO. 34 OF 343

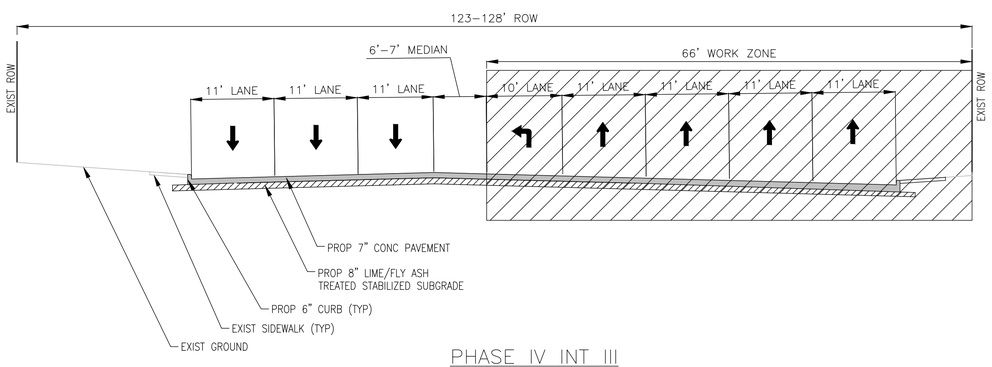
No.	Date	Revisions	App.

c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 4 int 2.dwg Plotted February 11, 2026 at 2:07 AM by Pavan n



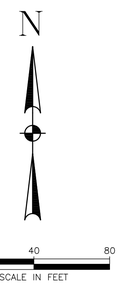






PHASE IV INT III

N.T.S.



LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 3

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
MOH'D WARRAD, P.E.

SHEET NO. 35 OF 343

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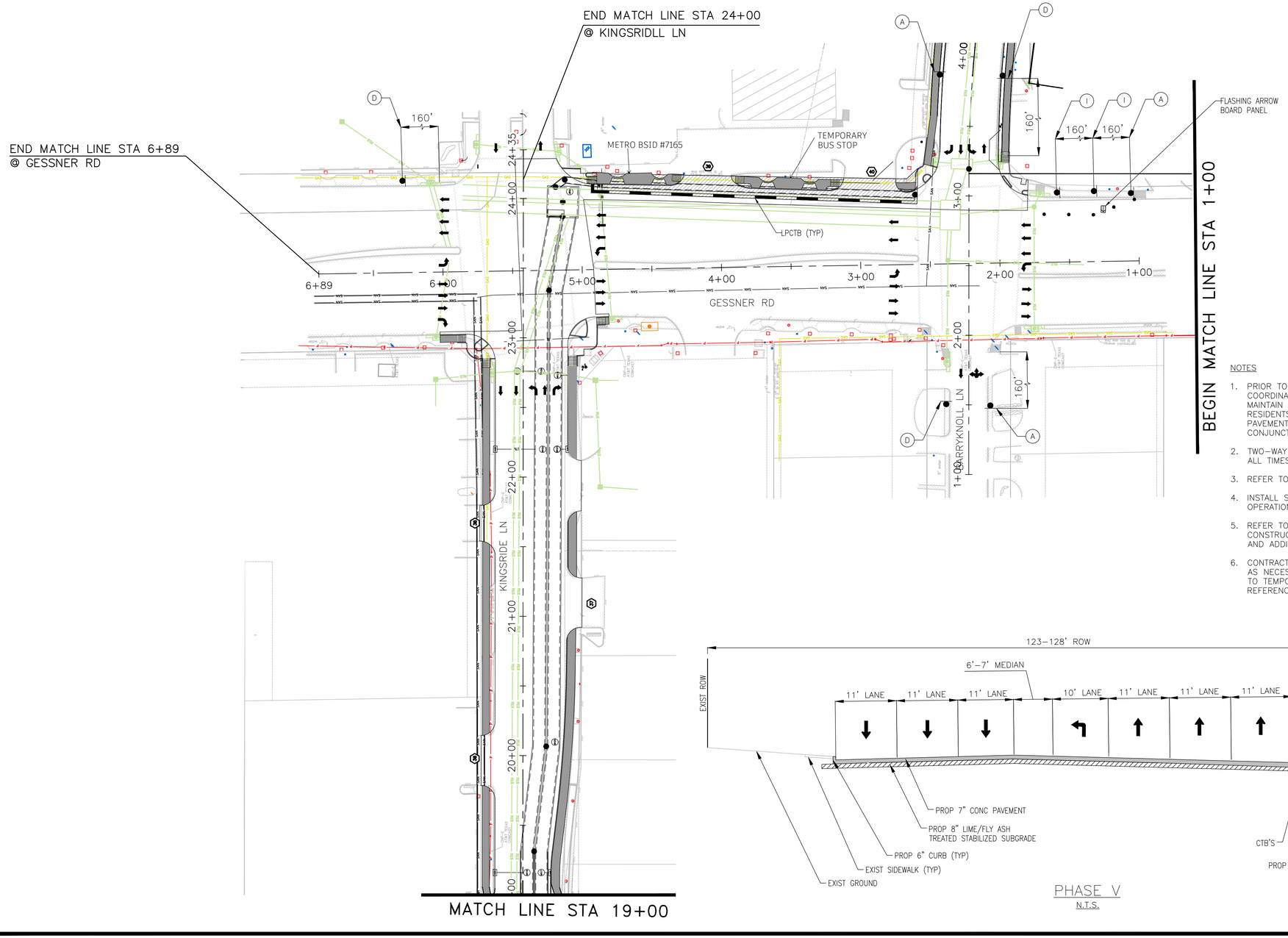
A UTILITY WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2a	E M4-9N ST. NAME DETOUR M4-9R	F M4-9N ST. NAME DETOUR M4-9L	G M4-9N ST. NAME DETOUR M4-9S	H END DETOUR M4-8a	I RIGHT LANE CLOSED CW20-5R	J LEFT LANE CLOSED CW20-5L	K ONE WAY R6-2L	L ONE WAY R6-2R
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O R3-1	P R3-2	Q ONLY R3-5R	R ONLY R3-5L	S CW6-3	T BEGIN ONE WAY R6-6	U CW20-7	V ONE LANE ROAD AHEAD CW20-4		

X
TYPE III BARRICADE W/ R11-2



PHASE V
N.T.S.

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
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6. CONTRACTOR TO ADJUST THE SIGNAL HEAD AS NECESSARY FOR CONSTRUCTION. REFER TO TEMPORARY SIGNAL DESIGN SHEETS FOR REFERENCE.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
GESSNER RD
STA 3+40 TO STA 5+10
PHASE 5

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 36 OF 343

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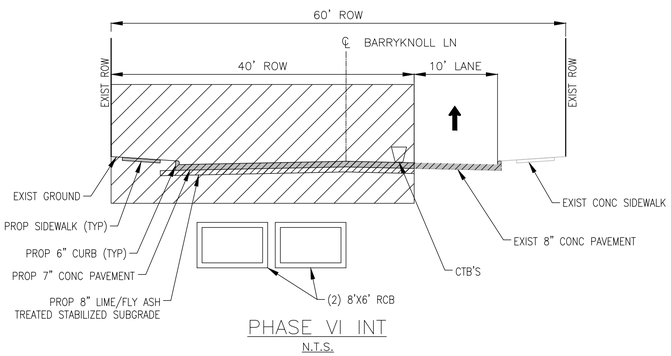
A UTILITY WORK AHEAD CW20−1	B ROAD CLOSED AHEAD CW20−3	C DETOUR AHEAD CW20−2	D END ROAD WORK G20−2a	E M4−9N ST. NAME DETOUR M4−9R	F M4−9N ST. NAME DETOUR M4−9L	G M4−9N ST. NAME DETOUR M4−9S	H END DETOUR M4−8a	I RIGHT LANE CLOSED CW20−5R	J LEFT LANE CLOSED CW20−5L	K ONE WAY R6−2L	L ONE WAY R6−2R	
M DO NOT ENTER R5−1	N ROAD CLOSED R11−2	O R3−1	P R3−2	Q ONLY R3−5R	R ONLY R3−5L	S CW6−3	T BEGIN ONE WAY R6−6	U CW20−7	V ONE LANE ROAD AHEAD CW20−4	Y RIGHT LANE MUST TURN RIGHT R3−7R		

X
TYPE III BARRICADE W/ R11−2





PHASE VI INT
N.T.S.

N

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11−2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. ONE−WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO COORDINATE WITH METRO PRIOR TO SETTING UP TRAFFIC CONTROL DEVICES IN THIS AREA.
7. CONTRACTOR TO INSTALL NO THROUGH TRAFFIC AT ALL MALL DRIVEWAYS TO DISALLOW TRUCK ENTRANCES.
8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
GESSNER RD
STA 3+40 TO STA 5+10
PHASE 6 INT 1

WBS NO. M−430296−0017−3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 37 OF 343

No.	Date	Revisions	App.

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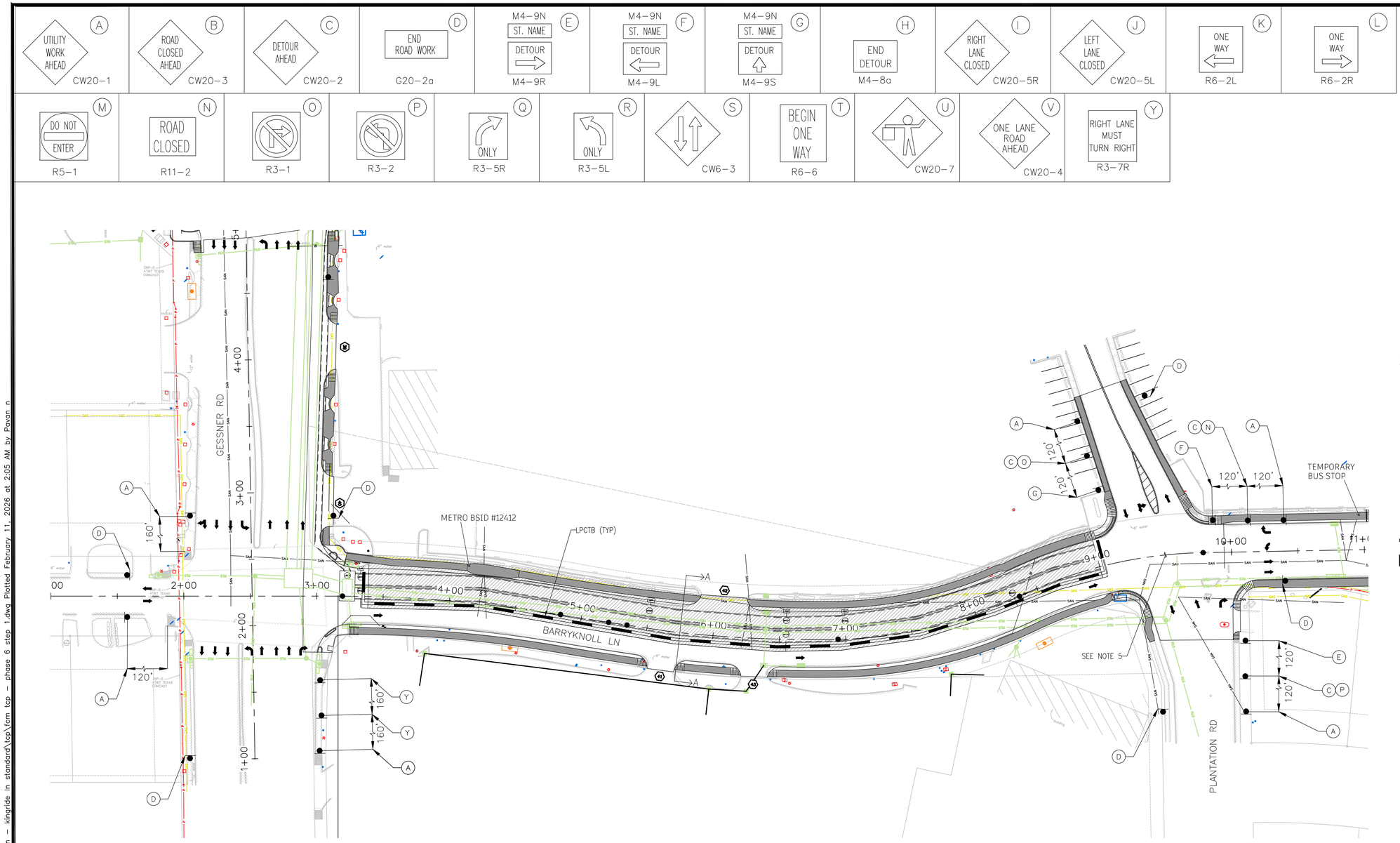

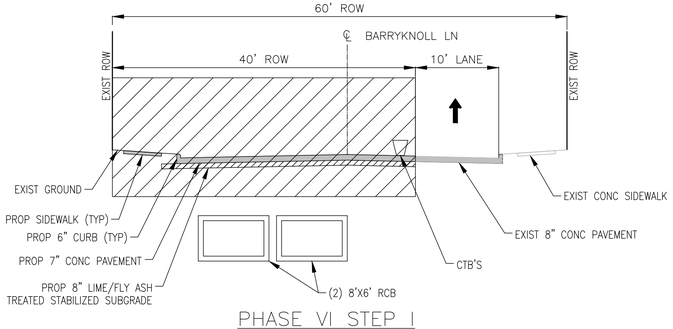

PHASE VI STEP I
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. ONE-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO COORDINATE WITH METRO PRIOR TO SETTING UP TRAFFIC CONTROL DEVICES IN THIS AREA.
7. CONTRACTOR TO INSTALL NO THROUGH TRAFFIC AT ALL MALL DRIVEWAYS TO DISALLOW TRUCK ENTRANCES.
8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 3+40 TO STA 9+00
PHASE 6 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 38 OF 343

No. | Date | Revisions | App.

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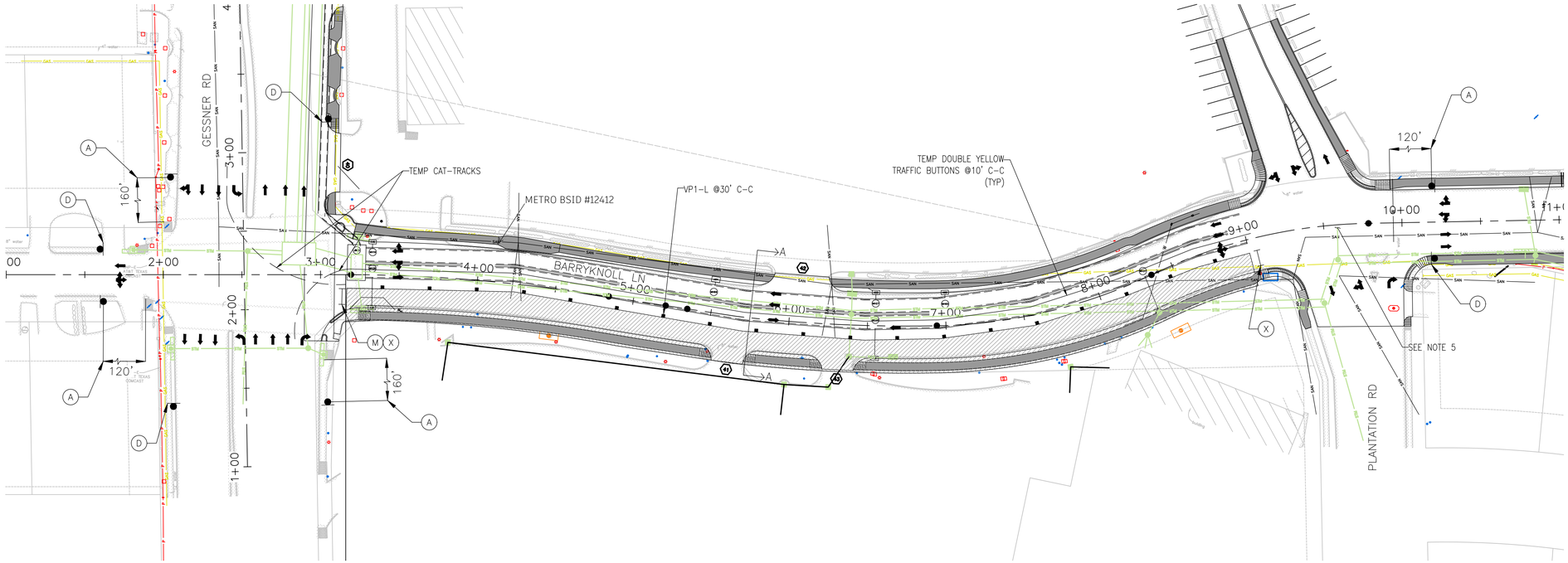
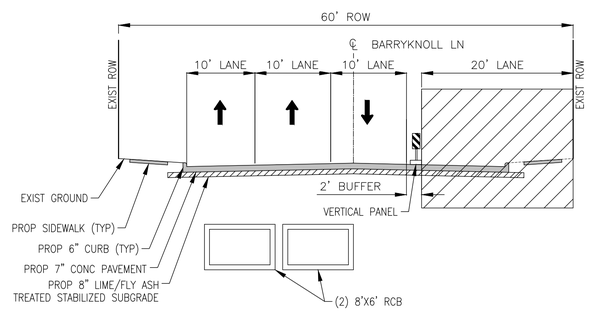
(A) UTILITY WORK AHEAD — CW20-1	(B) ROAD CLOSED AHEAD — CW20-3	(C) DETOUR AHEAD — CW20-2	(D) END ROAD WORK — G20-2a	(E) M4-9N ST. NAME DETOUR — M4-9R	(F) M4-9N ST. NAME DETOUR — M4-9L	(G) M4-9N ST. NAME DETOUR — M4-9S	(H) END DETOUR — M4-8a	(I) RIGHT LANE CLOSED — CW20-5R	(J) LEFT LANE CLOSED — CW20-5L	(K) ONE WAY — R6-2L	(L) ONE WAY — R6-2R	
(M) DO NOT ENTER — R5-1	(N) ROAD CLOSED — R11-2	(O) — R3-1	(P) — R3-2	(Q) ONLY — R3-5R	(R) ONLY — R3-5L	(S) — CW6-3	(T) BEGIN ONE WAY — R6-6	(U) — CW20-7	(V) ONE LANE ROAD AHEAD — CW20-4	(Y) RIGHT LANE MUST TURN RIGHT — R3-7R		

(X) TYPE III BARRICADE W/ R11-2





PHASE VI STEP II
TYPICAL SECTION A-A
N.T.S.

N

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
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8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 3+40 TO STA 9+00
PHASE 6 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 39 OF 343

No.	Date	Revisions	App.

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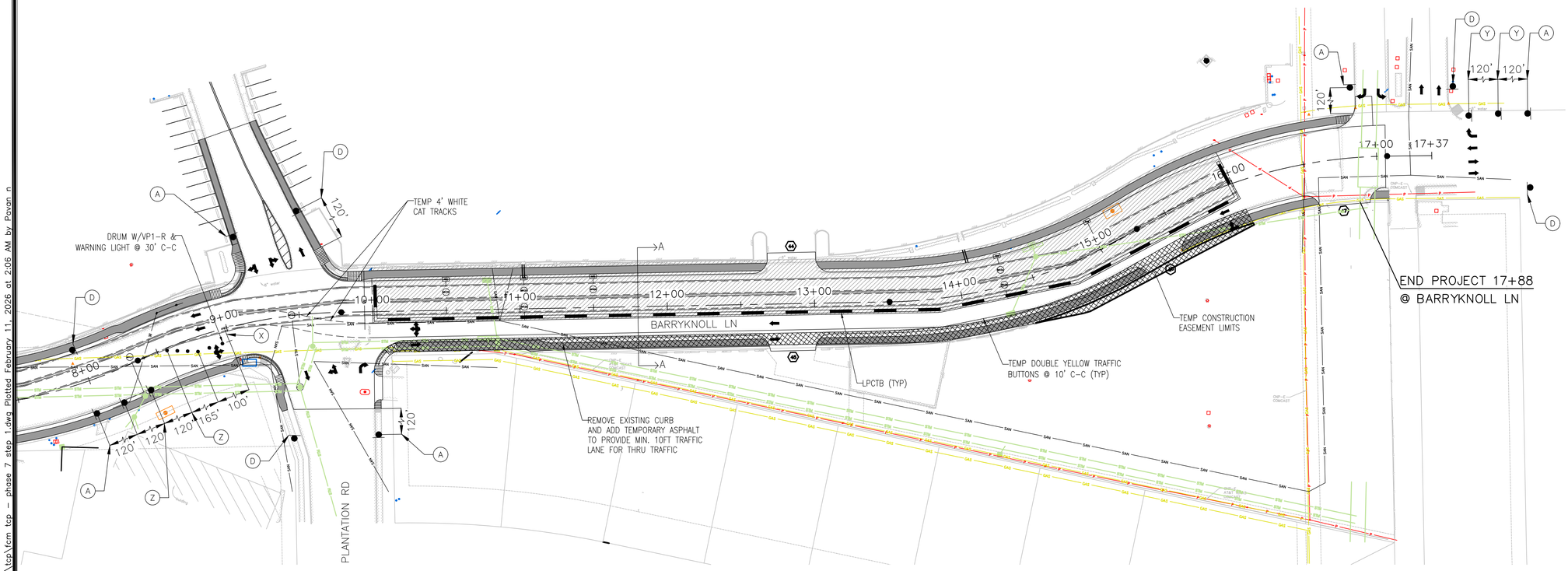
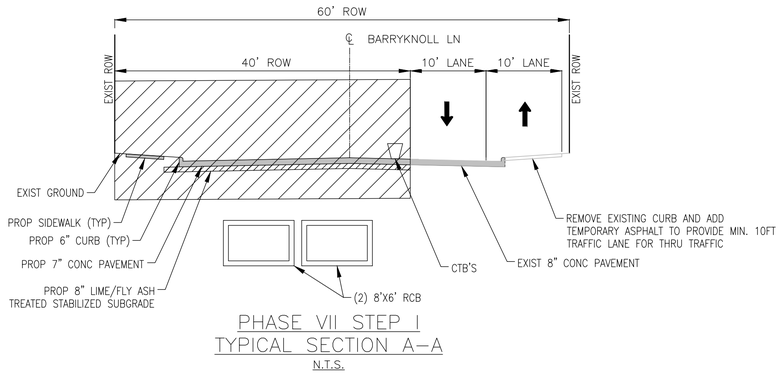
A UTILITY WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2a	E M4-9N ST. NAME DETOUR M4-9R	F M4-9N ST. NAME DETOUR M4-9L	G M4-9N ST. NAME DETOUR M4-9S	H END DETOUR M4-8a	I RIGHT LANE CLOSED CW20-5R	J LEFT LANE CLOSED CW20-5L	K ONE WAY R6-2L	L ONE WAY R6-2R
M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O R3-1	P R3-2	Q ONLY R3-5R	R ONLY R3-5L	S CW6-3	T BEGIN ONE WAY R6-6	U CW20-7	V ONE LANE ROAD AHEAD CW20-4	Y RIGHT LANE MUST TURN RIGHT R3-7R	Z CENTER LANE AHEAD CW20-3	

X
TYPE III BARRICADE W/ R11-2





PHASE VII STEP I
TYPICAL SECTION A-A
N.T.S.

N

0 40 80
SCALE IN FEET

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- TEMP ASPHALT PAVEMENT

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P.E. SERIAL No.: 108363
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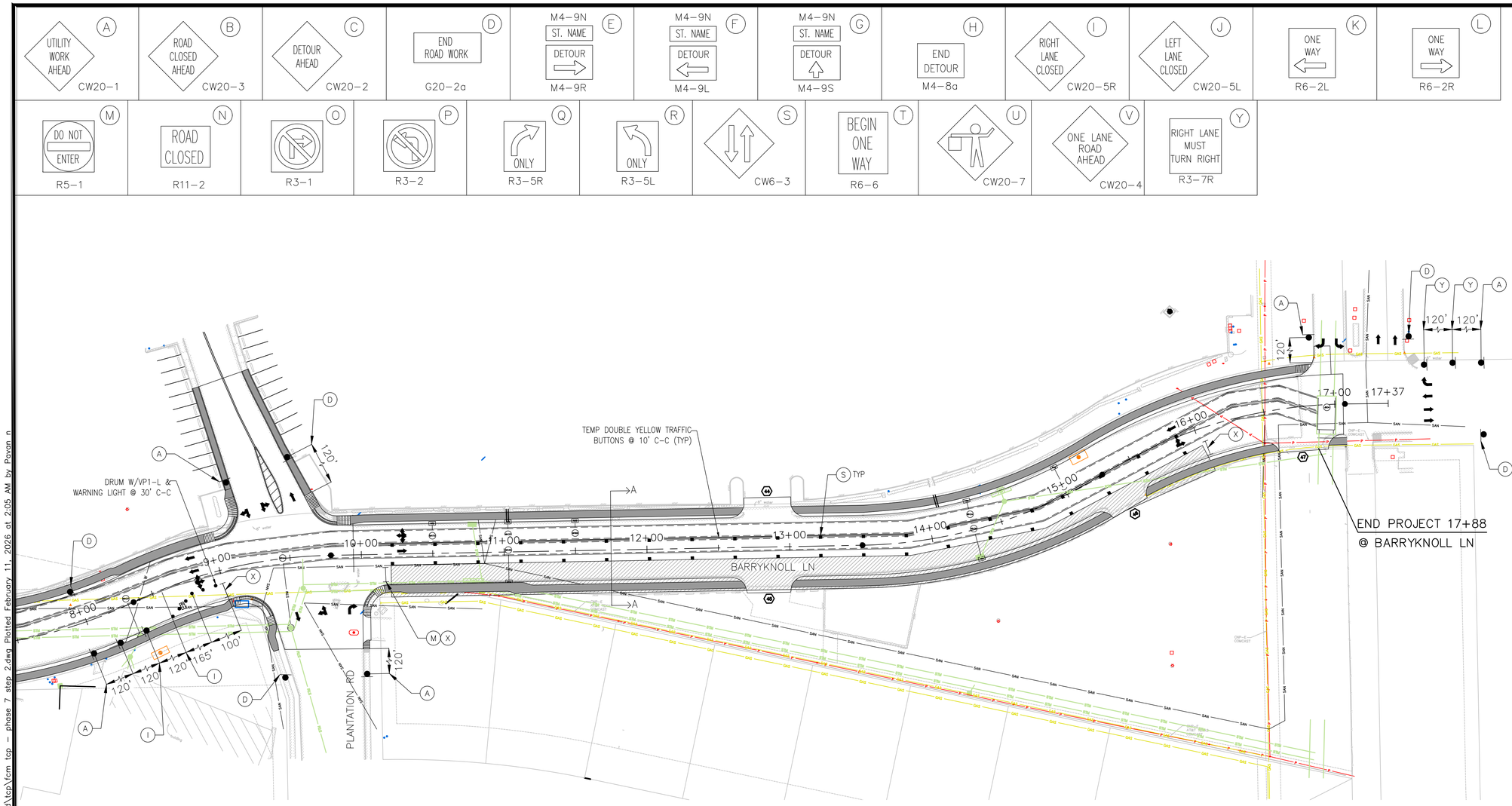
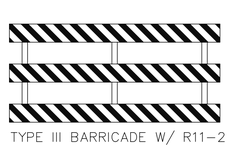
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

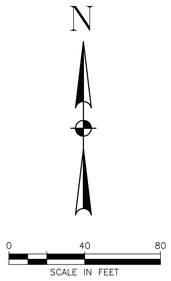
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 10+00 TO STA 16+00
PHASE 7 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 40 OF 343

c:\users\917pa\desktop\12-08-2025\60% drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 7 step 1.dwg Plotted February 11, 2026 at 2:06 AM by Pavan n







LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
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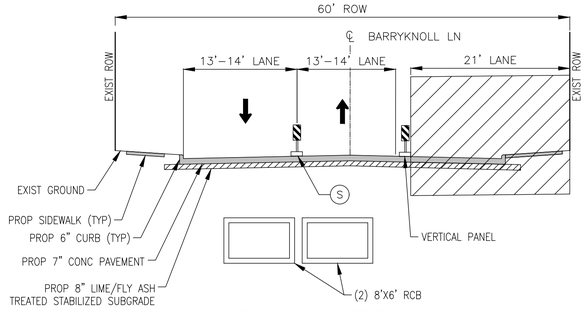

PHASE VII STEP II
TYPICAL SECTION A-A
N.T.S.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 10+00 TO STA 16+00
PHASE 7 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 41 OF 343

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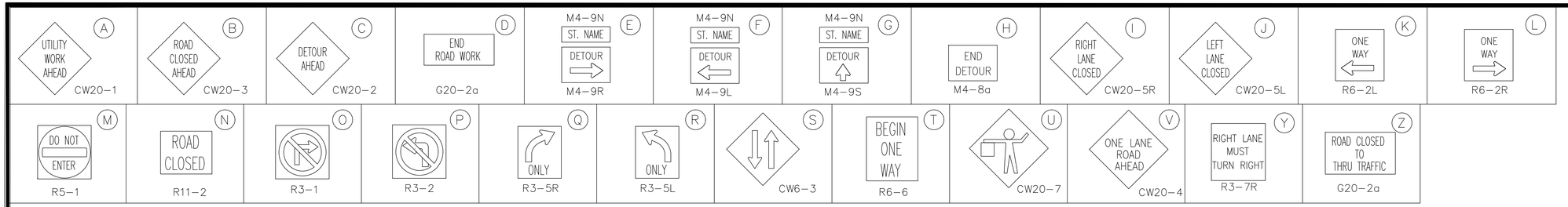

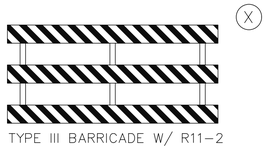

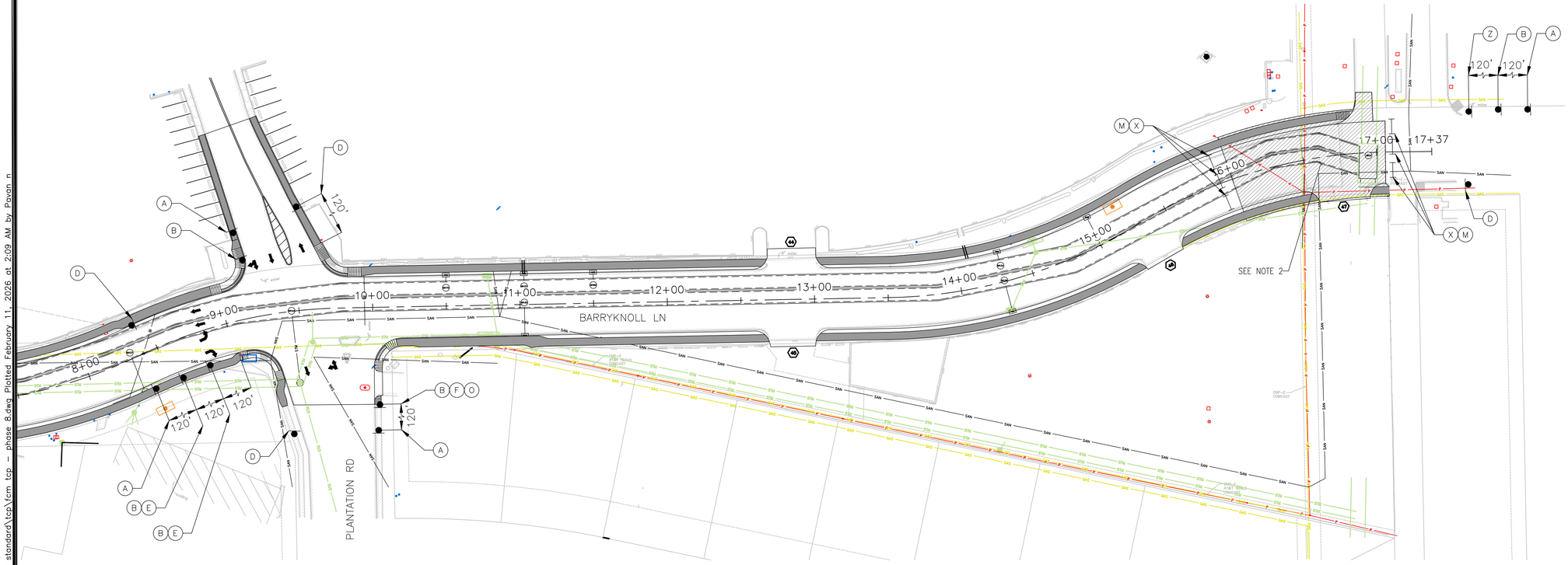

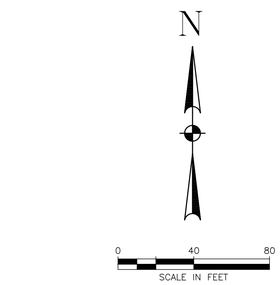

LEGEND

- CONSTRUCTION AREA WITH LPCTB
- DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- DRUMS/VERTICAL PANELS
- FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 16+00 TO END STA
PHASE 8

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
MOH'D WARRAD, P.E.

SHEET NO. 42 OF 343

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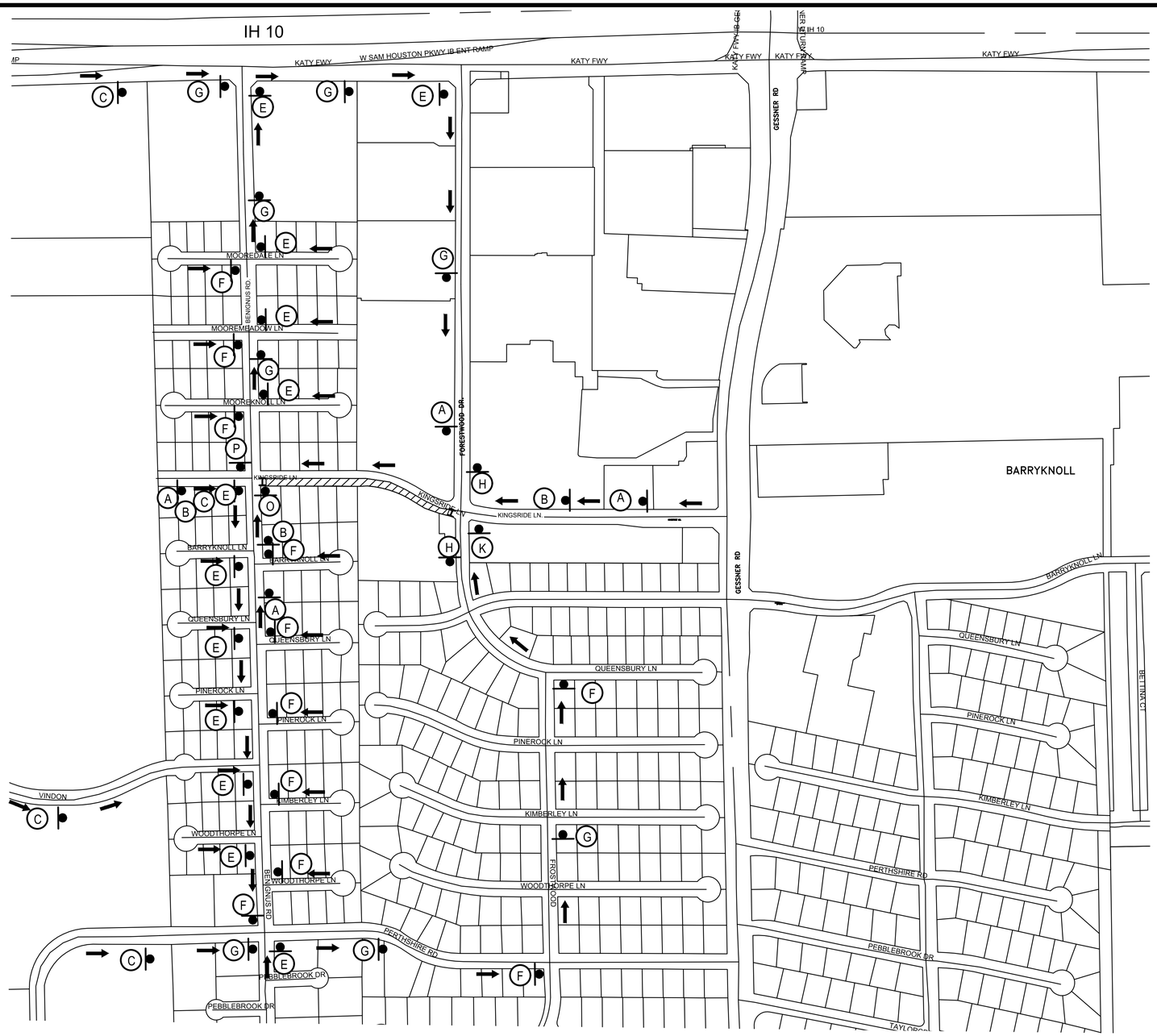


LEGEND

- WORK ZONE
- DRUMS
- DIRECTION OF TRAFFIC
- TEMPORARY GROUND MOUNTED SIGNS
- TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
- FLASHING ARROW BOARD PANEL
- LOW PROFIL CTB

NOTE:

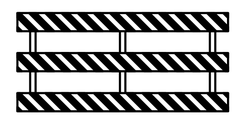
1. SEE TCP SHEET ___ FOR CONSTRUCTION PHASING AND TRAFFIC CONTROL NOTES.
2. FOR SIGN SPACING DIMENSIONS AND DRUM DETAILS REFER TO COH STD. DETAIL 01512-01.
3. CONTRACTOR SHALL MAINTAIN MINIMUM OF ONE DRIVEWAY TO ALL COMMERCIAL PROPERTIES AT ALL TIMES AND COORDINATE RESIDENTIAL DRIVEWAY CLOSURES WITH PROPERTY OWNERS.

NOTE: (CONT'D)

4. ALL OPEN PITS SHALL BE PLATED OR BACKFILLED AT THE CONCLUSION OF THE WORK DAY.
5. DETAIL IS INTERCHANGEABLE TO ANY ROADWAY QUADRANT.
6. FOR DETOUR SIGNAGE, REFER TO TRAFFIC CONTROL PLAN – STANDARD DETAILS.

M	N	O	P	Q	R	S
DO NOT ENTER	ROAD CLOSED			ONLY	ONLY	
R5-1	R11-2	R3-1	R3-2	R3-5R	R3-5L	CW6-3

A	B	C	D	E	F	G	H	I	J	K	L
ROAD WORK AHEAD	ROAD CLOSED AHEAD	DETOUR AHEAD	END ROAD WORK	M4-9N ST. NAME / DETOUR	M4-9N ST. NAME / DETOUR	M4-9N ST. NAME / DETOUR	END DETOUR	RIGHT LANE CLOSED	LEFT LANE CLOSED	ONE WAY	ONE WAY
CW20-1	CW20-3	CW20-2	G20-2a	M4-9R	M4-9L	M4-9S	M4-8a	CW20-5R	CW20-5L	R6-2L	R6-2R



TYPE III BARRICADE W/ R11-2

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN

(DETOUR 1)

SHEET 1 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE
N.T.S

CITY OF HOUSTON PM
MOH'D WARRAD, P.E.

SHEET NO. 43 OF 343

No.	Date	Revisions	Appd.

y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\harrys tcp\kingsride detour plan-1&2.dwg Plotted February 11, 2026 at 4:11 PM by George Williams
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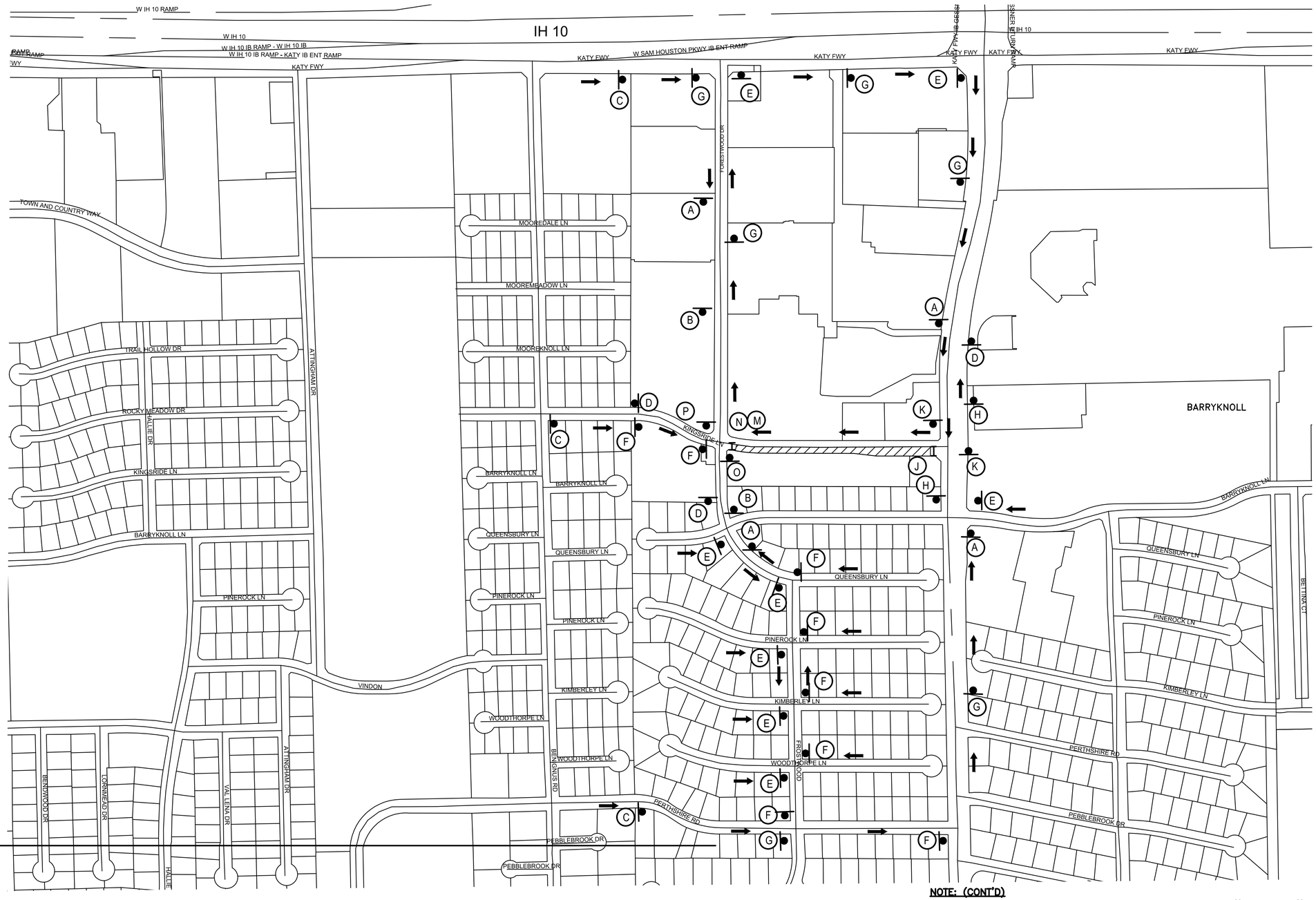
IH 10
W IH 10 RAMP
W IH 10
W IH 10 IB RAMP - W IH 10 IB
W IH 10 IB RAMP - KATY IB ENT RAMP
KATY FWY
W SAM HOUSTON PKWY IB ENT RAMP
KATY FWY
KATY FWY
KATY FWY



N

LEGEND

- WORK ZONE
- DRUMS
- DIRECTION OF TRAFFIC
- TEMPORARY GROUND MOUNTED SIGNS
- TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
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NOTE: (CONT'D)

4. ALL OPEN PITS SHALL BE PLATED OR BACKFILLED AT THE CONCLUSION OF THE WORK DAY.
5. DETAIL IS INTERCHANGEABLE TO ANY ROADWAY QUADRANT.
6. FOR DETOUR SIGNAGE, REFER TO TRAFFIC CONTROL PLAN – STANDARD DETAILS.

N

TYPE III BARRICADE W/ R11–2

M	N	O	P	Q	R	S
DO NOT ENTER	ROAD CLOSED			ONLY	ONLY	
R5–1	R11–2	R3–1	R3–2	R3–5R	R3–5L	CW6–3

A	B	C	D	E	F	G	H	I	J	K	L
ROAD WORK AHEAD	ROAD CLOSED AHEAD	DETOUR AHEAD	END ROAD WORK	M4–9N ST. NAME DETOUR	M4–9N ST. NAME DETOUR	M4–9N ST. NAME DETOUR	END DETOUR	RIGHT LANE CLOSED	LEFT LANE CLOSED	ONE WAY	ONE WAY
CW20–1	CW20–3	CW20–2	G20–2a	M4–9R	M4–9L	M4–9S	M4–8a	CW20–5R	CW20–5L	R6–2L	R6–2R

No.	Date	Revisions	Appd.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:_____

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

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN

(DETOUR 3)

SHEET 3 OF 4

WBS NO. M–430296–0017–3

DRAWING SCALE

N.T.S

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 45 OF 343

y:\2022081 tirz no. 17 detention\memorial city tirz 17 –ph 2 final design\harrys tcp\barryknol detour plan–3&4.dwg Plotted February 11, 2026 at 4:12 PM by George Williams
V:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 –ph 2 Final Design\HARRYS TCP\BARRYKNOL DETOUR PLAN–3&4.dwg, DETOUR 3, 2/11/2026 4:12:07 PM



NOTE:

1. SEE TCP SHEET ___ FOR CONSTRUCTION PHASING AND TRAFFIC CONTROL NOTES.
2. FOR SIGN SPACING DIMENSIONS AND DRUM DETAILS REFER TO COH STD. DETAIL 01512–01.
3. CONTRACTOR SHALL MAINTAIN MINIMUM OF ONE DRIVEWAY TO ALL COMMERCIAL PROPERTIES AT ALL TIMES AND COORDINATE RESIDENTIAL DRIVEWAY CLOSURES WITH PROPERTY OWNERS.

NOTE: (CONT'D)

4. ALL OPEN PITS SHALL BE PLATED OR BACKFILLED AT THE CONCLUSION OF THE WORK DAY.
5. DETAIL IS INTERCHANGEABLE TO ANY ROADWAY QUADRANT.
6. FOR DETOUR SIGNAGE, REFER TO TRAFFIC CONTROL PLAN – STANDARD DETAILS.

(M) R5–1 DO NOT ENTER

(N) R11–2 ROAD CLOSED

(O) R3–1

(P) R3–2

(Q) R3–5R ONLY

(R) R3–5L ONLY

(S) CW6–3

(A) CW20–1 ROAD WORK AHEAD

(B) CW20–3 ROAD CLOSED AHEAD

(C) CW20–2 DETOUR AHEAD

(D) G20–2a END ROAD WORK

(E) M4–9R M4–9N ST. NAME DETOUR

(F) M4–9L M4–9N ST. NAME DETOUR

(G) M4–9S M4–9N ST. NAME DETOUR

(H) M4–8a END DETOUR

(I) CW20–5R RIGHT LANE CLOSED

(J) CW20–5L LEFT LANE CLOSED

(K) R6–2L ONE WAY

(L) R6–2R ONE WAY

(N) TYPE III BARRICADE W/ R11–2

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE:

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN

(DETOUR 4)

SHEET 4 OF 4

WBS NO. M–430296–0017–3

DRAWING SCALE

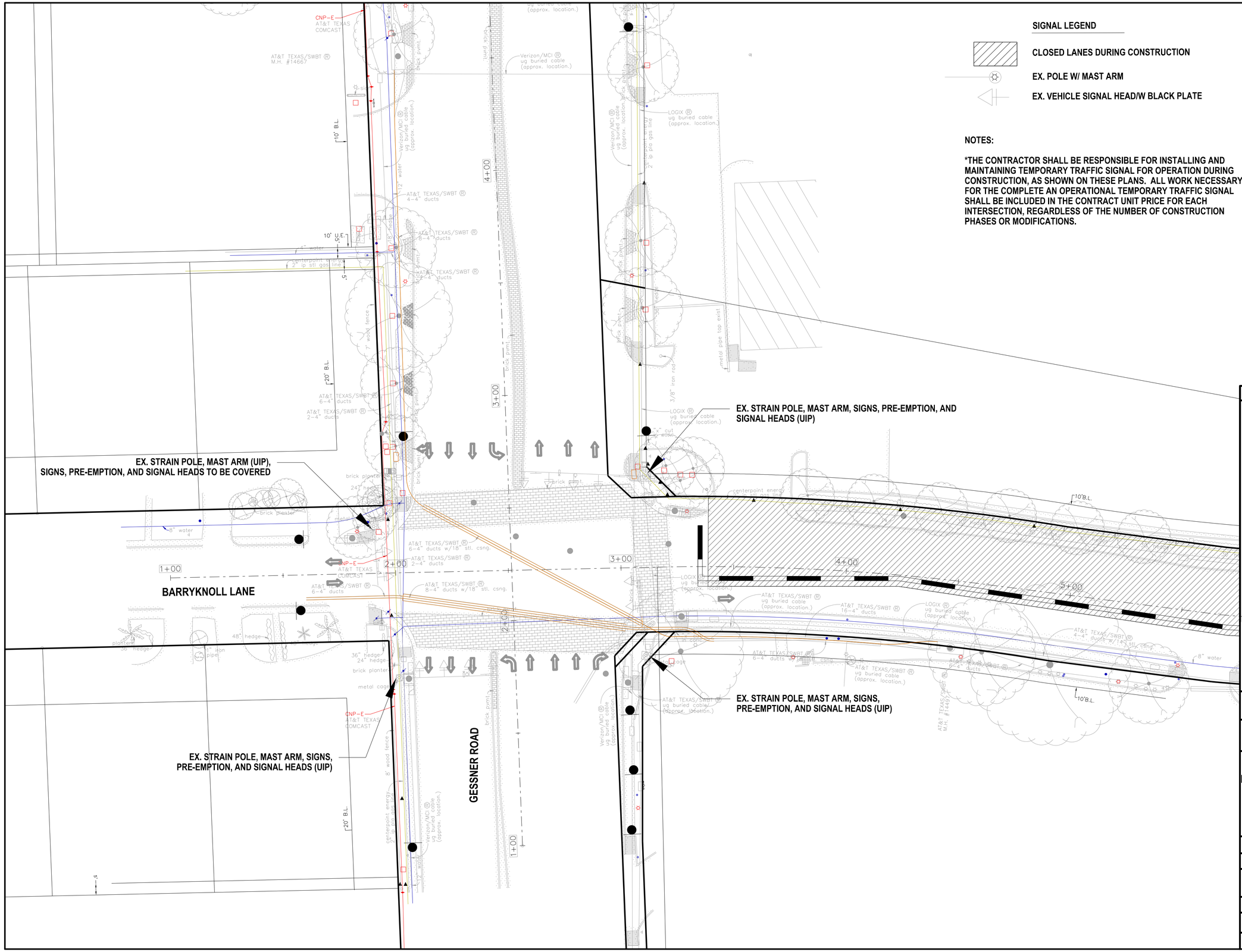
N.T.S

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 46 OF 343

Y:\2022081 tirz no. 17 detention\memorial city tirz 17 –ph 2 final design\harrys tcp\barryknol detour plan–3&4.dwg Plotted February 11, 2026 at 4:12 PM by George Williams
Y:\2022081 TIRZ No. 17 Detention\Memorial City TIrz 17 -ph 2 Final Design\HARRYS TCP\BARRYKNOL DETOUR PLAN-3&4.dwg, DETOUR 4, 2/11/2026 4:13:22 PM



SIGNAL LEGEND

- CLOSED LANES DURING CONSTRUCTION
- EX. POLE W/ MAST ARM
- EX. VEHICLE SIGNAL HEAD/W BLACK PLATE

NOTES:

***THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.**

No.	Date	Revisions	Appr.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) ATDD98 DEC. 2, 1999
SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND GESSNER
PHASE VI STEP I

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SIGN SCHEDULE:
S1: EX. STREET NAME SIGN (UIP)
S2: EX. LEFT ON GREEN (UIP)
S3: EX. STREET NAME SIGN (UIP)
S4: EX. LEFT ON GREEN (UIP)
S5: EX. LEFT ON GREEN (UIP)
S6: EX. STREET NAME SIGN (UIP)
S7: EX. STREET NAME SIGN (UIP)
S8: EX. LEFT ON GREEN (COVER)
S9: DO NOT ENTER SIGN
S10: NO RIGHT TURN SIGN
S11: ONE WAY IN ARROW (LEFT)
S12: NO LEFT TURN SIGN
S13: ONE WAY IN ARROW (RIGHT)



R5-1
S9



R6-1R
S13


R3-1
S10


R3-2
S12



R6-1L
S11

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	C D E F G H
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	J I

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 6-1 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

*USE EXISTING WIRES FOR SIGNAL HEADS A AND B TO POWER SIGNAL HEADS I AND J

*KEEP THE REPLACED SIGNAL HEADS A AND B WITH R,Y,G BALL CONFIGURATION IN STORAGE FOR FUTURE STAGES

* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

*THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

SIGNAL LEGEND

CLOSED LANES DURING CONSTRUCTION
EX. TRAFFIC SIGNAL POLE
EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
VEHICLE SIGNAL HEAD/W BLACK PLATE
EX. SPAN WIRE SIGN
SPAN WIRE SIGN
EX. SPAN WIRE

EX. STRAIN POLE, SPAN WIRE, AND "LEFT ON GREEN" SIGN (UIP), SIGNAL HEADS A, AND B TO BE REPLACED WITH PROTECTED RIGHT TURN SIGNAL HEADS, ADD PROTECTED LEFT TURN SIGNAL HEADS J AND I AS SHOWN, ADD DO NOT ENTER SIGN, AS SHOWN

EX. STRAIN POLE, SPAN WIRE, AND SIGNAL HEADS (UIP), "LEFT ON GREEN" SIGN TO BE COVERED, ADD NO LEFT TURN SIGN, ADD ONE WAY SIGN AS SHOWN

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

EX. STRAIN POLE, SPAN WIRE, AND SIGNAL HEADS "LEFT ON GREEN" SIGN (UIP), ADD NO RIGHT TURN SIGN, ADD ONE WAY SIGN AS SHOWN

BARRYKNOLL LANE

PLANTATION ROAD

U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 & L498678

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222
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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY, DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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CABLE COMPANY DATE

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HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

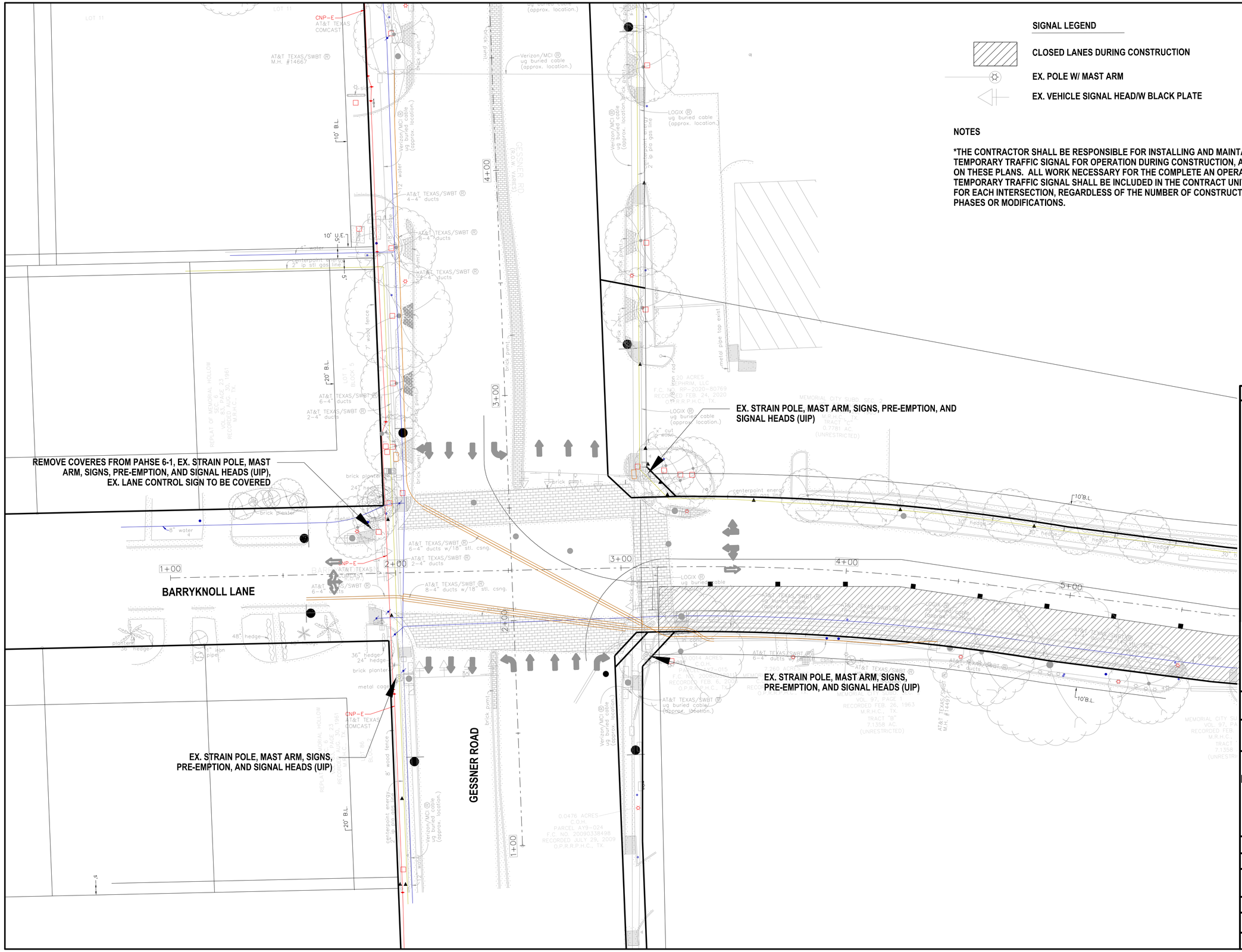
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND PLANTATION PHASE VI STEP I

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 48 OF 343

No.	Date	Revisions	Appr.



SIGNAL LEGEND

- CLOSED LANES DURING CONSTRUCTION
- EX. POLE W/ MAST ARM
- EX. VEHICLE SIGNAL HEAD/W BLACK PLATE

NOTES

*THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

RECORDED DEC. 2, 1999

CABLE COMPANY — DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND GESSNER PHASE VI STEP 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 6-2 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

* REMOVE THE NEW SIGNAL HEADS AND SIGNS THAT HAVE BEEN ADDED AS PART OF PHASE 6-1

*RE-INSTALL EXISTING SIGNAL HEADS THAT WERE REMOVED AS PART OF PHASE 6-1 TO THEIR ORIGINAL PLACES

* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

* THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

SIGNAL LEGEND

- CLOSED LANES DURING CONSTRUCTION
- EX. TRAFFIC SIGNAL POLE
- EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
- EX. SPAN WIRE

RE-INSTALL EXISTING SIGNAL HEADS AT THEIR ORIGINAL LOCATION, REMOVE NEW HEADS THAT WERE ADDED AS PART OF PHASE 6-1. EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

BARRYKNOLL LANE

PLANTATION ROAD

BARRYKNOLL LN. (60' R.O.W.)

QUEENSBURY LN. (60' R.O.W.)

4+55 4+00 9+00 8+00 2+00 1+00 10+00 11+00 12+00

A B C D E F G H

20 ACRES GEPHRIM, LLC F.C. NO. RP-2020-80769 RECORDED FEB. 24, 2020 O.P.R.R.P.H.C., TX.

CITY OF HOUSTON C.C.F. NO. E239127 RECORDED AUG. 16, 1974 O.P.R.R.P.H.C., TX.

U.E. H.C.C.F. NO. F794325 PERMISSION TO BUILD OVER ESMT. H.C.C.F. NO. H812866 & L498678

AMENDING PLAT OF THREE MEMORIAL CITY PLAZA VOL. 405, PAGE 80 RECORDED DEC. 1, 1997 M.R.H.C., TX.

MEMORIAL HOLLOW SEC. 8 VOL. 80, PAGE 21 RECORDED APRIL 28, 1961 M.R.H.C., TX.

LOT 16 LOT 17 LOT 15 BLOCK 7

CNP-E AT&T TEXAS COMCAST

ZAYO ug buried cable (approx. location)

Verizon/MCI ug buried cable (approx. location)

AT&T TEXAS/SWBT 4-4" ducts

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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HRGreen
11750 KATY FREEWAY SUITE 400 HOUSTON, TX 77079
PH: 832.318.8800 FAX: 713.965.0044 FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND PLANTATION PHASE VI STEP 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 50 OF 343

No.	Date	Revisions	Appr.

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 7-1 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

* REMOVE THE NEW SIGNAL HEADS AND SIGNS THAT HAVE BEEN ADDED AS PART OF PHASE 6-1

* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

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SIGNAL LEGEND

- CLOSED LANES DURING CONSTRUCTION
- EX. TRAFFIC SIGNAL POLE
- EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
- EX. SPAN WIRE

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS A, B, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

BARRYKNOLL LANE

PLANTATION ROAD

BARRYKNOLL LN. (60' R.O.W.)

QUEENSBURY LN. (60' R.O.W.)

4+55 4+00 9+00 8+00 2+00 1+00 10+00 11+00 12+00

A B C D E F G H

U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT. H.C.C.F. NO. H812866 & L498678

MEMORIAL HOLLOW SEC. 8 VOL. 80, PAGE 21 RECORDED APRIL 28, 1961 M.R.H.C., TX.

AMENDING PLAT OF AZA THREE MEMORIAL CITY PLAZA VOL. 465, PAGE 85 RECORDED DEC. 11, 1997 M.R.H.C., TX.

20 ACRES SEPHRIM, LLC F.C. NO. RP-2020-80769 RECORDED FEB. 24, 2020 O.P.R.R.P.H.C., TX.

CNP-E AT&T TEXAS COMCAST

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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY SUITE 400 HOUSTON, TX 77079
PH: 832.318.8800 FAX: 713.965.0044 FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND PLANTATION PHASE VII STEP I

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 7-2 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

* REMOVE THE NEW SIGNAL HEADS AND SIGNS THAT HAVE BEEN ADDED AS PART OF PHASE 6-1

* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

*THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

SIGNAL LEGEND

- CLOSED LANES DURING CONSTRUCTION
- EX. TRAFFIC SIGNAL POLE
- EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
- EX. SPAN WIRE

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS A, B, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)

BARRYKNOLL LANE

PLANTATION ROAD

BARRYKNOLL LN. (60' R.O.W.)

QUEENSBURY LN. (60' R.O.W.)

4+55 4+00 9+00 8+00 2+00 1+00 10+00 11+00 12+00

U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT. H.C.C.F. NO. H812866 & L498678

MEMORIAL HOLLOW SEC. 8 VOL. 80, PAGE 21 RECORDED APRIL 28, 1961 M.R.H.C., TX.

AMENDING PLAT OF THREE MEMORIAL CITY PLAZA VOL. 465, PAGE 80 RECORDED DEC. 11, 1997 H.C.C., TX.

20 ACRES SEPHRIM, LLC F.C. NO. RP-2020-80769 RECORDED FEB. 24, 2020 O.P.R.R.P.H.C., TX.

CITY OF HOUSTON C.C.F. NO. E239127 RECORDED JUNE 1, 1977 O.P.R.P.H.C., TX.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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VERIFICATION OF PRIVATE UTILITY LINES

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPRORY SIGNAL AT BARRYKNOLL AND PLANTATION PHASE VII STEP I

WBS NO. M-430296-0017-3

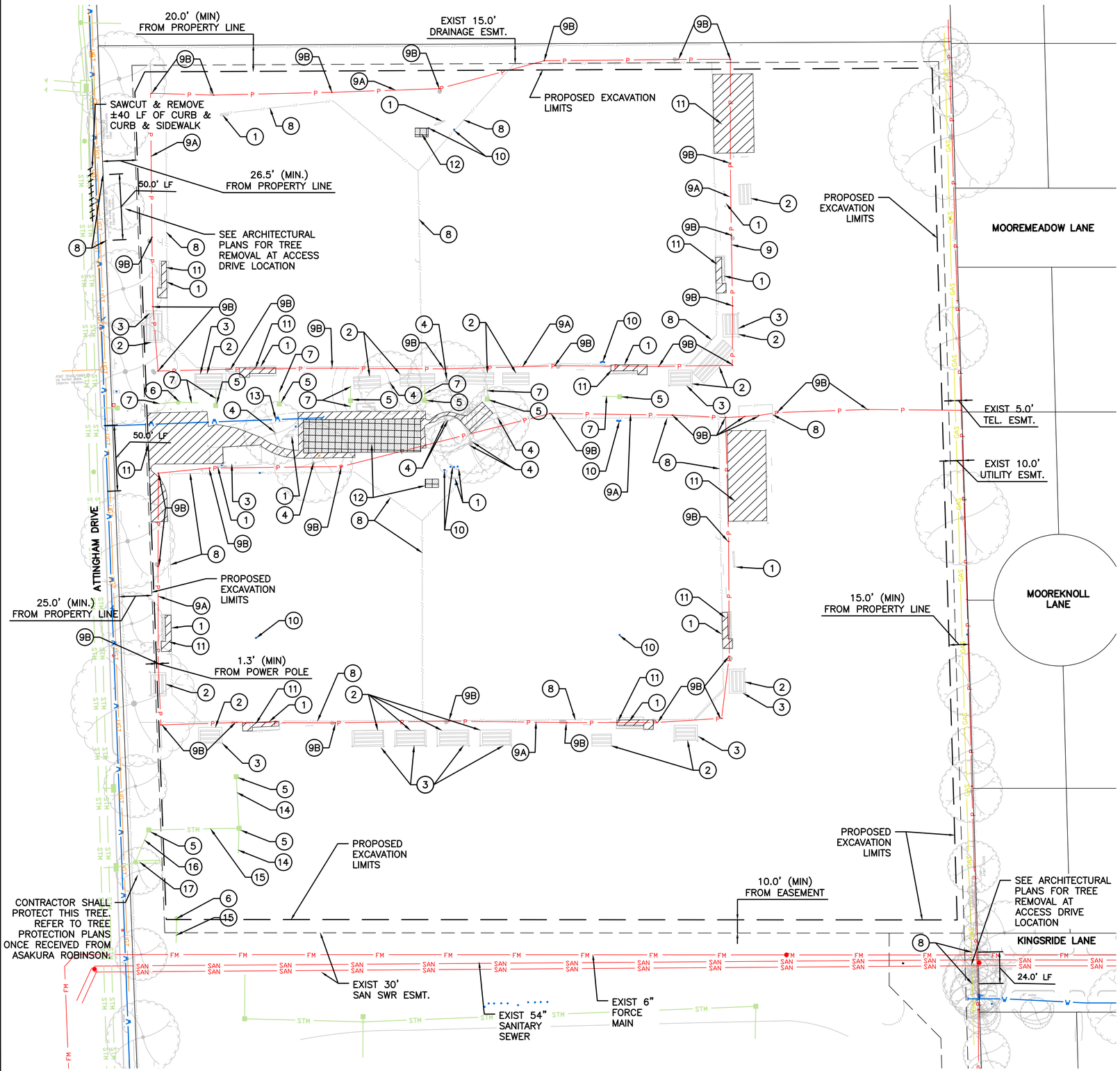
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 52 OF 343

No.	Date	Revisions	Appr.



LEGEND

1. REMOVE & DISPOSE OF EXISTING BILLBOARD, TABLE OR BENCH AND ALL RELATED INFRASTRUCTURE
2. REMOVE & DISPOSE OF EXISTING BLEACHERS AND ALL RELATED INFRASTRUCTURE
3. REMOVE & DISPOSE OF EXISTING OVERHEAD COVER
4. REMOVE & DISPOSE OF EXISTING TREE
5. REMOVE & DISPOSE OF EXISTING INLET
6. REMOVE & DISPOSE OF EXISTING MANHOLE
7. REMOVE & DISPOSE OF EXISTING SMALL DIAMETER STORM SEWER (2", 3", 5", 6" PIPE)
8. REMOVE & DISPOSE OF EXISTING FENCE
9A. REMOVE & DISPOSE OF EXISTING POWER LINE. CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY FOR PERMITING TO DE-ENERGIZE POWER LINE TO THE SITE
9B. REMOVE & DISPOSE OF EXISTING POWER POLES. CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY FOR PERMITING TO DE-ENERGIZE POWER LINE TO THE SITE
10. REMOVE & DISPOSE OF EXISTING IRRIGATION SYSTEM
11. REMOVE & DISPOSE OF EXISTING CONCRETE, ALL THICKNESSES
12. REMOVE & DISPOSE OF EXISTING BUILDINGS
13. REMOVE & DISPOSE OF EXISTING WATER LINE
14. REMOVE & DISPOSE OF EXISTING 15" STORM LINE
15. REMOVE & DISPOSE OF EXISTING 18" STORM LINE
16. REMOVE & DISPOSE OF EXISTING 24" STORM LINE
17. CUT & PLUG EXISTING 3'x2' STORM SEWER PIPE

0 40 80
SCALE IN FEET

	ITEM	QUANTITY	UNIT
1.	REMOVE CONCRETE BENCH	8	EA
2.	REMOVE BLEACHER	19	EA
3.	REMOVE OVERHEAD CANOPY	12	EA
4.	TREE REMOVAL & HAUL AWAY	10	EA
5.	REMOVE TYPE 'A' STORM INLET	10	EA
6.	REMOVE TYPE 'C' MANHOLE	2	EA
7.	REMOVE & DISPOSE OF EXISTING SMALL DIAMETER STORM PIPE SYSTEM	1	LS
8.	REMOVE FENCE	3,370	LF
9A.	POWER LINE REMOVAL	2,784	LF
9B.	POWER POLE REMOVAL	40	EA
10.	IRRIGATON SYSTEM REMOVAL	1	LS
11.	REMOVE CONCRETE PAVEMENT	1,030	SY
12.	BUILDING REMOVAL	2,300	SF
13.	WATER LINE REMOVAL	166	LF
14.	15" STORM DRAIN	57	LF
15.	18" STORM DRAIN	84	LF
16.	24" STORM DRAIN	28	LF
17.	CUT & PLUG EXISTING 3' x 2' STORM SEWER PIPE	18	LF

WARNING – UNDERGROUND PIPELINE
CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF UNDERGROUND PIPELINES. UNDERGROUND PIPELINES ARE SHOWN AT APPROX. LOCATION BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.

WARNING – OVERHEAD POWERLINES
CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF OVERHEAD POWER LINES.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SCHOOL SITE DEMOLITION PLAN

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=40' (22x34)
V: N/A

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 53 OF 343

Apv. | Revisions | Date | No.

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PROPOSED 18" DRILLED PIER
N:13849252.578
E:3061950.617

PROPOSED 18" DRILLED PIER
N:13849237.928
E:3061943.934

SWALE
FL=80.30

EXIST 15'
DRAINAGE ESMT.

FG=80.55
N:13849233.980
E:3061963.117

PROP 10'X10' LOADER
CLEANOUT ACCESS

TIE TO EXISTING CURB &
GUTTER. MATCH EXISTING
GRADE.

PROPOSED ±50 LF 4'
SLIDING WROUGHT IRON
GATE. CONTRACTOR TO
MATCH EXISTING FENCE
MATERIALS.

TIE TO EXISTING CURB &
GUTTER. MATCH EXISTING
GRADE.

PROPOSED 6" CONCRETE
ACCESS DRIVEWAY

PROP TYPE "C" MANHOLE
ON BASIN STRUCTURE
WITH LOCKABLE COVER #MH4
TR=79.94
N:13847686.251
E:3061632.532

FG=81.49
N:13849104.645
E:3061970.779

FG=81.90
N:13849240.878
E:3062228.664

FG=82.42
N:13849188.447
E:3062230.391

FG=82.80
N:13849113.275
E:3062232.866

RIDGELINE

PROP STORM EASEMENT
(403,003 SF = 9.25 AC)

PROPOSED
UNDERGROUND
DETENTION
(94.9 AC-FT)

PROP TYPE "C" MANHOLE
ON BASIN STRUCTURE
WITH LOCKABLE COVER #MH3
TR=81.31
N:13847460.524
E:3061667.506

PROP TYPE "E" STORM INLET
WITH LOCKABLE COVER #IN1
N:13849276.868
E:3062534.367
TR=81.00
24" FL OUT = 76.76

22 LF~24" RCP

FG=80.42
N:13849248.684
E:3062529.151

SWALE
FL=79.48

PROPOSED 18" DRILLED PIER
N:13849268.074
E:3062547.110

PROP TYPE "C" MH
ON TOP OF VAULT SLAB
WITH LOCKABLE COVER #MH5
N:13849254.645
E:3062534.998
TR=80.62
24" FL IN = 76.70

FG=80.92
N:13849197.960
E:3062531.719

FG=81.29
N:13849123.241
E:3062535.503

MOOREMEADOW LANE

EXIST 5'
TEL. ESMT.

EXIST 10'
UTILITY ESMT.

PROP TYPE "E" STORM INLET
ON TOP OF VAULT SLAB
WITH LOCKABLE COVER #IN2
N:13848943.522
E:3062552.941
TR=80.48

MOOREKNOLL LANE

ATTINGHAM DRIVE

FG=81.17
N:13848868.653
E:3061984.758

FG=82.45
N:13848877.079
E:3062240.644

FG=80.92
N:13848887.183
E:3062547.455

PROPOSED SOLDIER PILE
WALL (TYP.)
REFER TO STRUCTURAL
SHEETS FOR ADDITIONAL
INFORMATION

EXISTING 12"
WATER LINE

PROPOSED 18" DRILLED PIER
N:13848611.388
E:3061981.048

PROP TYPE "C" MH
WITH LOCKABLE COVER #MH2
N:13848556.758
E:3061961.655
TR=79.39
24" FL IN = 71.81
24" FL OUT = 68.74

FG=80.34
N:13848697.786
E:3061994.880

PROP TYPE "C" MANHOLE
ON BASIN STRUCTURE
WITH LOCKABLE COVER #MH2
TR=82.34
N:13847154.160
E:3061686.710

FG=80.28
N:13848631.822
E:3062054.172

35 LF~24" RCP
@ 0.30%

PROP TYPE "C" MH #MH1
N:13848555.542
E:3061937.270
TR=78.48
24" FL IN = 68.01

PROP 30° BEND
N:13848558.484
E:3061996.266
24" FL IN = 72.85

EXIST 30'
SAN SWR ESMT.

49 LF~24" RCP @ .30%

PAVEMENT REPAIR
TO JOINT NEAR
CENTER OF
ROADWAY

PROPOSED 6"
CURB

24 LF~24" RCP @ 0.30%

PROP 30° BEND
N:13848536.217
E:3062039.693
24" FL OUT = 74.31

EXIST 54"
SANITARY
SEWER

EXIST 6"
FORCE
MAIN

FG=81.24
N:13848635.846
E:3062248.588

PROP TYPE "C" MANHOLE
ON BASIN STRUCTURE
WITH LOCKABLE COVER #MH6
TR=79.60
N:13847169.318
E:3062221.397

PROP TYPE "C" MANHOLE
ON BASIN STRUCTURE
TR=79.87
N:13847168.564
E:3062192.394

PROP TYPE "C" MH ON BOX
WITH LOCKABLE COVER #MH7
N:13848607.755
E:3062564.525
TR=79.55
24" FL IN = 73.90

17 LF~24" RCP

PROPOSED 6" CONCRETE
ACCESS DRIVEWAY

FG=79.68
N:13848642.288
E:3062559.855

PROPOSED 18" DRILLED PIER
N:13848623.779
E:3062579.733

SWALE
FL=78.40

PROP TYPE "E" STORM INLET
WITH LOCKABLE COVER #IN3
N:13848608.024
E:3062581.089
TR=79.89
24" FL OUT = 73.98

KINGSRIDE LANE

PROPOSED 6' TALL WOOD
SWING GATE. DOORS TO BE 13'
WIDTH. CONTRACTOR TO MATCH
EXISTING FENCE MATERIALS.

0 40 80
SCALE IN FEET

N

LEGEND

- EXISTING MAJOR CONTOUR (835)
- EXISTING MINOR CONTOUR (834)
- PROPOSED MAJOR CONTOUR (835.00)
- PROPOSED MINOR CONTOUR (834.00)
- BOUNDARY
- EASEMENT
- PROPOSED GRADE (-0.5%)
- SWALE CENTERLINE
- PROP STORM SEWER
- EXIST STORM SEWER
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE
- PROPOSED SPOT GRADE (81.36)
- CONCRETE ACCESS AND DRIVEWAY

No.	Revisions	Date	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GRADING & DRAINAGE PLAN

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=40' (22x34) V: N/A	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 54 OF 343	

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STRUCTURAL NOTES

A. GENERAL

1. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL DETERMINE THE SCOPE OF THE STRUCTURAL WORK FOR BIDDING AND CONSTRUCTION FROM THE CONTRACT DOCUMENTS TAKEN AS A WHOLE. DUE CONSIDERATION SHALL BE GIVEN TO OTHER STRUCTURAL WORK OR WORK RELATED TO THE STRUCTURE, INCLUDING NECESSARY COORDINATION DESCRIBED OR IMPLIED BY THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL AND LANDSCAPE DRAWINGS.

2. THE STRUCTURAL NOTES ARE INTENDED FOR USE IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR INFORMATION SUPPLEMENTAL TO THESE DRAWINGS.

3. THE STRUCTURE HAS BEEN DESIGNED FOR THE IN-SERVICE LOADS ONLY. METHODS, PROCEDURES, AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING DETAILS AND ACCURACY OF THE WORK; FOR CONFIRMING AND CORRELATING ALL QUANTITIES, DIMENSIONS AND EXISTING CONDITIONS; AND FOR PERFORMING WORK IN A SAFE AND SECURE MANNER PER OSHA AND DOSH STANDARDS.

5. WHERE CONFLICTS EXIST AMONG VARIOUS PARTS OF THE STRUCTURAL AND CIVIL DRAWINGS, GENERAL NOTES AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN. REPORT ANY DISCREPANCY TO THE ENGINEERS PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

6. CONDITIONS DESCRIBED BY DETAILS, SECTIONS, NOTES AND SPECIFICATIONS INCLUDED IN THE CONTRACT DOCUMENTS SHALL ALSO APPLY TO SIMILAR CONDITIONS NOT SPECIFICALLY INCLUDED. IF CONDITIONS ARE FOUND NOT TO BE APPLICABLE, THE STRUCTURAL ENGINEER OF RECORD AND CIVIL ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH WORK.

7. THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS OR ELECTRONIC FILES AS STRUCTURAL SHOP DRAWING DOCUMENTS BY THE CONTRACTOR OR SUB-CONTRACTORS IS AT THEIR OWN RISK. FRACTAL LLC ASSUMES NO LIABILITY AS THE RESULT OF THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS FOR SHOP DRAWINGS.

8. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL REFERENCE ONLY. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.

9. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL RESULTING REVISIONS TO THE STRUCTURAL SYSTEM OR OTHER TRADES AS A RESULT OF ACCEPTANCE OF CONTRACTOR PROPOSED ALTERNATIVES OR SUBSTITUTIONS.

10. PRINCIPAL OPENINGS IN THE STRUCTURE ARE INDICATED ON THE CONTRACT DOCUMENTS. REFER TO THE CIVIL DRAWINGS FOR SLEEVES, CURBS, INSERTS, ETC. NOT HEREIN INDICATED. OPENINGS IN SLABS WITH A MAXIMUM SIDE DIMENSION OR DIAMETER OF 10 INCHES OR LESS SHALL NOT REQUIRE ADDITIONAL FRAMING OR REINFORCEMENT, UNLESS NOTED OTHERWISE. THE LOCATION OF SLEEVES OR OPENINGS IN STRUCTURAL MEMBERS SHALL BE SUBMITTED TO FRACTAL LLC FOR REVIEW.

11. PREFABRICATED ITEMS SHOWN ON THE STRUCTURAL DRAWINGS ARE REFERENCED FOR GENERAL COORDINATION PURPOSES ONLY.
    A. TYPICAL REFERENCED PREFABRICATED ITEMS INCLUDE BUT MAY NOT BE LIMITED TO: LADDERS, HANDRAILS, LIDS, JUNCTION BOXES, AND PREFABRICATED FRAMING ELEMENTS. SUCH SYSTEMS SHALL BE DESIGNED, FURNISHED AND INSTALLED AS REQUIRED BY OTHERS.

12. PERIODIC SITE OBSERVATION BY FRACTAL LLC IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED AND DETERMINING, IN GENERAL, IF THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO KEEP THE OWNER REASONABLY INFORMED ABOUT THE PROGRESS AND QUALITY OF THE COMPLETED WORK.

B. DESIGN CRITERIA

1. THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS.

2. THE DESIGN GRAVITY LOADS ARE AS FOLLOWS:

   SUPERIMPOSED DEAD LOADS (INCLUDED BUT NOT LIMITED TO THE FOLLOWING):

RESERVOIR TOP SOIL UNIT WEIGHT:	125 PCF
UNIT WEIGHT OF WATER:	62.4 PCF

   LIVE LOADS:

SURCHARGE LOAD:	250 PSF

3. DESIGN LOADS CONSIDERED FOR FUTURE LOADING CONDITIONS FROM PROPOSED SCHOOL BUILDING AS FOLLOWS:

   ADDITIONAL COLUMN LOADS: 375 KIPS
   THE TOP VAULT SLAB HAS NOT BEEN DESIGNED FOR ADD'L POINT LOADS FROM BUILDING COLUMNS OPTIONS ARE AS FOLLOWS:
   A. ALIGN BUILDING COLUMNS WITH EXISTING COLUMNS
   B. SPAN NEW CONCRETE BEAMS BETWEEN EXISTING COLUMNS TO CARRY THE LOAD - REACTIONS NOT TO EXCEED 375 KIPS
   C. ADD NEW COLUMNS WITHIN DETENTION VAULT CAVITY ALIGNED WITH BUILDING COLUMNS - REACTIONS NOT TO EXCEED 375 KIPS.

   SLAB LOADING: 4'-0" OF SOIL AT WEIGHT NOTED ABOVE (500 PSF)
   TRENCH SLABS HAVE BEEN DESIGNED FOR AN ADD'L 4' OF SOIL (1000 PSF)

4. THE TOP VAULT SLAB AND MAT FOUNDATION SYSTEMS HAVE BEEN DESIGNED TO WITHSTAND A CONCENTRATED LOAD OF 2000 POUNDS PLACED UPON ANY SPACE 2'-6" SQUARE, IN ACCORDANCE WITH SECTION 1607.4 OF THE IBC.

C. FOUNDATION AND SLAB ON GRADE

1. THE SUBSURFACE INFORMATION AND FOUNDATION DESIGN ARE BASED ON A REPORT PREPARED BY HVJ ASSOCIATES, INC. PROJECT NUMBER HG2110495.1, DATED MARCH 06, 2025. THE CONTRACTOR SHALL PERFORM EXCAVATIONS, FOOTING CONSTRUCTION, AND PREPARATION OF THE SUBGRADE UNDER THE SLAB ON GRADE IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS.

2. THE MAT SLAB FOUNDATION FOR THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING ALLOWABLE SOIL BEARING PRESSURES AT A BEARING DEPTH OF APPROXIMATELY TWENTY (20) FEET BELOW EXISTING GRADE AT THE TIME THAT THE GEOTECHNICAL REPORT WAS PREPARED:

   TOTAL LOAD.....9000 PSF
   DEAD LOAD PLUS SUSTAINED LIVE LOAD.....6000 PSF

3. SOLDIER PILES SHALL BE EXCAVATED, CLEANED, REINFORCED AND THE CONCRETE SHALL BE PLACED ON THE SAME DAY. POILES WITH LESS THAN 2'-0" CLEAR BETWEEN SHAFTS SHALL BE EXCAVATED AND CONCRETE PLACED A MINIMUM OF 24 HOURS APART.

4. EXCAVATIONS FOR FOOTINGS SHALL BE CLEANED AND HAND TAMPED TO A UNIFORM SURFACE. FOOTING EXCAVATIONS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 6 MIL VISQUEEN IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HOURS OF THE EXCAVATION OF THE FOOTING.

5. FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION, WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE ARCHITECT, GEOTECHNICAL ENGINEER AND FRACTAL LLC BEFORE FURTHER CONSTRUCTION IS ATTEMPTED.

6. REINFORCEMENT PLACEMENT SEQUENCE FOR FOOTINGS IS NOTED ONLY FOR MAJOR REINFORCEMENT BAR LAYERS. IN SPREAD FOOTINGS AND MATS THE CONTRACTOR SHALL SEQUENCE ALL OTHER BAR PLACEMENTS AS REQUIRED TO CONFORM TO THE CONTRACT DOCUMENTS.

7. GENERAL CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEER AND FRACTAL LLC., 48 HOURS PRIOR TO PLACEMENT OF CONCRETE IN THE FOOTINGS.

8. SUBGRADE SHALL BE PREPARED AND COMPACTED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT.

9. THE FOUNDATION EXCAVATIONS AND FLOOR SUBGRADE SHALL BE PROPERLY COMPACTED AND FREE OF STANDING WATER, MUD, AND FROZEN SOIL.

10. THE SLAB ON GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AT EACH COLUMN LINE IN EACH DIRECTION. ADDITIONAL CRACK CONTROL JOINTS SHALL BE PROVIDED USING THE FOLLOWING GUIDELINES: (SEE S3.00 FOR ADD'L DETAILS AND REINFORCEMENT)
    A. NO AREA BOUNDED BY CONTROL JOINTS SHALL CONTAIN MORE THAN 225 SQUARE FEET.
    B. THE SPACING OF THE JOINTS SHALL NOT EXCEED 36 TIMES THE SLAB THICKNESS.
    C. MAXIMUM ASPECT RATIO (LENGTH/WIDTH) = 1.5.
    D. NO RE-ENTRANT CORNERS.

D. SPECIAL INSPECTION REQUIREMENTS

1. IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, SECTION 110, THE PERMITTED WORK IS SUBJECT TO INSPECTIONS PERFORMED BY THE LOCAL BUILDING OFFICIAL. THE GENERAL CONTRACTOR SHALL KEEP THE WORK ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL SUCH INSPECTIONS ARE COMPLETED AND APPROVAL TO PROCEED WITH SUBSEQUENT WORK IS GRANTED.

2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE BUILDING OFFICIAL WHEN WORK IS READY FOR INSPECTION.

3. INSPECTIONS PERFORMED UNDER THIS CATEGORY (THAT PERTAINS TO THE STRUCTURAL DOCUMENTS) INCLUDE: FOOTINGS & FOUNDATIONS, CONCRETE SLABS, STRUCTURAL FRAMEWORK, AND ANY OTHER STRUCTURAL ITEM OF INTEREST TO THE BUILDING OFFICIAL.

4. IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, SECTION 1704, SPECIAL INSPECTIONS MUST ALSO BE PERFORMED ON THE WORK. THE OWNER SHALL SELECT SPECIAL INSPECTORS AND SUBMIT THEIR QUALIFICATIONS TO THE BUILDING OFFICIAL FOR ACCEPTANCE. THE SPECIAL INSPECTORS SHALL MAINTAIN A RECORD OF INSPECTIONS AND INSPECTION REPORTS SHALL BE FURNISHED TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.

REQUIRED SPECIAL INSPECTIONS ARE AS FOLLOWS:

MATERIAL OR WORK TO BE INSPECTED	TYPE OF INSPECTION
STEEL CONSTRUCTION	IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTIONS REQUIREMENTS OF AISC 360.
STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL	AS OUTLINED IN TABLE 1705.2.2 OF IBC 2012
CONCRETE CONSTRUCTION	AS OUTLINED IN TABLE 1705.3 OF IBC 2012
SOILS	AS OUTLINED IN TABLE 1705.6 OF IBC 2012
CAST-IN-PLACE DEEP FOUNDATIONS	AS OUTLINED IN TABLE 1705.8 OF IBC 2012
6. AT THE COMPLETION OF CONSTRUCTION, A FINAL REPORT WRITTEN BY THE REGISTERED DESIGN PROGESSIONAL IN RESPONSIBLE CHARGE THAT DOCUMENTS ALL OF THE SPECIAL INSPECTIONS REQUIRED WILL BE SUBMITTED TO THE BUILDING OFFICIAL, VIA THE OWNER. IT IS OUR UNDERSTANDING THAT A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED BY THE CITY UNTIL THIS FINAL REPORT HAS BEEN RECEIVED, INDICATING THAT THERE ARE NO REMAINING DEFICIENCIES.	

E. CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301 "SPECIFICATION FOR STRUCTURAL CONCRETE".
2. CONCRETE SHALL HAVE NATURAL SAND FINE AGGREGATE AND NORMAL WEIGHT COARSE AGGREGATES CONFORMING TO ASTM C33, TYPE I PORTLAND CEMENT CONFORMING TO ASTM C150, AND SHALL HAVE THE FOLLOWING COMPRESSIVE STRENGTH (F'c) AT 28 DAYS.

AUGER CAST SOLDIER PILES	4000 PSI
BOTTOM VAULT SLAB	5000 PSI
TOP VAULT SLAB AND BEAMS	6000 PSI
COLUMNS	5000 PSI

3. FLY ASH MAY BE USED AS A POZZOLAN TO REPLACE A PORTION OF THE PORTLAND CEMENT IN A CONCRETE MIX, SUBJECT TO THE APPROVAL OF THE GENERAL CONTRACTOR AND THE STRUCTURAL ENGINEER. FLY ASH, WHEN USED, SHALL CONFORM TO ASTM C618, TYPE C OR F. CONCRETE MIXES USING FLY ASH SHALL BE PROPORTIONED TO ACCOUNT FOR THE PROPERTIES OF THE SPECIFIC FLY ASH USED AND TO ACCOUNT FOR THE SPECIFIC PROPERTIES OF THE FLY ASH CONCRETE THUS RESULTING. THE RATIO OF THE AMOUNT OF THE FLY ASH TO THE TOTAL AMOUNT OF FLY ASH AND CEMENT IN THE MIX SHALL NOT EXCEED 25 PERCENT.
4. SLUMP TESTS SHALL BE MADE PRIOR TO THE ADDITION OF PLASTICIZERS. CONCRETE FOR THE PREPARATION OF TEST CYLINDERS SHALL BE TAKEN FROM THE HOSE END FOR CONCRETE PLACED BY PUMP.
5. WATER SHALL NOT BE ADDED TO THE CONCRETE AT THE JOBSITE UNLESS THE TOTAL WATER QUANTITY INCLUDING THE WATER ADDED AT THE JOBSITE DOES NOT EXCEED THE TOTAL WATER QUANTITY OF THE REVIEWED MIX DESIGN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE REQUIREMENTS OF THE CONCRETE SUPPLIER AND PUMPER TO MEET THIS REQUIREMENT AND TO ENSURE A PUMPABLE AND WORKABLE MIX. THE USE OF PLASTICIZERS, RETARDANTS, AND OTHER ADDITIVES SHALL BE AT THE OPTION OF THE CONTRACTOR SUBJECT TO THE APPROVAL OF FRACTAL LLC. FOLLOW THE RECOMMENDATIONS OF THE MANUFACTURER FOR THE PROPER USE OF ADDITIVES. THE USE OF CALCIUM CHLORIDE OR OTHER CHLORIDE BEARING SALTS IS NOT PERMITTED.
6. PLACE CONCRETE IN A MANNER SO AS TO PREVENT SEGREGATION OF THE MIX. DELAY FLOATING AND TROWELING OPERATIONS UNTIL THE CONCRETE HAS LOST SURFACE WATER SHEEN OR ALL FREE WATER. DO NOT SPRINKLE FREE CEMENT ON THE SLAB SURFACE. FINISHING OF SLAB SURFACES SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI 302.1 AND 304.
7. PROVIDE CURING OF DECK IMMEDIATELY AFTER FINISHING. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS. PROTECT THE CONCRETE SURFACE BETWEEN FINISHING OPERATIONS ON HOT, DRY, OR WINDY DAYS OR ANY TIME PLASTIC SHRINKAGE CRACKS COULD DEVELOP BY USING WET BURLAP, PLASTIC MEMBRANES, OR FOGGING. PROTECT CONCRETE DECK AT ALL TIMES FROM RAIN, HAIL, OR OTHER INJURIOUS EFFECTS.
8. THE CONTRACTOR SHALL SUBMIT FOR REVIEW A MIX DESIGN FOR THE PROPOSED CONCRETE. MIX DESIGNS SHALL BE IN COMPLIANCE WITH THE METHODS PERMITTED IN IBC AND PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL NOT VARY FROM THE MIX DESIGN WITHOUT THE APPROVAL OF FRACTAL LLC.
9. DETAILING AND PLACING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF ACI SP-66 "DETAILING MANUAL" AND CRSI "MANUAL OF STANDARD PRACTICE".
10. MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS (SEE ACI 318 SECTION 7.7 FOR CONDITIONS NOT NOTED):

    CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3 INCHES
    CONCRETE EXPOSED TO EARTH OR WEATHER:
    #5 BARS AND SMALLER.....1-1/2 INCHES
    ALL OTHER BARS.....2 INCHES
    CONCRETE NOT EXPOSED WEATHER OR IN CONTACT WITH GROUND:
    SLABS, WALLS, JOISTS (#11 BARS AND SMALLER).....3/4 INCHES
    SLABS, WALLS, JOISTS (ALL OTHER BARS).....1-1/2 INCHES
    BEAMS AND COLUMNS.....1-1/2 INCHES

    PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.
11. CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 75 FOR #6 BARS AND LARGER, AND ASTM A615 GRADE 60 FOR #5 BARS AND SMALLER.
12. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. FABRIC SHALL BE SUPPLIED IN FLAT SHEETS. FABRIC SHALL BE LAPPED TWO MESH AT SPLICES.
13. REINFORCEMENT BARS SHALL NOT BE TACK WELDED, WELDED, HEATED, OR CUT UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR REVIEWED BY THE STRUCTURAL ENGINEER.
14. WELDING OF REINFORCEMENT BARS, WHEN ACCEPTED BY THE STRUCTURAL ENGINEER, SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.4. ELECTRODES FOR SHOP AND FIELD WELDING OF REINFORCEMENT BARS SHALL CONFORM TO ASTM A233, CLASS E90XX.
15. REINFORCEMENT DESIGNATED AS "CONTINUOUS" MAY BE SPLICED USING TYPE "B" SPLICES. REINFORCEMENT BAR SPLICE LENGTHS IN BEAMS WHICH ARE LOCATED AT THE CENTERLINE OF SUPPORTS FOR BOTTOM BARS AND AT MIDSPAN FOR TOP BARS MAY BE 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE. PROVIDE STANDARD ACI HOOKS FOR TOP AND BOTTOM BARS AT DISCONTINUOUS ENDS OF ALL GRADE BEAMS.
16. HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90- DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED 36 BAR DIAMETERS, AT CORNERS AND INTERSECTIONS.
17. HORIZONTAL JOINTS WILL NOT BE PERMITTED IN CONCRETE CONSTRUCTION EXCEPT AS SHOWN ON THE CONTRACT DOCUMENTS. VERTICAL JOINTS MAY OCCUR AT CENTER OF SPANS AT LOCATIONS REVIEWED BY FRACTAL LLC.
18. CONDUIT, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, CHAPTER 6.3.

F. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND THE AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
2. CONTRACTOR SHALL FABRICATE AND ERECT STEEL IN ACCORDANCE WITH LATEST OSHA SAFETY REQUIREMENTS, INCLUDING 29 CFR PART 1926 SAFETY STANDARDS FOR STEEL ERECTION.
3. STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE ON THE CONTRACT DOCUMENTS:

WIDE FLANGE SHAPES (W)	ASTM A992,	GRADE 50 (50 KSI)
CHANNELS, AND ANGLES	ASTM A36	(36 KSI)
STEEL PIPE	ASTM A53	GRADE B (35 KSI)
PLATES AND BARS	ASTM A36	(36 KSI)
ANCHOR BOLTS (ANCHOR RODS)	ASTM F1554 OR ASTM A307	(36 KSI)

4. THE DETAILS ON THESE DRAWINGS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF CONNECTIONS AND ARE NOT INTENDED TO CONVEY COMPLETE CONNECTION DESIGN. ALL CONNECTIONS, SPLICES AND ERECTION PIECES SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR'S STRUCTURAL ENGINEER LICENSED IN THE JURISDICTION OF THE PROJECT, UNLESS CONNECTIONS ARE INDICATED AS BEING FULLY DESIGNED IN THE STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE. CALCULATIONS BEARING THE ENGINEER'S SEAL AND SIGNATURE SHALL BE AVAILABLE UPON REQUEST OF THE STRUCTURAL ENGINEER.
5. DESIGN ALL CONNECTIONS FOR FORCES INDICATED ON THE DRAWINGS. CONNECTION DESIGN FORCES INDICATED ON THE DRAWINGS ARE UNFACTORED U.N.O. WHERE THE REACTION IS OMITTED FROM THE DRAWINGS, DESIGN THE CONNECTION FOR ONE HALF OF THE MAXIMUM TOTAL UNIFORM LOAD AS DEFINED IN THE AISC STEEL CONSTRUCTION MANUAL 13TH EDITION, TABLE 3-6. MOMENT CONNECTIONS SHALL BE DESIGNED FOR THE FULL PLASTIC MOMENT OF THE BEAM IF THE MOMENT IS OMITTED FROM THE DRAWINGS.
6. CONNECTION BOLTS FOR STRUCTURAL STEEL MEMBERS SHALL BE HIGH STRENGTH BOLTS WHICH MEET OR EXCEED THE REQUIREMENTS OF ASTM A325, TYPE N, X, OR SC CLASS A. BOLTS SHALL BE DESIGNED AS BEARING TYPE BOLTS, EXCEPT AS NOTED. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE "SNUG TIGHT" CONDITION AS OUTLINED IN THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE ELEMENT TO BE TIGHTENED.
7. NO CONNECTION SHALL CONSIST OF LESS THAN (2) 3/4" DIA. A325-N BOLTS OR WELDS DEVELOPING LESS THAN 12 KIPS. MINIMUM WELD SIZE SHALL BE 3/16" FILLET WELD.
8. DO NOT USE OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
9. PRIOR TO DETAILING CONNECTIONS FOR STRUCTURAL STEEL, THE STEEL FABRICATOR SHALL SUBMIT FOR APPROVAL REPRESENTATIVE DETAILS AND CALCULATIONS FOR EACH TYPE OF STRUCTURAL STEEL CONNECTION TO BE UTILIZED. AFTER APPROVAL, THE CONNECTIONS MAY BE INCORPORATED INTO THE SHOP DRAWINGS.
10. WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.1. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR AWS A5.5, CLASS E70XX, LOW HYDROGEN.
11. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.
12. NO MISFABRICATED STRUCTURAL STEEL MAY BE ERECTED PRIOR TO REVIEW BY THE ENGINEER.
13. PENETRATIONS SHALL NOT BE CUT IN STRUCTURAL STEEL MEMBERS UNLESS SO INDICATED IN THE DRAWINGS OR AS REVIEWED BY THE ENGINEER.
14. HEADED CONCRETE ANCHORS SHALL BE NELSON OR KSM HEADED CONCRETE ANCHORS (OR ACCEPTABLE EQUAL), AND SHALL CONFORM TO ASTM A108, GRADES C-1010 THROUGH C-1020. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.
15. DEFORMED BAR ANCHORS (D.B.A.) SHALL BE NELSON OR KSM DEFORMED BAR ANCHORS (OR ACCEPTABLE EQUAL), AND SHALL BE MADE FROM COLD DRAWN WIRE PER ASTM A496 CONFORMING TO ASTM A108 WITH A MINIMUM YIELD STRENGTH OF 70 KSI. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.
16. TEMPORARY STEEL SHORING MEMBERS ARE NOT REQUIRED TO BE HOT-DIP GALVANIZED.

DETENTION VOLUME: 94 ACRE FEET

No.	Date	Revisions	App.

FRACTAL

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FRACTAL Project No.25-101-00

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P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

STRUCTURAL NOTES

WBS NO. M-430296-0017-3

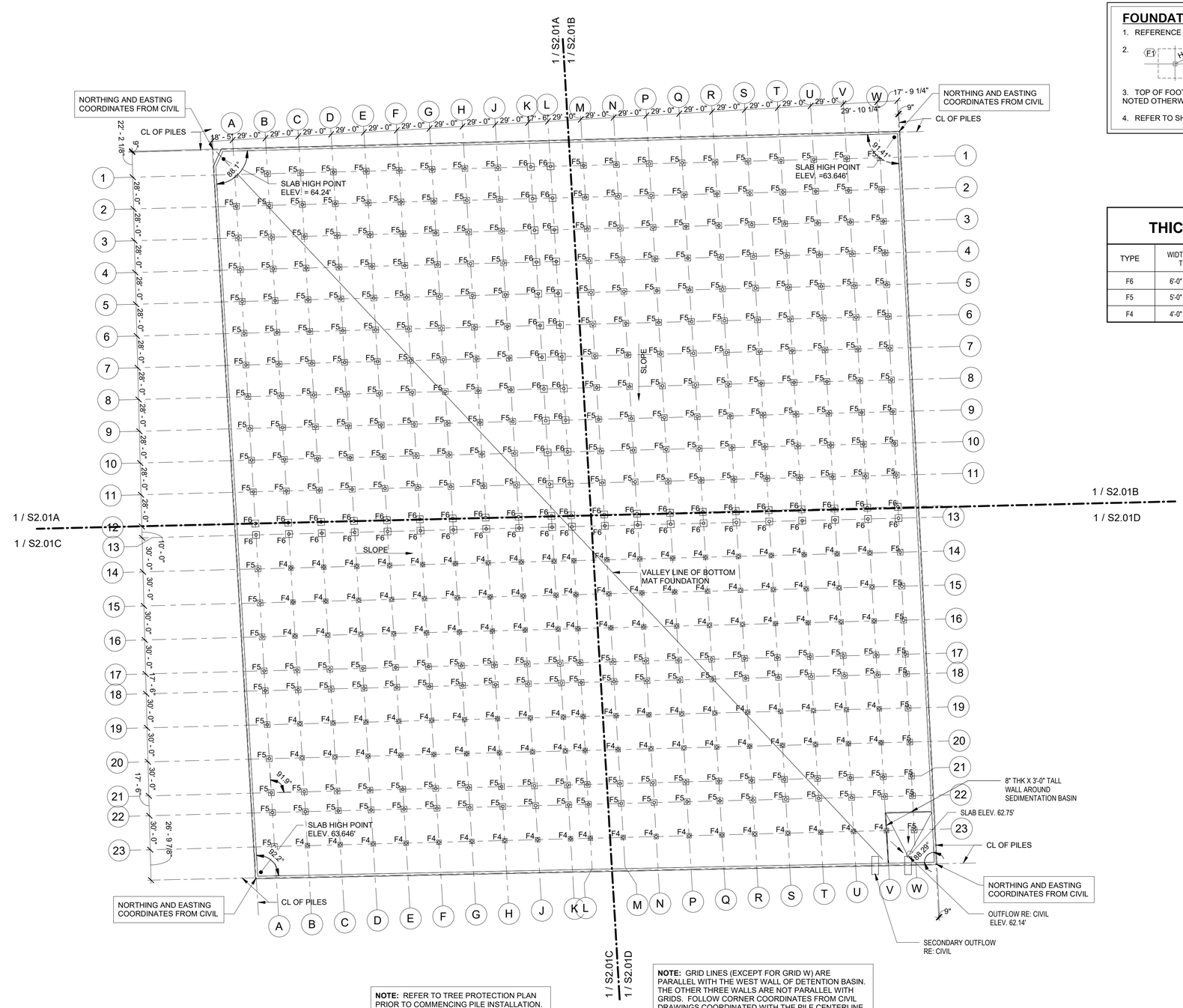
12" = 1'-0"

S1.00

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 55 OF 343



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NOTE: GRID LINES (EXCEPT FOR GRID W) ARE PARALLEL WITH THE WEST WALL OF DETENTION BASIN. THE OTHER THREE WALLS ARE NOT PARALLEL WITH GRIDS. FOLLOW CORNER COORDINATES FROM CIVIL DRAWINGS COORDINATED WITH THE PILE CENTERLINE DIMENSIONS.

NOTE: FOR NORTHING AND EASTING COORDINATES AT THE DETENTION BASIN CORNERS REFER TO CIVIL DRAWINGS. THESE COORDINATES CORRESPOND TO THE INTERSECTION OF THE PILE CENTERLINES ALONG EACH WALL.

1 OVERALL BOTTOM MAT FOUNDATION PLAN

SCALE: 1" = 50'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. (F1) HSS4x4x1/4 — HSS4x4x1/4 (example) DENOTES COLUMN SIZE; F1 (example) INDICATES SPREAD FOOTING TYPE. SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

4'-0" A 4'-0" B

THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION

WBS NO. M-430296-0017-3

As indicated

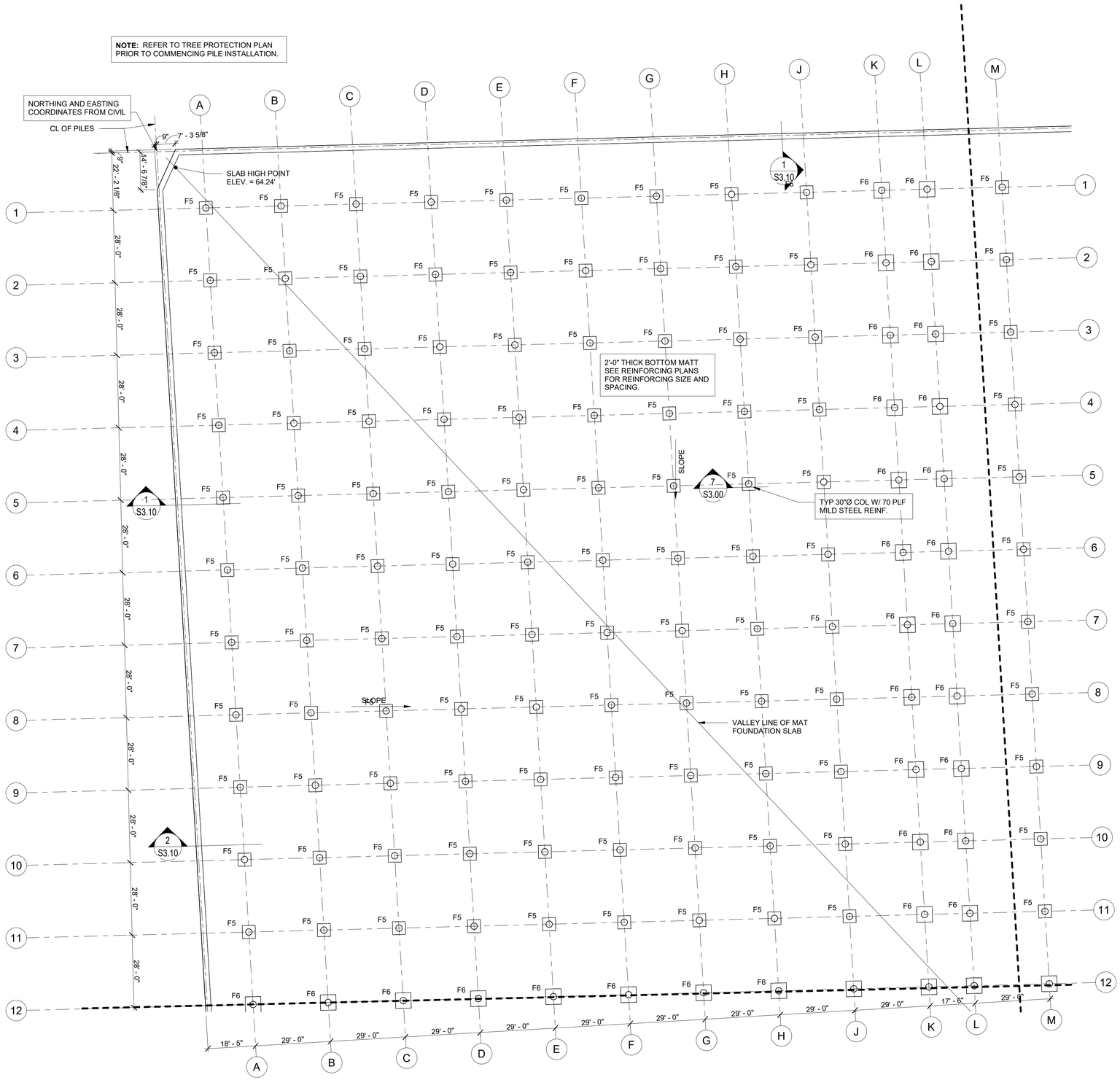
S2.01

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 56 OF 343

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.



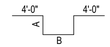
1 BOTTOM MAT FOUNDATION PLAN - SECTION A

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 

HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION A

WBS NO. M-430296-0017-3

As indicated

S2.01A

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 57 OF 343

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NORTHING AND EASTING COORDINATES FROM CIVIL

CL OF PILES

9"

9"

2'-0" THICK BOTTOM MATT W/ 22 PSF MILD STEEL REINF.

TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.

SLOPE

SLOPE

VALLEY LINE OF MAT FOUNDATION

29' - 0"

17' - 6"

A B C D E F G H J K L M

1 2 3 4 5 6 7 8 9 10 11 12

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

1 BOTTOM MAT FOUNDATION - SECTION A - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION A

WBS NO. M-430296-0017-3

As indicated

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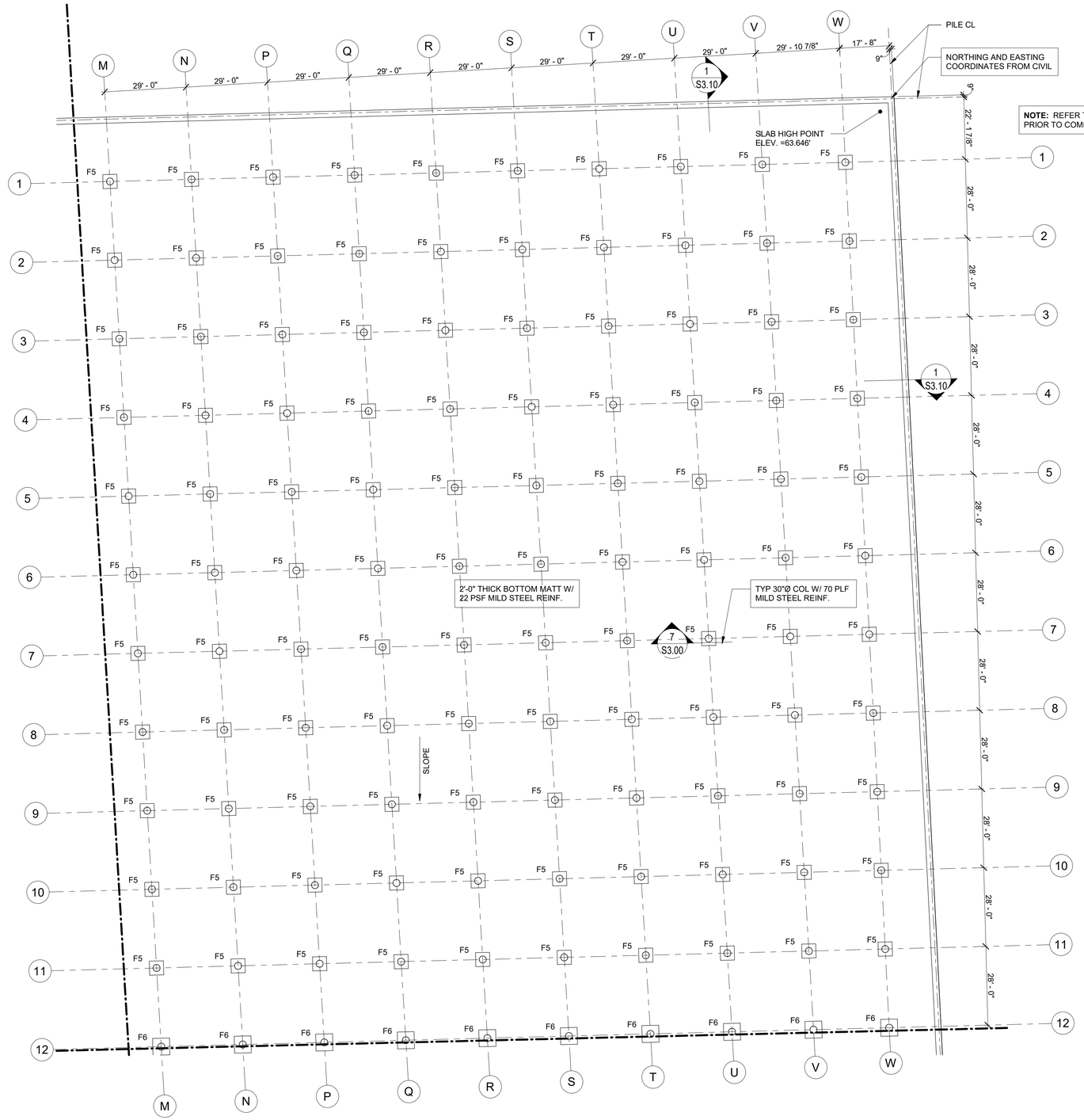
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 58 OF 343



1 BOTTOM MAT FOUNDATION PLAN - SECTION B

SCALE: 3/64" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. F1 HSS4x4x1/4 — HSS4x4x1/4 (example) DENOTES COLUMN SIZE; F1 (example) INDICATES SPREAD FOOTING TYPE. SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

4'-0" A 4'-0" B

THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

No.	Date	Revisions	App.

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION B

WBS NO. M-430296-0017-3

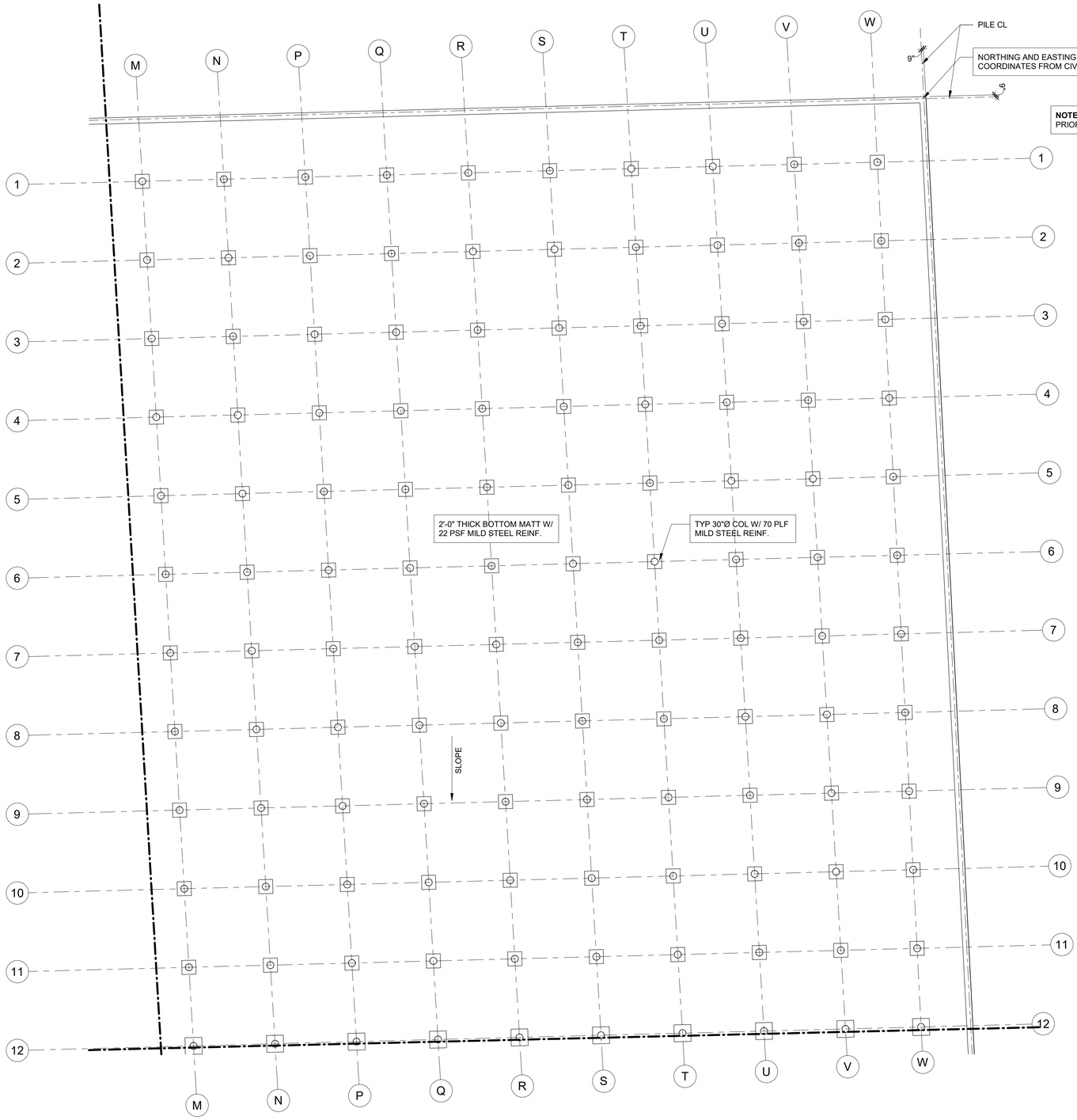
As indicated

S2.01B

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 59 OF 343



1 BOTTOM MAT FOUNDATION - SECTION B - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

No.	Date	Revisions	App.

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Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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NOT FOR CONSTRUCTION
BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION B

WBS NO. M-430296-0017-3

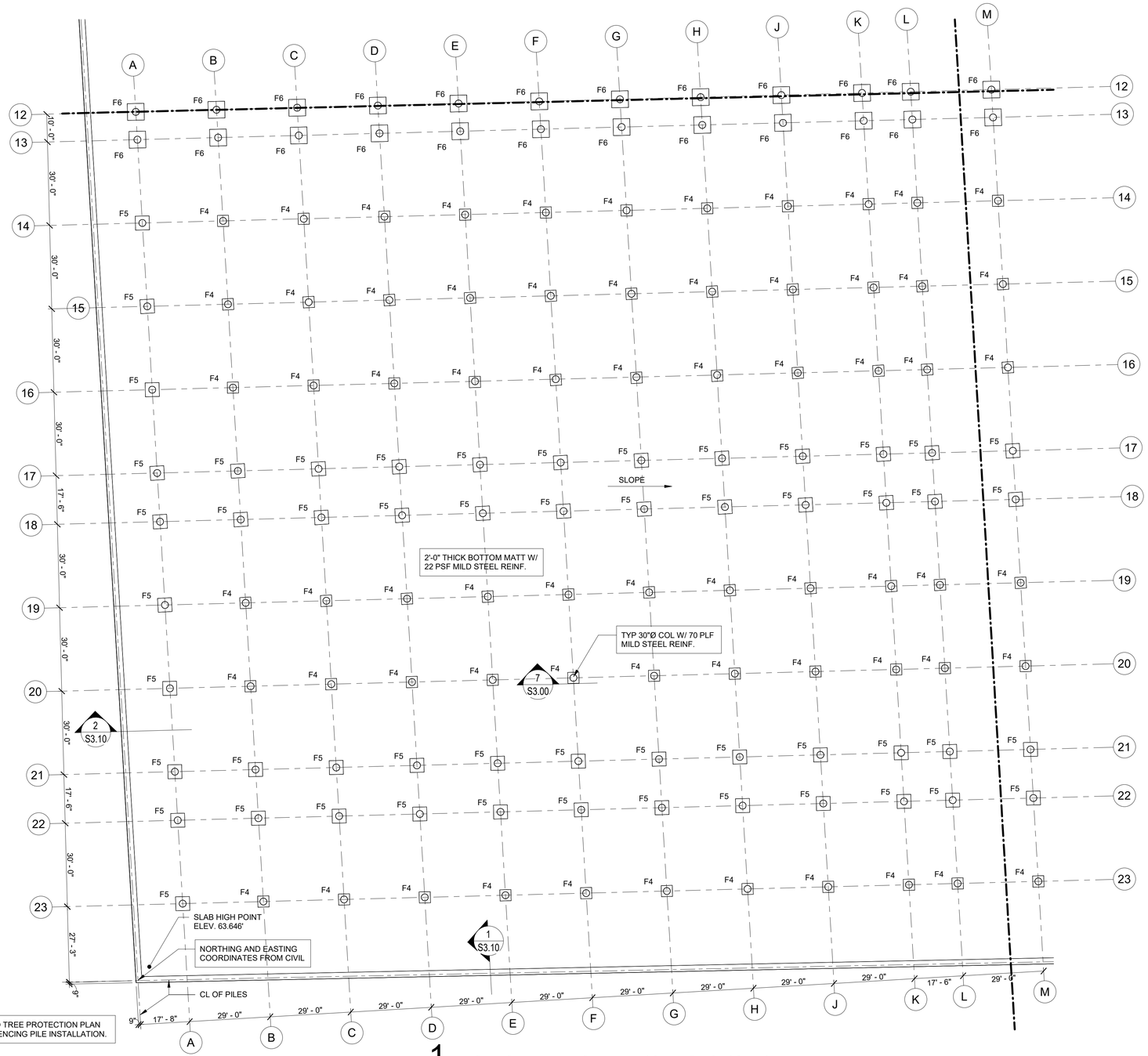
As indicated

S2.01BR

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 60 OF 343



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

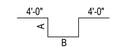
1 BOTTOM MAT FOUNDATION - SECTION C

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 

HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION C

WBS NO. M-430296-0017-3

As indicated

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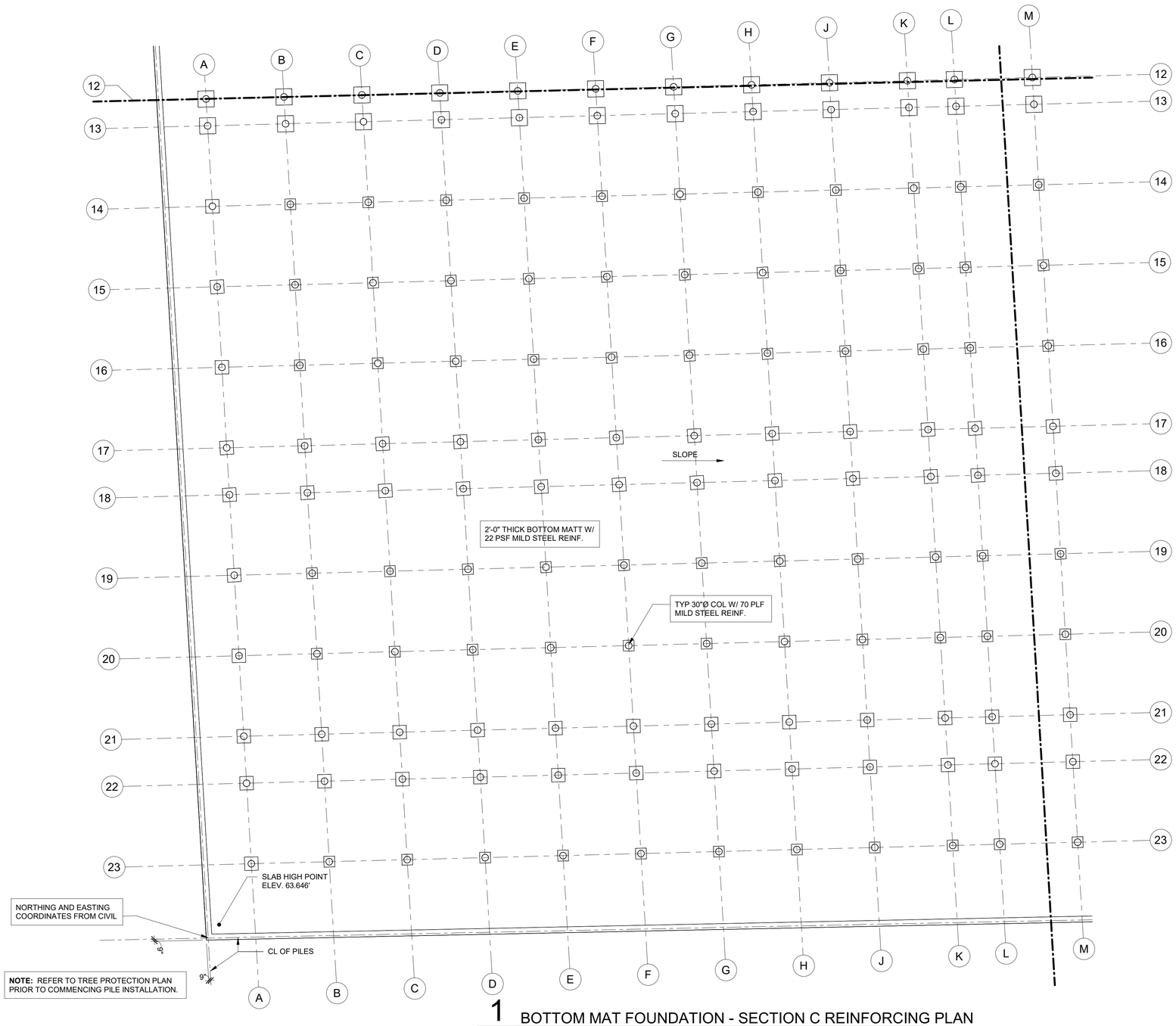

1 BOTTOM MAT FOUNDATION - SECTION C REINFORCING PLAN

SCALE: 3/64" = 1'-0"

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. ---------- INDICATES BOTTOM BAR.
4. —— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

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BOTTOM MAT FOUNDATION - REINFORCING - SECTION C

WBS NO. M-430296-0017-3

As indicated

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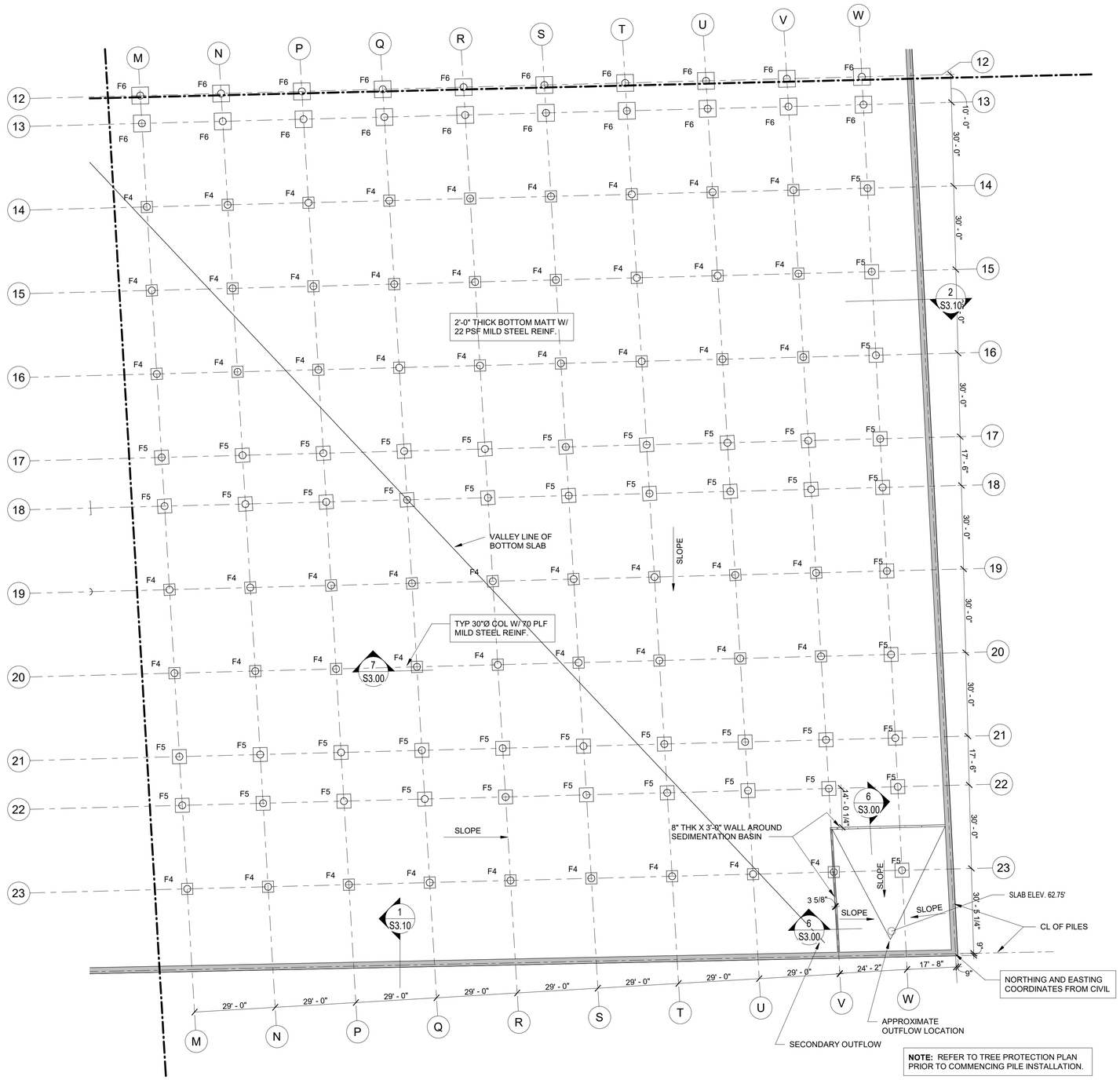
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 62 OF 343



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

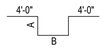
1 BOTTOM MAT FOUNDATION - SECTION D

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 

HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION D

WBS NO. M-430296-0017-3

As indicated

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CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

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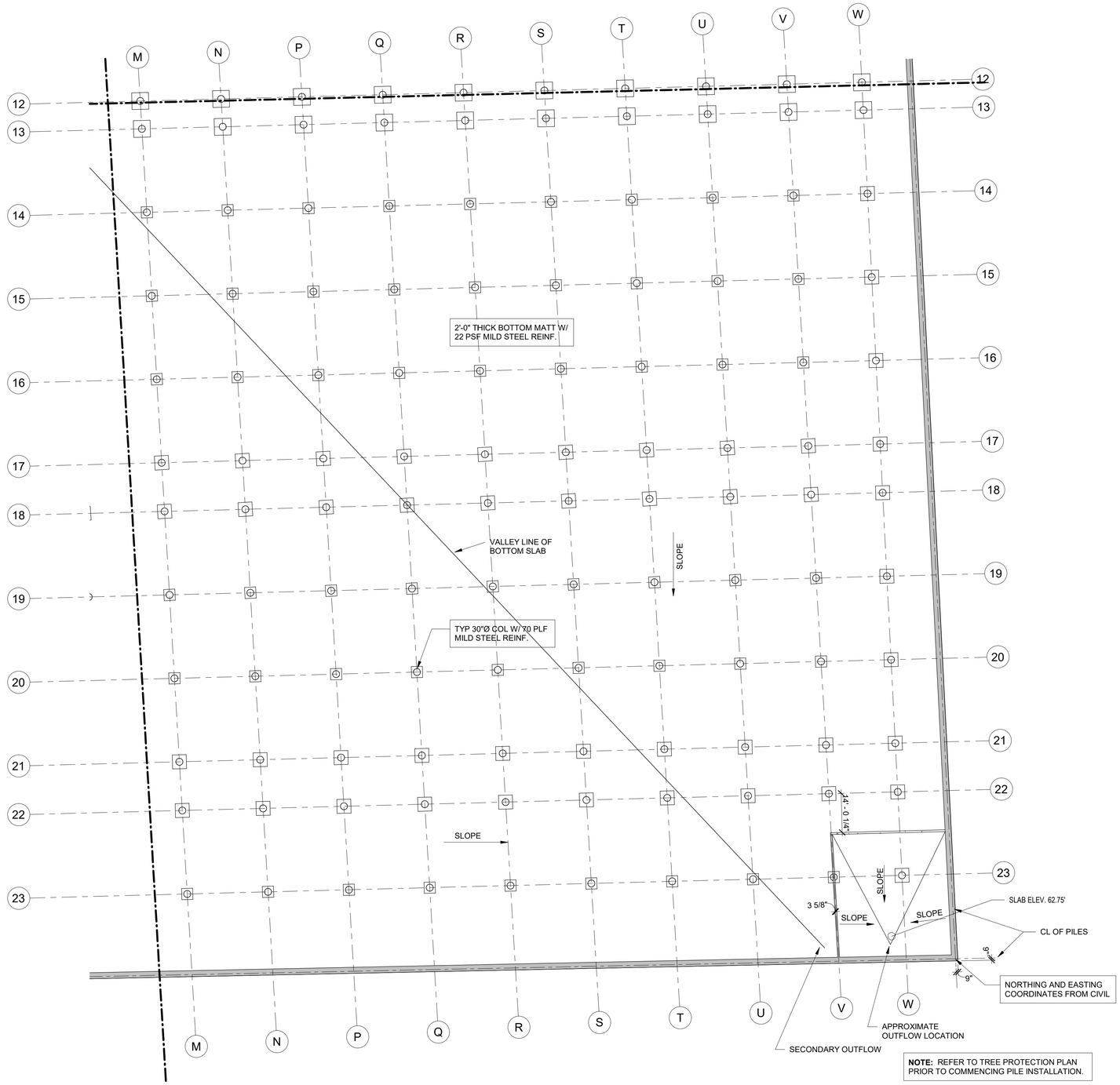

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 BOTTOM MAT FOUNDATION - SECTION D - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION D

WBS NO. M-430296-0017-3

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KEVIN HAMMOND, P.E.

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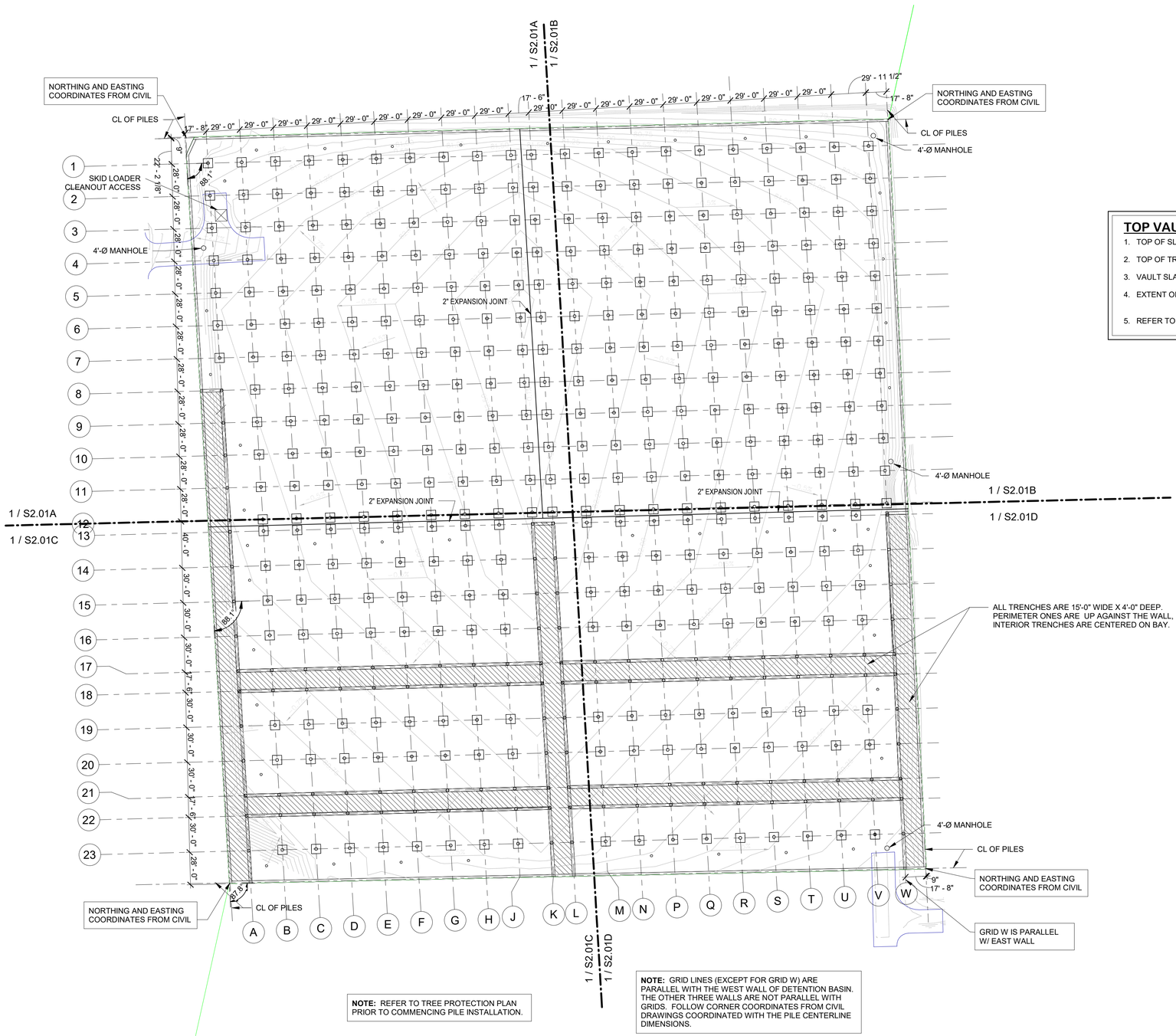

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB:
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NOTE: GRID LINES (EXCEPT FOR GRID W) ARE PARALLEL WITH THE WEST WALL OF DETENTION BASIN. THE OTHER THREE WALLS ARE NOT PARALLEL WITH GRIDS. FOLLOW CORNER COORDINATES FROM CIVIL DRAWINGS COORDINATED WITH THE PILE CENTERLINE DIMENSIONS.

1 OVERALL TOP VAULT SLAB PLAN
SCALE: 1" = 50'-0"

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB

WBS NO. M-430296-0017-3

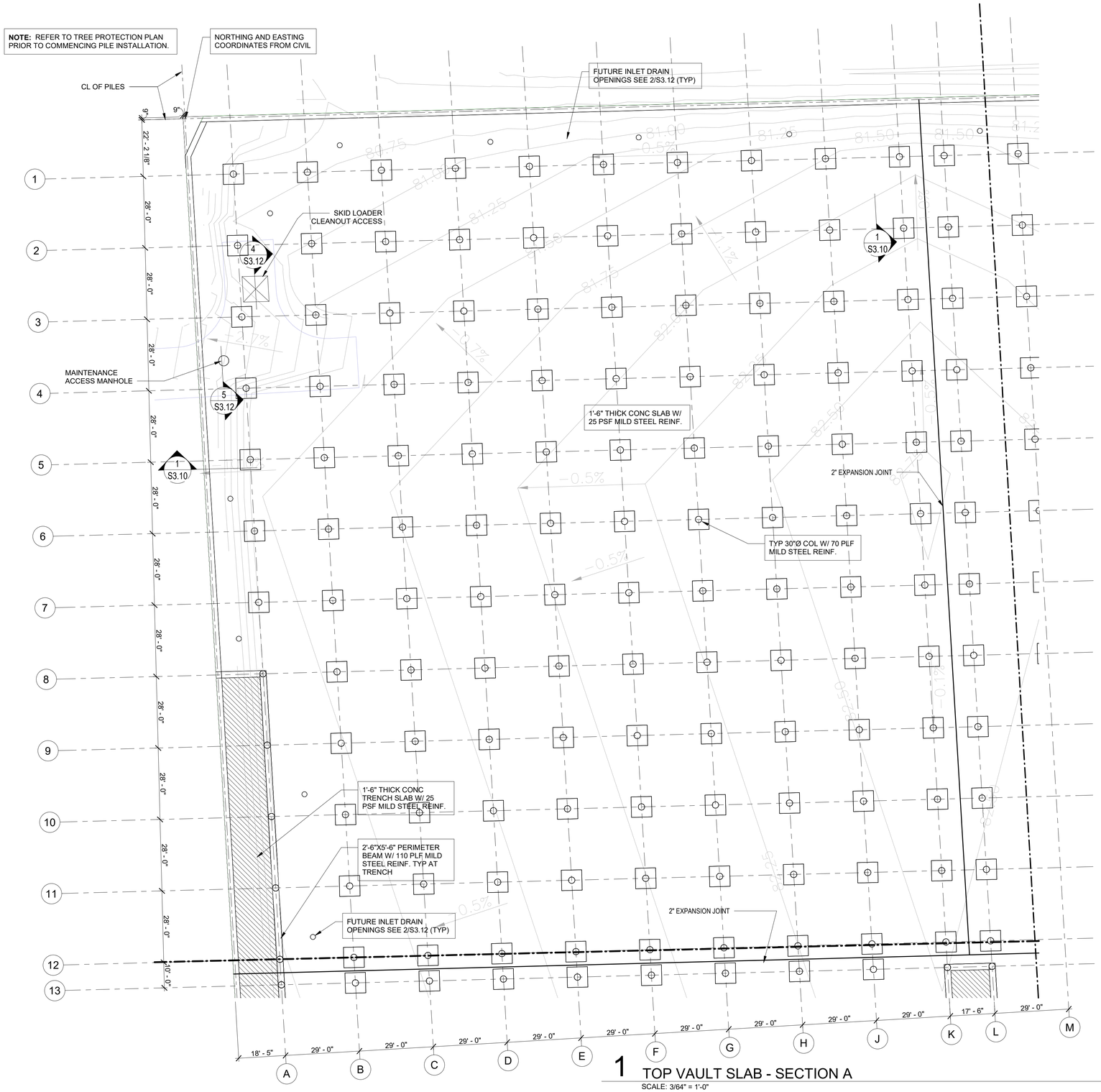
As indicated

S2.02

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 65 OF 343



1 TOP VAULT SLAB - SECTION A
SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB:
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - SECTION A

WBS NO. M-430296-0017-3

As indicated

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CITY OF HOUSTON PM

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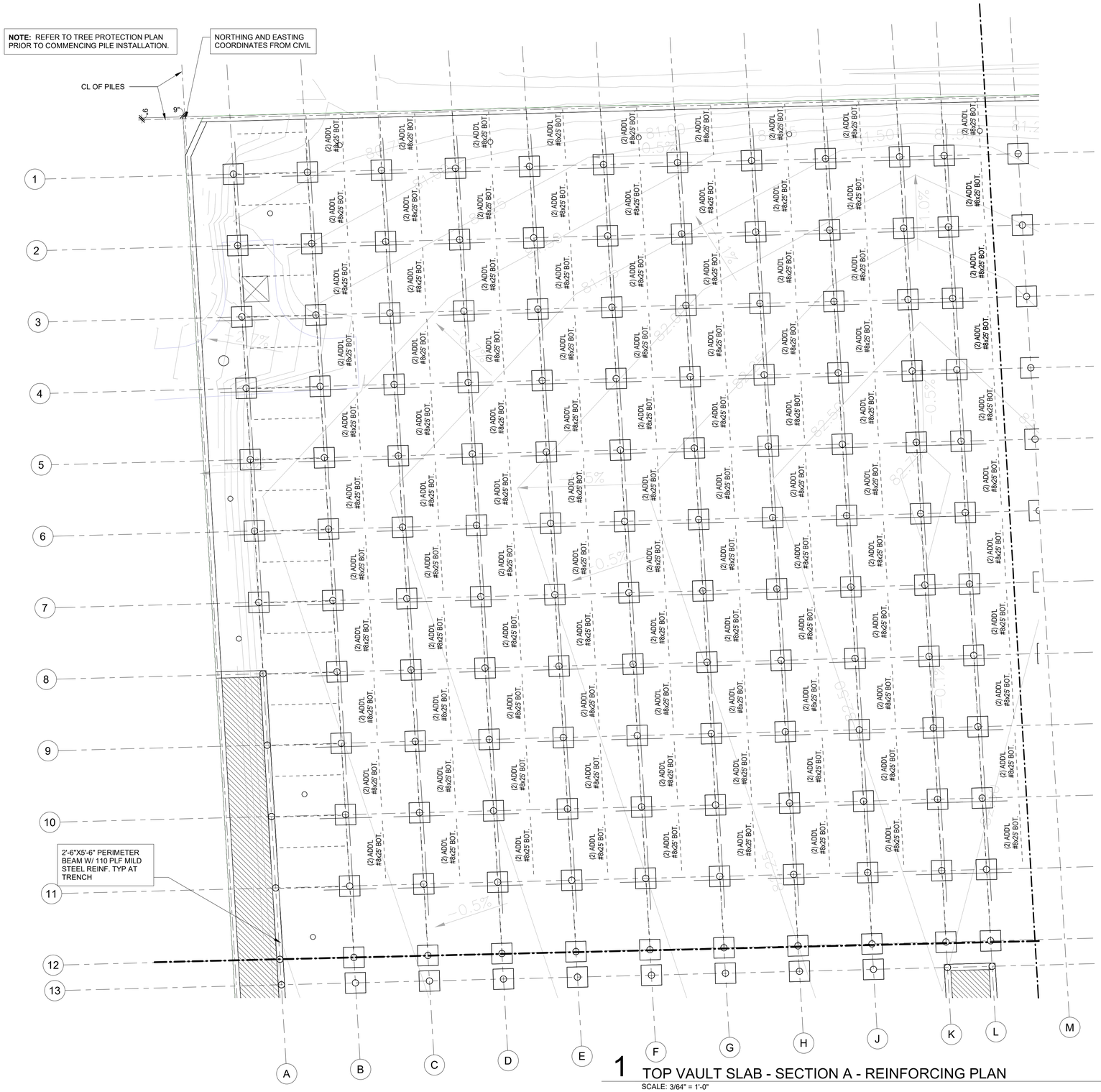

1 TOP VAULT SLAB - SECTION A - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.

TYPICAL REINFORCING AT COLUMNS (UON SEE PLAN)

(18) ADD'L #10x20' TOP.

(18) ADD'L #10x20' TOP.

TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)

(6) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - REINFORCING - SECTION A

WBS NO. M-430296-0017-3

As indicated

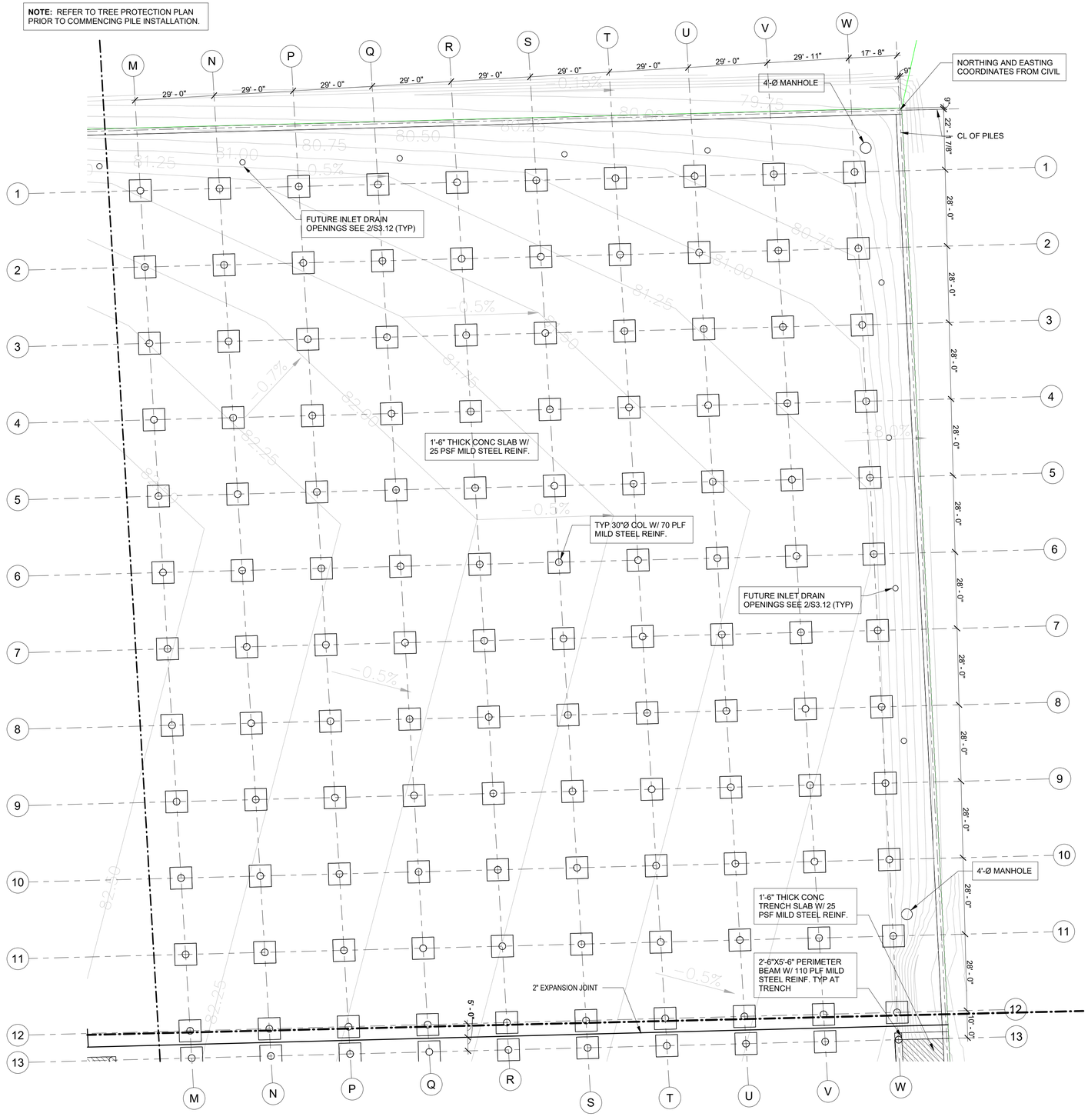
S2.02AR

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 67 OF 343

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.



1 TOP VAULT SLAB - SECTION B

SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB:
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

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TOP VAULT SLAB - SECTION B

WBS NO. M-430296-0017-3

As indicated

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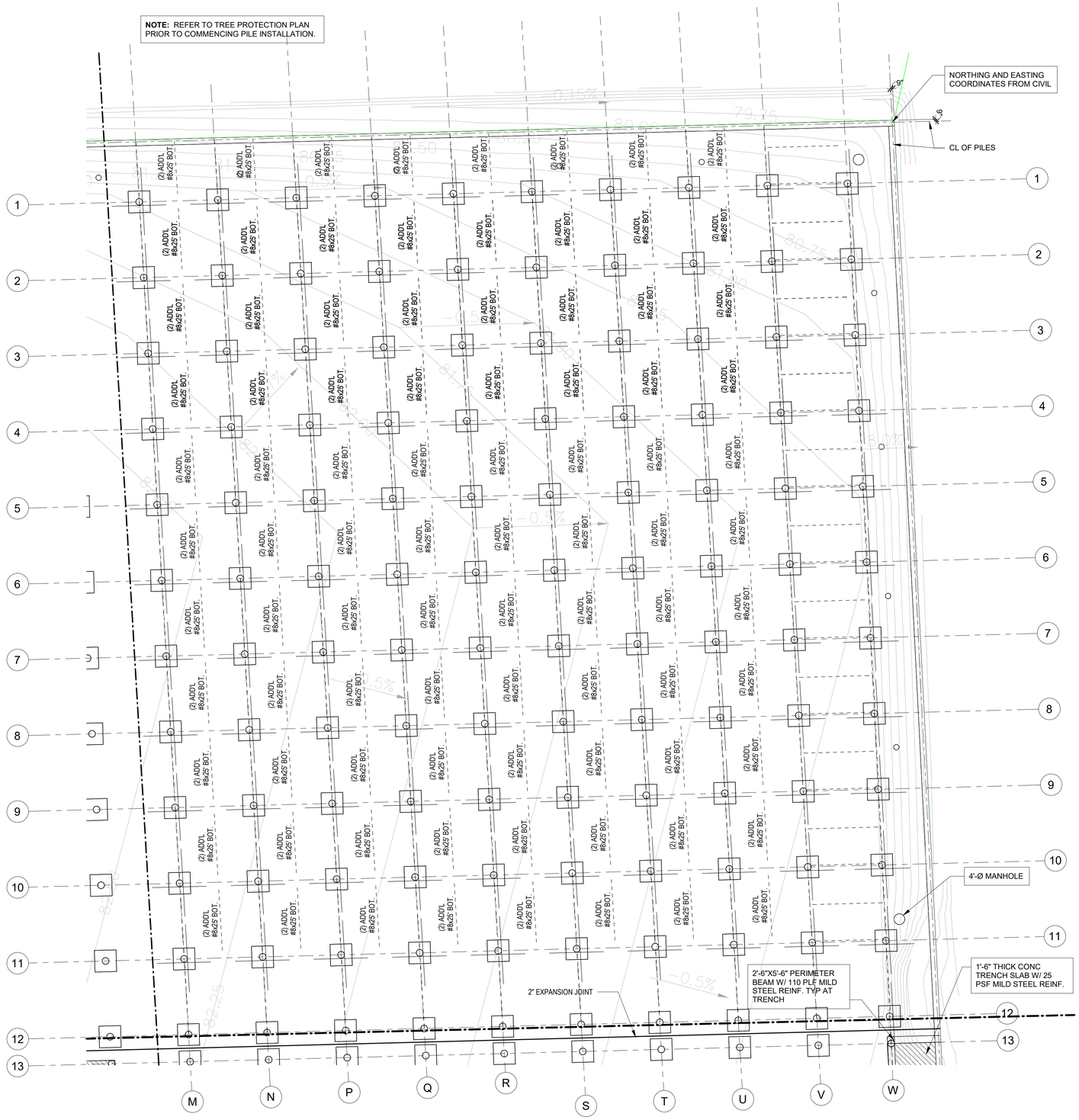
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 68 OF 343

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.



1 TOP VAULT SLAB - SECTION B - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. ---------- INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.

TYPICAL REINFORCING AT COLUMNS (UON SEE PLAN)	TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)
(18) ADD'L #10x20' TOP. / (18) ADD'L #10x20' TOP.	(6) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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TOP VAULT SLAB - REINFORCING - SECTION B

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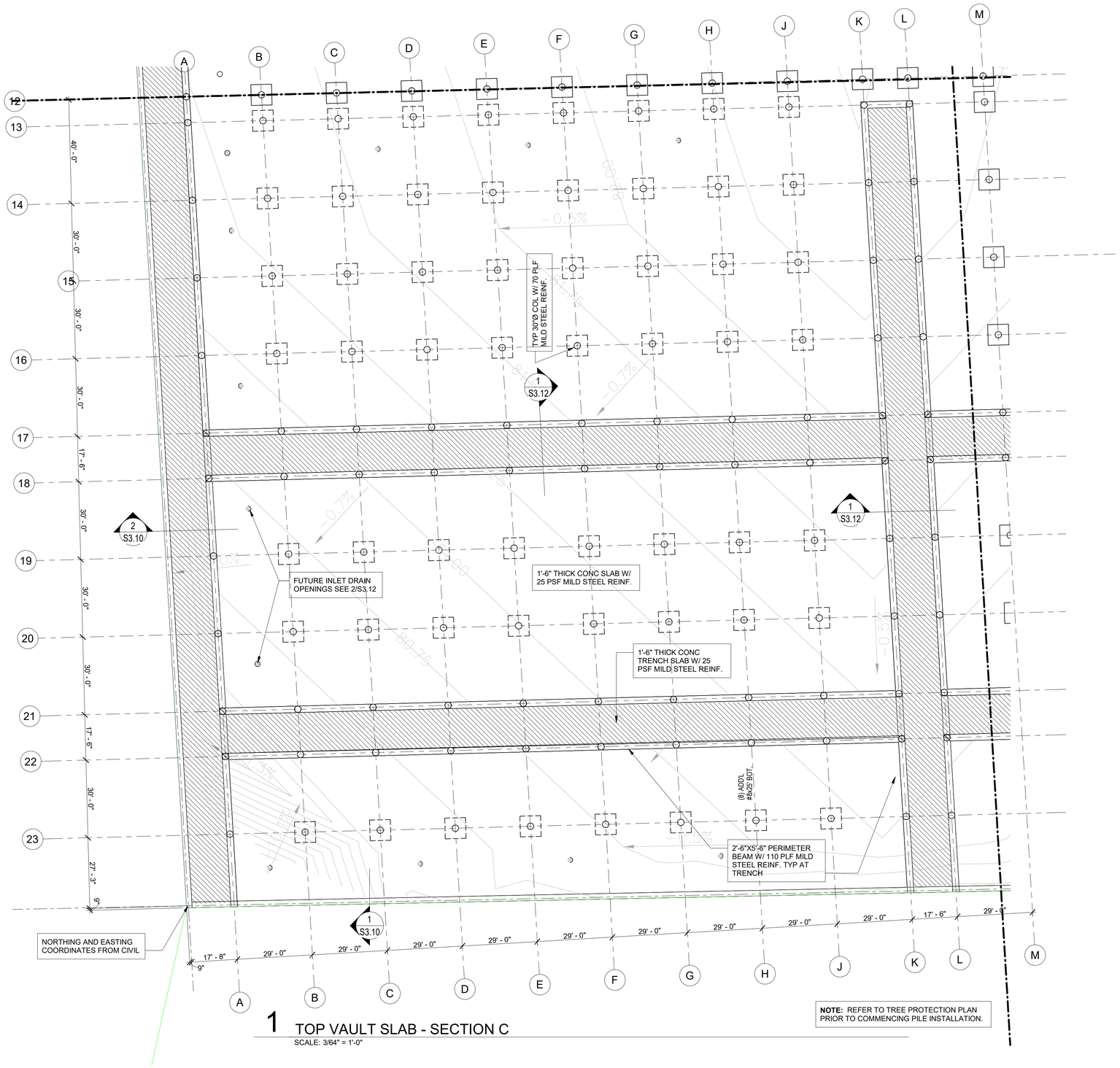

1 TOP VAULT SLAB - SECTION C

SCALE: 3/64" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB:
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

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TOP VAULT SLAB - SECTION C

WBS NO. M-430296-0017-3

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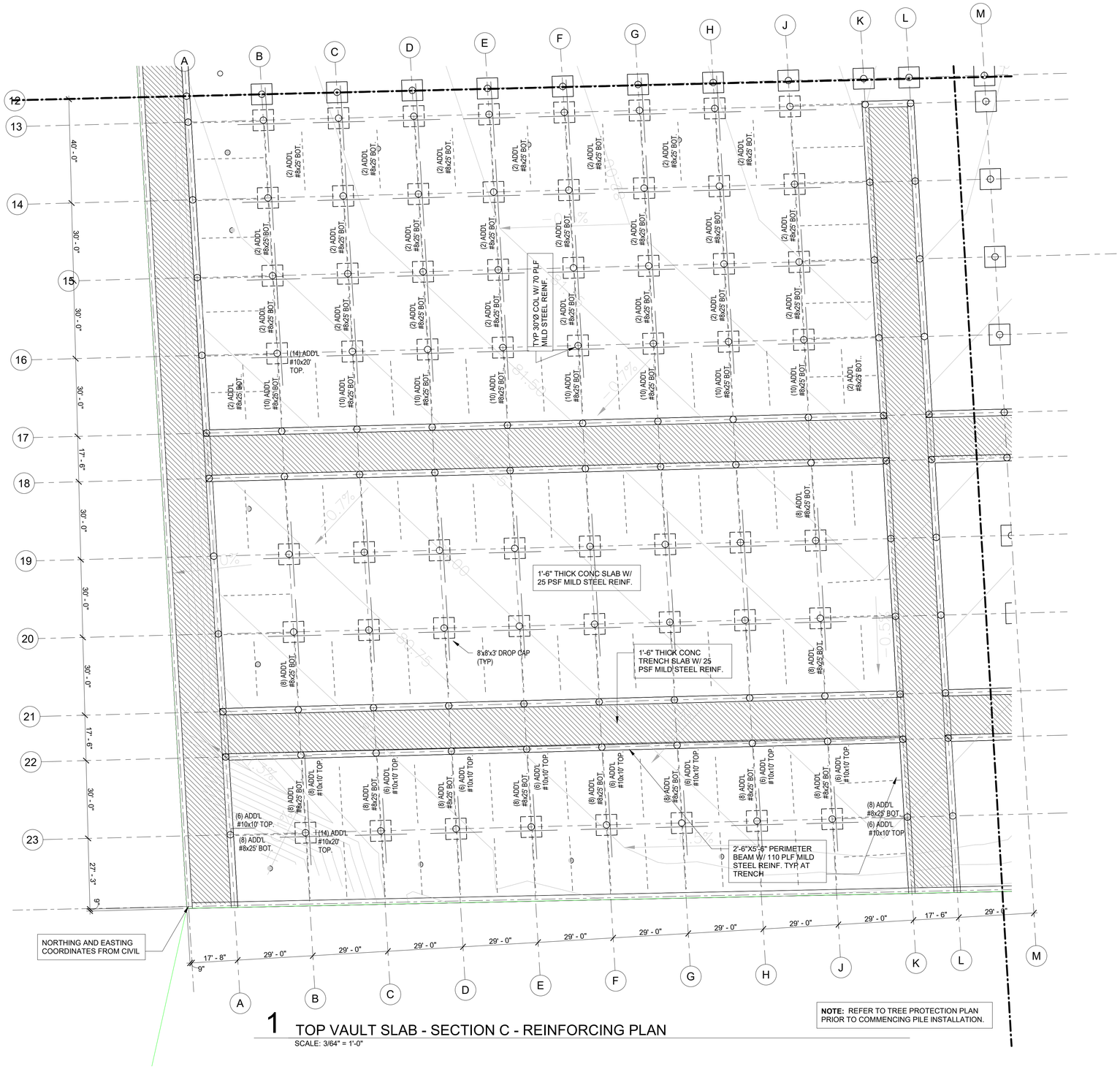
SHEET NO. 70 OF 343



1 TOP VAULT SLAB - SECTION C - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
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TYPICAL REINFORCING AT COLUMNS (UON SEE PLAN)	TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)
(18) ADD'L #10x20' TOP. (18) ADD'L #10x20' TOP	(6) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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TOP VAULT SLAB - REINFORCING - SECTION C

WBS NO. M-430296-0017-3

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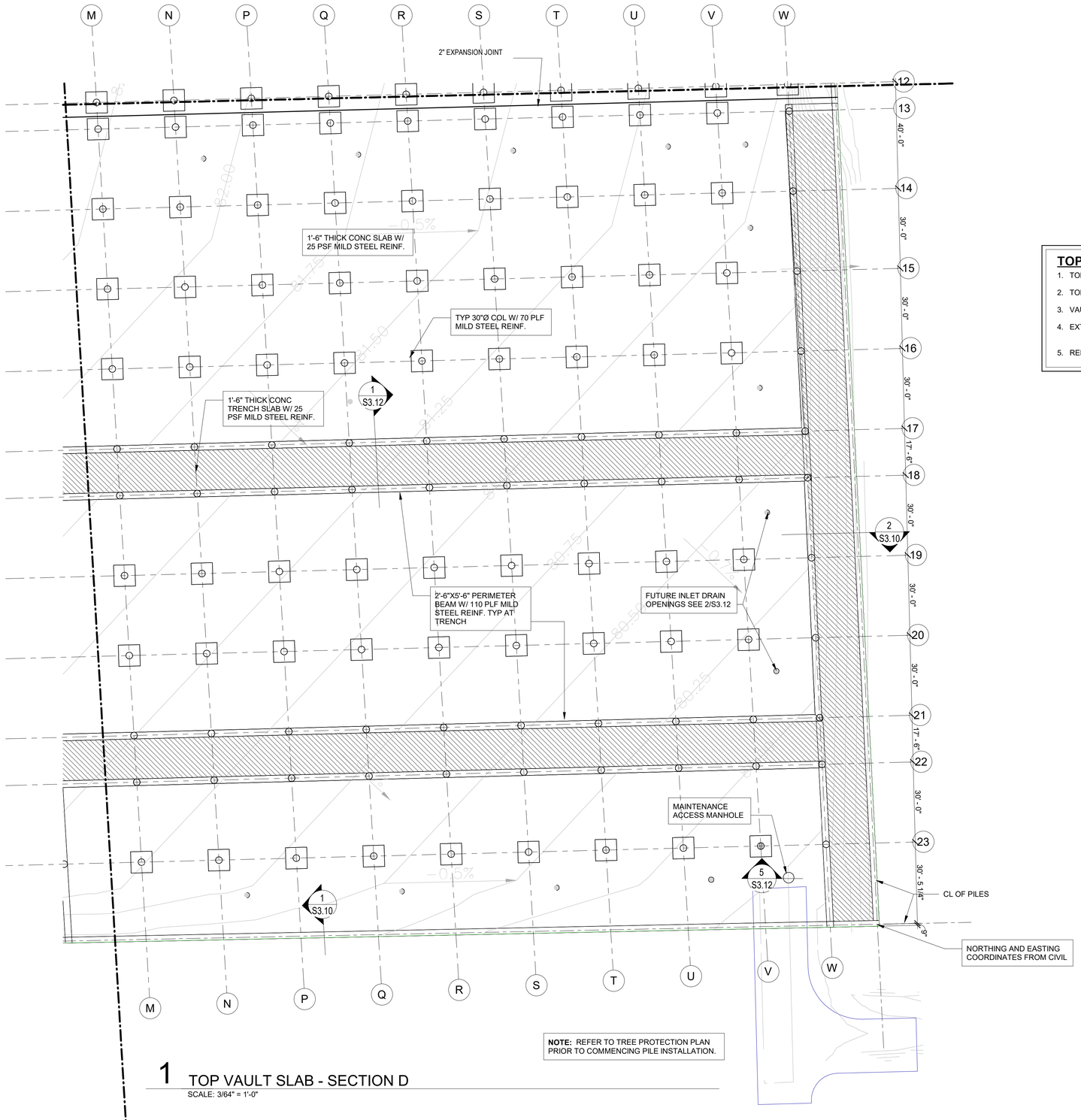
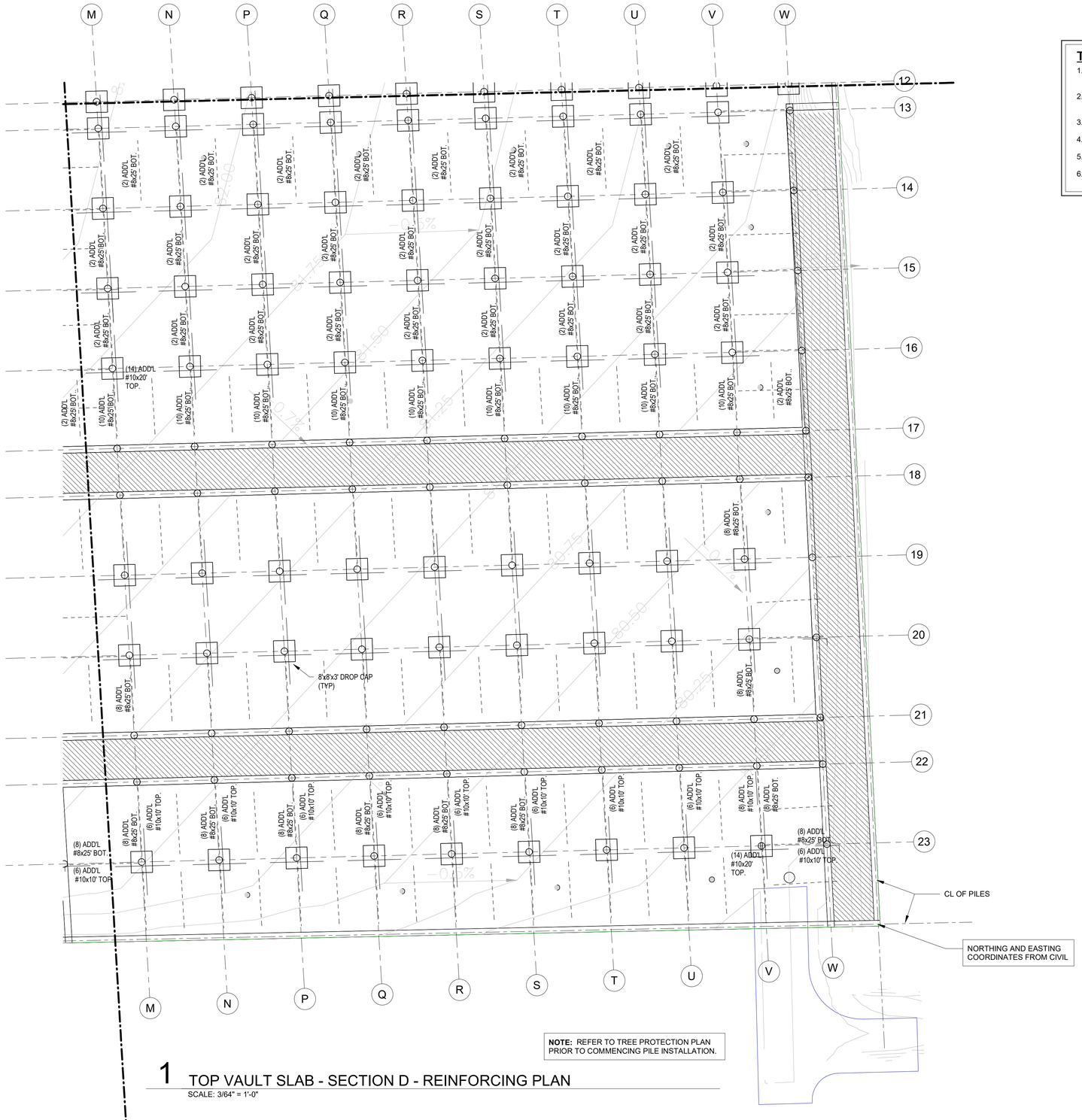
KEVIN HAMMOND, P.E.

SHEET NO. 71 OF 343


M
N
P
Q
R
S
T
U
V
W
2" EXPANSION JOINT
1'-6" THICK CONC SLAB W/ 25 PSF MILD STEEL REINF.
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
1'-6" THICK CONC TRENCH SLAB W/ 25 PSF MILD STEEL REINF.
1 S3.12
2'-6"X5'-6" PERIMETER BEAM W/ 110 PLF MILD STEEL REINF. TYP AT TRENCH
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12
2 S3.10
MAINTENANCE ACCESS MANHOLE
5 S3.12
1 S3.10
CL OF PILES
NORTHING AND EASTING COORDINATES FROM CIVIL
12
13
14
15
16
17
18
19
20
21
22
23
40' - 0"
30' - 0"
30' - 0"
30' - 0"
30' - 0"
17' - 6"
30' - 0"
30' - 0"
30' - 0"
17' - 6"
30' - 0"
30' - 5 1/4"
9"
-05%
-01.5%
-02%
-01.5%
-02.5%
-02.5%
-02%
-02.5%
-02.5%
-02%
-02.5%
-02.5%
-02



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 TOP VAULT SLAB - SECTION D - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - INDICATES BOTTOM BAR.
4. ——— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.

TYPICAL REINFORCING AT COLUMNS (UON SEE PLAN)

TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)



NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

No.	Date	Revisions	App.

FRACTAL

Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen

FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEER, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - REINFORCING - SECTION D

WBS NO. M-430296-0017-3

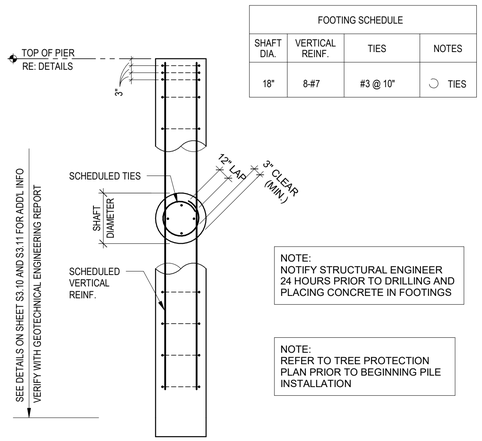
As indicated

S2.02DR

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 73 OF 343

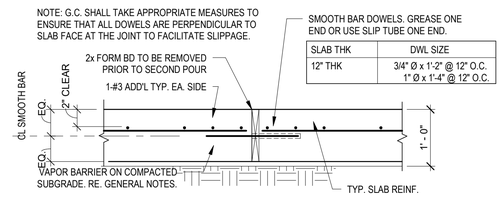


FOOTING SCHEDULE			
SHAFT DIA.	VERTICAL REINF.	TIES	NOTES
18"	8-#7	#3 @ 10"	○ TIES

NOTE:
NOTIFY STRUCTURAL ENGINEER 24 HOURS PRIOR TO DRILLING AND PLACING CONCRETE IN FOOTINGS

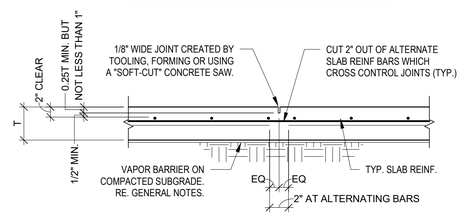
NOTE:
REFER TO TREE PROTECTION PLAN PRIOR TO BEGINNING PILE INSTALLATION

1 AUGER CAST SOLDIER PILE DETAIL
SCALE: 3/4" = 1'-0"



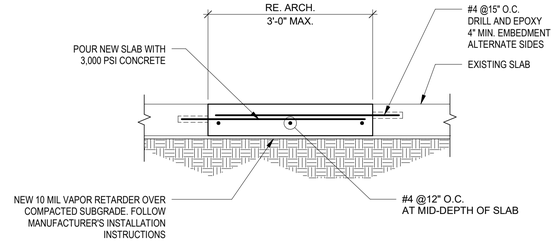
SLAB THK	DWL SIZE
12" THK	3/4" Ø x 1'-2" @ 12" O.C. 1" Ø x 1'-4" @ 12" O.C.

TYPICAL CONSTRUCTION JOINT

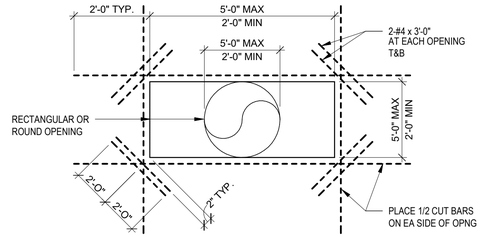


TYPICAL CONTROL JOINT

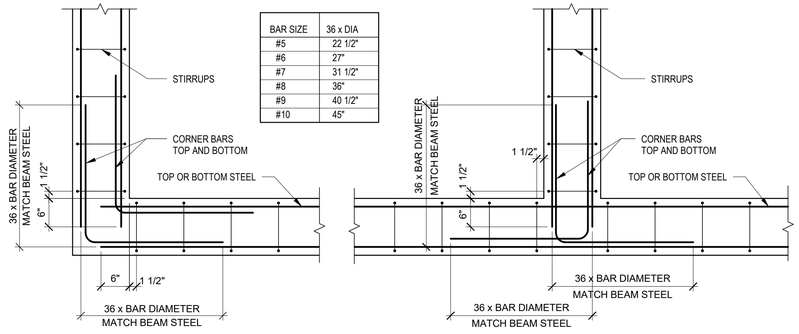
2 TYP. CONSTRUCTION/CONTROL JOINT
SCALE: 3/4" = 1'-0"



3 SLAB CUT OUT
SCALE: 1" = 1'-0"



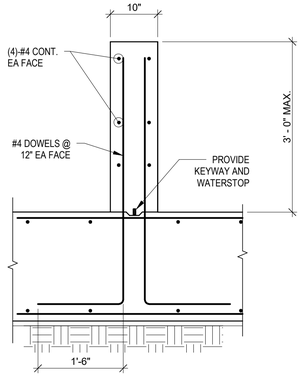
4 OPENING IN SLAB ON GRADE
SCALE: 3/4" = 1'-0"



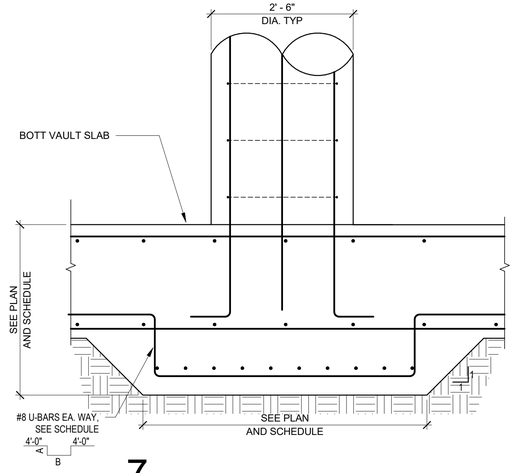
BAR SIZE	36 x DIA
#5	22 1/2"
#6	27"
#7	31 1/2"
#8	36"
#9	40 1/2"
#10	45"

PLAN AT **PLAN AT**

5 STANDARD GRADE BEAM/WALL CORNER BAR PLACEMENT
SCALE: 3/4" = 1'-0"



6 SECTION AT SEDIMENTATION WALL
SCALE: 3/4" = 1'-0"



7 SECTION AT COLUMN BASE
SCALE: 3/4" = 1'-0"

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CONCRETE DETAILS

WBS NO. M-430296-0017-3

As indicated

S3.00

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 74 OF 343

TENSION DEVELOPMENT LENGTH ('ℓd')

(FOR GRADE 60 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)

BAR SIZE	f'c= 3000 PSI		f'c= 4000 PSI		f'c= 5000 PSI		f'c= 6000 PSI		f'c= 7000 PSI		f'c= 8000 PSI	
	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT
#3	1'-9"	1'-4"	1'-6"	1'-2"	1'-5"	1'-1"	1'-3"	1'-0"	1'-2"	1'-0"	1'-1"	1'-0"
#4	2'-4"	1'-10"	2'-1"	1'-7"	1'-10"	1'-5"	1'-8"	1'-3"	1'-7"	1'-2"	1'-5"	1'-1"
#5	3'-0"	2'-3"	2'-7"	2'-0"	2'-4"	1'-9"	2'-1"	1'-7"	2'-0"	1'-6"	1'-10"	1'-5"
#6	3'-7"	2'-9"	3'-1"	2'-4"	2'-9"	2'-1"	2'-6"	1'-11"	2'-4"	1'-10"	2'-2"	1'-8"
#7	5'-2"	4'-0"	4'-6"	3'-6"	4'-0"	3'-1"	3'-8"	2'-10"	3'-5"	2'-8"	3'-2"	2'-5"
#8	5'-11"	4'-7"	5'-2"	3'-11"	4'-7"	3'-6"	4'-2"	3'-3"	4'-0"	3'-1"	3'-8"	2'-10"
#9	6'-8"	5'-2"	5'-9"	4'-5"	5'-2"	4'-0"	4'-9"	3'-8"	4'-5"	3'-5"	4'-1"	3'-2"
#10	7'-6"	5'-10"	6'-6"	5'-0"	5'-10"	4'-6"	5'-4"	4'-1"	5'-0"	3'-10"	4'-7"	3'-7"
#11	8'-4"	6'-5"	7'-3"	5'-7"	6'-6"	5'-0"	5'-11"	4'-7"	5'-6"	4'-3"	5'-1"	3'-11"

NOTES:
1. TABULATED VALUES ARE APPLICABLE ONLY IF CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 'db', CLEAR COVER IS NOT LESS THAN 'db', AND STIRRUPS OR TIES THROUGHOUT 'ld' IS NOT LESS THAN CODE MINIMUM, OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2"db' AND CLEAR COVER IS NOT LESS THAN 'db'. FOR OTHER CASES, MULTIPLY TABULATED VALUES BY 1.5.
2. 'TOP' BARS ARE HORIZONTAL REBARS WITH MORE THAN 12 IN OF FRESH CONCRETE CAST BELOW THE BARS AT THE DEVELOPEMENT LENGTH.
3. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
4. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.5 FOR BOT BARS, OR BY 1.3 FOR TOP BARS.
5. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATIO OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.

1 TENSION DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

TENSION LAP SPLICES-CLASS B-TOP & BOT BARS

(FOR GRADE 60 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)

BAR SIZE	f'c= 3000 PSI		f'c= 4000 PSI		f'c= 5000 PSI		f'c= 6000 PSI		f'c= 7000 PSI		f'c= 8000 PSI	
	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT
#3	2'-4"	1'-9"	2'-0"	1'-6"	1'-10"	1'-5"	1'-8"	1'-4"	1'-7"	1'-4"	1'-5"	1'-4"
#4	3'-1"	2'-4"	2'-8"	2'-1"	2'-5"	1'-10"	2'-2"	1'-8"	2'-1"	1'-7"	1'-11"	1'-5"
#5	3'-10"	3'-0"	3'-4"	2'-7"	3'-0"	2'-4"	2'-9"	2'-1"	2'-7"	2'-0"	2'-4"	1'-10"
#6	4'-8"	3'-7"	4'-0"	3'-1"	3'-7"	2'-9"	3'-3"	2'-6"	2'-11"	2'-4"	2'-10"	2'-2"
#7	6'-9"	5'-2"	5'-10"	4'-6"	5'-3"	4'-0"	4'-9"	3'-8"	4'-6"	3'-5"	4'-2"	3'-2"
#8	7'-9"	5'-11"	6'-8"	5'-2"	6'-0"	4'-7"	5'-5"	4'-2"	5'-1"	3'-11"	4'-9"	3'-8"
#9	8'-8"	6'-8"	7'-6"	5'-9"	6'-9"	5'-2"	6'-2"	4'-9"	5'-9"	4'-5"	5'-4"	4'-1"
#10	9'-10"	7'-6"	8'-6"	6'-6"	7'-7"	5'-10"	6'-11"	5'-4"	6'-6"	5'-0"	6'-0"	4'-7"
#11	10'-11"	8'-4"	9'-5"	7'-3"	8'-5"	6'-6"	7'-8"	5'-11"	7'-2"	5'-6"	6'-8"	5'-1"

NOTES:
1. TABULATED VALUES ARE APPLICABLE ONLY IF CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 'db', CLEAR COVER IS NOT LESS THAN 'db', AND STIRRUPS OR TIES THROUGHOUT 'ld' IS NOT LESS THAN CODE MINIMUM, OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2"db' AND CLEAR COVER IS NOT LESS THAN 'db'. FOR OTHER CASES, MULTIPLY TABULATED VALUES BY 1.5.
2. 'TOP' BARS ARE HORIZONTAL REBARS WITH MORE THAN 12 IN OF FRESH CONCRETE CAST BELOW THE BARS AT THE DEVELOPEMENT LENGTH.
3. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
4. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.5 FOR BOT BARS, OR BY 1.3 FOR TOP BARS.
5. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATIO OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.
6. FOR CLASS 'A' SPLICE USE SAME AS TENSION DEVELOPMENT LENGTH.

2 TENSION LAP SPLICE LENGTH TABLE

SCALE: 3/4" = 1'-0"

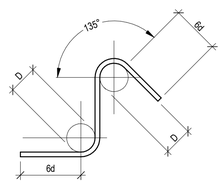
COMPRESSION DEVELOPMENT LENGTH ('ℓc') AND COMPRESSION LAP SPLICES (C)

(FOR GRADE 60 & 75 UNCOATED BARS IN NORMAL WEIGHT CONCRETE-f'c=3000 PSI MIN)

BAR SIZE	GRADE 60		GRADE 75	
	'ℓc'	C	'ℓc'	C
#3	1'-0"	1'-0"	1'-0"	1'-5"
#4	1'-0"	1'-3"	1'-2"	1'-10"
#5	1'-2"	1'-7"	1'-6"	2'-4"
#6	1'-5"	1'-11"	1'-9"	2'-9"
#7	1'-8"	2'-3"	2'-1"	3'-3"
#8	1'-10"	2'-6"	2'-4"	3'-8"
#9	2'-1"	2'-10"	2'-8"	4'-2"
#10	2'-4"	3'-3"	2'-11"	4'-8"
#11	2'-7"	3'-7"	3'-3"	5'-2"
#14	3'-2"		3'-11"	
#18	4'-2"		5'-3"	

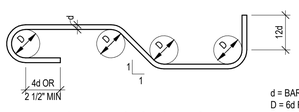
3 COMPRESSION DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

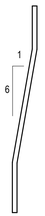


BAR	D
#3	1 1/2"
#4	2"
#5	2 1/2"
#6	6d
#7	6d
#8	6d

FOR STIRRUPS AND TIES



FOR REINFORCING BARS



OFFSET

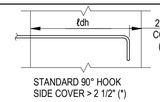
d = BAR DIAMETER
D = 6d FOR #3 THRU #8
D = 8d FOR #9 THRU #11

4 BAR BENDING

SCALE: 3/4" = 1'-0"

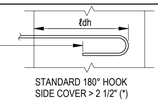
'ℓdh' TENSION DEVELOPMENT LENGTH (EMBEDMENT LENGTH) FOR STANDARD END HOOKS

(FOR GRADE 60 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)



STANDARD 90° HOOK
SIDE COVER > 2 1/2" (*)

2" MIN COVER ON EXPOSED SURFACES. INCREASE 'ℓdh' DIMENSION IF NECESSARY. (*)



STANDARD 180° HOOK
SIDE COVER > 2 1/2" (*)

BAR SIZE	f'c= 3000 PSI	f'c= 4000 PSI	f'c= 5000 PSI	f'c= 6000PSI	f'c= 7000 PSI	f'c= 8000 PSI
	ℓdh	ℓdh	ℓdh	ℓdh	ℓdh	ℓdh
#3	6"	6"	6"	6"	6"	6"
#4	8"	7"	6"	6"	6"	6"
#5	10"	9"	8"	7"	7"	6"
#6	1'-0"	10"	9"	9"	8"	7"
#7	1'-2"	1'-0"	11"	10"	9"	9"
#8	1'-4"	1'-2"	1'-0"	11"	10"	10"
#9	1'-6"	1'-3"	1'-2"	1'-1"	1'-0"	11"
#10	1'-8"	1'-5"	1'-4"	1'-2"	1'-1"	1'-0"
#11	1'-10"	1'-7"	1'-5"	1'-4"	1'-3"	1'-1"

NOTES:
1. (*) WHEN EITHER SIDE OR END COVER IS SMALLER THAN THESE NUMBERS, MULTIPLY 'ldh' BY 1.4.
2. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
3. FOR EPOXY COATED BARS MULTIPLY THE tABULATED VALUES BY 1.2.
4. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATION OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.

5 STANDARD HOOK DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONCRETE DETAILS

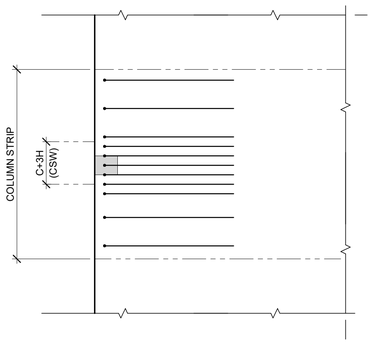
WBS NO. M-430296-0017-3

3/4" = 1'-0"

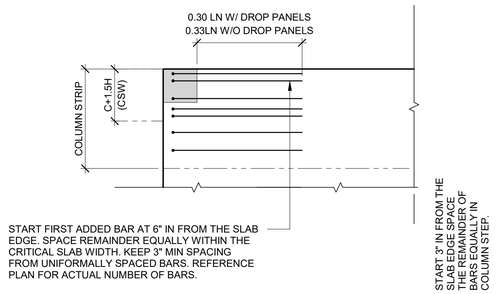
S3.01

CITY OF HOUSTON PM

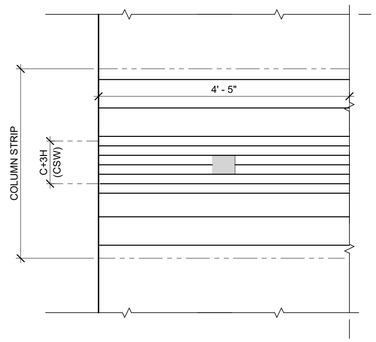
KEVIN HAMMOND, P.E.



A TOP BARS AT EDGE COLUMNS



B TOP BARS AT CORNER COLUMNS

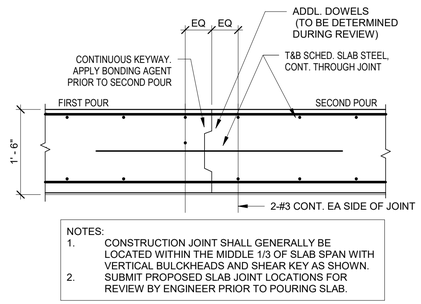


C TOP BARS AT INTERIORCOLUMNS

NOTES:
1. REFERENCE PLANS AND SCHEDULES FOR ACTUAL NUMBER OR SPACING OF BARS.
2. C= COLUMN DIMENSION DIRECTION SHOWN ABOVE. H = SLAB THICKNESS (INCLUDING DROP PANEL WHERE APPLICABLE.)
3. CSW STANDS FOR "CRITICAL SLAB WIDTH".
4. LN= CLEAR DISTANCE TO ADJACENT COLUMN.
5. PROVIDE HALF OF THE TOP & BOTTOM REINFORCEMEN IN THE COLUMN STRIP TO BE PLACED IN THE "CRITICAL SLAB WIDTH".

1 PLAN VIEW - TYPICAL TOP REINFORCEMENT FOR FLT PLATE AND FLAT SLAB

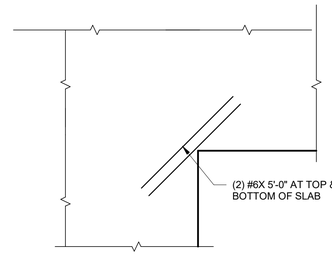
SCALE: 3/4" = 1'-0"



NOTES:
1. CONSTRUCTION JOINT SHALL GENERALLY BE LOCATED WITHIN THE MIDDLE 1/3 OF SLAB SPAN WITH VERTICAL BULCKHEADS AND SHEAR KEY AS SHOWN.
2. SUBMIT PROPOSED SLAB JOINT LOCATIONS FOR REVIEW BY ENGINEER PRIOR TO POURING SLAB.

2 TYP. FLAT PLATE AND FLAT SLAB CONSTRUCTION JOINT

SCALE: 3/4" = 1'-0"



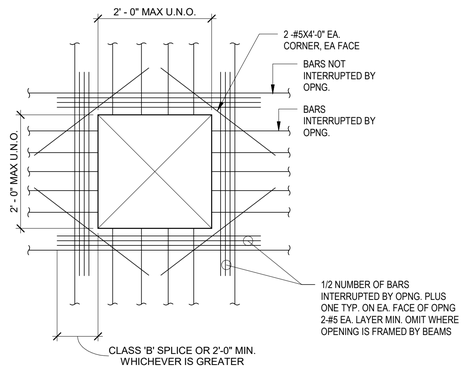
3 PLAN AT INSIDE CORNER AT FLAT PLATE

SCALE: 3/4" = 1'-0"

NOTE:
ALL OF THESE CONDITIONS NEED 1-#5 TOP & BOTTOM TRIM BARS ALL ARROUND EFFECTIVE OPENING WITH 1'-0" EMBEDMENT PAST THE OPENING EDGE. DIAGONAL BARS ARE NOT NECESSARY AT THESE CONDITIONS.

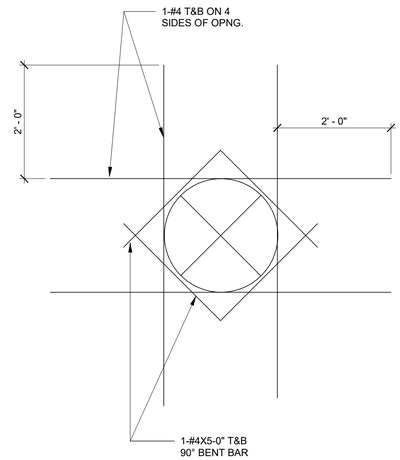
4 MULTIPLE SLAB OPENINGS

SCALE: 3/4" = 1'-0"

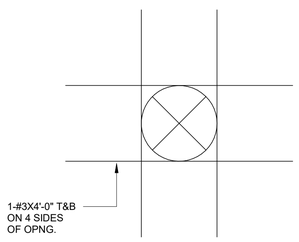


5 TYP. ADDITIONAL BAR PLACING DETAIL FOR SLAB OPENINGS

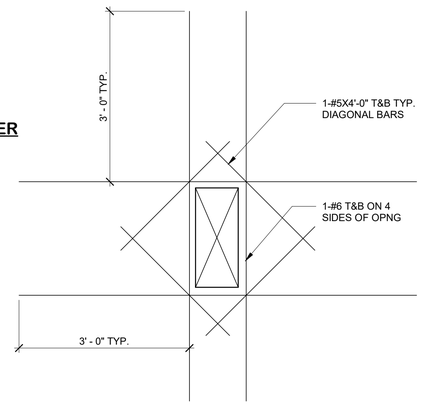
SCALE: 3/4" = 1'-0"



A SLEEVED OPENINGS OF 14" TO 28" DIAMETER



B SLEEVED OPENINGS OF 6" TO 12" DIAMETER



C RECTANGULAR OR SQUARE OPENING

6 MULTIPLE SLAB OPENINGS

SCALE: 3/4" = 1'-0"

NOTE:
THE GENERAL CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL & MECHANICAL DRAWINGS FOR REQD OPENINGS-WHETHER OR NOT SHOWN ON THESE DRAWINGS, AND SHALL VERIFY SIZE AND LOCATIONS OF ALL OPENINGS WITH MECHANICAL CONTRACTOR & STRUCTURAL ENGINEER.

No.	Date	Revisions	App.

FRACTAL

Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONCRETE DETAILS

WBS NO. M-430296-0017-3

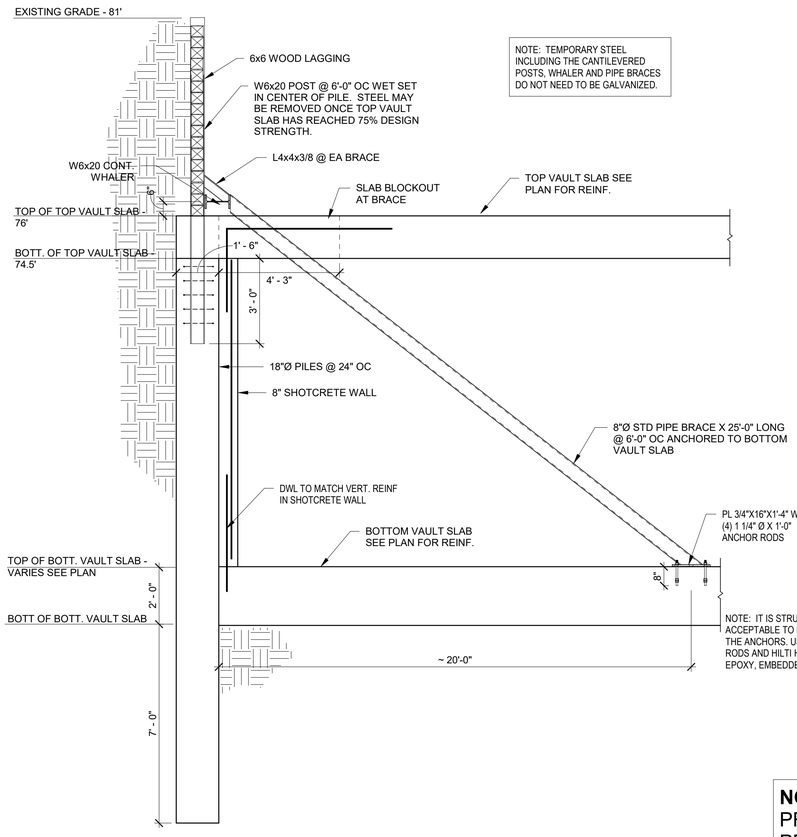
3/4" = 1'-0"

S3.02

CITY OF HOUSTON PM

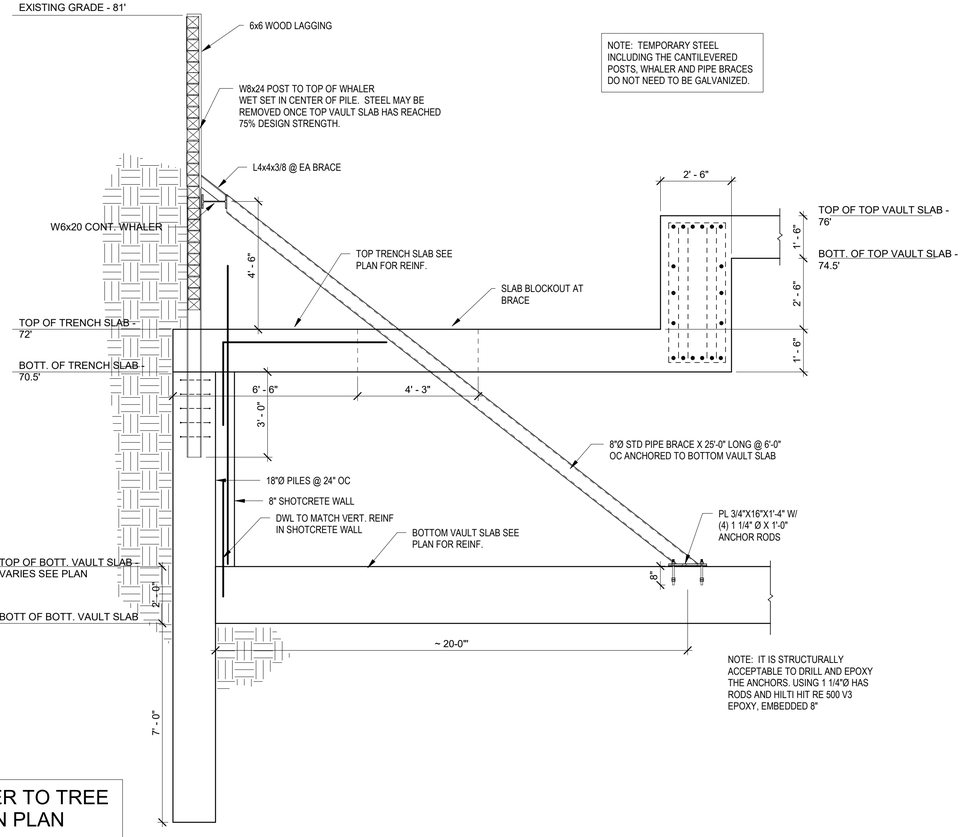
KEVIN HAMMOND, P.E.

SHEET NO. 76 OF 343



1 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

SCALE: 3/8" = 1'-0"

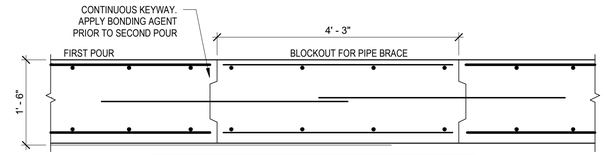


2 SOLDIER PILE WALL SECTION AT TRENCH @ BRACE LOCATION

SCALE: 3/8" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

SEE SHEET S3.11 FOR ADDITIONAL INFORMATION REGARDING PILES, POSTS AND LAGGING



NOTES:
1. SEE SECTIONS 1 AND 2 FOR LOCATION OF BLOCKOUT
2. BLOCKOUT TO BE 2'-0" WIDE

3 BLOCKOUT POUR BACK DETAIL

SCALE: 3/4" = 1'-0"

No.	Date	Revisions	App.

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

FOUNDATION DETAILS

WBS NO. M-430296-0017-3

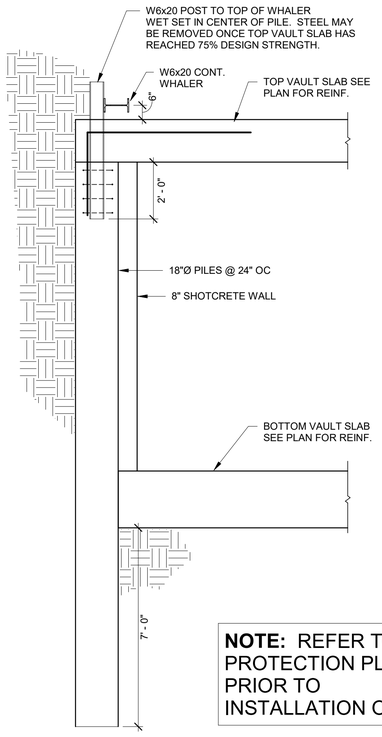
As indicated

S3.10

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

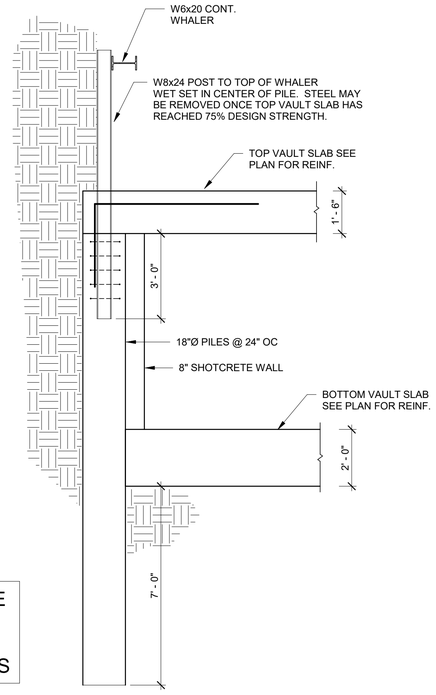
SHEET NO. 77 OF 343



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

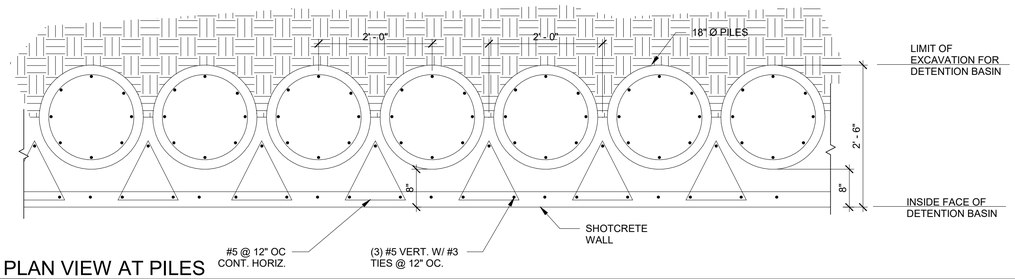
1 TYPICAL SOLDIER PILE WALL SECTION

SCALE: 3/8" = 1'-0"



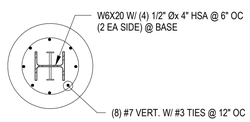
2 TYPICAL SOLDIER PILE WALL SECTION @ TRENCH

SCALE: 3/8" = 1'-0"



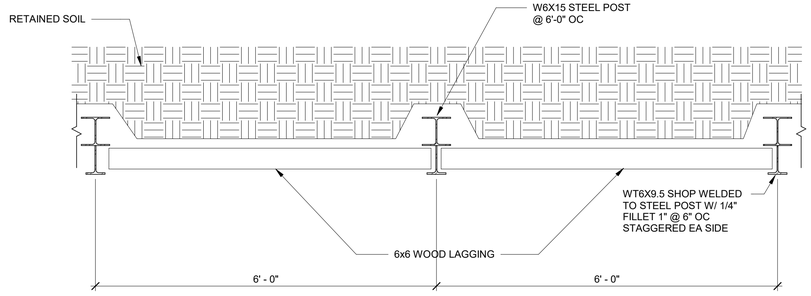
5 PLAN VIEW AT PILES

SCALE: 3/4" = 1'-0"



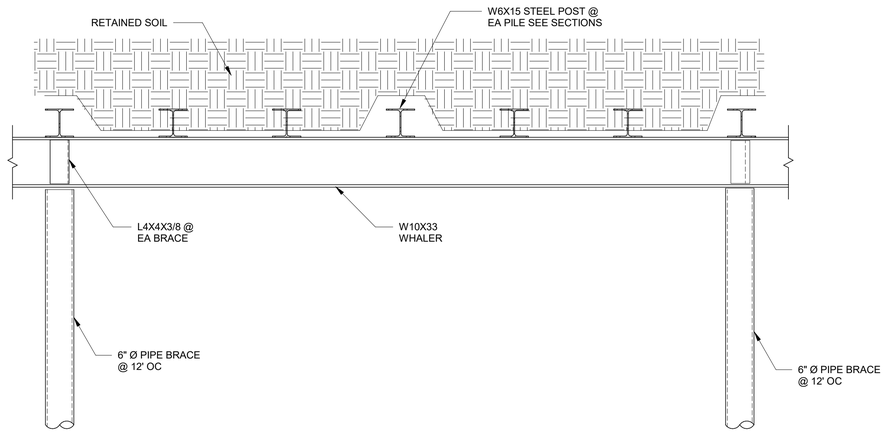
6 CROSS SECTION OF PILE WITH EMBEDDED STEEL POST

SCALE: 3/4" = 1'-0"



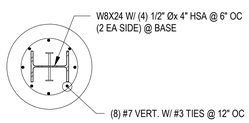
3 PLAN VIEW AT WOOD LAGGING WITH SUPPORT POSTS @ 6'-0" OC

SCALE: 3/4" = 1'-0"



4 PLAN VIEW AT WHALER ELEVATION

SCALE: 3/4" = 1'-0"



8 CROSS SECTION OF PILE WITH EMBEDDED STEEL POST

SCALE: 3/4" = 1'-0"

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PH: 832.318.8800
FAX: 713.965.0044

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P.E. REGISTRATION NO.98553
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

FOUNDATION DETAILS

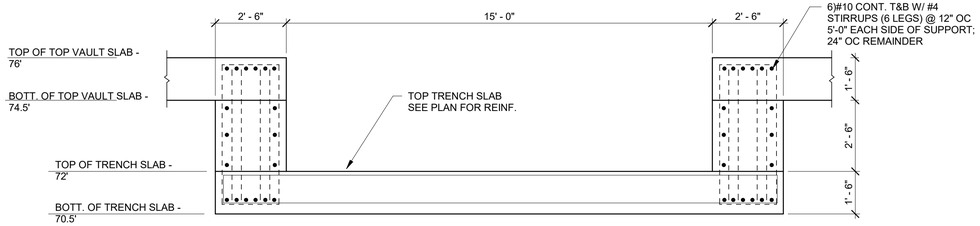
WBS NO. M-430296-0017-3

As indicated

S3.11

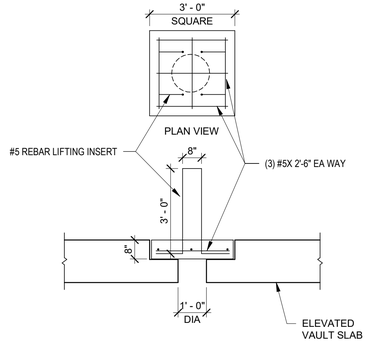
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.



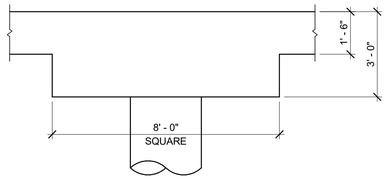
1 TRENCH SECTION

SCALE: 3/8" = 1'-0"



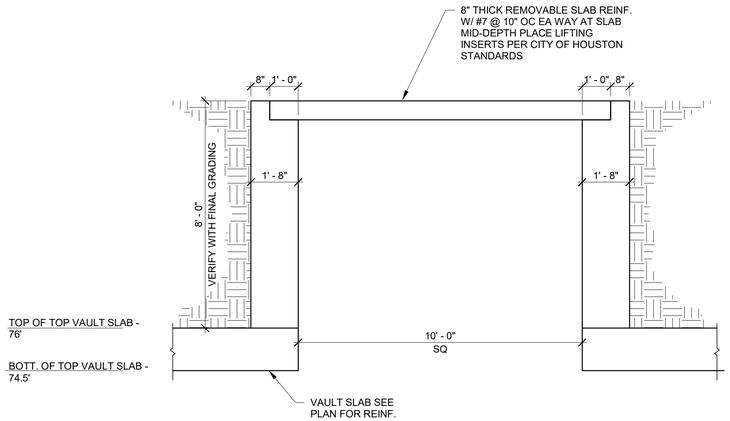
2 SECTION AT FUTURE INLET

SCALE: 3/8" = 1'-0"



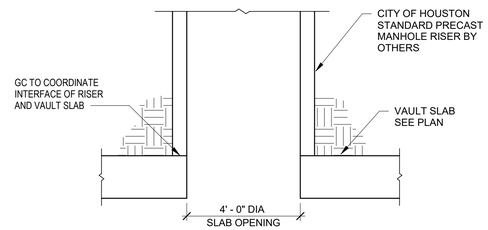
3 SECTION AT COLUMN

SCALE: 3/8" = 1'-0"



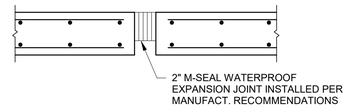
4 SECTION AT MAINTENANCE OPENING

SCALE: 3/8" = 1'-0"



5 SECTION AT ACCESS MANHOLE

SCALE: 3/8" = 1'-0"



6 SLAB @ EXPANSION JOINT

SCALE: 3/8" = 1'-0"

No.	Date	Revisions	App.

FRACTAL

Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

VAULT DETAILS

WBS NO. M-430296-0017-3

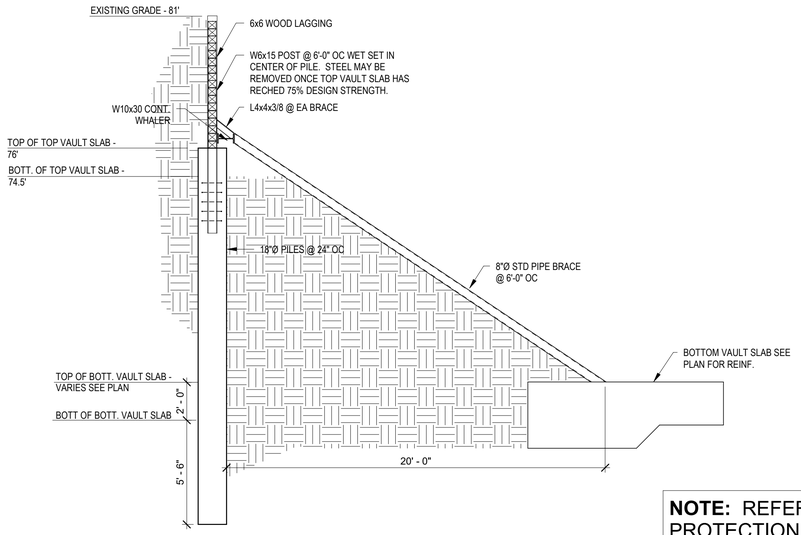
3/8" = 1'-0"

S3.12

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

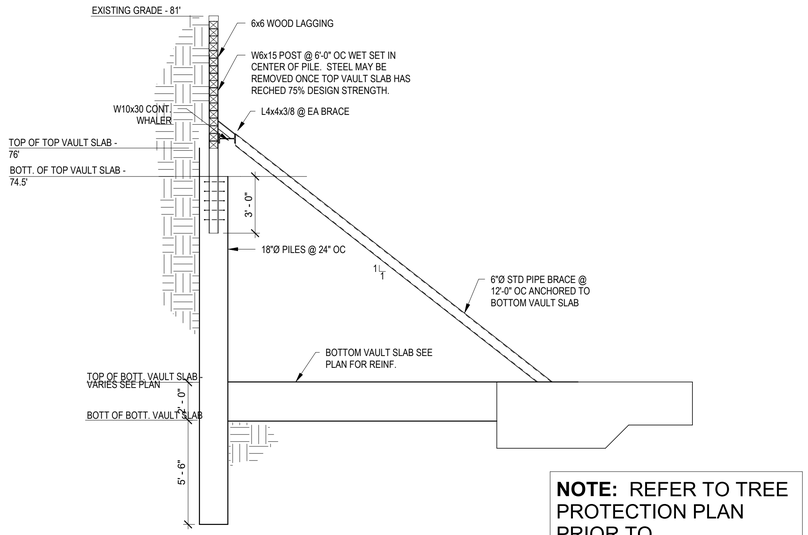
SHEET NO. 79 OF 343



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

1 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

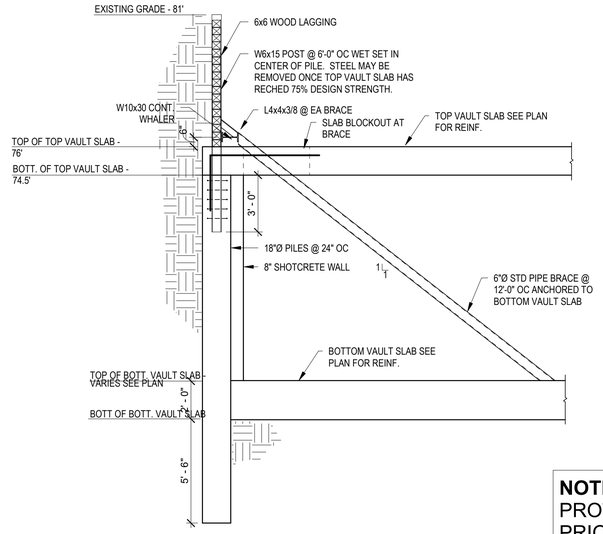
SCALE: 1/4" = 1'-0"



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

2 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

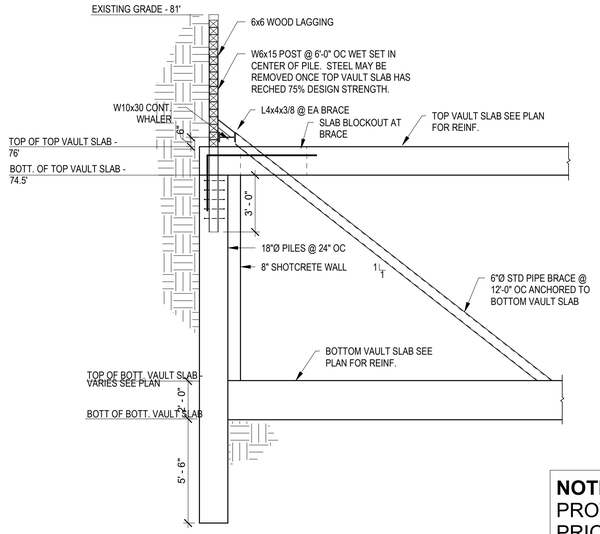
SCALE: 1/4" = 1'-0"



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

3 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

SCALE: 1/4" = 1'-0"



NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

4 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

SCALE: 1/4" = 1'-0"

SEE SHEET S3.11 FOR ADDITIONAL INFORMATION REGARDING PILES, POSTS AND LAGGING

No.	Date	Revisions	App.

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DATE:

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

FOUNDATION DETAILS

WBS NO. M-430296-0017-3

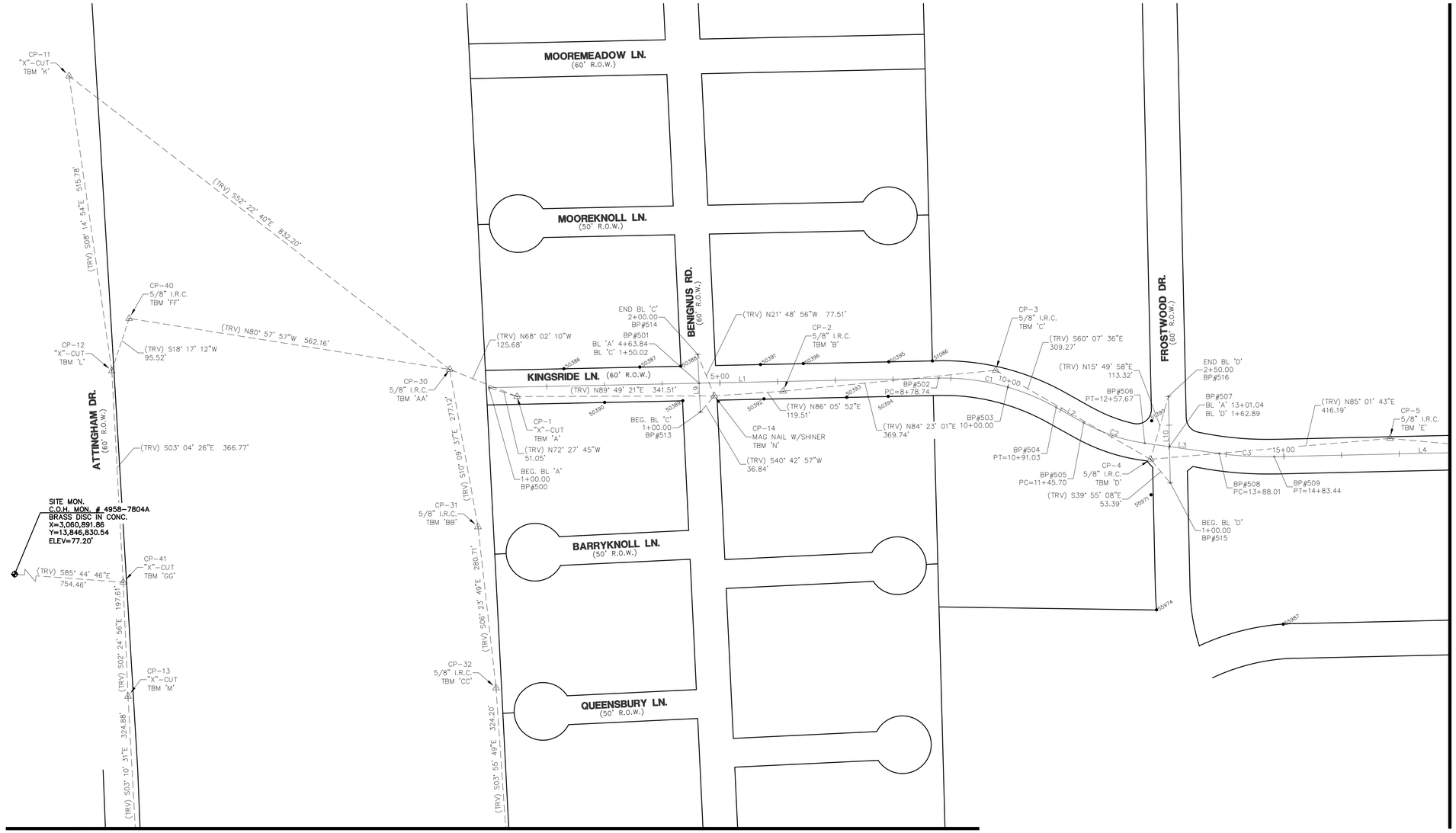
1/4" = 1'-0"

S3.13

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 80 OF 343



MATCHLINE 'B'
(SEE SHEET 3 OF 5)

MATCHLINE 'A'
(SEE SHEET 2 OF 5)

SEE SHEET 4 OF 5
LINE & CURVE TABLE

SCALE: 1" = 100'

LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL.) N 00° 00' 00" E. BASELINE
- 50969 CONTROL MONUMENTS

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

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

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

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SURVEY CONTROL MAP
SHEET 1 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 81 OF 343	

60% SUBMITTAL

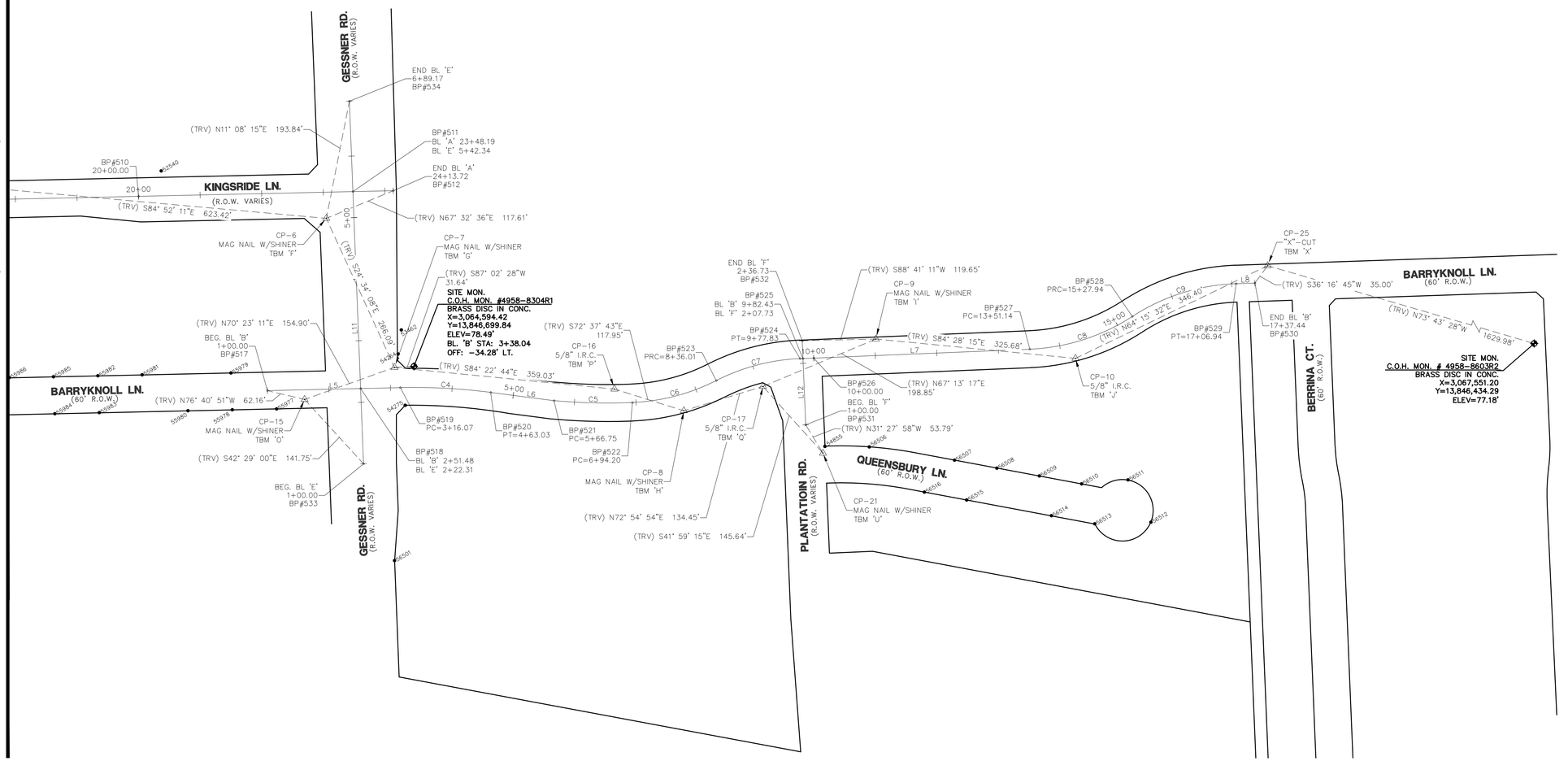
PLOTTED: 2/4/2026 11:28 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 1.dwg

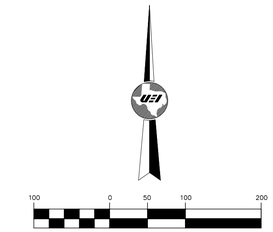
PLOTTED: 2/4/2026 11:28 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 2.dwg

MATCHLINE 'A'
(SEE SHEET 1 OF 5)



SEE SHEET 4 OF 5
LINE & CURVE TABLE



LEGEND:

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

GENERAL NOTES:

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

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

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

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10178-00
9301 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TEXAS 77074
TEL (713) 271-2900 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

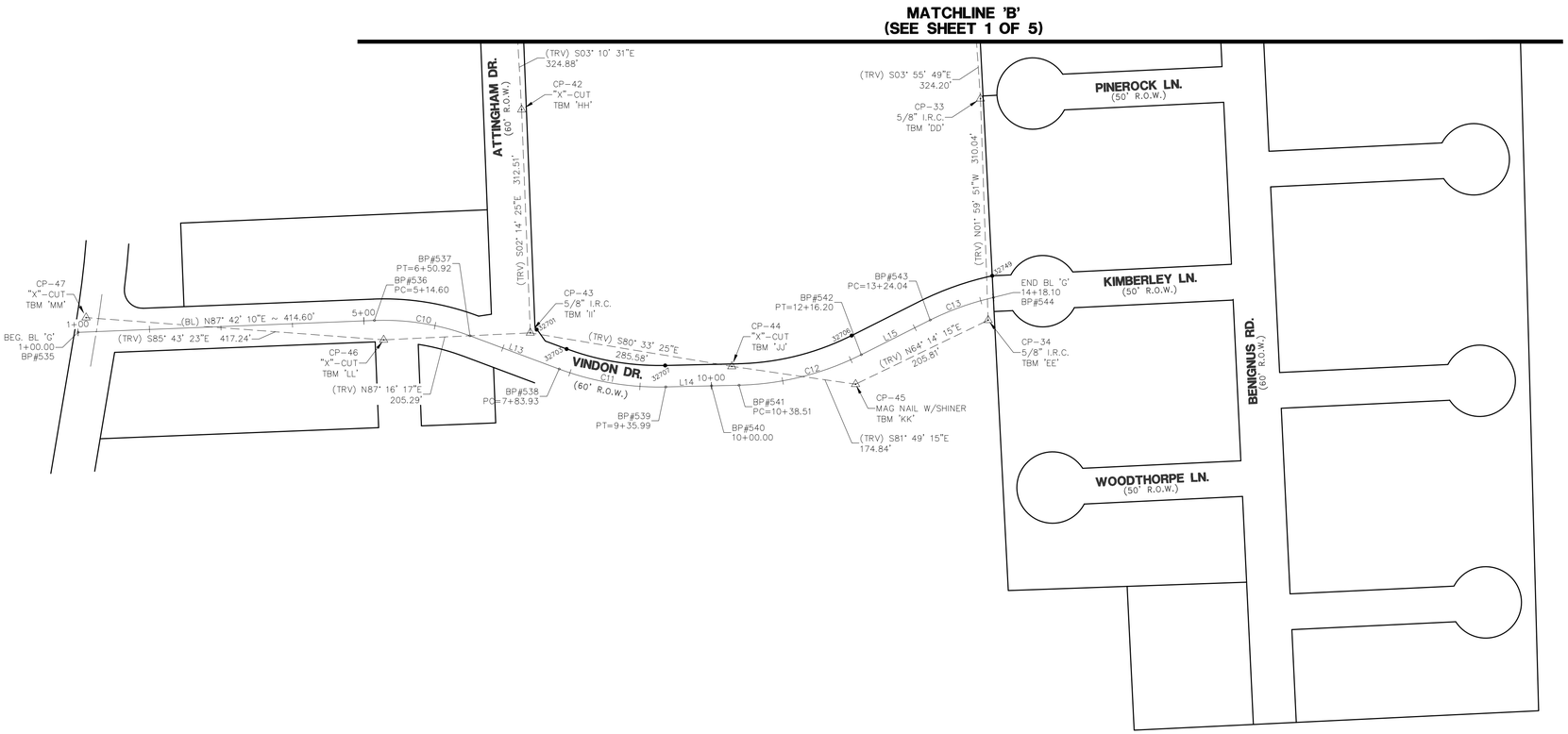
GENERAL
SURVEY CONTROL MAP
SHEET 2 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 82 OF 343	

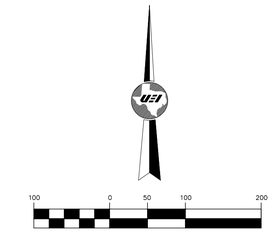
60% SUBMITTAL

PLOTTED: 2/4/2026 11:29 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 3.dwg



SEE SHEET 4 OF 5
LINE & CURVE TABLE



LEGEND:

- HCAD PROPERTY LINE
- EASEMENT (10' U.E.)
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL) N 00° 00' 00" E. BASELINE
- CONTROL MONUMENTS (12869)

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

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SURVEYED BY: UEI
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SURVEY CONTROL MAP
SHEET 3 OF 5

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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
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FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 4.dwg

TSARP CONVERSION REFERENCE MONUMENT

(TSARP) HARRIS COUNTY FLOODPLAIN REFERENCE MARK NUMBER 210155:
FLOOD PLAIN REFERENCE MARK, BRASS DISK STAMPED W100 BM05.
FROM THE INTERSECTION OF BRIAR HILL DRIVE AND SAM HOUSTON TOLL ROAD,
TRAVEL SAM HOUSTON TOLL ROAD FEEDER APPROXIMATELY 150 FEET TO BRIDGE.
MONUMENT IS LOCATED ON DOWNSTREAM CENTERLINE OF BRIDGE.
PUBLISHED ELEV= 70.12 (NAVD 1988, 2001 ADJ.)
OBSERVED ELEV= 69.90 (NAVD 1988, CORS '96) GD 12B

PROJECT SITE MONUMENT:

SITE MONUMENT #9458-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV= 77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

SITE MONUMENT #9458-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED AT NORTHEAST
CORNER OF GESSNER ROAD AND BARRYKNOLL LANE.
ELEV= 78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

SITE MONUMENT #9458-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED AT SOUTHWEST
CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV= 77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

TBM LIST:

TBM 'A', CP-1, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 79.85'

TBM 'B', CP-2, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.31'

TBM 'C', CP-3, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 80.41'

TBM 'D', CP-4, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.64'

TBM 'E', CP-5, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 80.17'

TBM 'F', CP-6, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.80'

TBM 'G', CP-7, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.02'

TBM 'H', CP-8, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.38'

TBM 'I', CP-9, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.81'

TBM 'J', CP-10, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.32'

TBM 'K', CP-11, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.62'

TBM 'L', CP-12, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.98'

TBM 'M', CP-13, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 77.94'

TBM 'N', CP-14, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.15'

TBM 'O', CP-15, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.52'

TBM 'P', CP-16, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.71'

TBM 'Q', CP-17, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.48'

TBM 'U', CP-21, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 77.89'

TBM 'X', CP-25, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.89'

TBM 'AA', CP-30, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.96'

TBM 'BB', CP-31, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.74'

TBM 'CC', CP-32, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.20'

TBM 'DD', CP-33, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.83'

TBM 'EE', CP-34, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.87'

TBM 'FF', CP-40, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.52'

TBM 'GG', CP-41, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.79'

TBM 'HH', CP-42, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.15'

TBM 'II', CP-43, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 75.86'

TBM 'JJ', CP-44, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 76.86'

TBM 'KK', CP-45, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 77.54'

TBM 'LL', CP-46, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 74.63'

TBM 'MM', CP-47, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 74.57'

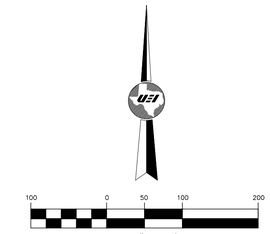
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	1+48.34	16.41'R	A	13,847,096.21'	3,062,326.13'	79.85'	SET X-CUT
2	6+09.16	16.99'R	A	13,847,105.40'	3,062,786.81'	79.31'	SET 5/8"I.R.C.
3	9+73.27	23.15'L	A	13,847,141.58'	3,063,154.74'	80.41'	SET 5/8"I.R.C.
4	12+71.48	26.21'R	A	13,846,987.55'	3,063,422.89'	79.64'	SET 5/8"I.R.C.
5	16+84.52	27.01'L	A	13,847,023.62'	3,063,837.47'	80.17'	SET 5/8"I.R.C.
6	23+04.06	42.50'R	A	13,846,967.88'	3,064,458.32'	78.80'	SET MAG NAIL
14	4+89.79	22.59'R	A	13,847,097.27'	3,062,667.59'	78.15'	SET MAG NAIL
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
7	3+07.18	33.09'L	B	13,846,725.90'	3,064,568.95'	78.02'	SET MAG NAIL
8	7+71.58	26.49'R	B	13,846,655.53'	3,065,038.77'	78.38'	SET MAG NAIL
9	11+02.06	26.82'L	B	13,846,772.00'	3,065,350.59'	78.81'	SET MAG NAIL
10	14+19.87	25.57'R	B	13,846,740.62'	3,065,674.72'	79.32'	SET 5/8"I.R.C.
15	1+60.15	15.66'R	B	13,846,673.91'	3,064,423.05'	78.52'	SET MAG NAIL
16	6+65.33	22.67'L	B	13,846,690.74'	3,064,926.22'	77.71'	SET 5/8"I.R.C.
17	9+07.59	35.93'R	B	13,846,695.02'	3,065,167.27'	78.48'	SET 5/8"I.R.C.
25	17+59.10	27.50'L	B	13,846,891.05'	3,065,986.71'	78.89'	SET X-CUT
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
21			F	13,846,586.78'	3,065,264.69'	77.89'	SET MAG NAIL
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
34	14+02.82	29.05'R	G	13,845,958.31'	3,062,322.76'	77.87'	SET 5/8"I.R.C.
43	7+28.59	33.34'L	G	13,845,940.59'	3,061,682.69'	75.86'	SET 5/8"I.R.C.
44	10+29.12	26.65'L	G	13,845,893.74'	3,061,964.37'	76.86'	SET X-CUT
45	11+92.57	33.97'R	G	13,845,868.87'	3,062,137.42'	77.54'	SET MAG NAIL
46	5+27.65	27.38'R	G	13,845,930.82'	3,061,477.66'	74.63'	SET X-CUT
47	1+12.11	20.17'L	G	13,845,961.93'	3,061,061.63'	74.57'	SET X-CUT
HORIZONTAL AND VERTICAL TRAVERSE TABLE							
POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
11				13,847,651.18'	3,061,550.50'	78.62'	SET X-CUT
12				13,847,140.79'	3,061,624.49'	78.98'	SET X-CUT
13				13,846,577.17'	3,061,652.48'	77.94'	SET X-CUT
30				13,847,143.21'	3,062,209.58'	79.96'	SET 5/8"I.R.C.
31				13,846,870.47'	3,062,258.46'	79.74'	SET 5/8"I.R.C.
32				13,846,591.53'	3,062,289.73'	78.20'	SET 5/8"I.R.C.
33				13,846,268.13'	3,062,311.95'	78.83'	SET 5/8"I.R.C.
40				13,847,231.47'	3,061,654.46'	79.52'	SET 5/8"I.R.C.
41				13,846,774.58'	3,061,644.16'	78.49'	SET X-CUT
42				13,846,252.82'	3,061,670.48'	78.15'	SET X-CUT

RIGHT OF WAY CONTROL MONUMENT TABLE					
POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
50386	2+30.47	30.00'L	A	1" IRON PIPE	CM
50390	2+99.75	29.76'R	A	3/8" IRON ROD	CM
50387	3+61.90	30.36'L	A	1" IRON PIPE	CM
50388	4+32.80	30.23'L	A	3/8" IRON ROD	CM
50389	4+35.09	29.74'R	A	3/8" IRON ROD	CM
50391	5+70.96	30.23'L	A	3/8" IRON ROD	CM
50392	5+75.65	29.41'R	A	3/8" IRON ROD	CM
50396	6+45.12	30.22'L	A	3/8" IRON ROD	CM
50393	7+18.98	29.80'R	A	3/8" IRON ROD	CM
50394	7+90.88	29.72'R	A	3/8" IRON ROD	CM
50395	7+93.12	30.17'L	A	3/8" IRON ROD	CM
51086	8+68.63	30.00'L	A	1" IRON PIPE	CM
51390	12+64.26	40.08'L	A	X	–
55971	12+80.74	86.92'R	A	5/8" IRON ROD W/CAP	–
55974	13+17.31	283.01'R	A	5/8" IRON ROD W/CAP	CM
55987	14+92.70	290.34'R	A	5/8" IRON ROD	CM
55986	17+83.57	289.49'R	A	1" IRON PIPE	CM
55985	18+55.37	289.72'R	A	1" IRON PIPE	CM
55984	18+56.25	349.77'R	A	3/8" IRON ROD	CM
55982	19+27.49	289.74'R	A	1" IRON PIPE	CM
55983	19+28.48	349.53'R	A	1" IRON PIPE	CM
55981	19+99.46	289.73'R	A	1" IRON PIPE	CM
52540	20+37.71	40.56'L	A	3/4" IRON ROD	–
55980	20+72.48	349.72'R	A	1" IRON PIPE	CM
55979	21+43.63	289.98'R	A	1" IRON PIPE	CM
55978	21+44.46	349.76'R	A	1" IRON PIPE	CM
RIGHT OF WAY CONTROL MONUMENT TABLE					
POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
55977	1+14.39	30.00'R	B	1" IRON PIPE	CM
54275	3+23.47	28.78'R	B	X	CM
54855	10+12.23	143.94'R	B	1" IRON PIPE	CM
56506	10+84.15	147.72'R	B	1" IRON PIPE	CM
56516	11+70.55	224.71'R	B	1" IRON PIPE	CM
56507	12+21.59	174.87'R	B	3/8" IRON ROD W/CAP	CM
56515	12+38.59	240.32'R	B	3/8" IRON ROD W/CAP	CM
56508	12+89.76	190.61'R	B	3/8" IRON ROD W/CAP	CM
56509	13+55.43	206.22'R	B	5/8" IRON ROD	CM
56514	13+64.27	271.94'R	B	1" IRON PIPE	CM
56510	13+95.80	226.89'R	B	1" IRON PIPE	CM
56513	14+00.85	294.60'R	B	3/8" IRON ROD W/CAP	CM
56511	14+39.60	238.77'R	B	3/8" IRON ROD W/CAP	CM
56512	14+47.01	315.66'R	B	5/8" IRON ROD	CM
RIGHT OF WAY CONTROL MONUMENT TABLE					
POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
56501			E	5/8" IRON ROD W/CAP	CM
54264	2+76.14	62.96'R	E	X	CM
53462	3+14.85	69.80'R	E	3/8" IRON ROD	–
RIGHT OF WAY CONTROL MONUMENT TABLE					
POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
32701	7+35.40	40.80'L	G	5/8" IRON ROD	CM
32703	7+84.01	29.94'L	G	5/8" IRON ROD	CM
32706	12+16.23	30.00'L	G	5/8" IRON ROD	CM
32707	9+35.99	30.00'L	G	5/8" IRON ROD	CM
32749	14+23.00	30.05'L	G	5/8" IRON ROD	CM

BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
500	1+00.00	A	13,847,111.59'	3,062,277.46'	MAG W/SHINER
501	4+63.84	A	13,847,119.30'	3,062,641.18'	5/8" I.R.C.
502	8+78.74	A	13,847,128.09'	3,063,055.94'	X-CUT
503	10+00.00	A	13,847,112.39'	3,063,175.70'	X-CUT
504	10+91.03	A	13,847,077.38'	3,063,259.50'	X-CUT
505	11+45.70	A	13,847,050.72'	3,063,307.22'	X-CUT
506	12+57.67	A	13,847,015.39'	3,063,412.79'	X-CUT
507	13+01.04	A	13,847,009.48'	3,063,455.74'	X-CUT
508	13+88.01	A	13,846,997.61'	3,063,541.89'	X-CUT
509	14+83.44	A	13,846,992.15'	3,063,637.05'	X-CUT
510	20+00.00	A	13,847,003.61'	3,064,153.43'	X-CUT
511	23+48.19	A	13,847,011.34'	3,064,501.50'	X-CUT
512	24+13.72	A	13,847,012.79'	3,064,567.00'	X-CUT
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
517	1+00.00	B	13,846,688.23'	3,064,362.57'	60D W/SHINER
518	2+51.48	B	13,846,691.59'	3,064,514.00'	X-CUT
519	3+16.07	B	13,846,693.02'	3,064,578.57'	X-CUT
520	4+63.03	B	13,846,685.24'	3,064,725.17'	X-CUT
521	5+66.75	B	13,846,671.98'	3,064,828.03'	X-CUT
522	6+94.20	B	13,846,668.83'	3,064,955.33'	60D W/SHINER
523	8+36.01	B	13,846,704.46'	3,065,091.45'	X-CUT
524	9+77.83	B	13,846,740.10'	3,065,227.58'	X-CUT
525	9+82.43	B	13,846,740.29'	3,065,232.18'	X-CUT
526	10+00.00	B	13,846,741.01'	3,065,249.73'	X-CUT
527	13+51.14	B	13,846,755.46'	3,065,600.53'	X-CUT
528	15+27.94	B	13,846,808.59'	3,065,766.93'	X-CUT
529	17+06.94	B	13,846,861.81'	3,065,935.53'	X-CUT
530	17+37.44	B	13,846,862.84'	3,065,966.01'	X-CUT
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
513	1+00.00	C	13,847,069.34'	3,062,643.56'	X-CUT
514	2+00.00	C	13,847,169.22'	3,062,638.79'	60D W/SHINER
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
515	1+00.00	D	13,846,946.61'	3,063,457.14'	X-CUT
516	2+50.00	D	13,847,096.56'	3,063,453.80'	X-CUT
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
533	1+00.00	E	13,846,569.39'	3,064,518.78'	X-CUT
534	6+89.17	E	13,847,158.05'	3,064,495.76'	X-CUT
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
531	1+00.00	F	13,846,632.66'	3,065,236.61'	60D W/SHINER
532	2+36.73	F	13,846,769.26'	3,065,230.98'	5/8" I.R.C.
BASELINE POINT TABLE					
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
535	1+00.00	G	13,845,941.30'	3,061,050.34'	X-CUT
536	5+14.60	G	13,845,957.91'	3,061,464.56'	X-CUT
537	6+50.92	G	13,845,936.52'	3,061,598.27'	X-CUT
538	7+83.93	G	13,845,890.00'	3,061,722.86'	X-CUT
539	9+35.99	G	13,845,864.93'	3,061,871.90'	X-CUT
540	10+00.00	G	13,845,866.42'	3,061,935.89'	X-CUT
541	10+38.51	G	13,845,867.32'	3,061,974.38'	X-CUT
542	12+16.20	G	13,845,910.06'	3,062,145.34'	X-CUT
543	13+24.04	G	13,845,958.55'	3,062,241.64'	X-CUT
544	14+18.10	G	13,845,990.05'	3,062,330.03'	X-CUT

ALIGNMENT CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	30°24'28"	400.00'	212.29'	S76° 00' 38"E ~ 209.80'
C2	21°23'09"	300.00'	111.98'	S71° 29' 59"E ~ 111.33'
C3	9°06'47"	600.00'	95.43'	S86° 42' 54"E ~ 95.33'
C4	8°37'04"	977.06'	146.96'	S86° 57' 46"E ~ 146.82'
C5	7°33'35"	965.96'	127.45'	S88° 34' 50"E ~ 127.36'
C6	24°37'15"	330.00'	141.81'	N75° 19' 43"E ~ 140.72'
C7	24°38'00"	329.87'	141.82'	N75° 19' 54"E ~ 140.73'
C8	30°41'47"	330.00'	176.80'	N72° 17' 32"E ~ 174.69'
C9	31°04'42"	330.00'	179.00'	N72° 29' 00"E ~ 176.81'
C10	22°46'20"	342.98'	136.32'	S80° 54' 40"E ~ 135.42'
C11	21°47'03"	399.94'	152.06'	S80° 26' 58"E ~ 151.14'
C12	25°27'28"	399.93'	177.70'	N75° 57' 46"E ~ 176.24'
C13	13°28'23"	400.00'	94.06'	N70° 22' 54"E ~ 93.84'

ALIGNMENT LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 88°47'08" E	778.74'
L2	S 60°48'24" E	54.67'
L3	S 82°09'31" E	130.34'
L4	N 88°43'42" E	930.27'
L5	N 88°43'42" E	216.07'
L6	S 82°39'14" E	103.72'
L7	N 87°38'26" E	373.31'
L8	N 88°03'26" E	30.50'
L9	N 02°44'07" W	100.00'
L10	N 01°16'37" W	150.00'
L11	N 02°14'20" W	589.17'
L12	N 02°21'34" W	136.73'
L13	S 69°31'30" E	133.01'
L14	N 88°39'57" E	102.52'
L15	N 63°16'28" E	107.84'



LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. — EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. — TRAVERSE LINE
- (BL) N 00° 00' 00" E. — BASELINE
- ● 10983 — CONTROL MONUMENTS

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

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

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

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

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

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

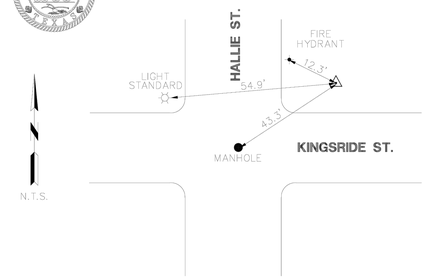
GENERAL
SURVEY CONTROL MAP
SHEET 4 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 84 OF 343	

60% SUBMITTAL

CITY OF HOUSTON

CITY SURVEY 4958-7804A
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,060,891.86
Y= 13,846,830.54

Keymap Page: 4958 C4
Orthometric Elevation = 77.20
Ellipsoid Height= -89.50
Geoid: GEOID 99
Datum Source & Adjustment:
NAD '83 (2001 ADJ.)

Lat.= N 29°38'09.10"
Lon.= W 95°20'20.94"

Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: NORTHEAST CORNER OF HALLIE DR. AND KINGSRIDE LN. INTERSECTION

Date Set: 12/15/2022 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-11, "X" CUT IN CONC. – N 38°45'01" E ~ 1052.38'
TO CP-12, "X" CUT IN CONC. – N 67°02'55" E ~ 795.70'
TO CP-13, "X" CUT IN CONC. – S 71°34'37" E ~ 801.80'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= Grid
S.F.

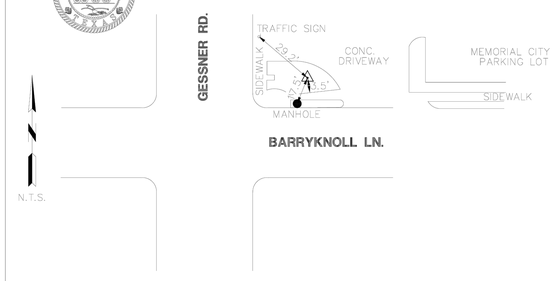
STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR 1-19-23

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

Date Observed: December 20, 2022

CITY OF HOUSTON

CITY SURVEY 4958-8304R1
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,064,600.55
Y= 13,846,727.54

Keymap Page: 4958-D-3
Orthometric Elevation = 78.49
Ellipsoid Height= -89.52
Geoid: GEOID 99
Datum Source & Adjustment:
NAD '83 (2001 ADJ.)

Lat.= N 29°46'41.84"
Lon.= W 95°32'29.10"

Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: AT THE NORTHEAST CORNER OF GESSNER RD. AND BARRYKNOLL LN.

Date Set: 02/23/2010 Type of Mark: BRASS DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-6, MAG NAIL W/SHINER – N 30°36'56" W ~ 279.30'
TO CP-7, MAG NAIL W/SHINER – S 87°02'28" W ~ 31.64'
TO CP-8, MAG NAIL W/SHINER – S 80°40'07" E ~ 444.15'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= Grid
S.F.

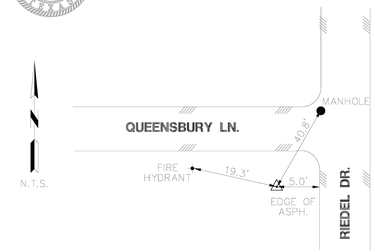
STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR 1-19-23

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

Date Revised: December 19, 2022

CITY OF HOUSTON

CITY SURVEY 4958-8603R2
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,067,551.20
Y= 13,846,434.29

Keymap Page: 490-F
Orthometric Elevation = 77.18
Ellipsoid Height= -89.53
Geoid: GEOID 99
Datum Source & Adjustment:
NAD '83 (2001 ADJ.)

Lat.= N 29°46'38.08"
Lon.= W 95°32'05.73"

Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: SOUTHWEST CORNER OF QUEENSBURYLN. AND RIEDEL DR. INTERSECTION

Date Set: 09/30/2008 Type of Mark: BRASS DISK IN CONC.

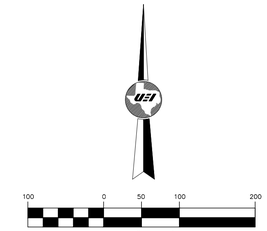
3 Nearest project control points (bearings and distances stated below):
TO CP-8, MAG NAIL W/SHINER – N 84°58'03" W ~ 2522.42'
TO CP-9, MAG NAIL W/SHINER – N 81°16'31" W ~ 2226.61'
TO CP-10, 5/8" IRON ROD W/CAP – N 80°43'41" W ~ 1901.52'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= Grid
S.F.

STATE OF TEXAS REGISTERED CHRISTIN MICHAEL NORRIS 6207 PROFESSIONAL LAND SURVEYOR 1-19-23

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

Date Revised: December 19, 2022



LEGEND:

- HCAD PROPERTY LINE
- 10' U.E. EASEMENT
- RIGHT-OF-WAY PROPERTY LINE
- (TRV.) N 00° 00' 00" E. TRAVERSE LINE
- (BL) N 00° 00' 00" E. BASELINE
- 10X10 CONTROL MONUMENTS

GENERAL NOTES:
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(BL) indicates Baseline Line
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Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
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W.L.E. indicates Water Line Easement
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S.S.E. indicates Sanitary Sewer Easement
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M.R.H.C. indicates Map Records Harris County
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NOTES:

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CERTIFICATION:

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

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

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SURVEY CONTROL MAP
SHEET 5 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 85 OF 343	

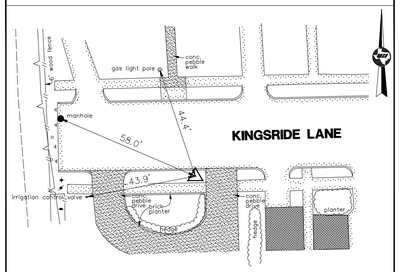
60% SUBMITTAL

PLOTTED: 2/4/2026 11:29 AM

FILE PATH: K:\CIV\222-101 – TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 5.dwg

STA: 1+48.34 BL "A"
OFFSET: 16.41' RT

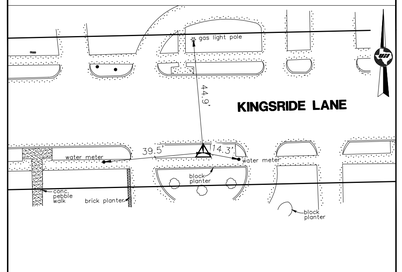
CONTROL PT. #1



SET: X-CUT

STA: 6+09.16 BL "A"
OFFSET: 16.99' RT

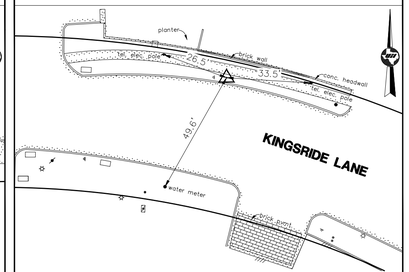
CONTROL PT. #2



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

STA: 9+73.27 BL "A"
OFFSET: 23.15' LT

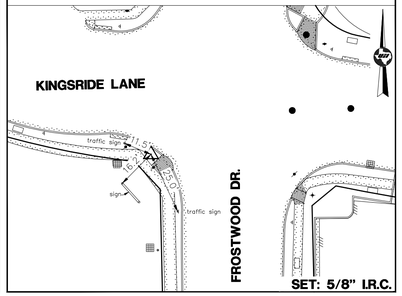
CONTROL PT. #3



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

STA: 12+71.48 BL "A"
OFFSET: 26.21' RT

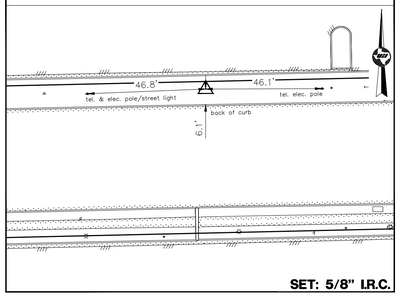
CONTROL PT. #4



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

STA: 16+84.52 BL "A"
OFFSET: 27.01' LT

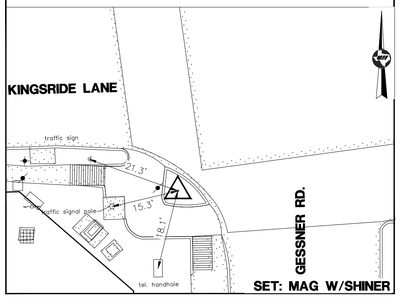
CONTROL PT. #5



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

STA: 23+04.06 BL "A"
OFFSET: 42.50' RT

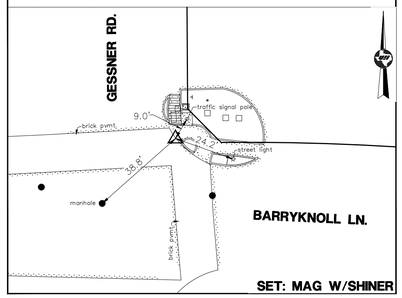
CONTROL PT. #6



SET: MAG W/SHINER

STA: 3+07.18 BL "B"
OFFSET: 33.09' LT

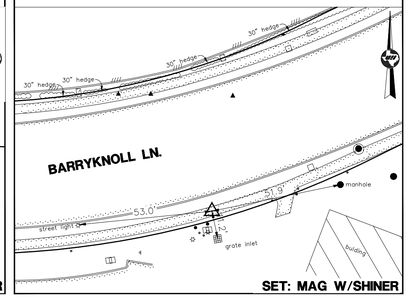
CONTROL PT. #7



SET: MAG W/SHINER

STA: 7+71.58 BL "B"
OFFSET: 26.49' RT

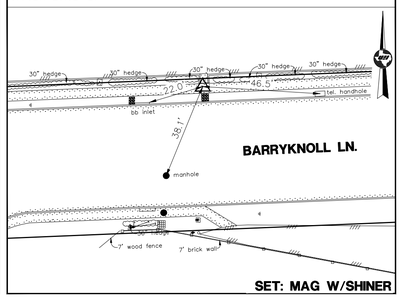
CONTROL PT. #8



SET: MAG W/SHINER

STA: 11+02.06 BL "B"
OFFSET: 26.82' LT

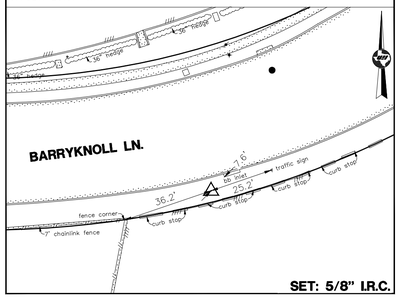
CONTROL PT. #9



SET: MAG W/SHINER

STA: 14+19.87 BL "B"
OFFSET: 25.57' RT

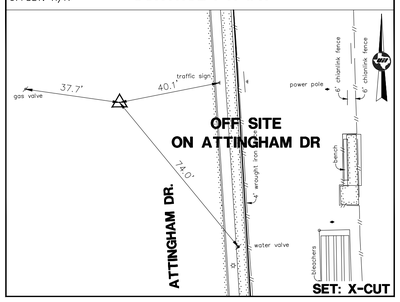
CONTROL PT. #10



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

STA: N/A
OFFSET: N/A

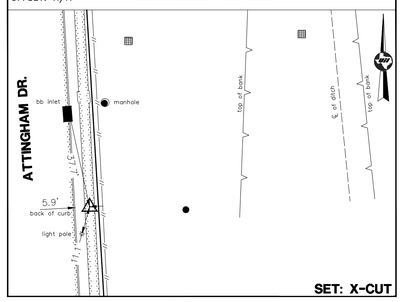
CONTROL PT. #11



SET: X-CUT

STA: N/A
OFFSET: N/A

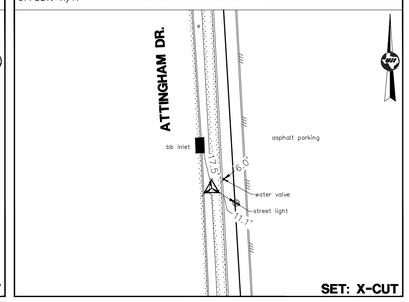
CONTROL PT. #12



SET: X-CUT

STA: N/A
OFFSET: N/A

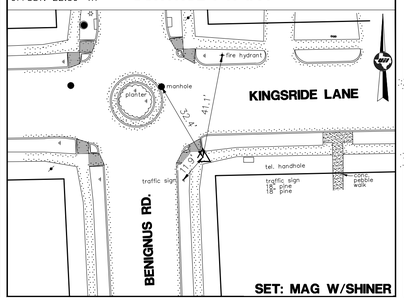
CONTROL PT. #13



SET: X-CUT

STA: 4+89.79 BL "A"
OFFSET: 22.59' RT

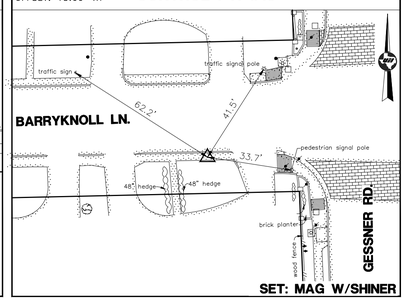
CONTROL PT. #14



SET: MAG W/SHINER

STA: 1+60.15 BL "B"
OFFSET: 15.66' RT

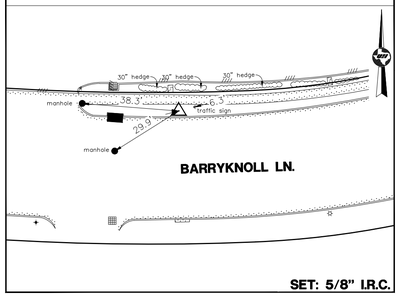
CONTROL PT. #15



SET: MAG W/SHINER

STA: 23+65.33 BL "B"
OFFSET: 22.67' LT

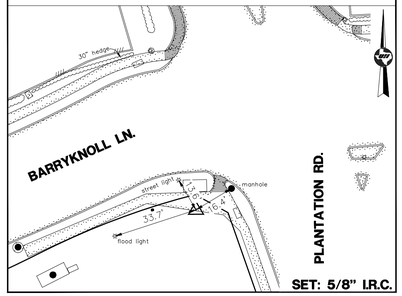
CONTROL PT. #16



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

STA: 9+07.59 BL "B"
OFFSET: 35.93' RT

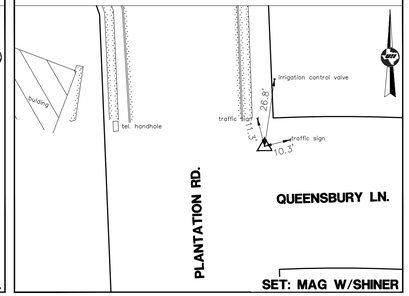
CONTROL PT. #17



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

STA: 0+53.00 BL "F"
OFFSET: 26.17' RT

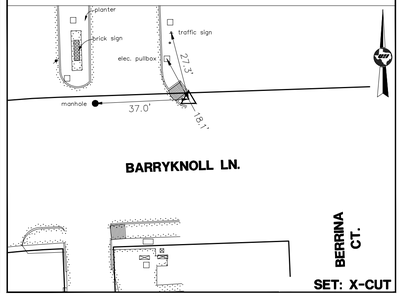
CONTROL PT. #21



SET: MAG W/SHINER

STA: 17+59.10 BL "B"
OFFSET: 27.50' LT

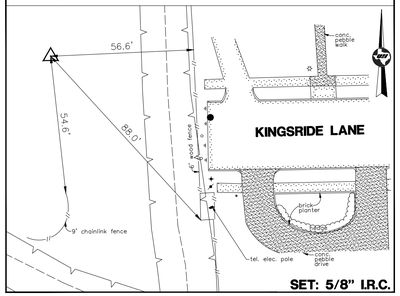
CONTROL PT. #25



SET: X-CUT

STA: N/A
OFFSET: N/A

CONTROL PT. #30



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

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

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

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

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

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

HRGreen FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SWINGTIES
SHEET 1 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 86 OF 343	

60% SUBMITTAL

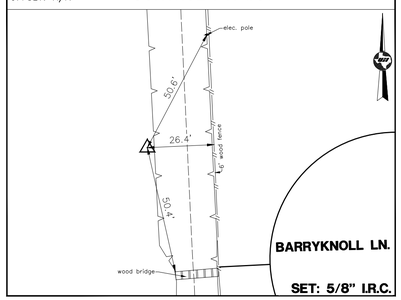
PLOTTED: 2/4/2026 11:30 AM

FILE PATH: K:_CIV_222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 1.dwg

PLOTTED: 2/4/2026 11:31 AM

STA: N/A
OFFSET: N/A

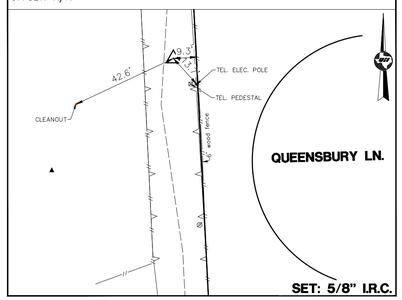
CONTROL PT. #31



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

STA: N/A
OFFSET: N/A

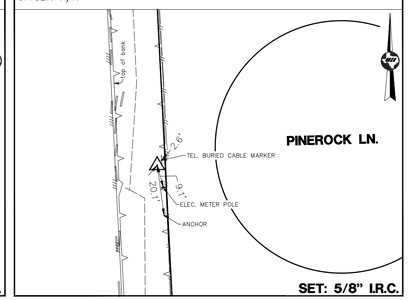
CONTROL PT. #32



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

STA: N/A
OFFSET: N/A

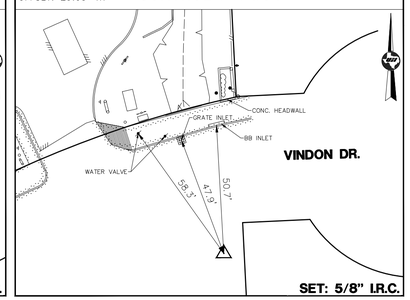
CONTROL PT. #33



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

STA: 14+02.82 BL "G"
OFFSET: 29.05' RT

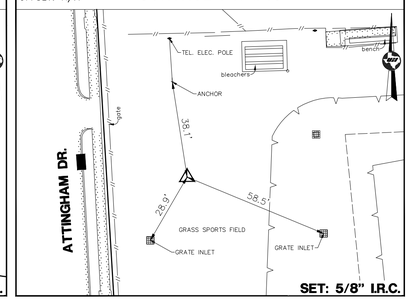
CONTROL PT. #34



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

STA: N/A
OFFSET: N/A

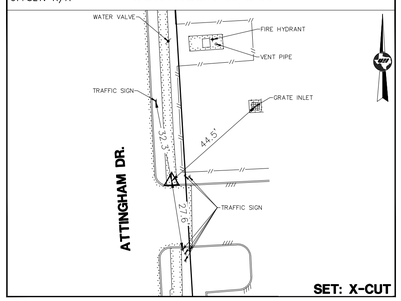
CONTROL PT. #40



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

STA: N/A
OFFSET: N/A

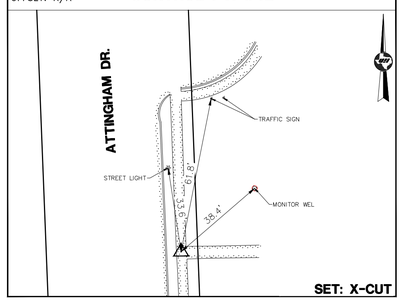
CONTROL PT. #41



SET: X-CUT

STA: N/A
OFFSET: N/A

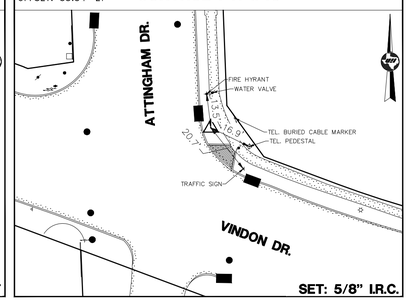
CONTROL PT. #42



SET: X-CUT

STA: 7+28.59 BL "G"
OFFSET: 33.34' LT

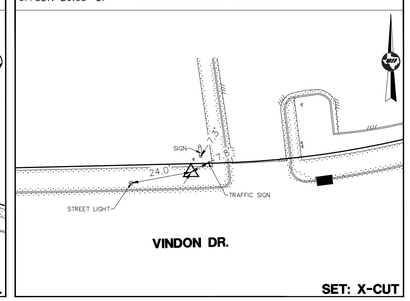
CONTROL PT. #43



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

STA: 10+29.12 BL "G"
OFFSET: 26.65' LT

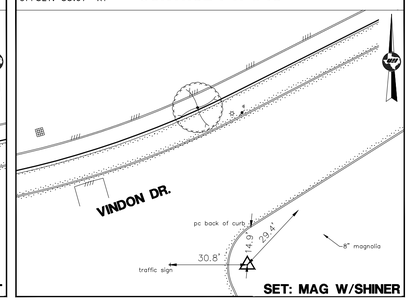
CONTROL PT. #44



SET: X-CUT

STA: 11+92.57 BL "G"
OFFSET: 33.97' RT

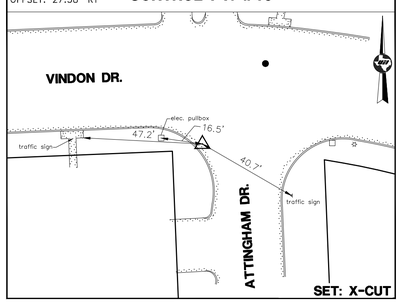
CONTROL PT. #45



SET: MAG W/SHINER

STA: 5+27.65 BL "G"
OFFSET: 27.38' RT

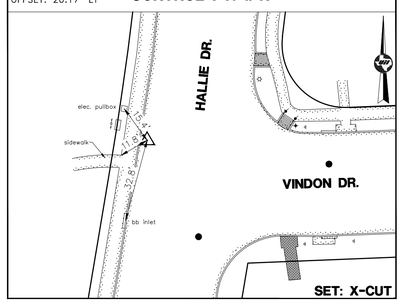
CONTROL PT. #46



SET: X-CUT

STA: 1+12.11 BL "G"
OFFSET: 20.17' LT

CONTROL PT. #47



SET: X-CUT

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(BL) indicates Baseline Line
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I.R.C. indicates Iron Rod w/Cap
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S.S.E. indicates Sanitary Sewer Easement
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NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
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CERTIFICATION:

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10176-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL: (713) 271-2900
HOUSTON, TEXAS 77074 FAX: (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

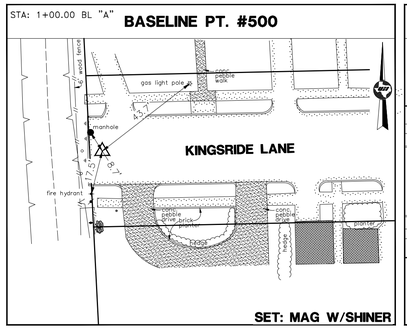
TIRZ #17 BARRYKNOLL

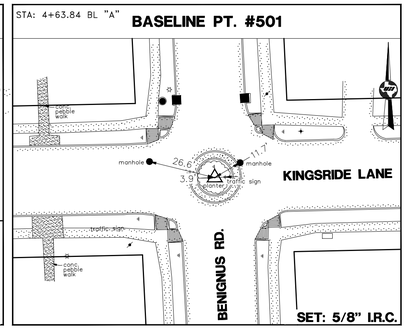
GENERAL
SWINGTIES
SHEET 2 OF 5

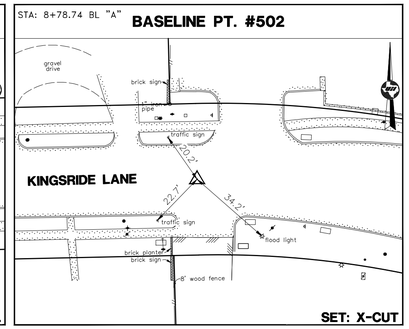
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 87 OF 343	

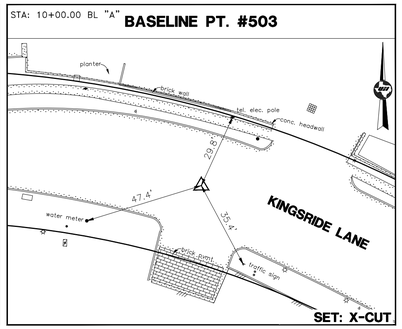
60% SUBMITTAL

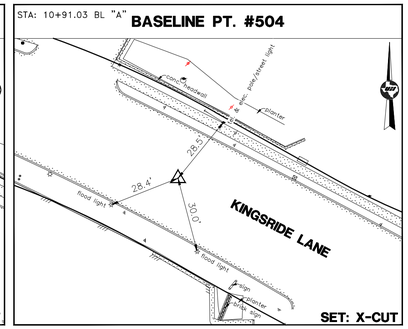
FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 2.dwg

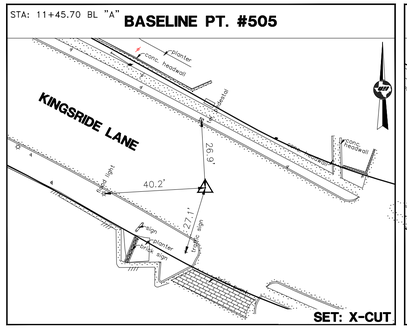


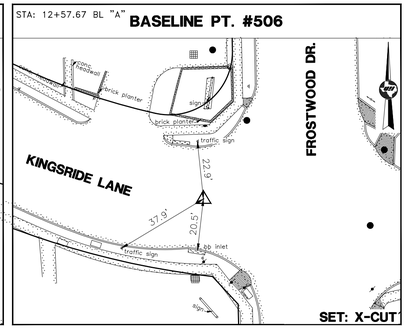


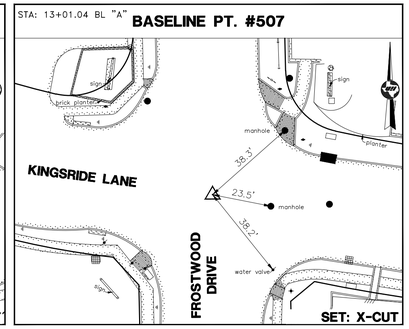


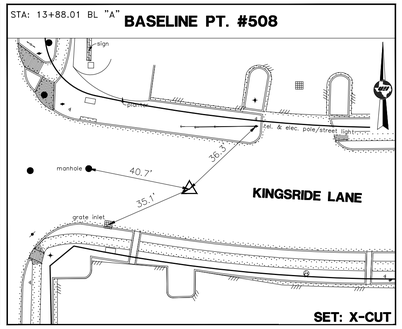


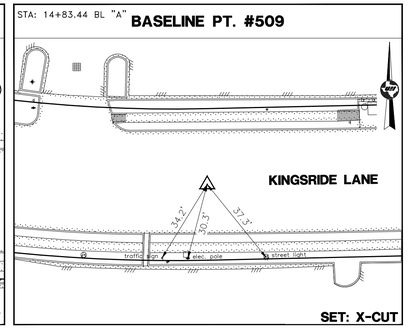


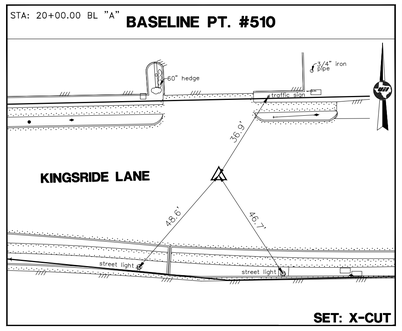


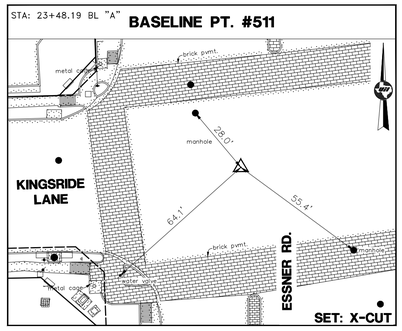


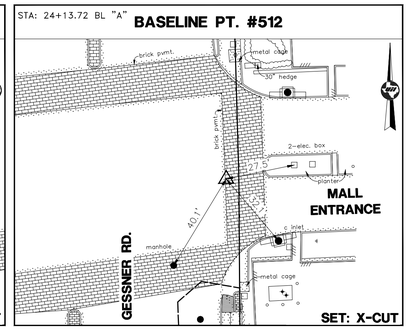


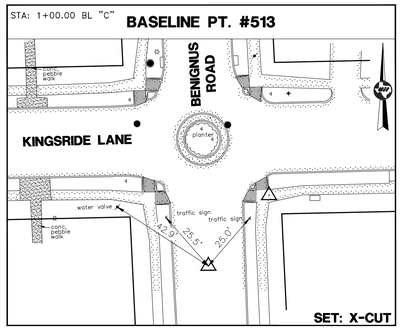


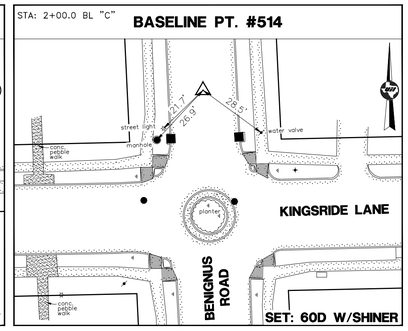


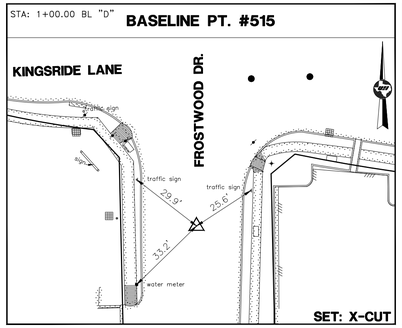


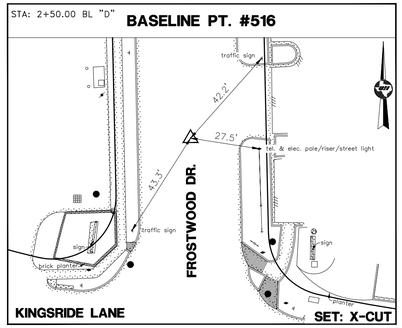


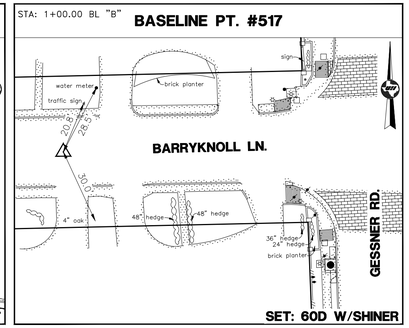


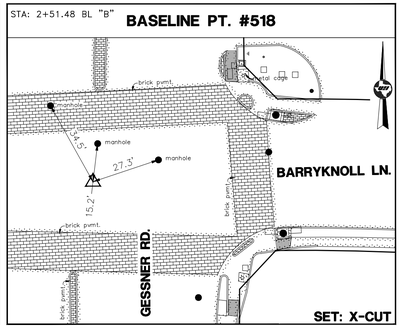


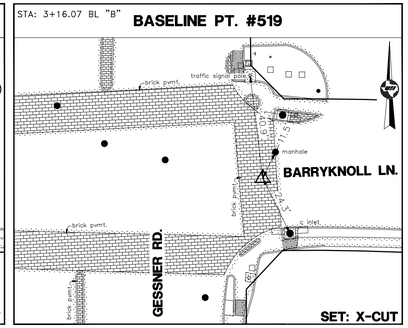












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TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor: Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10176-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL: (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SWINGTIES
SHEET 3 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 88 OF 343	

60% SUBMITTAL

PLOTTED: 2/4/2026 11:32 AM

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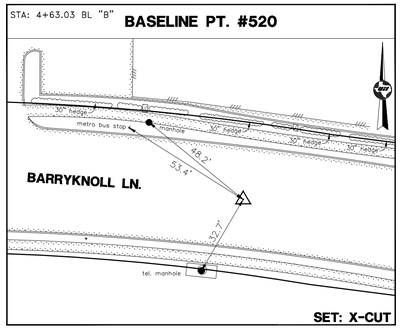

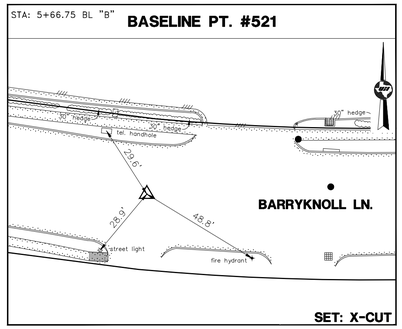

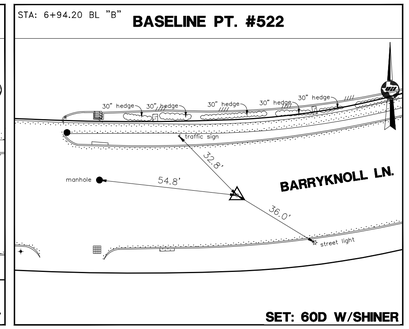

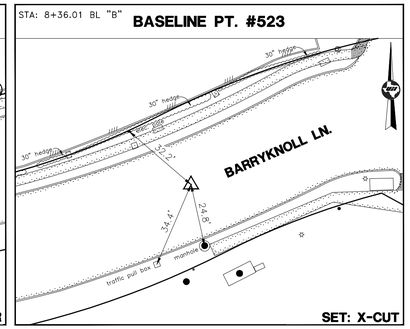

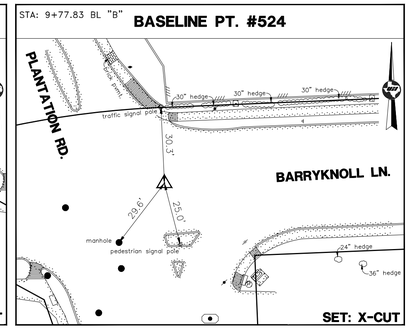

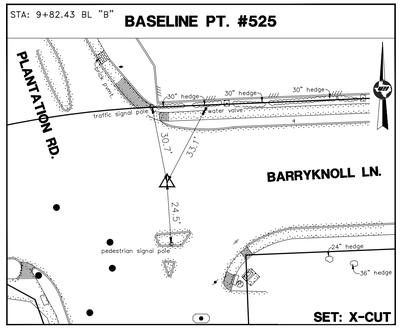

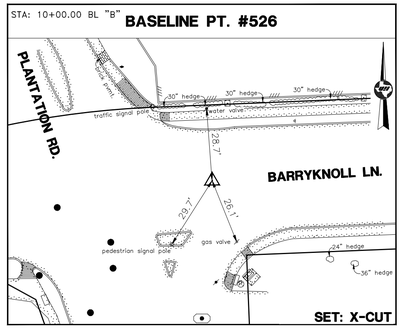

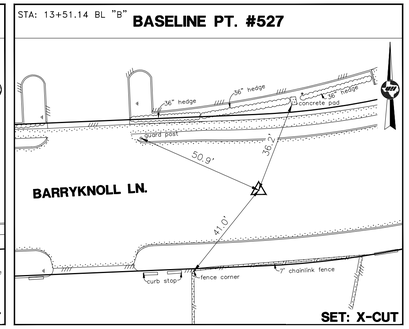

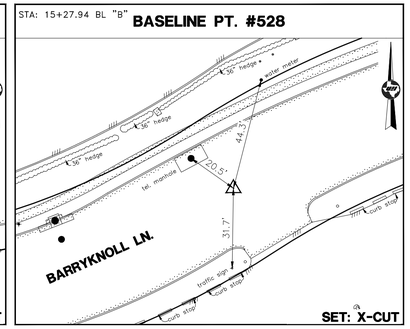

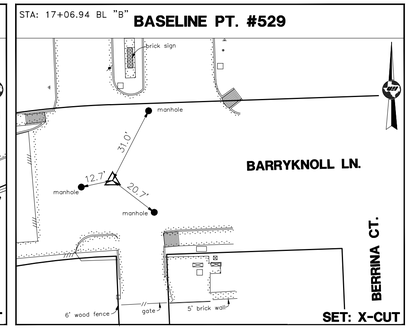

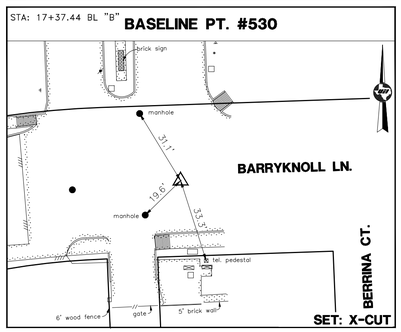

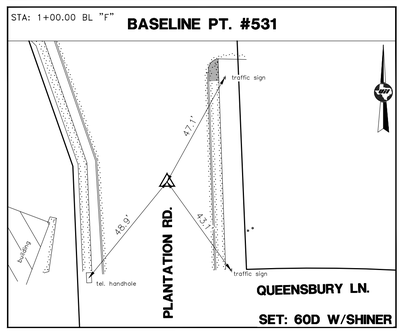

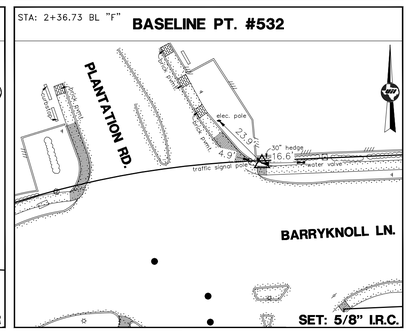

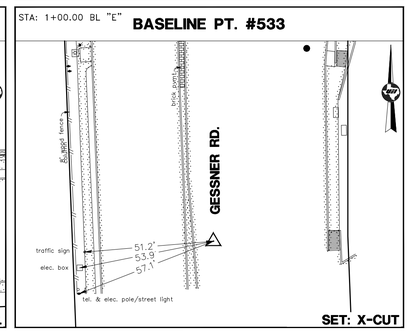

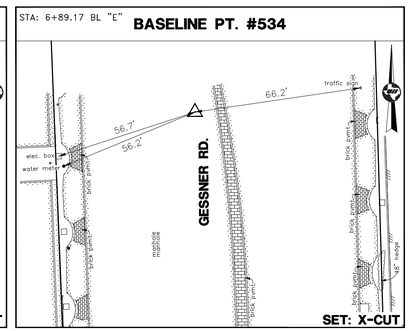

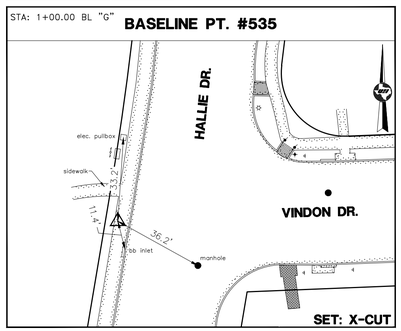

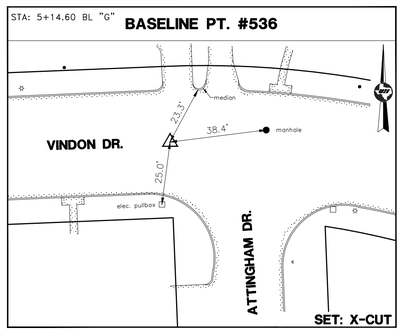

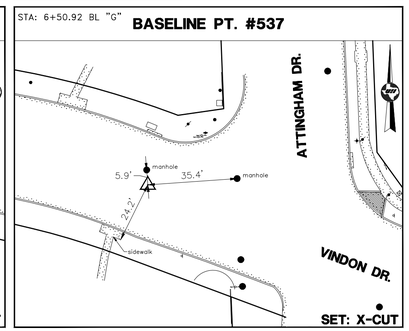

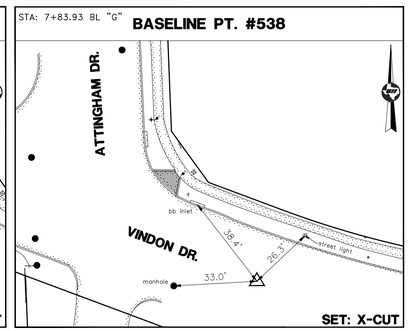

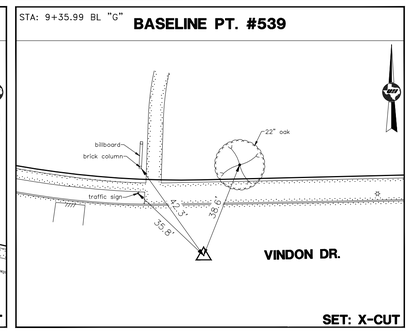

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CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
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Surveyor: Christin M. Norris
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CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000451 SURVEY FIRM # 10176-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SWINGTIES
SHEET 4 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 89 OF 343	

60% SUBMITTAL

PLOTTED: 2/4/2026 11:32 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 4.dwg

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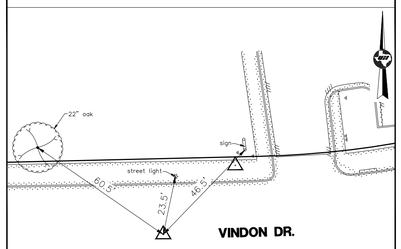
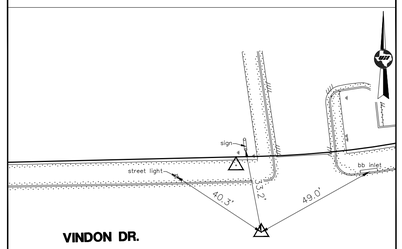


SET: X-CUT

STA: 10+38.51 BL "G" **BASELINE PT. #541**



SET: X-CUT

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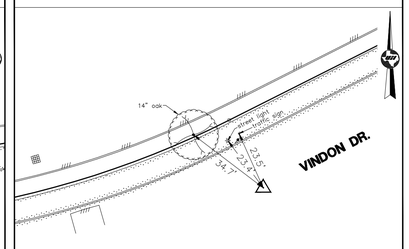
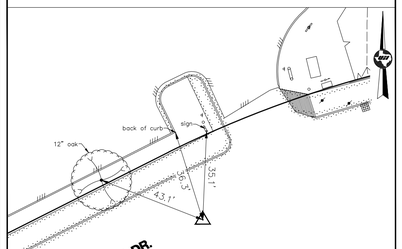


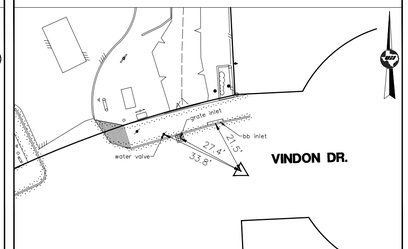
SET: X-CUT

STA: 13+24.04 BL "G" **BASELINE PT. #543**



SET: X-CUT

STA: 14+18.10 BL "G" **BASELINE PT. #544**



SET: X-CUT

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3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

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

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

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

INTERIM REVIEW ONLY
Document incomplete: Not intended for permit or construction.
Surveyor Christin M. Norris
TX R.P.L.S. No. 6207
Date: 11/12/2025

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 10176-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SWINGTIES
SHEET 5 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 90 OF 343	

60% SUBMITTAL

PLOTTED: 2/4/2026 11:33 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 5.dwg

KINGSRIDE LN. ALIGNMENT

BEGIN KINGSRIDE LN
N 13,848,581.0493 E 3,062,502.9202 0+00.00

LINE (1)
N88° 47' 08"E 100.00'
N 13,848,583.1688 E 3,062,602.8977 1+00.00
LINE (1)

LINE (2)
N88° 47' 08"E 778.74'
N 13,848,599.6744 E 3,063,381.4643 8+78.74
LINE (2)

CURVE (3)
BC N 13,848,599.6744 E 3,063,381.4643 8+78.74
CTR N 13,848,199.7642 E 3,063,389.9424
PI N 13,848,601.9784 E 3,063,490.1467

DIRECTION BACK N88° 47' 08"E
RADIUS 400.00'
DELTA 30°24'28"(RT)
LENGTH 212.29'
TANGENT 108.71'
CHORD DIRECTION S76° 00' 38"E DISTANCE 209.80'
DIRECTION AHEAD S60° 48' 24"E

EC N 13,848,548.9559 E 3,063,585.0454 10+91.03
CURVE (3)

LINE (4)
S60° 48' 24"E 54.67'
N 13,848,522.2902 E 3,063,632.7712 11+45.70
LINE (4)

CURVE (5)
BC N 13,848,522.2902 E 3,063,632.7712 11+45.70
CTR N 13,848,784.1839 E 3,063,779.0984
PI N 13,848,494.6601 E 3,063,682.2230

DIRECTION BACK S60° 48' 24"E
RADIUS 300.00'
DELTA 21°23'09"(LT)
LENGTH 111.98'
TANGENT 56.65'
CHORD DIRECTION S71° 29' 59"E DISTANCE 111.33'
DIRECTION AHEAD S82° 11' 33"E

EC N 13,848,486.9648 E 3,063,738.3451 12+57.67
CURVE (5)

LINE (6)
NON-TANGENT RADIAL BEARING S7° 48' 27"W
S82° 09' 31"E 130.34'
N 13,848,469.1828 E 3,063,867.4626 13+88.01
LINE (6)

CURVE (7)
BC N 13,848,469.1828 E 3,063,867.4626 13+88.01
CTR N 13,849,063.5725 E 3,063,949.3218
PI N 13,848,462.6591 E 3,063,914.8320

DIRECTION BACK S82° 09' 31"E
RADIUS 600.00'
DELTA 9°06'47"(LT)
LENGTH 95.43'
TANGENT 47.82'
CHORD DIRECTION S86° 42' 54"E DISTANCE 95.33'
DIRECTION AHEAD N88° 43' 42"E

EC N 13,848,463.7202 E 3,063,962.6366 14+83.44
CURVE (7)

LINE (8)
N88° 43' 42"E 930.27'
N 13,848,484.3642 E 3,064,892.6819 24+13.72
LINE (8)

N 13,848,484.3642 E 3,064,892.6819 24+13.72
END KINGSRIDE LN

****
ALIGNMENT LENGTH: 2,413.72'
****

BARRYKNOLL LN. ALIGNMENT

BEGIN BARRYKNOLL LN
N 13,848,159.7639 E 3,064,688.2351 1+00.00

LINE (1)
N88° 43' 42"E 216.07'
N 13,848,164.5587 E 3,064,904.2506 3+16.07
LINE (1)

CURVE (2)
BC N 13,848,164.5587 E 3,064,904.2506 3+16.07
CTR N 13,847,187.7393 E 3,064,925.9329
PI N 13,848,166.1924 E 3,064,977.8507

DIRECTION BACK N88° 43' 42"E
RADIUS 977.06'
DELTA 8°37'04"(RT)
LENGTH 146.96'
TANGENT 73.62'
CHORD DIRECTION S86° 57' 46"E DISTANCE 146.82'
DIRECTION AHEAD S82° 39' 14"E

EC N 13,848,156.7792 E 3,065,050.8647 4+63.03
CURVE (2)

LINE (3)
S82° 39' 14"E 103.72'
N 13,848,143.5167 E 3,065,153.7359 5+66.75
LINE (3)

NON-TANGENT RADIAL BEARING S5° 11' 57"W
CURVE (4)
BC N 13,848,143.5167 E 3,065,153.7359 5+66.75
CTR N 13,849,105.5023 E 3,065,241.2714
PI N 13,848,137.7335 E 3,065,217.2919

DIRECTION BACK S84° 48' 03"E
RADIUS 965.96'
DELTA 7°33'35"(LT)
LENGTH 127.45'
TANGENT 63.82'
CHORD DIRECTION S88° 34' 50"E DISTANCE 127.36'
DIRECTION AHEAD N87° 38' 22"E

EC N 13,848,140.3620 E 3,065,281.0562 6+94.20
CURVE (4)

COMPOUND CURVE

NON-TANGENT RADIAL BEARING S2° 21' 39"E
CURVE (5)
BC N 13,848,140.3620 E 3,065,281.0562 6+94.20
CTR N 13,848,470.0815 E 3,065,267.4626
PI N 13,848,143.3284 E 3,065,353.0096

DIRECTION BACK N87° 38' 21"E
RADIUS 330.00'
DELTA 24°37'15"(LT)
LENGTH 141.81'
TANGENT 72.01'
CHORD DIRECTION N75° 19' 43"E DISTANCE 140.72'
DIRECTION AHEAD N63° 01' 06"E

EC N 13,848,176.0019 E 3,065,417.1855 8+36.01
CURVE (5)

REVERSING CURVE

NON-TANGENT RADIAL BEARING N26° 59' 05"W
CURVE (6)
BC N 13,848,176.0019 E 3,065,417.1855 8+36.01
CTR N 13,847,882.0488 E 3,065,566.8641
PI N 13,848,208.6825 E 3,065,481.3669

DIRECTION BACK N63° 00' 55"E
RADIUS 329.87'
DELTA 24°38'00"(RT)
LENGTH 141.82'
TANGENT 72.02'
CHORD DIRECTION N75° 19' 54"E DISTANCE 140.73'
DIRECTION AHEAD N87° 38' 54"E

EC N 13,848,211.6378 E 3,065,553.3290 9+77.83
CURVE (6)

BARRYKNOLL LN. ALIGNMENT

LINE (7)
NON-TANGENT RADIAL BEARING N2° 21' 06"W
N87° 38' 26"E 373.31'
N 13,848,227.0071 E 3,065,926.3267 13+51.14
LINE (7)

CURVE (8)
BC N 13,848,227.0071 E 3,065,926.3267 13+51.14
CTR N 13,848,556.7273 E 3,065,912.7406
PI N 13,848,230.7361 E 3,066,016.8261

DIRECTION BACK N87° 38' 26"E
RADIUS 330.00'
DELTA 30°41'47"(LT)
LENGTH 176.80'
TANGENT 90.58'
CHORD DIRECTION N72° 17' 32"E DISTANCE 174.69'
DIRECTION AHEAD N56° 56' 39"E

EC N 13,848,280.1415 E 3,066,092.7415 15+27.94
CURVE (8)

REVERSING CURVE

CURVE (9)
BC N 13,848,280.1415 E 3,066,092.7415 15+27.94
CTR N 13,848,003.5557 E 3,066,272.7424
PI N 13,848,330.1927 E 3,066,169.6492

DIRECTION BACK N56° 56' 39"E
RADIUS 330.00'
DELTA 31°04'42"(RT)
LENGTH 179.00'
TANGENT 91.76'
CHORD DIRECTION N72° 29' 00"E DISTANCE 176.81'
DIRECTION AHEAD N88° 01' 21"E

EC N 13,848,333.3592 E 3,066,261.3546 17+06.94
CURVE (9)

LINE (10)
NON-TANGENT RADIAL BEARING N1° 58' 39"W
N88° 03' 26"E 193.06'
N 13,848,339.9045 E 3,066,454.3048 19+00.00
LINE (10)

N 13,848,339.9045 E 3,066,454.3048 19+00.00
END BARRYKNOLL LN

****
ALIGNMENT LENGTH: 1,800.00'
****

No.	Date	Revisions	Appr.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 1 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 91 OF 343

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GESSNER RD. ALIGNMENT

BEGIN GESNNER RD
N 13,848,040.9080 E 3,064,844.4532 1+00.00

LINE (1)
N2° 14' 20"W 589.17'
N 13,848,629.6314 E 3,064,821.4366 6+89.17
LINE (1)

N 13,848,629.6314 E 3,064,821.4366 6+89.17
END GESNNER RD

****
ALIGNMENT LENGTH: 589.17'
****

VINDON DR. ALIGNMENT

BEGIN VINDON DR
N 13,847,412.7534 E 3,061,375.6469 1+00.00

LINE (1)
N87° 42' 10"E 414.60'
N 13,847,429.3725 E 3,061,789.9143 5+14.60
LINE (1)

CURVE (2)
BC N 13,847,429.3725 E 3,061,789.9143 5+14.60
CTR N 13,847,086.6681 E 3,061,803.6625
PI N 13,847,432.1412 E 3,061,858.9294

DIRECTION BACK N87° 42' 10"E
RADIUS 342.98'
DELTA 22°46'20"(RT)
LENGTH 136.32'
TANGENT 69.07'
CHORD DIRECTION S80° 54' 40"E DISTANCE 135.42'
DIRECTION AHEAD S69° 31' 30"E

EC N 13,847,407.9804 E 3,061,923.6364 6+50.92
CURVE (2)

LINE (3)
S69° 31' 30"E 133.01'
N 13,847,361.4536 E 3,062,048.2437 7+83.93
LINE (3)

NON-TANGENT RADIAL BEARING S20° 26' 33"W
CURVE (4)
BC N 13,847,361.4536 E 3,062,048.2437 7+83.93
CTR N 13,847,736.2060 E 3,062,187.9292
PI N 13,847,334.5745 E 3,062,120.3558

DIRECTION BACK S69° 33' 27"E
RADIUS 399.94'
DELTA 21°47'03"(LT)
LENGTH 152.06'
TANGENT 76.96'
CHORD DIRECTION S80° 26' 58"E DISTANCE 151.14'
DIRECTION AHEAD N88° 39' 30"E

EC N 13,847,336.3764 E 3,062,197.2934 9+35.99
CURVE (4)

LINE (5)
NON-TANGENT RADIAL BEARING S1° 20' 30"E
N88° 39' 57"E 102.52'
N 13,847,338.7634 E 3,062,299.7854 10+38.51
LINE (5)

NON-TANGENT RADIAL BEARING S1° 18' 30"E
CURVE (6)
BC N 13,847,338.7634 E 3,062,299.7854 10+38.51
CTR N 13,847,738.5862 E 3,062,290.6534
PI N 13,847,340.8262 E 3,062,390.1011

DIRECTION BACK N88° 41' 30"E
RADIUS 399.93'
DELTA 25°27'28"(LT)
LENGTH 177.70'
TANGENT 90.34'
CHORD DIRECTION N75° 57' 46"E DISTANCE 176.24'
DIRECTION AHEAD N63° 14' 02"E

VINDON DR. ALIGNMENT

EC N 13,847,381.5106 E 3,062,470.7607 12+16.20
CURVE (6)

LINE (7)
NON-TANGENT RADIAL BEARING S26° 45' 58"E
N63° 16' 28"E 107.84'
N 13,847,430.0065 E 3,062,567.0771 13+24.04
LINE (7)

NON-TANGENT RADIAL BEARING N26° 21' 18"W
CURVE (8)
BC N 13,847,430.0065 E 3,062,567.0771 13+24.04
CTR N 13,847,071.5818 E 3,062,744.6489
PI N 13,847,450.9810 E 3,062,609.4137

DIRECTION BACK N63° 38' 42"E
RADIUS 400.00'
DELTA 13°28'23"(RT)
LENGTH 94.06'
TANGENT 47.25'
CHORD DIRECTION N70° 22' 54"E DISTANCE 93.84'
DIRECTION AHEAD N77° 07' 05"E

EC N 13,847,461.5145 E 3,062,655.4720 14+18.10
CURVE (8)

N 13,847,461.5145 E 3,062,655.4720 14+18.10
END VINDON DR

****
ALIGNMENT LENGTH: 1,318.10'
****

No.	Date	Revisions	Appr.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 92 OF 343

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BASIN OUTFALL ALIGNMENT

BEGIN BASIN OUTFALL CENTERLINE	
N 13,847,480.1016 E 3,062,553.0233	1+00.00
LINE (1)	
N63° 26' 34"E 2.33'	
N 13,847,481.1448 E 3,062,555.1104	1+02.33
LINE (1)	
LINE (2)	
N36° 38' 08"E 2.33'	
N 13,847,483.0172 E 3,062,556.5028	1+04.67
LINE (2)	
LINE (3)	
N36° 38' 08"E 120.92'	
N 13,847,580.0512 E 3,062,628.6598	2+25.59
LINE (3)	
LINE (4)	
N2° 53' 55"W 482.52'	
N 13,848,061.9520 E 3,062,604.2592	7+08.11
LINE (4)	
LINE (5)	
N2° 53' 55"W 475.83'	
N 13,848,537.1685 E 3,062,580.1970	11+83.93
LINE (5)	
LINE (6)	
N45° 55' 30"W 55.79'	
N 13,848,575.9744 E 3,062,540.1175	12+39.72
LINE (6)	
LINE (7)	
N1° 08' 12"W 48.03'	
N 13,848,623.9980 E 3,062,539.1647	12+87.75
LINE (7)	
N 13,848,623.9980 E 3,062,539.1647	12+87.75
END BASIN OUTFALL CENTERLINE	

****

ALIGNMENT LENGTH: 1,187.75'

****

No.	Date	Revisions	App.

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SUITE 400
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 3 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 93 OF 343	

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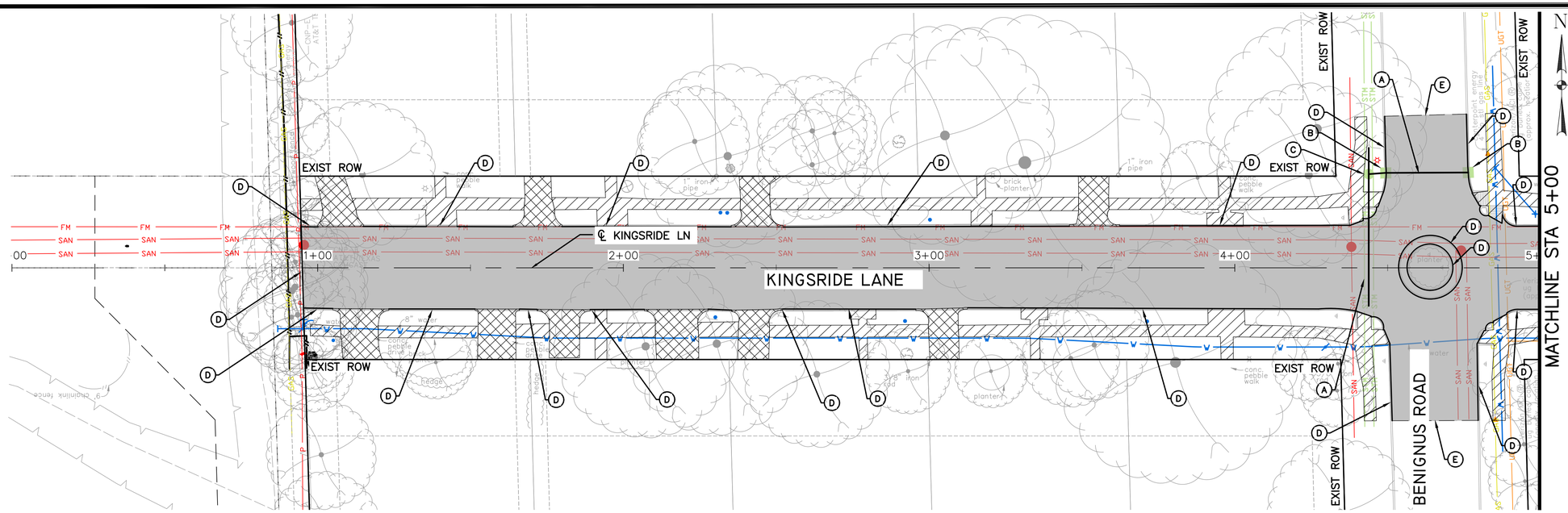
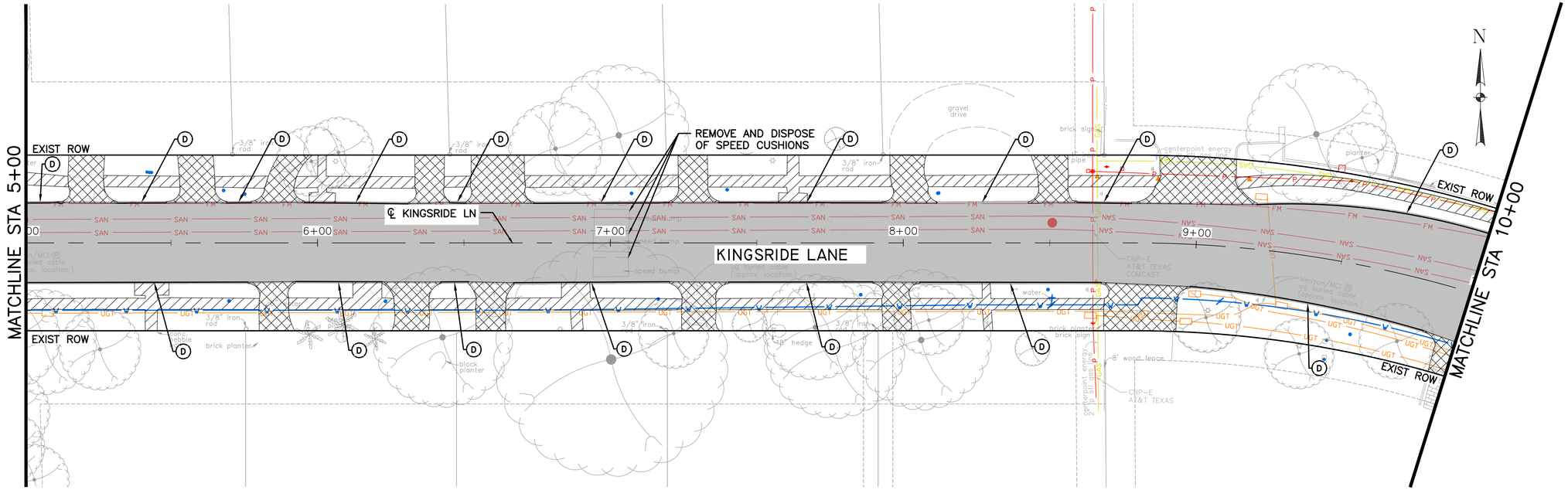




LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	App.

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

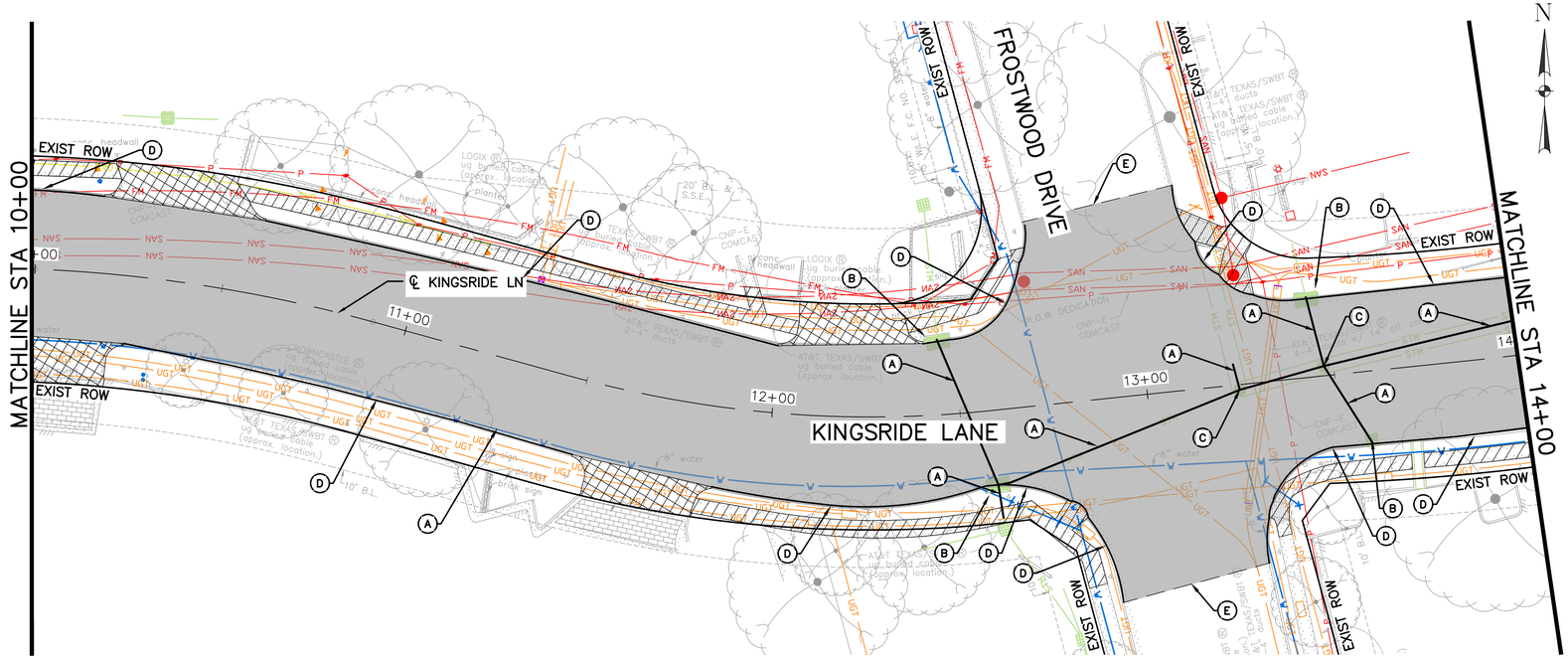
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 3

WBS NO.	M-430296-0017-3
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=40' (11"X17")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO.	94 OF 343

i:\2021\210601.01\cad\dwgs\d\rd_kingsride_demo_01.dwg Plotted February 19, 2026 at 5:27 PM by Huml, John



LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

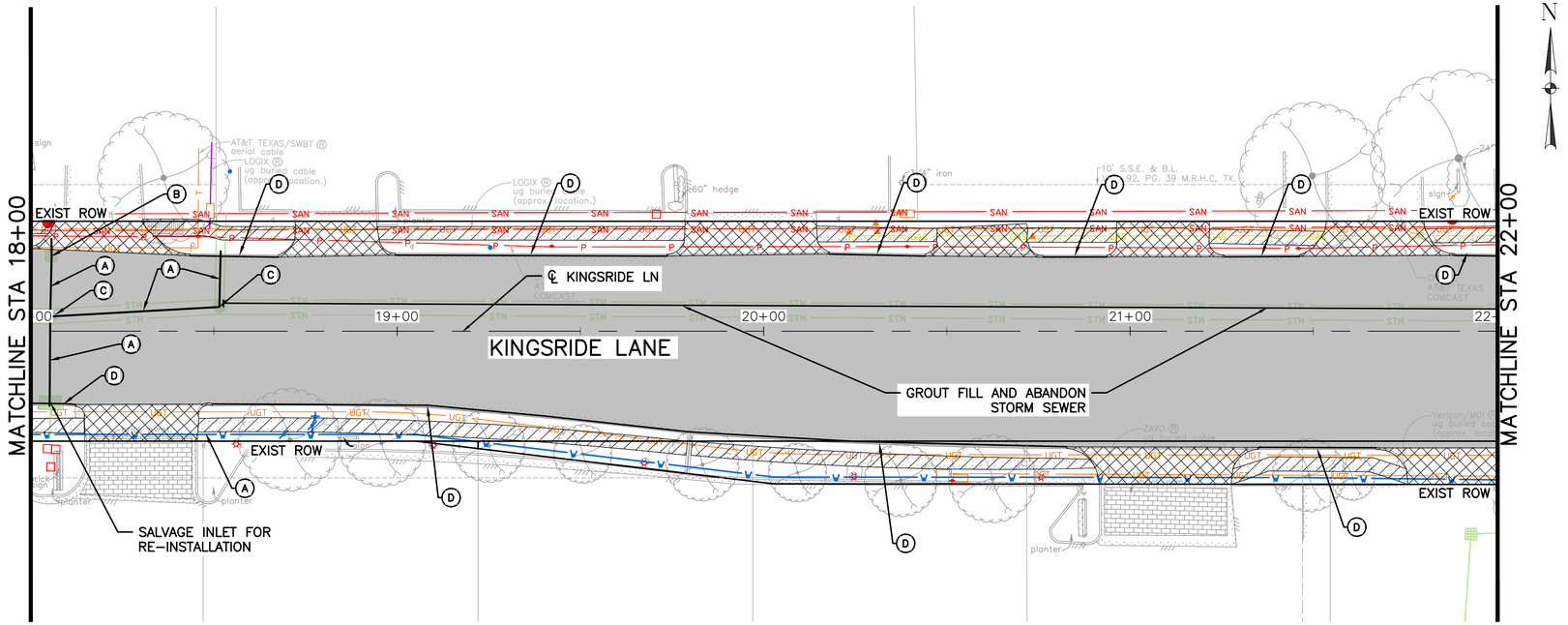
H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

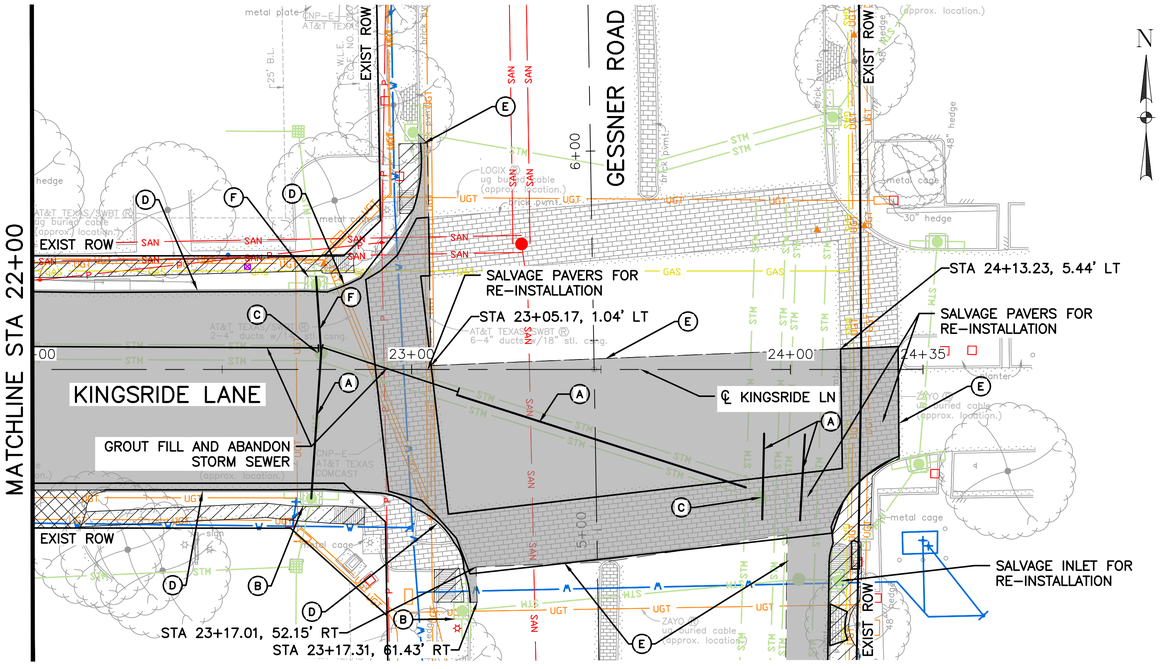
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 95 OF 343

j:\2021\210601.01\cad\dwgs\vd_kingsride_demo_02.dwg Plotted: February 19, 2026 at 5:29 PM by Huml, John





LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

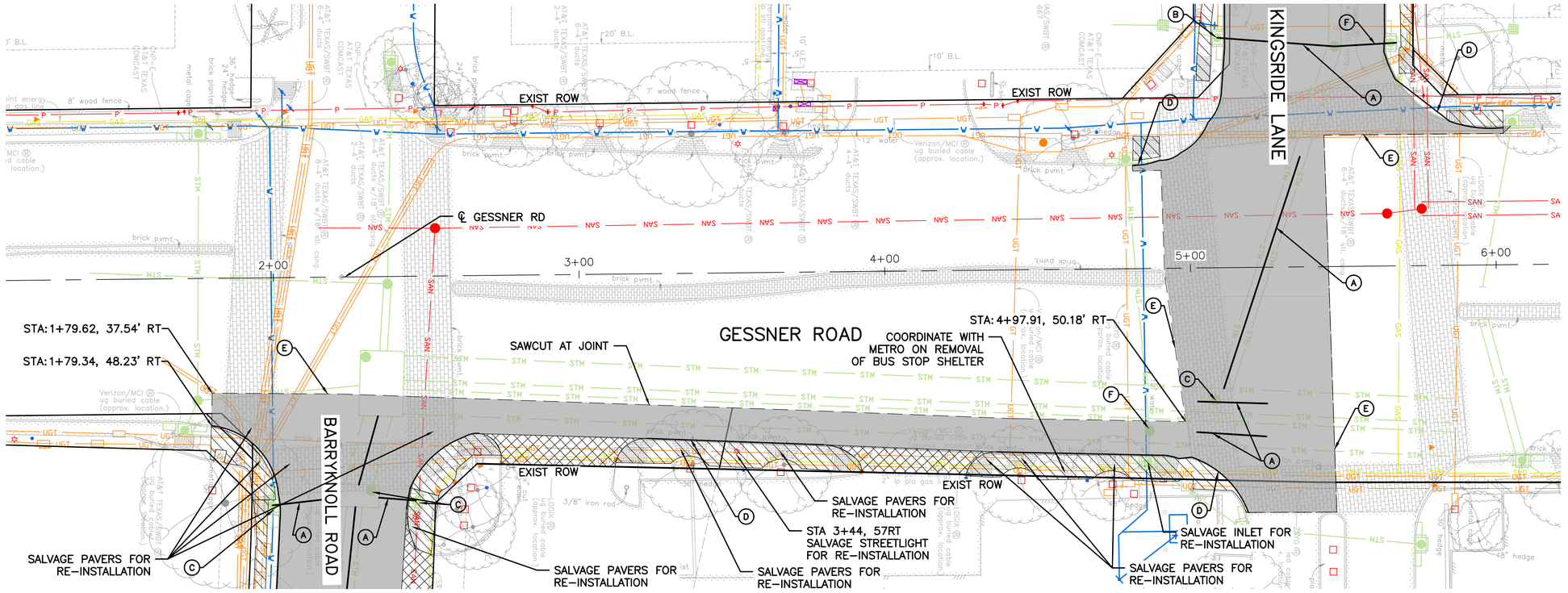
WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=40' (11"X17")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 96 OF 343	

J:\2021\210601.01\cad\dwgs\dv\rd_kingsride_demo_03.dwg Plotted February 19, 2026 at 5:31 PM by Huml, John

LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	App.



10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

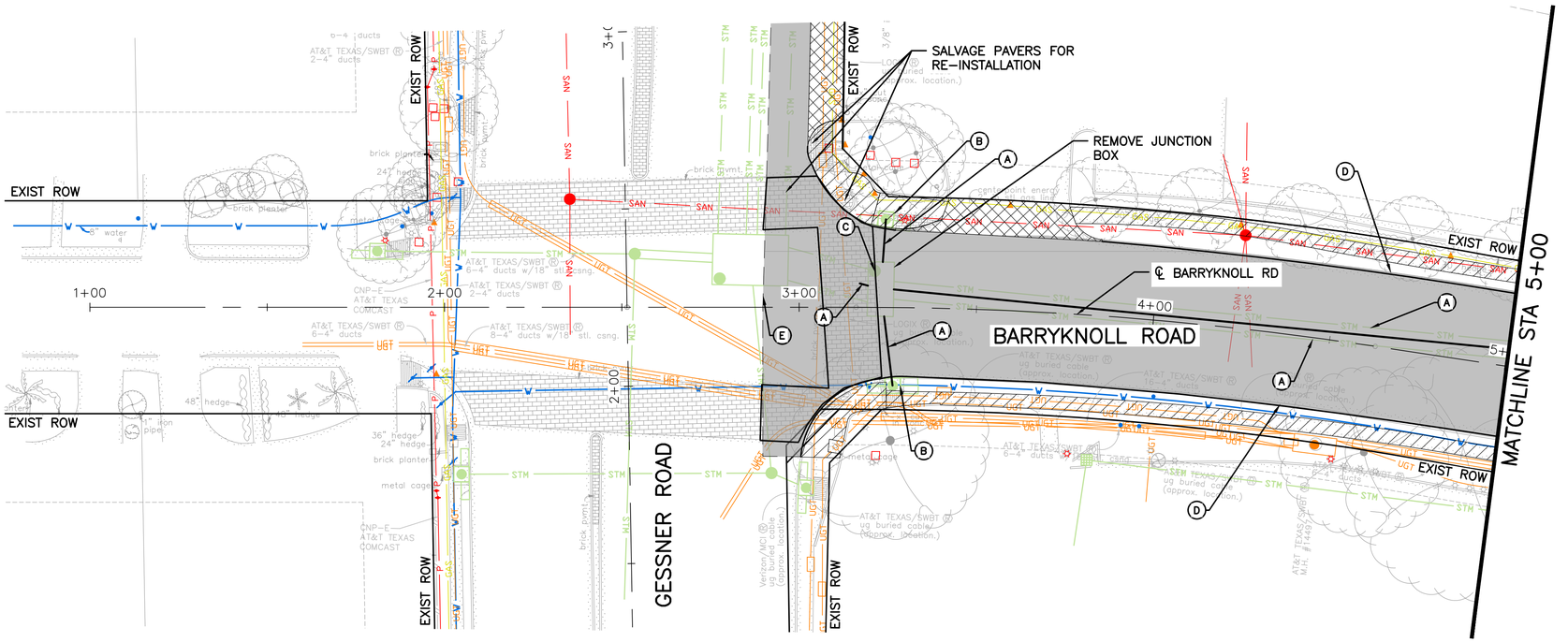
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

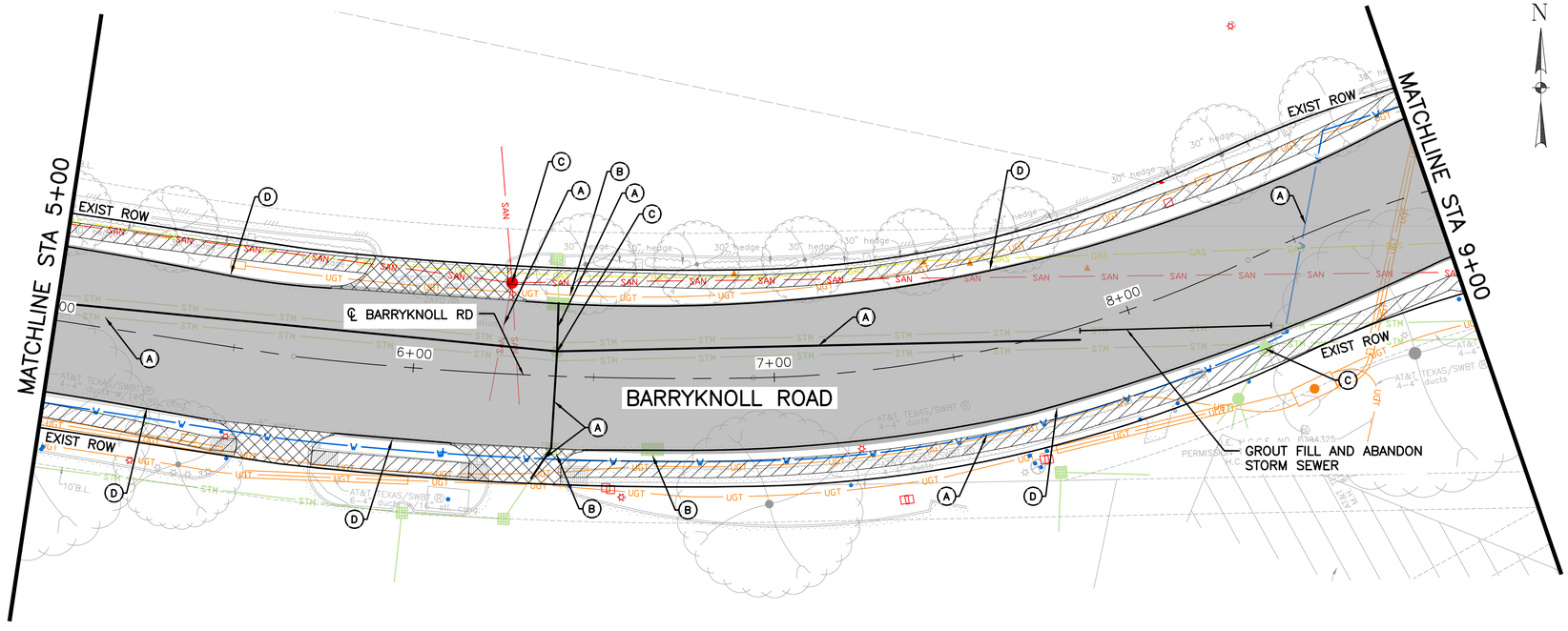
DEMOLITION PLAN
GESSNER ROAD
BEGIN PROJECT TO END PROJECT

SHEET 1 OF 1

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22"X34") H: 1"=40' (11"X17")
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 97 OF 343

J:\2021\210601.01\cad\dwgs\d\rd_gessner_demo_01.dwg Plotted February 19, 2026 at 5:32 PM by Hurni, John





LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
BARRYKNOLL ROAD
BEGIN PROJECT TO STA 9+00

SHEET 1 OF 2

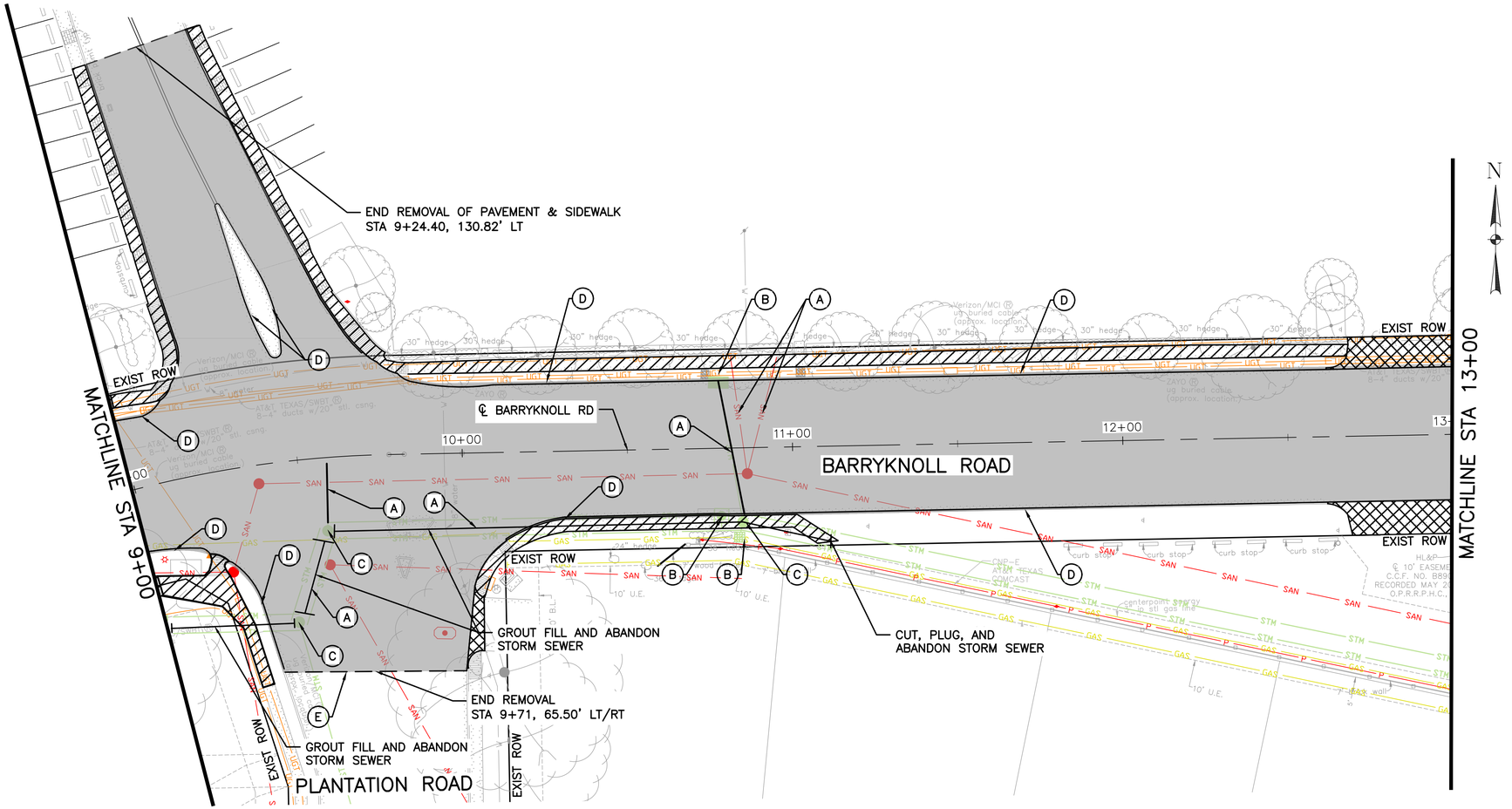
WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22"X34") H: 1"=40' (11"X17")
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 98 OF 343

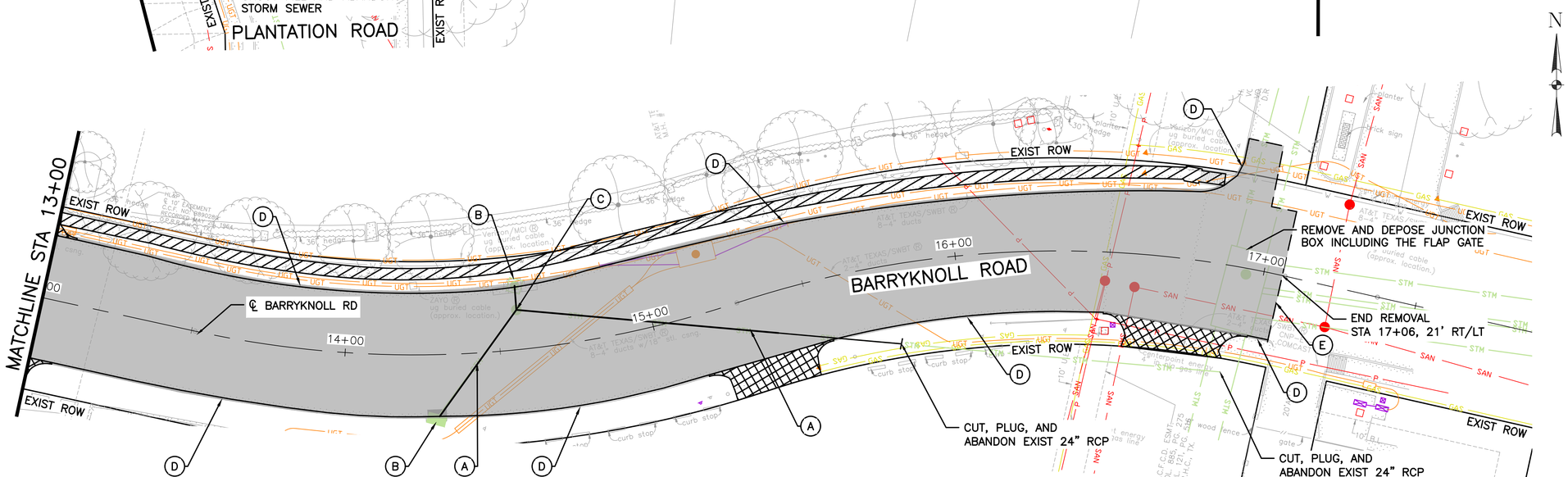
J:\2021\210601.01\cad\dwgs\rd_barryknoll_demo_01.dwg Plotted February 19, 2026 at 9:17 PM by Greaney, David

LEGEND

- REMOVE CONC PAV & BASE
- REMOVE CONC DRWY
- REMOVE CONC SIDEWALK
- (A) REMOVE AND DISPOSE OF PIPE
- (B) REMOVE AND DISPOSE OF INLET
- (C) REMOVE AND DISPOSE OF MH
- (D) REMOVE AND DISPOSE OF CURB
- (E) SAWCUT
- (F) TO REMAIN

No.	Date	Revisions	Appr.





10 0 10 20

(IN FEET)
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CITY OF HOUSTON
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
BARRYKNOLL ROAD
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=40' (11"X17")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 99 OF 343	

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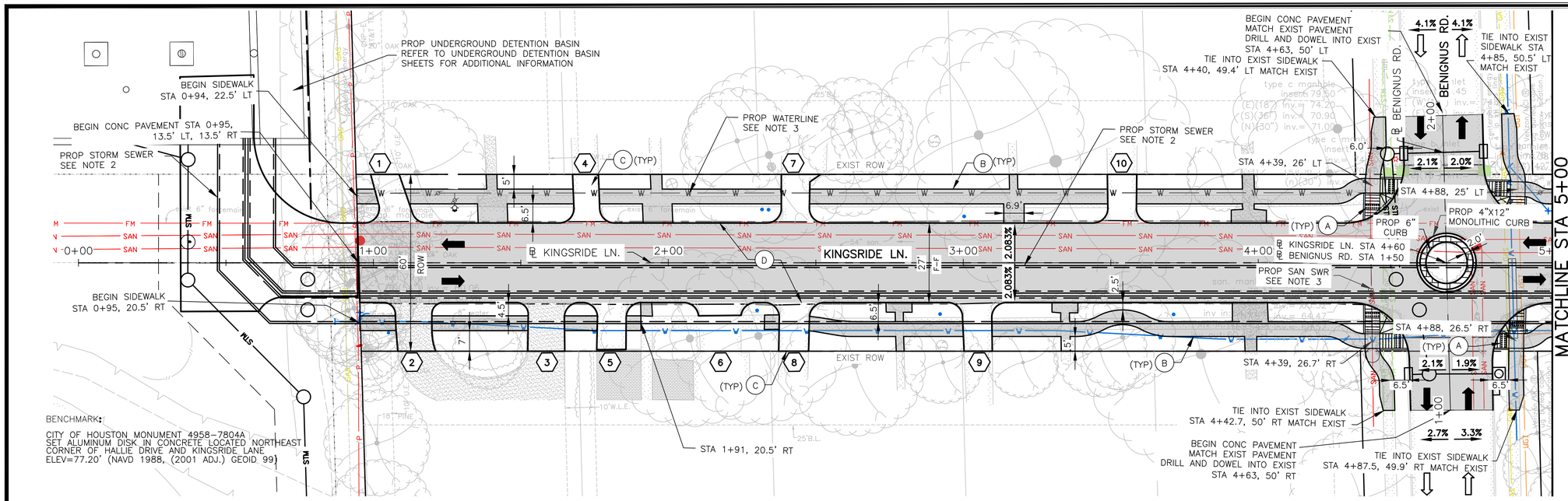

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

0 20 40 SCALE IN FEET

N

NOTES:

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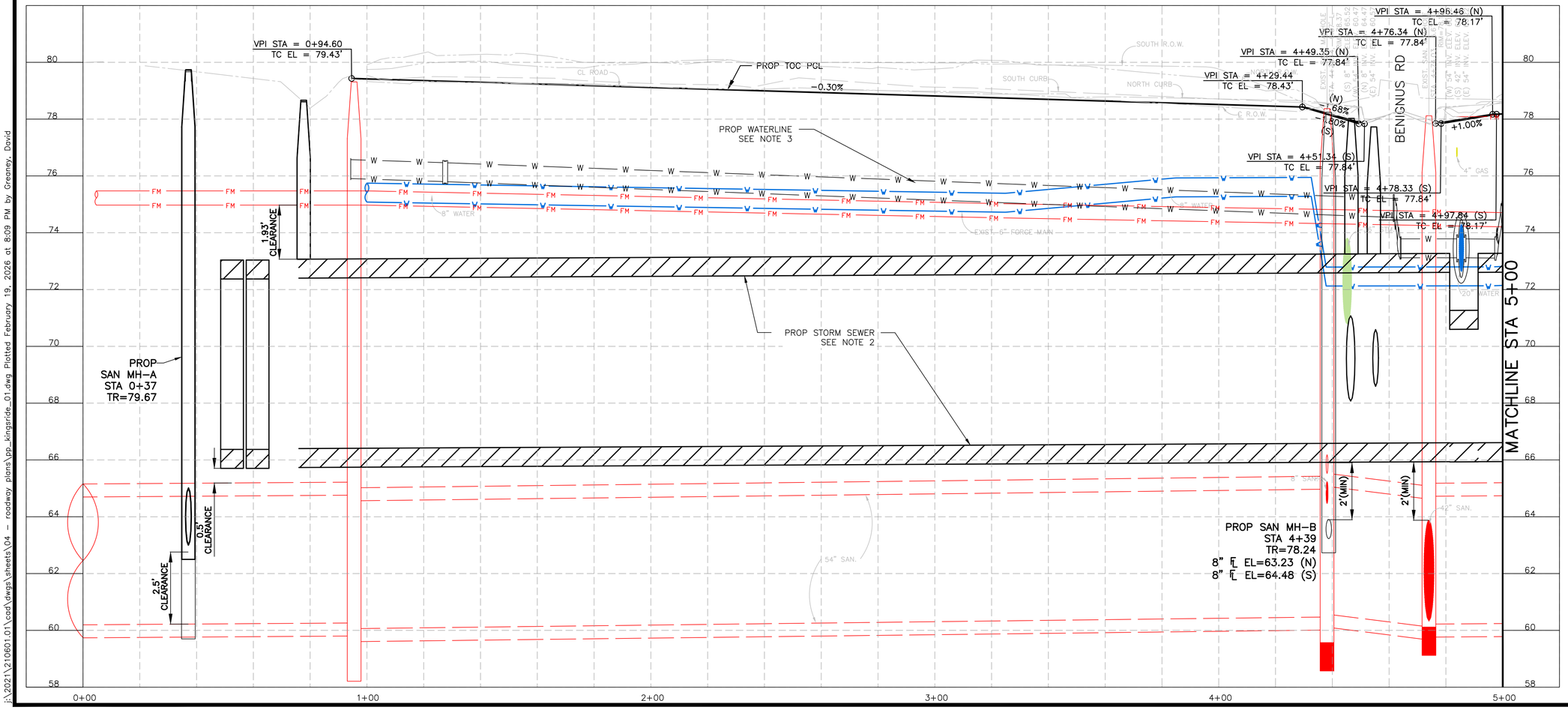
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.



VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

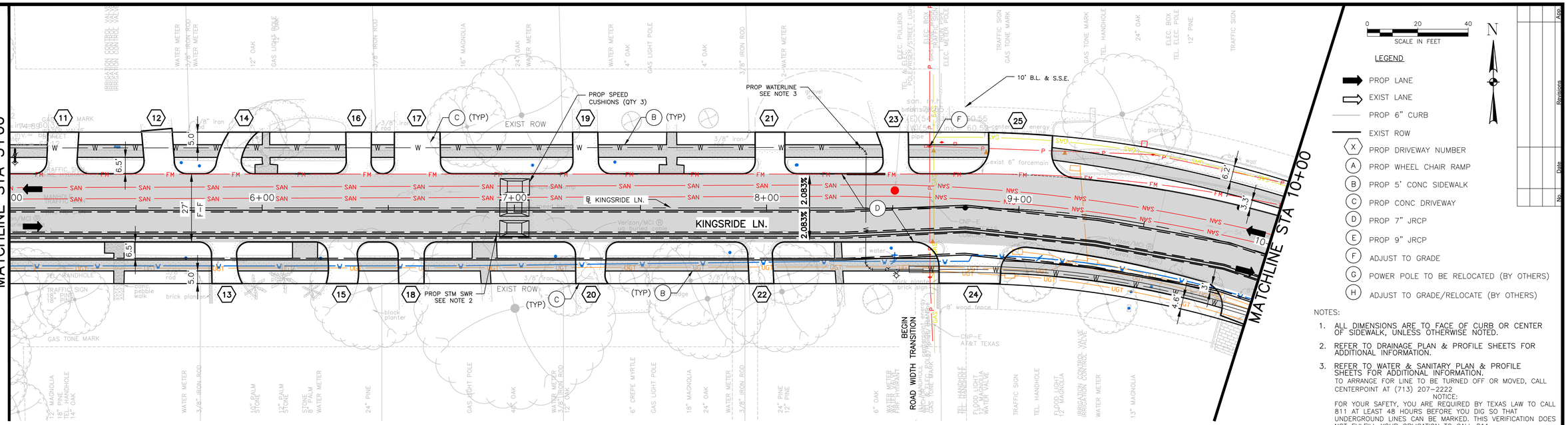
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY PLAN & PROFILE
KINGSRIDE LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34")
	V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	100 OF 343

App. | Revisions | Date | No.

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_kingsride_01.dwg Plotted: February 19, 2026 at 8:09 PM by Greaney, David



0 20 40
SCALE IN FEET

N

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
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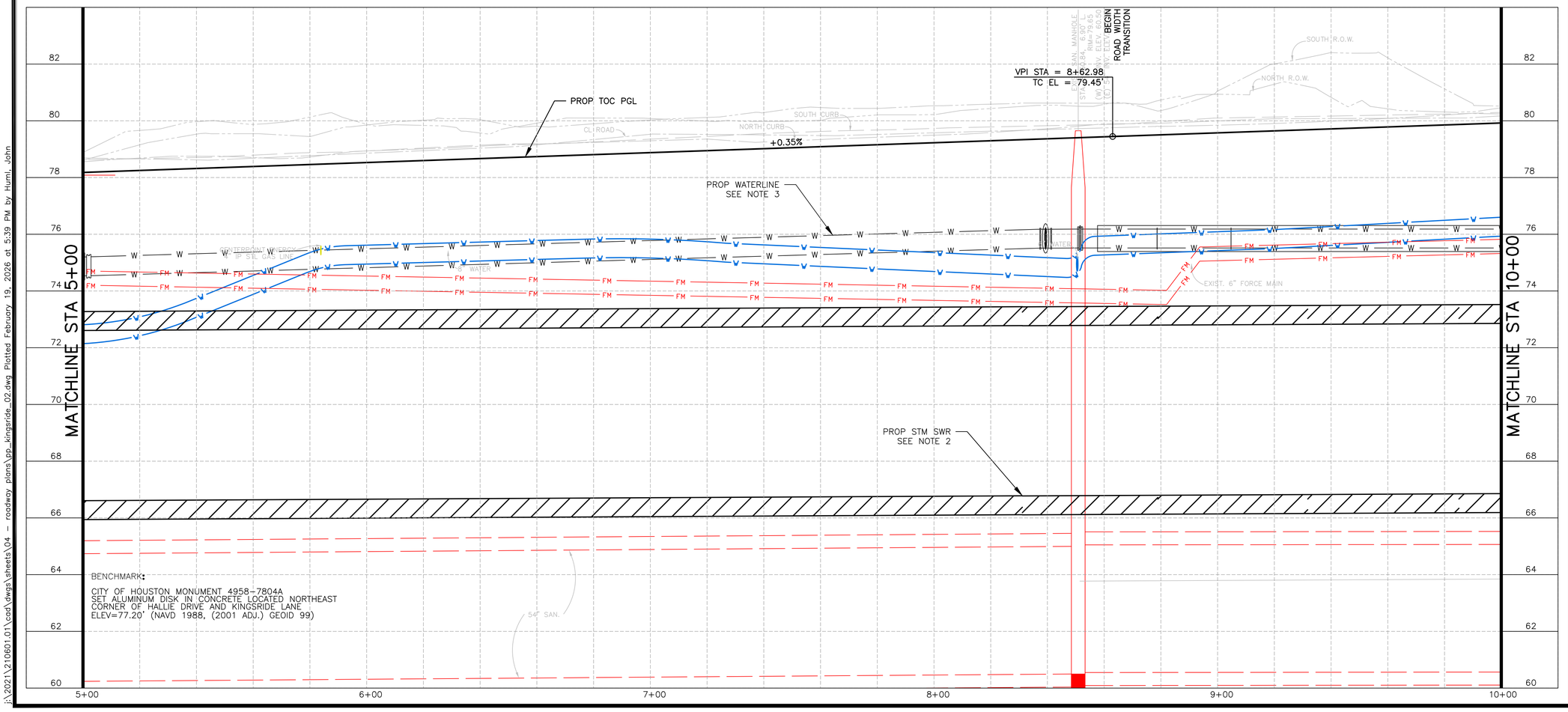

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
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APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34")
	V: 1"=2' (22"X34")
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	101 OF 343

Revisions

No.	Date	Revisions	App.

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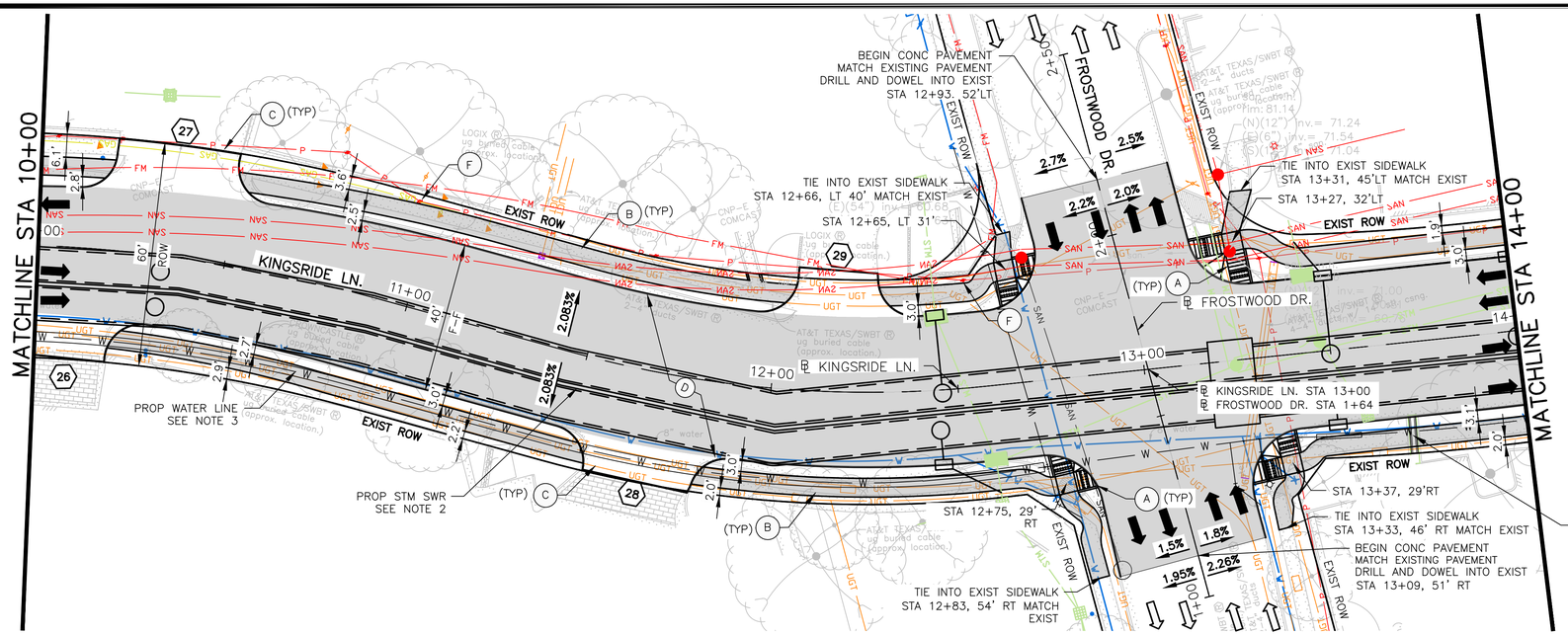

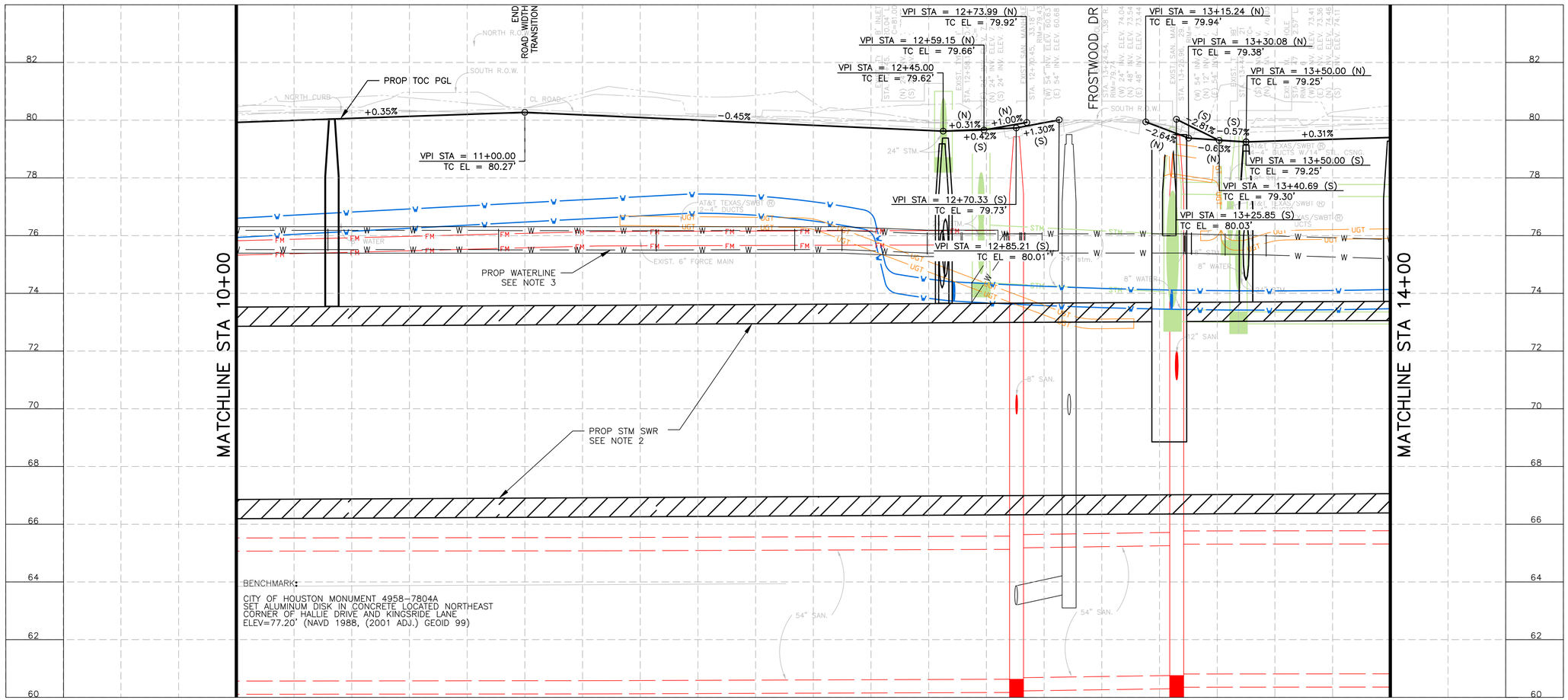

0 20 40
SCALE IN FEET

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
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NOTES:

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HRGreen
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HOUSTON, TX 77079
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P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 102 OF 343	

No.	Date	Revisions	App.

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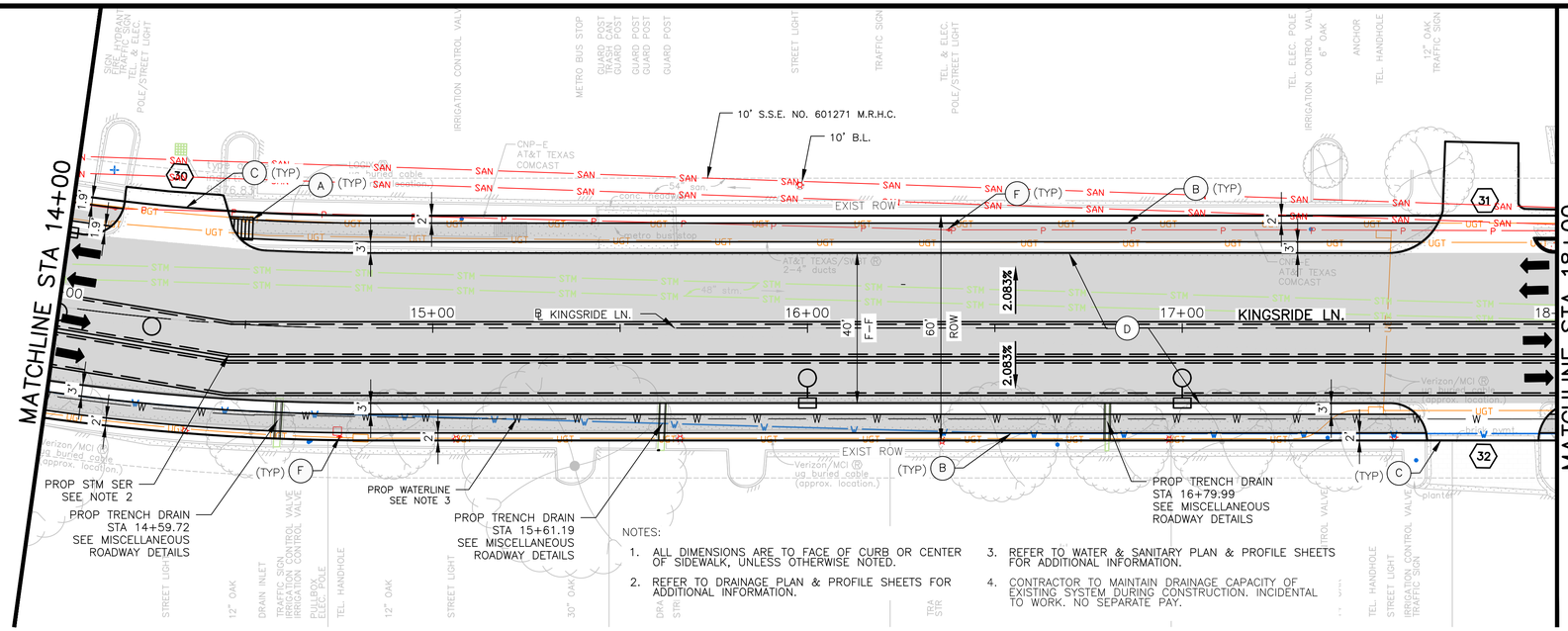

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0 20 40
SCALE IN FEET

N

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
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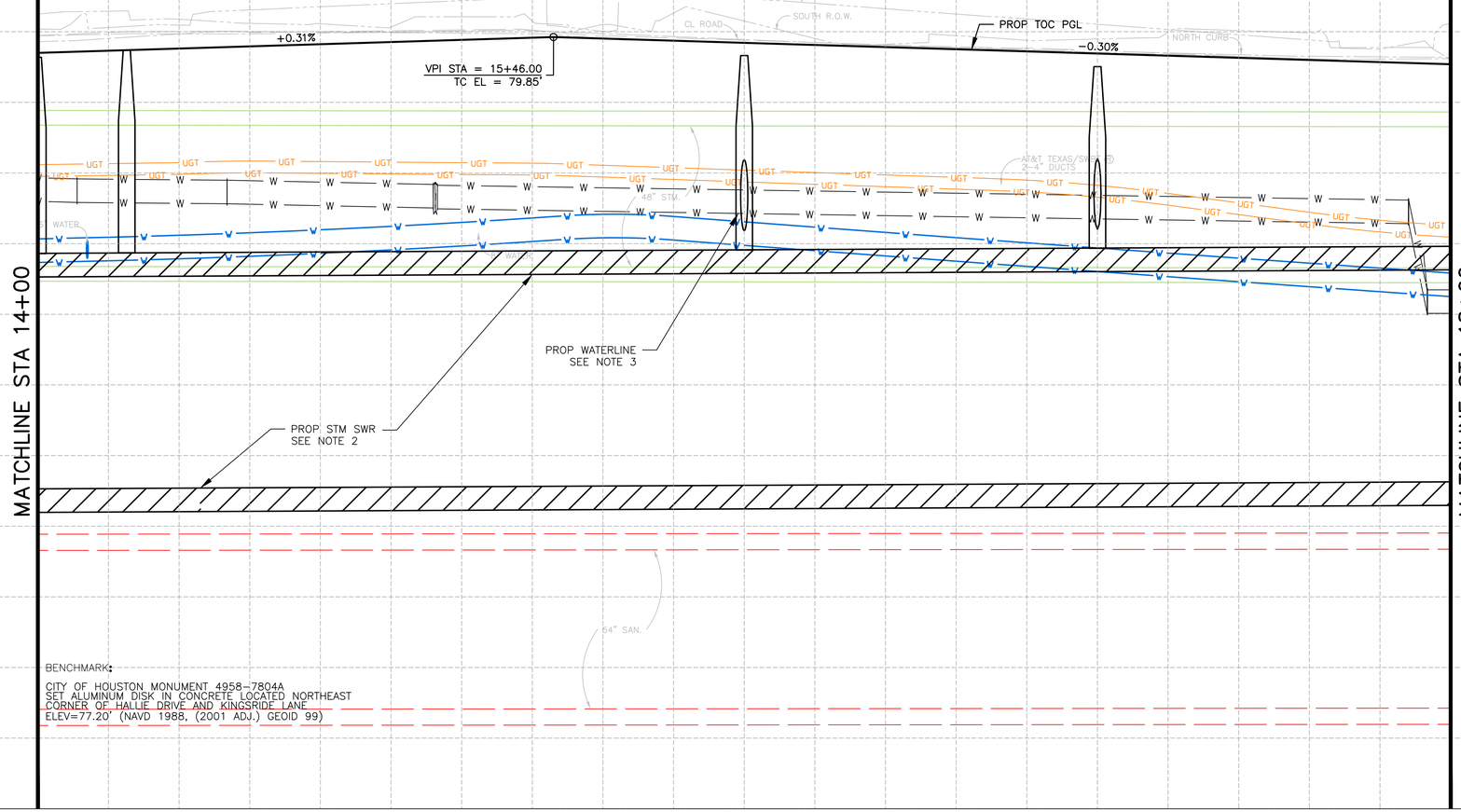
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

No.	Date	Revisions	App.



BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

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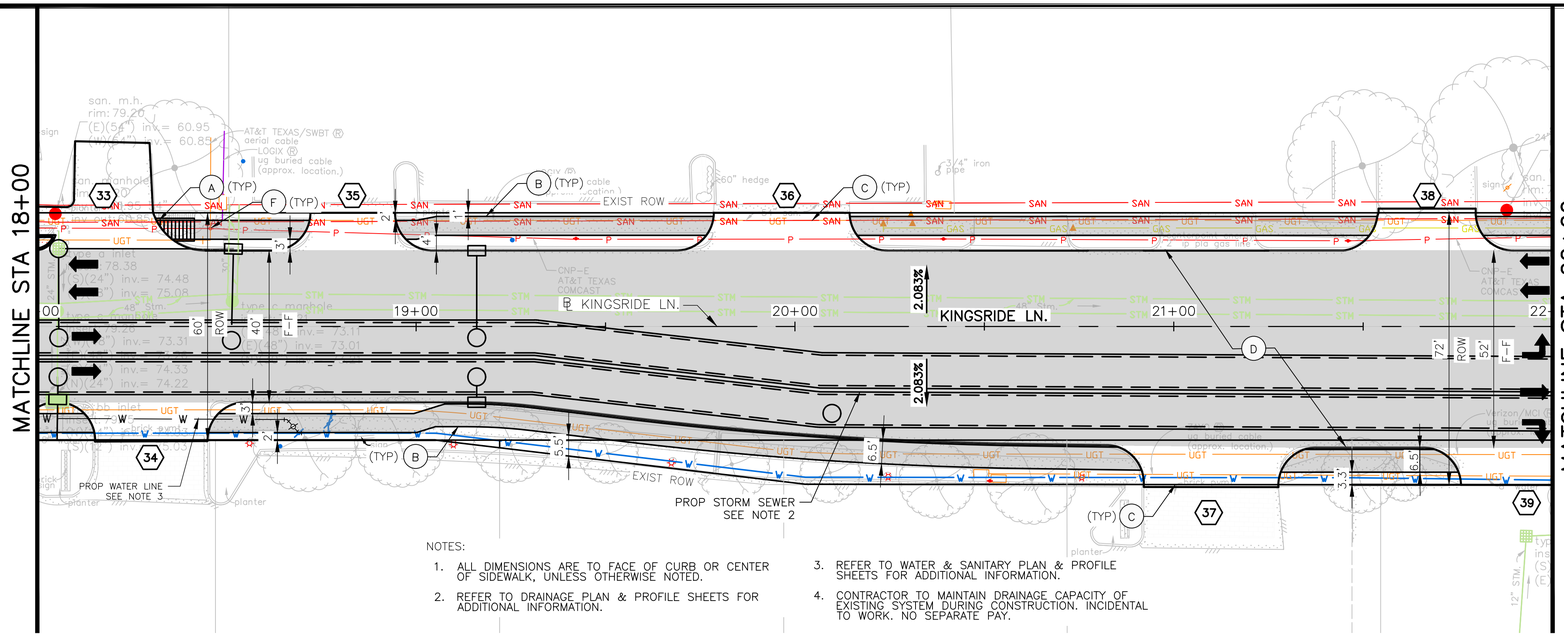
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	103 OF 343

I:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\rpp_kingsride_04.dwg Plotted February 19, 2026 at 5:41 PM by Huml, John



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0 20 40
SCALE IN FEET

N

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
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CABLE COMPANY DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

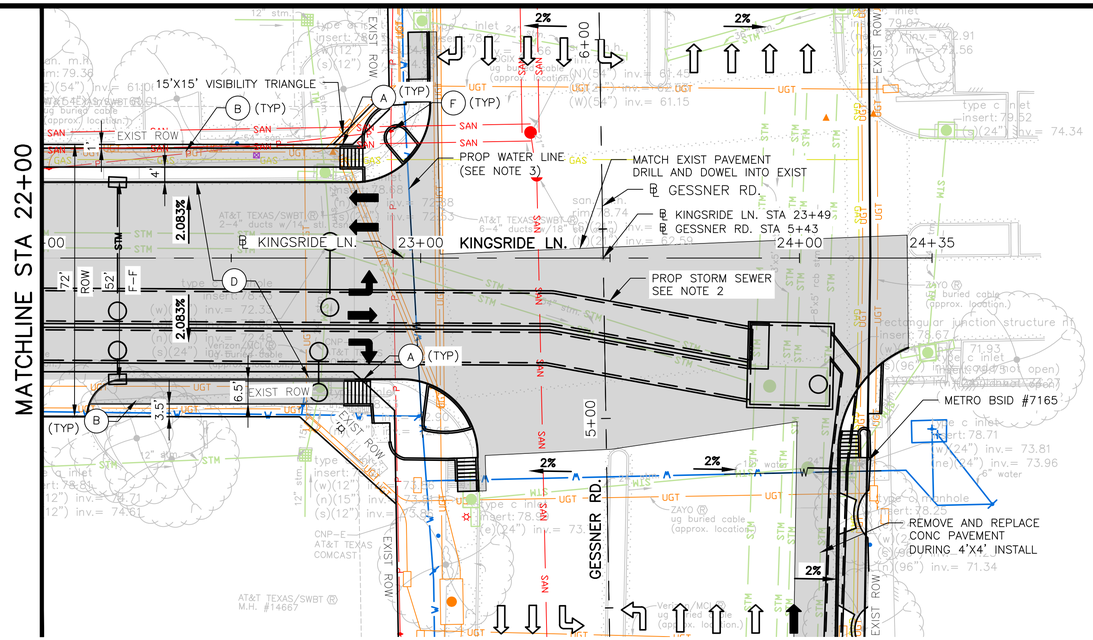
SHEET 5 OF 6

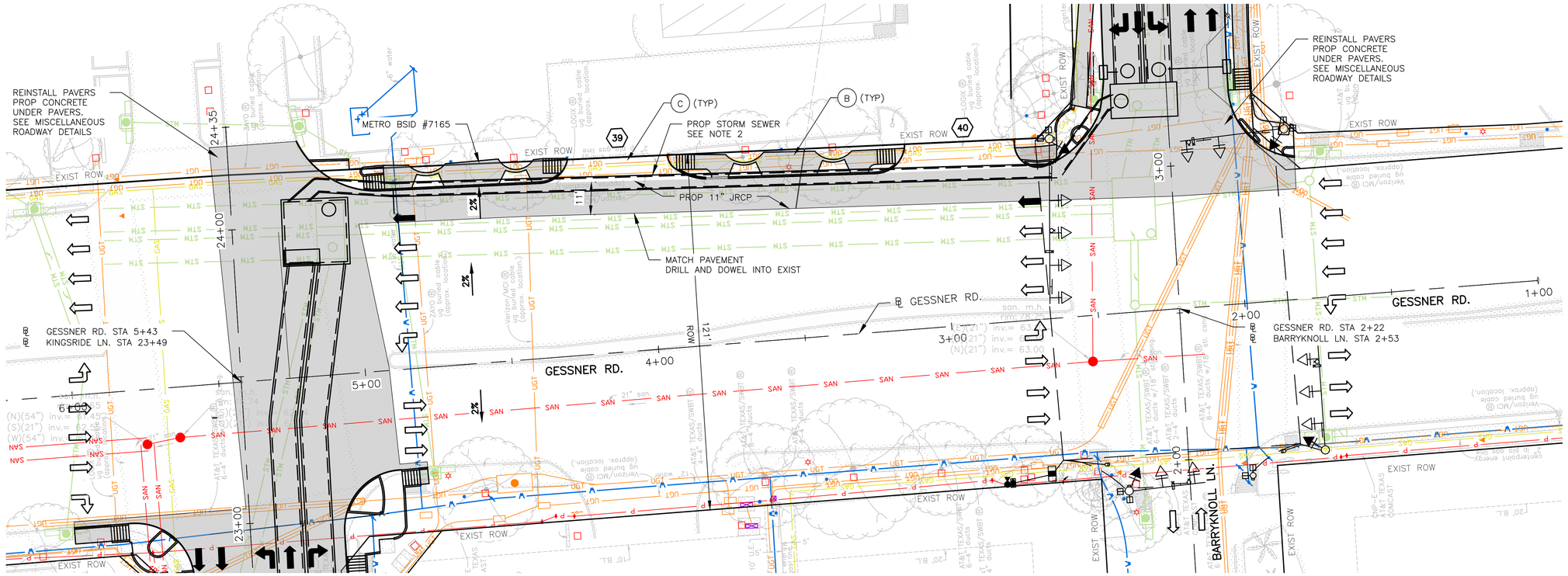
BENCHMARK:

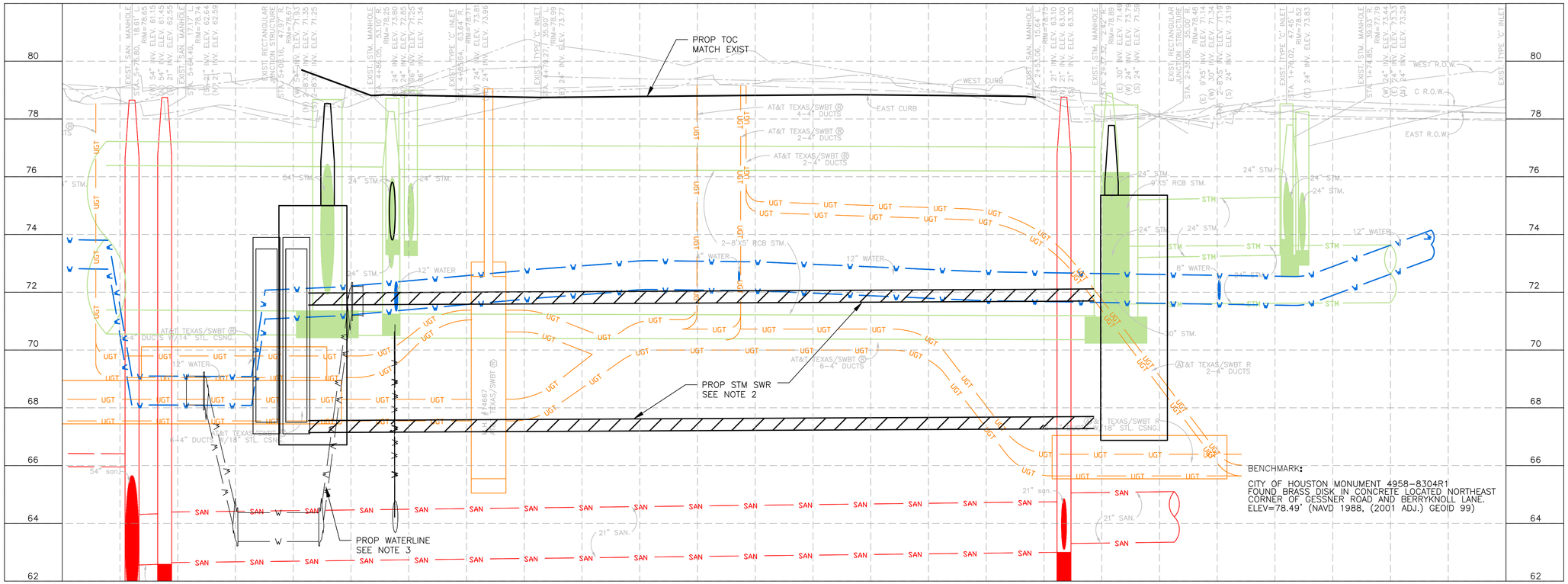
CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	104 OF 343

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_kingsride_05.dwg Plotted February 19, 2026 at 5:42 PM by Hurni, John


MATCHLINE STA 22+00
15'X15' VISIBILITY TRIANGLE
(TYP)
EXIST ROW
PROP WATER LINE (SEE NOTE 3)
MATCH EXIST PAVEMENT DRILL AND DOWEL INTO EXIST
℄ GESSNER RD.
℄ KINGSRIDE LN. STA 23+49
℄ GESSNER RD. STA 5+43
℄ KINGSRIDE LN.
23+00
KINGSRIDE LN.
24+00
24+35
PROP STORM SEWER SEE NOTE 2
METRO BSID #7165
REMOVE AND REPLACE CONC PAVEMENT DURING 4'X4' INSTALL
GESSNER RD.
5+00
6+00
72' ROW
52' F-F
2.083%
6.5'
3.5'
4'
1'
2%
SAN
STM
UGT
GAS
W
AT&T TEXAS/SWBT ® 2-4" ducts w/1¼" sch. 40
AT&T TEXAS/SWBT ® 6-4" ducts w/1¼" sch. 40
AT&T TEXAS/SWBT ® M.H. #14667
CNP-E AT&T TEXAS COMCAST
ZAYO ® ug buried cable (approx. location.)
type c inlet insert: 79.52 (s)(24") inv.= 74.34
type c inlet insert: 78.71 (s)(24") inv.= 73.81
(ne)(24") inv.= 73.96
6" water
type S manhole insert: 78.46 (s)(96") inv.= 71.34
rectangular junction structure rim insert: 78.67 (s)(96") inv.= 71.93
type c inlet insert: 78.71 (s)(24") inv.= 73.81
(ne)(24") inv.= 73.96
6" water
type c inlet insert: 78.36 (s)(24") inv.= 73.36
type c inlet insert: 78.36 (w)(12") inv.= 72.36 (n)(15") inv.= 72.48 (s)(12") inv.= 72.48





LEGEND

0 20 40
SCALE IN FEET

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

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BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

VERIFICATION OF PRIVATE UTILITY LINES

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
GESSNER ROAD
STA 1+00 TO STA 6+00

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 106 OF 343	

Revisions

No.	Date

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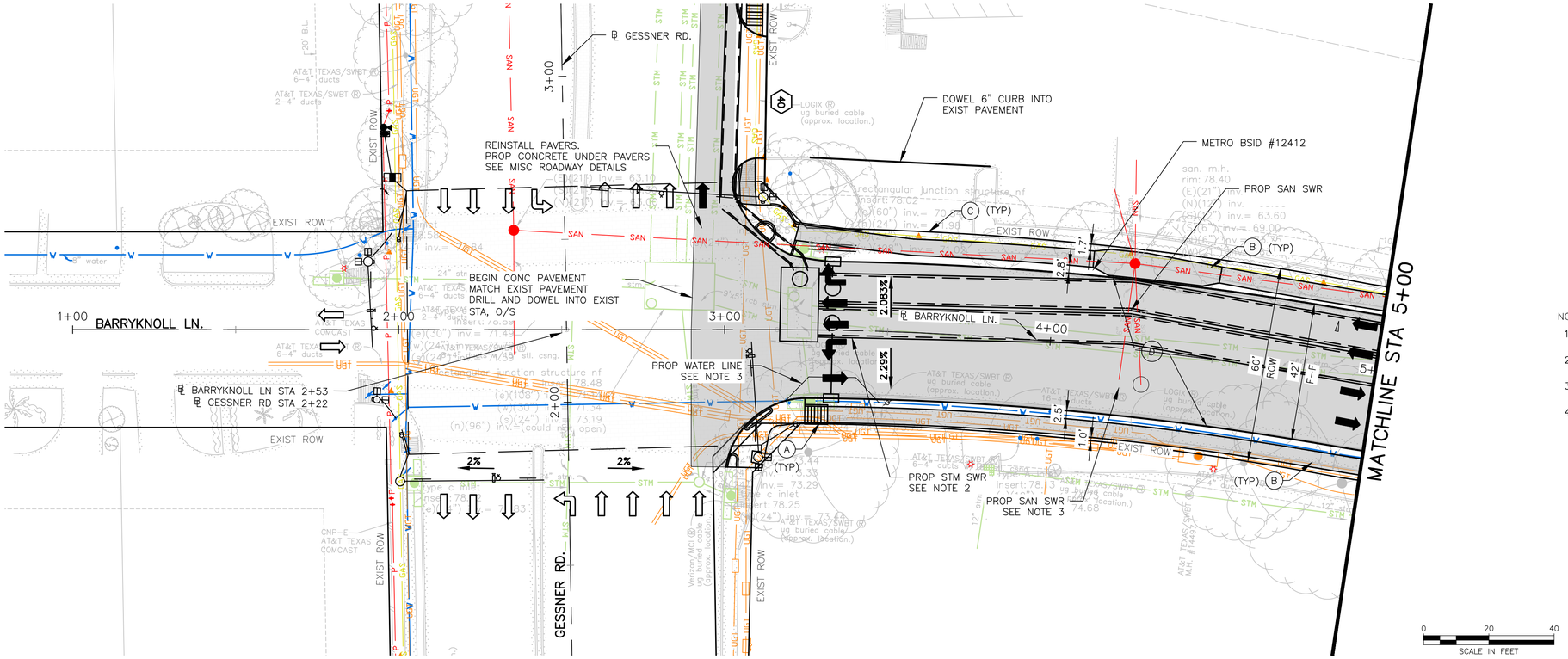

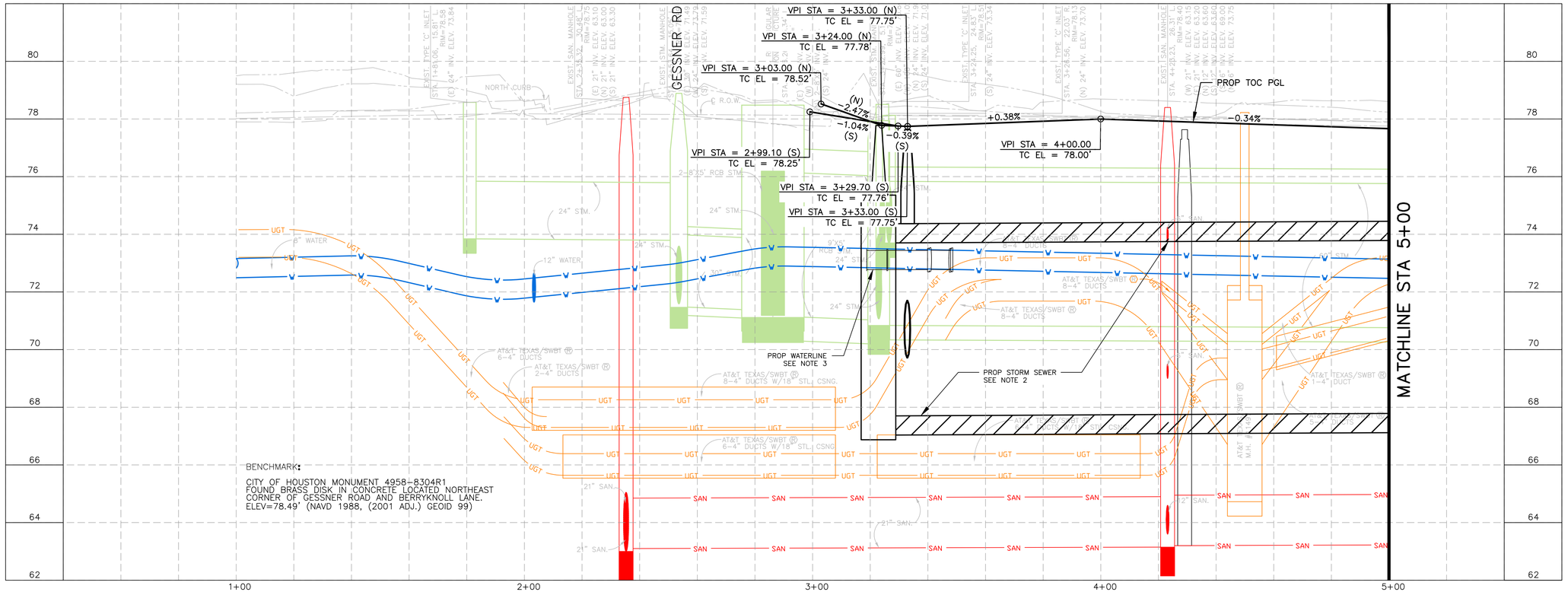

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

SCALE IN FEET: 0 20 40

No.	Date	Revisions	App.

NOTES:

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VERIFICATION OF PRIVATE UTILITY LINES

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 1+00 TO STA 5+00

SHEET 1 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	107 OF 300

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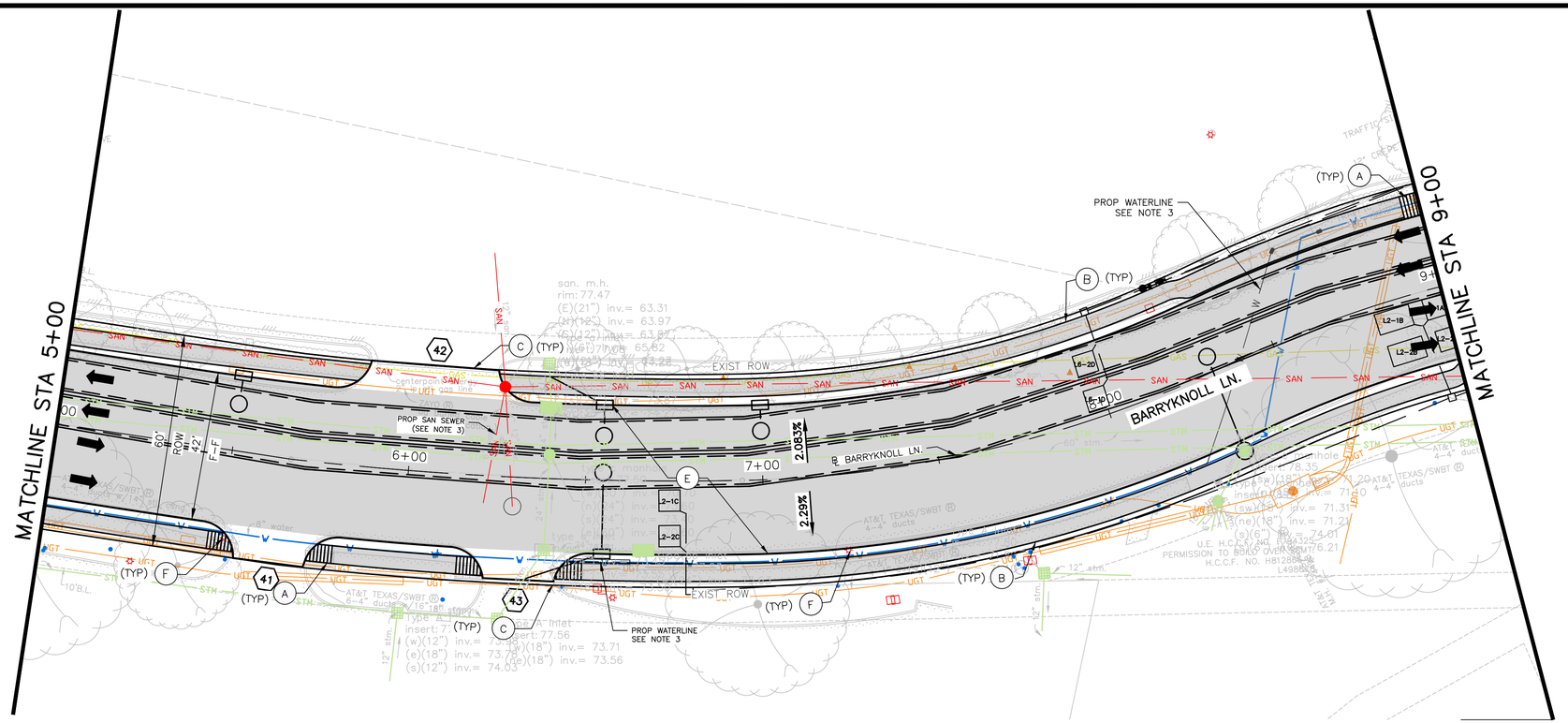

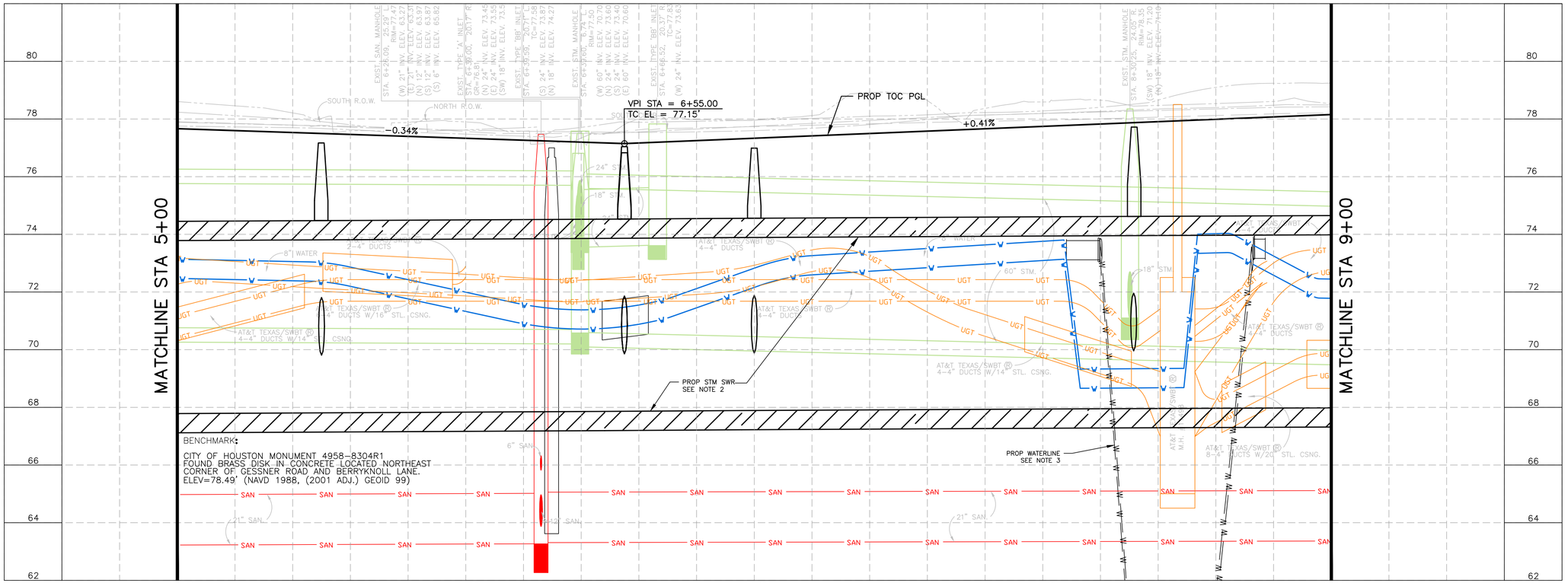

LEGEND

0 20 40
SCALE IN FEET

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
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- (F) ADJUST TO GRADE
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- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

No.	Date	Revisions	App.

NOTES:

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VERIFICATION OF PRIVATE UTILITY LINES

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRKNOLL LANE
STA 5+00 TO STA 9+00

SHEET 2 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	108 OF 343

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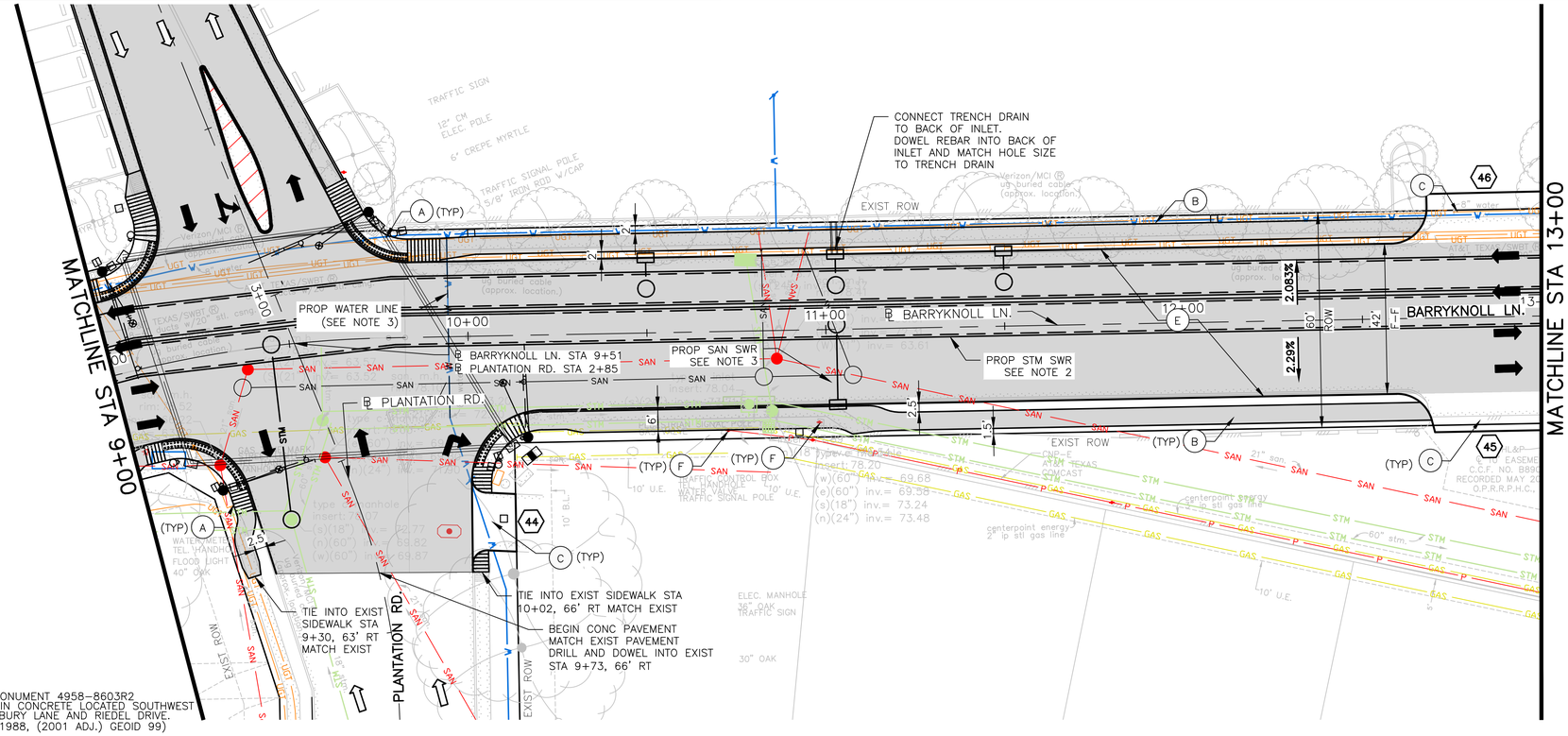
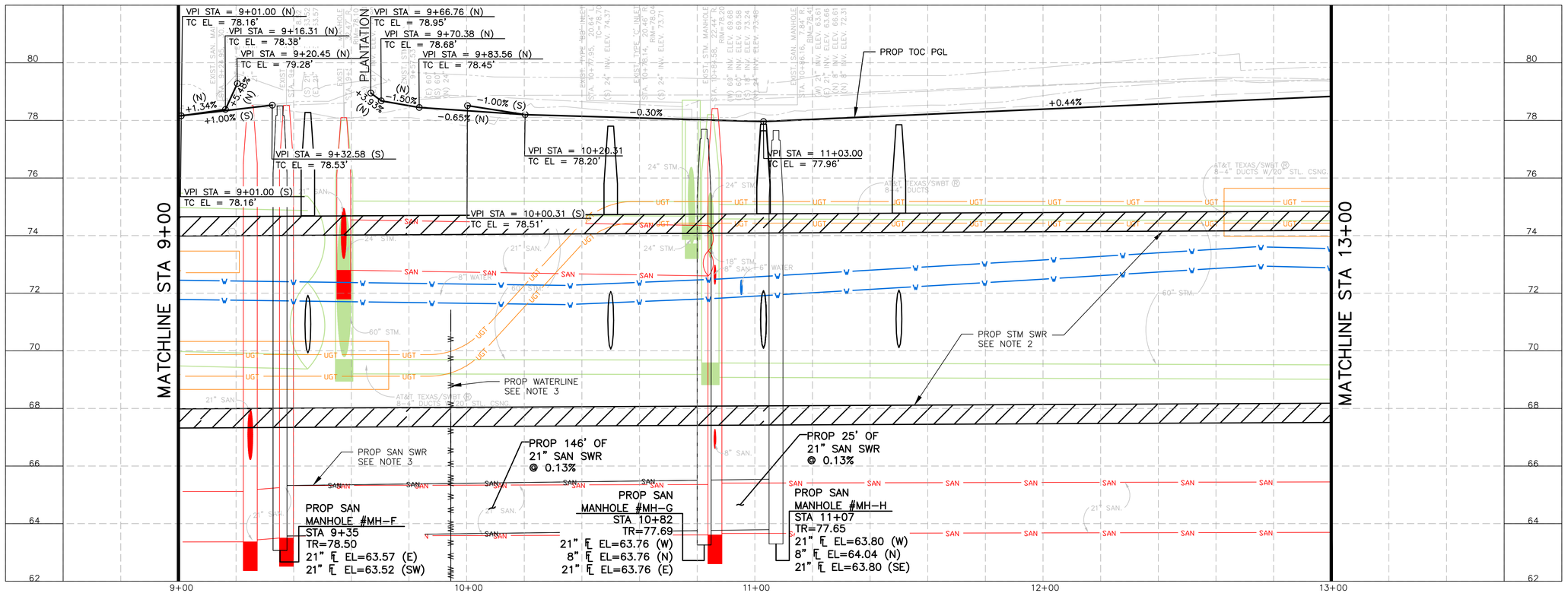


BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)



LEGEND

0 20 40
SCALE IN FEET

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
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N

No.	Date	Revisions	App.

NOTES:

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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
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HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	109 OF 343

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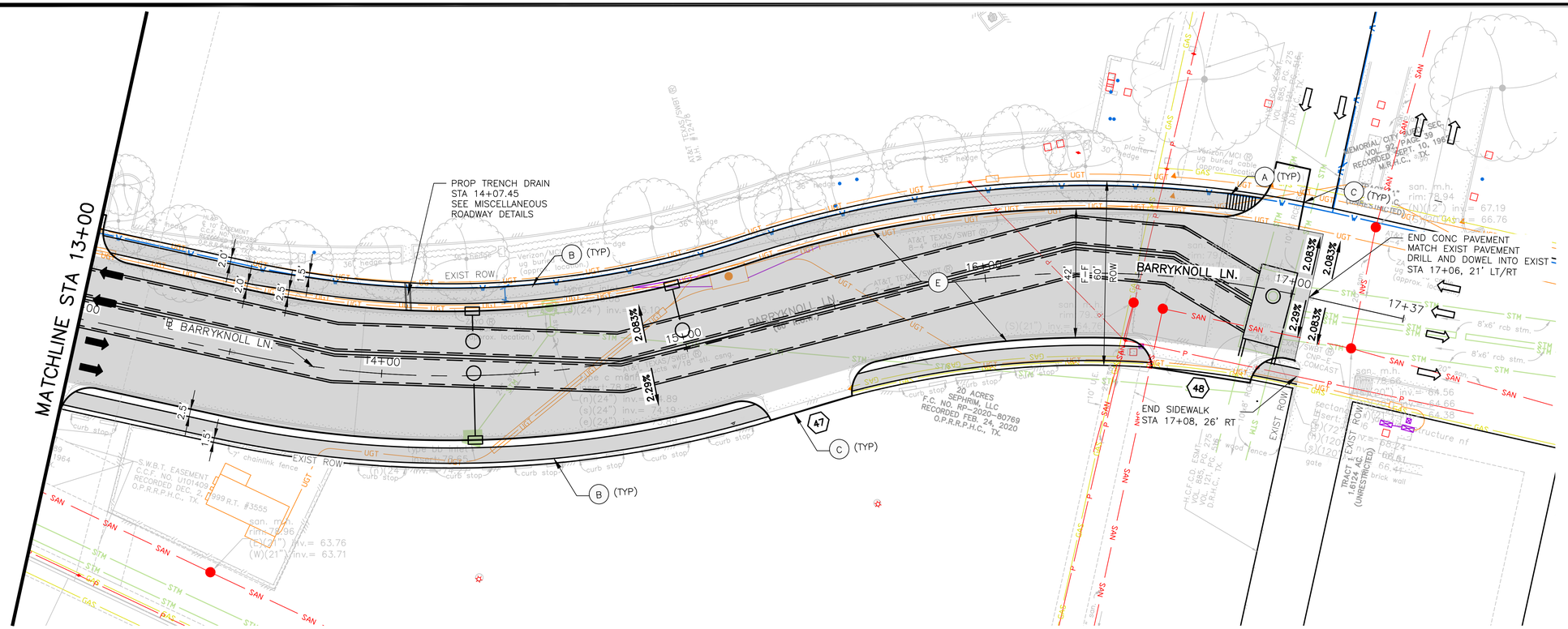

LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
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0 20 40
SCALE IN FEET

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No.	Date	Revisions	App.

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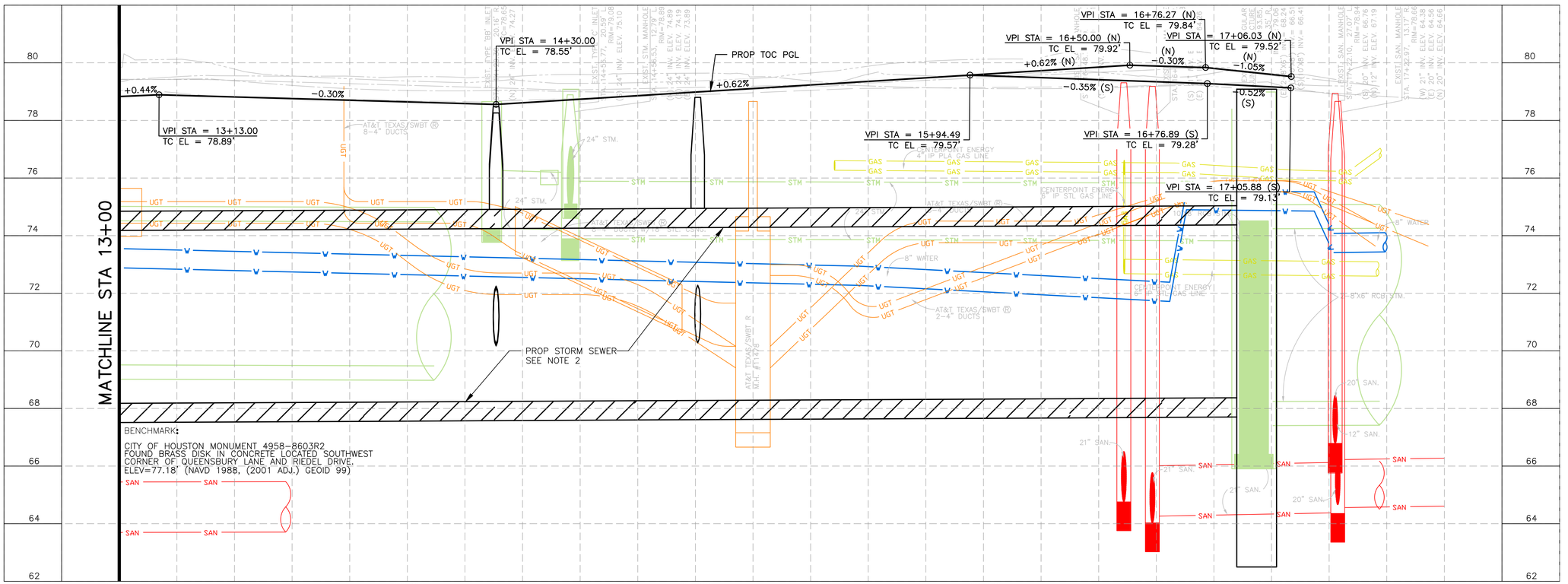

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BY: DAVID G. GREANEY
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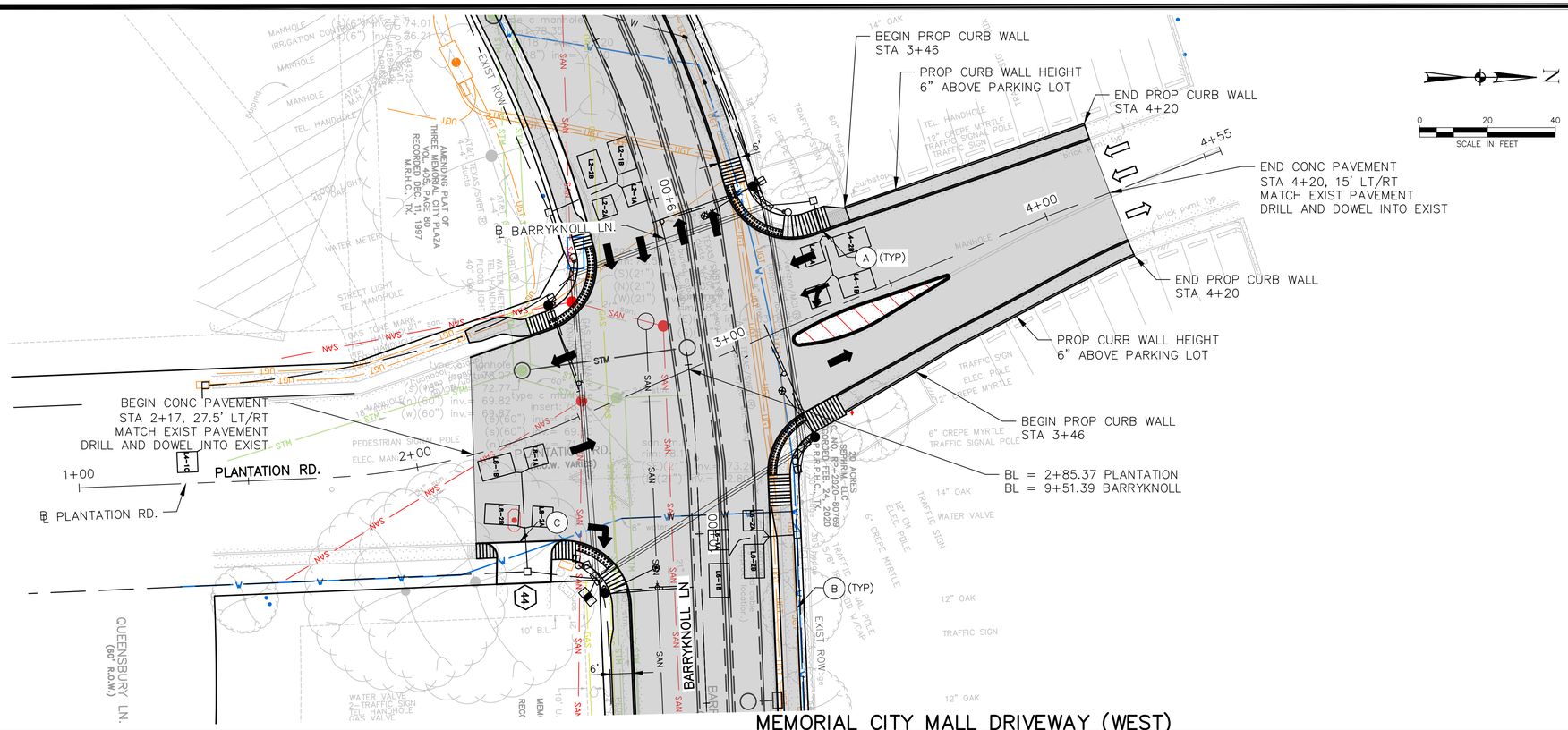
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 13+00 TO END PROJECT

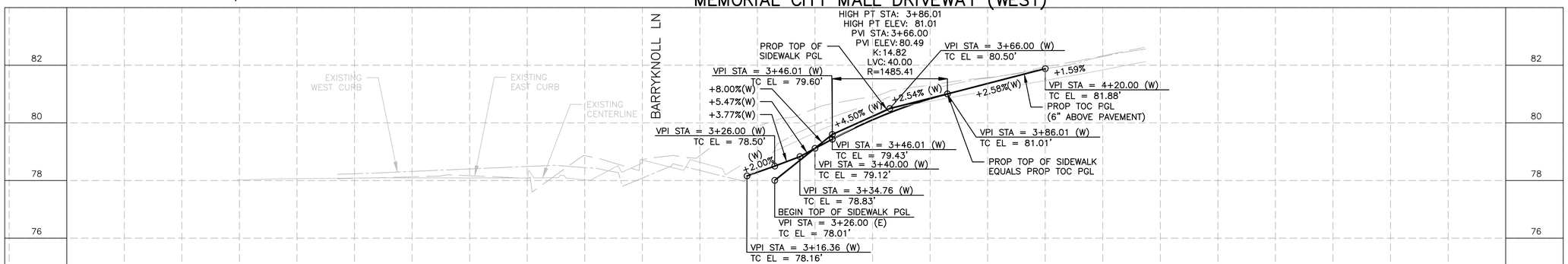
SHEET 4 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	110 OF 343

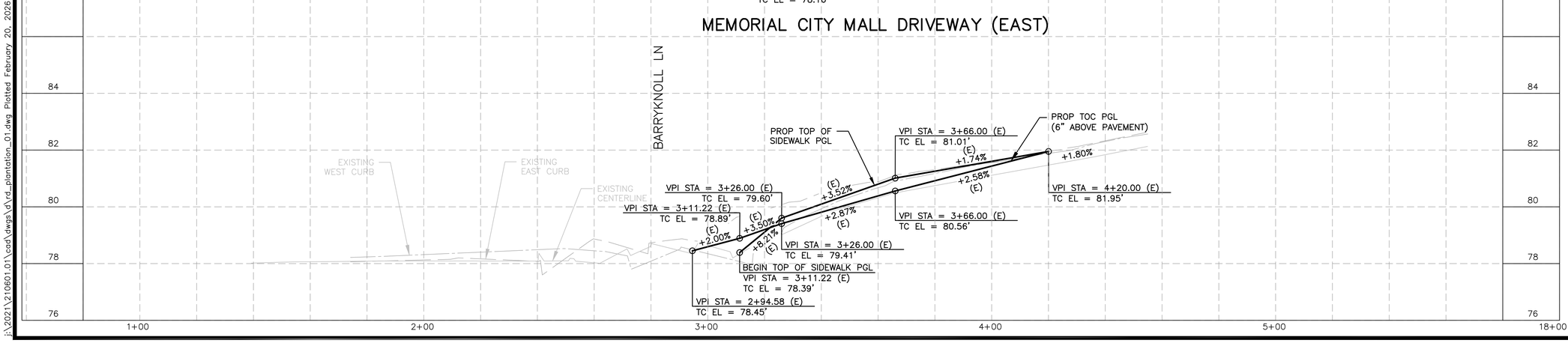
J:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_barryknoll_04.dwg Plotted February 19, 2026 at 5:49 PM by Huml, John



MEMORIAL CITY MALL DRIVEWAY (WEST)



MEMORIAL CITY MALL DRIVEWAY (EAST)



LEGEND

- PROP LANE
- EXIST LANE
- PROP 6" CURB
- EXIST ROW
- (X) PROP DRIVEWAY NUMBER
- (A) PROP WHEEL CHAIR RAMP
- (B) PROP 5' CONC SIDEWALK
- (C) PROP CONC DRIVEWAY
- (D) PROP 7" JRCP
- (E) PROP 9" JRCP
- (F) ADJUST TO GRADE
- (G) POWER POLE TO BE RELOCATED (BY OTHERS)
- (H) ADJUST TO GRADE/RELOCATE (BY OTHERS)

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:____2/20/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

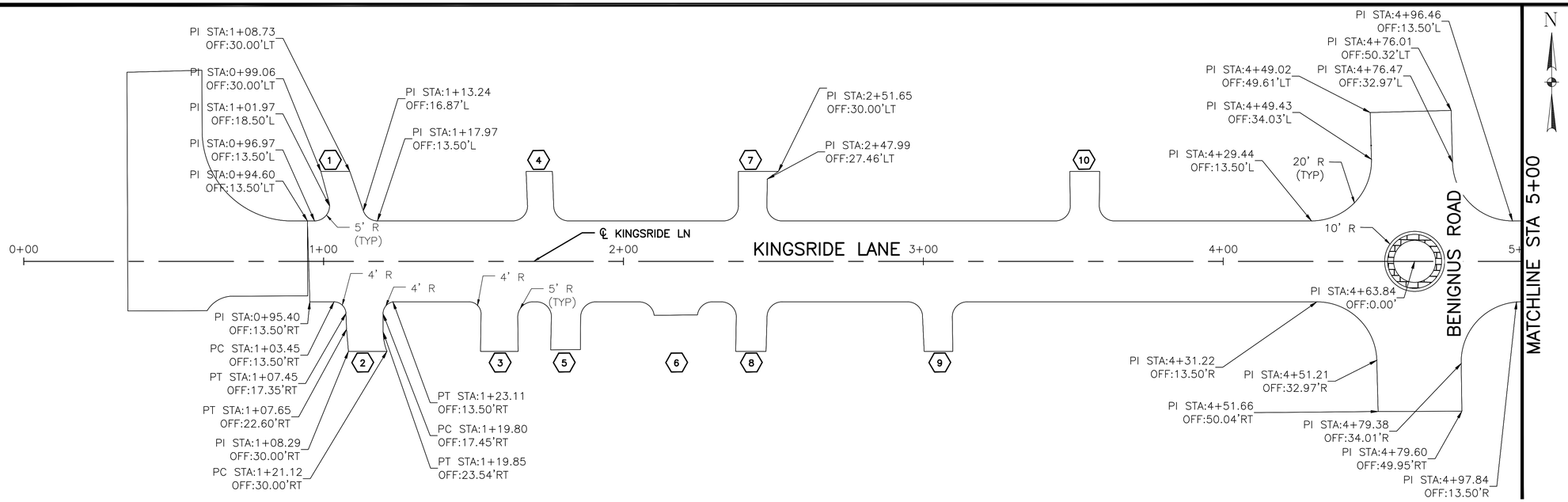
ROADWAY PLANS
PLANTATION RD
STA 1+00 TO STA 4+20

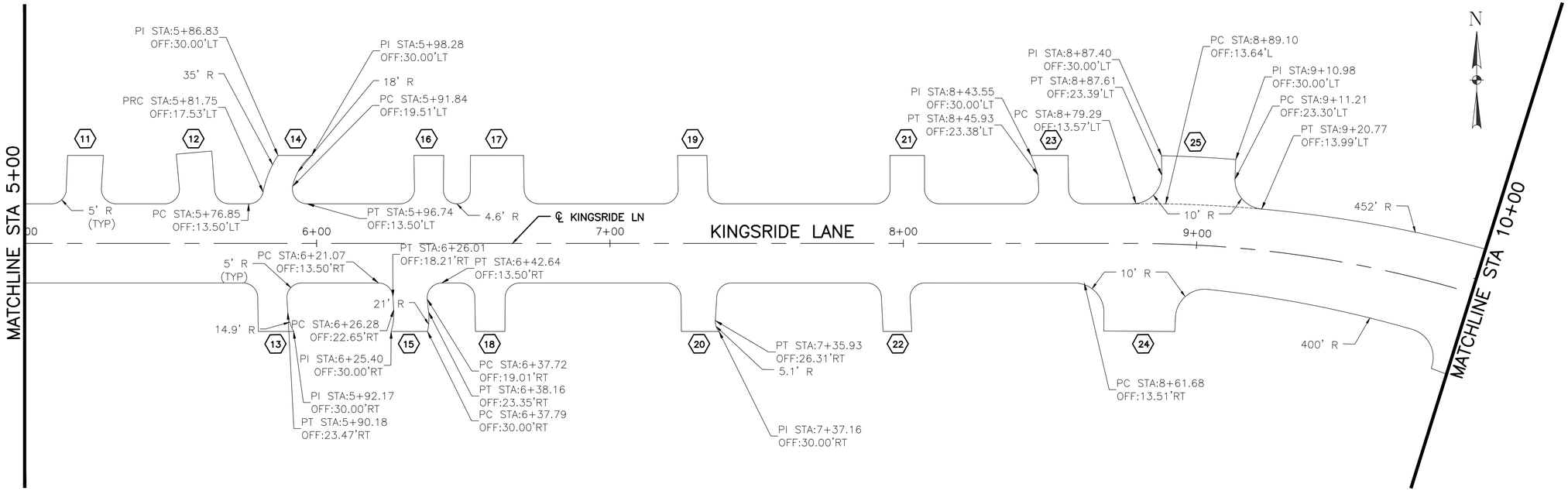
SHEET 1 OF 1

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=20' (FULL) V: 1"=2' (FULL)
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	111 OF 343

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\d\rd_plantation_01.dwg Plotted February 20, 2026 at 12:27 PM by McCourt, Jeff





10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

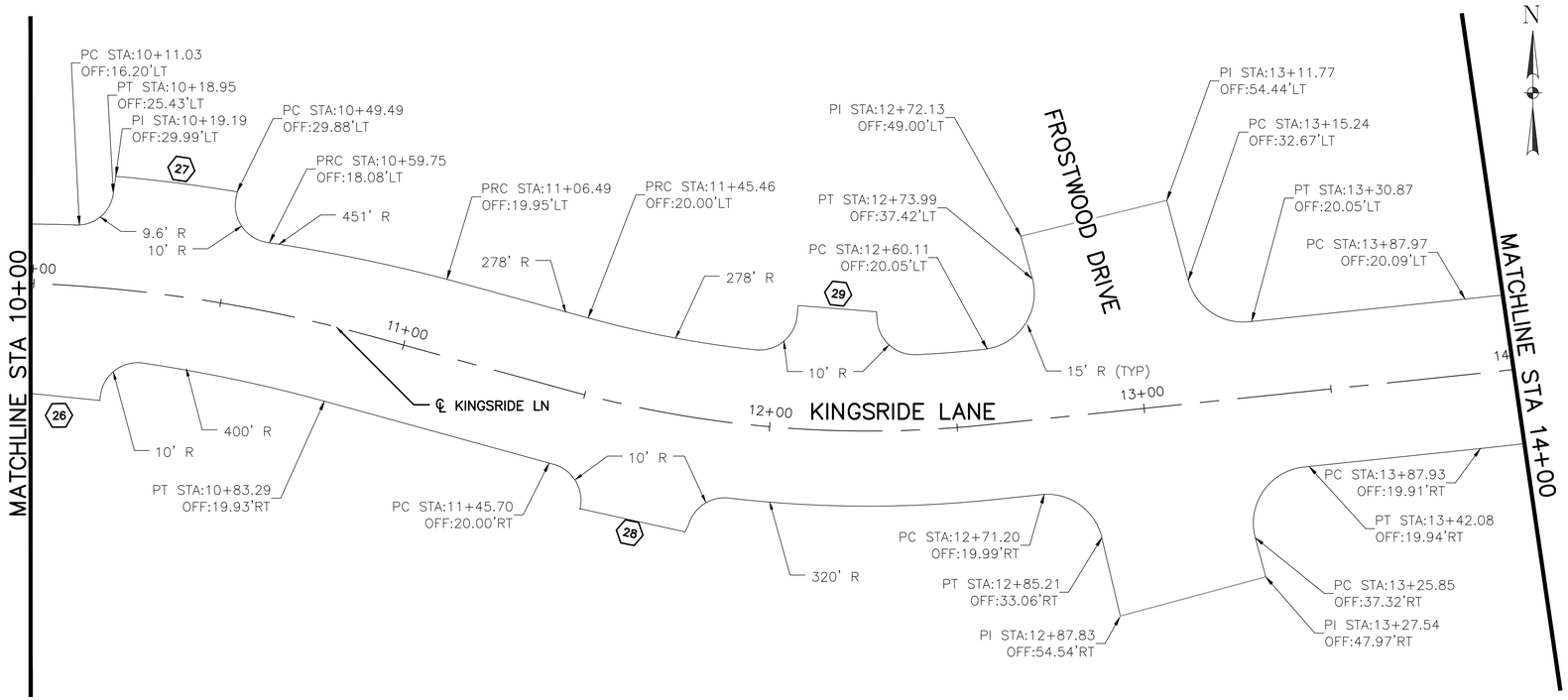
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

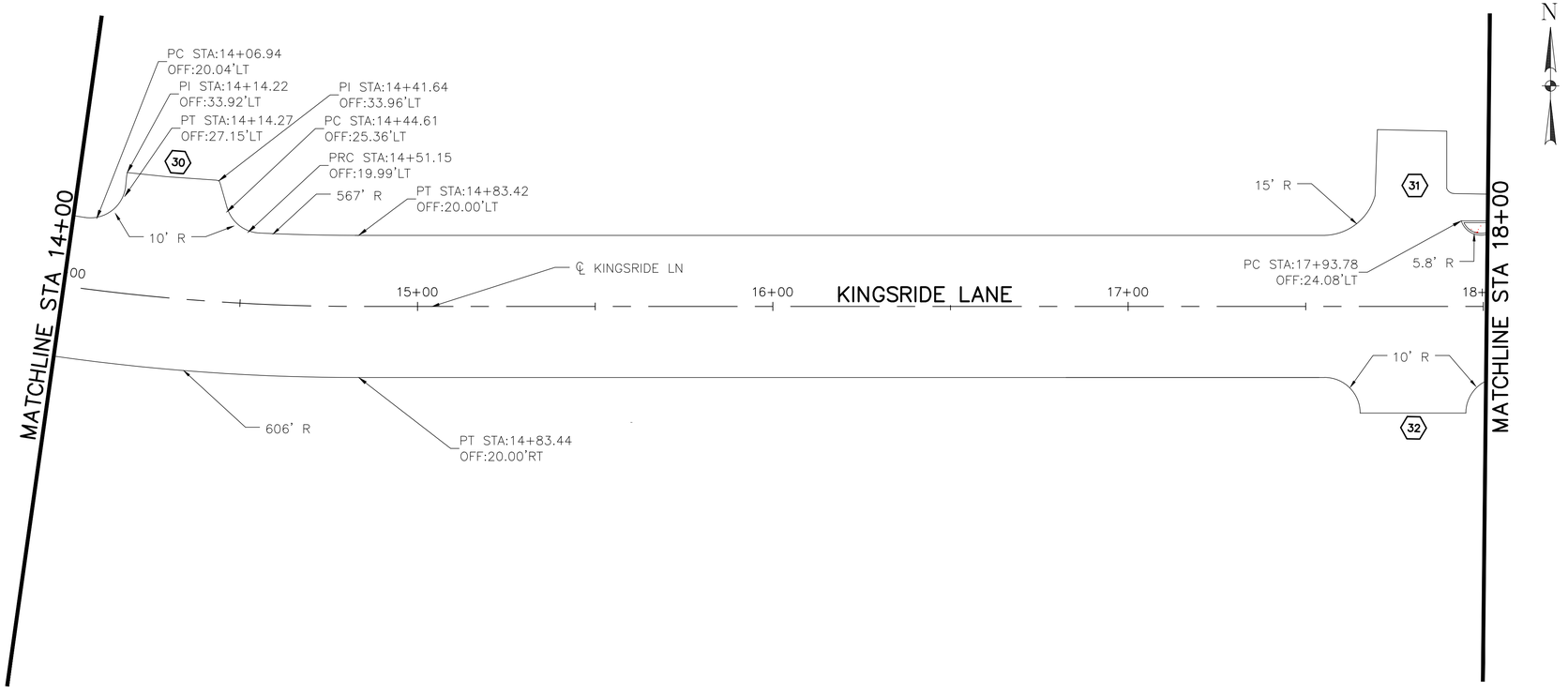
SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 112 OF 343	

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\drd_kingsride_horizontal geometry_01.dwg Plotted February 19, 2026 at 5:53 PM by Huml, John





10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
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BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

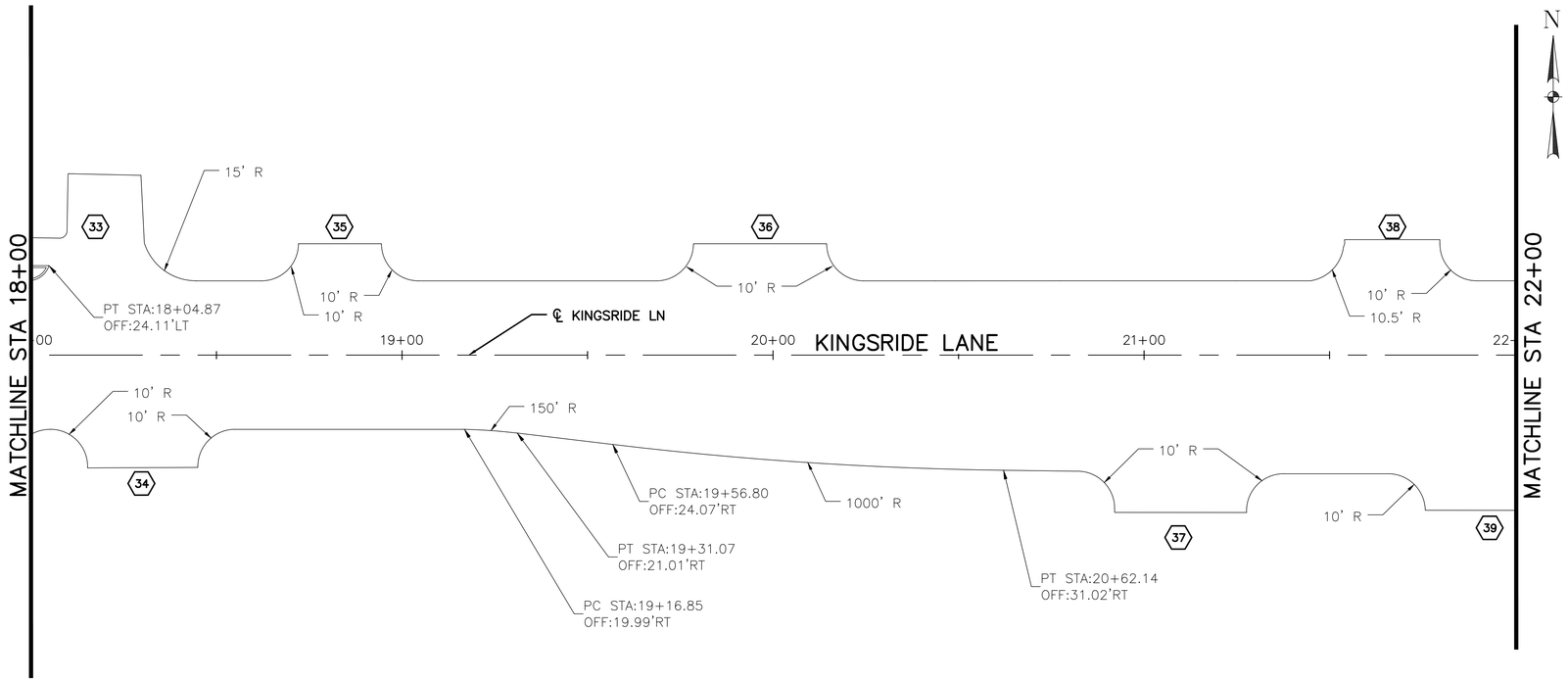
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
STA 10+00 TO STA 18+00

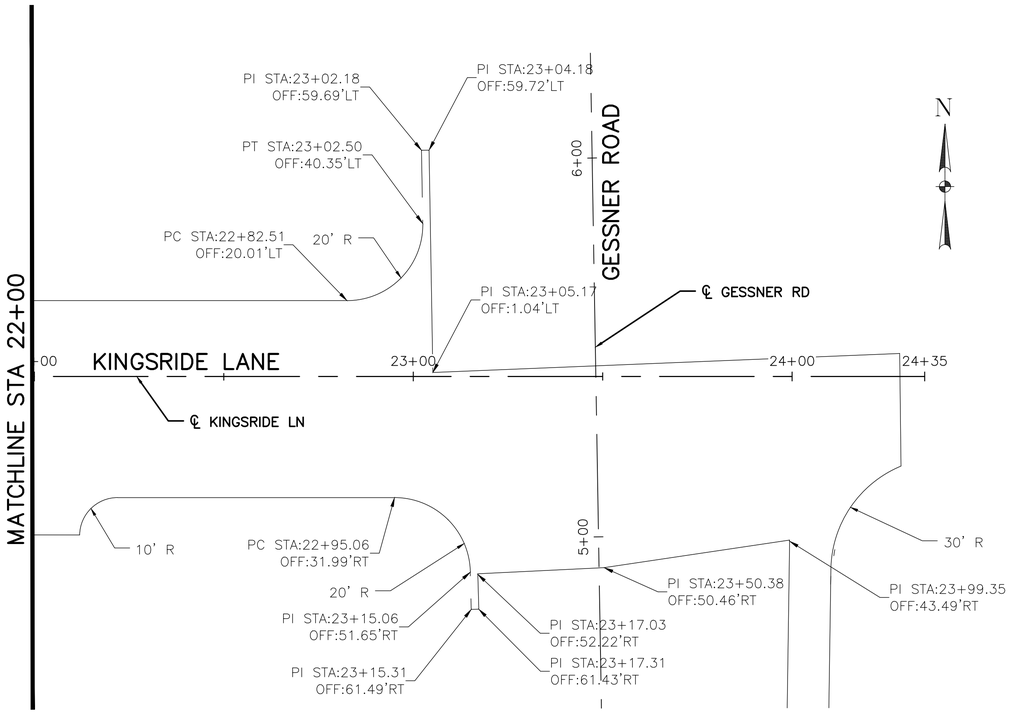
SHEET 2 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1" =20' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 113 OF 343	

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\d\rd_kingsride_horizontal geometry_02.dwg Plotted February 19, 2026 at 5:53 PM by Huml, John





10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

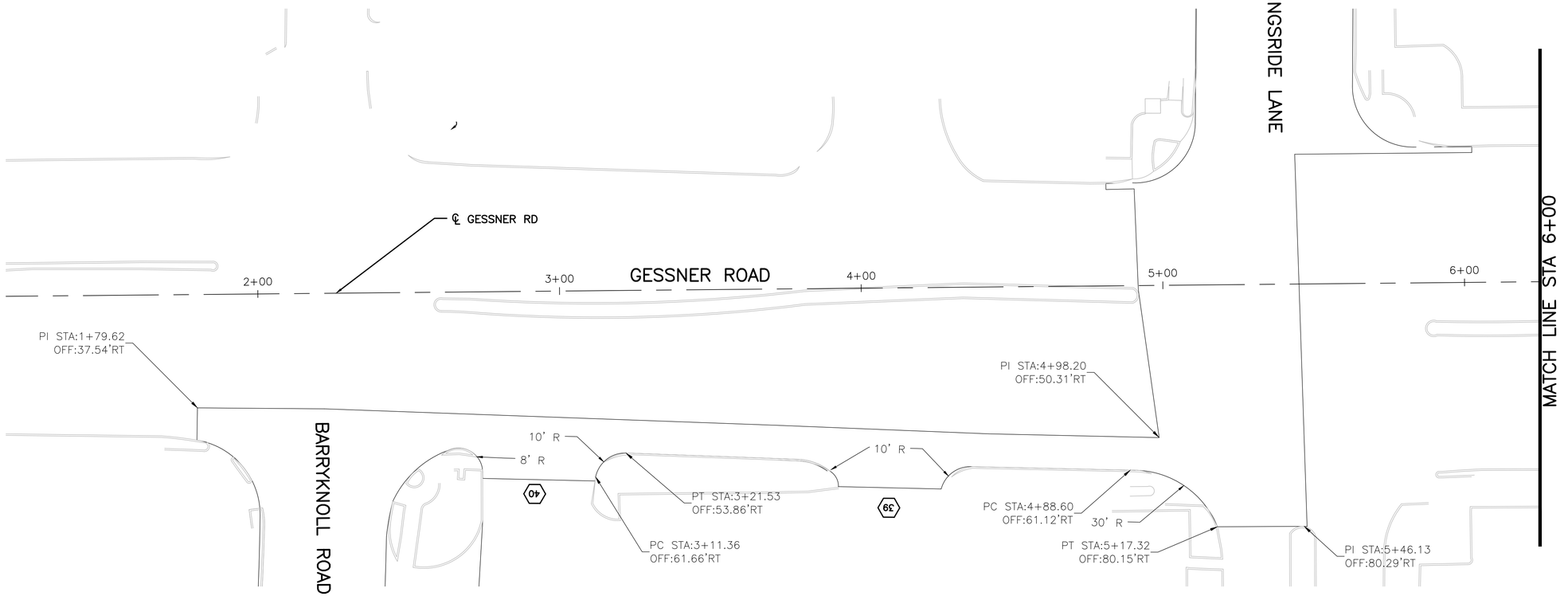
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1" =20' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 114 OF 343	

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\d\rd_kingsride_horizontal geometry_03.dwg Plotted February 19, 2026 at 5:53 PM by Huml, John



N

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

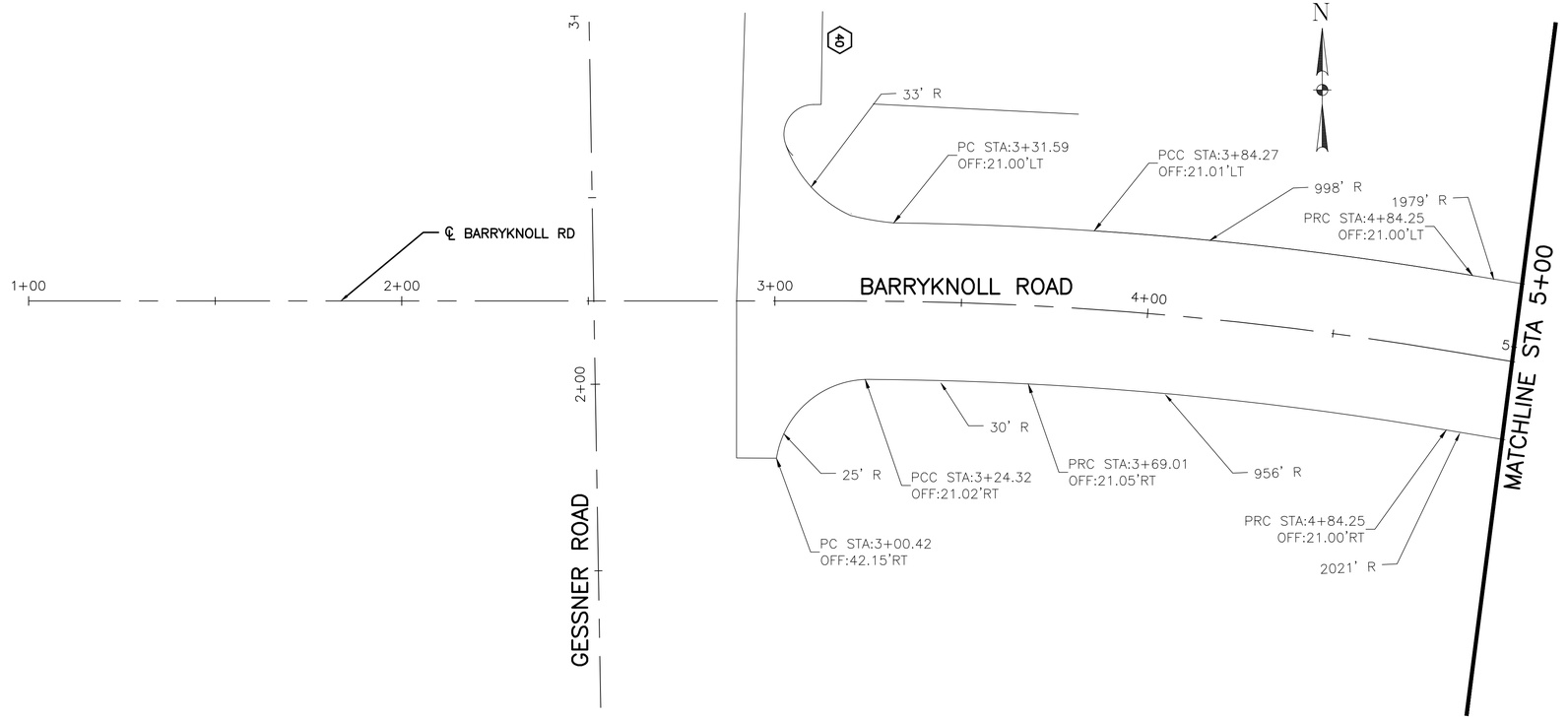
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

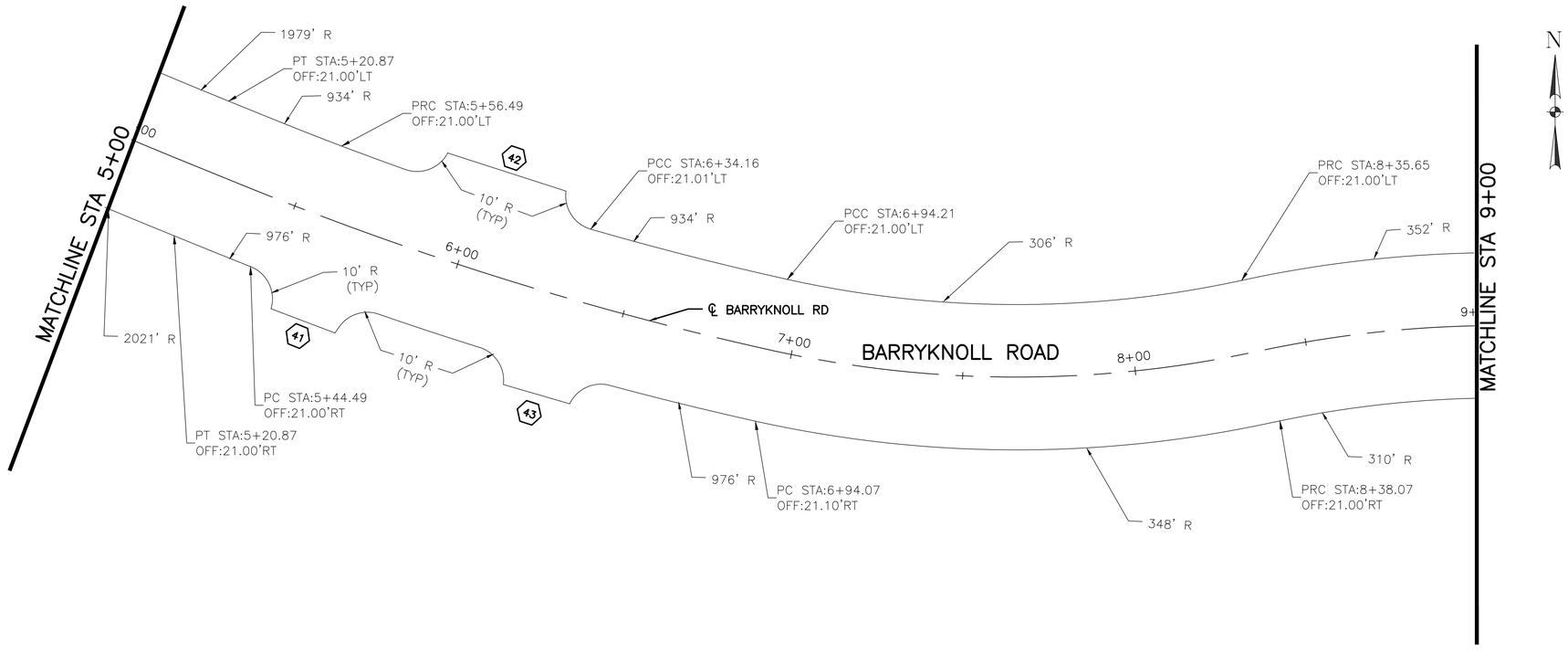
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
GESSNER ROAD

SHEET 1 OF 1

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1" =20' (22"X34")
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 115 OF 343

J:\2021\210601.01\cad\dwgs\d\rd_gessner_horizontal geometry_01.dwg Plotted February 19, 2026 at 5:53 PM by Huml, John





10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

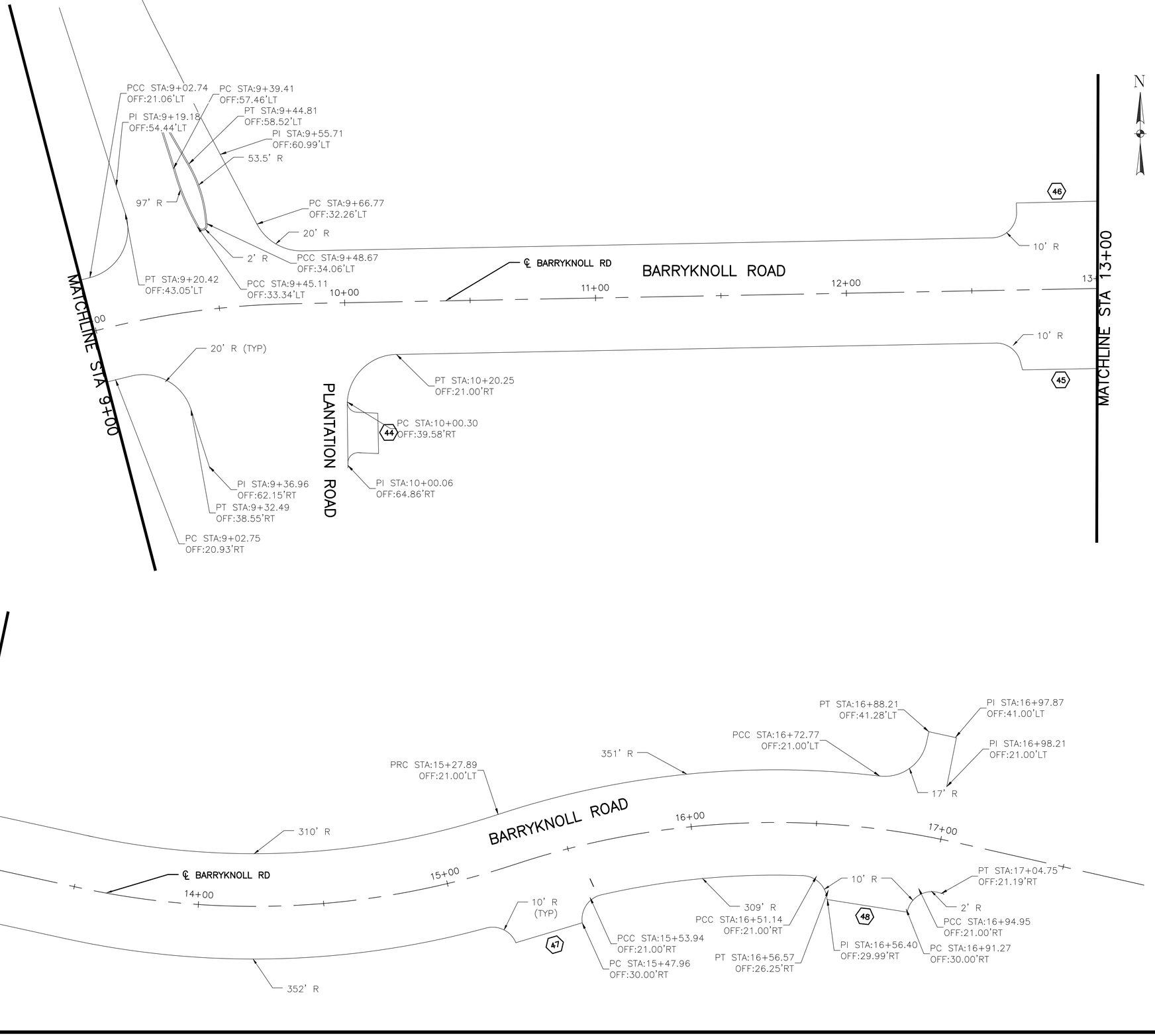
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
BARRYKNOLL ROAD
PROJECT BEGIN TO STA 9+00

SHEET 1 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1" =20' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 116 OF 343	

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\rd_barryknoll_horizontal geometry_01new.dwg Plotted February 19, 2026 at 5:53 PM by Huml, John



No.	Date	Revisions	Appr.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:____2/20/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

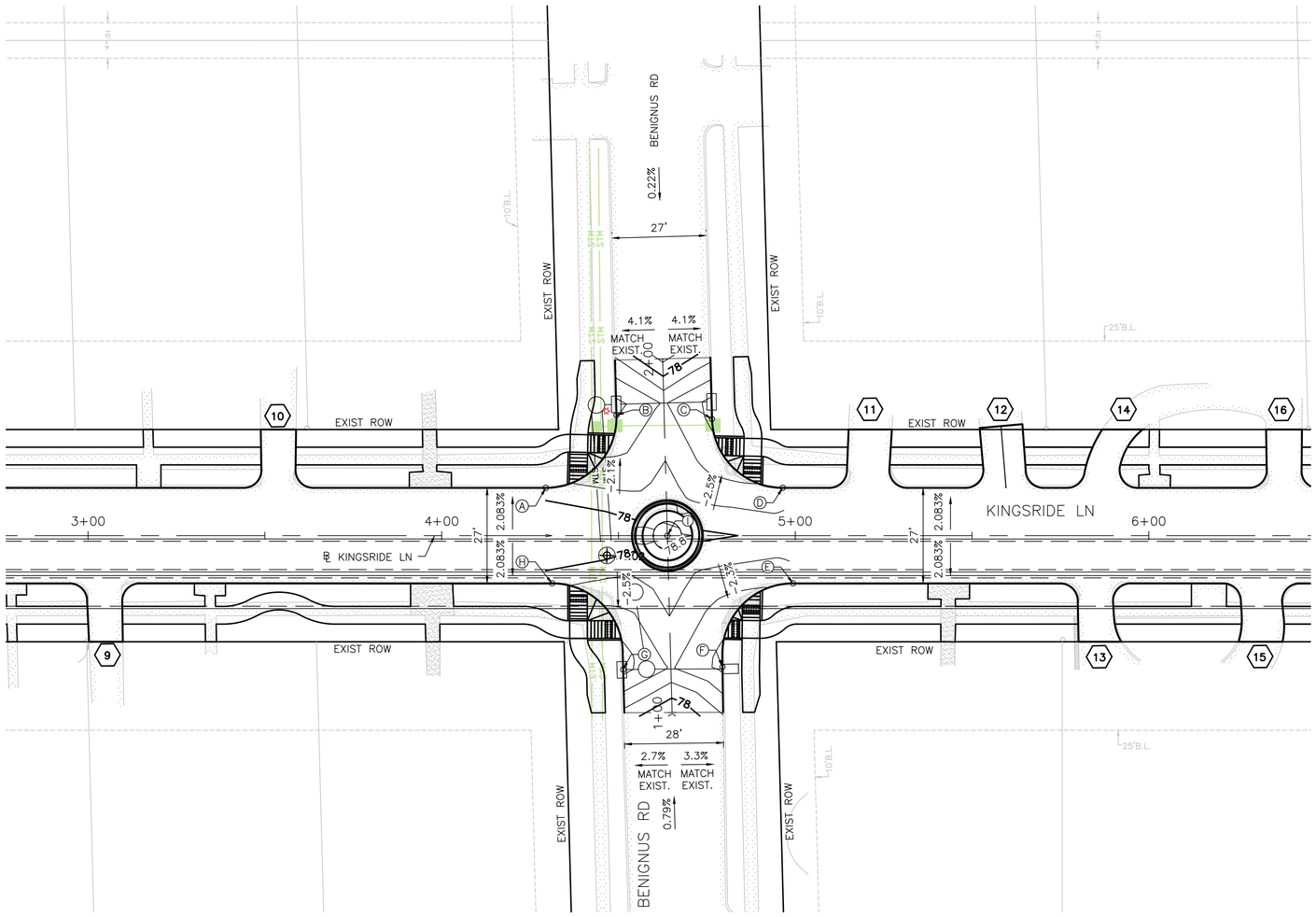
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
BARRYKNOLL ROAD
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1" =20' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 117 OF 300	

J:\2021\210601.01\Cad\dwgs\sheets\04 - roadway plans\rd_barryknoll_horizontal geometry_02.dwg Plotted: February 20, 2026 at 12:27 PM by McCourt, Jeff



NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
A	78.43	TOP OF CURB
B	77.89	TOP OF CURB
C	77.86	TOP OF CURB
D	78.17	TOP OF CURB
E	78.17	TOP OF CURB
F	77.84	TOP OF CURB
G	77.84	TOP OF CURB
H	78.39	TOP OF CURB
I	78.94	CENTER OF INT

No.	Date	Revisions	App.

0 20 40
SCALE IN FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

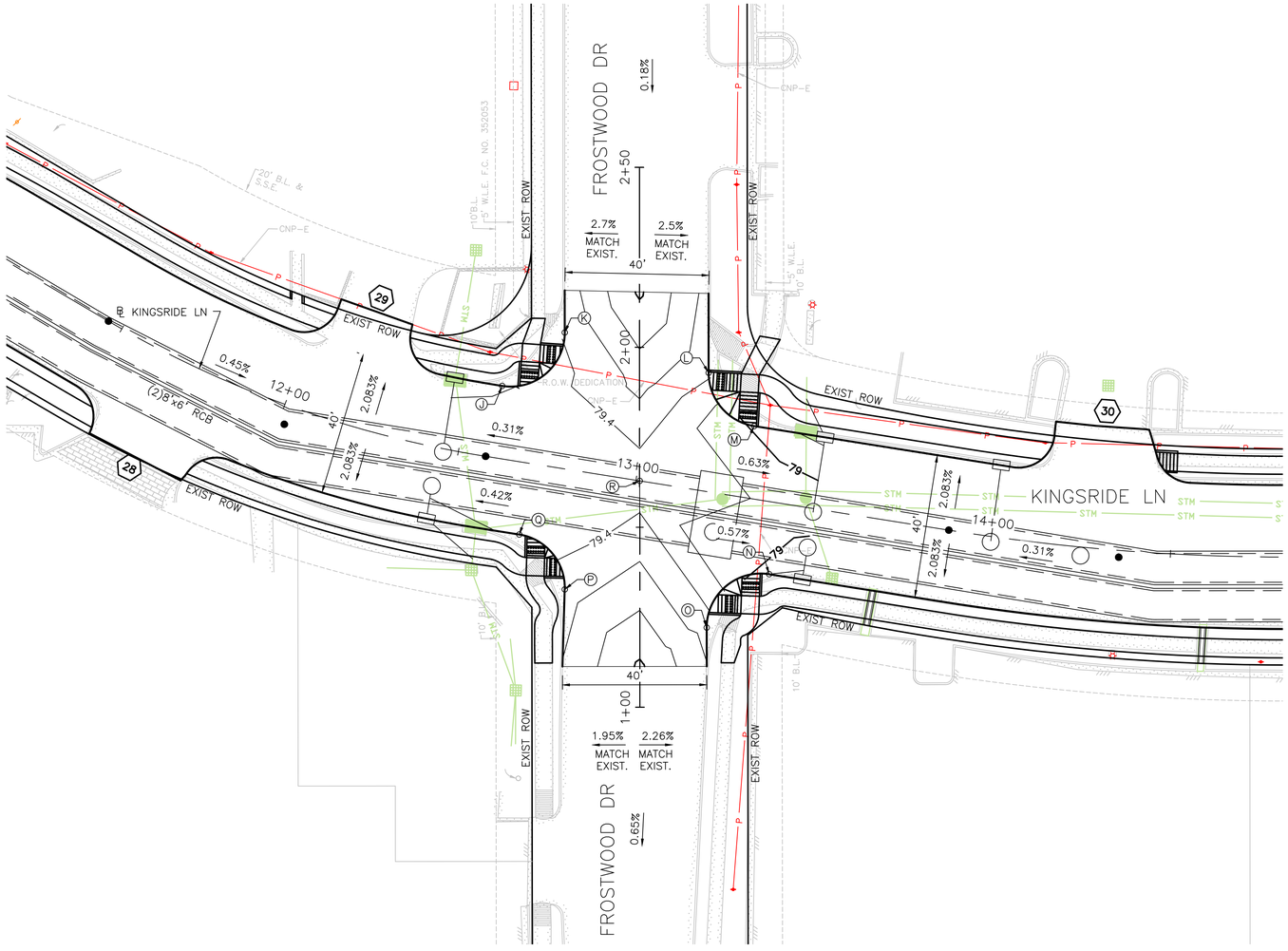
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INTERSECTION LAYOUT
KINGSRIDE @ BENIGNUS

SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 118 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - intersection layout.dwg Plotted February 17, 2026 at 4:37 PM by Huml, John



NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
J	79.66	TOP OF CURB
K	79.92	TOP OF CURB
L	79.92	TOP OF CURB
M	79.38	TOP OF CURB
N	79.30	TOP OF CURB
O	80.03	TOP OF CURB
P	80.01	TOP OF CURB
Q	79.73	TOP OF CURB
R	79.27	CENTER OF INT

0 20 40
SCALE IN FEET

N

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

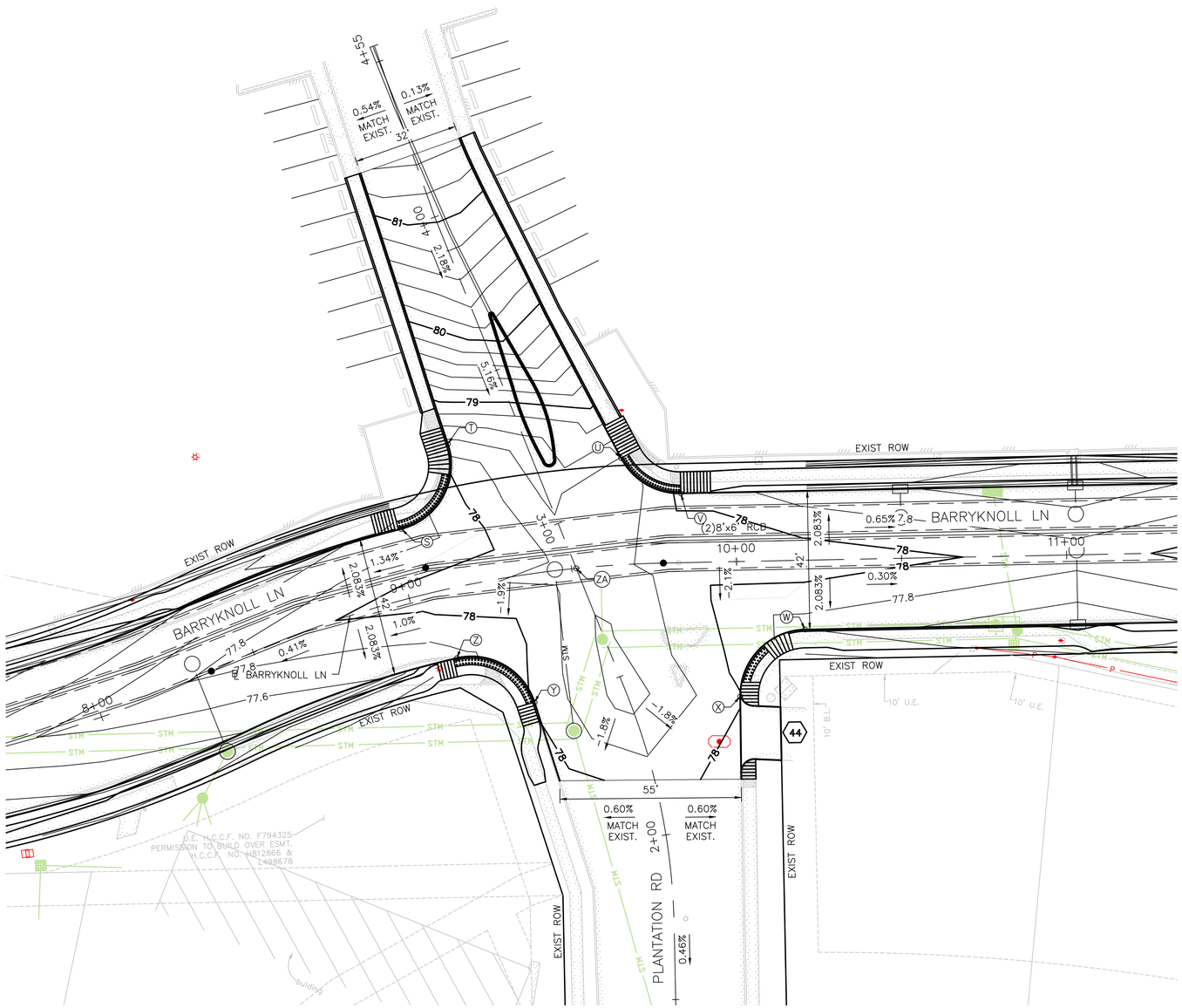
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INTERSECTION LAYOUT
KINGSRIDE @ FROSTWOOD

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 119 OF 343

I:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - intersection layout.dwg Plotted February 17, 2026 at 4:38 PM by Huml, John



0 20 40
SCALE IN FEET

N

NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
S	78.16	TOP OF CURB
T	78.83	TOP OF CURB
U	78.89	TOP OF CURB
V	78.45	TOP OF CURB
W	78.20	TOP OF CURB
X	78.51	TOP OF CURB
Y	78.53	TOP OF CURB
Z	78.23	TOP OF CURB
ZA	78.30	CENTER OF INT

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

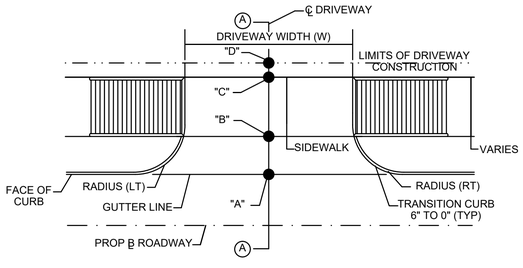
INTERSECTION LAYOUT
BARRYKNOLL @ PLANTATION

SHEET 3 OF 3

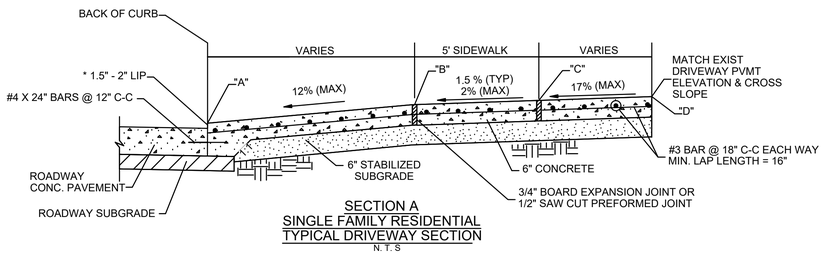
WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 120 OF 343	

I:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - intersection layout.dwg Plotted February 20, 2026 at 11:21 AM by McCourt, Jeff

KINGSRIDE																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				SLOPE			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A–B	B–C	C–D			
1	1+08.94	9.50	CONCRETE	9.50	CONCRETE	5	13.50	20	25	30	*79.01	79.61	79.69	79.76	8.8%	1.5%	1.3%	7" CONCRETE	5.0 FT	RESIDENTIAL
2	1+13.53	12.17	CONCRETE	12.17	CONCRETE	5	13.50	18	23	30	*79.04	79.58	79.68	80.21	12.0%	2.0%	7.5%	7" CONCRETE	5.0 FT	RESIDENTIAL
3	1+58.65	12.29	CONCRETE	12.29	CONCRETE	5	13.50	18	23	30	*78.90	79.44	79.54	80.27	12.0%	2.0%	10.5%	7" CONCRETE	5.0 FT	RESIDENTIAL
4	1+72.54	8.73	CONCRETE	8.73	CONCRETE	5	13.50	20	25	30	*78.86	79.61	79.69	79.81	12.0%	1.5%	2.5%	7" CONCRETE	5.0 FT	RESIDENTIAL
5	1+80.91	9.81	CONCRETE	9.81	CONCRETE	5	13.50	18	23	30	*78.84	79.38	79.48	79.99	12.0%	2.0%	7.3%	7" CONCRETE	5.0 FT	RESIDENTIAL
6	2+17.30	14.41	CONCRETE	14.41	CONCRETE	5	13.50	18	23	30	*78.72	79.27	79.37	79.99	12.0%	2.0%	8.9%	7" CONCRETE	5.0 FT	RESIDENTIAL
7	2+43.01	9.53	CONCRETE	9.53	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.02	12.0%	2.0%	9.8%	7" CONCRETE	5.0 FT	RESIDENTIAL
8	2+42.85	10.29	CONCRETE	10.29	CONCRETE	5	13.50	18	23	30	*78.66	79.22	79.32	79.89	12.0%	2.0%	8.2%	7" CONCRETE	5.0 FT	RESIDENTIAL
9	3+04.54	9.87	CONCRETE	9.87	CONCRETE	5	13.50	18	23	30	*78.47	79.25	79.35	79.80	12.0%	2.0%	9.0%	7" CONCRETE	5.0 FT	RESIDENTIAL
10	3+53.85	9.85	CONCRETE	9.85	CONCRETE	5	13.50	20	25	30	*78.33	79.11	79.21	79.86	12.0%	2.0%	13.1%	7" CONCRETE	5.0 FT	RESIDENTIAL
11	5+20.36	12.12	CONCRETE	12.12	CONCRETE	5	13.50	20	25	30	*77.92	78.70	78.80	79.65	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	RESIDENTIAL
12	5+59.61	11.96	CONCRETE	11.96	CONCRETE	5	13.50	20	25	31	*78.06	78.84	78.94	79.94	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	RESIDENTIAL
13	5+84.67	10.33	CONCRETE	10.33	CONCRETE	5	13.50	20	25	30	*78.14	78.92	79.02	79.59	12.0%	2.0%	11.4%	7" CONCRETE	5.0 FT	RESIDENTIAL
14	5+86.79	9.00	CONCRETE	9.00	CONCRETE	5	13.50	20	25	30	*78.15	78.93	79.04	80.06	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	RESIDENTIAL
15	6+31.86	11.83	CONCRETE	11.83	CONCRETE	5	13.50	20	25	30	*78.31	79.09	79.19	80.05	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	RESIDENTIAL
16	6+38.31	9.90	CONCRETE	9.90	CONCRETE	5	13.50	20	25	30	*78.33	79.11	79.21	79.59	12.0%	2.0%	7.7%	7" CONCRETE	5.0 FT	RESIDENTIAL
17	6+61.62	18.30	CONCRETE	18.30	CONCRETE	5	13.50	20	25	30	*78.41	79.19	79.29	79.94	12.0%	2.0%	13.1%	7" CONCRETE	5.0 FT	RESIDENTIAL
18	6+59.05	10.29	CONCRETE	10.29	CONCRETE	5	13.50	20	25	30	*78.40	79.18	79.28	79.81	12.0%	2.0%	10.6%	7" CONCRETE	5.0 FT	RESIDENTIAL
19	7+28.38	10.10	CONCRETE	10.10	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.01	12.0%	2.0%	9.6%	7" CONCRETE	5.0 FT	RESIDENTIAL
20	7+30.42	12.05	CONCRETE	12.05	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.21	12.0%	2.0%	13.6%	7" CONCRETE	5.0 FT	RESIDENTIAL



TYPICAL DRIVEWAY LAYOUT
N. T. S



SECTION A
SINGLE FAMILY RESIDENTIAL
TYPICAL DRIVEWAY SECTION
N. T. S

NOTES:

1. REFER TO CONCRETE SIDEWALK & DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION.
2. ELEVATION AT POINT "D" IS (+/–) AS SHOWN IN DRIVEWAY TABLE. MATCH EXISTING ELEVATION AT ROW.
3. REFER TO PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. * DENOTES LIP USED AT DRIVEWAYS.

No.	Date	Revisions	App.

HRGreen
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DATE:____2/20/2026____

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

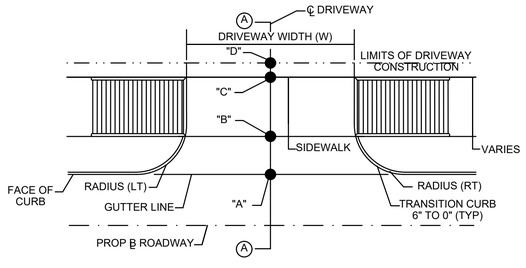
DRIVEWAY
TABULATION DETAILS

SHEET 1 OF 3

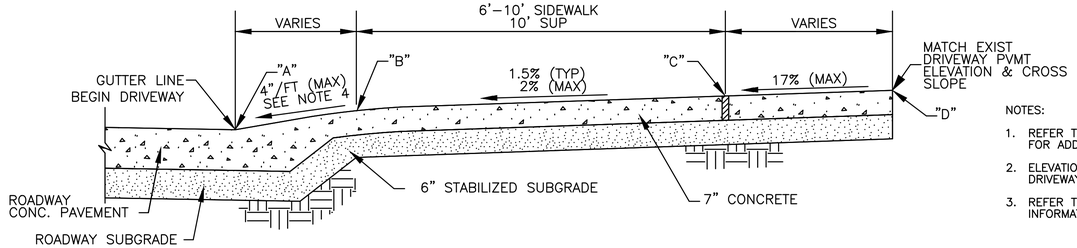
WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 121 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\04 – roadway plans\tirz – driveway tabulation.dwg Plotted February 20, 2026 at 12:20 PM by McCourt, Jeff

KINGSRIDE																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				SLOPE			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A–B	B–C	C–D			
21	8+01.35	11.77	CONCRETE	11.77	CONCRETE	5	13.50	20	25	30	*78.90	79.68	79.78	80.23	12.0%	2.0%	9.1%	7" CONCRETE	5.0 FT	RESIDENTIAL
22	7+97.59	9.78	CONCRETE	9.78	CONCRETE	5	13.50	20	25	30	*78.89	79.67	79.77	80.53	12.0%	2.0%	15.1%	7" CONCRETE	5.0 FT	RESIDENTIAL
23	8+51.31	10.21	CONCRETE	10.21	CONCRETE	5	13.50	20	25	30	*79.08	79.86	79.96	80.51	12.0%	2.0%	11.1%	7" CONCRETE	5.0 FT	RESIDENTIAL
24	8+80.93	24.39	CONCRETE	24.39	CONCRETE	10	13.94	20.47	25.47	30	79.18	79.96	80.06	80.37	12.0%	2.0%	6.8%	7" CONCRETE	5.0 FT	COMMERCIAL
25	8+99.62	25.07	CONCRETE	25.07	CONCRETE	10	13.74	20.04	25.04	29.77	79.24	80.00	80.09	80.90	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
26	10+05.00	29.22	CONCRETE	29.82	CONCRETE	10	18.13	21.18	26.18	30	79.61	79.98	80.07	80.51	12.0%	2.0%	11.4%	7" CONCRETE	5.0 FT	COMMERCIAL
27	10+34.47	32.94	CONCRETE	32.94	CONCRETE	10	17.03	19.16	24.16	29.67	79.67	79.93	80.03	80.74	12.0%	2.0%	13.2%	7" CONCRETE	5.0 FT	COMMERCIAL
28	11+69.62	29.14	CONCRETE	29.31	CONCRETE	10	20	22.64	27.64	29.79	79.63	79.95	80.05	80.17	12.0%	2.0%	5.5%	7" CONCRETE	5.0 FT	COMMERCIAL
29	12+17.20	20.95	CONCRETE	20.95	CONCRETE	10	20.15	23.37	28.37	32.45	79.42	79.81	79.90	80.34	12.0%	2.0%	10.4%	7" CONCRETE	5.0 FT	COMMERCIAL
30	14+29.06	28.26	CONCRETE	28.70	CONCRETE	10	20	23.23	28.23	33.98	79.16	79.55	79.64	80.24	12.0%	2.0%	10.3%	7" CONCRETE	5.0 FT	COMMERCIAL
31	17+79.93	20.08	CONCRETE	20.08	CONCRETE	15	20	23.58	28.58	49.54	78.80	79.23	79.33	79.58	12.0%	2.0%	1.2%	7" CONCRETE	5.0 FT	COMMERCIAL
32	17+80.20	29.80	CONCRETE	30.17	CONCRETE	10	20	23	28	30	78.81	79.17	79.27	79.55	12.0%	2.0%	14.2%	7" CONCRETE	5.0 FT	COMMERCIAL
33	18+19.81	20.39	CONCRETE	20.39	CONCRETE	15	20	23.58	28.58	48.65	78.69	79.13	79.22	79.46	12.0%	2.0%	1.2%	7" CONCRETE	5.0 FT	COMMERCIAL
34	18+30.11	29.65	CONCRETE	30.11	CONCRETE	10	20	23	28	3.31	78.66	79.02	79.12	79.51	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
35	18+83.61	22.23	CONCRETE	22.76	CONCRETE	10	20	23	28	30	78.49	78.85	78.95	79.06	12.0%	2.0%	2.5%	7" CONCRETE	5.0 FT	COMMERCIAL
36	19+96.36	35.91	CONCRETE	35.91	CONCRETE	10	20	24	29	30	78.74	79.20	79.28	79.29	11.5%	1.5%	1.5%	7" CONCRETE	5.0 FT	COMMERCIAL
37	21+09.96	35.34	CONCRETE	35.34	CONCRETE	10	31.60	32.16	38.16	42.39	78.33	78.34	78.46	79.17	2.0%	2.0%	17.0%	7" CONCRETE	6.0 FT	COMMERCIAL
38	21+66.88	25.64	CONCRETE	25.64	CONCRETE	10	20	24	29	31.10	78.23	78.71	78.81	79.16	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
39	21+93.88	36.16	CONCRETE	36.16	CONCRETE	10	31.97	32.51	38.48	41.81	78.01	78.02	78.24	79.11	18.50%	3.7%	26.1%	7" CONCRETE	6.0 FT	COMMERCIAL



TYPICAL DRIVEWAY LAYOUT
N. T. S



SECTION A
COMMERCIAL DRIVEWAY
TYPICAL DRIVEWAY SECTION
N. T. S

NOTES:

1. REFER TO CONCRETE SIDEWALK & DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION.
2. ELEVATION AT POINT "D" IS (+/–) AS SHOWN IN DRIVEWAY TABLE. MATCH EXISTING ELEVATION AT ROW.
3. REFER TO PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.

No.	Date	Revisions	App.

HRGreen
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P.E. REGISTRATION NO. 125563
DATE:___2/20/2026___

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRIVEWAY
TABULATION DETAILS

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 122 OF 343

J:\2021\210601.01\cad\dwgs\sheets\04 – roadway plans\tirz – driveway tabulation.dwg Plotted February 20, 2026 at 12:20 PM by McCourt, Jeff

GESSNER																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				SLOPE			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A–B	B–C	C–D			
39	4+09.26	34.06	CONCRETE	34.06	CONCRETE	10	58.09	61.43	66.20	–	78.70	78.91	79.00	–	6.20	2	–	7" CONCRETE	5.0 FT	COMMERCIAL
40	2+92.91	37.23	CONCRETE	37.23	CONCRETE	10	52.75	55.73	62.41	–	78.46	78.77	78.90	–	10.30	2	–	7" CONCRETE	5.0 FT	COMMERCIAL

BARRYKNOLL																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				SLOPE			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A–B	B–C	C–D			
41	5+64.33	21.04	CONCRETE	21.04	CONCRETE	10	20.56	23	28	30	77.13	77.42	77.52	77.81	12.0%	2.0%	14.7%	7" CONCRETE	5.0 FT	COMMERCIAL
42	6+06.24	36.44	CONCRETE	36.44	CONCRETE	10	21.40	22.20	27.20	30	76.98	77.08	77.44	77.54	12.0%	2.0%	12.4%	7" CONCRETE	5.0 FT	COMMERCIAL
43	6+29.50	18.86	CONCRETE	18.86	CONCRETE	10	20.71	23.13	28.13	30	76.91	77.19	77.29	77.39	12.0%	2.0%	5.2%	7" CONCRETE	5.0 FT	COMMERCIAL
45	12+84.89	32.77	CONCRETE	33.62	CONCRETE	10	21	21.50	26.50	34.74	78.44	78.50	78.85	80.00	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
46	12+84.76	31.74	CONCRETE	31.74	CONCRETE	10	21	23.50	28.50	31.90	78.43	78.73	78.83	79.42	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
47	15+32.84	27.94	CONCRETE	28.23	CONCRETE	10	21	23.70	28.70	30	78.79	79.11	79.21	79.44	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
48	16+73.15	30.34	CONCRETE	33.21	CONCRETE	10	20.97	23.92	28.92	30	78.94	79.29	79.39	79.53	12.0%	2.0%	12.5%	7" CONCRETE	5.0 FT	COMMERCIAL

PLANTATION																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				SLOPE			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A–B	B–C	C–D			
44	2+33.48	16.00	CONCRETE	16.00	CONCRETE	4	30.77	36.26	42.98	–	*77.96	78.07	78.73	–	2.0%	9.83%	–	6" CONCRETE	5.0 FT	RESIDENTIAL

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRIVEWAY
TABULATION DETAILS

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 123 OF 343

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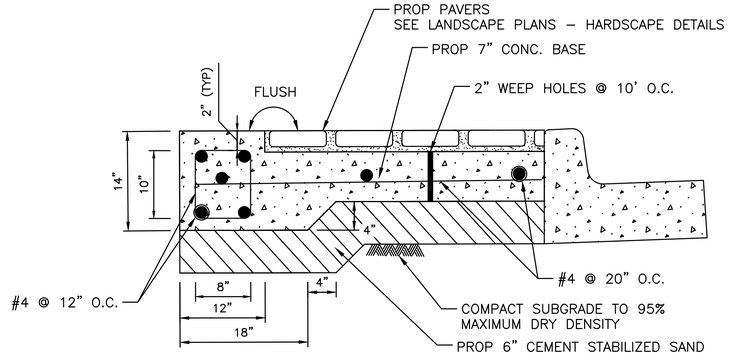
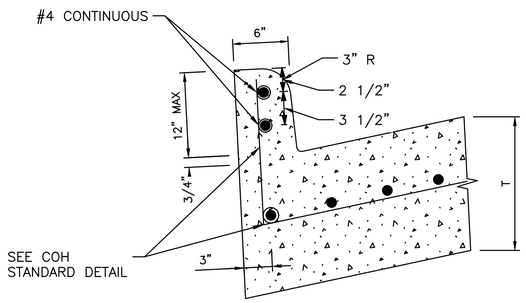


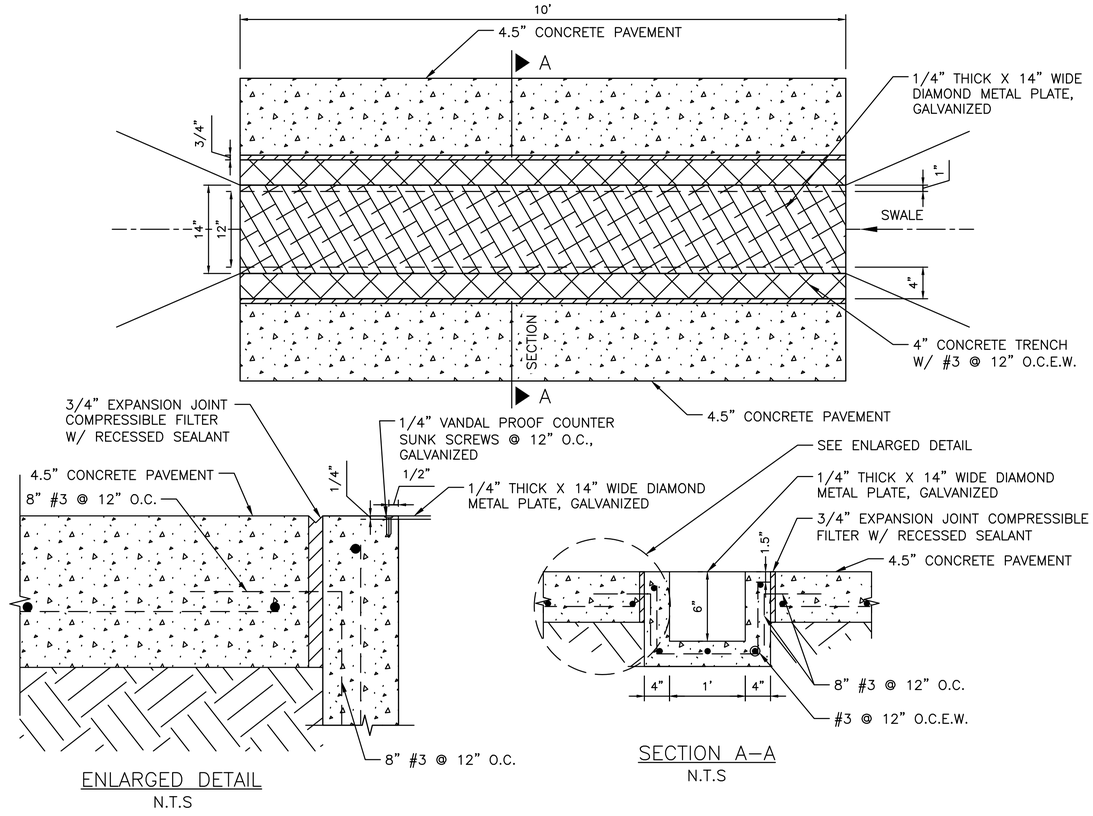
CONCRETE BAND DETAIL FOR PAVERS

N.T.S



12" MAX CURB DETAIL

N.T.S



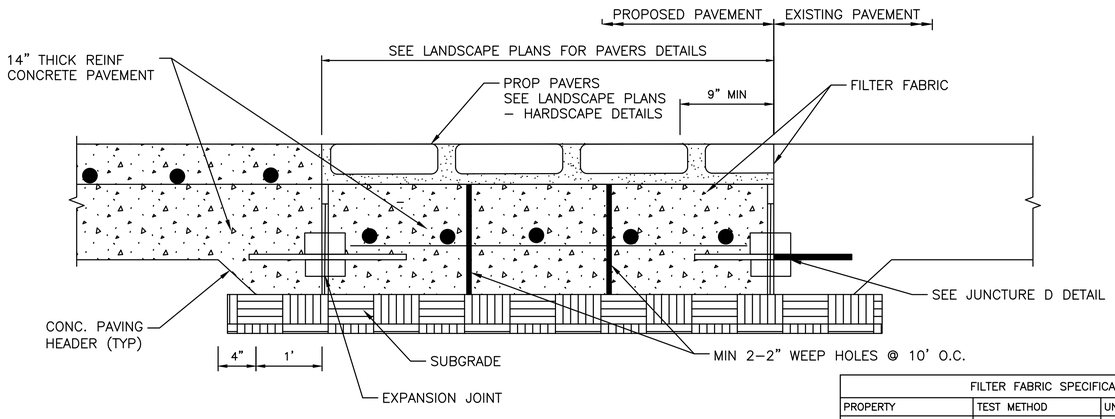
ENLARGED DETAIL

N.T.S

SECTION A–A

N.T.S

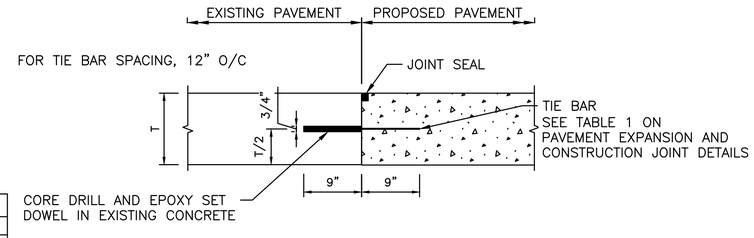
TRENCH DRAIN DETAIL



ROADWAY CONCRETE UNDER PAVERS DETAIL

N.T.S

FILTER FABRIC SPECIFICATIONS			
PROPERTY	TEST METHOD	UNIT	SPECIFICATIONS
MATERIAL			NONWOVEN GEOTEXTILE
UNIT WEIGHT		Oz/Sq. Yd.	8 (min.)
FILTRATION RATE		In/Sec	0.08 (min.)
GRAB STRENGTH	ASTM D– 1682	Lb.	400 (min.)
PUNCTURE STRENGTH	ASTM D– 751 (MODIFIED)	Lb.	125 (min.)
MULLEN BURST STRENGTH	ASTM D– 751	PSI	400 (min.)
TENSTILE STRENGTH	ASTM D– 1682	Lb.	300 (min.)
EQUIV. OPENING SIZE	US STANDARD SIEVE	No.	80 (min.)



JUNCTURE D – TYPICAL CONNECTION TO EXISTING CONCRETE

N.T.S

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P.E. REGISTRATION NO. 125563
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

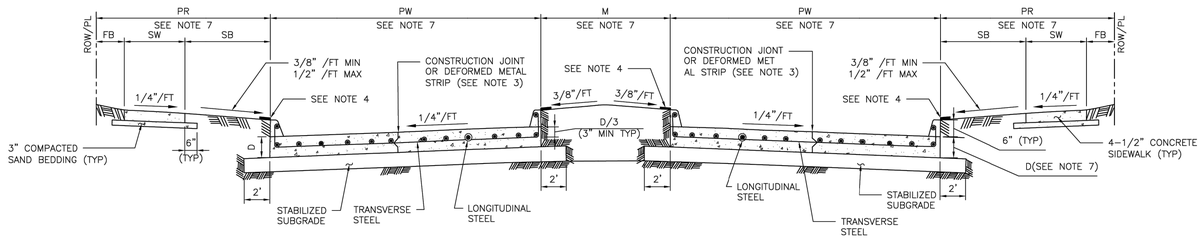
MISCELLANEOUS
ROADWAY DETAILS

SHEET 1 OF 1

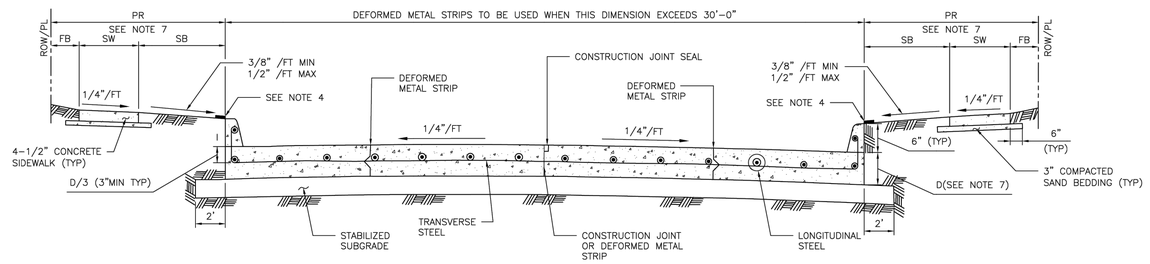
WBS NO. M-430296-0017-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 124 OF 343	

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs sheets\04 – roadway plans\tirz – miscellaneous roadway details.dwg Plotted February 19, 2026 at 6:02 PM by Huml, John



TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

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"
fc' = 4,000 PSI/28 DAYS AND FY = 60,000 PSI

PAVEMENT THICKNESS 'D' (IN)	PAVEMENT WIDTH 'PW' (FT)	LONGITUDINAL STEEL									TRAVERSE STEEL		
		#4 BARS			#5 BARS			#6 BARS			#4 BARS	#5 BARS	#6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	20.50	4.00	–	–	–	–	–	–	36	–	–
7	25	19	18.25	4.00	–	–	–	–	–	–	36	–	–
7	35	24	18.00	3.00	–	–	–	–	–	–	36	–	–
7	36	25	17.75	3.00	–	–	–	–	–	–	36	–	–
7	37	25	18.25	3.00	–	–	–	–	–	–	36	–	–
7	41	28	18.00	3.00	–	–	–	–	–	–	36	–	–
7	45	31	17.75	3.75	–	–	–	–	–	–	36	–	–
8	25	20	15.50	2.75	13	24.50	3.0	–	–	–	36	36	–
8	34	27	15.50	2.50	17	25.00	4.0	–	–	–	36	36	–
8	35	27	16.00	2.00	18	24.25	4.0	–	–	–	36	36	–
8	36	28	15.75	3.25	18	25.00	3.0	–	–	–	30	36	–
8	44	24	15.75	4.00	22	24.75	4.0	–	–	–	30	36	–
8	45	35	15.75	2.25	23	24.25	3.0	–	–	–	30	36	–
9	25	22	14.00	3.00	14	22.50	4.0	–	–	–	36	36	–
9	34	31	13.50	2.00	19	22.25	3.5	–	–	–	30	36	–
9	35	31	13.75	3.75	20	21.75	3.5	–	–	–	30	36	–
9	36	32	13.75	3.00	21	21.25	3.5	–	–	–	30	36	–
9	44	39	13.75	2.75	25	21.75	3.0	–	–	–	24	36	–
9	45	39	14.00	4.00	26	21.25	4.5	–	–	–	24	36	–
10	25	24	12.75	3.50	17	18.25	4.0	–	–	–	36	36	36
10	34	33	12.50	4.00	21	20.00	4.0	–	–	–	30	36	36
10	35	34	12.50	3.75	23	18.75	4.0	–	–	–	30	36	36
10	36	35	12.50	3.50	24	18.50	3.0	–	–	–	30	36	36
10	44	44	12.00	4.00	29	18.50	4.5	–	–	–	24	36	36
10	45	44	12.50	3.00	29	19.00	3.0	–	–	–	24	36	36
11	25	27	11.25	3.00	17	18.25	4.0	12	26.75	3	36	36	36
11	34	36	11.50	2.75	24	17.50	2.5	17	25.00	4	24	36	36
11	35	37	11.50	3.00	24	18.00	3.0	17	25.75	4	24	36	36
11	36	40	11.00	2.00	25	17.75	3.0	17	26.50	4	24	36	36
11	44	48	11.125	2.50	30	18.00	3.0	21	26.00	4	24	36	36
11	45	49	11.125	3.00	31	17.75	4.0	22	25.50	3	24	36	36
12	25	–	–	–	19	16.25	4.0	13	24.50	3	36	36	36
12	34	–	–	–	26	16.00	4.0	18	23.50	4	24	36	36
12	35	–	–	–	26	16.50	4.0	19	23.00	3	24	36	36
12	36	–	–	–	27	16.25	4.5	20	22.25	4.5	24	36	36
12	44	–	–	–	33	16.25	4.0	24	22.50	5	24	30	36
12	45	–	–	–	35	15.75	3.0	25	22.25	3	24	30	36

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

APPROVED BY:	APPROVED BY:
DocuSigned by: Sulait Kanwar 5EF8B0C64197478...	DocuSigned by: HUNG NGUYEN 95A2567DA7594CE...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock A80C4198B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02751-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONCRETE PAVEMENT DETAILS

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE

NOT TO SCALE

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 1 OF 16

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 125 OF 343

No.	Date	Revisions	App.

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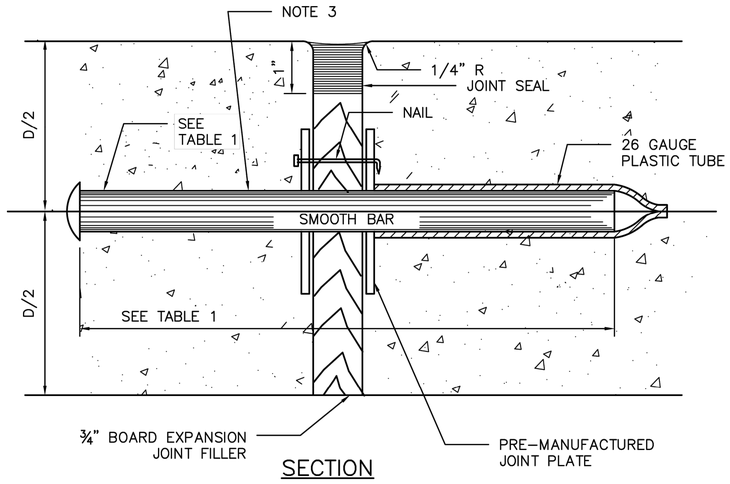
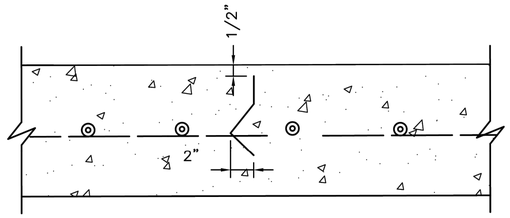


SECTION

DOWEL TYPE EXPANSION JOINT



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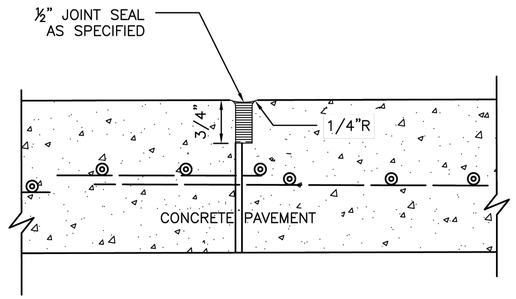
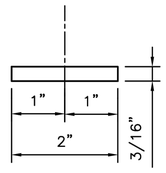
DEFORMED METAL STRIP



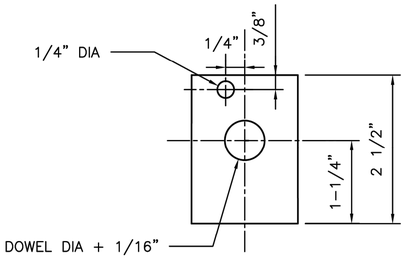
SECTION

CONSTRUCTION JOINT SEAL



PLAN VIEW

JOINT PLATE



ELEVATION VIEW

JOINT PLATE

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.

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

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar — CITY ENGINEER

DocuSigned by: KHING NGUYEN — CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock — DIRECTOR OF HPW

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

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P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 2 OF 16

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 126 OF 343

No. | Date | Revisions | App.

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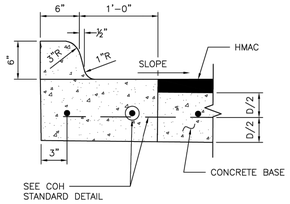
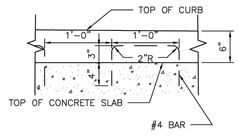
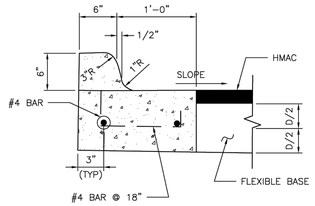


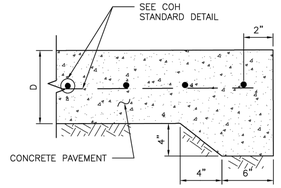
ESPLANADE CURB CONNECTED TO CONCRETE BASE



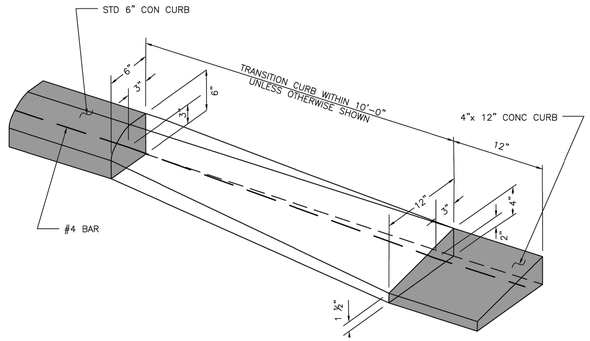
ALTERNATE CONCRETE CURB REINFORCEMENT



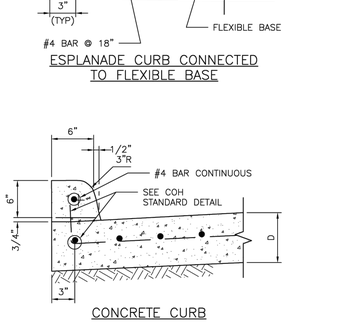
ESPLANADE CURB CONNECTED TO FLEXIBLE BASE



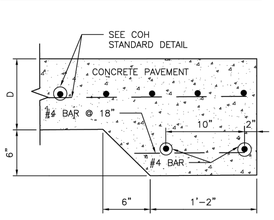
STANDARD CONCRETE PAVING HEADER



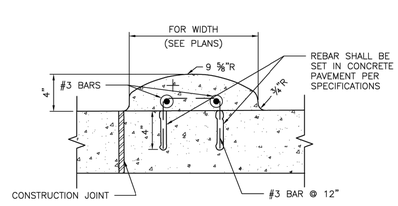
CURB TRANSITION
(SEE NOTES)



CONCRETE CURB

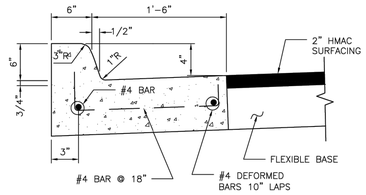


STANDARD RAILROAD HEADER

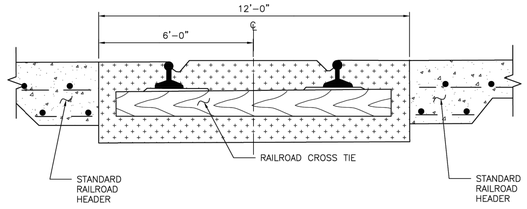


MOUNTABLE CURB

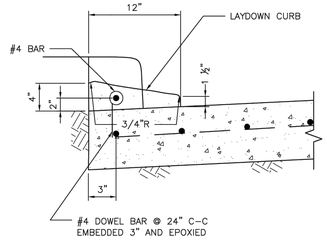
WHEN CONCRETE CURB IS TO BE PLACED EXISTING CONCRETE USE BASE
#4 BAR @ 18x10" LONG, DOWELED AND SET IN EPOXY GROUT.
SET #4 DOWEL BARS, 25" LONG AT 12" C-C WHEN PAVEMENT SECTION POURED.



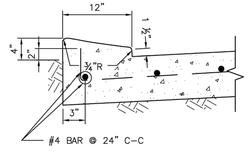
MONOLITHIC CURB AND GUTTER



STANDARD RAILROAD CROSSING – SINGLE TRACK



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



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

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

1. 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS, NON-RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
2. TRANSITIONS FROM 6- INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10-FEET TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" IS TO BE INSTALLED.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EFB80C64191478...	DocuSigned by: HANG NGUYEN 95A296FDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A45C418E0B4843...	
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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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 3 OF 16

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 127 OF 343	

No.	Date	Revisions	App.

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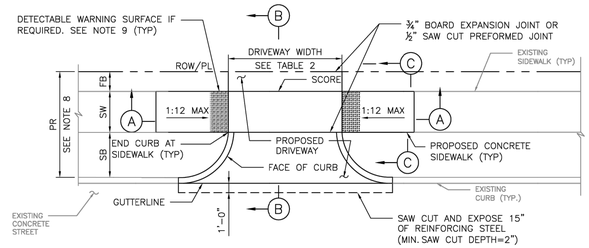
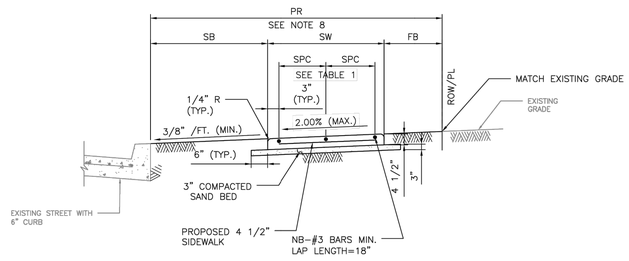
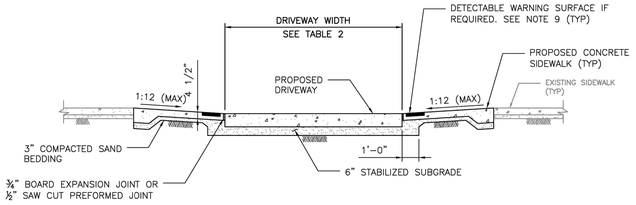


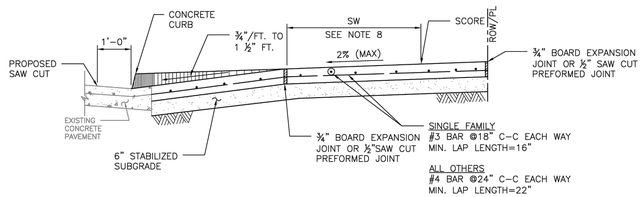
PLAN VIEW
DRIVEWAY



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:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752–02 AND SPECIFICATION 02752.
4. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
5. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
6. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
7. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
8. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
9. DETECTABLE WARNING SURFACES:
   - 9.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
     - 9.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
     - 9.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
   - 9.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
   - 9.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

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

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

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

APPROVED BY:	APPROVED BY:
DocuSigned by: Sulal Kanwar 82FB80C0641F0479...	DocuSigned by: BINHNG NGUYEN 65A3EEF0A75B4D3...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A50C419BE2B2464...	
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

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 4 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 128 OF 343

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WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY

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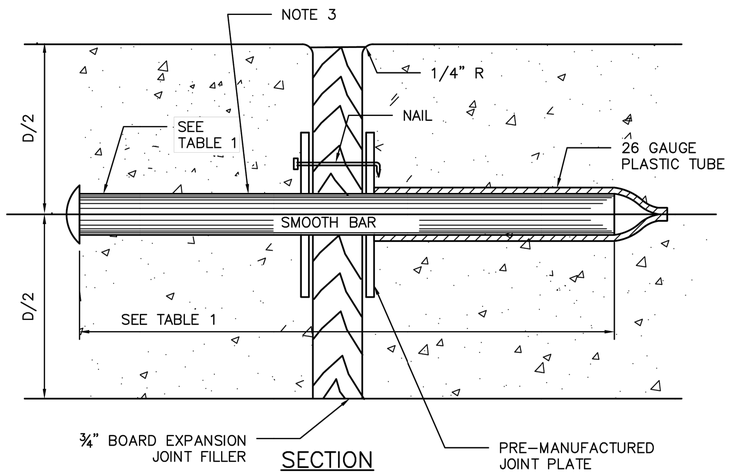
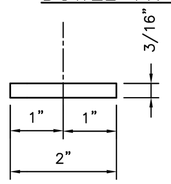


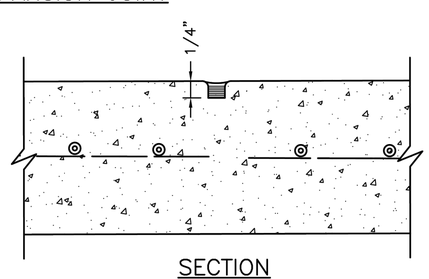
SECTION

DOWEL TYPE EXPANSION JOINT



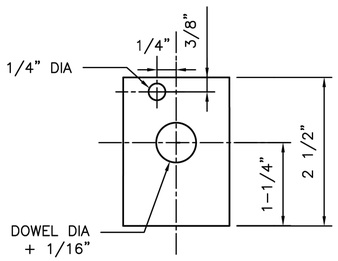
PLAN VIEW

JOINT PLATE



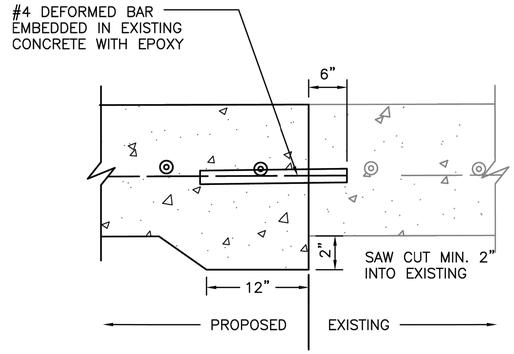
SECTION

CONTROL JOINT



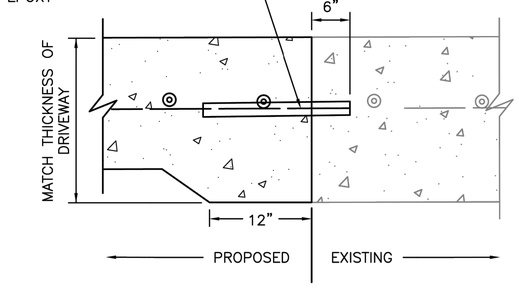
ELEVATION VIEW

JOINT PLATE



SECTION

SIDEWALK TO EXISTING SIDEWALK



SECTION

SIDEWALK TO EXISTING DRIVEWAY

TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 3 FEET MAXIMUM SPACING FOR CONTROL JOINTS SHALL BE 5 FEET.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN A 2 INCH MINIMUM COVER.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C841F5478... CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD... CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453... DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | DWG NO: 02752-02

No.	Date	Revisions	App.

HRGreen
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11750 KATY FREEWAY
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 5 OF 16

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 129 OF 343

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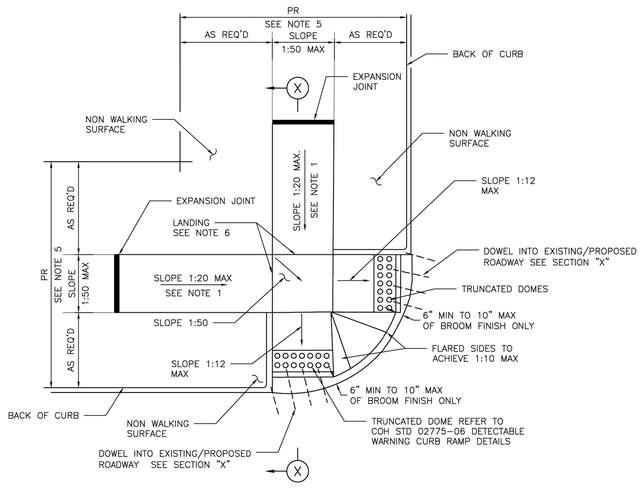
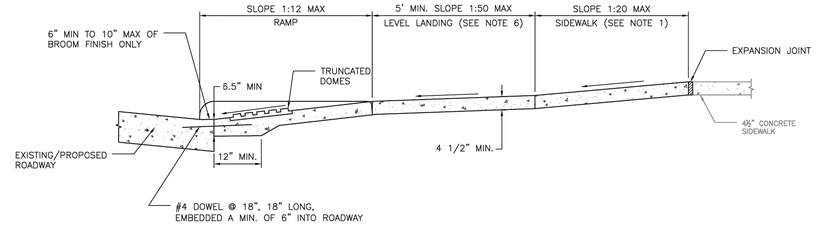


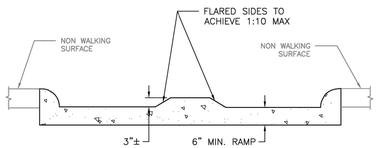
STREETS WITH NON– WALKING SURFACE BEHIND CURB
SEE NOTE–7



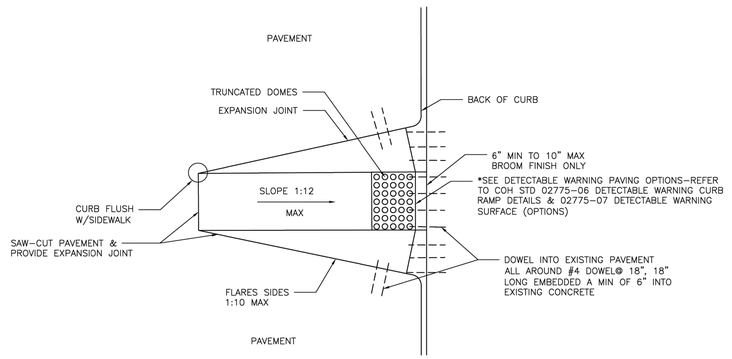
SECTION X–X

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 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.
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.



ELEVATION
LOOKING UP RAMP



CURB RAMP CONSTRUCTION FOR EXISTING PAVEMENT

APPROVED BY:	APPROVED BY:
Docusigned by: Sulail Kanwar 8EFB80C84 1F5478...	Docusigned by: KEVIN MCILHEN 95A29EF0A758404CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Docusigned by: Carl Haddock 4B0C41EE1E0A4CA...	
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

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HOUSTON, TX 77079
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 6 OF 16

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 130 OF 343	

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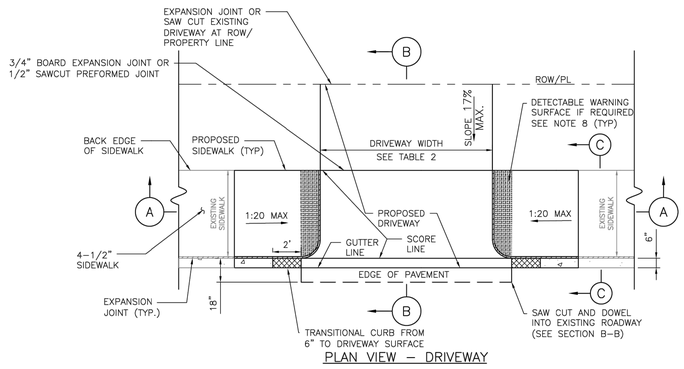
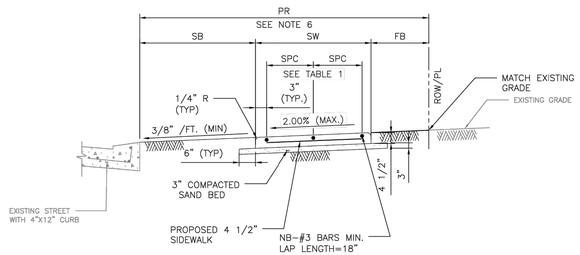
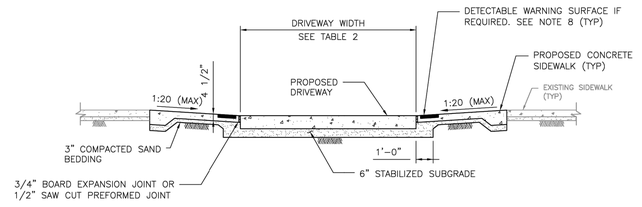


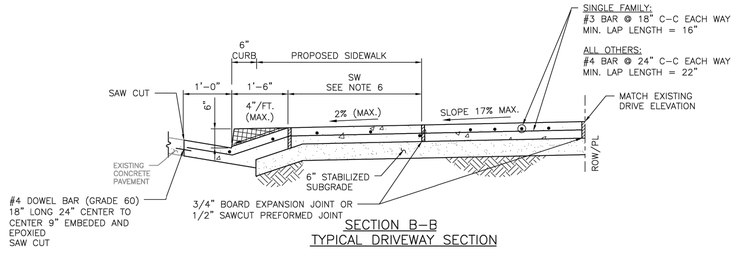
PLAN VIEW – DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION



SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY



SECTION B–B
TYPICAL DRIVEWAY SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. PROPOSED SIDEWALKS THAT DO NOT FALL WITHIN THE SCOPE DEFINED IN NOTE 2 SHALL BE DESIGNED ACCORDING TO IDM REQUIREMENTS AND CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS.
4. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
5. CURB RAMPS THAT ARE STEEPER THAN A 1:20 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
6. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
7. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
8. DETECTABLE WARNING SURFACES:
   - 8.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED.
   - 8.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
   - 8.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ⅜ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

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

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

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

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF880C6415F478...	DocuSigned by: HANG NGUYEN 95A26EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock 5A0C47BE7B5A45A...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02754–04

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PROPOSED SIDEWALK THROUGH DRIVEWAY WITH MINIMAL ELEVATION DIFFERENCE

DRAWING SCALE
NOT TO SCALE

FOR CITY OF HOUSTON USE ONLY

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HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:_____2/17/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 7 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 131 OF 343

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THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE THEREOF. IT IS THE RESPONSIBILITY OF THE ENGINEER ADAPTING THIS STANDARD FOR USE ON A SPECIFIC PROJECT TO ESTABLISH APPROPRIATE SAFETY AND HEALTH REQUIREMENTS FOR THE PROJECT. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE. WITH THE USE OF THIS STANDARD, THE CITY OF HOUSTON MAKES NO WARRANTY OF ANY KIND AND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY

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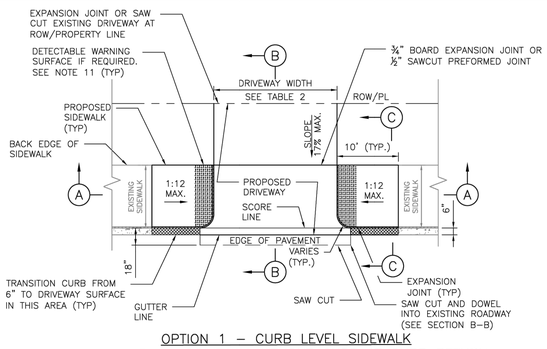
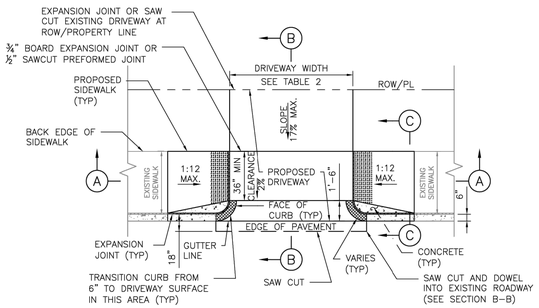
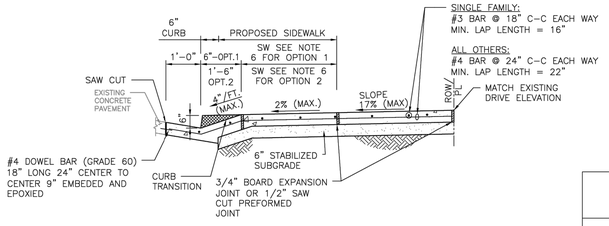


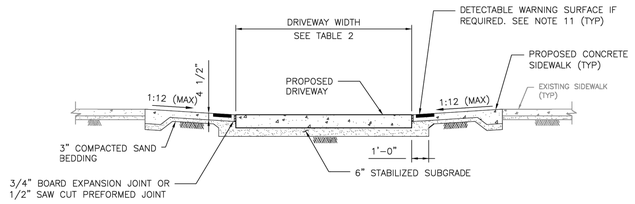
OPTION 1 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY WITHOUT CURB AT CURB RETURN



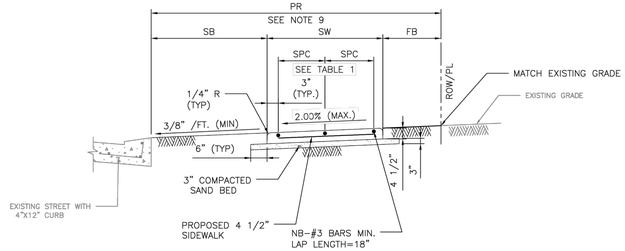
OPTION 2 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY WITH CURB AT CURB RETURN



SECTION B–B
TYPICAL DRIVEWAY SECTION THROUGH DRIVEWAY



SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " 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 "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE-WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO-WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

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

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40-552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. PROPOSED SIDEWALKS THAT DO NOT FALL WITHIN THE SCOPE DEFINED IN NOTE 2 SHALL BE DESIGNED ACCORDING TO IDM REQUIREMENTS AND CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS.
4. DRIVEWAY WIDTH VARIES TO MATCH EXISTING DRIVE.
5. DRIVEWAY DETAIL TO PROVIDE FOR SIDEWALK TRANSITION FROM EXISTING BACK OF CURB TO PROPOSED DRIVEWAY EDGE.
6. DRIVEWAY WITH WIDTH >5' @ 2% CROSS SLOPE QUALIFIES AS PASSING SPACE. (SEE OPTION 1 AND OPTION 2 PLANS)
7. 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.
8. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
9. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
10. 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.)
11. DETECTABLE WARNING SURFACES:
    - 11.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
      - 11.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD OR TRAFFIC SIGNAL CONTROLLED; OR
      - 11.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
    - 11.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
    - 11.3. REFER TO STANDARD DETAILS 02775-06 TO 02775-07 FOR DETECTABLE WARNING SURFACE STANDARDS.

APPROVED BY:	APPROVED BY:
DocuSigned by: Sukat Kanwar 6EF9B0D041F5475...	DocuSigned by: HUNG NGUYEN 95A25EFDA7B94DD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock 4AD0C51B1EB3464...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02754-03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

No.	Date	Revisions	Apv.

HRGreen — FIRM NO. F-11278, 11750 KATY FREEWAY SUITE 400 HOUSTON, TX 77079, PH: 832.318.8800 FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 8 OF 16

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 132 OF 343

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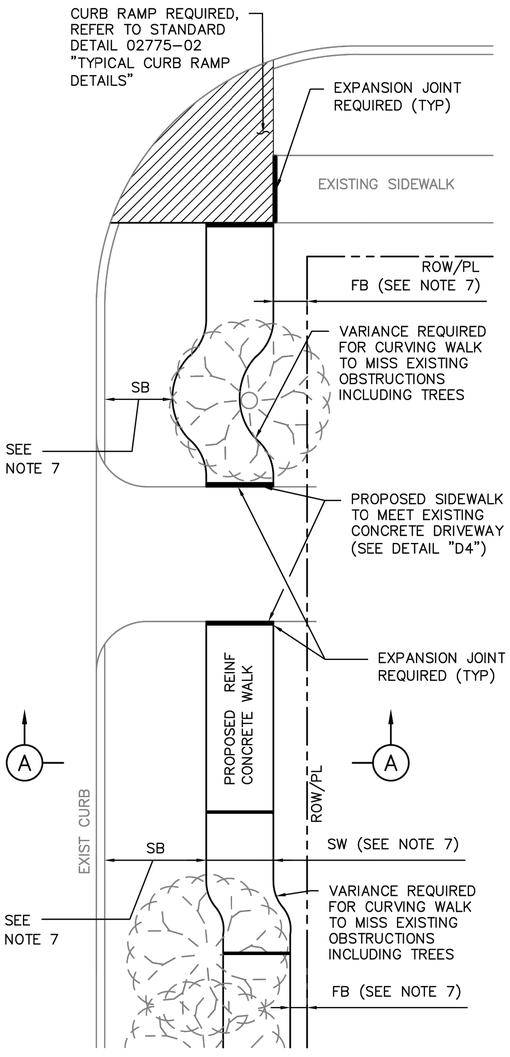
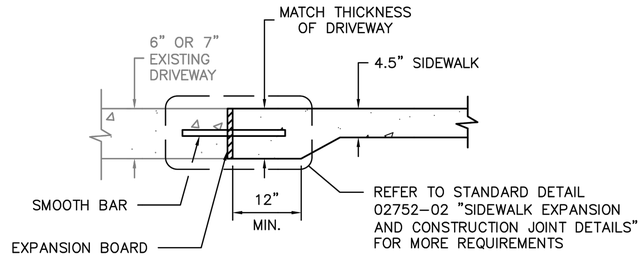


PLAN VIEW

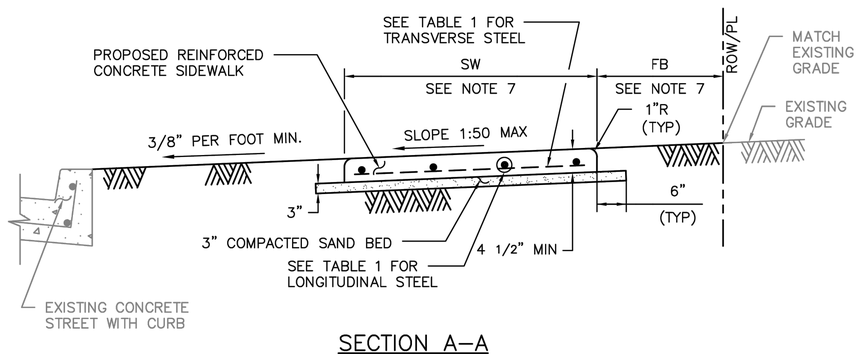


DETAIL D4
DRIVEWAY/SIDEWALK HEADER

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

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



SECTION A–A

NOTES:

1. 6X6 – W2.9XW2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL GIVEN IN TABLE 1.
2. REINFORCED CONCRETE SIDEWALKS THRU DRIVEWAYS OPENINGS SHALL BE EITHER 6" THICK OR 7" THICK AS SPECIFIED ON 6" STABILIZED SUBGRADE. FOR THE REINFORCING STEEL REQUIREMENTS, SEE CITY OF HOUSTON STANDARD DETAILS 02754–01A, 02754–01B, 02754–03, AND 02754–04.
3. MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.
4. CONTRACTOR SHALL CONSTRUCT SIDEWALK IN A MANNER NOT TO BLOCK THE NATURAL DRAINAGE FROM ADJACENT PROPERTY.
5. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
6. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
7. REFER TO CONTRACT DRAWINGS FOR SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

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

APPROVED BY:

DocuSigned by: Sulail Kanwar 8EF8B0C841F5478...
CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 02775–01

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HRGreen
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NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 9 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 133 OF 343

No.	Date	Revisions	App.

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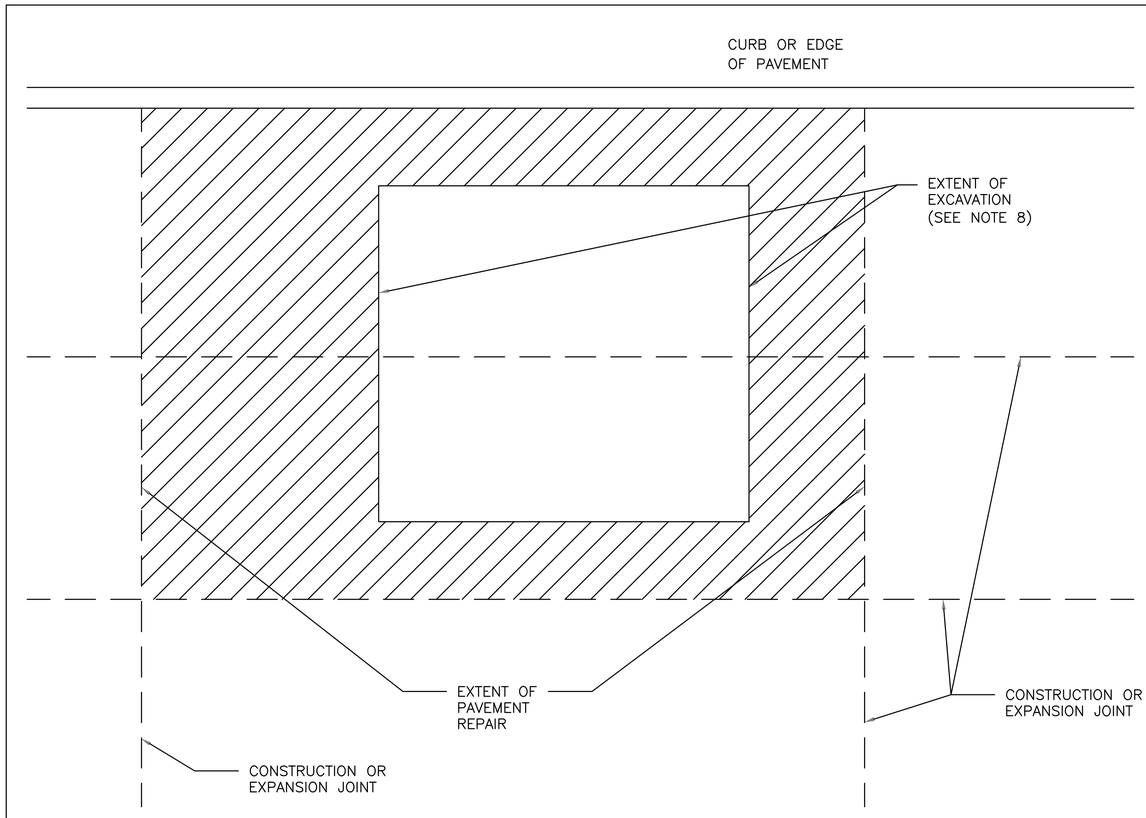

NOTES:

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).

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

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

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
CITY TRAFFIC ENGINEER	
EFF DATE: NOV–27–2023	DWG NO: 02951–01

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DATE: 2/17/2026

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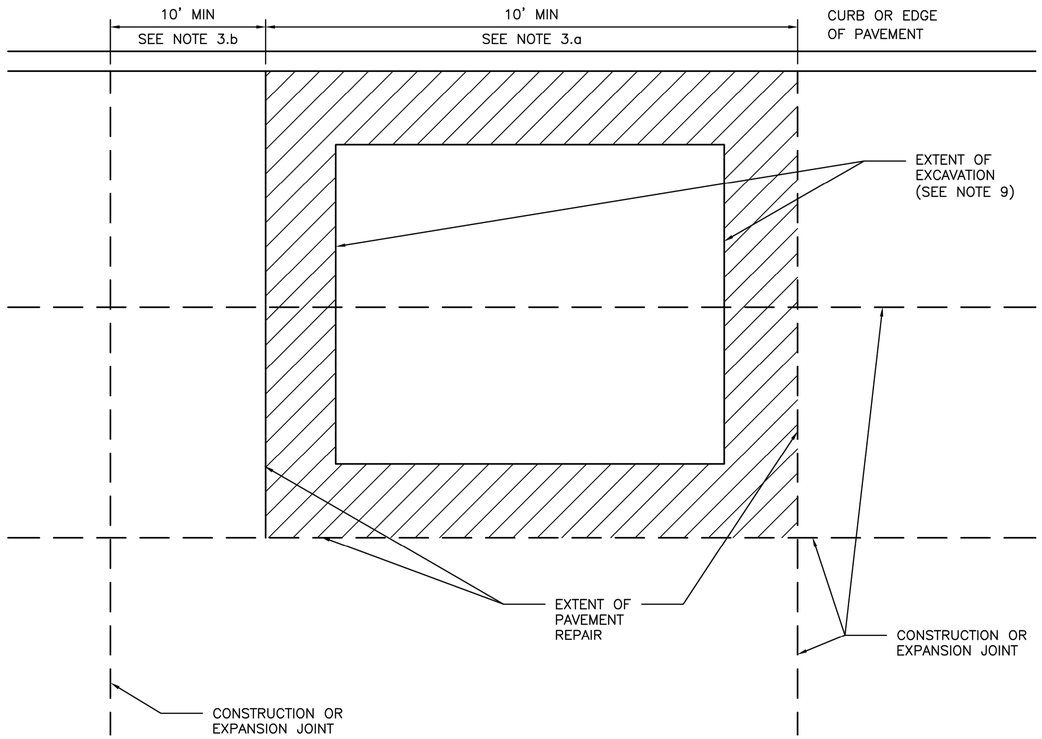

NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.

2. WIDTH:
   REPLACE PANEL WIDTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.

3. LENGTH:
   a. MINIMUM LENGTH OF PAVEMENT REPAIR ALONG TRAVEL WAY IS 10' FROM THE NEAREST JOINT.
   b. IF EXTENT OF PAVEMENT REPAIR IS LESS THAN 10' FROM EXISTING CONSTRUCTION OR EXPANSION JOINT, EXTEND PAVEMENT REPAIR TO EXISTING JOINT.

4. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF PANEL REPLACEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951–PAVEMENT REPAIR AND RESTORATION) IF REINFORCING IS BROKEN OFF OR DOES NOT EXIST.

5. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.

6. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.

7. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.

8. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764–RAISED PAVEMENT MARKERS AND 02767–THERMOPLASTIC PAVEMENT MARKINGS.

9. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951–04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX–BASE PAVEMENT & CONCRETE PAVEMENT).

DISCLAIMER:
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

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

APPROVED BY:

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

DocuSigned by: KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 02951–02

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DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 11 OF 16

WBS NO. M–430296–0017–3
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CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 135 OF 343

No.	Date	Revisions	App.

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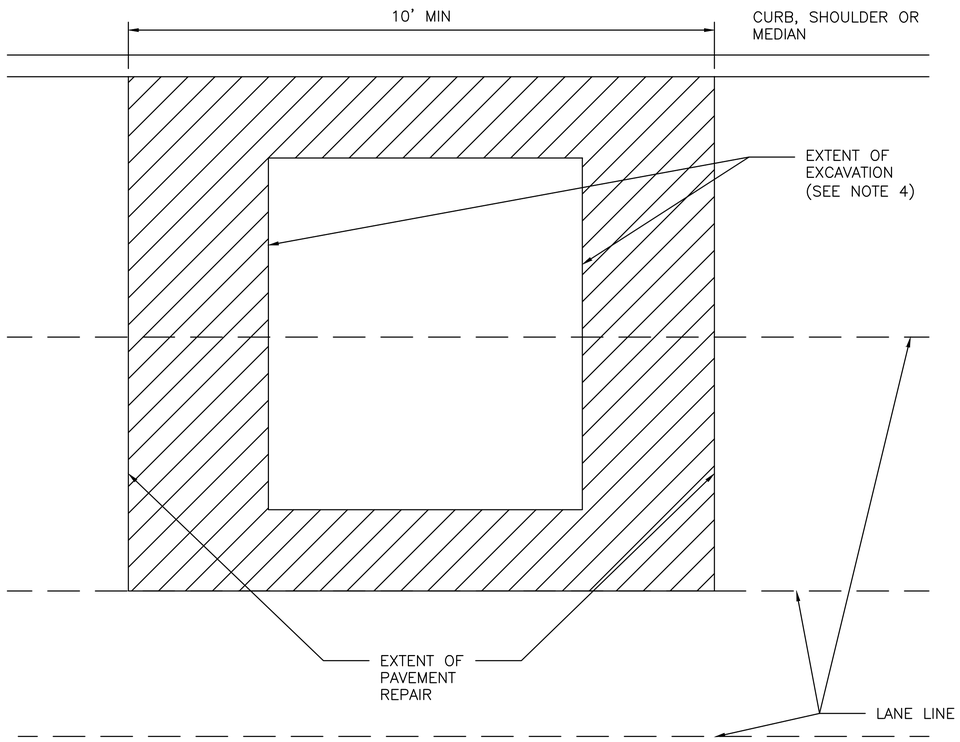

NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.

2. FLEXIBLE BASE: REPLACE BASE TO SAME THICKNESS PLUS TWO INCHES (2") FOR EXTENT OF EXCAVATION. USE APPROVED BASE MATERIAL TYPE.*

3. SURFACE COURSE:

   3.1. WIDTH:
   SURFACE MILL AND OVERLAY FULL WIDTH OF LANE(S) TO NEAREST LANE DIVIDER BEYOND EDGE OF EXCAVATION.

   3.2. LENGTH:
   MINIMUM LENGTH OF SURFACE MILL ALONG TRAVEL WAY IS 10'.

   3.3. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764–RAISED PAVEMENT MARKERS AND 02767–THERMOPLASTIC PAVEMENT MARKINGS.

4. EXTENT OF EXCAVATION INCLUDES 18" OVER CUT AS SHOWN ON STANDARD DETAIL 02951–04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX–BASE PAVEMENT AND CONCRETE PAVEMENT).

5. ADDITIONAL REQUIREMENTS FOR ASPHALT OVERLAY ON CONCRETE PAVEMENT:

   5.1. REPLACE CONCRETE FOR EXTENT OF EXCAVATION. REPLACE TO SAME THICKNESS PLUS TWO INCHES (2").

   5.2. WIDTH:

      5.2.1. IF EXCAVATION EXTENDS MORE THAN HALF OF A LANE, REPLACE ENTIRE LANE OF CONCRETE. OTHERWISE USE STANDARD DETAIL 02951–04 THROUGH 05.

   5.3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF CONCRETE REPLACEMENT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS PER CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02951–PAVEMENT REPAIR AND RESTORATION.

   5.4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.

   5.5. MAINTAIN CONCRETE EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS STANDARD

STREET CUT FOR ASPHALT PAVEMENT REPLACEMENT/RESTORATION FOR PAVEMENT OF ALL AGES

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
CITY TRAFFIC ENGINEER	
EFF DATE: NOV–27–2023	DWG NO: 02951–03

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 12 OF 16

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 136 OF 343	

No.	Date	Revisions	App.

DISCLAIMER:
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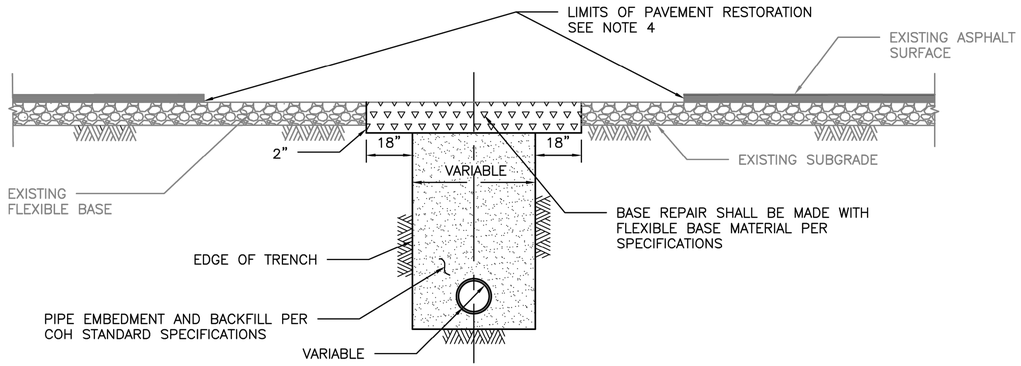
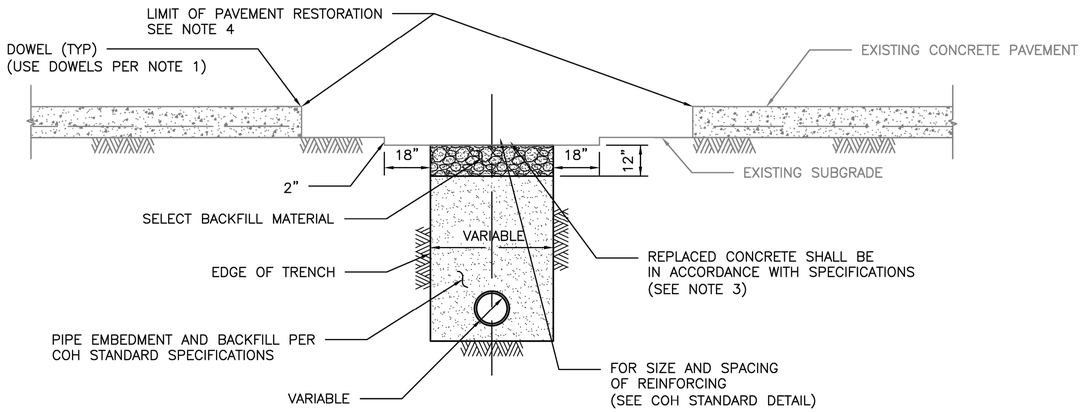


ELEVATION A
REPAIR OF FLEXIBLE BASE PAVEMENT



ELEVATION B
REPAIR OF REINFORCED CONCRETE PAVEMENT

NOTES:

1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BAR, 24" LONG, 24" C–C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751–01 FOR REINFORCING STEEL REQUIREMENTS.
4. REFER TO STANDARD DETAIL 02951–01 THROUGH 03 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT REPAIR DETAIL
FOR STREET CUTS
(FLEX–BASE PAVEMENT & CONCRETE PAVEMENT)
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar — 9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by: Carol Haddock — A93C410B72B3453...
DIRECTOR OF HPW

DocuSigned by: KHANG NGUYEN — 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

EFF DATE: NOV–27–2023 | DWG NO: 02951–04

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P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 13 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 137 OF 343

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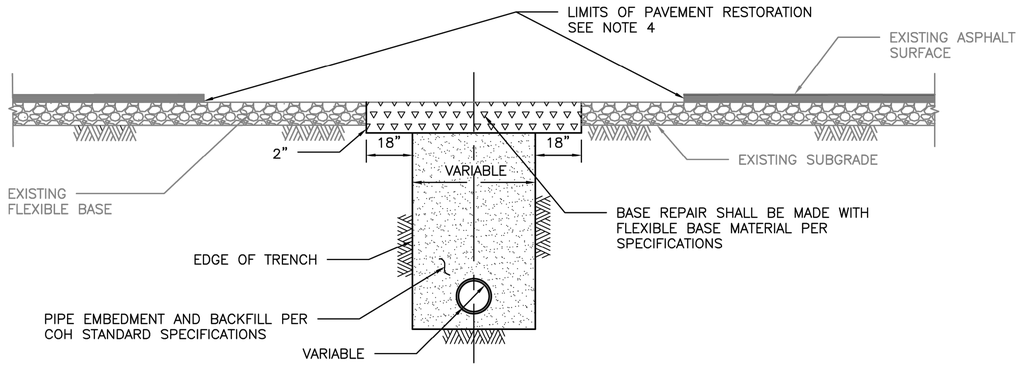
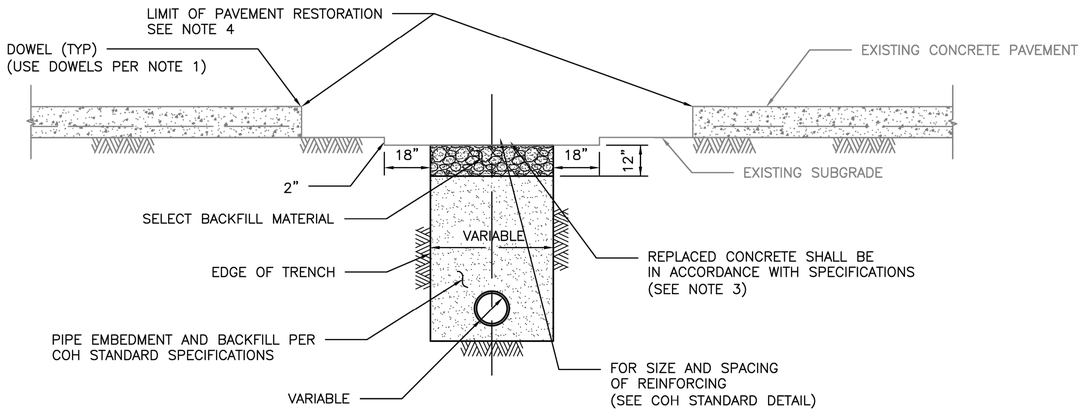


ELEVATION A
REPAIR OF FLEXIBLE BASE PAVEMENT



ELEVATION B
REPAIR OF REINFORCED CONCRETE PAVEMENT

NOTES:

1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BAR, 24" LONG, 24" C–C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751–01 FOR REINFORCING STEEL REQUIREMENTS.
4. REFER TO STANDARD DETAIL 02951–01 THROUGH 03 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT REPAIR DETAIL
FOR STREET CUTS
(FLEX–BASE PAVEMENT & CONCRETE PAVEMENT)
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar — 9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by: Carol Haddock — A93C410B72B3453...
DIRECTOR OF HPW

DocuSigned by: KHANG NGUYEN — 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

EFF DATE: NOV–27–2023 | DWG NO: 02951–04

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P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 14 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 138 OF 343

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NOTES:

1. CONTACT METRO AT BUSSTOPS@RIDEMETRO.ORG TO CONFIRM PROPER APPLICATION OF BUS STOP STANDARD.
2. THE SIDEWALK TRANSITION (T) FROM THE LANDING (L) TO EXISTING SIDEWALK SHOULD NOT HAVE A LONGITUDINAL SLOPE GREATER THAN 5% AND CROSS SLOPE GREATER THAN 2% EXCEPT TO MATCH EXISTING CROSS SLOPE. THE TRANSITION (T) SHOULD BE MINIMUM 5' LONG,OR WILL BE LENGTHENED TO MITIGATE EXCESSIVE SLOPE. FOLLOW GUIDELINES COMPLIANT WITH AMERICANS WITH DISABILITIES ACT – ADA AND TEXAS ACCESSIBILITY STANDARDS–TAS.
3. 5'L X 8'W LANDING (L) IS REQUIRED FOR FRONT DOOR WHEELCHAIR ACCESS COMPLIANT WITH ADA AND TAS.
4. 7'L X 8'W LANDING (L) IS RECOMMENDED TO CAPTURE ALL THREE TYPES OF 40' BUS BACK DOORS.
5. SHOW EXISTING PRIVATE & PUBLIC UTILITIES. ADJUST VALVES AND PULLBOXES IF NEEDED. AVOID UTILITY CONFLICTS. IDENTIFY & PROTECT EXISTING GAS PIPELINES OR VALVES WITHIN THE WORK AREA.
6. CONTRACTOR TO AVOID DAMAGE TO ANY PRIVATE PROPERTY AND/OR TREES.
7. CONTRACTOR TO INSTALL EXPANSION & CONTROL JOINTS AS PER CITY OF HOUSTON SIDEWALK EXPANSION & CONSTRUCTION JOINT DETAILS DWG NO: 02752–02
8. CONTRACTOR TO CONTACT METRO AT BUSSTOPS@RIDEMETRO.ORG ONCE PAD (P) AND LANDING (L) IS COMPLETELY IN–PLACE.
9. REFER TO CITY OF HOUSTON "CONCRETE SIDEWALK DETAILS FOR STREETS WITH CURBS" DWG NO.02775–01 FOE SIDEWALK DETAILS. THE DRIVEWAY/SIDEWALK HEADER DETAIL PER CITY OF HOUSTON DWG NO: 02775–01 WILL BE USED TO CONNECT THE LANDING (L) (4 1/2" THICK) TO THE PAD (P)(9" THICK).
10. LOCATION OF BUS PAD(P) LONGITUDINALLY ALONG THE ROADWAY WILL NEED TO ACCOUNT FOR THE CRITICAL SHELTER OBSTRUCTION TO LINE OF SIGHT AS IDENTIFIED.
11. SIDEWALK SHALL BE A MINIMUM OF 5'WIDE.

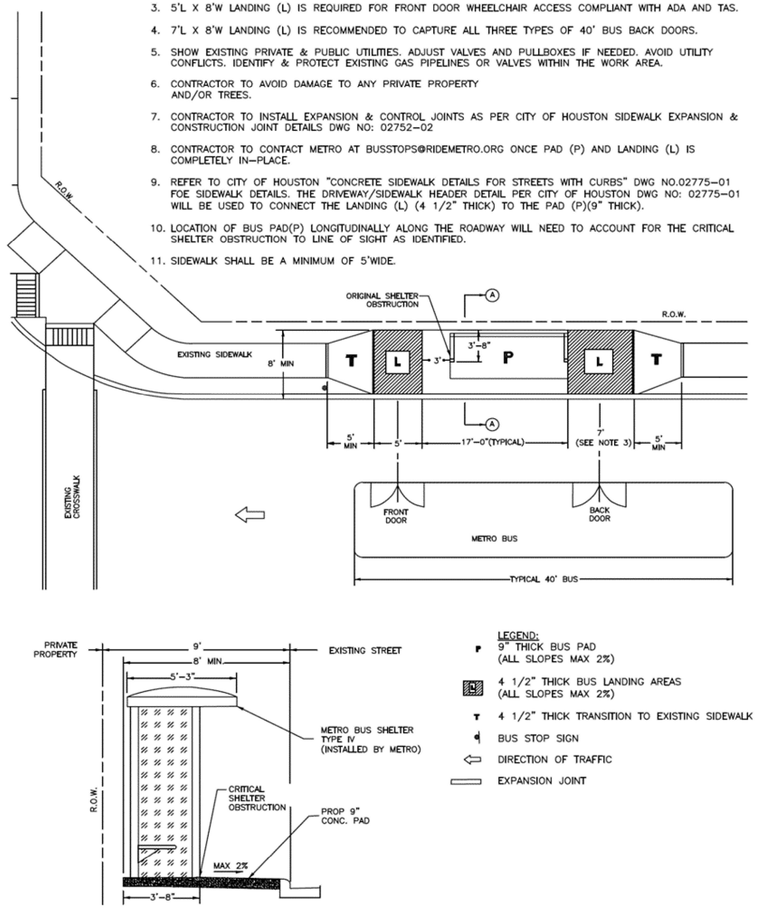

Figure 10.14 - STANDARD BUS PAD AND LANDINGS

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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 15 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 139 OF 343

Revisions: No. | Date | Appr.

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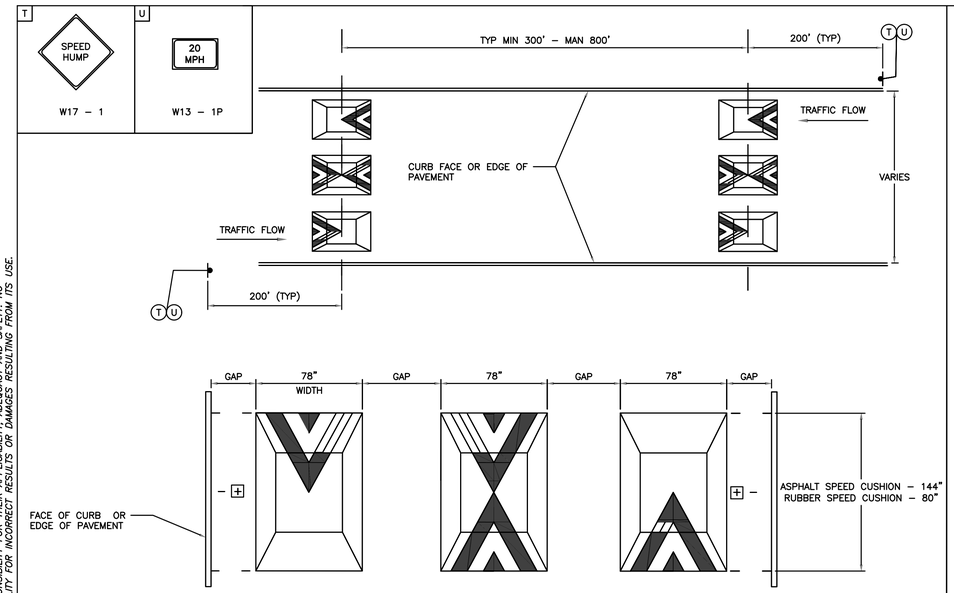
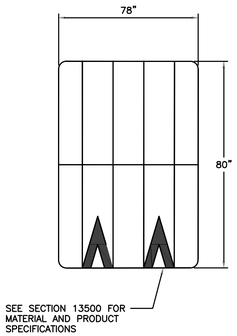


RUBBER SPEED CUSHION



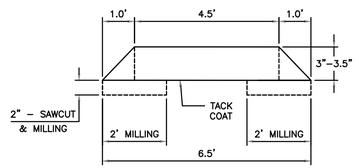
SEE SECTION 13500 FOR MATERIAL AND PRODUCT SPECIFICATIONS

INSTALL PER MANUFACTURER'S SPECIFICATIONS

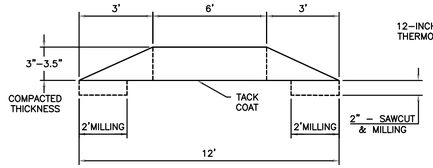
NOTES:

1. SPEED CUSHIONS AND ASSOCIATED SIGNS AND PAVEMENT MARKINGS WILL BE CONSTRUCTED AT LOCATIONS DESIGNED BY TRANSPORTATION AND DRAINAGE OPERATIONS (TDO) OR PER PLANS APPROVED BY TDO.
2. CONTRACTOR SHALL CONTACT THE CONSTRUCTION COORDINATOR BEFORE ANY STREET IS TEMPORARILY CLOSED FOR CONSTRUCTION.
3. THE TYPE OF SPEED CUSHION AND DISTANCE BETWEEN EACH CUSHION WILL BE DETERMINED BY TDO.
4. NO PART OF A SPEED CUSHION SHALL BE LOCATED IN FRONT OF DRIVEWAY APPROACH; RATHER THERE SHOULD BE A MINIMUM OF 6 FEET FROM THE EDGE OF A DRIVEWAY, WHEN PRACTICAL.
5. SPEED CUSHIONS SHOULD BE PLACED AS CLOSE AS POSSIBLE TO THE PROPERTY LINES INSTEAD OF MID – LOT LOCATION, WHERE PRACTICAL.
6. SPEED CUSHIONS SHOULD BE INSTALLED AT A RIGHT ANGLE TO THE CENTERLINE TANGENT OF THE ROADWAY.
7. TRAFFIC CONTROL CONSISTING OF SIGNS SHALL BE PROVIDED TO ADVISE ROADWAY USER OF SPEED CUSHIONS PRESENT. TRAFFIC SIGNS, AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
8. ALL SIGNS AND PAVEMENT MARKINGS WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
9. CONTRACTOR SHALL NOT OPEN SPEED CUSHIONS TO TRAFFIC UNTIL ALL REQUIRED WARNING SIGNS AND PAVEMENT MARKINGS ARE COMPLETED.
10. CONTRACTOR WILL MAINTAIN TEMPORARY MARKINGS UNTIL PERMANENT MARKINGS ARE INSTALLED.
11. CONTRACTOR SHALL COMPLETE THE CUSHION INSTALLATION TO FORM ONE COMPLETE HUMP BEFORE LEAVING THE JOB SITE.
12. CONTRACTOR SHALL WORK ONE HALF OF THE STREET AT A TIME AND MAINTAIN TWO – WAY TRAFFIC WITH CERTIFIED FLAGGER.
13. ASPHALT SPEED CUSHION SHALL BE CONSTRUCTED WITH TYPE D ASPHALT MIX PER CITY OF HOUSTON SPECIFICATIONS; A TACK COAT SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT MATERIAL.
14. ASPHALT SPEED CUSHIONS SHALL BE COMPACTED PER CITY OF HOUSTON SPECIFICATIONS AND SHAPE ACCORDING TO INSTALLATION DETAILS. COMPACTION SHALL REQUIRE UTILIZATION OF ALL NECESSARY SIZES AND TYPES OF ROLLERS TO ACCOMPLISH PROPER COMPACTION AND SHAPE.
15. ASPHALT SPEED CUSHIONS ARE TO BE CONSTRUCTED BETWEEN 3" – 3 ½" IN HEIGHT.
16. CONTRACTOR SHALL NOTIFY GARY DRABEK (832–395–2997) A MINIMUM OF TWO BUSINESS DAYS IN ADVANCE OF THE INSTALLATION OF SPEED CUSHIONS.

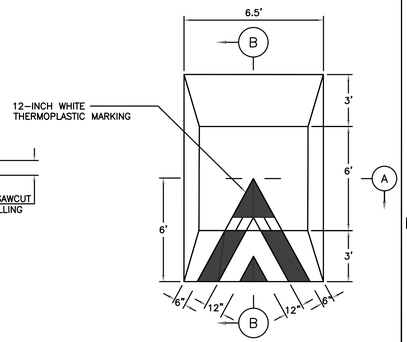
ASPHALT SPEED CUSHION – INSTALLATION DETAILS

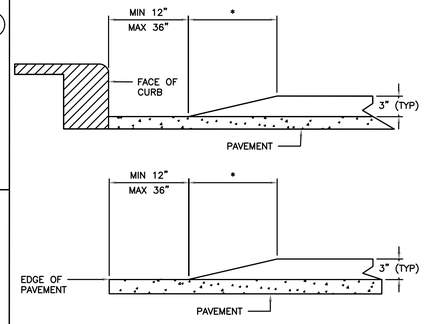


SECTION A – A



SECTION B – B





* RUBBER CUSHION – 12" TAPER, ASPHALT CUSHION – 12" TAPER.

TYPICAL SPEED CUSHIONS ARRANGEMENT FOR A GIVEN PAVEMENT WIDTH

PAVEMENT WIDTH (FT)	No OF CUSHIONS	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)
16	2	12	78	12	78	12						
18	2	20	78	20	78	20						
20	2	30	78	24	78	30						
22	2	36	78	36	78	36						
24	3	15	78	12	78	12	78	15				
26	3	20	78	19	78	19	78	20				
28	3	27	78	24	78	24	78	27				
30	3	31	78	32	78	32	78	31				
32	4	18	78	12	78	12	78	12	78	18		
34	4	21	78	18	78	18	78	18	78	21		
36	4	24	78	24	78	24	78	24	78	24		
38	4	30	78	28	78	28	78	28	78	30		
40	4	33	78	34	78	34	78	34	78	33		
42	5	19	78	19	78	19	78	19	78	19	78	19
44	5	23	78	23	78	23	78	23	78	23	78	23

APPROVED BY:	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 13501–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SPEED CUSHIONS ARRANGEMENT AND INSTALLATION

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

HRGreen
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/17/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 16 OF 16

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 140 OF 343

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KATY FREEWAY (IH-10)

TOWN & COUNTRY WAY

QUEENSBURY LN

ROCKY MEADOW LN

KINGSRIDE LN

BARRYKNOLL LN

PINEROCK LN

VINDON LN

MOOREMEADOW LN

MOOREKNOLL LN

KIMBERLEY LN

ATTINGHAM DR

HALLIE DR

FROSTWOOD DR

BENIGNUS RD

MATCH LINE STA 18+00

0+00

15+00

EXIST 36" RCP

EXIST 6'X4' RCB

EXIST 6'X5' RCB

EXIST 7'X5' RCB

EXIST 24" RCP

EXIST 48" RCP

A-1

A-2

A-3

A-4

A-5

A-6

A-7

A-8

A-9

A-10

A-11

A-12

A-13

A-14

A-15

A-16

A-17

LEGEND

- EXIST DRAINAGE AREA BOUNDARY
- ID — DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER

No.	Date	Revisions	App.

N

0 75 150

SCALE IN FEET

HRGreen

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ISSUED FOR REVIEW
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BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING OVERALL DRAINAGE AREA MAP

SHEET 1 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=150' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 141 OF 343	

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KATY FREEWAY (IH–10)

GESSNER RD

KINGSRIDE LN

BARRYKNOLL LN

QUEENSBURY LN

PINEROCK LN

KIMBERLEY LN

W151–00–00

MATCH LINE STA 18+00

A–16

A–17

A–18

A–19

A–20

A–21

A–22

A–23

A–24

A–25

A–26

A–27

A–28

A–29

A–30

A–31

A–32

A–33

A–34

A–35

A–36

EXIST 48" RCP

EXIST 54" RCP

EXIST 2–8'X5' RCB

EXIST 2–8'X6' RCB

EXIST 60" RCP

6+89

20+00

10+00

15+00

19+00

1+00

LEGEND

EXIST DRAINAGE AREA BOUNDARY

ID — DRAINAGE AREA ID

DIRECTION OF FLOW

EXIST STORM SEWER

N

0 75 150

SCALE IN FEET

No.	Date	Revisions	App.

HRGreen

FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING OVERALL DRAINAGE AREA MAP

SHEET 2 OF 2

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=150' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 142 OF 343	

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KATY FREEWAY (IH-10)

TOWN & COUNTRY WAY

QUEENSBURY LN

ROCKY MEADOW LN

KINGSRIDE LN

BARRYKNOLL LN

PINEROCK LN

VINDON LN

MOOREMEADOW LN

MOOREKNOLL LN

FROSTWOOD DR

ATTINGHAM DR

HALLIE DR

BENIGNUS RD

KIMBERLEY LN

MATCH LINE STA 18+00

EXIST 36" RCP

EXIST 6'X4' RCB

EXIST 6'X5' RCB

EXIST 7'X5' RCB

EXIST 24" RCP

EXIST 48" RCP

PROP UNDERGROUND DETENTION BASIN

PROP 2-8'X6' RCB

A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8 A-9 A-10 A-11 A-12 A-13 A-14 A-15 A-16 A-17 A-18 A-19 A-20 A-21 A-22 A-23 A-24 A-25 A-26 A-27 A-28 A-29 A-30 A-31 A-32 A-33

0+00 5+00 10+00 15+00

LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID — DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER

N

0 75 150

SCALE IN FEET

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED OVERALL DRAINAGE AREA MAP

SHEET 1 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=150' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 143 OF 343	

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LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID — DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER

No.	Date	Revisions	App.

N

0 75 150

SCALE IN FEET

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED OVERALL DRAINAGE AREA MAP

SHEET 2 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=150' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 1428 OF 3300	

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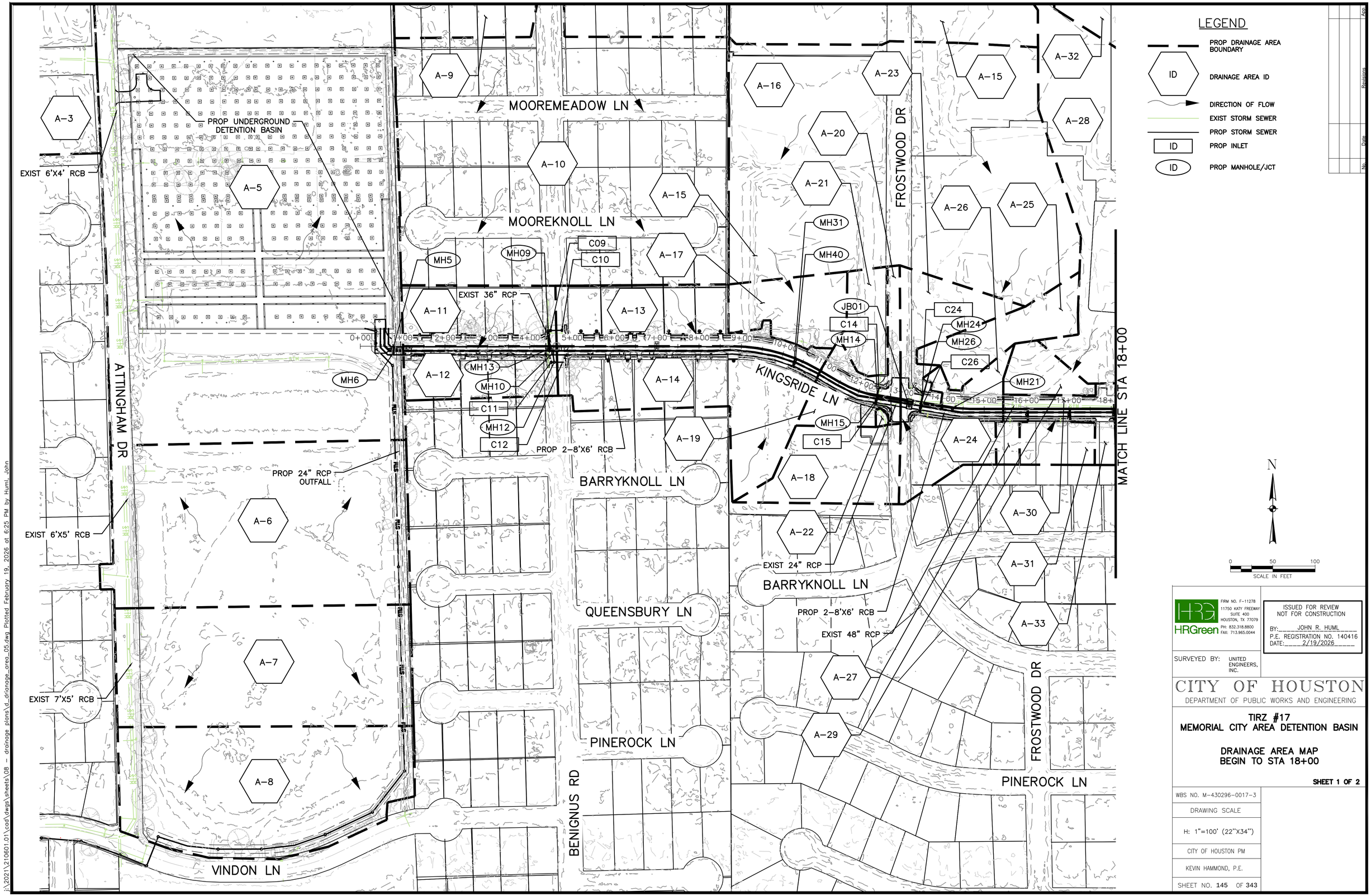

LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID — DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER
- ID — PROP INLET
- ID — PROP MANHOLE/JCT

No.	Date	Revisions	App.

N

0 50 100
SCALE IN FEET

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE AREA MAP
BEGIN TO STA 18+00

SHEET 1 OF 2

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=100' (22"X34")
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 145 OF 343

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LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID — DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER
- ID — PROP INLET
- ID — PROP MANHOLE/JCT

No.	Date	Revisions	App.

N

0 50 100

SCALE IN FEET

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BY:_____JOHN R. HUML_____
P.E. REGISTRATION NO. 140416
DATE:_____2/19/2026_____

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE AREA MAP
STA 18+00 TO END

SHEET 2 OF 2

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=100' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 146 OF 343	

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2-YEAR DRAINAGE AREA COMPUTATIONS					
ID	C	AREA (AC)	Tc (MIN)	I (IN/HR)	Q (CFS)
A01	0.81	9.06	29.7	3.42	25.07
A02	0.73	10.57	30.1	3.39	26.30
A03	0.81	4.11	27.8	3.54	11.85
A04	0.81	8.86	29.7	3.42	24.47
A05	0.36	19.01	31.8	3.29	22.43
A06	0.62	6.25	28.8	3.48	13.57
A07	0.80	4.55	28.1	3.53	12.89
A08	0.52	4.42	28.0	3.53	8.07
A09	0.76	14.70	31.1	3.33	37.09
A10	0.81	10.66	30.2	3.39	29.19
A11	0.59	1.20	25.3	3.73	2.64
A12	0.59	1.02	25.0	3.75	2.26
A13	0.62	1.57	25.8	3.69	3.58
A14	0.68	2.52	26.8	3.62	6.21
A15	0.81	13.27	30.8	3.35	35.94
A16	0.81	9.99	30.0	3.40	27.34
A17	0.80	0.91	24.8	3.77	2.75
A18	0.81	1.25	25.4	3.72	3.73
A19	0.80	0.44	23.7	3.86	1.37
A20	0.79	0.42	23.6	3.87	1.27
A21	0.80	0.55	24.0	3.84	1.68
A22	0.78	0.02	20.2	4.19	0.08
A23	0.77	0.92	24.9	3.77	2.65
A24	0.77	0.90	24.8	3.77	2.60
A25	0.80	0.87	24.8	3.77	2.64
A26	0.80	0.32	23.2	3.91	1.00
A27	0.80	0.17	22.3	3.98	0.54
A28	0.80	4.22	27.9	3.54	11.93
A29	0.80	0.43	23.6	3.87	1.33
A30	0.81	0.28	23.0	3.92	0.90
A31	0.80	0.48	23.8	3.85	1.48
A32	0.80	4.57	28.1	3.53	12.88
A33	0.81	0.19	22.5	3.97	0.61
A34	0.80	0.88	24.8	3.77	2.65
A35	0.81	0.70	24.4	3.80	2.16
A36	0.82	12.40	30.6	3.36	34.05
A37	0.81	10.50	30.1	3.39	28.90
A38	0.73	4.30	27.9	3.54	11.12
A39	0.82	8.34	29.5	3.43	23.30
A40	0.50	0.71	24.4	3.80	1.33
A41	0.80	0.65	24.3	3.81	1.98
A42	0.80	0.80	24.6	3.78	2.42
A43	0.80	0.44	23.7	3.86	1.37
A44	0.90	0.15	22.1	4.00	0.53
A45	0.85	0.56	24.0	3.83	1.81
A46	0.80	2.19	26.5	3.64	6.38
A47	0.83	0.59	24.1	3.83	1.87
A48	0.72	0.71	24.4	3.80	1.94
A49	0.69	0.47	23.7	3.86	1.24
A50	0.83	5.75	28.6	3.49	16.64
A51	0.90	0.04	20.6	4.14	0.15
A52	0.85	0.11	21.8	4.03	0.37
A53	0.80	0.36	23.3	3.89	1.11
A54	0.80	1.35	25.5	3.71	4.01
A55	0.80	0.11	21.8	4.03	0.35
A56	0.81	0.65	24.3	3.81	2.02
A57	0.80	0.54	24.0	3.84	1.67
A58	0.80	0.24	22.8	3.94	0.75
A59	0.80	0.99	25.0	3.75	2.96
A60	0.80	0.30	23.1	3.91	0.94
A61	0.84	0.26	22.9	3.93	0.86
A62	0.82	2.36	26.6	3.63	7.00
A63	0.83	0.15	22.2	4.00	0.51
A64	0.80	1.08	25.1	3.74	3.25
A65	0.75	0.28	23.0	3.92	0.83
A66	0.81	0.41	23.6	3.87	1.28
A67	0.80	1.32	25.5	3.71	3.92
A68	0.82	0.20	22.5	3.97	0.63
A69	0.80	0.18	22.4	3.98	0.56

ID	INLET TYPE	LONGITUDINAL SLOPE (FT/FT)	TRANVERSE SLOPE (FT/FT)	GUTTER N	CURB LENGTH (FT)	GUTTER DEPR. (FT)
A26	Curb	0.0031	0.0208	0.015	5.00	0.25
A27	Curb	0.0030	0.0208	0.015	5.00	0.25
A30	Curb	0.0030	0.0208	0.015	5.00	0.25
A31	Curb	0.0030	0.0208	0.015	5.00	0.25
A33	Curb	0.0030	0.0208	0.015	5.00	0.25
A55	Curb	0.0034	0.0208	0.015	5.00	0.25
A61	Curb	0.0041	0.0208	0.015	5.00	0.25
A63	Curb	0.0030	0.0208	0.015	5.00	0.25
A66	Curb	0.0044	0.0208	0.015	5.00	0.25
A69	Curb	0.0062	0.0208	0.015	5.00	0.25

RAINFALL INTENSITY COEFFICIENTS			
Rainfall	**b**	**d (min)**	**e**
2-year	48.35	9.0700	0.7244

2-YR ON-GRADE CURB INLET COMPUTATION DATA									
ID	TYPE	TOTAL Q (CFS)	BYPASS FLOW (CFS)	TO INLET ID	CAPACITY (CFS)	PONDED WIDTH (FT)	PONDED WIDTH ALLOWED (FT)	PONDED DEPTH (FT)	PONDED DEPTH ALLOWED (FT)
A26	Curb	1.00	0.05	A23	0.96	8.58	10.00	0.18	0.50
A27	Curb	0.54	0.00	A31	0.54	6.84	10.00	0.14	0.50
A30	Curb	0.90	0.02	A34	0.88	8.28	10.00	0.17	0.50
A31	Curb	1.48	0.20	A33	1.28	9.99	10.00	0.21	0.50
A33	Curb	0.81	0.01	A35	0.80	7.97	10.00	0.17	0.50
A55	Curb	0.35	0.00	A54	0.35	5.70	11.00	0.12	0.50
A61	Curb	0.86	0.04	A54	0.82	7.68	11.00	0.16	0.50
A63	Curb	0.51	0.00	A64	0.51	6.68	11.00	0.14	0.50
A66	Curb	1.28	0.19	A64	1.10	8.81	11.00	0.18	0.50
A69	Curb	0.56	0.00	A67	0.56	6.06	11.00	0.13	0.50

SAG CURB INLET CONFIGURATION						
ID	INLET TYPE	LONGITUDINAL SLOPE (FT/FT)		TRANSVERSE SLOPE (FT/FT)	GUTTER N	CURB LENGTH	GUTTER DEPR. (FT)
		LEFT	RIGHT				
A11	Curb	0.0350	0.0168	0.0410	0.015	5.00	0.25
A12	Curb	0.0180	0.0420	0.0410	0.015	5.00	0.25
A13	Curb	0.0410	0.0100	0.0270	0.015	5.00	0.25
A14	Curb	0.0100	0.0340	0.0330	0.015	10.00	0.25
A19	Curb	0.0045	0.0042	0.0208	0.015	5.00	0.25
A21	Curb	0.0045	0.0031	0.0208	0.015	5.00	0.25
A23	Curb	0.0063	0.0031	0.0208	0.015	5.00	0.25
A24	Curb	0.0057	0.0031	0.0208	0.015	5.00	0.25
A34	Curb	0.0030	0.0047	0.0208	0.015	5.00	0.25
A35	Curb	0.0030	0.0030	0.0208	0.015	5.00	0.25
A40	Curb	0.0060	0.0030	0.0208	0.015	5.00	0.25
A41	Curb	0.0060	0.0030	0.0208	0.015	5.00	0.25
A45	Curb	0.0060	0.0035	0.0200	0.015	5.00	0.25
A47	Curb	0.0033	0.0038	0.0208	0.015	5.00	0.25
A52	Curb	0.0039	0.0038	0.0208	0.015	5.00	0.25
A54	Curb	0.0034	0.0041	0.0229	0.015	5.00	0.25
A56	Curb	0.0034	0.0041	0.0229	0.015	5.00	0.25
A64	Curb	0.0030	0.0044	0.0208	0.015	5.00	0.25
A65	Curb	0.0030	0.0044	0.0208	0.015	5.00	0.25
A67	Curb	0.0030	0.0062	0.0229	0.015	5.00	0.25
A68	Curb	0.0030	0.0062	0.0229	0.015	5.00	0.25

2-YEAR SAG INLET COMPUTATION DATA									
ID	TYPE	TOTAL Q (CFS)	TOTAL Q (CFS)		CAPACITY (CFS)	PONDED WIDTH (FT)		PONDED WIDTH ALLOWED (FT)	PONDED DEPTH (FT)	PONDED DEPTH ALLOWED (FT)
			LEFT	RIGHT		LEFT	RIGHT			
A11	Curb	2.64	1.76	0.88	8.46	4.40	3.89	13.50	0.23	0.50
A12	Curb	2.26	0.68	1.58	8.46	4.53	5.31	14.00	0.21	0.50
A13	Curb	3.58	2.86	0.72	8.46	5.13	3.97	13.50	0.28	0.50
A14	Curb	6.21	1.55	4.66	12.52	6.08	7.30	14.00	0.31	0.50
A19	Curb	1.37	0.69	0.69	8.46	6.94	7.03	10.00	0.15	0.50
A21	Curb	1.68	1.01	0.67	8.46	8.02	7.39	10.00	0.17	0.50
A23	Curb	2.69	1.80	0.90	8.46	9.34	8.23	10.00	0.23	0.50
A24	Curb	2.60	1.69	0.91	8.46	9.31	8.27	10.00	0.23	0.50
A34	Curb	2.68	1.07	1.61	8.46	8.85	9.47	10.00	0.23	0.50
A35	Curb	2.17	1.08	1.08	8.46	8.89	8.89	10.00	0.20	0.50
A40	Curb	1.33	0.89	0.44	8.46	7.24	6.36	10.00	0.15	0.50
A41	Curb	1.98	1.32	0.66	8.46	8.40	7.37	12.00	0.19	0.50
A45	Curb	1.81	1.20	0.60	8.46	8.32	7.10	11.00	0.18	0.50
A47	Curb	1.87	0.79	1.07	8.46	7.77	8.47	11.00	0.18	0.50
A52	Curb	0.37	0.19	0.19	8.46	4.13	4.15	10.00	0.06	0.50
A54	Curb	4.04	1.82	2.22	8.46	10.54	10.97	11.00	0.31	0.50
A56	Curb	2.02	0.91	1.11	8.46	7.65	7.96	10.00	0.19	0.50
A64	Curb	3.43	1.37	2.06	8.46	9.71	10.52	11.00	0.27	0.50
A65	Curb	0.83	0.33	0.50	8.46	5.38	5.82	10.00	0.11	0.50
A67	Curb	3.92	1.31	2.61	8.46	9.53	10.79	11.00	0.30	0.50
A68	Curb	0.63	0.21	0.42	8.46	4.53	5.13	10.00	0.09	0.50

NOTES:

1. SEE PROPOSED DRAINAGE AREA MAP, PLAN AND PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.
2. THE STORM SEWER SYSTEM IS DESIGNED FOR REGIONAL FLOOD MITIGATION. IT HAS STORM SEWER SYSTEM INTERCONNECTIVITY. A FLAP GATE, WEIRS IN JUNCTION BOXES, A MAJOR UNDERGROUND DETENTION SYSTEM, ETC. THESE MAKE IT TOO COMPLEX TO MODEL EXCEPT IN INFOWORKS.
3. SEE DRAINAGE IMPACT ANALYSIS AMENDMENT BY HR GREEN, FEBRUARY 2026, FOR ICM ANALYSIS, DETENTION VOLUME CALCULATIONS, AND ADDITIONAL INFORMATION.
4. PROP 2-YEAR AND 100-YEAR HGLS ARE SHOWN ON THE DRAINAGE PLAN AND PROFILE SHEETS.

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HOUSTON, TX 77079
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BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE COMPUTATIONS

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

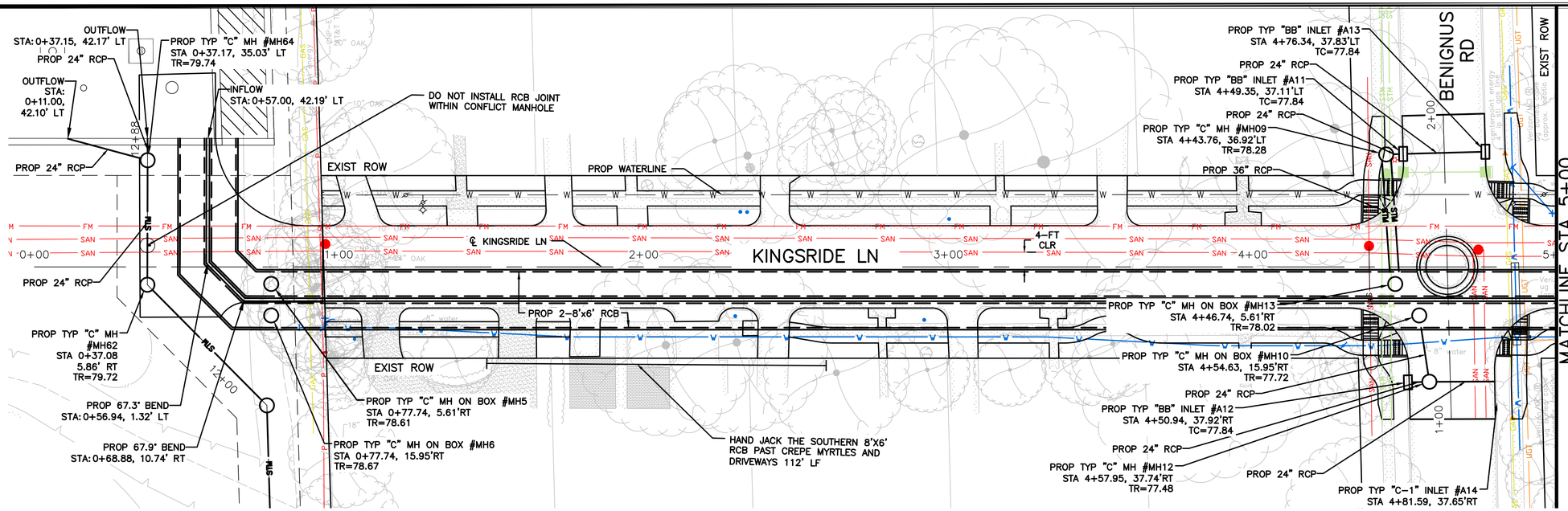
CITY OF HOUSTON PM

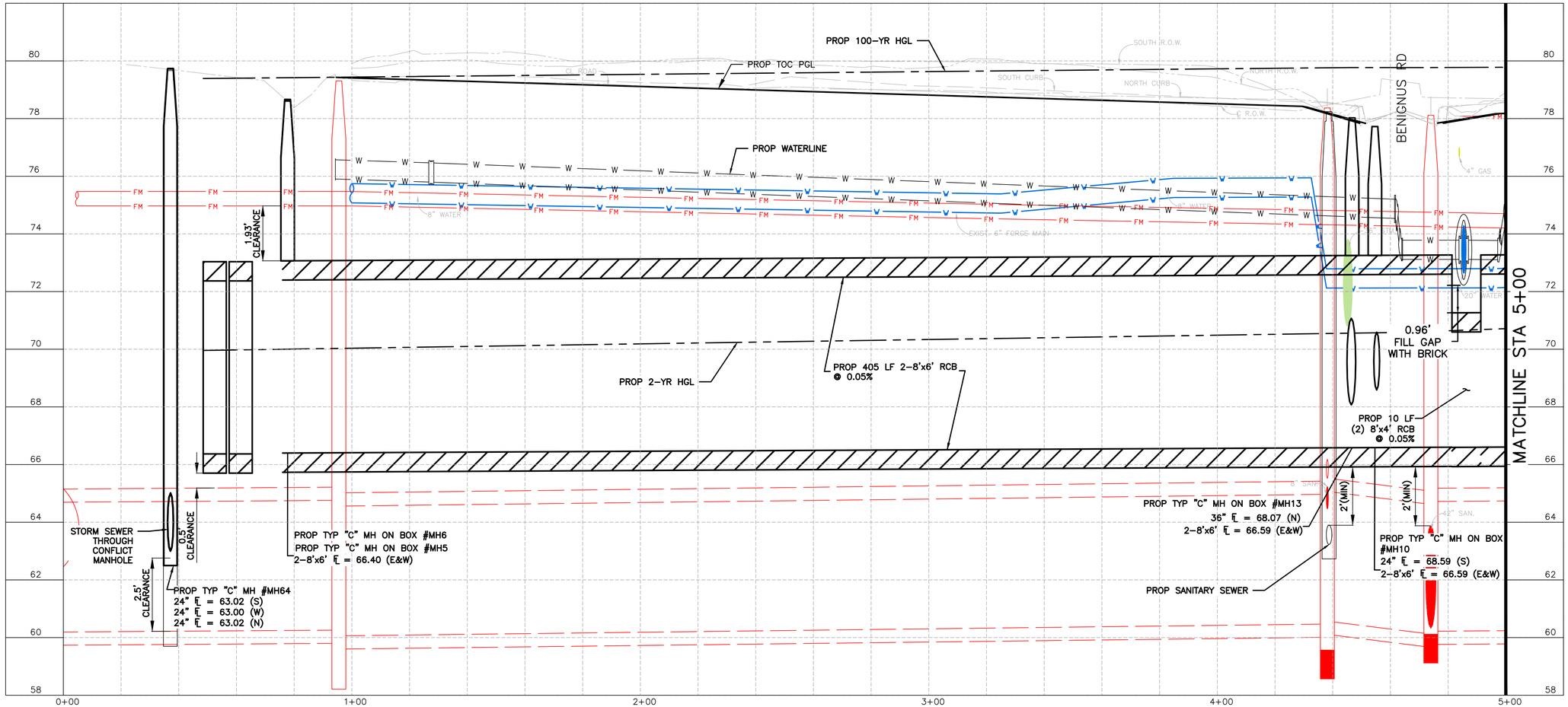
KEVIN HAMMOND, P.E.

SHEET NO. 147 OF 343

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_computations_01.dwg Plotted February 19, 2026 at 6:30 PM by Huml, John





0 20 40
SCALE IN FEET

N

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES HAVE BEEN SHOWN FOR CONFLICT VERIFICATION.)
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CABLE COMPANY DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	148 OF 343

App.
Revisions
Date
No.

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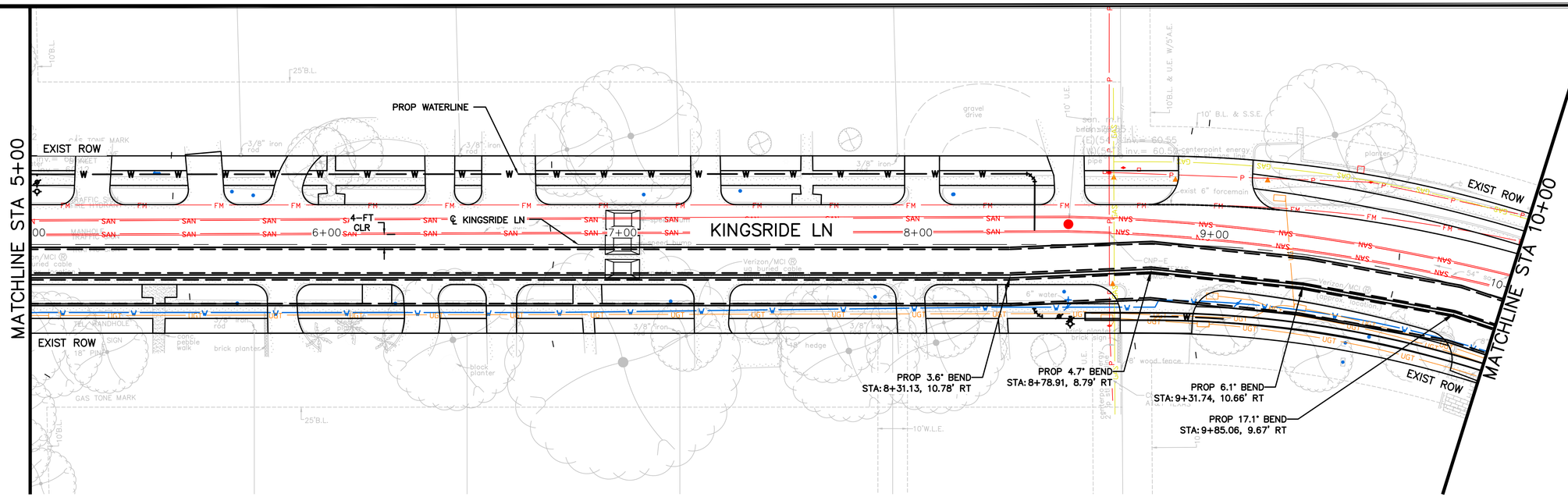

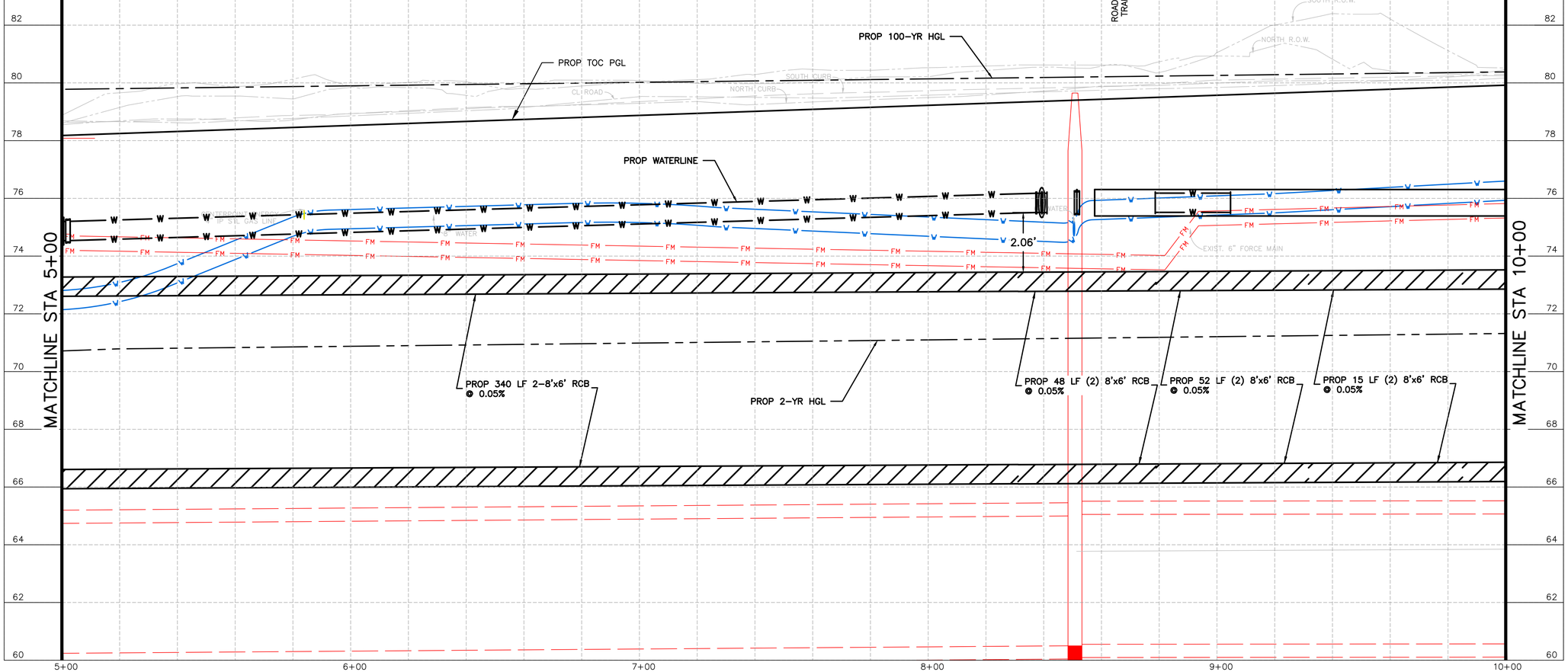

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
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HOUSTON, TX 77079
PH: 832.318.8800
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DATE: 2/20/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 149 OF 343

No. Date Revisions App.

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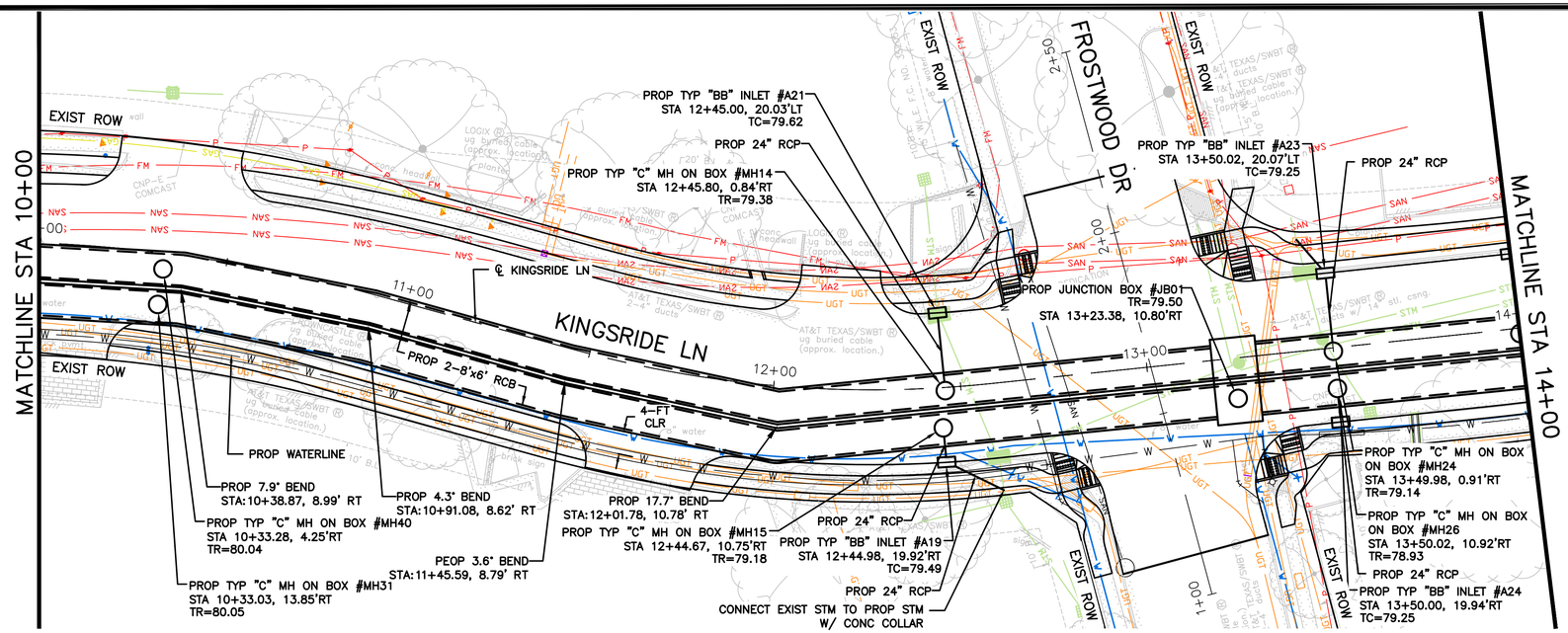

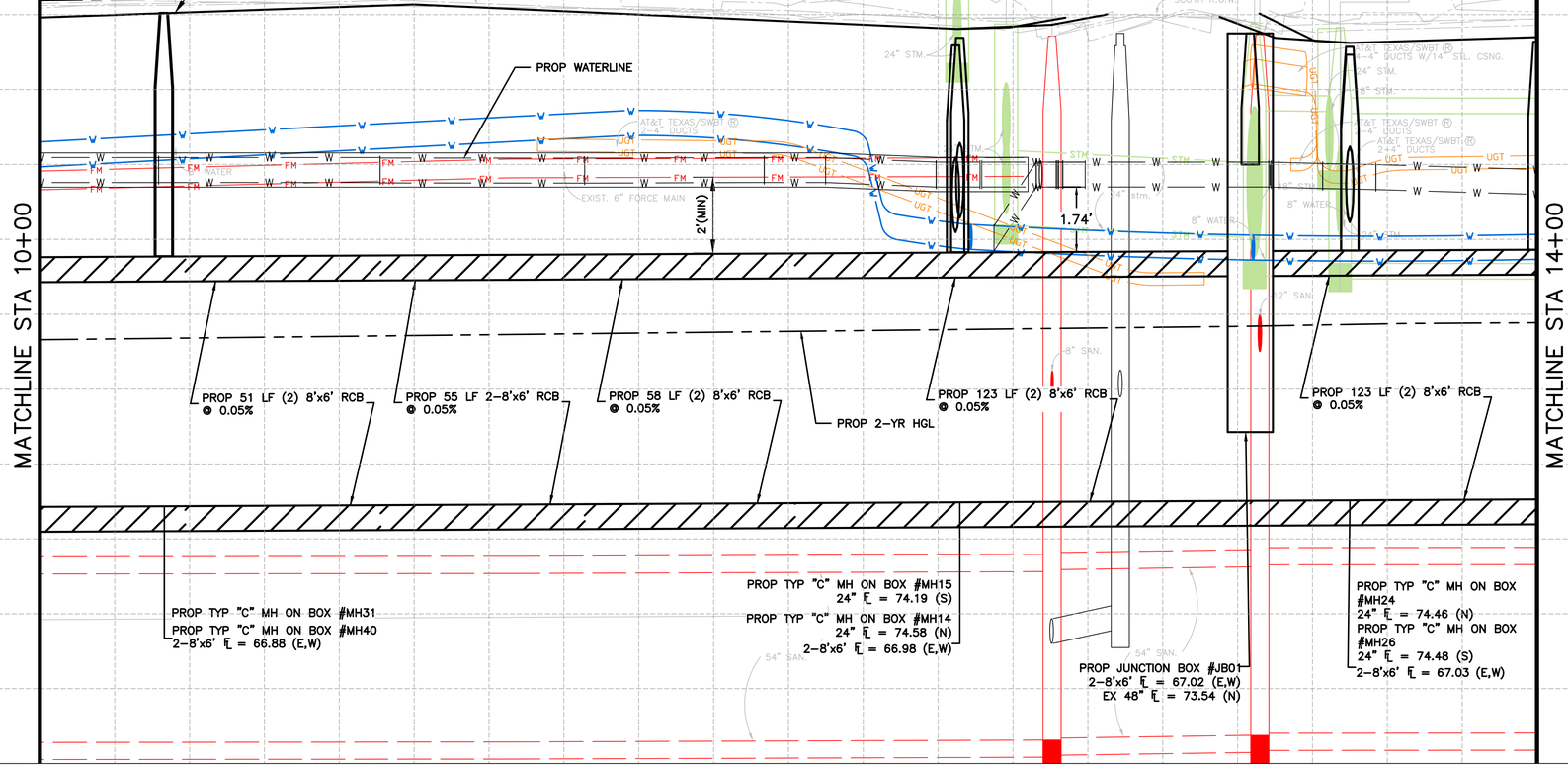

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
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VERIFICATION OF PRIVATE UTILITY LINES

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BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
H: 1"=20' (22"X34")	
H: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO.	150 OF 343

No.	Date	Revisions	App.

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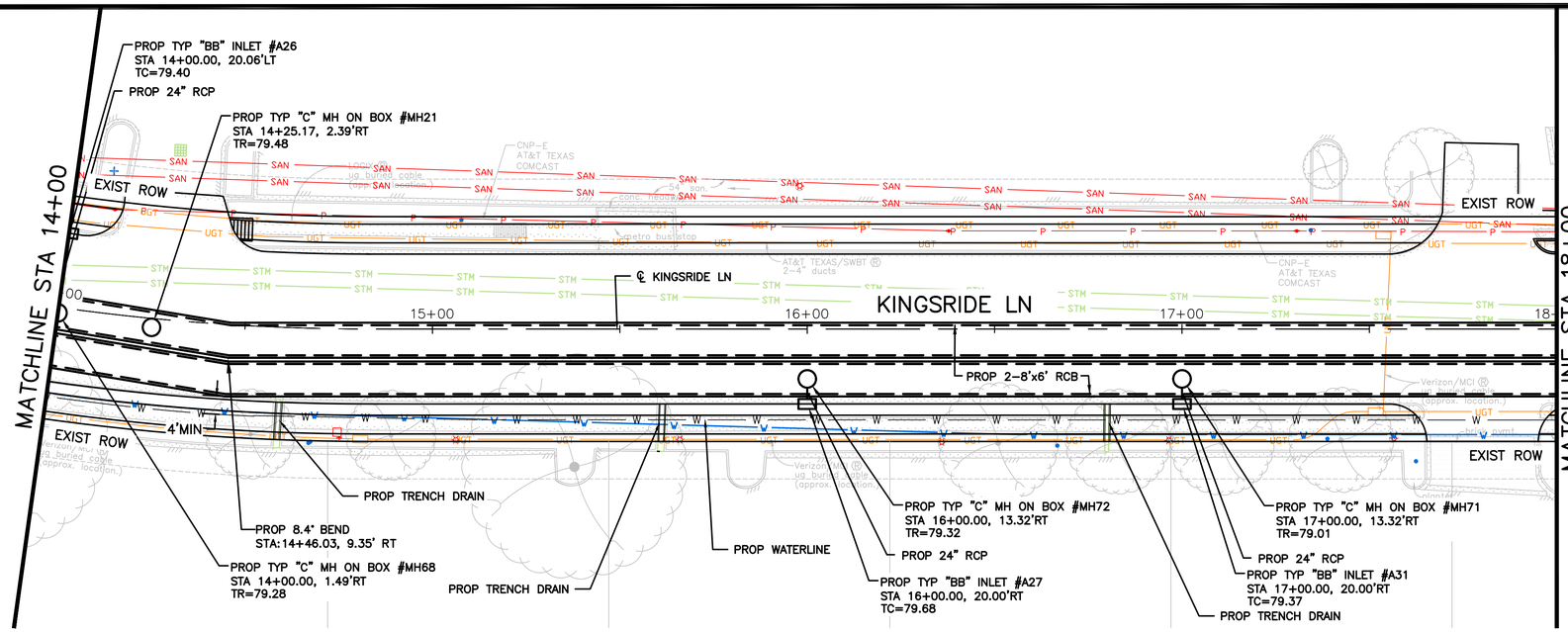

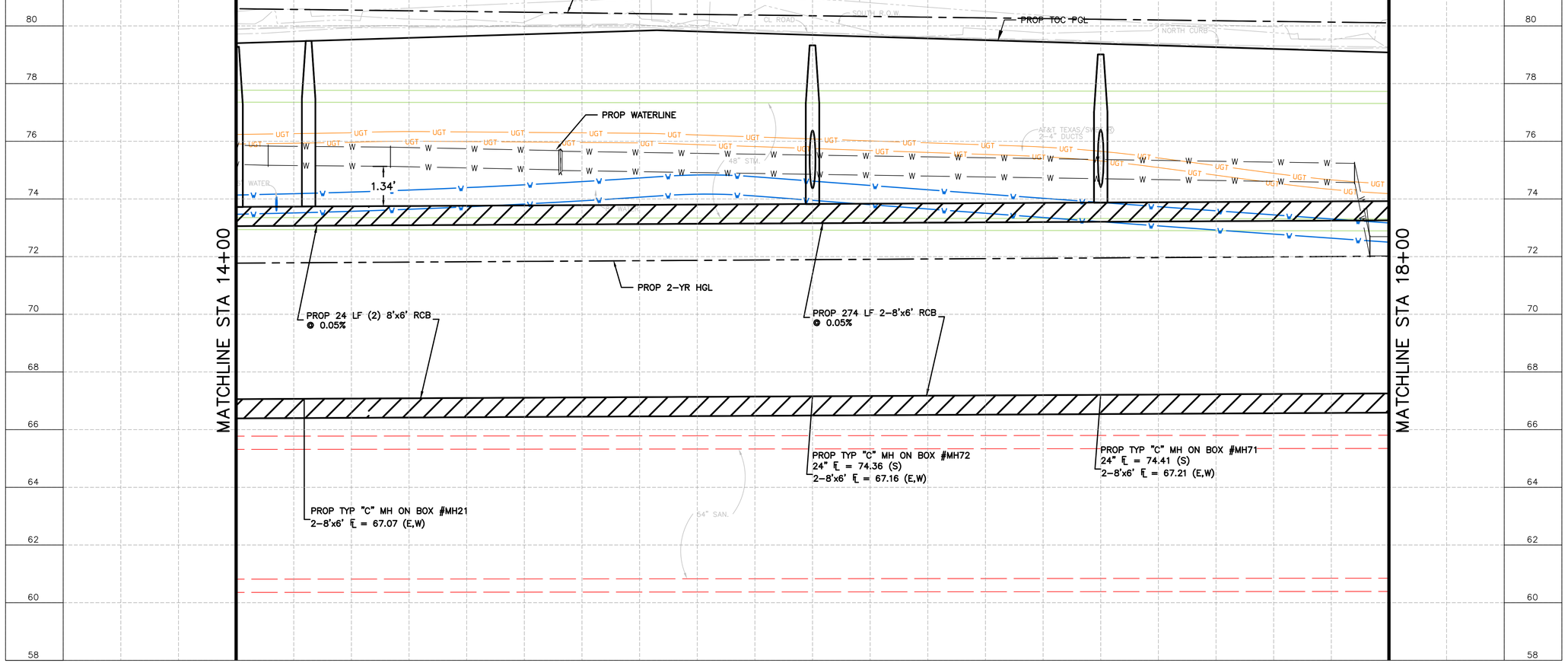

0 20 40
SCALE IN FEET

N

No.	Date	Revisions	App.

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
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VERIFICATION OF PRIVATE UTILITY LINES

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FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
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P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	
H: 1"=20' (22"X34")	
H: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO.	151 OF 343

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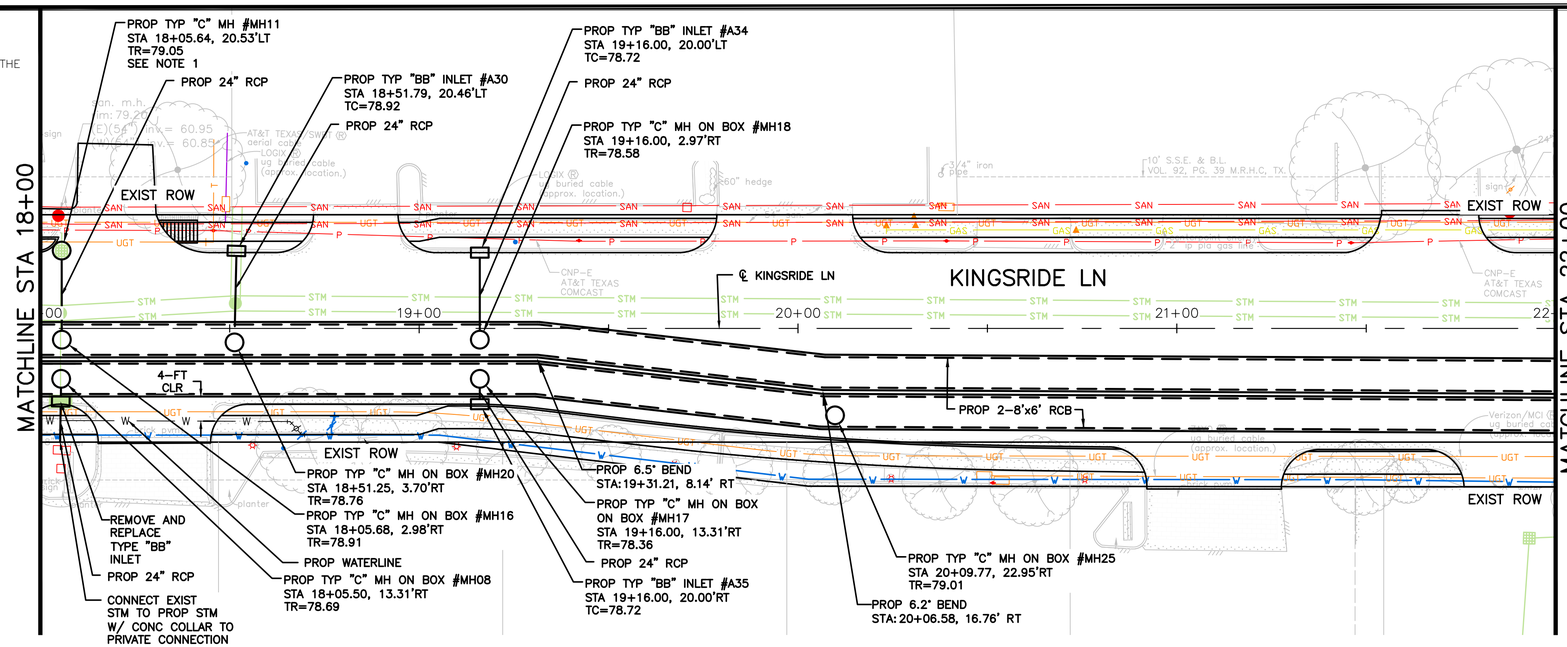
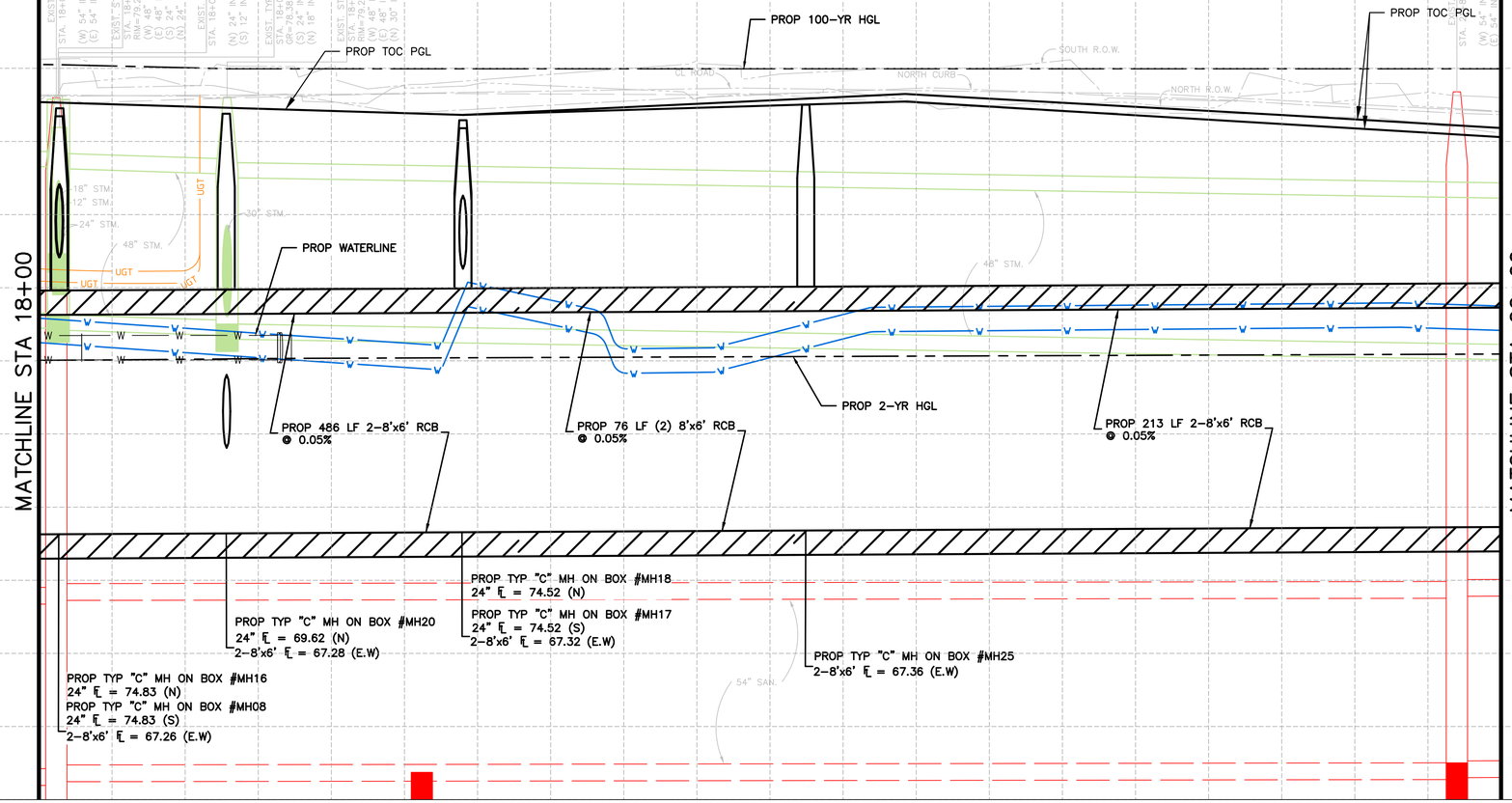
NOTES:

1. OFFSITE PIPE CONNECTION DISALLOWS RELOCATING THE MANHOLE AWAY FROM THE DRIVEWAY.





0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

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HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

SHEET 5 OF 6

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=20' (22"X34") H: 1"=2' (22"X34")
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	152 OF 343

Apv. | Revisions | Date | No.

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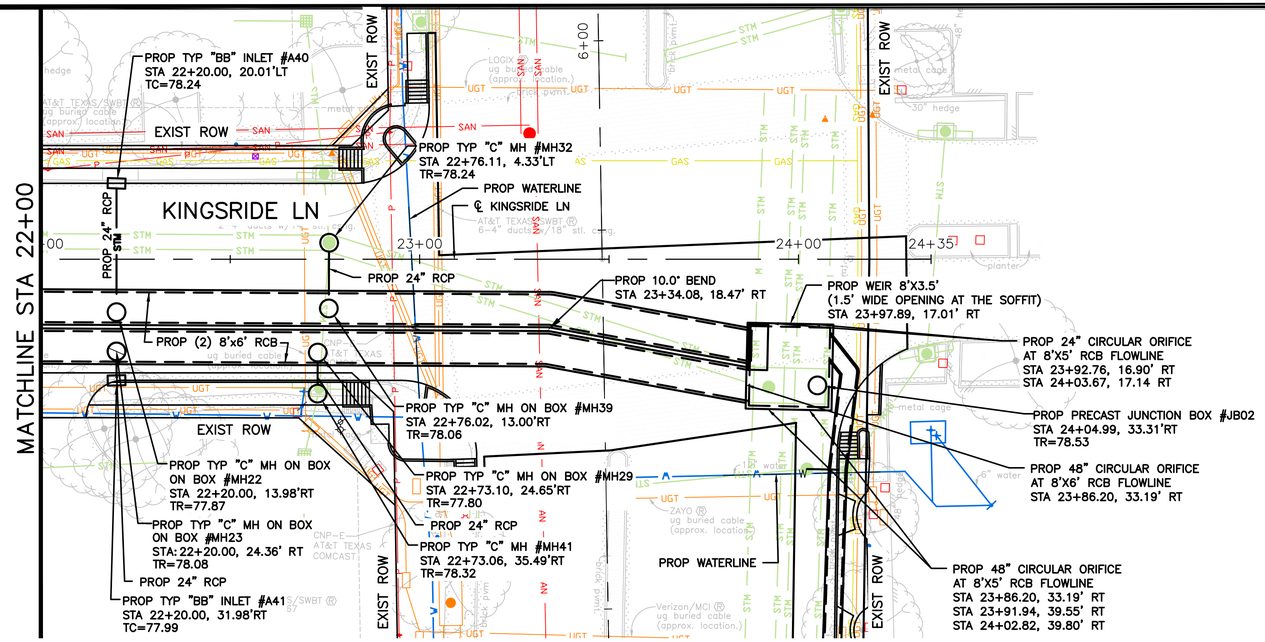

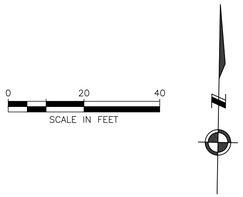

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
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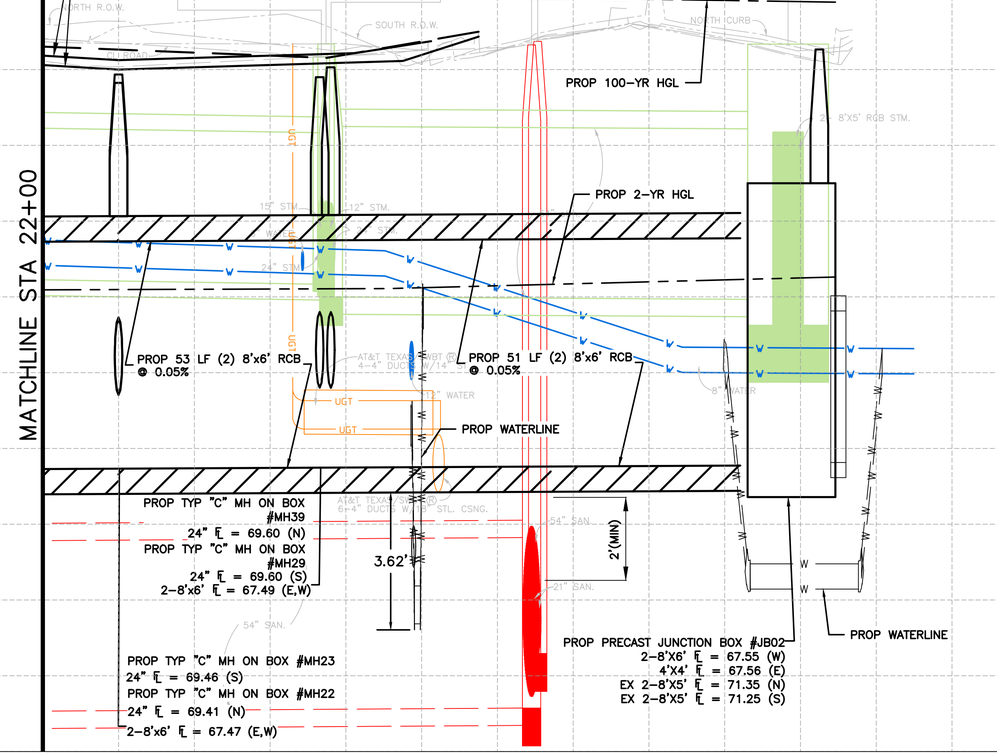

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P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 22+00 TO END PROJECT

SHEET 6 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 153 OF 343	

No. | Date | Revisions | App.

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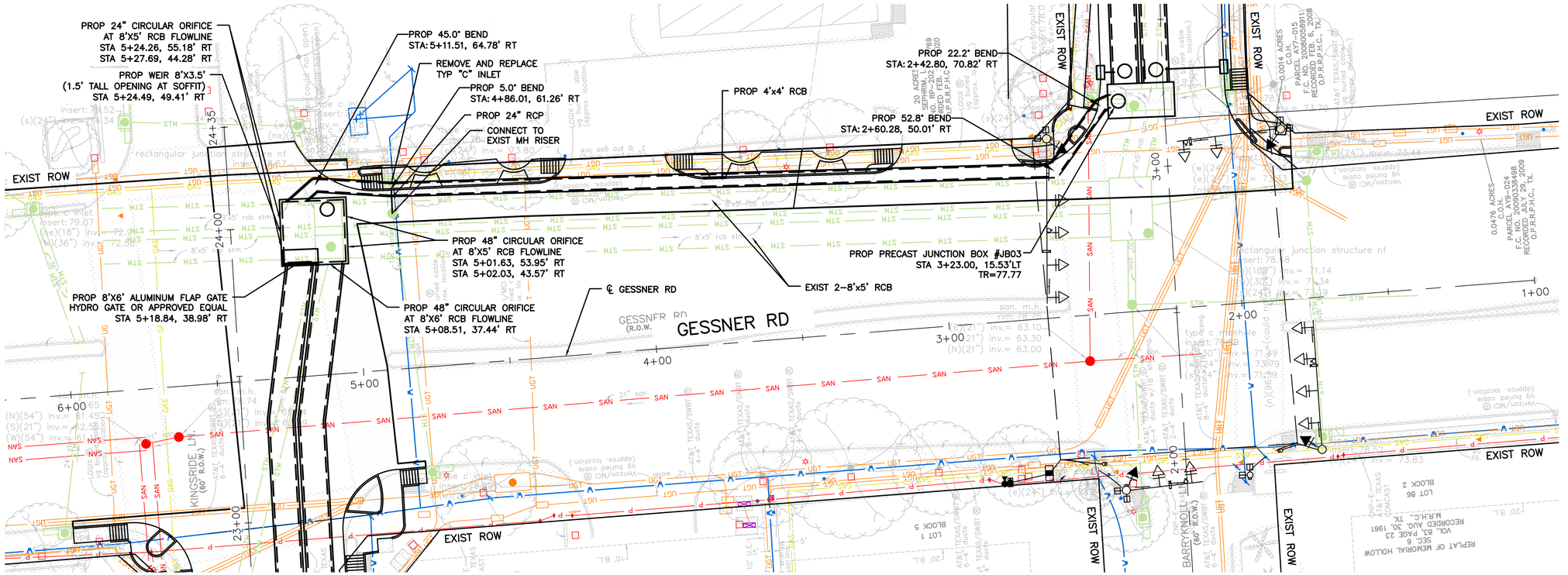

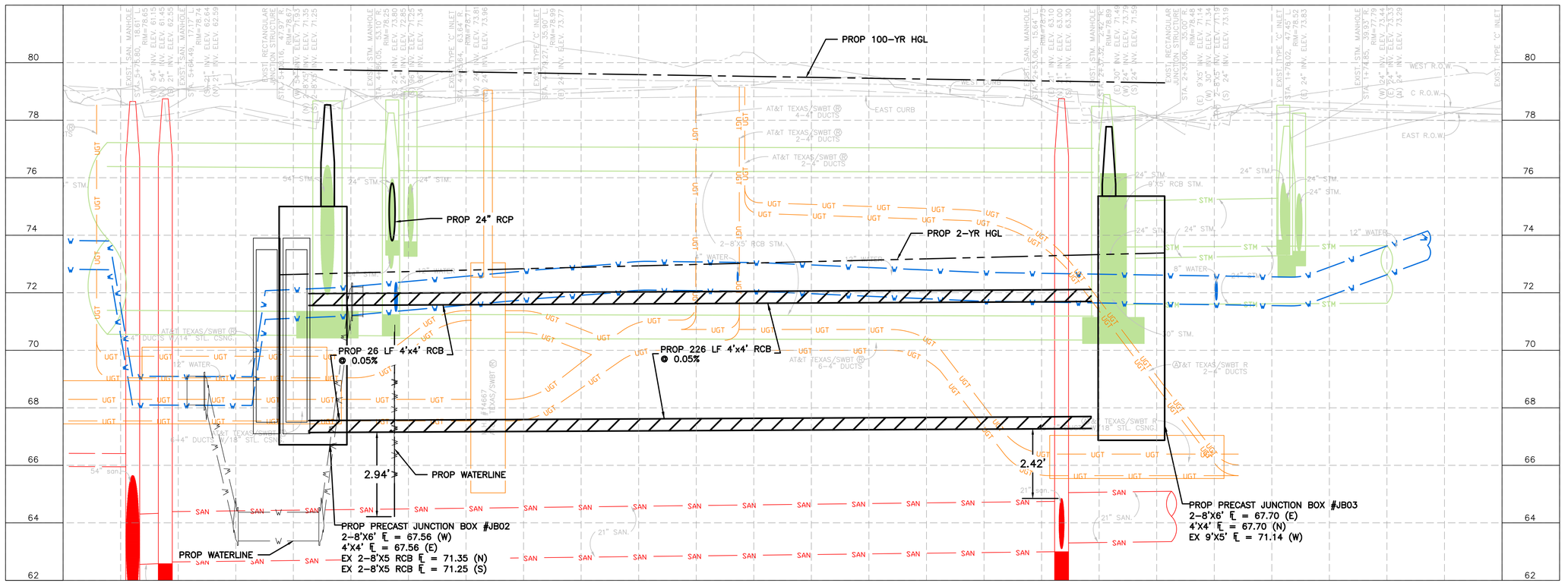

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1 FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE. ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

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DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
GESSNER ROAD
BEGIN PROJECT TO STA 6+00

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 154 OF 303	

No.	Date	Revisions	App.

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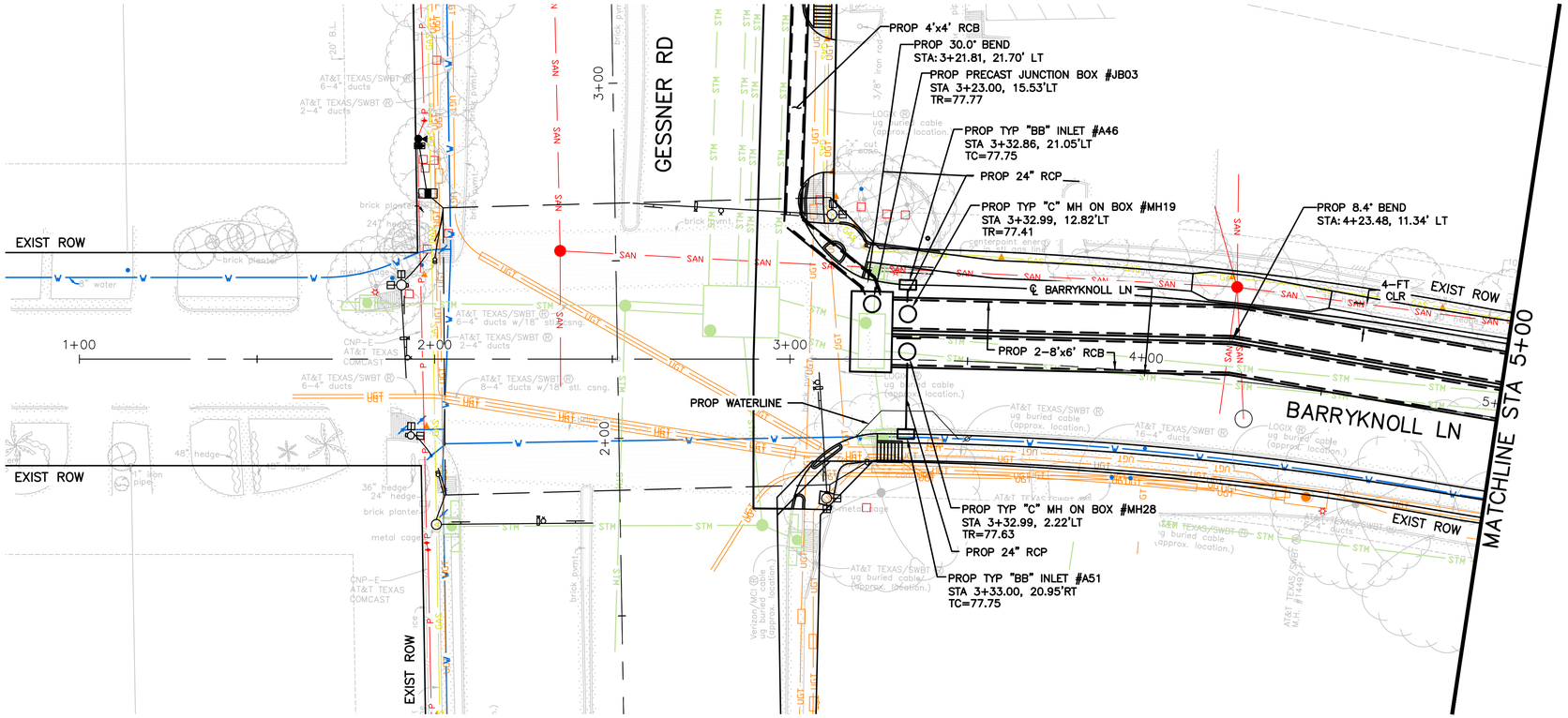

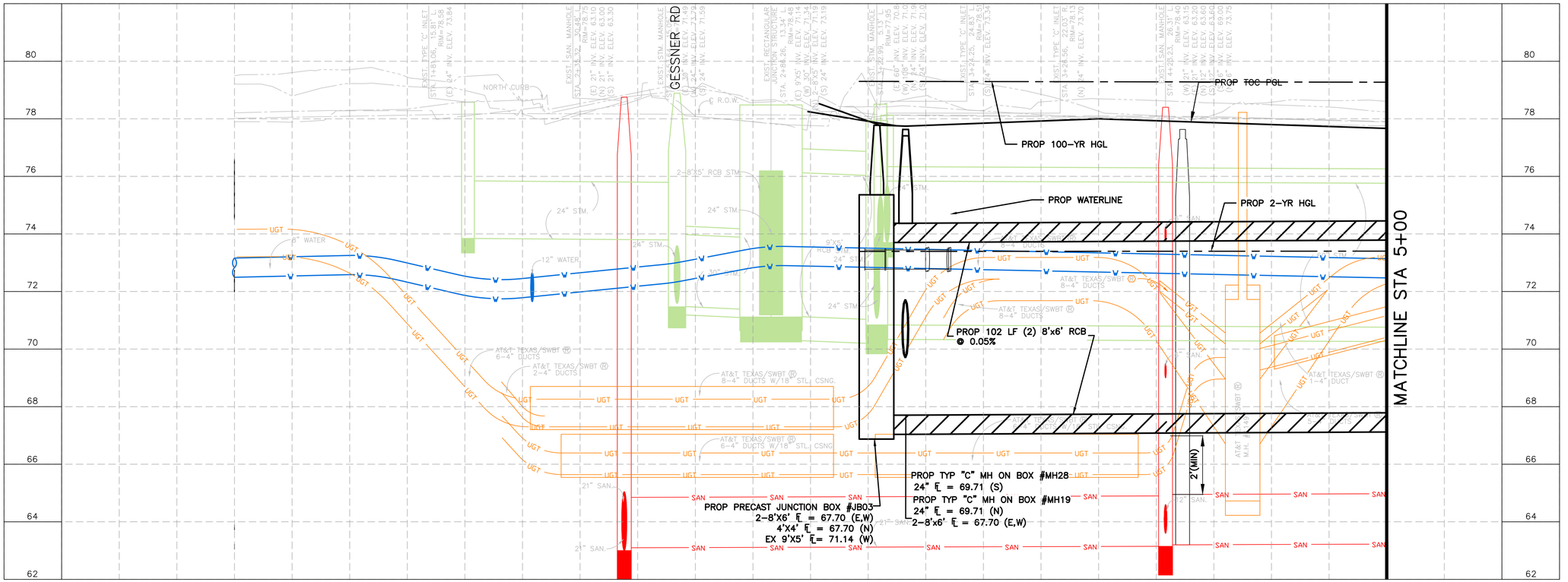

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	155 OF 343

No. | Date | Revisions | App.

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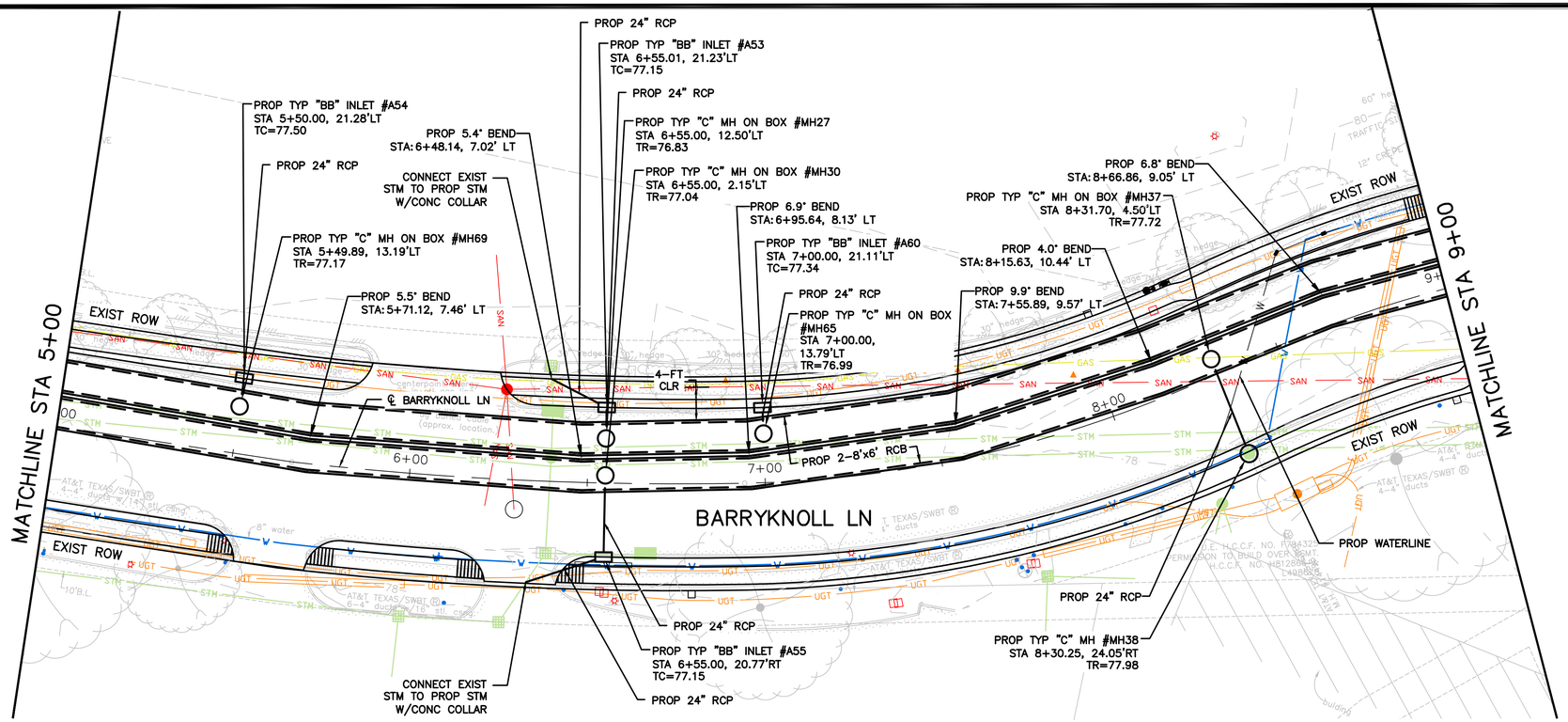

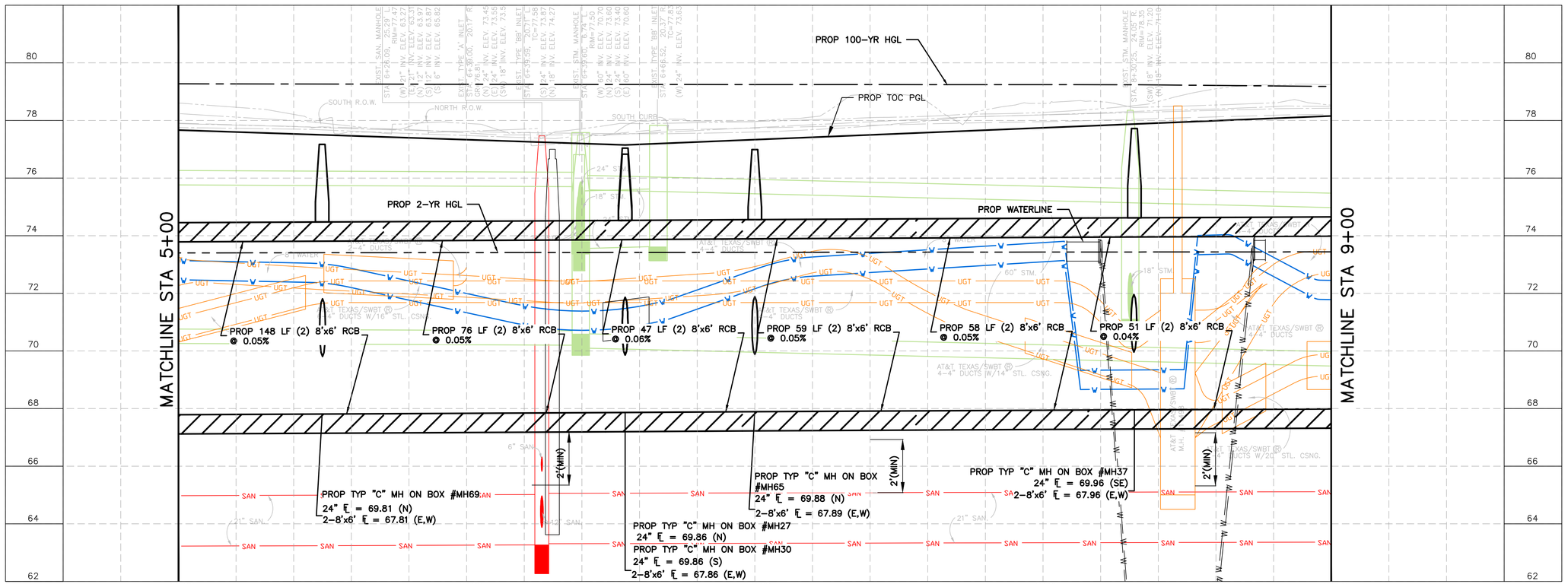

0 20 40
SCALE IN FEET

No.	Date	Revisions	App.

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

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TIRZ #17
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DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 5+00 TO STA 9+00

SHEET 2 OF 4

WBS NO.	M-430296-0017-3
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CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO.	156 OF 343

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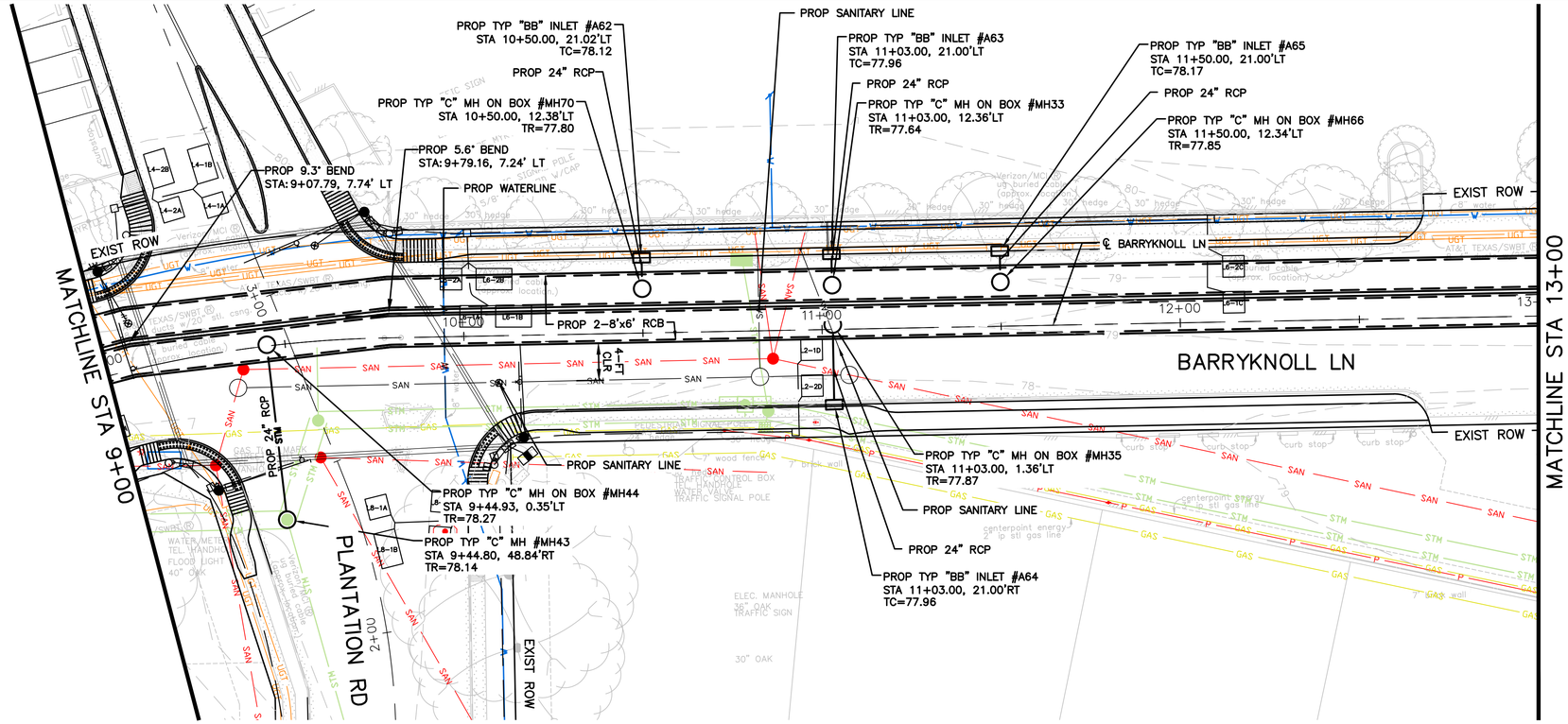

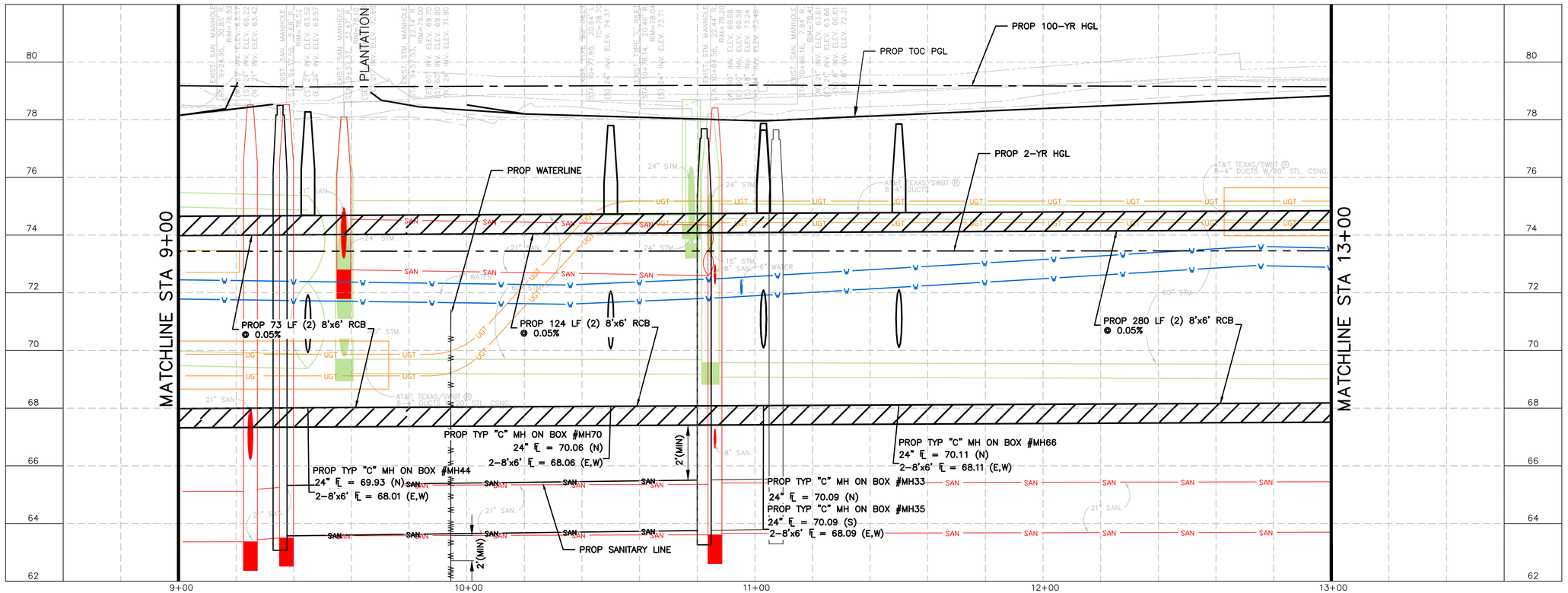

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	157 OF 343

No.	Date	Revisions	App.

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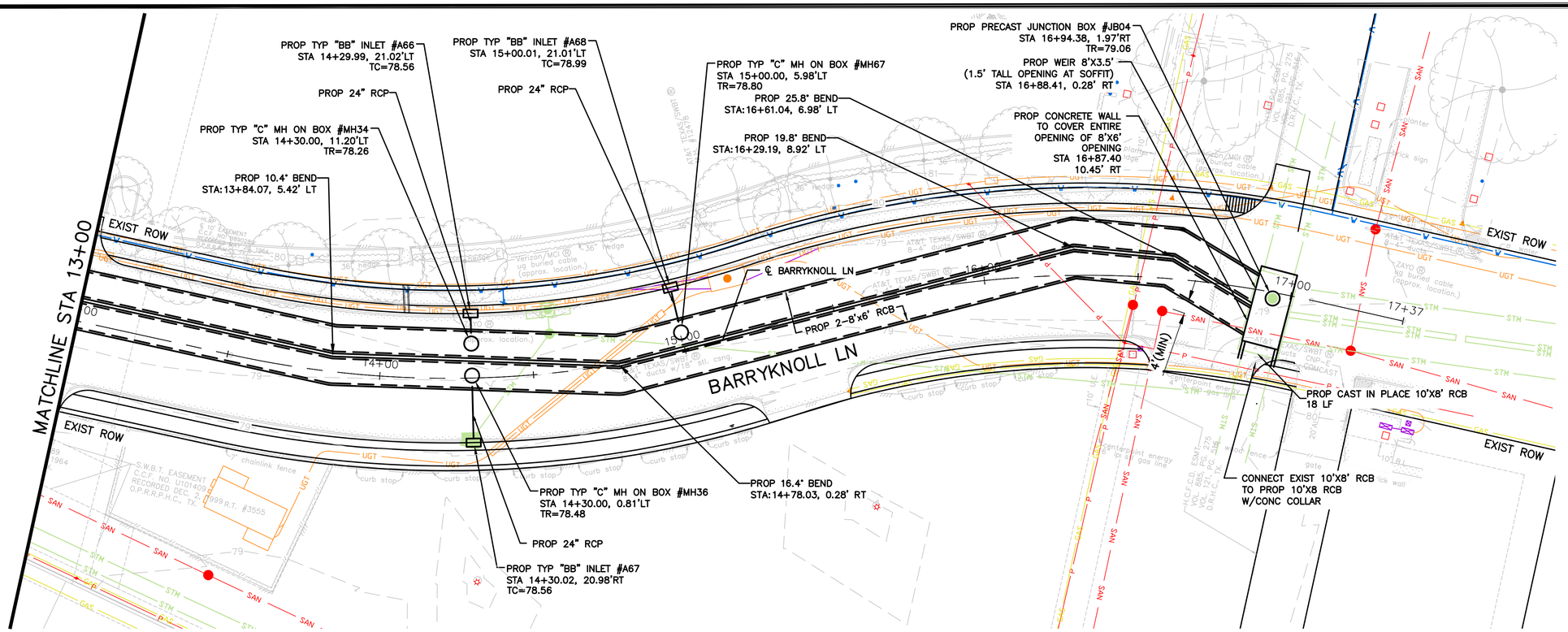

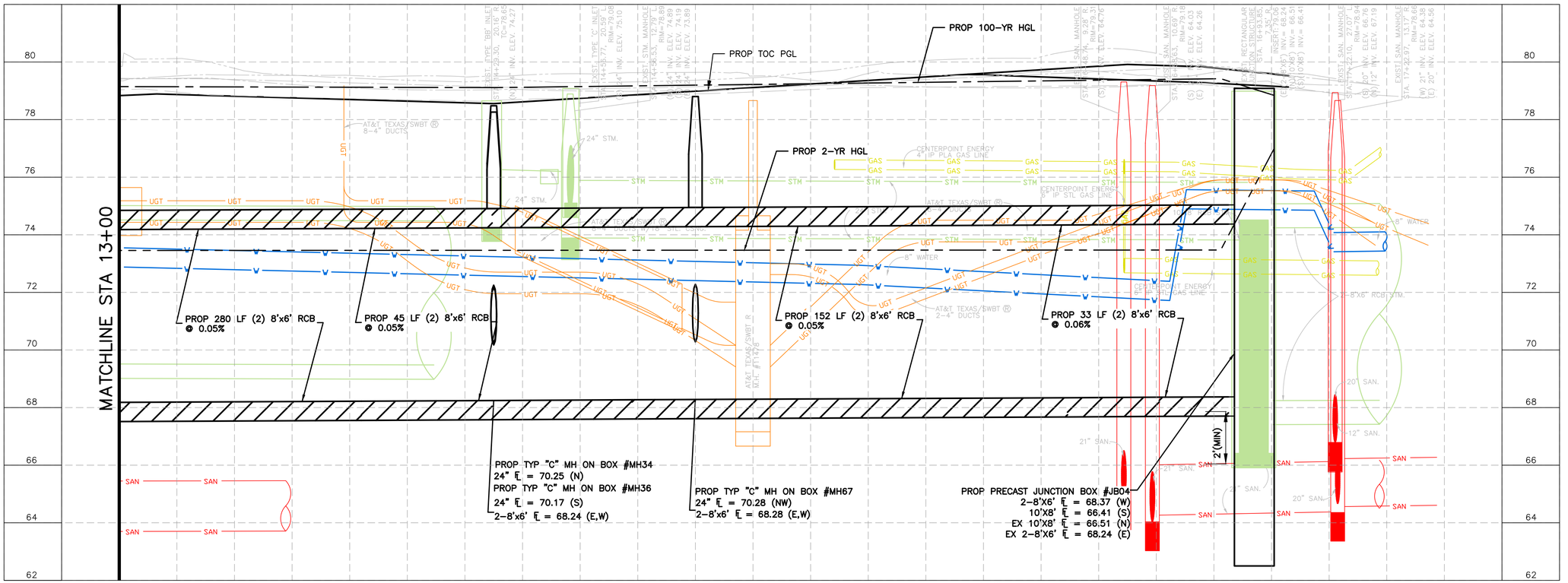

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 13+00 TO END PROJECT

SHEET 4 OF 4

WBS NO.	M-430296-0017-3
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	V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	158 OF 343

No. | Date | Revisions | App.

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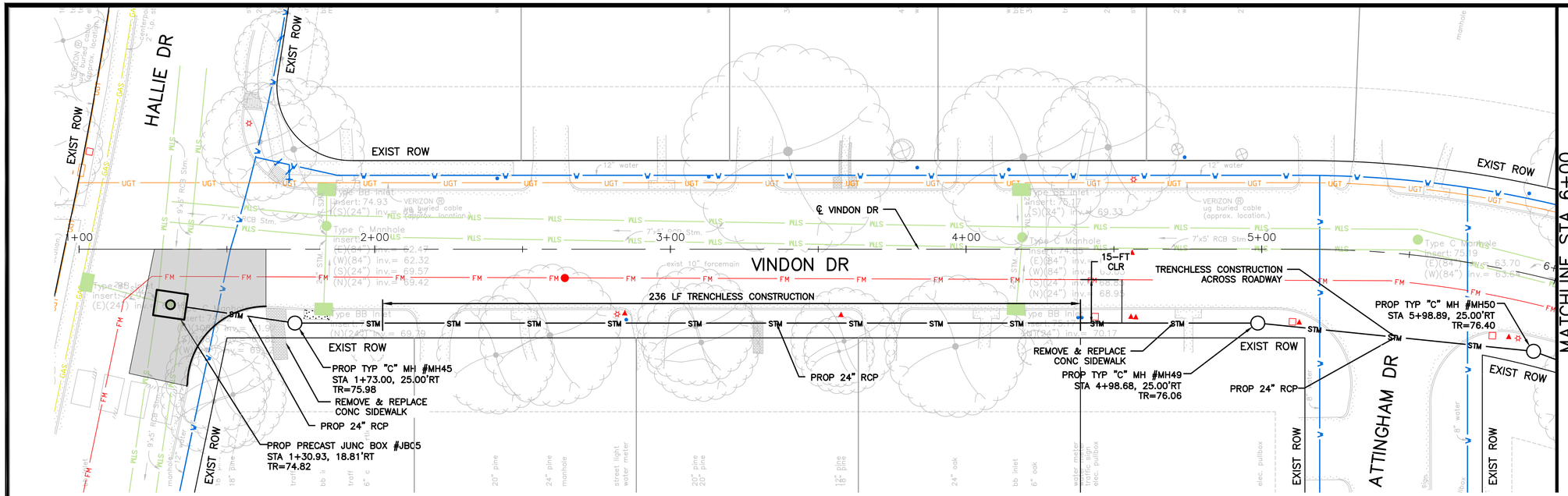

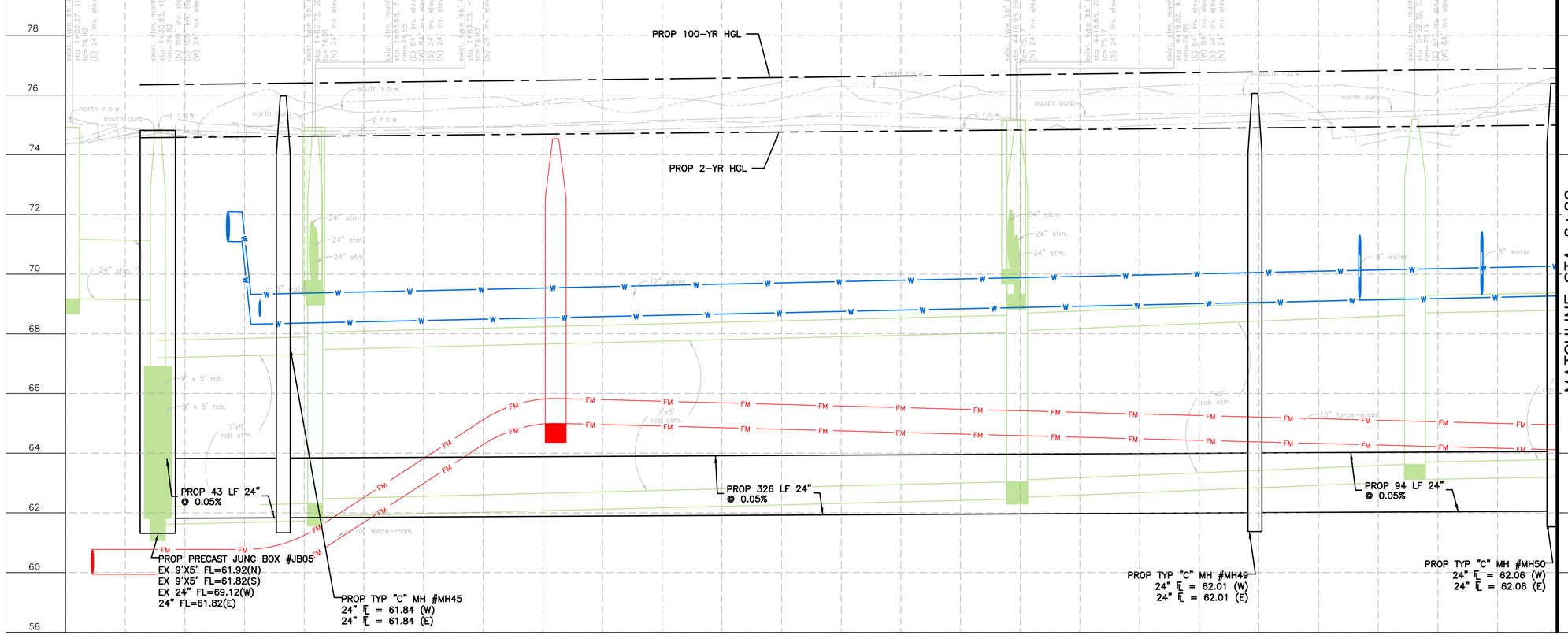

0 20 40
SCALE IN FEET

N

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE
- PROP PAVEMENT REPAIR

NOTES:

1. UNLESS OTHERWISE CALLED OUT SEPARATELY, ALL UTILITY CONSTRUCTION SHALL BE COMPLETED USING OPEN CUT METHODS.

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
VINDON DRIVE
BEGIN PROJECT TO STA 6+00

SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 159 OF 343	

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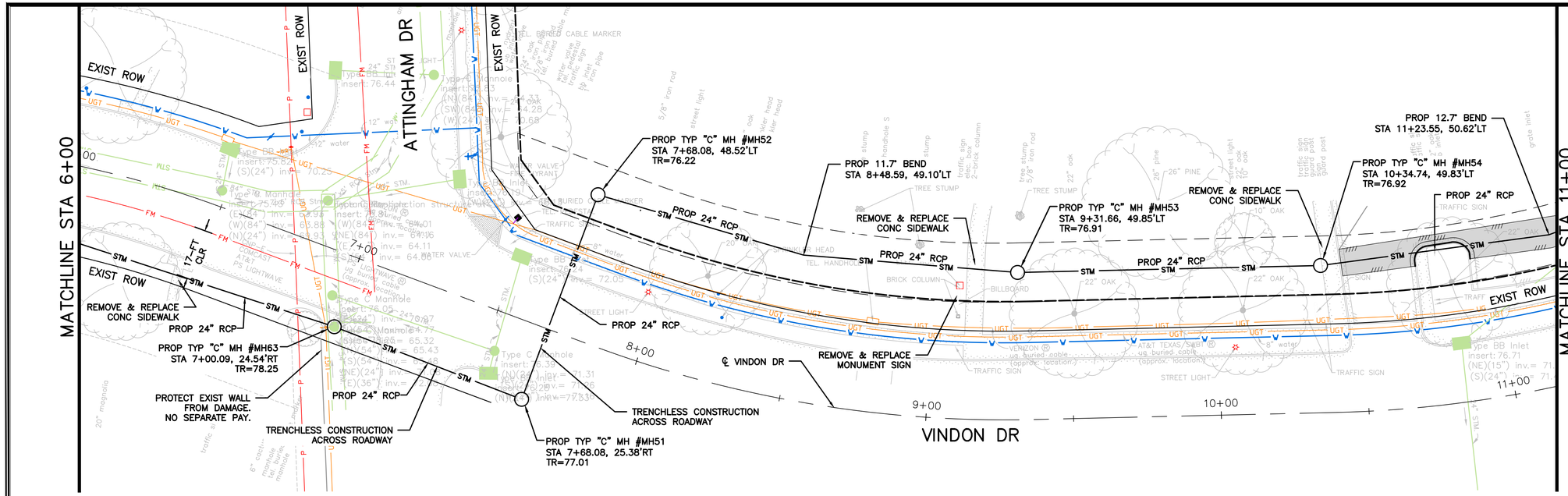

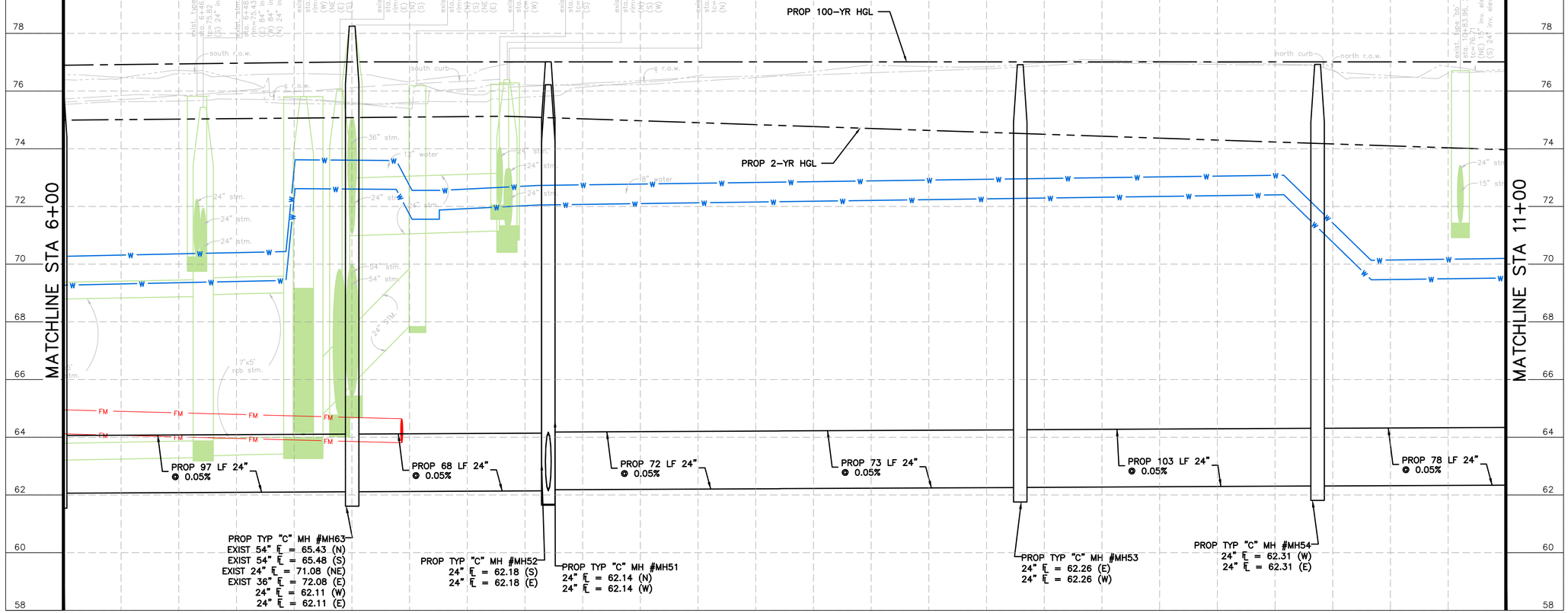

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
VINDON DRIVE
STA 6+00 TO STA 11+00

SHEET 2 OF 3

WBS NO.	M-430296-0017-3
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CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	160 OF 343

App. | Revisions | Date | No.

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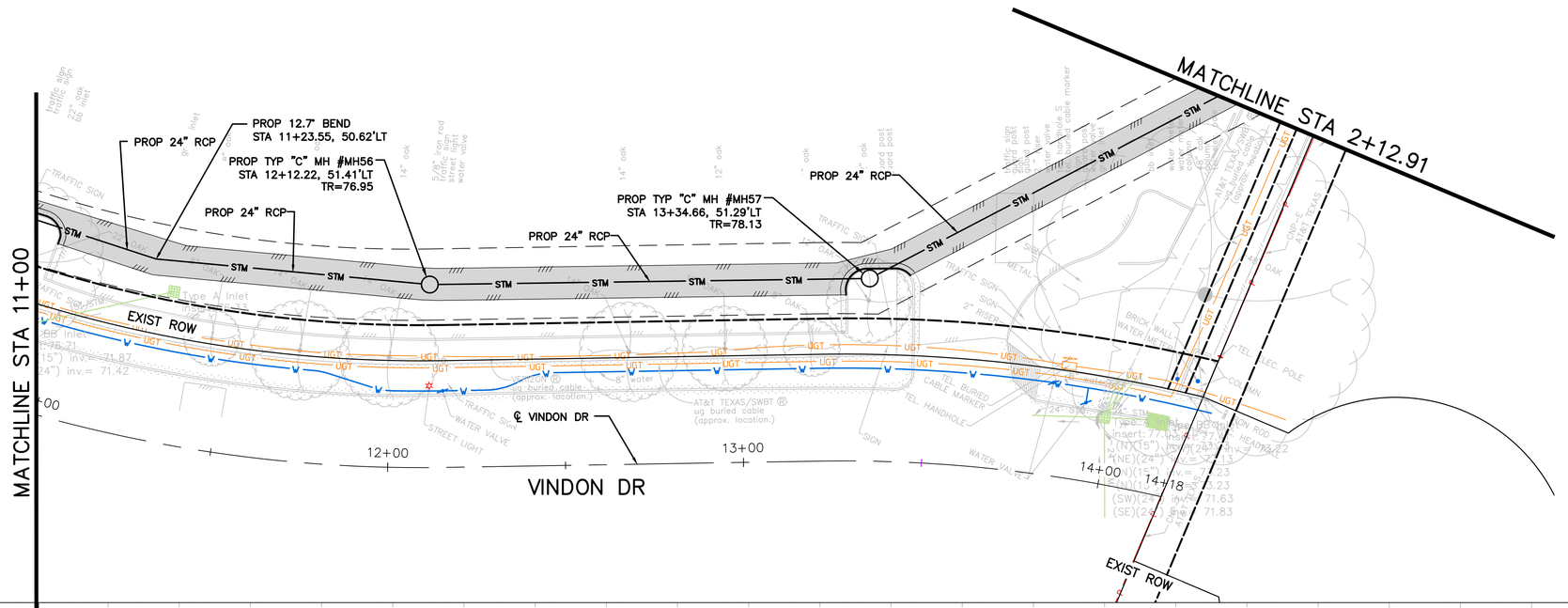

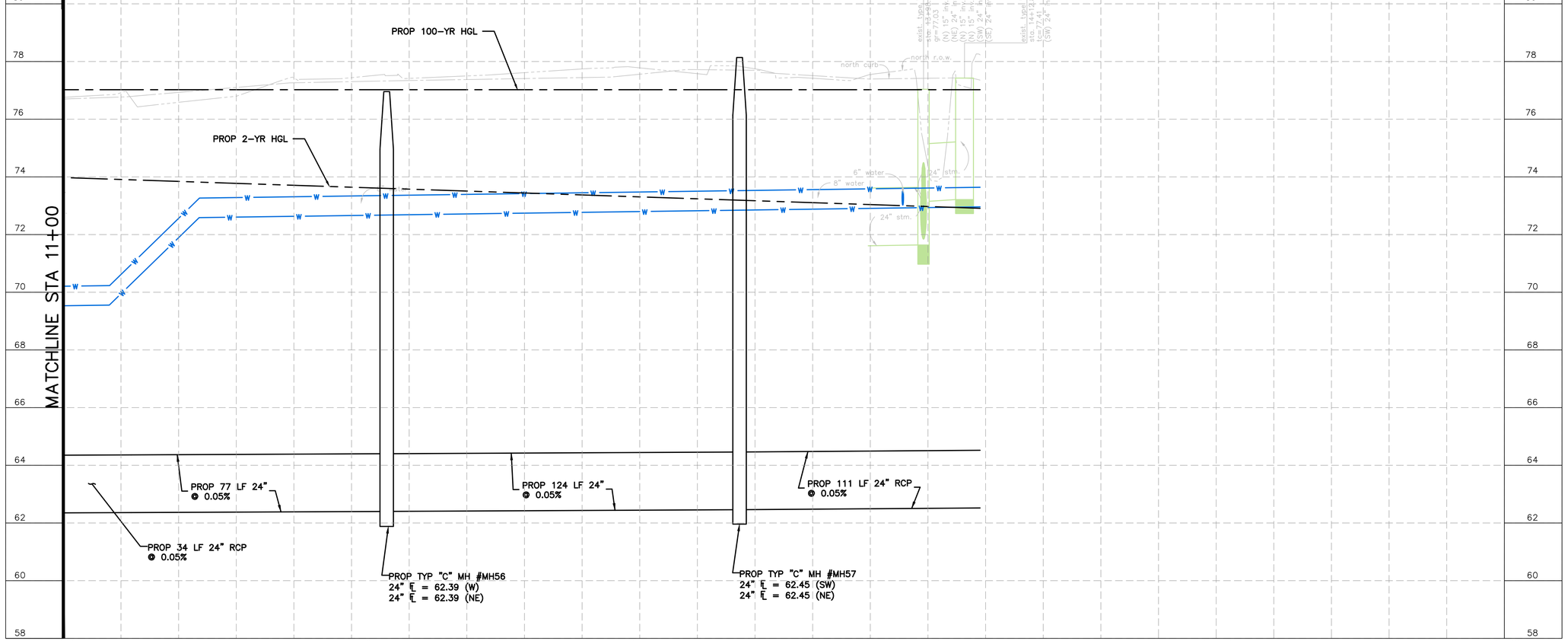

0 20 40
SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
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- EXIST MANHOLE
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BENCHMARK:

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DRAINAGE PLAN & PROFILE
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STA 11+00 TO END PROJECT

SHEET 3 OF 3

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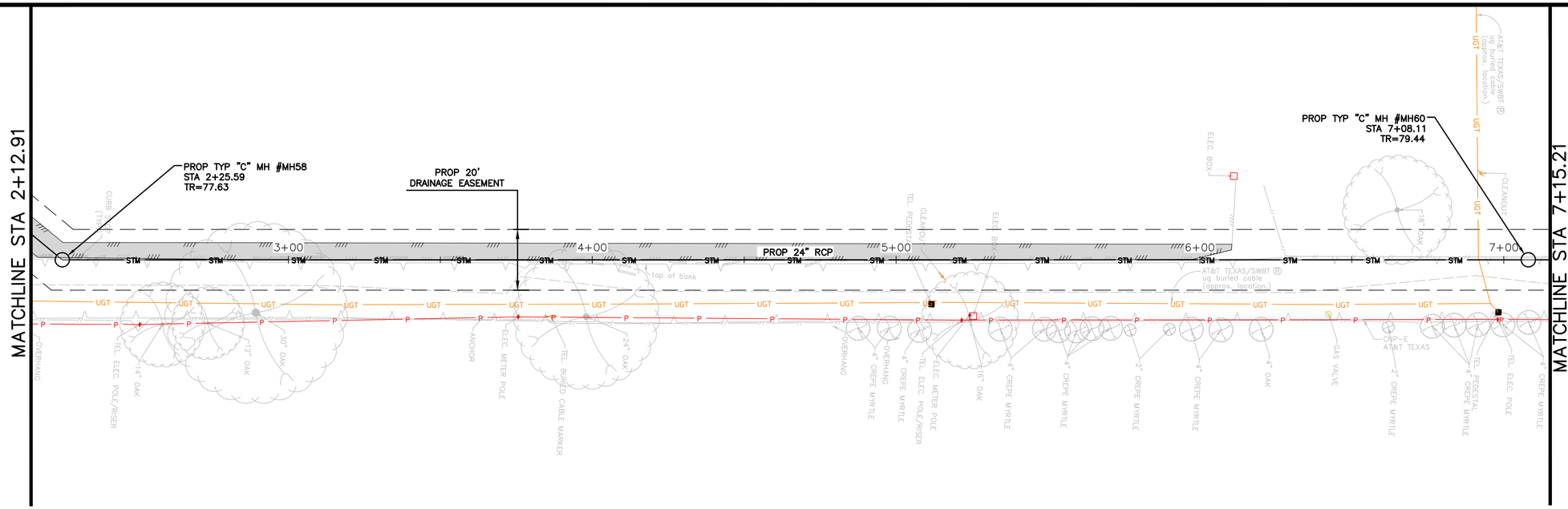
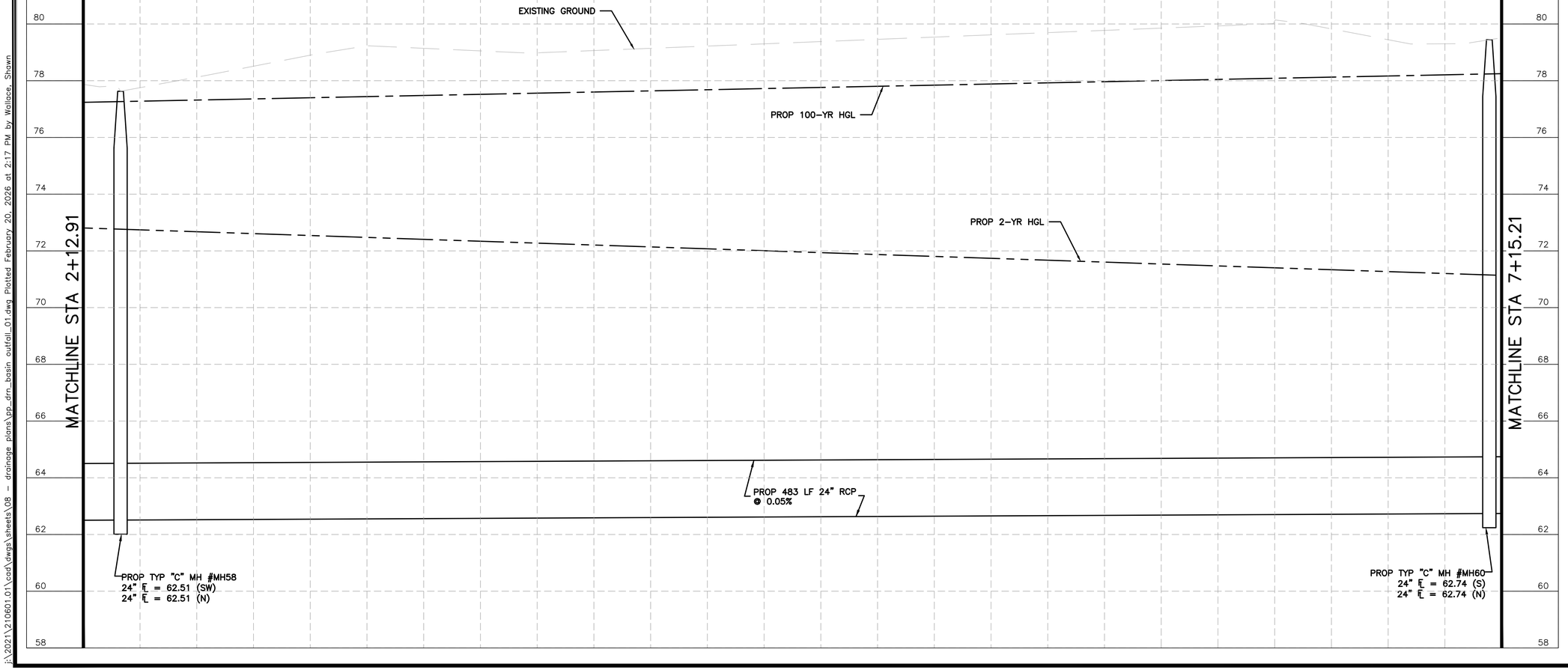
J:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_vindon_03.dwg Plotted February 20, 2026 at 2:17 PM by Wallace, Shawn





0 20 40
SCALE IN FEET

No.	Date	Revisions	App.

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- PROP INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE
- PROP PAVEMENT REPLACEMENT

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____JOHN R. HUML_____
P.E. REGISTRATION NO. 140416
DATE:_____2/20/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

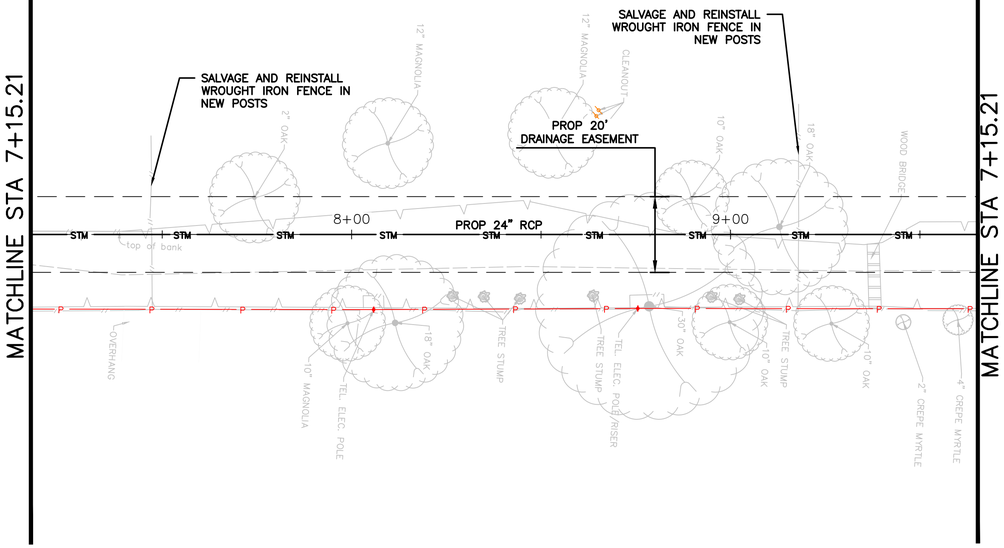
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

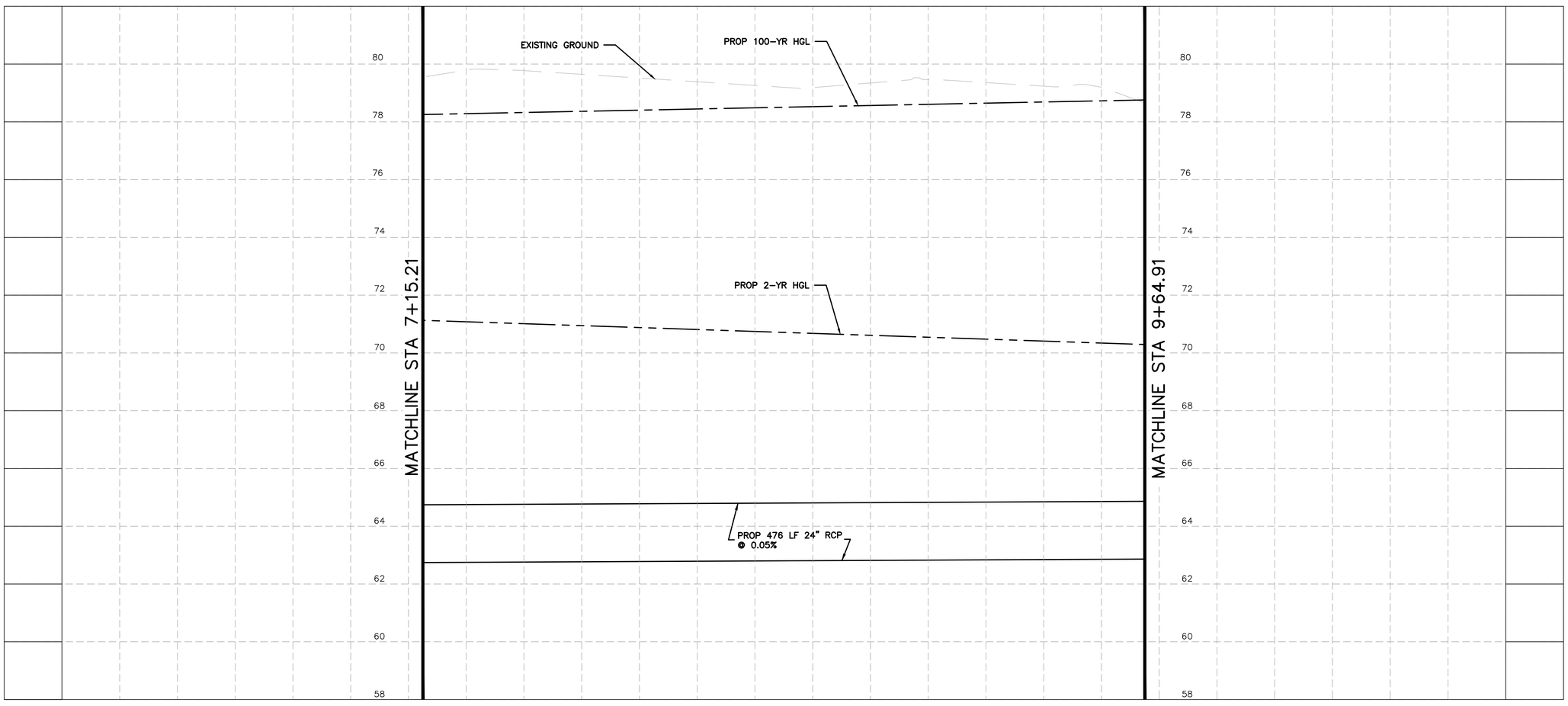
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
BASIN OUTFALL

SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 162 OF 343	

I:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_basin outfall_01.dwg Plotted February 20, 2026 at 2:17 PM by Wallace, Shawn





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No.	Date	Revisions	App.

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SHEET 2 OF 3

WBS NO. M-430296-0017-3	
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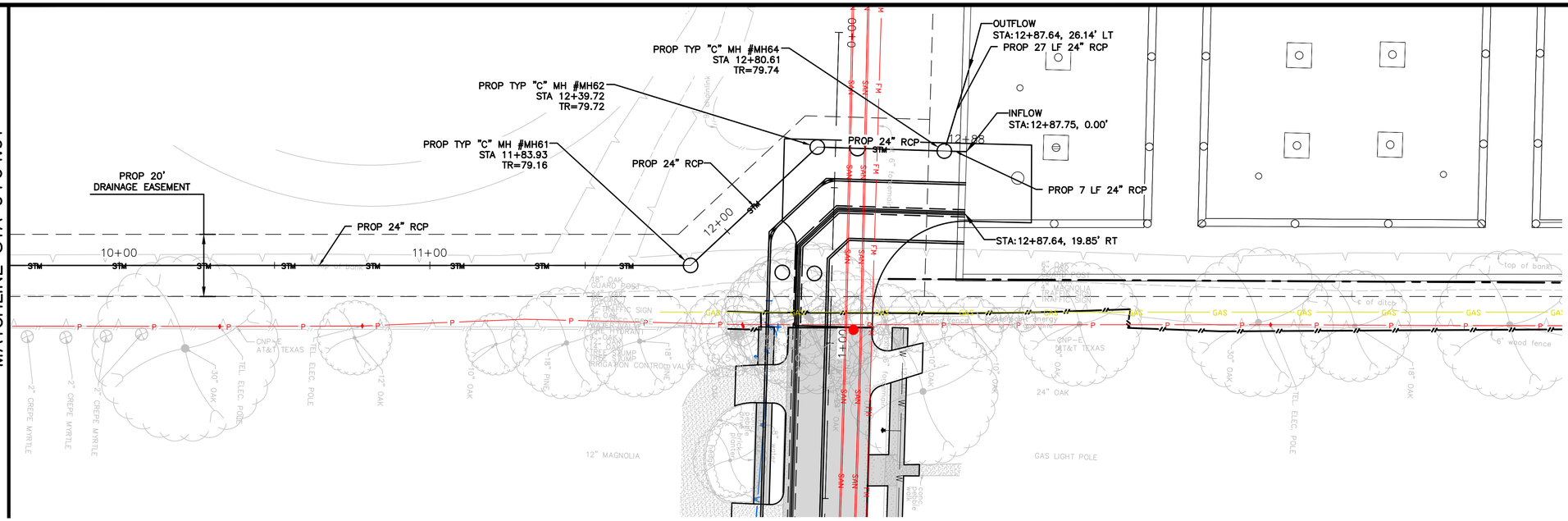
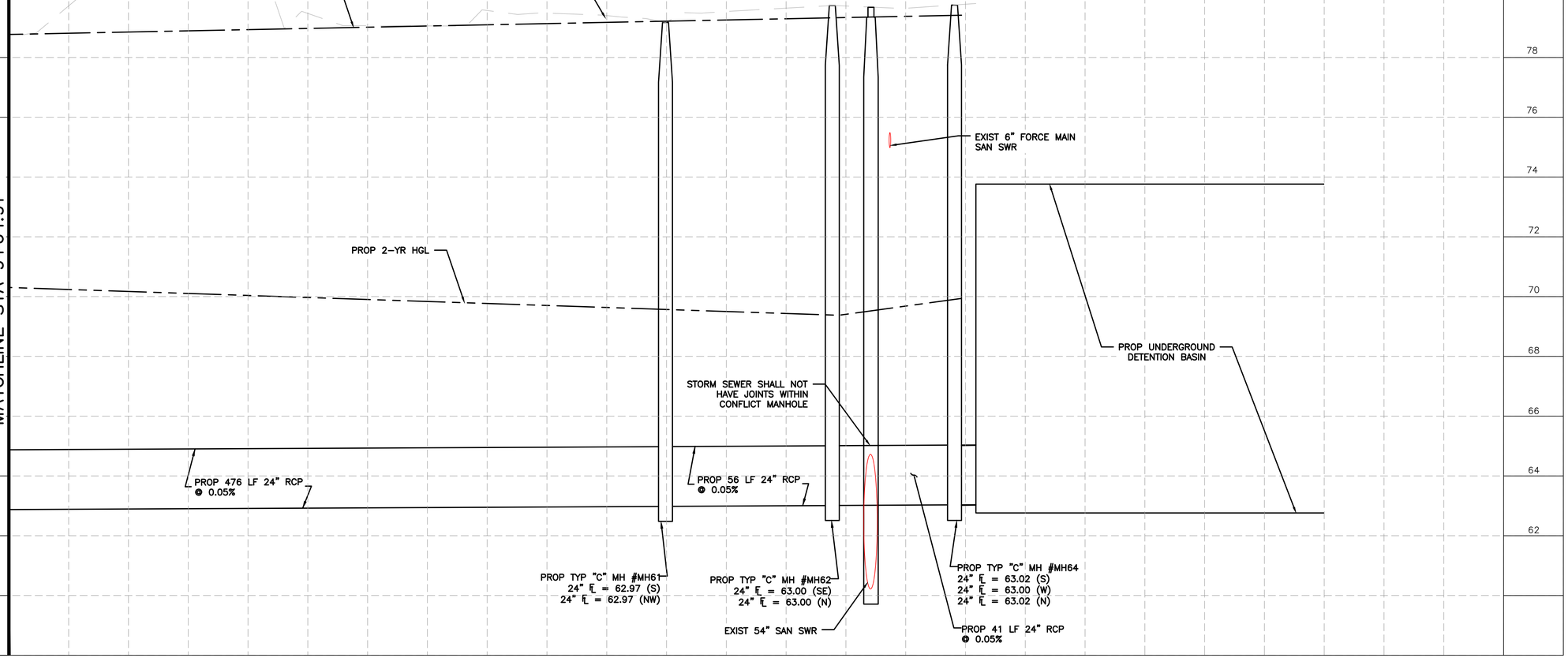
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 163 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_dm_basin outfall_02.dwg Plotted February 20, 2026 at 2:18 PM by Wallace, Shawn

MATCHLINE STA 9+64.91





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MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
BASIN OUTFALL

SHEET 3 OF 3

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CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 164 OF 343	

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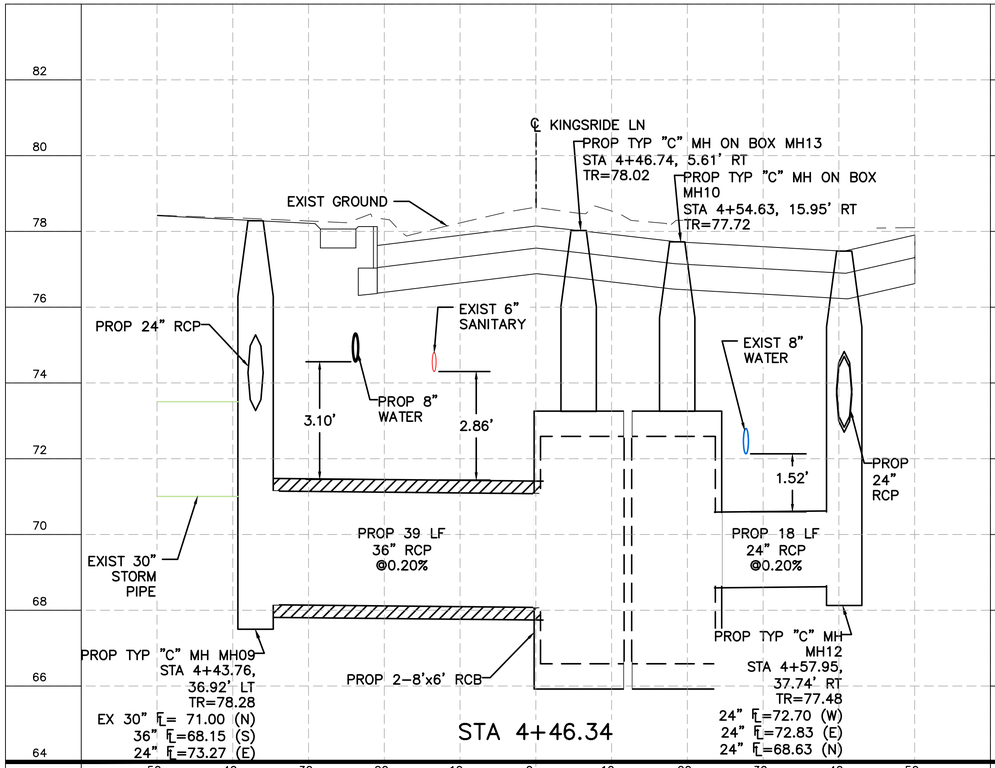

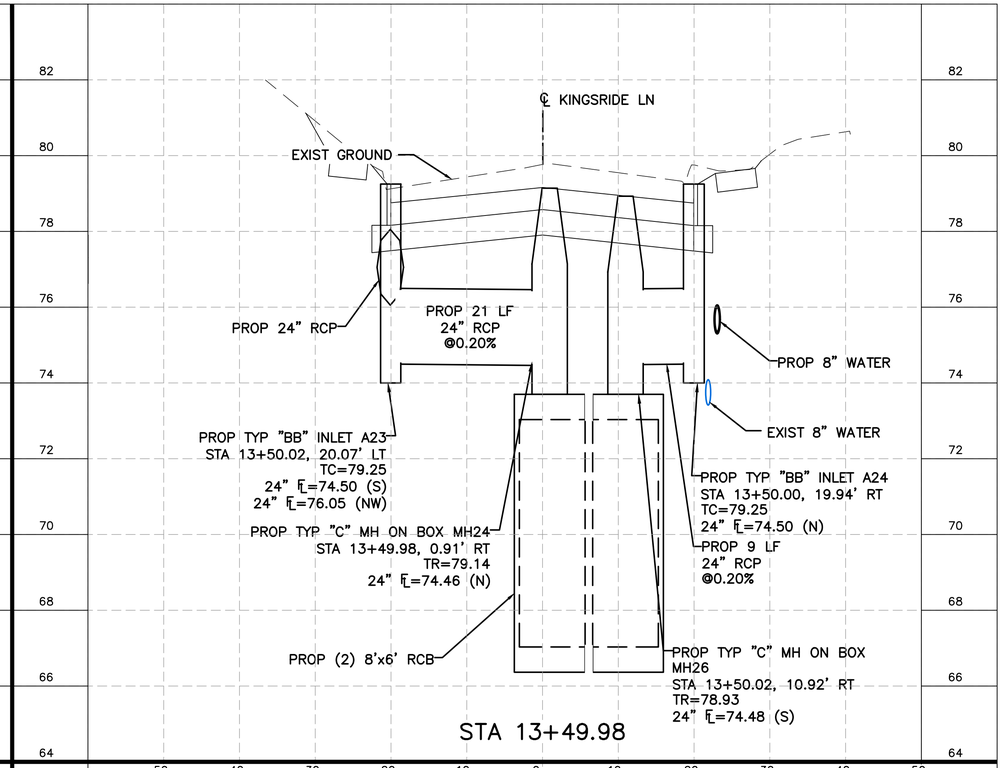

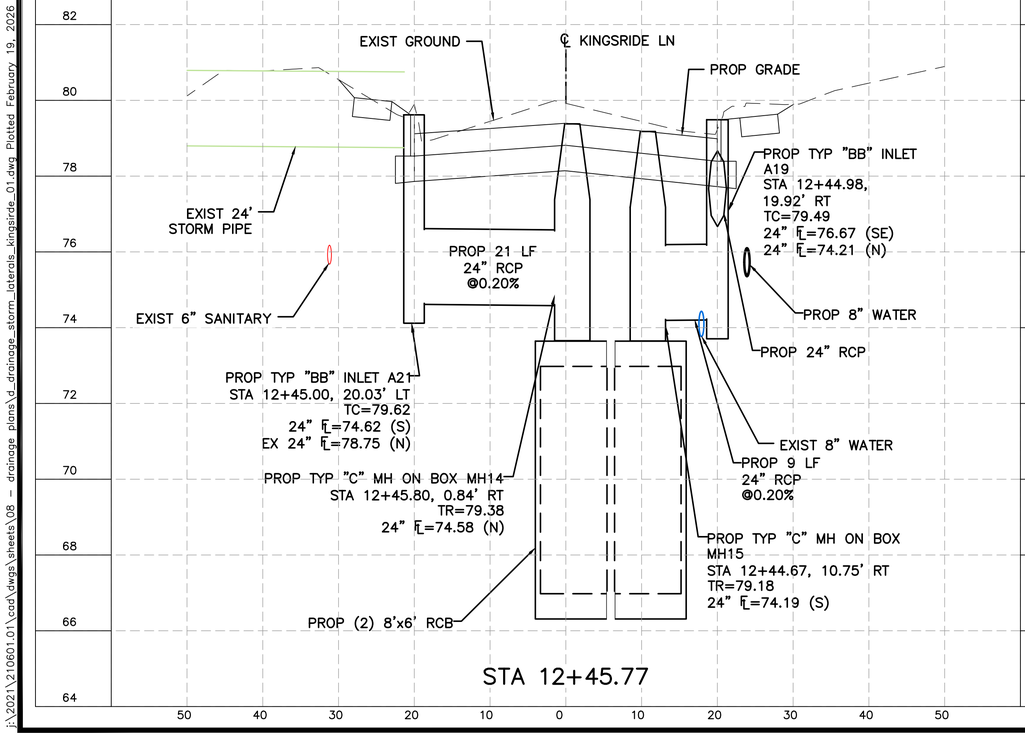

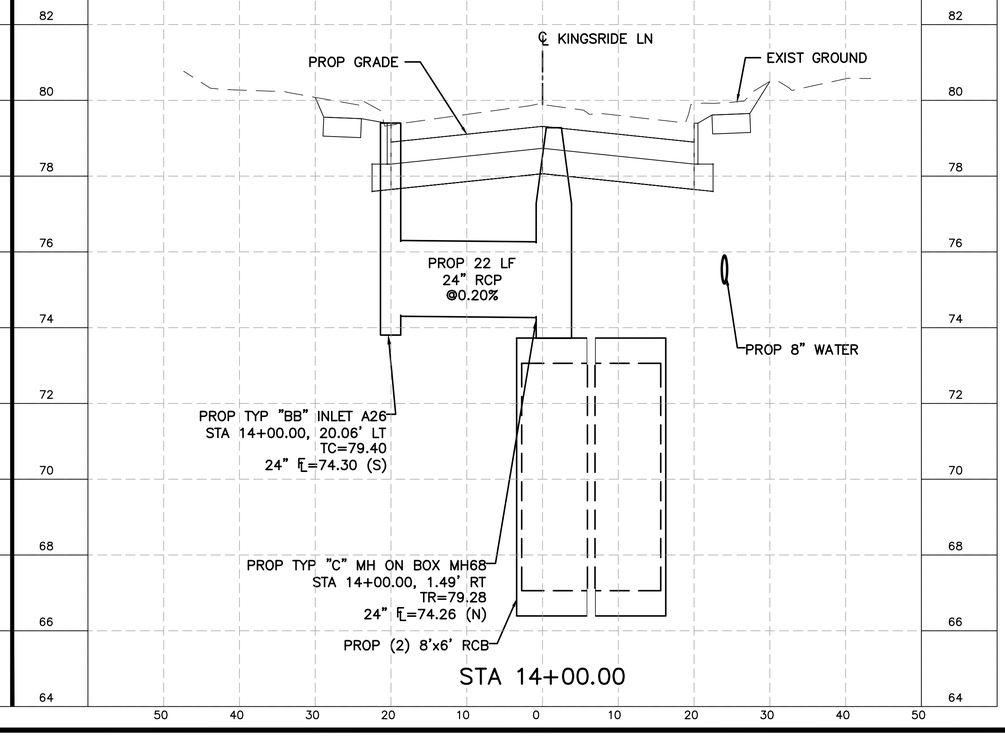

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No.	Date	Revisions	App.

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
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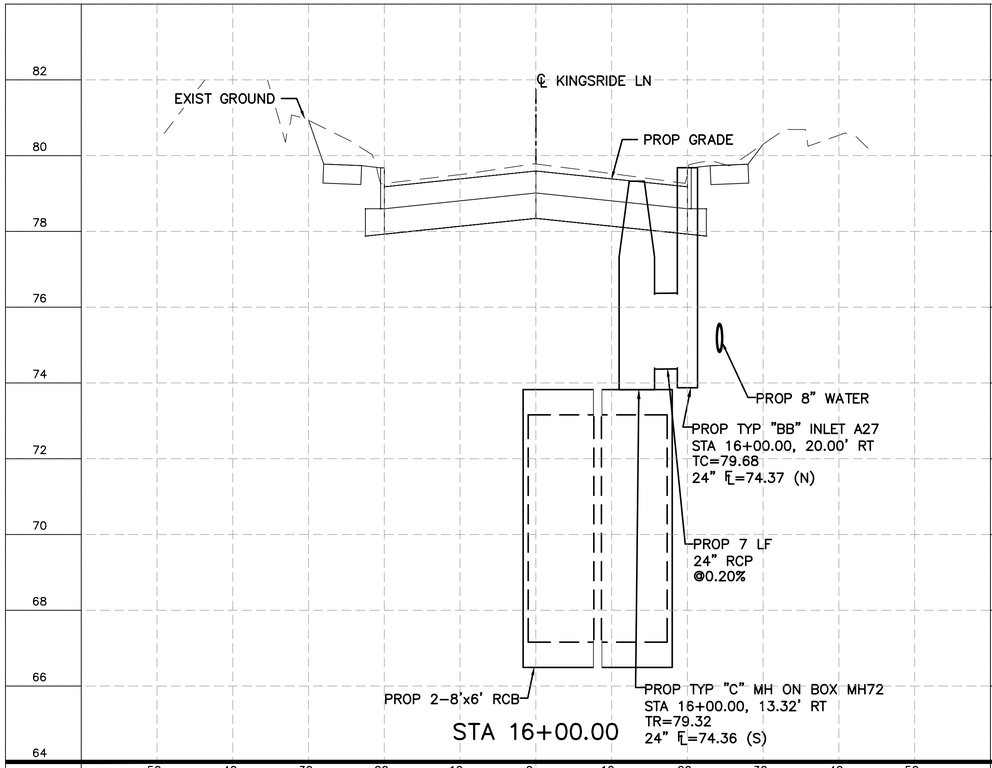
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

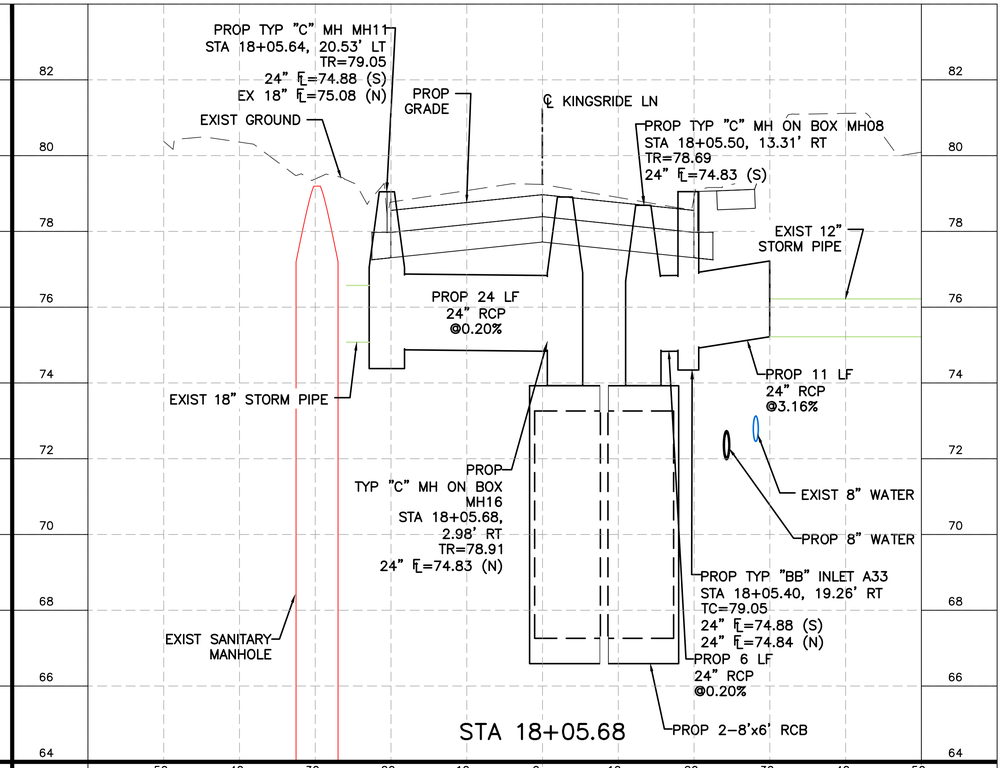
KINGSRIDE LN
STORM SEWER LATERALS

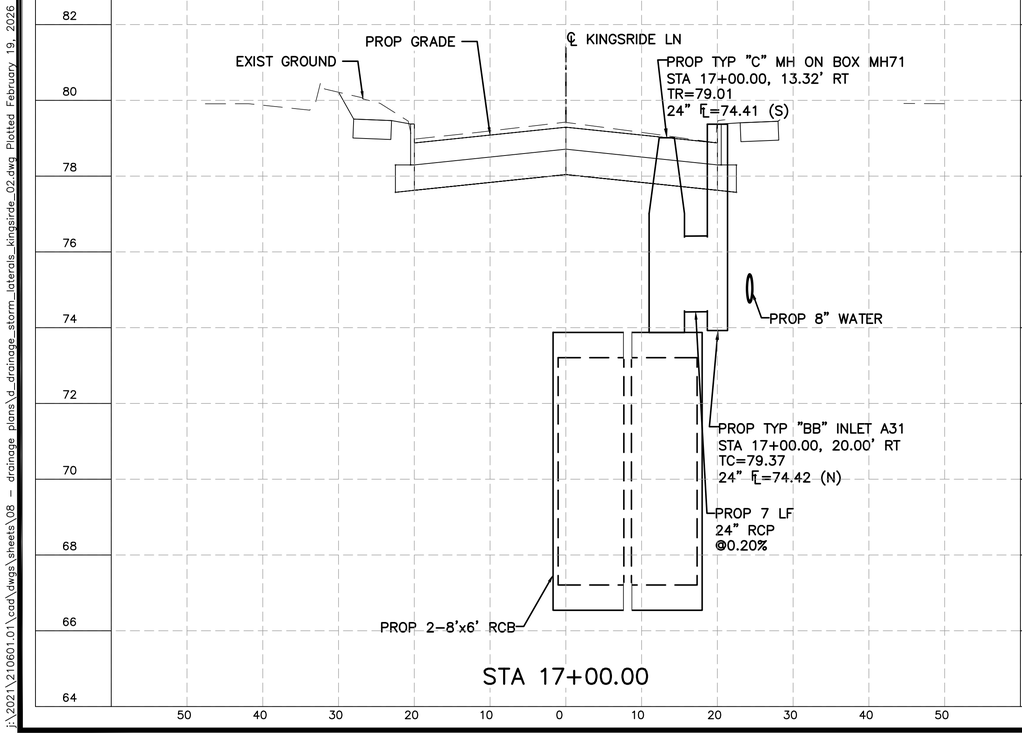
SHEET 1 OF 4

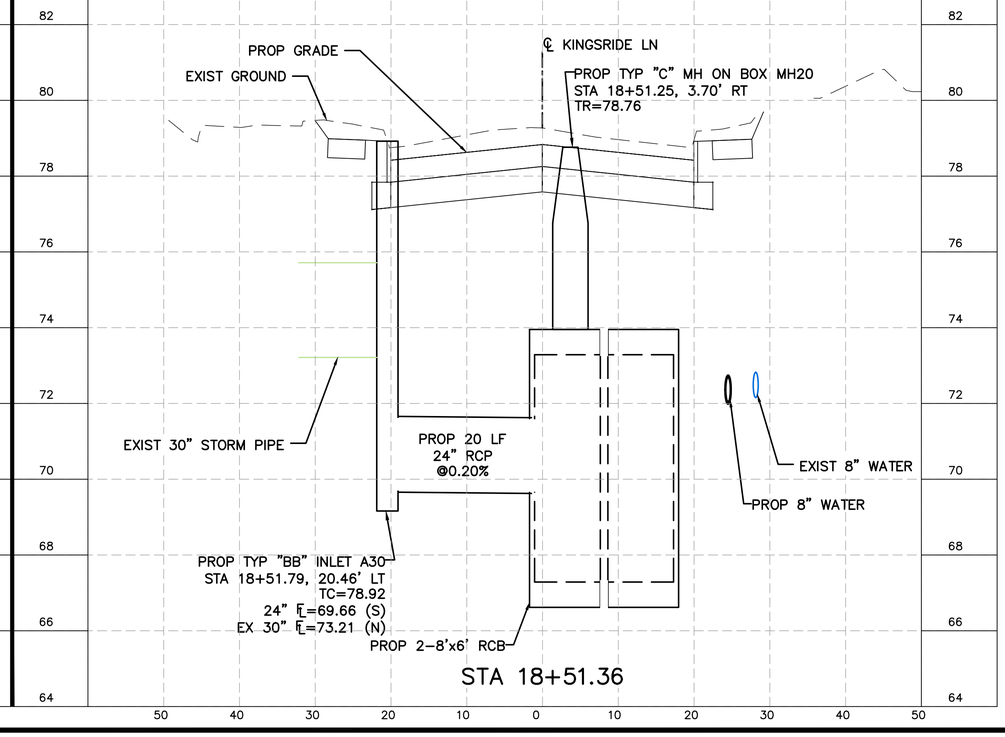
WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 165 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_kingsride_01.dwg Plotted February 19, 2026 at 6:53 PM by Huml, John









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No.	Date	Revisions	App.

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
STORM SEWER LATERALS

SHEET 2 OF 4

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 166 OF 343	

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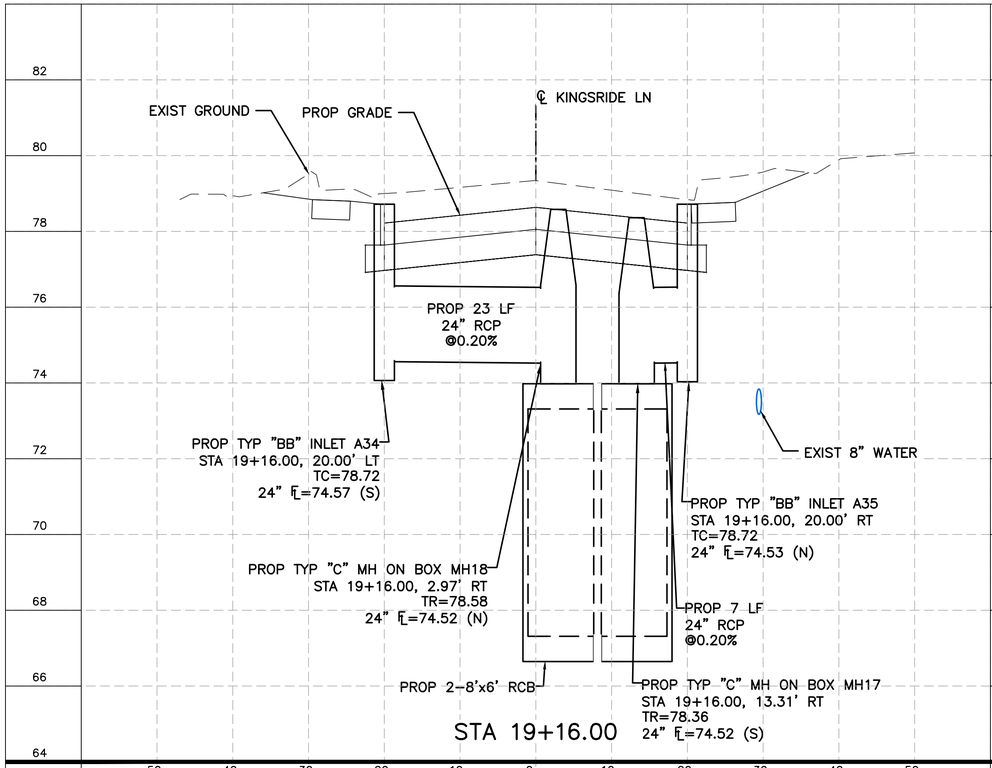

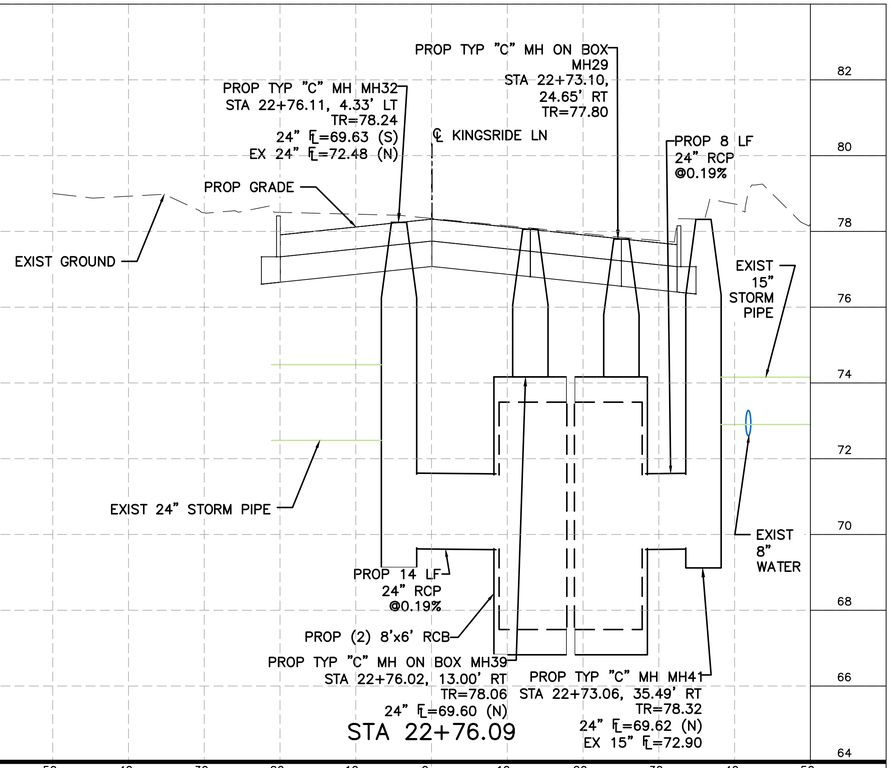

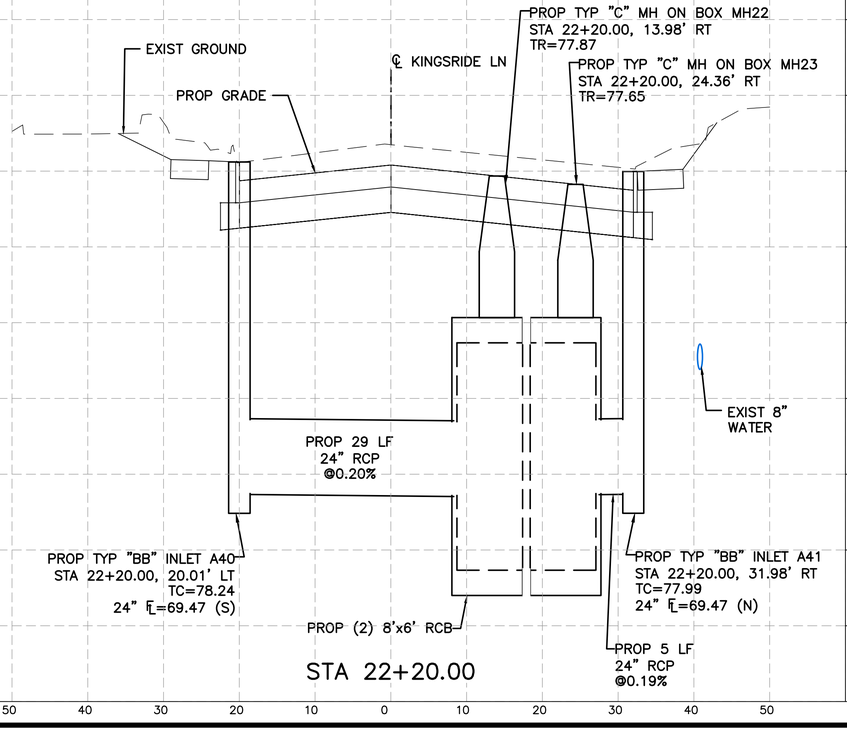

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HORZ 0 10 20
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KINGSRIDE LN
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SHEET 3 OF 4

WBS NO. M-430296-0017-3	
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H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 167 OF 343	

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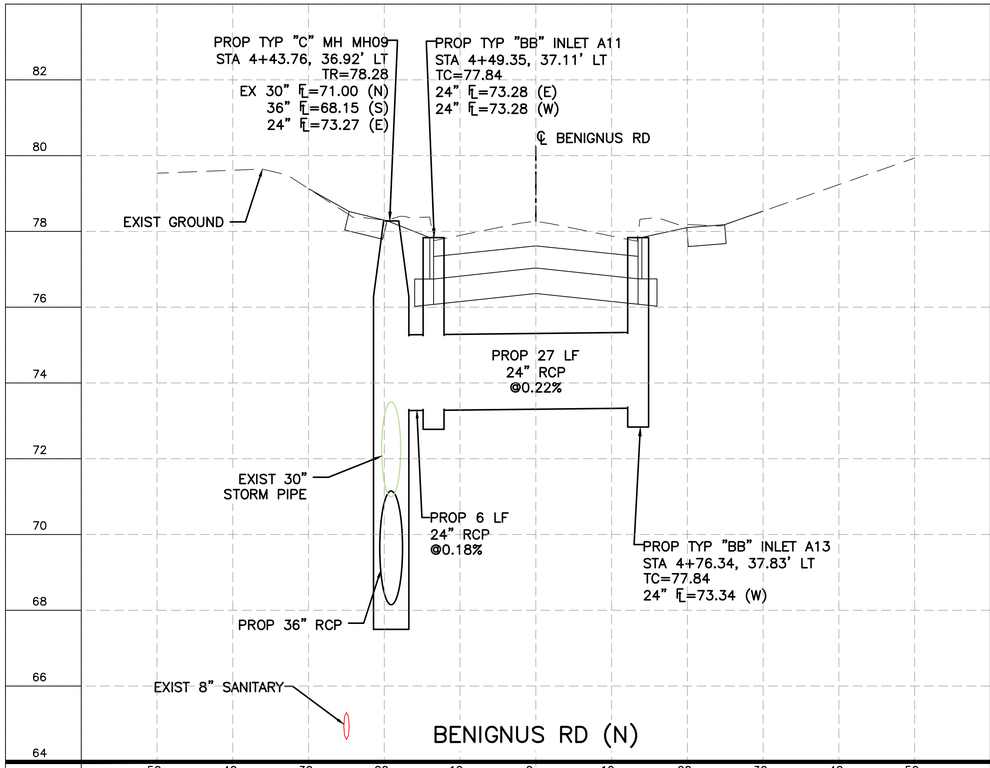

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SHEET 4 OF 4

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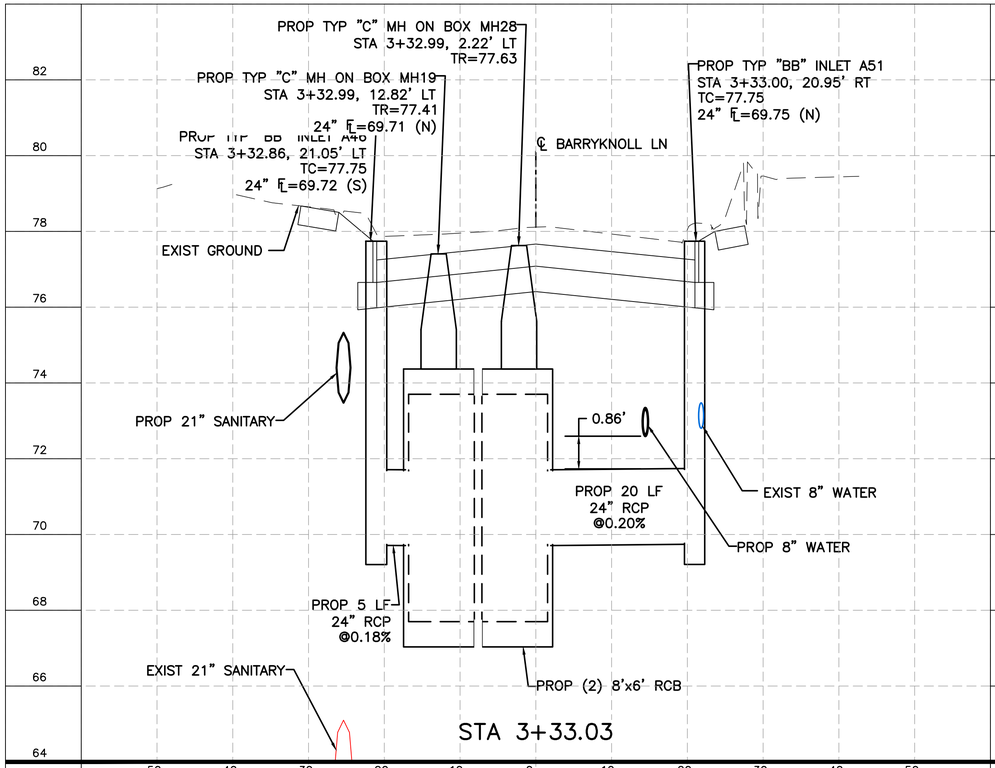

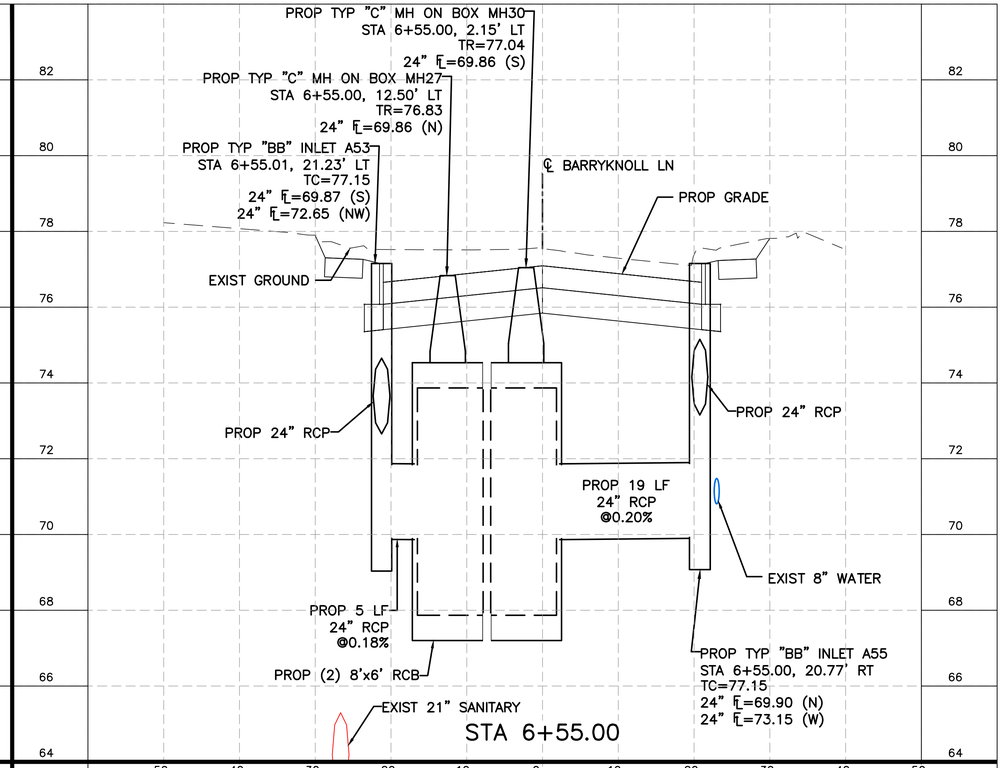

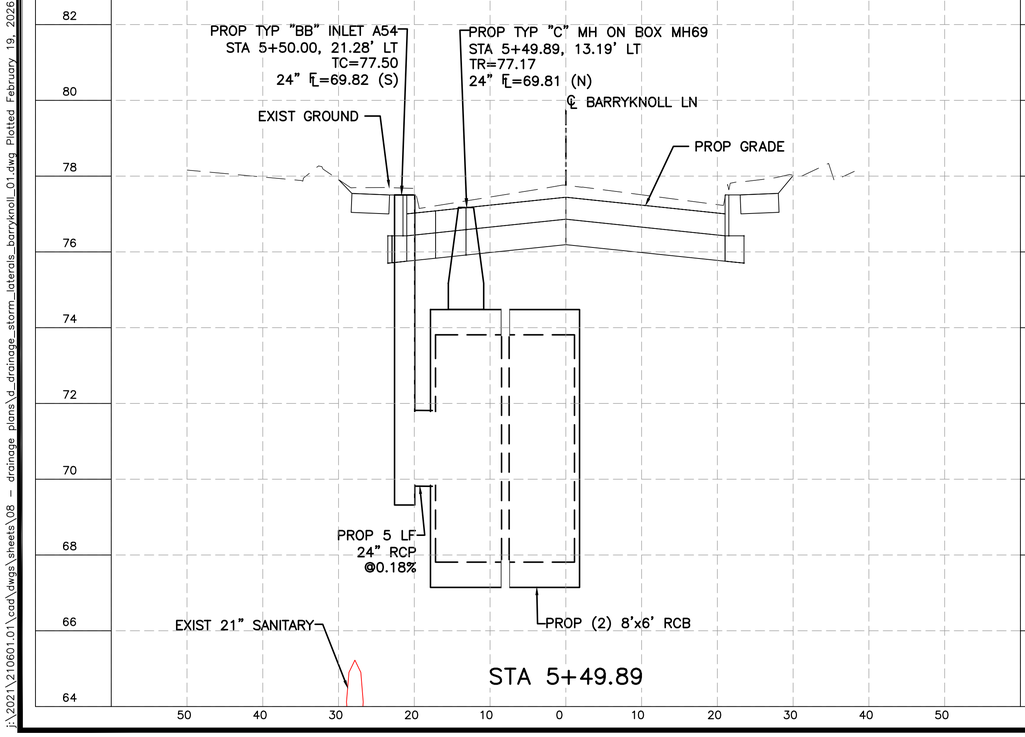

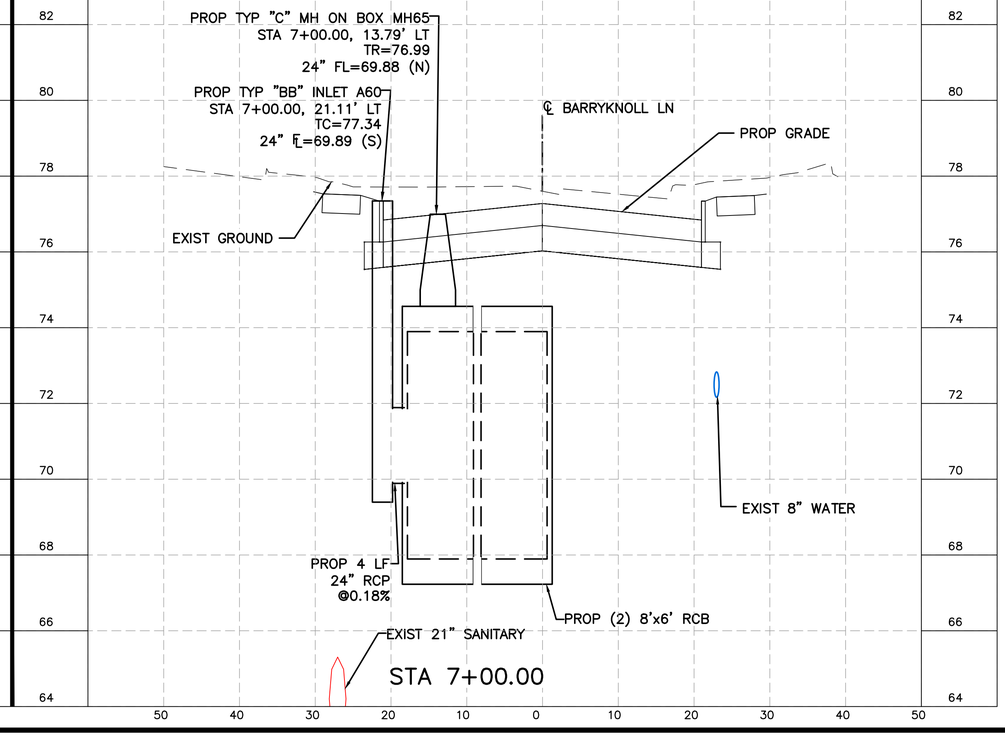

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BARRYKNOLL LN
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SHEET 1 OF 3

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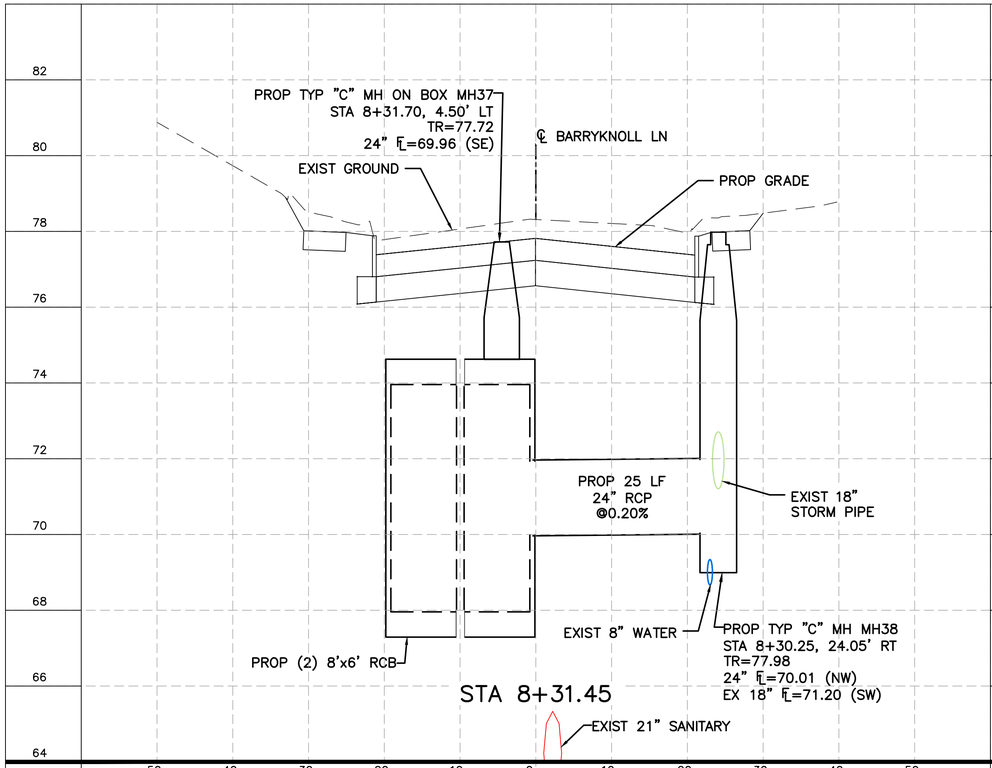
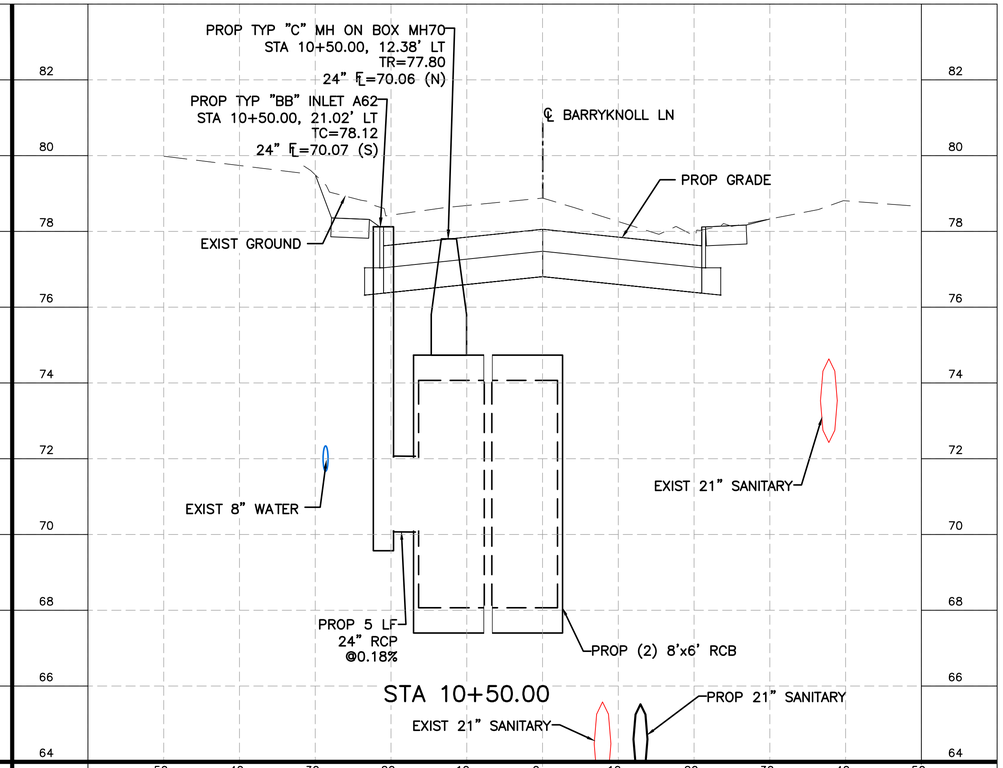
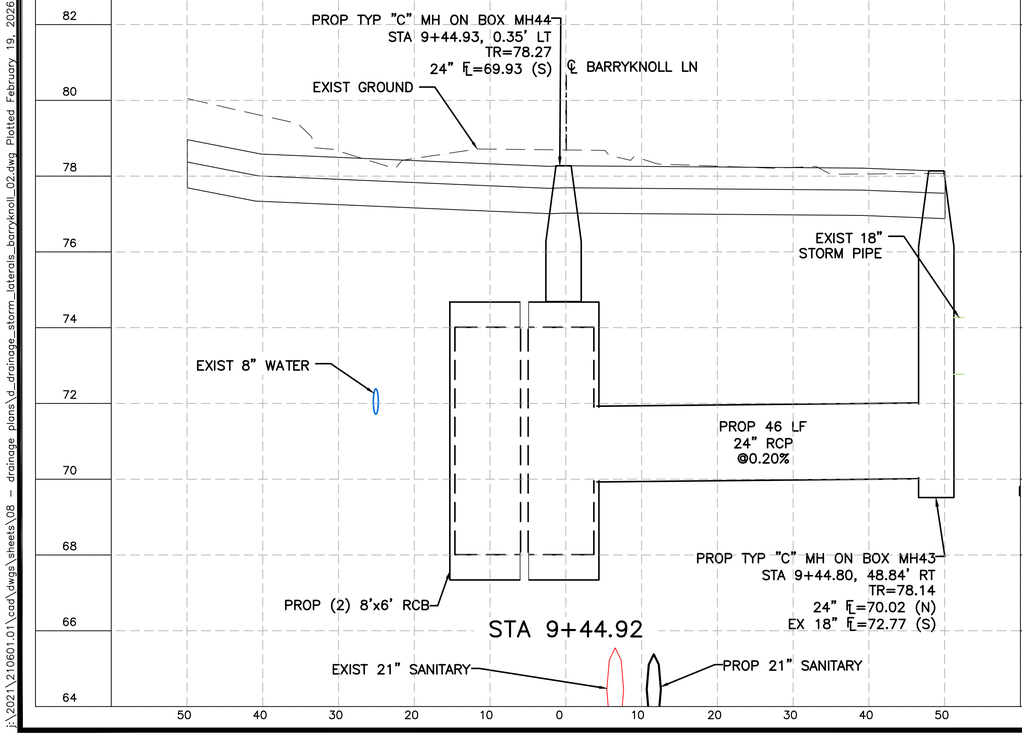
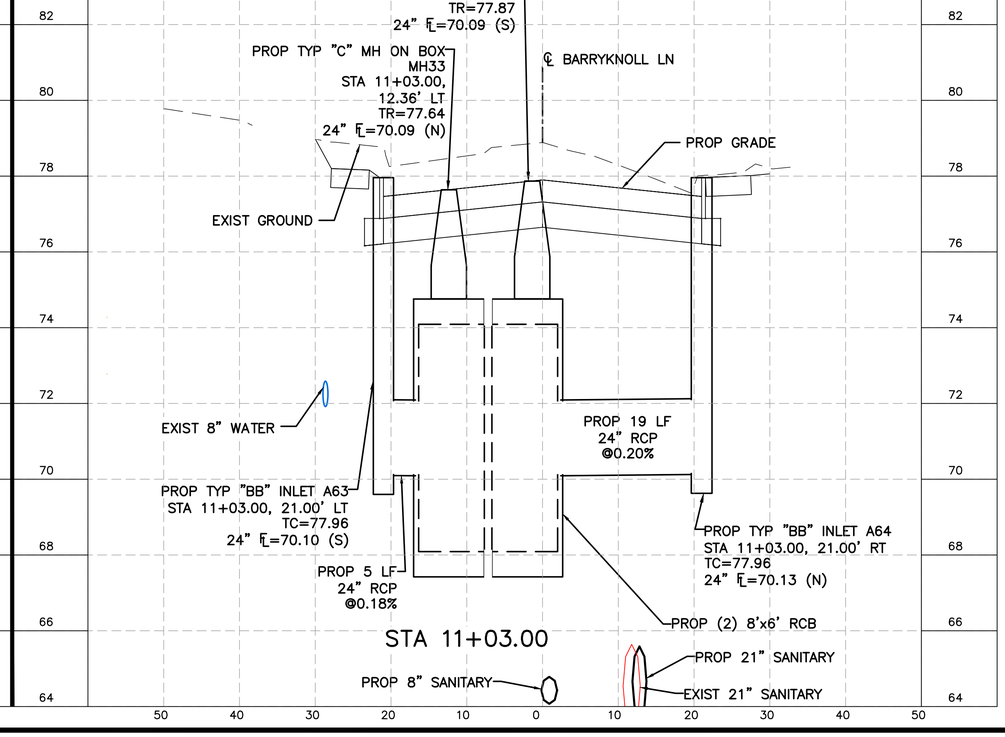
KEVIN HAMMOND, P.E.	
SHEET NO. 169 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_barryknoll_01.dwg Plotted February 19, 2026 at 6:54 PM by Huml, John









NOTES:

1. SEE STORM SEWER COMPUTATIONS FOR MORE INFORMATION.
2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
3. PIPE LENGTHS SHOWN ARE PAY LENGTHS.
4. PIPES ARE CLASS III, UNLESS NOTED.
5. CONTRACTOR TO FIELD VERIFY EXISTING PIPE CONNECTION FLOWLINES AT TIE-IN LOCATIONS. IF DIFFERENT THAN SHOWN, CONTRACTOR TO MAINTAIN DESIGNED SLOPES AS MINIMUM. SLOPES MAY BE STEEPENED.

No.	Date	Revisions	App.

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
STORM SEWER LATERALS

SHEET 2 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 170 OF 343	

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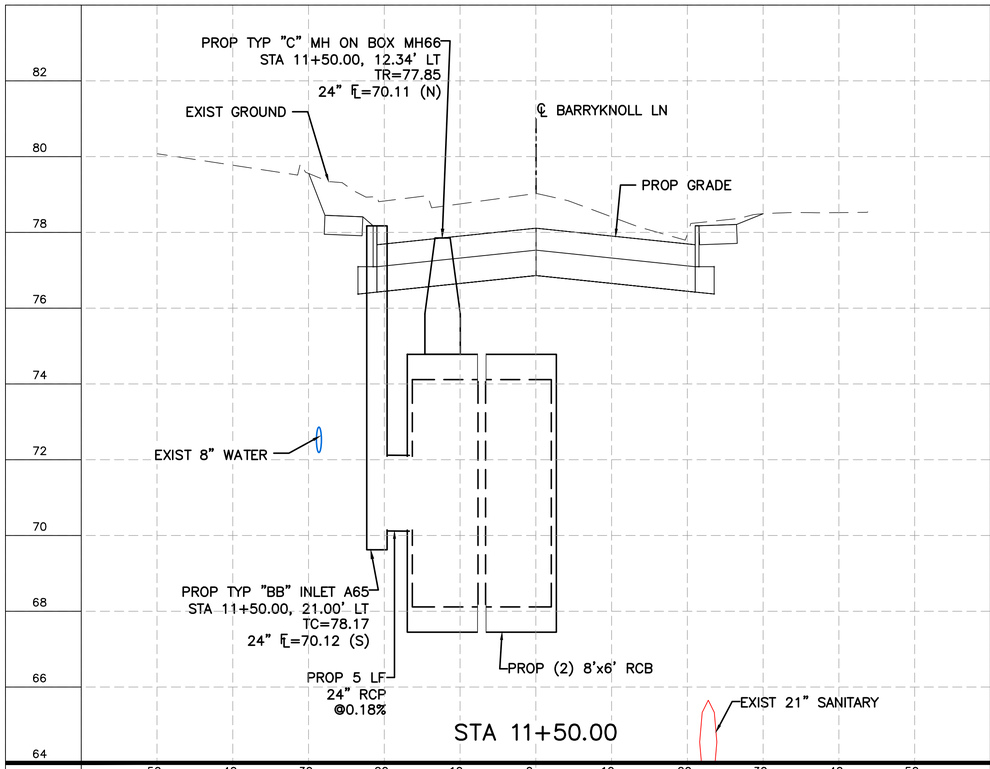

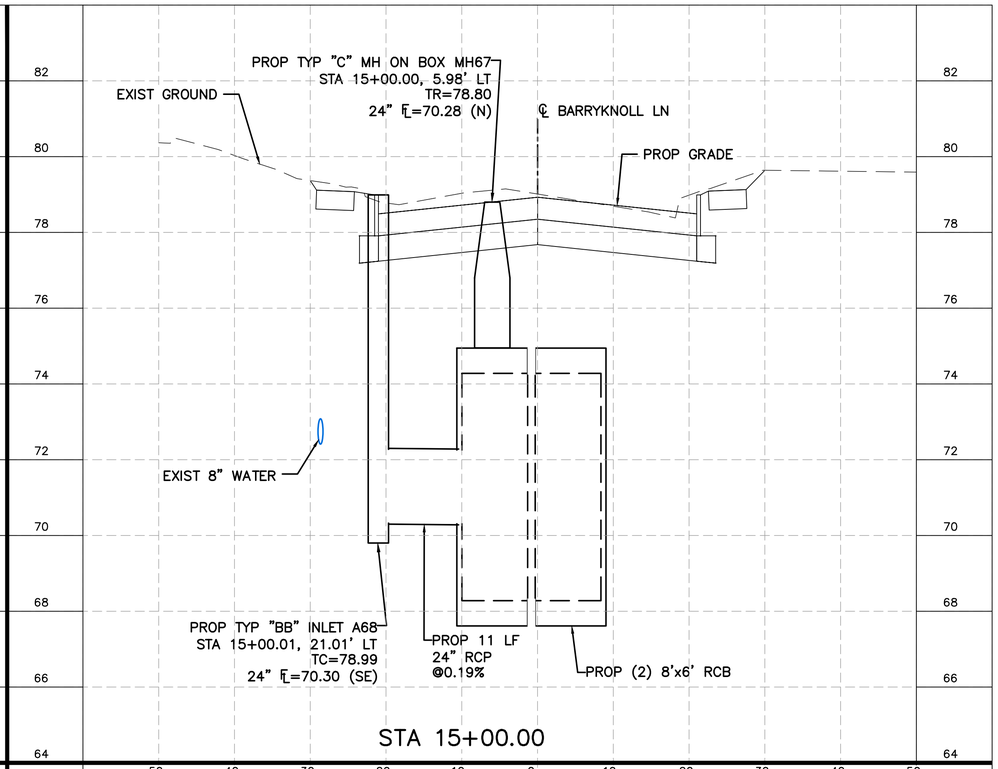

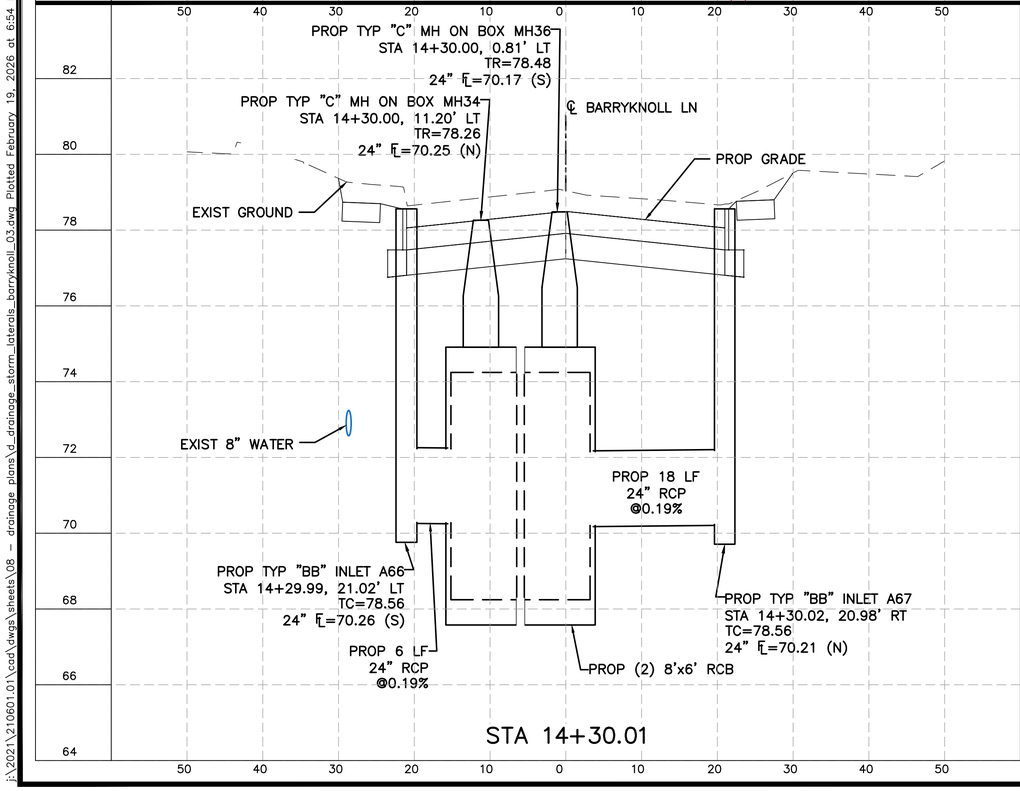

NOTES:

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
STORM SEWER LATERALS

SHEET 3 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 171 OF 343	

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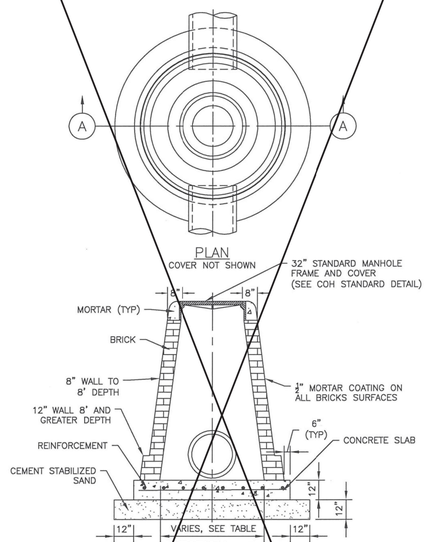
02081–01



TABLE

SEWER SIZE VS MANHOLE SIZE

SEWER SIZE (INCHES)	MANHOLE BASE DIAMETER
42"	5'–0"
36"	4'–6"
30" AND LESS	4'–0"

STORM SEWER MANHOLE TYPE 'C' FOR 42" DIAMETER RCP AND SMALLER
NTS

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

REFER TO COH STANDARD DETAIL 02082-12 "STORM SEWER TYPE 'C' PRECAST ROUND MANHOLE"

02081–03

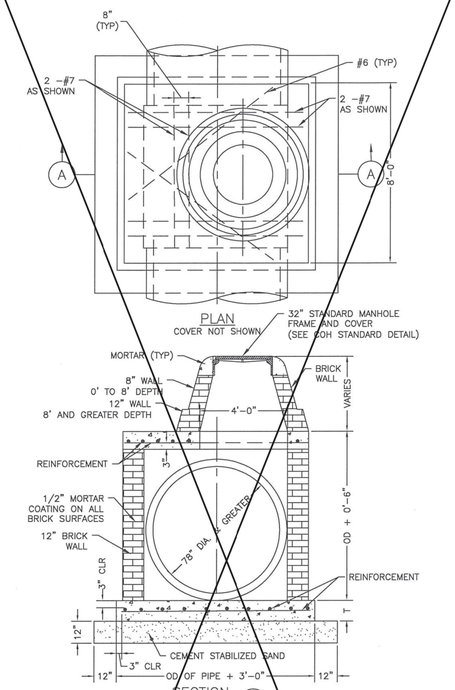


TABLE 1

PIPE DIAMETER VS SLAB THICKNESS

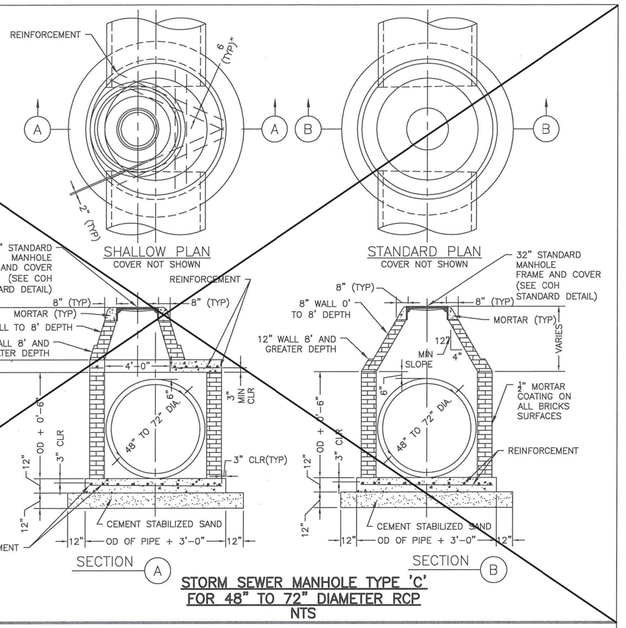
PIPE DIAMETER (INCHES)	SLAB THICKNESS T (INCHES)
78	12
84	12
90	13
96	14
102	14
108	15

STORM SEWER MANHOLE TYPE 'C' FOR 78" DIAMETER RCP AND GREATER
NTS

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

REFER TO COH STANDARD DETAIL 02082-13 "STORM SEWER PRECAST BOX MANHOLE"

02081–02



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

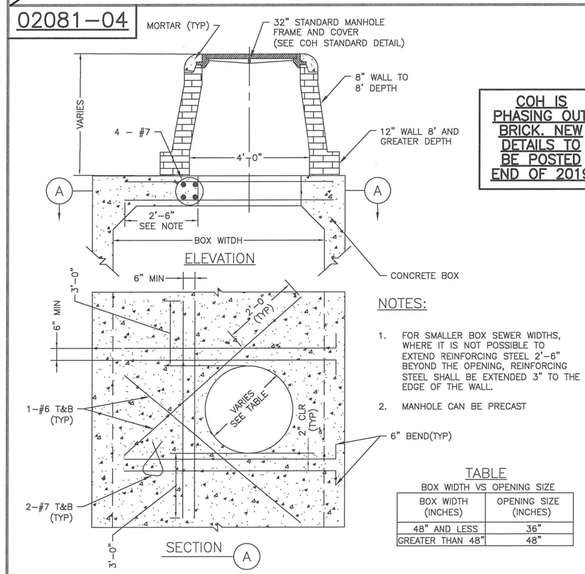
REFER TO COH STANDARD DETAIL 02082-12 "STORM SEWER TYPE 'C' PRECAST ROUND MANHOLE"

NOTE:

1. WHEN MANHOLE HAS LESS DEPTH THAN MIN. SHOWN ON TABLE 1, BUILD SECTION A OTHERWISE BUILD SECTION B.

STORM SEWER MANHOLE TYPE 'C' FOR 48" TO 72" DIAMETER RCP
NTS

02081–04



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

NOTES:

1. FOR SMALLER BOX SEWER WIDTHS, WHERE IT IS NOT POSSIBLE TO EXTEND REINFORCING STEEL 2'–6" BEYOND THE OPENING, REINFORCING STEEL SHALL BE EXTENDED 3" TO THE EDGE OF THE WALL.
2. MANHOLE CAN BE PRECAST

TABLE

BOX WIDTH VS OPENING SIZE

BOX WIDTH (INCHES)	OPENING SIZE (INCHES)
48" AND LESS	36"
GREATER THAN 48"	48"

STORM SEWER MANHOLE TYPE 'C' FOR PROPOSED CONCRETE BOX SEWER
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02081–01 THROUGH 04

APPROVED BY: CITY ENGINEER | APPROVED BY: DEPUTY DIRECTOR

APPROVED BY: DIRECTOR

EFFECTIVE DATE: JUL–01–2019

FOR CITY OF HOUSTON USE ONLY

SHEET NO.

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 1 OF 9

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 172 OF 343

J:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 01.dwg Plotted February 19, 2026 at 9:18 PM by Greaney, David

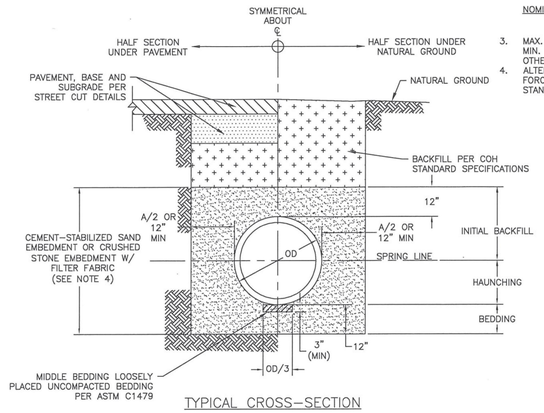
02317-03

NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN. TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

3. MAX. TRENCH WIDTH SHALL BE NOT GREATER THAN MIN. TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.



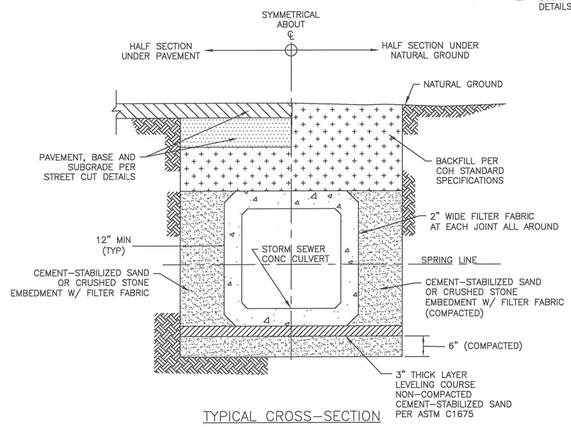
TYPICAL CROSS-SECTION

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

02317-05

NOTES:

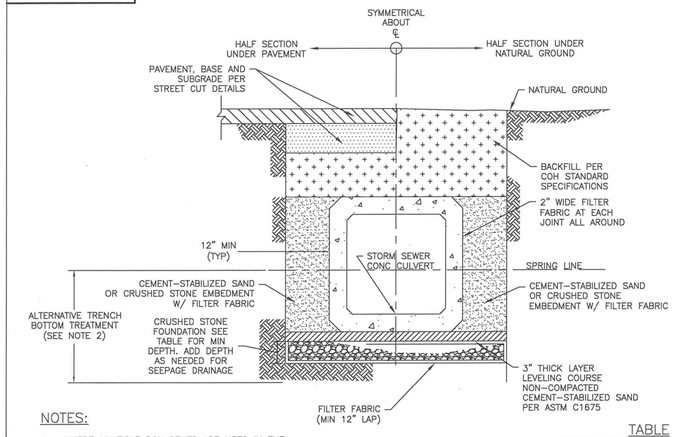
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. SUBGRADE AND PAVEMENT FOR STREET CUT DETAILS – 02951.



TYPICAL CROSS-SECTION

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

02317-06



NOTES:

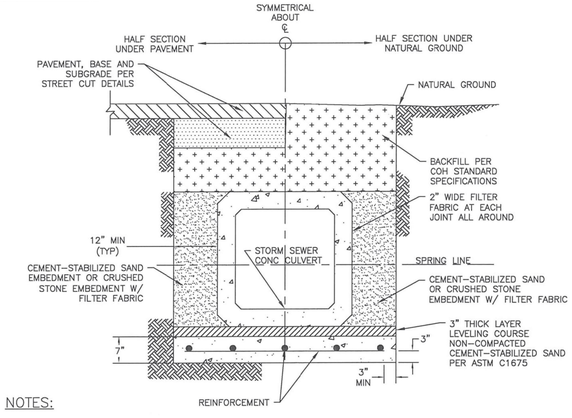
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. ALTERNATIVE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY OF ENGINEERS AND AS PAID FOR IN THE PROPOSAL.

TABLE

CULVERT SIZE (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:

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

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

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02317-03 THROUGH 07

APPROVED BY: _____ CITY ENGINEER | APPROVED BY: _____ DEPUTY DIRECTOR

APPROVED BY: _____ DIRECTOR

EFFECTIVE DATE: JUL-01-2019

FOR CITY OF HOUSTON USE ONLY

SHEET NO.

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 2 OF 9

WBS NO. M-430296-0017-3

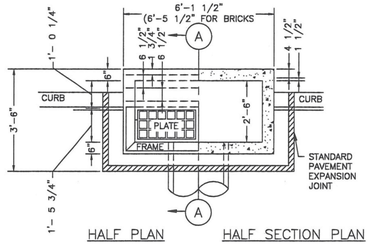
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

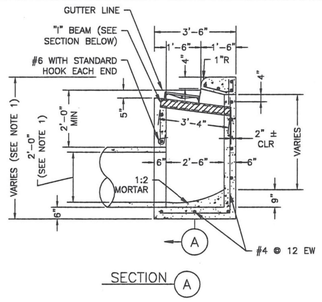
SHEET NO. 173 OF 343

J:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 02.dwg Plotted February 17, 2026 at 6:11 PM by Huml, John

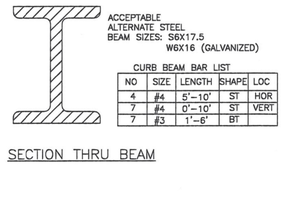
02632-04



HALF PLAN HALF SECTION PLAN



SECTION A



CURB BEAM BAR LIST

NO	SIZE	LENGTH	SHAPE	LOC
4	#4	5'-10'	ST	HOR
7	#4	0'-10'	ST	VERT
7	#3	1'-6'	BT	

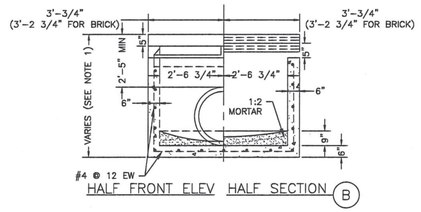
SECTION THRU BEAM

NOTES:

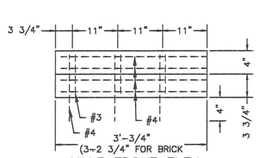
1. DIMENSION VARIES BASED ON PIPE DIAMETER AND WALL THICKNESS.
2. CENTER REINFORCING IN SLAB AND WALLS. CENTER STEEL BEAM ON INLET AND CAST INTO WALLS AS SHOWN.
3. WHEN TOP OF CURB TO FLOWLINE IS GREATER THAN 8 FEET USE TYPE "C" INLET.

GENERAL NOTES:

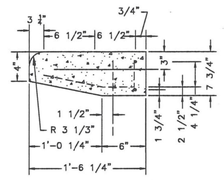
USE STANDARD CAST IRON FRAME & PLATES. LEAD SHALL LEAVE INLET AT LOCATION AND GRADE REQUIRED.



HALF FRONT ELEV HALF SECTION B



HALF FRONT ELEV



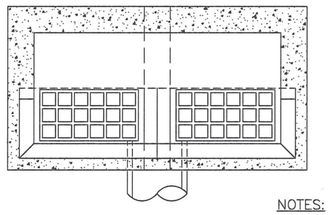
TRANSVERSE SECTION

PRECAST CURB BEAM

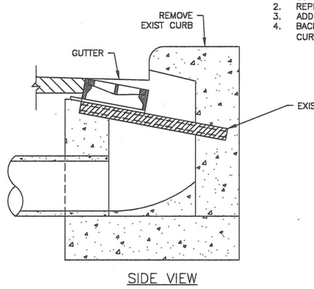
STORM SEWER TYPE "B-B" INLET
NTS

02632-05

STEP 1: EXIST TYPE "B" INLET

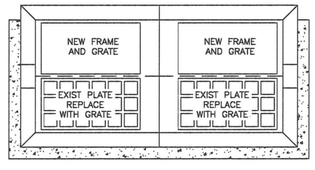


TOP VIEW

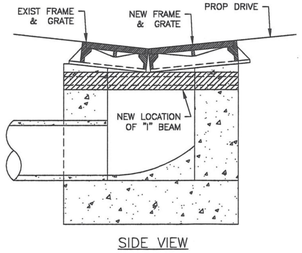


SIDE VIEW

STEP 2:



TOP VIEW

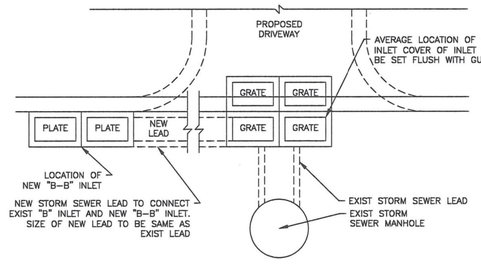


SIDE VIEW

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 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
02632-04 THROUGH 05

APPROVED BY: CITY ENGINEER | APPROVED BY: DEPUTY DIRECTOR

APPROVED BY: DIRECTOR

EFFECTIVE DATE: JUL-01-2019

FOR CITY OF HOUSTON USE ONLY

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 3 OF 9

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

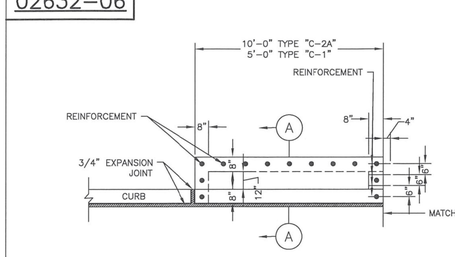
KEVIN HAMMOND, P.E.

SHEET NO. 174 OF 343

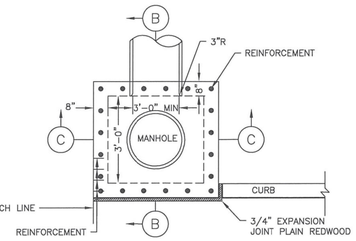
No.	Date	Revisions	App.

i:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 03.dwg Plotted February 17, 2026 at 6:11 PM by Huml, John

02632-06

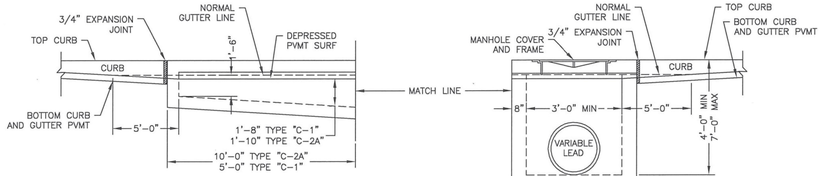


EXTENSION



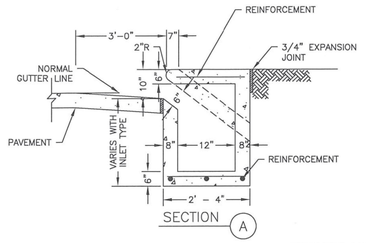
INLET

PLAN

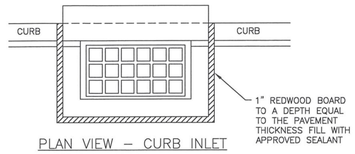


ELEVATION

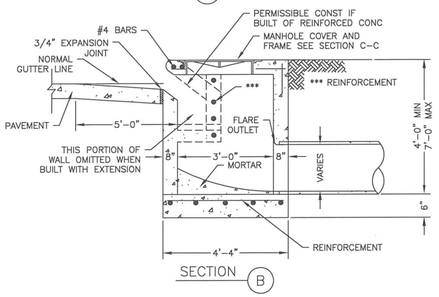
SECTION C



SECTION A



PLAN VIEW – CURB INLET



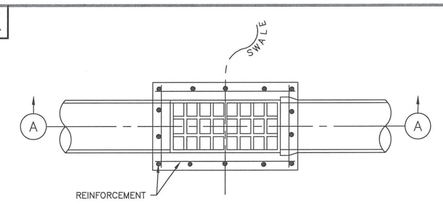
SECTION B

NOTES:

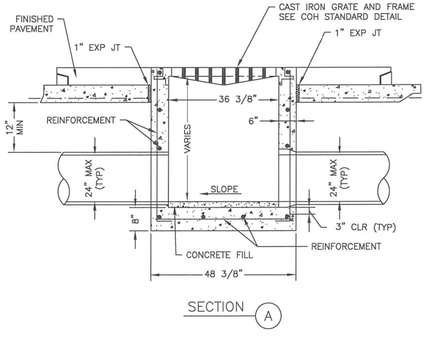
1. FOR TYPE "C-2A" INLETS PROVIDE A CENTER 6"X6" COLUMNS IN THE CURB LINE BETWEEN ALL EXTENSIONS.
2. WALLS TO BE 6" IF BUILT WITH REINFORCED CONCRETE.

STORM SEWER TYPE "C-1", "C-2" AND "C-2A" INLET
NTS

02632-07



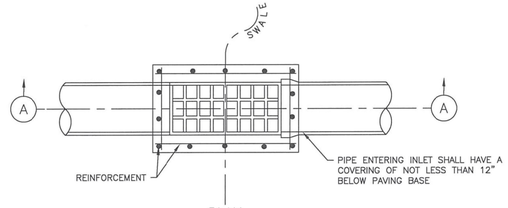
PLAN



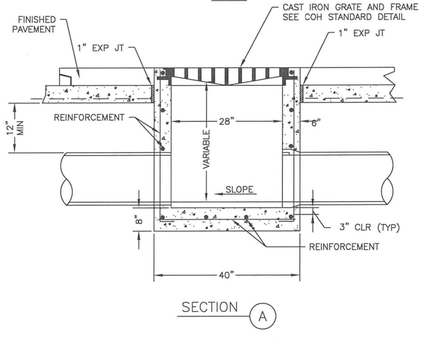
SECTION A

STORM SEWER TYPE "D" INLET
NTS

02632-08



PLAN



SECTION A

STORM SEWER TYPE "D-1" INLET
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02632-06 THROUGH 08

APPROVED BY: _____ CITY ENGINEER
APPROVED BY: _____ DEPUTY DIRECTOR
APPROVED BY: Carol Haddock DIRECTOR

EFFECTIVE DATE: JUL-01-2019
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 4 OF 9

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 175 OF 343

No.	Date	Revisions	App.

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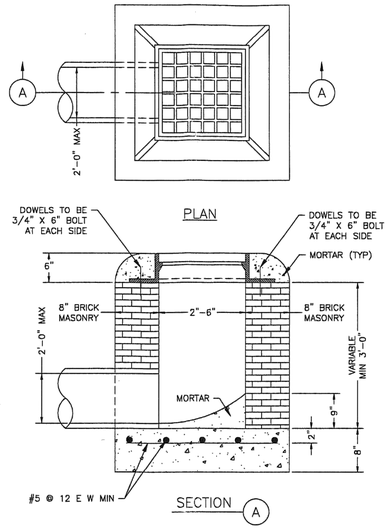
02632-01

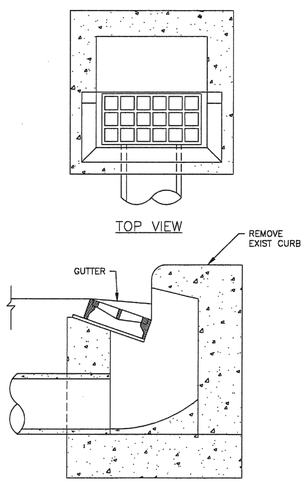


COH IS PHASING OUT BRICK, NEW DETAILS TO BE POSTED END OF 2019

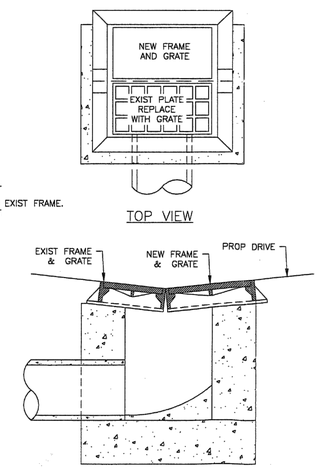
STORM SEWER TYPE "A" GRATE INLET
NTS

02632-03

STEP 1: EXIST TYPE "B" INLET



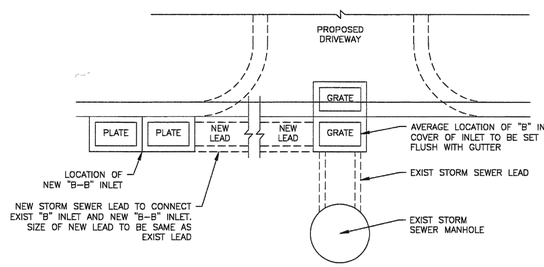
STEP 2:



NOTES:

1. AFTER REMOVING EXIST CURB, RAISE EXIST FRAME TO GUTTER GRADE.
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 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: _____ CITY ENGINEER

APPROVED BY: _____ DEPUTY DIRECTOR

APPROVED BY: _____ DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFFECTIVE DATE: JUL-01-2019

FOR CITY OF HOUSTON USE ONLY

SHEET NO. XX OF XX

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 5 OF 9

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 176 OF 343

No.	Date	Revisions	App.

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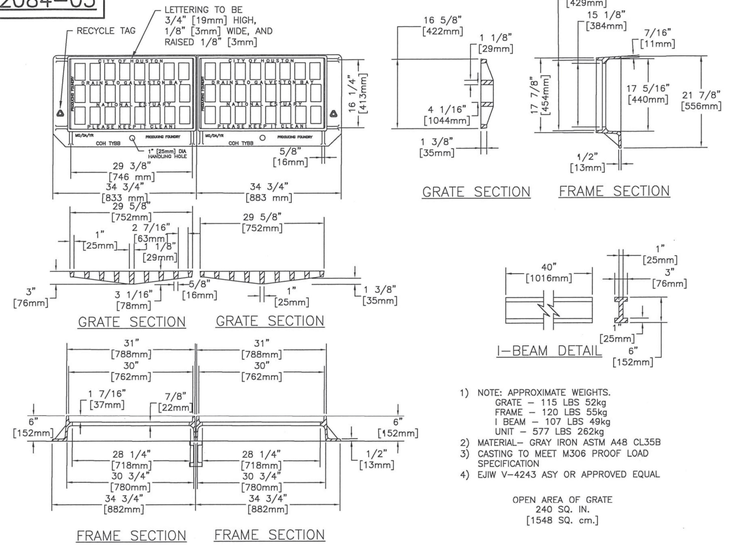
02084-05

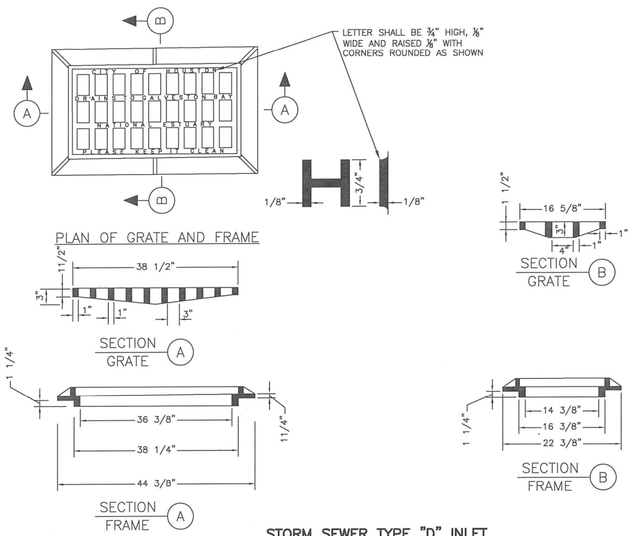


1) NOTE: APPROXIMATE WEIGHTS.
GRATE – 115 LBS 52kg
FRAME – 120 LBS 55kg
I BEAM – 107 LBS 49kg
UNIT – 577 LBS 262kg
2) MATERIAL– GRAY IRON ASTM A48 CL35B
3) CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4) EJIW V-4243 ASY OR APPROVED EQUAL

OPEN AREA OF GRATE
240 SQ. IN.
[1548 SQ. cm.]

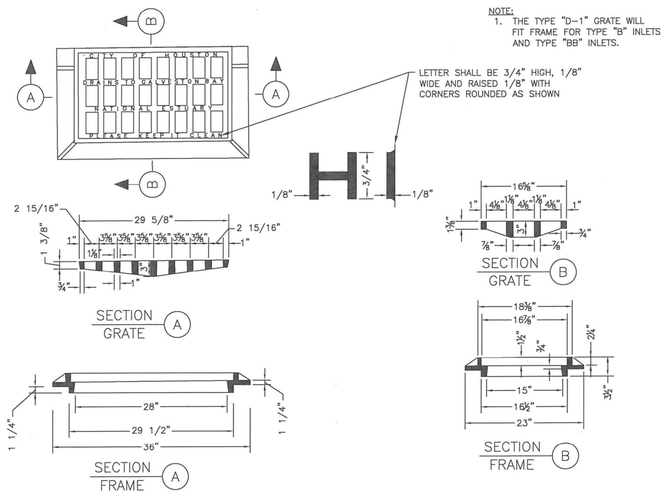
STORM SEWER FRAME AND GRATE FOR TYPE B-B INLET DOUBLE ASSEMBLY
NTS

02084-06



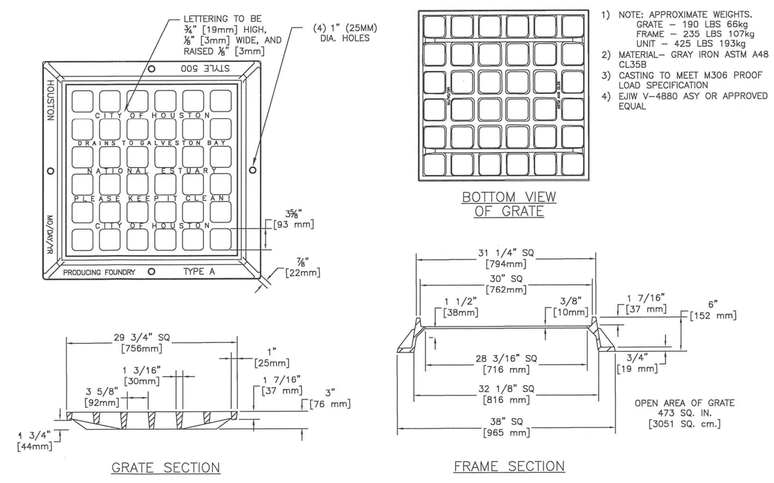
STORM SEWER TYPE "D" INLET GRATE AND FRAME
NTS

02084-07



STORM SEWER TYPE "D-1" INLET GRATE AND FRAME
NTS

02084-08



1) NOTE: APPROXIMATE WEIGHTS.
GRATE – 190 LBS 66kg
FRAME – 235 LBS 107kg
UNIT – 425 LBS 193kg
2) MATERIAL– GRAY IRON ASTM A48 CL35B
3) CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4) EJIW V-4880 ASY OR APPROVED EQUAL

OPEN AREA OF GRATE
473 SQ. IN.
[3051 SQ. cm.]

STORM SEWER TYPE "A" INLET GRATE AND FRAME
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02084-05 THROUGH 08

APPROVED BY: CITY ENGINEER | APPROVED BY: DEPUTY DIRECTOR

APPROVED BY: DIRECTOR

EFFECTIVE DATE: JUL-01-2019

FOR CITY OF HOUSTON USE ONLY

SHEET NO.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 6 OF 9

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 177 OF 343

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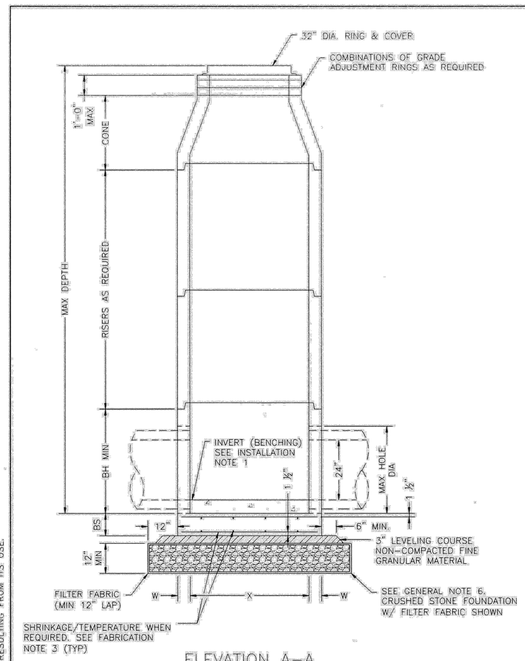
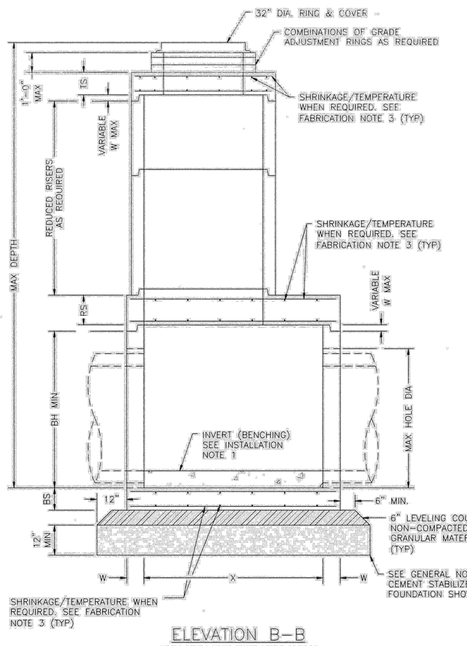
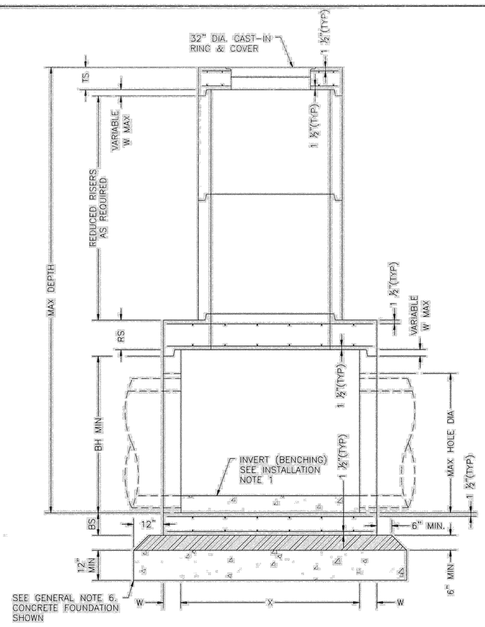


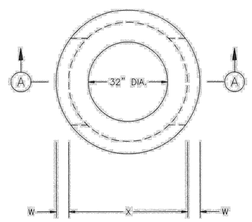
ELEVATION A–A
CONE TOP WITH SHIP LOOSE RING & COVER OPTION



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

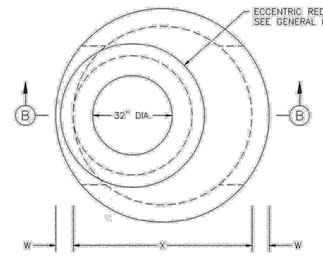


ELEVATION C–C
FLAT SLAB TOP WITH INVERTED RING & COVER OPTION



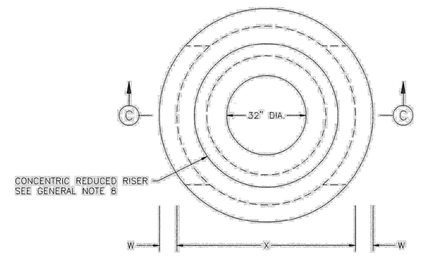
PLAN VIEW A
COVER NOT SHOWN

4–FT DIA MANHOLE



PLAN VIEW B
COVER NOT SHOWN

5–FT & 6–FT DIA MANHOLE
ECCENTRIC MANHOLE
(PREFERRED CONFIGURATION)



PLAN VIEW C
COVER NOT SHOWN

5–FT & 6–FT DIA MANHOLE
CONCENTRIC MANHOLE
(ALTERNATE CONFIGURATION)

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

	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	MAX HOLE DIA
	X	BS	W	ID	RS	TS	MAX DEPTH	BH MIN	MAX HOLE DIA
	FT	IN.	IN.	IN.	IN.	IN.	FT.	IN.	IN.
PRM	4	9	5	–	–	9	25	42	35
	5	9	6	48	9	9	25	42	42
	6	9	7	48/60*	12	9	25	42	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 WWF. PROVIDE CIRCUMFERENTIAL REINFORCING STEEL IN VERTICAL WALLS OF BASE, RISER AND CONE IN ACCORDANCE WITH ASTM C478.
3. SLABS WITH A THICKNESS OF 8" OR GREATER REQUIRE SHRINKAGE AND TEMPERATURE REINFORCING STEEL. PROVIDE STEEL AREA = 0.11 IN^2/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 ¾".
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 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 GROUTED NO MORE THAN ½" BETWEEN EACH SECTION, OR ½ 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 (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.
3. PAYMENT FOR PRECAST MANHOLE PER SECTION 02082 "PRECAST CONCRETE MANHOLES".
4. 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.
5. STORM WATER SEWER PIPE INTERNAL DIA SHALL NOT BE LESS THAN 24".
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. CONES MAY BE CONCENTRIC OR ECCENTRIC. REDUCTION CONES ARE ACCEPTABLE. REFER TO MANUFACTURER FOR CONE DIMENSIONS.
10. MANHOLE SIZE SHALL CONSIDER ENGINEERING ECONOMY. THIS DETAIL IS NOT APPLICABLE TO ROUND MANHOLES LARGER THAN 8–FOOT DIA.

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER TYPE 'C'
PRECAST ROUND MANHOLE

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
Suhail Kanwar	Carol Haddock
CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 02082-12

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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P.E. REGISTRATION NO. 140416
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 7 OF 9

WBS NO. M-430296-0017-3

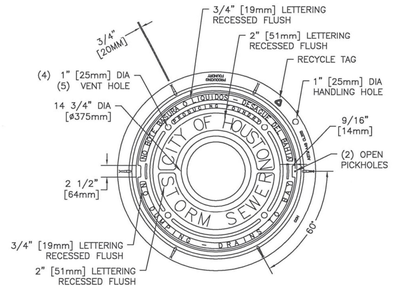
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 178 OF 343

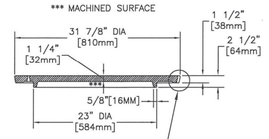
J:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 07.dwg Plotted February 17, 2026 at 6:11 PM by Huml, John

02084–02

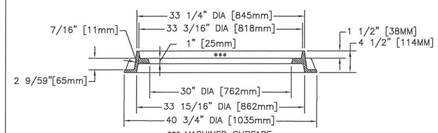




BOTTOM VIEW OF COVER



COVER SECTION



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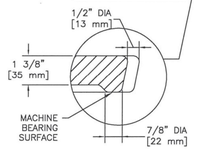


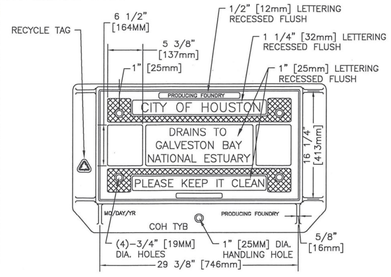
OPEN PICKHOLE DETAIL

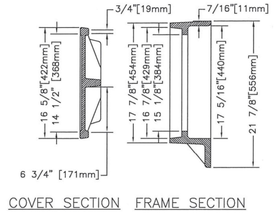
NOTES:

1. APPROXIMATE WEIGHTS.
   FRAME – 170 LBS (77KGS)
   COVER – 270 LBS (123KGS)
   UNIT – 440 LBS (200KGS)
2. MATERIALS – GRAY IRON ASTM A48 CL35B
3. CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4. EJIW V–1420 ASY OR APPROVED EQUAL

STORM SEWER MANHOLE FRAME AND COVER
NTS

02084–03

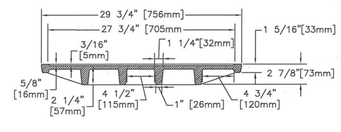




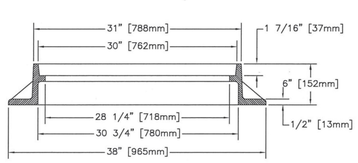
COVER SECTION FRAME SECTION

NOTES:

1. APPROXIMATE WEIGHTS.
   FRAME – 125 LBS (57KGS)
   COVER – 130 LBS (59KGS)
   UNIT – 225 LBS (116KGS)
2. MATERIALS – GRAY IRON ASTM A48 CL35B
3. CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4. EJIW V–4241 ASY OR APPROVED EQUAL



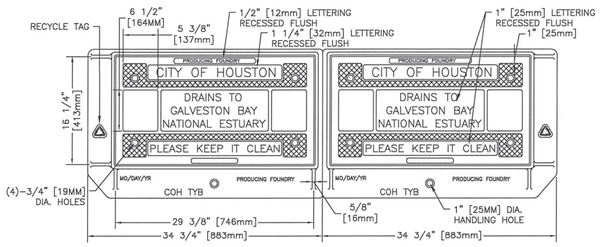
COVER SECTION

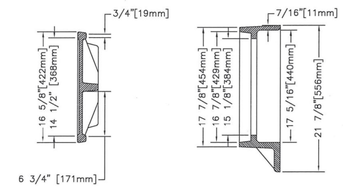


FRAME SECTION

STORM SEWER TYPE "B" INLET ASSEMBLY
NTS

02084–04

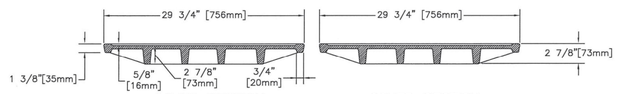




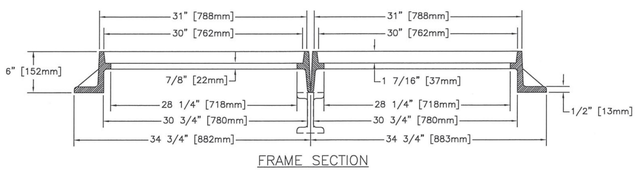
COVER SECTION FRAME SECTION

NOTES:

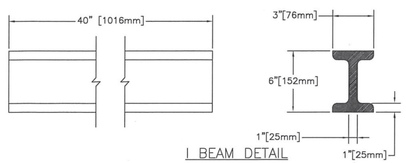
1. APPROXIMATE WEIGHTS.
   FRAME – 125 LBS (57KGS)
   COVER – 120 LBS (55KGS)
   I BEAM – 107 LBS (49KGS)
   UNIT – 597 LBS (271KGS)
2. MATERIALS – GRAY IRON ASTM A48 CL35B
3. CASTING TO MEET M306 PROOF LOAD SPECIFICATION
4. EJIW V–4243 ASY OR APPROVED EQUAL



COVER SECTION COVER SECTION



FRAME SECTION



I BEAM DETAIL

STORM SEWER TYPE "BB" INLET DOUBLE ASSEMBLY
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02084–02 THROUGH 04

APPROVED BY: _____ CITY ENGINEER
APPROVED BY: _____ DEPUTY DIRECTOR
APPROVED BY: _____ DIRECTOR

EFFECTIVE DATE: JUL–01–2019
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/17/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

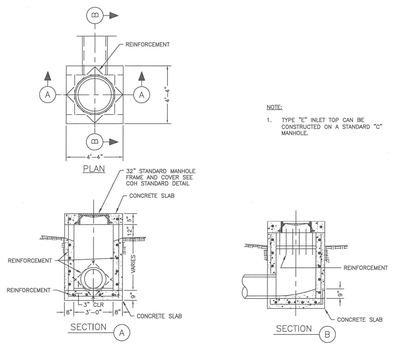
SHEET 8 OF 9

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 179 OF 343

No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 08.dwg Plotted February 17, 2026 at 6:12 PM by Huml, John

02632–09



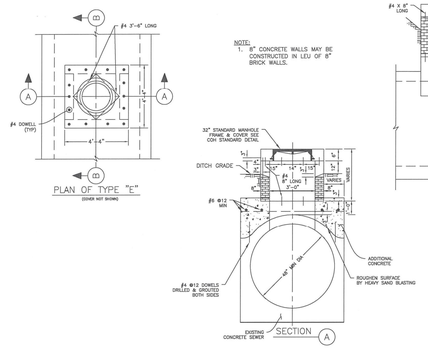
NOTE:

1. TYPE "E" INLET TOP CAN BE CONSTRUCTED ON A STANDARD "C" MANHOLE.

STORM SEWER TYPE "E" INLET
NTS

02632–10

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



STORM SEWER TYPE "E" INLET ON EXIST MONOLITHIC CONC SEWERS OF 48" DIA & GREATER
NTS

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02632–09
AND 02632–10

APPROVED BY: CITY ENGINEER
APPROVED BY: DEPUTY DIRECTOR
APPROVED BY: DIRECTOR
EFFECTIVE DATE: JUL–01–2019
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 9 OF 9

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 180 OF 343

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 12.dwg Plotted February 17, 2026 at 6:12 PM by Huml, John

J:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_kingsride_01.dwg Plotted February 20, 2026 at 2:46 PM by McCourt, Jeff

10.0' (MIN) FROM PROPERTY LINE

CONTRACTOR TO PROTECT FORCE MAIN. ANY ADDITIONAL WORK REQUIRED TO INSTALL THE MANHOLE AND PIPES SHALL BE INCIDENTAL. NO SEPARATE PAY.

1–8" PLUG & CLAMP

1–8"x6" TEE RJ
1–8" GV W/BOX
1–6" GV W/BOX
5 FT OF 6" FH LEAD
1–F.H ASSEMBLY, 3' BC

MIN 5' CLR

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

1–20" x 8" CROSS
2–20" GV W/BOX
1–8" GV W/BOX
2–20" WET CONNECTION
1–8" CUT, PLUG & ABANDON

REMOVE AND SALVAGE EXIST F.H

UNDERGROUND DETENTION BASIN

PROP 8" WL

SEE NOTE 4

EXIST ROW

25' CLR

PROP CONFLICT MANHOLE #MH–A STA 0+37.11, 7.07'LT TR=79.67

CONTRACTOR TO MAINTAIN SANITARY FLOW. SUBMIT TO ENGINEER FOR APPROVAL. ALL WORK IS INCIDENTAL TO COST OF MANHOLE. NO SEPARATE PAY.

KINGSRIDE LN

℄ KINGSRIDE LN.

REMOVE AND REPLACE IN PLACE 39' OF 8" SAN SWR @0.45% SLOPE

EXIST ROW

REMOVE AND SALVAGE EXIST F.H

REMOVE EXISTING 8" WL

PROP STM SEWER

PROP MANHOLE #MH–B STA 4+38.72, 31.38'RT TR=78.24

PROP 30" SPLIT STEEL CASING

2–8" CUT & PLUG ABANDON

BENIGNUS RD

MATCHLINE STA 5+00

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

LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
- (B) EXIST WATER LINE TO REMAIN
- (C) EXIST SAN SWR TO REMAIN

NOTES:

1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
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CABLE COMPANY DATE

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KINGSRIDE LANE

PROP TOC PGL

MIN 3' COVER

PROP 8" WATERLINE

PROP 30" STEEL CASING

PROP STM SEWER

PROP SAN MH–A STA 0+37 TR=79.67

STORM SEWER PENETRATES THROUGH CONFLICT MANHOLE

2.53' CLR

3.5' CLR

MIN 2' CLR

PROP SAN MH–B STA 4+39 TR=78.24
8" ℄ EL=63.23 (N)
8" ℄ EL=64.48 (S)

80 78 76 74 72 70 68 66 64 62 60 58 56

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

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: JOHN R. HUML
P.E. REGISTRATION NO. 140416
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

WBS NO.	M–430296–0017–3
DRAWING SCALE	
	H: 1"=20' (22'X34')
	V: 1"=2' (22'X34')
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	181 OF 343

Apv. | Revisions | Date | No.

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

MATCHLINE STA 5+00

1–8"x6" TEE RJ
1–6" GV W/BOX
3 FT OF 6" FH LEAD
1–F.H ASSEMBLY 3' BC

PROP 8" WL

MIN 5' CLR

EXIST ROW

25' CLR

2–8" X 45° BEND. RJ

PROP 8" WL

SEE NOTE 4

KINGSRIDE LN

℄ KINGSRIDE LN.

2–8" X 45° BEND. RJ

EXIST ROW

REMOVE EXISTING 8" WL

REMOVE AND SALVAGE EXIST F.H

1–8"x6" TEE RJ
1–8" GV W/BOX
1–6" GV W/BOX
3 FT OF 6" FH LEAD
1–F.H ASSEMBLY 13' BC

MIN 5' CLR

4' CLR

PROP 8" WL IN 16" STEEL CASING

MATCHLINE STA 10+00

KINGSRIDE LANE

PROP TOC PGL

SOUTH CURB

NORTH CURB

CL ROAD

MIN 3' COVER

PROP 8" WL

MIN 2' CLR

MIN 2' CLR

PROP 8" WL

PROP 6" F.H LEAD

PROP 8" WL IN 16" STEEL CASING

EXIST. 6" FORCE MAIN

PROP STM SEWER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

5+00 6+00 7+00 8+00 9+00 10+00

LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
- (B) EXIST WATER LINE TO REMAIN
- (C) EXIST SAN SWR TO REMAIN

NOTES:
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3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
SCALE IN FEET

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NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
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SIGNATURE VALID FOR SIX MONTHS

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SIGNATURE VALID FOR ONE YEAR.

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HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

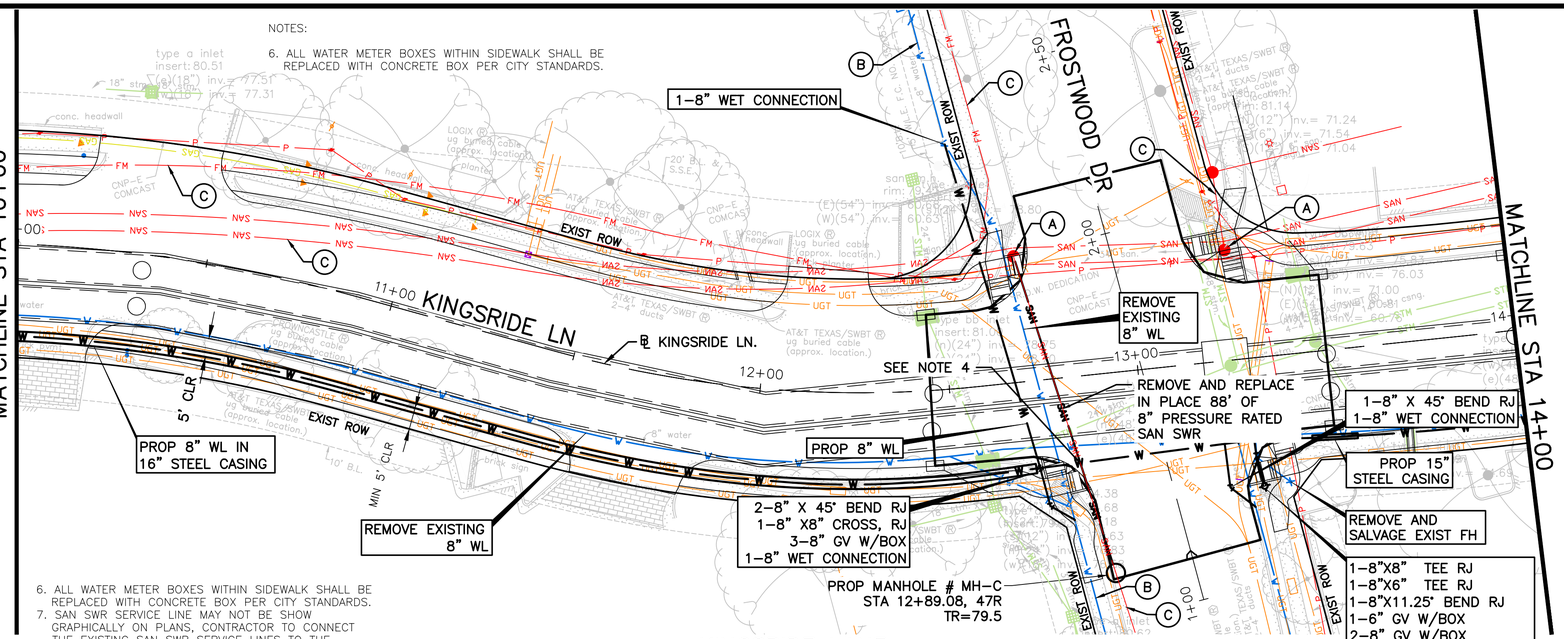
SHEET NO. 182 OF 343

No. | Date | Revisions | App.

J:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_02.dwg Plotted February 20, 2026 at 2:48 PM by McCourt, Jeff

NOTES:

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.



KINGSRIDE LANE

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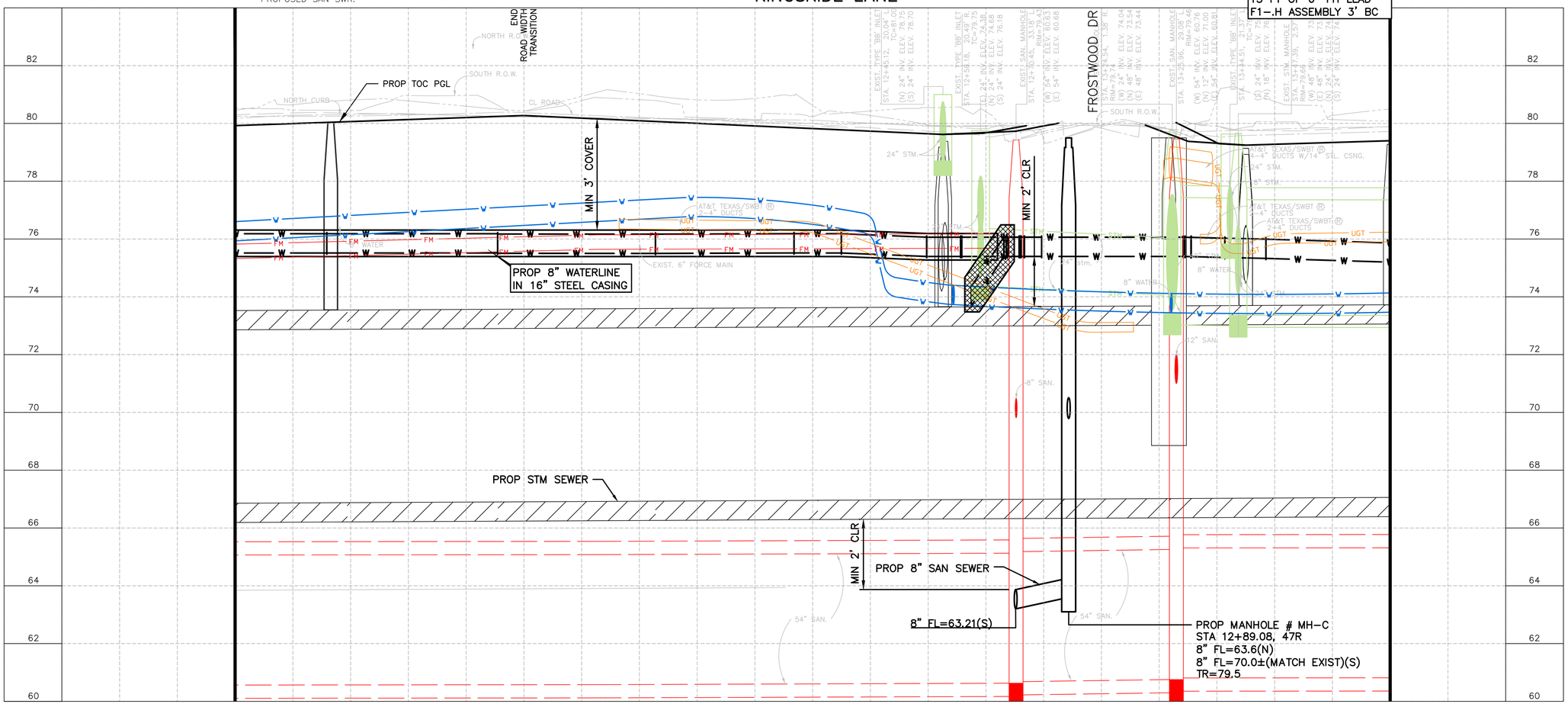

LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
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No.	Date	Revisions	App.

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3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
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0 20 40
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VERIFICATION OF PRIVATE UTILITY LINES

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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 183 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_03.dwg Plotted February 20, 2026 at 2:49 PM by McCourt, Jeff

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7. SAN SWR SERICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

MATCHLINE STA 14+00

MATCHLINE STA 18+00

KINGSRIDE LN

℄ KINGSRIDE LN.

EXIST ROW

(2)8'x6' RCB

6' CLR

REMOVE EXISTING 8" WL

PROP 8" WL

MIN 5' CLR

KINGSRIDE LANE

PROP TOC PGL

MIN 3' COVER

PROP 8" WL

PROP STM SEWER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
- (B) EXIST WATER LINE TO REMAIN
- (C) EXIST SAN SWR TO REMAIN

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY — NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 184 OF 343

No. | Date | Revisions | App.

J:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_kingsride_04.dwg Plotted February 20, 2026 at 2:50 PM by McCourt, Jeff

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

MATCHLINE STA 18+00

MATCHLINE STA 22+00

KINGSRIDE LANE

PROP 8" WL

REMOVE EXISTING 8" WL

2-8" X 45° BEND RJ
1-8" GV W/BOX
1-8" WET CONNECTION

MIN 5' CLR

7' CLR

(2)8'x6' RCB

℄ KINGSRIDE LN.

KINGSRIDE LN

EXIST ROW

PROP TOC PGL

MIN 3' COVER

MIN 2' CLR

PROP STM SEWER

BEGIN ROAD WIDTH TRANSITION

END ROAD WIDTH TRANSITION

SOUTH R.O.W.

NORTH R.O.W.

CL ROAD

NORTH CURB

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

18+00 19+00 20+00 21+00 22+00

60 62 64 66 68 70 72 74 76 78 80 82

LEGEND

- PROPOSED SAN SWR
- PROPOSED WATER LINE
- EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
- (B) EXIST WATER LINE TO REMAIN
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No.	Date	Revisions	App.

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3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
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0 20 40
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P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

SHEET 5 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 185 OF 343	

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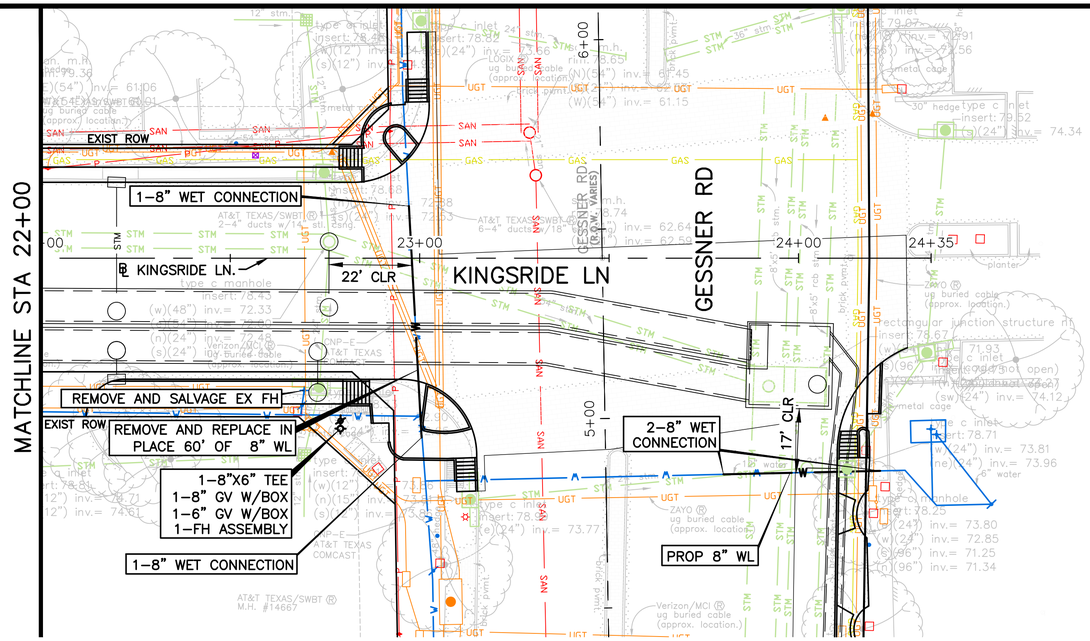

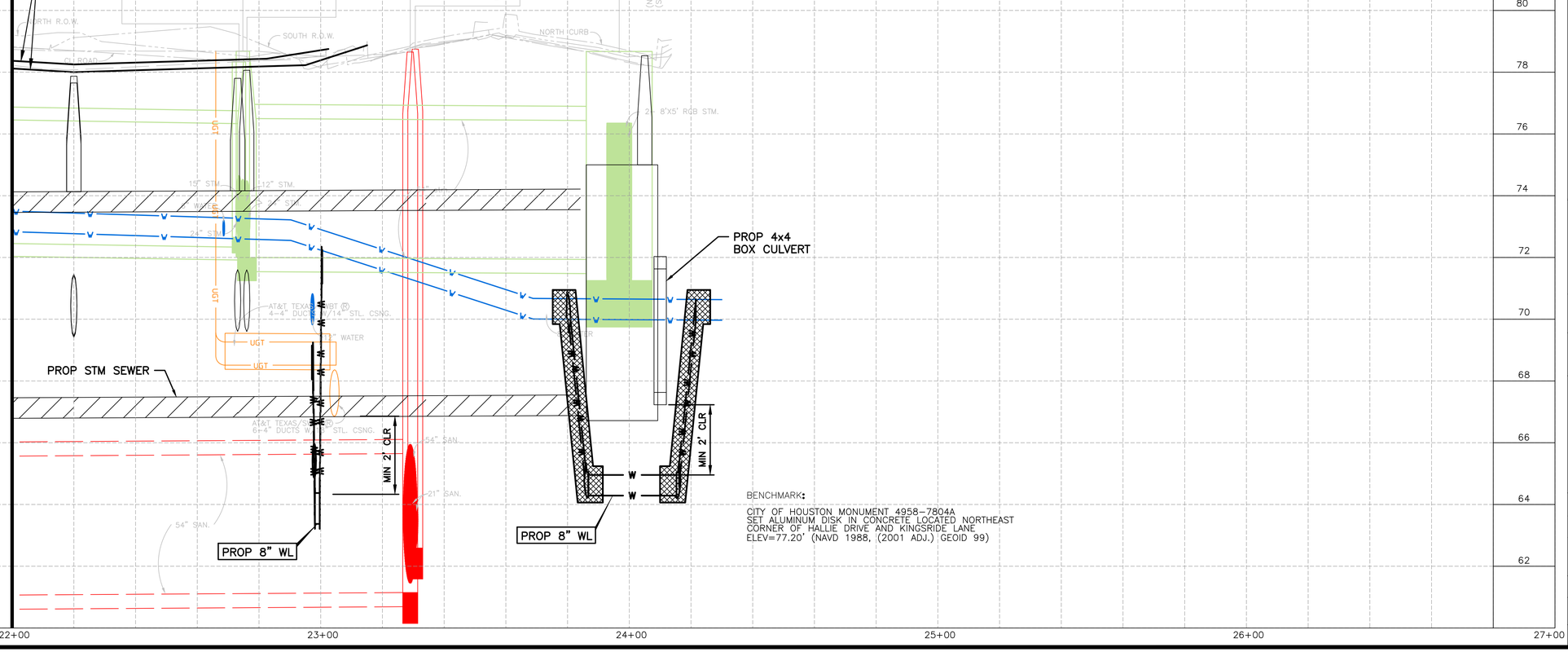

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
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- SAN — EXIST SAN SWR LEADS
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- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
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No.	Date	Revisions	App.

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0 20 40
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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

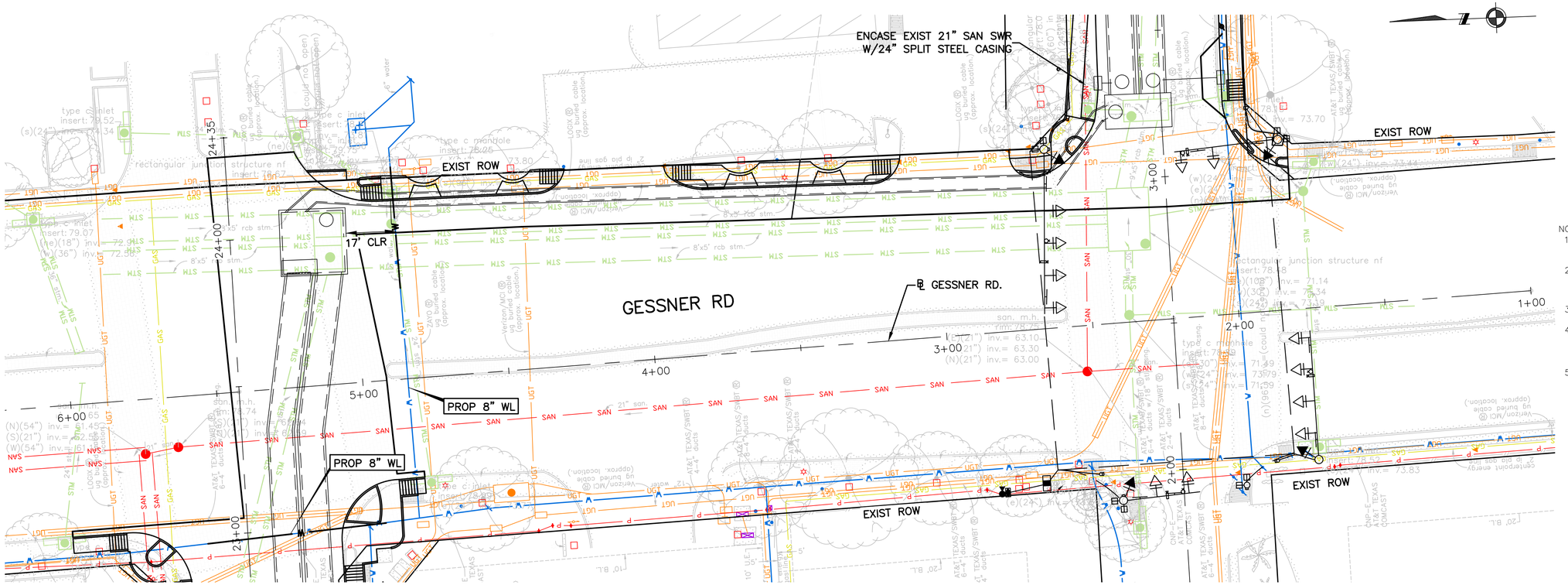
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

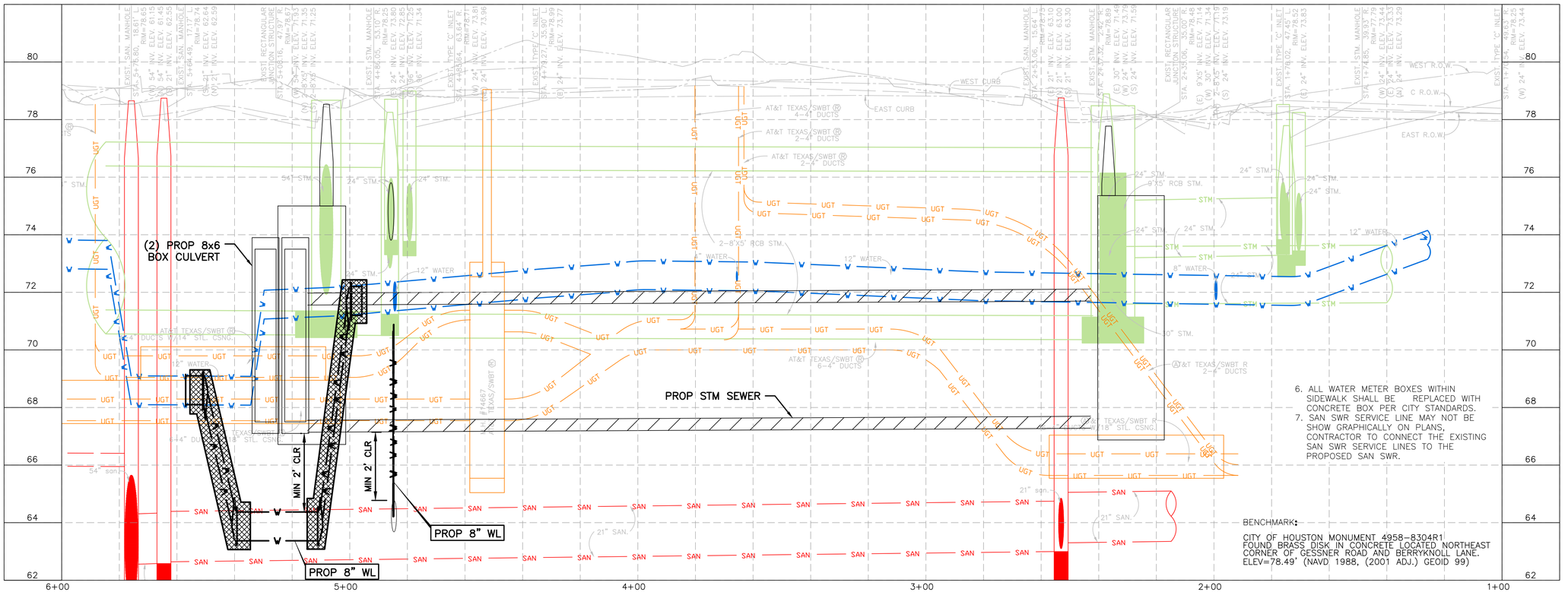
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE KINGSRIDE LANE STA 22+00 TO END PROJECT

SHEET 6 OF 6

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 186 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_06.dwg Plotted February 20, 2026 at 2:52 PM by McCourt, Jeff





LEGEND

- PROPOSED SAN SWR
- PROPOSED WATER LINE
- EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
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- (C) EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

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0 20 40
SCALE IN FEET

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ISSUED FOR REVIEW
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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

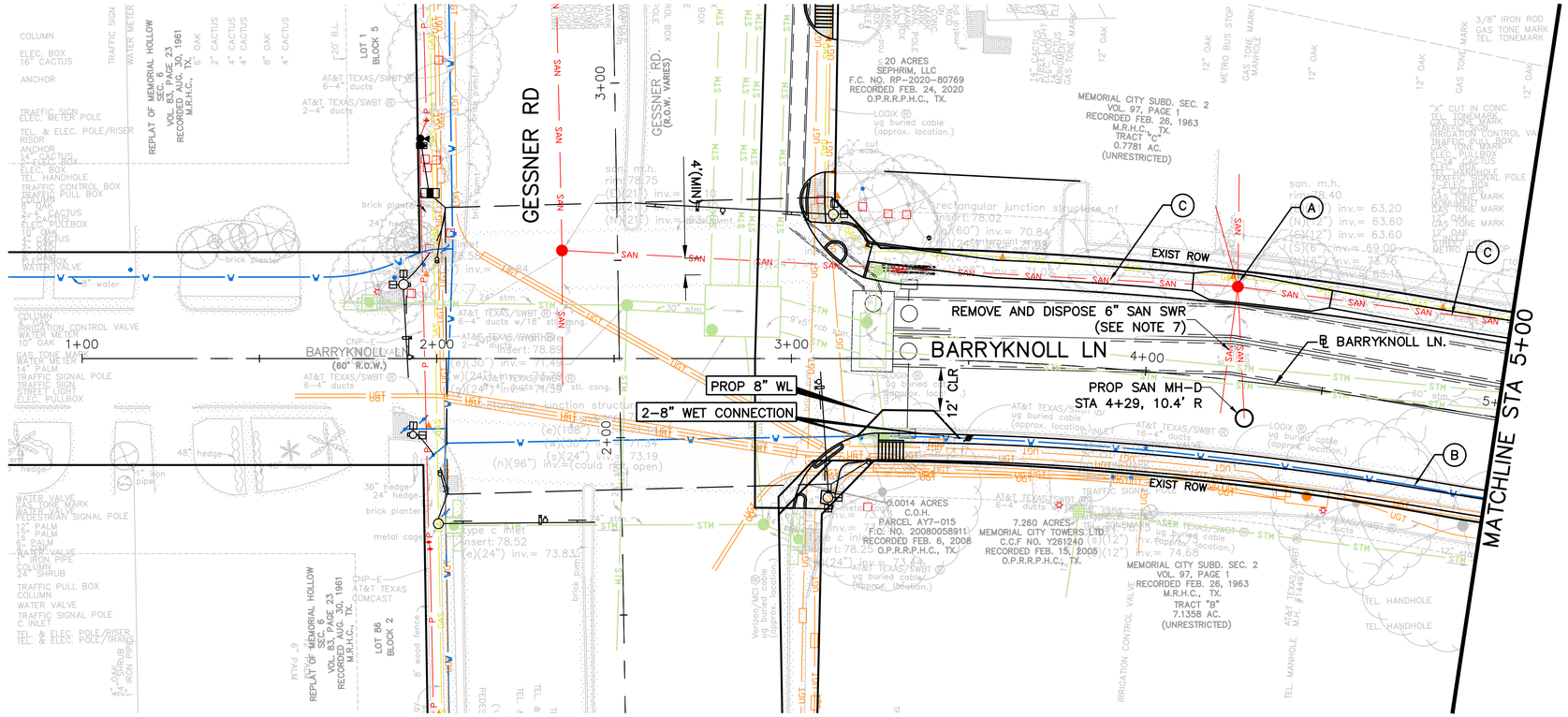
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
GESSNER ROAD
BEGIN PROJECT TO END PROJECT

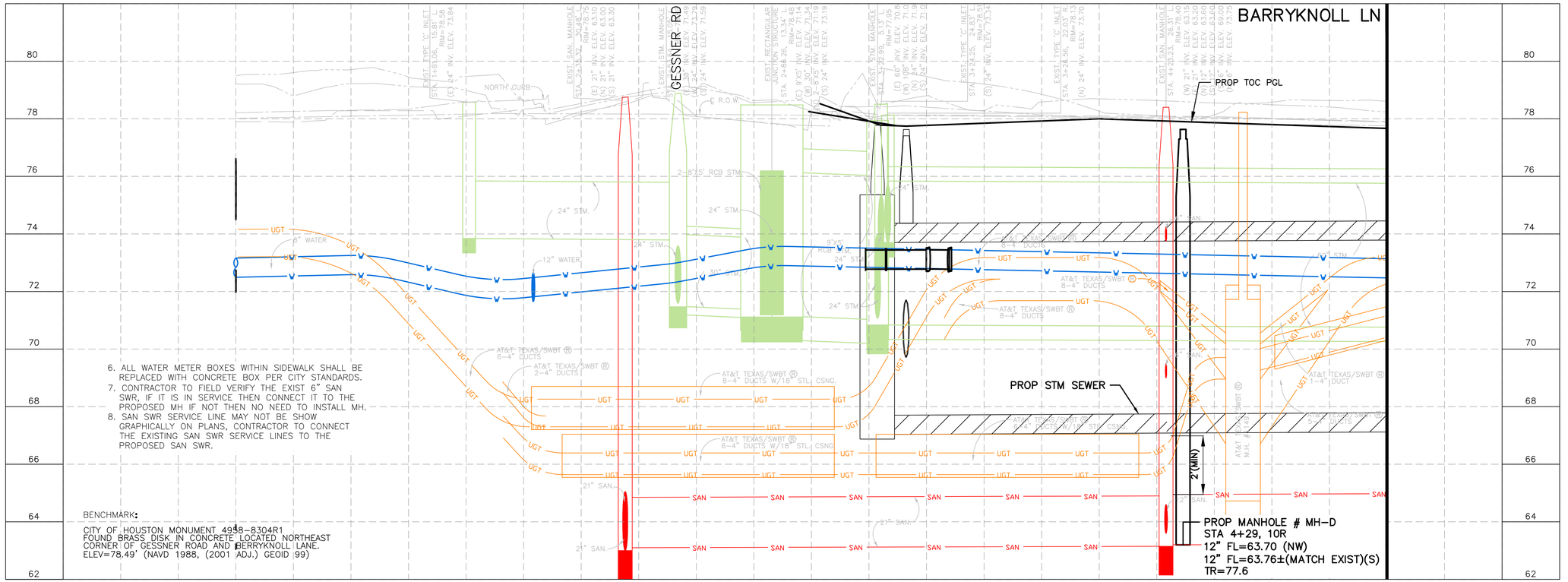
SHEET 1 OF 1

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	187 OF 343

J:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_gessner_01.dwg Plotted February 20, 2026 at 2:54 PM by McCourt, Jeff





6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. CONTRACTOR TO FIELD VERIFY THE EXIST 6" SAN SWR, IF IT IS IN SERVICE THEN CONNECT IT TO THE PROPOSED MH IF NOT THEN NO NEED TO INSTALL MH.
8. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

BENCHMARK:

CITY OF HOUSTON MONUMENT 4938-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
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- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
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- (A) ADJUST TO GRADE
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No.	Date	Revisions	App.

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0 20 40
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
BARRYKNOLL LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 4

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22"X34") V: 1"=2' (22"X34")
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	188 OF 343

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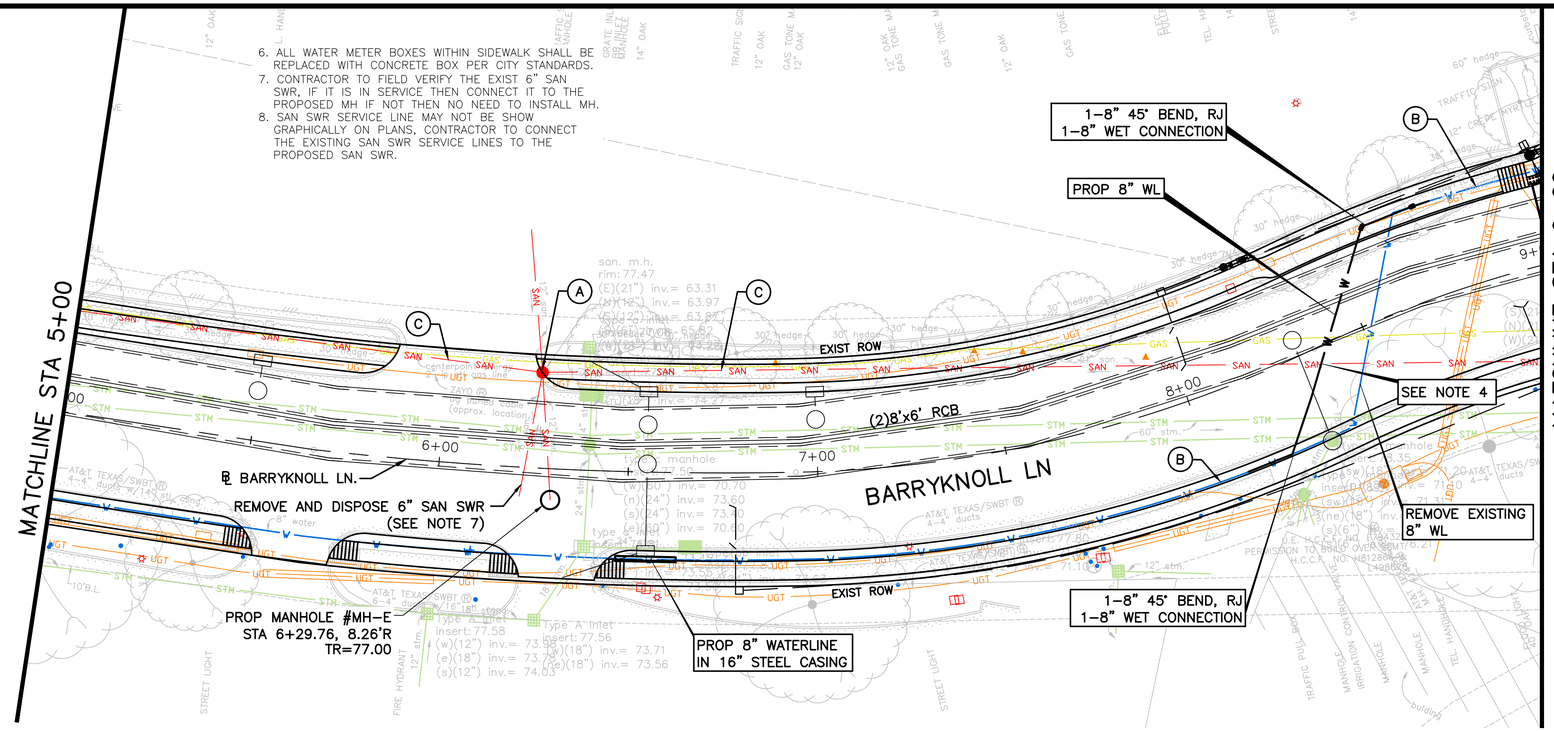

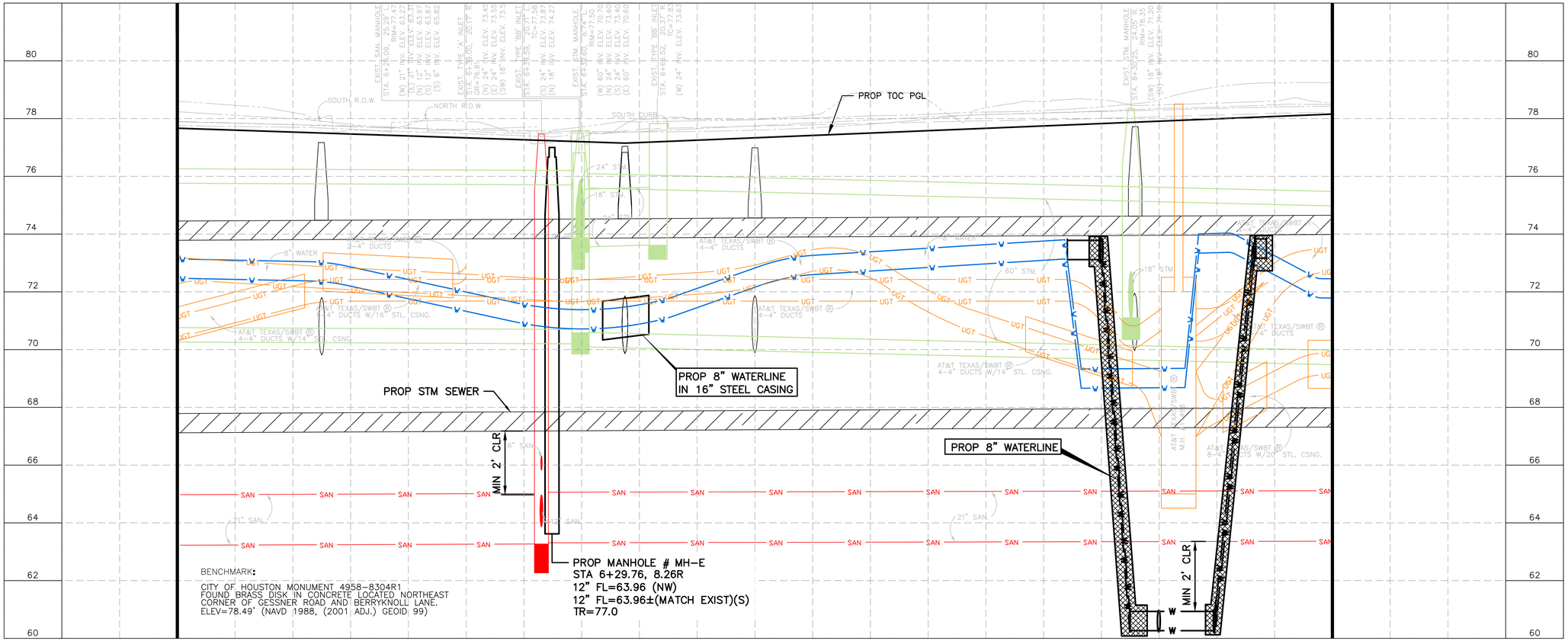

LEGEND

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3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

SCALE IN FEET: 0 20 40

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY — NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE BARRYKNOLL LANE STA 5+00 TO STA 9+00

SHEET 2 OF 4

WBS NO. M-430296-0017-3

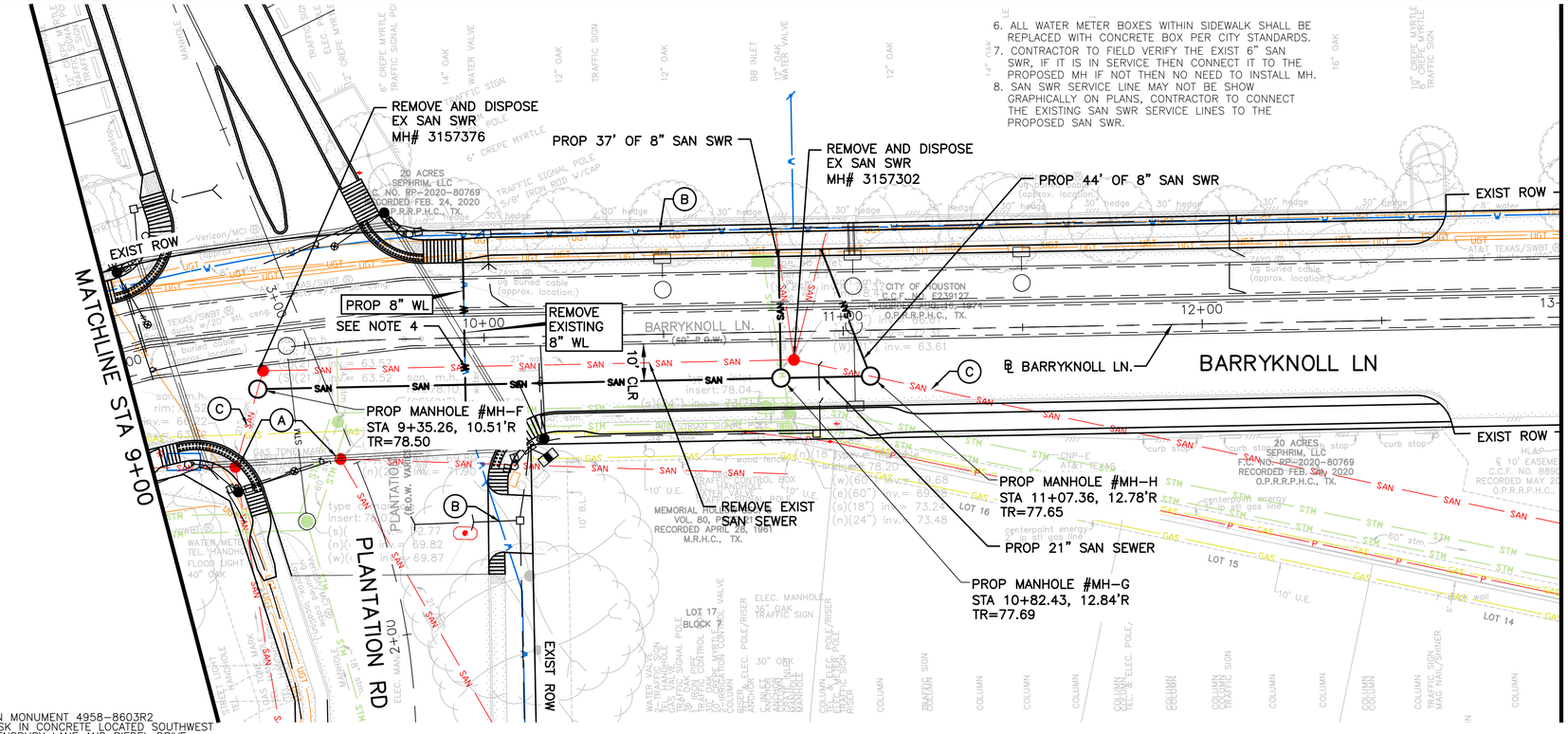
DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 189 OF 343

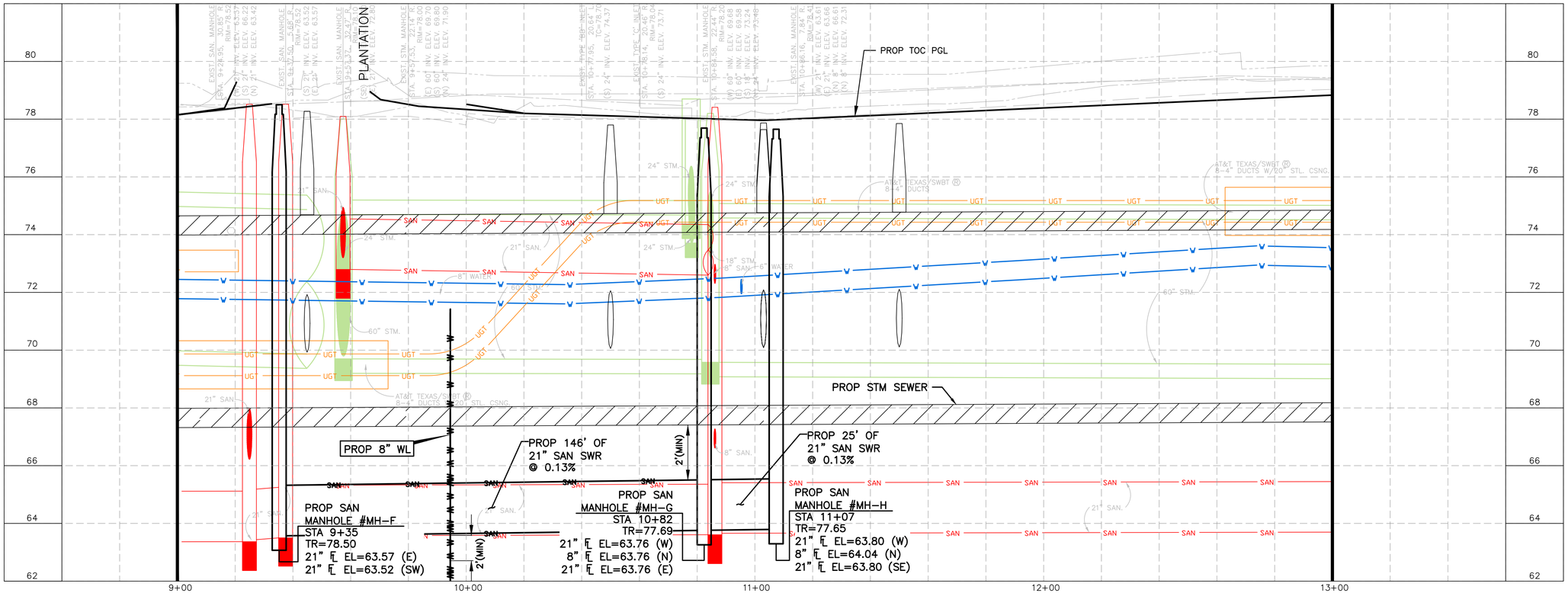
No.	Date	Revisions	App.

J:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_barryknoll_02.dwg Plotted February 20, 2026 at 2:56 PM by McCourt, Jeff



BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)



LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- (A) ADJUST TO GRADE
- (B) EXIST WATER LINE TO REMAIN
- (C) EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

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SCALE IN FEET: 0 20 40

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VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE BARRYKNOLL LANE STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 190 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_barryknoll_03.dwg Plotted February 20, 2026 at 2:57 PM by McCourt, Jeff

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. CONTRACTOR TO FIELD VERIFY THE EXIST 6" SAN SWR, IF IT IS IN SERVICE THEN CONNECT IT TO THE PROPOSED MH IF NOT THEN NO NEED TO INSTALL MH.
8. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO CONNECT THE EXISTING SAN SWR SERVICE LINES TO THE PROPOSED SAN SWR.

MATCHLINE STA 13+00

EXIST ROW

℄ BARRYKNOLL LN.

BARRYKNOLL LN

PROP (2) 8'x6' RCB

20 ACRES
SEPHRIM, LLC
F.C. NO. RP-2020-80769
RECORDED FEB. 24, 2020
O.P.R.R.P.H.C., TX.

MEMORIAL CITY AREA DETENTION BASIN
VOL. 92, PAGE 39
RECORDED SEPT. 10, 1962
M.R.H.C., TX.

TRACT "A"
154.0283 AC.
(UNRESTRICTED)

TRACT 1
1.8124 AC.
(UNRESTRICTED)

PROP TOC PGL

PROP (2) 8'x6' RCB @ 0.05%

BENCHMARK:

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ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

13+00 14+00 15+00 16+00 17+00

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0 20 40
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ISSUED FOR REVIEW
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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE BARRYKNOLL LANE STA 13+00 TO END PROJECT

SHEET 4 OF 4

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 191 OF 343	

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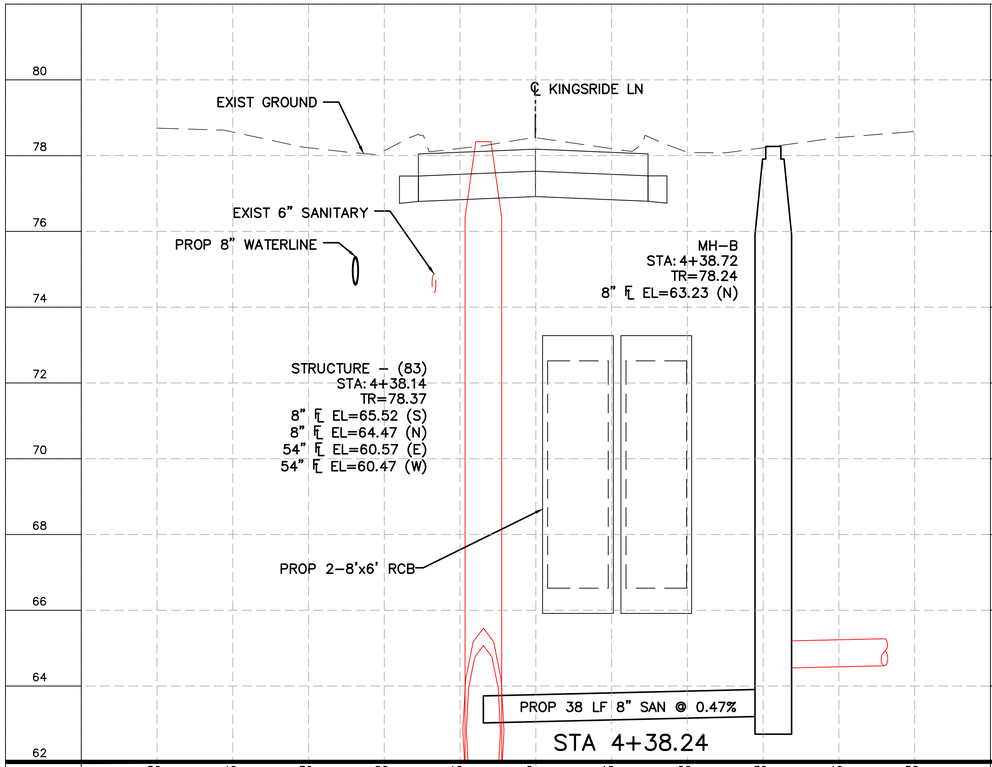

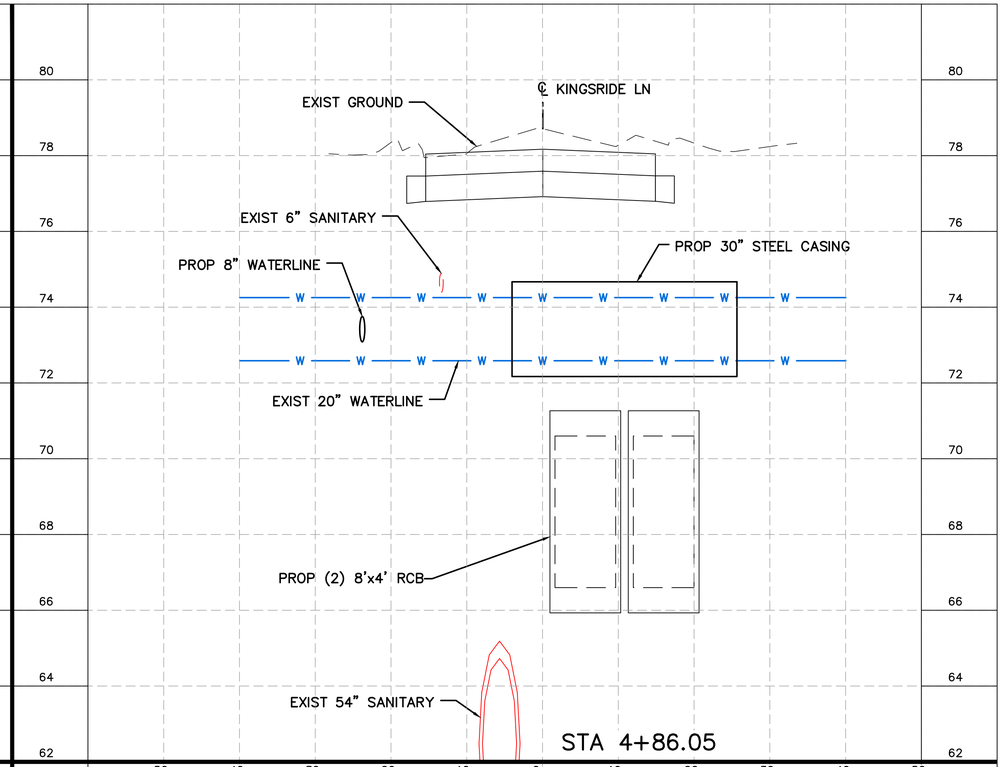

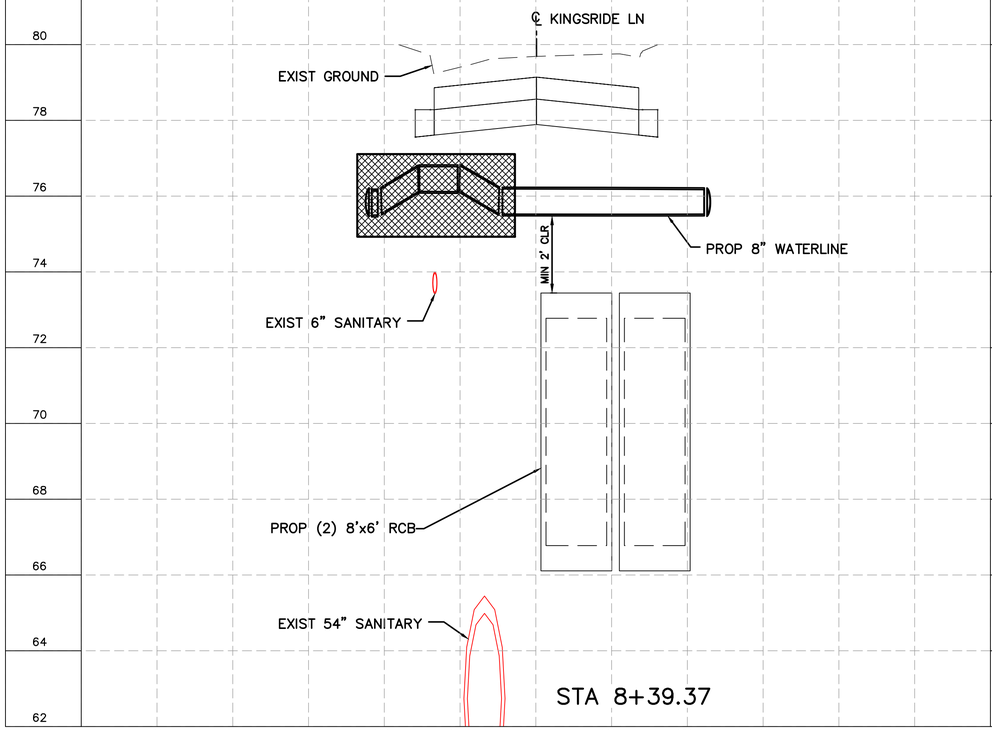

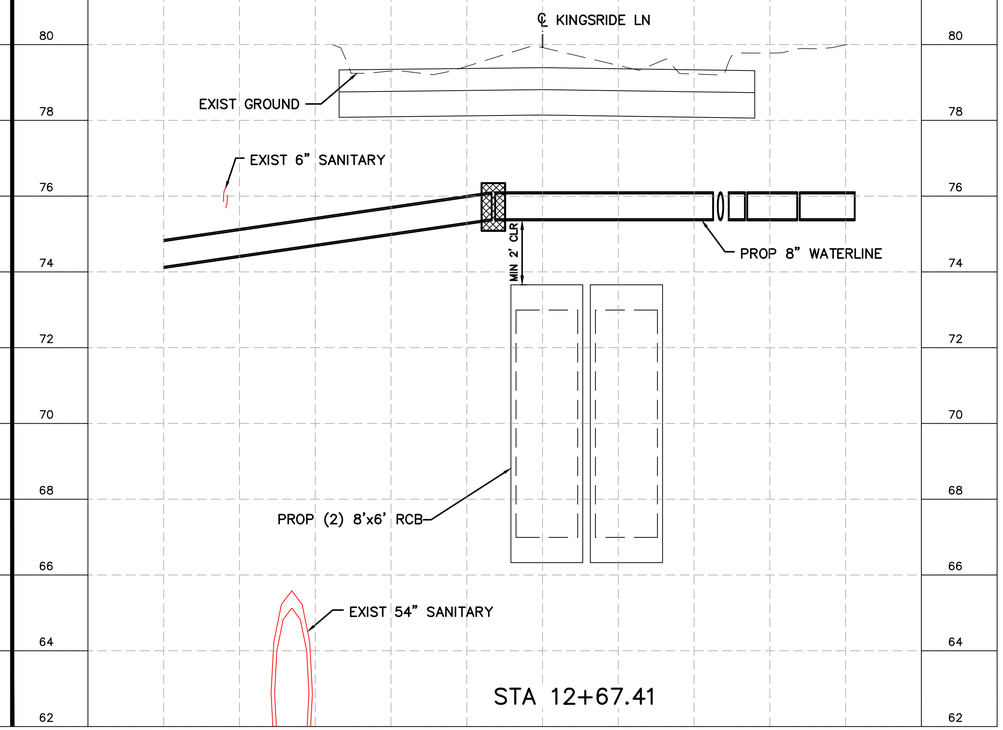

LEGEND

D.I.P. W RESTRAINED JOINTS

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No.	Date	Revisions	App.

SCALE IN FEET
0 10 20

H: 1"=10' (FULL)
V: 1"=2' (FULL)

HRGreen
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11750 KATY FREEWAY
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HOUSTON, TX 77079
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P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
WATER & SANITARY SEWER LATERALS

SHEET 1 OF 3

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 192 OF 343	

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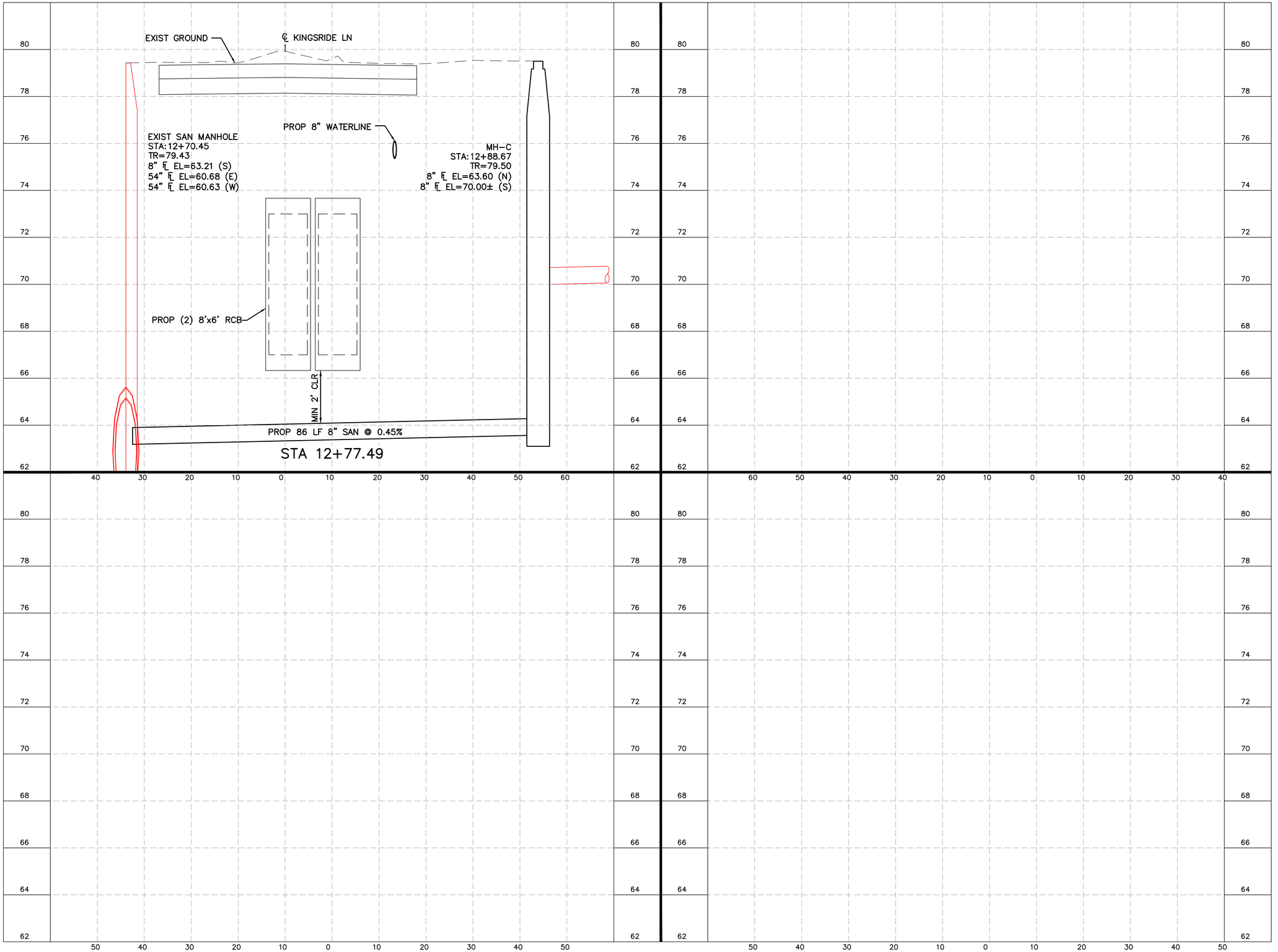

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MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
WATER & SANITARY SEWER LATERALS

SHEET 2 OF 3

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DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=2' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 193 OF 343	

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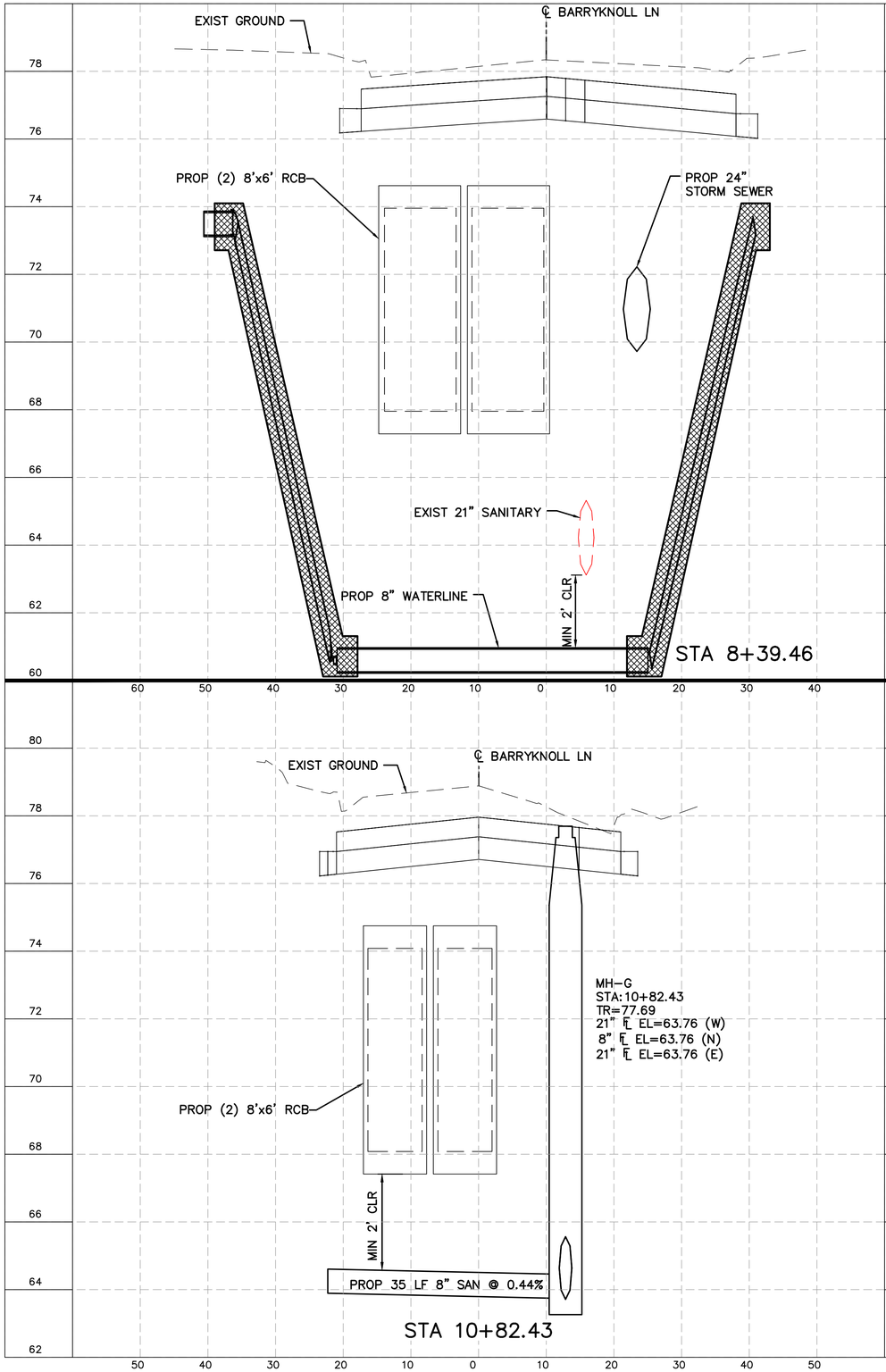

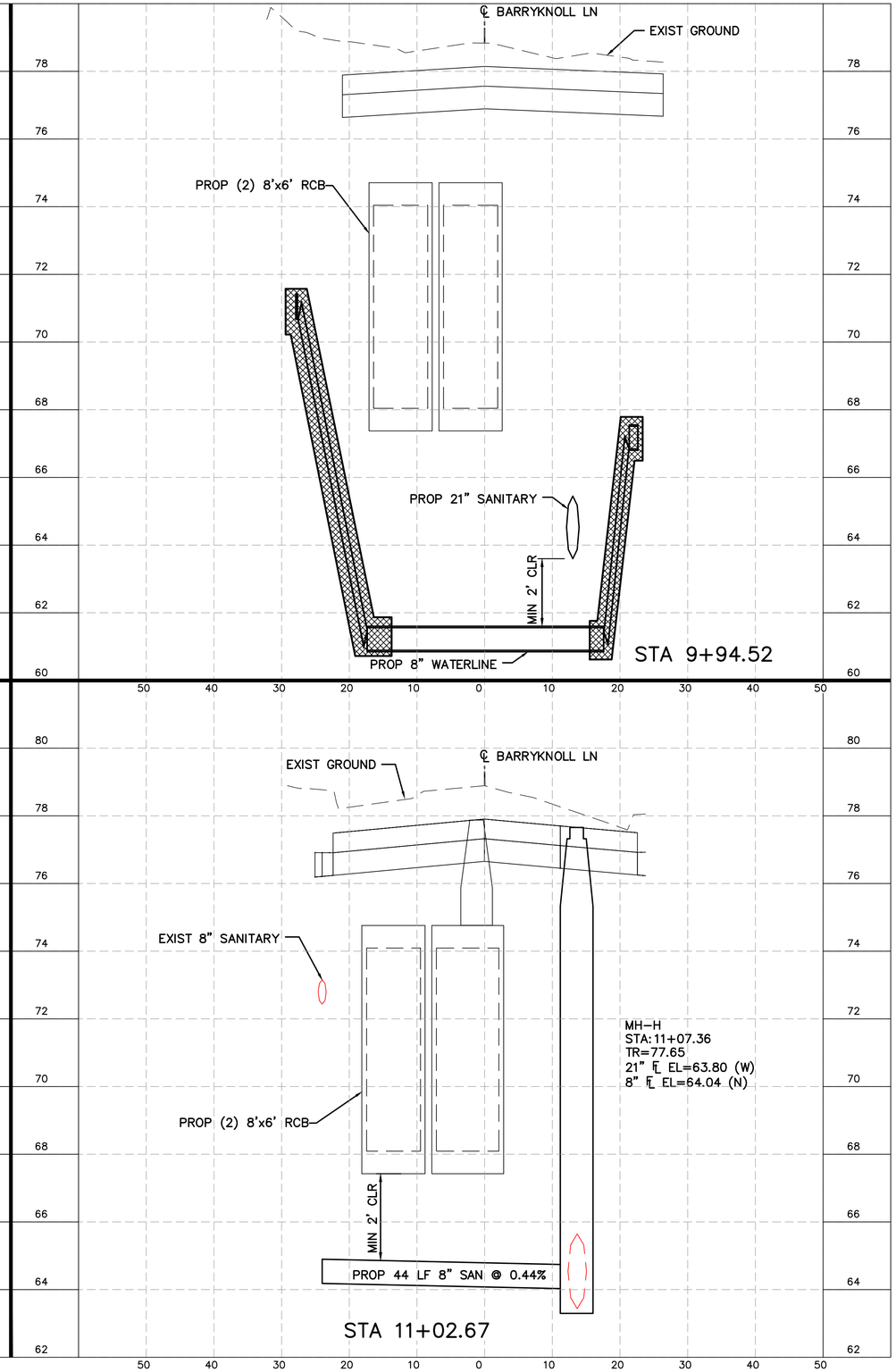

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No.	Date	Revisions	App.

0 10 20
SCALE IN FEET

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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
WATER & SANITARY SEWER LATERALS

SHEET 3 OF 3

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=10' (FULL) V: 1"=2' (FULL)
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	194 OF 343

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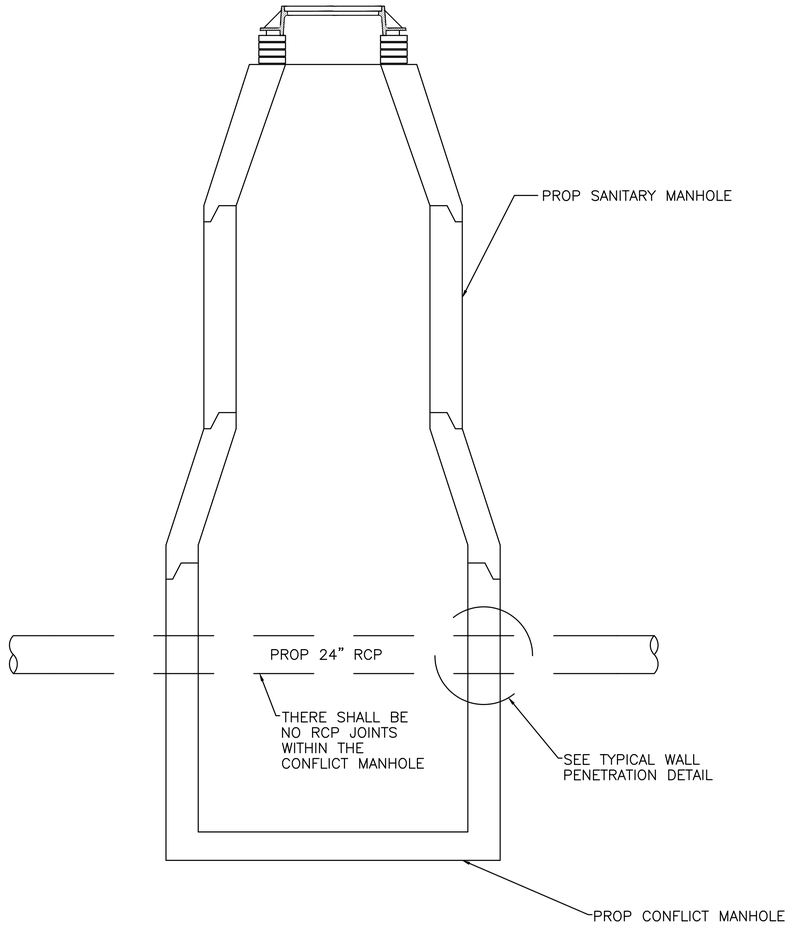
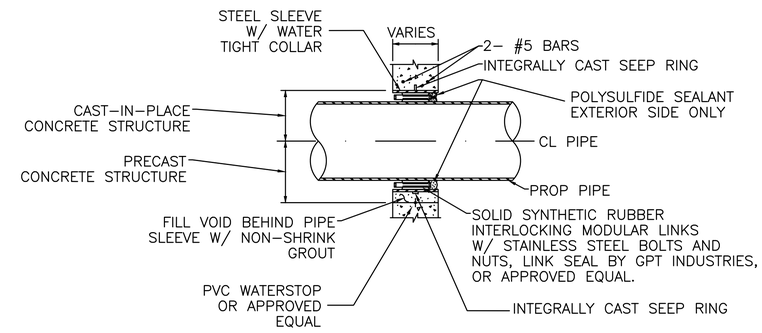


CONFLICT MANHOLE
N.T.S

NOTE:

1. ALL OPENINGS AT PIPE SHALL BE SEALED WITH LINK SEAL WITH STAINLESS STEEL BOLTS AND NUTS, BY GPT INDUSTRIES OR APPROVED EQUAL. ANY REMAINING VOIDS MAY BE FILLED WITH ELASTOMETRIC GROUT (TYPE 3 CEMENT).



TYPICAL WALL PENETRATION DETAIL
N.T.S

No.	Date	Revisions	App.

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
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CONFLICT MANHOLE DETAILS

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 195 OF 343	

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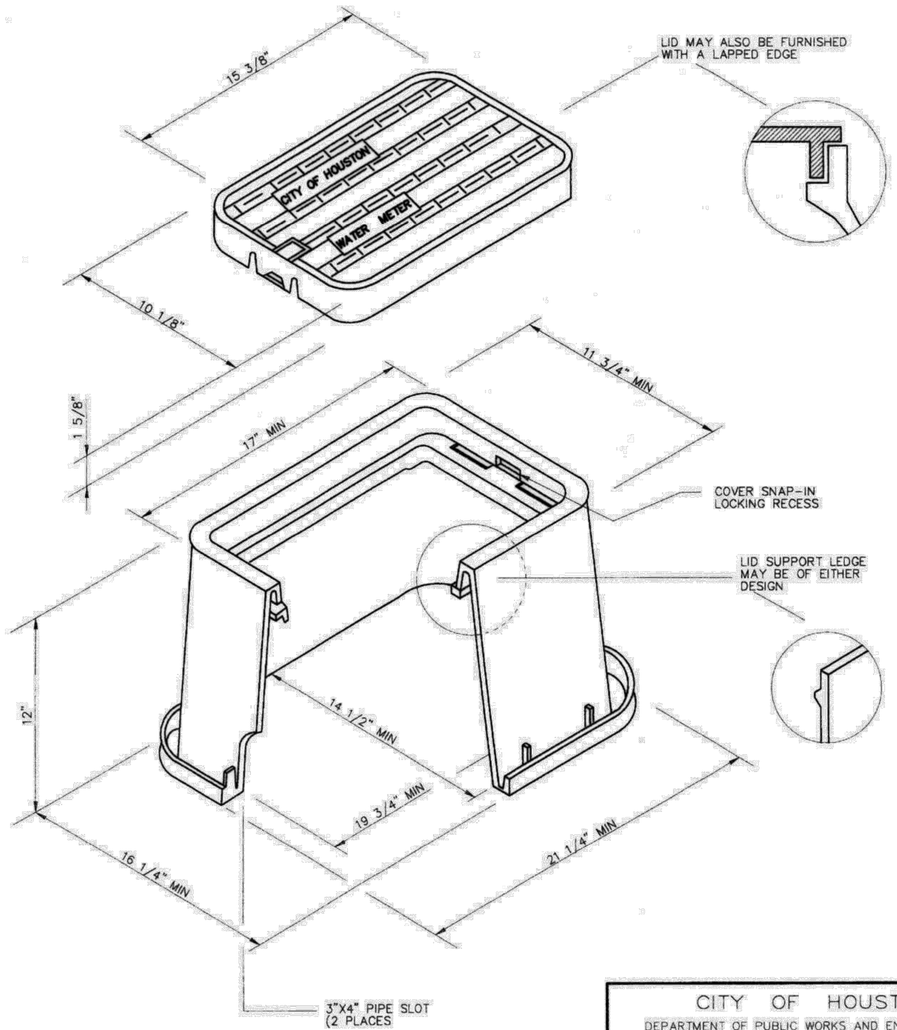


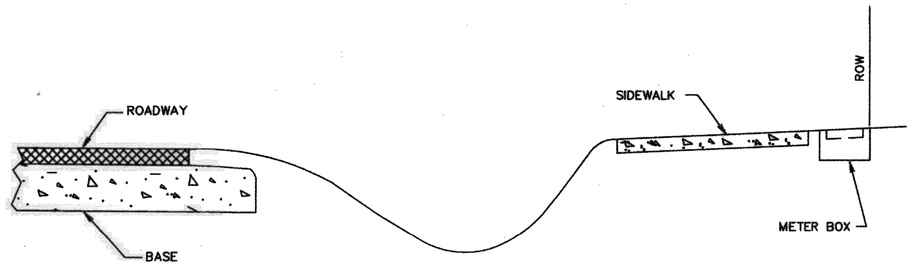
NOTE

1. LID MUST BE ABLE TO ACCEPT THE CITY'S AMR TRANSMITTING ENDPOINT.

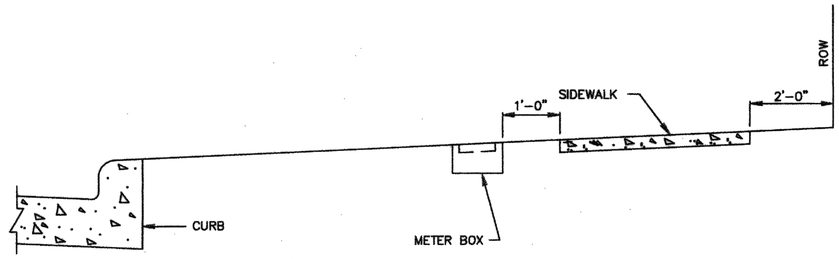
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STANDARD PLASTIC METER BOX FOR 5/8" AND 1" METERS
(NOT TO SCALE)

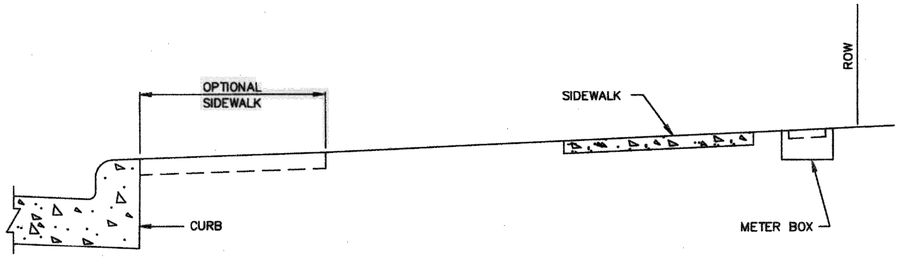
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02085-01



OPEN DITCH STREET



CURB STREET



CURB STREET

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LOCATION OF WATER METER BOX FOR 2" DIAMETER AND LESS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02085-02

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 1 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 196 OF 343	

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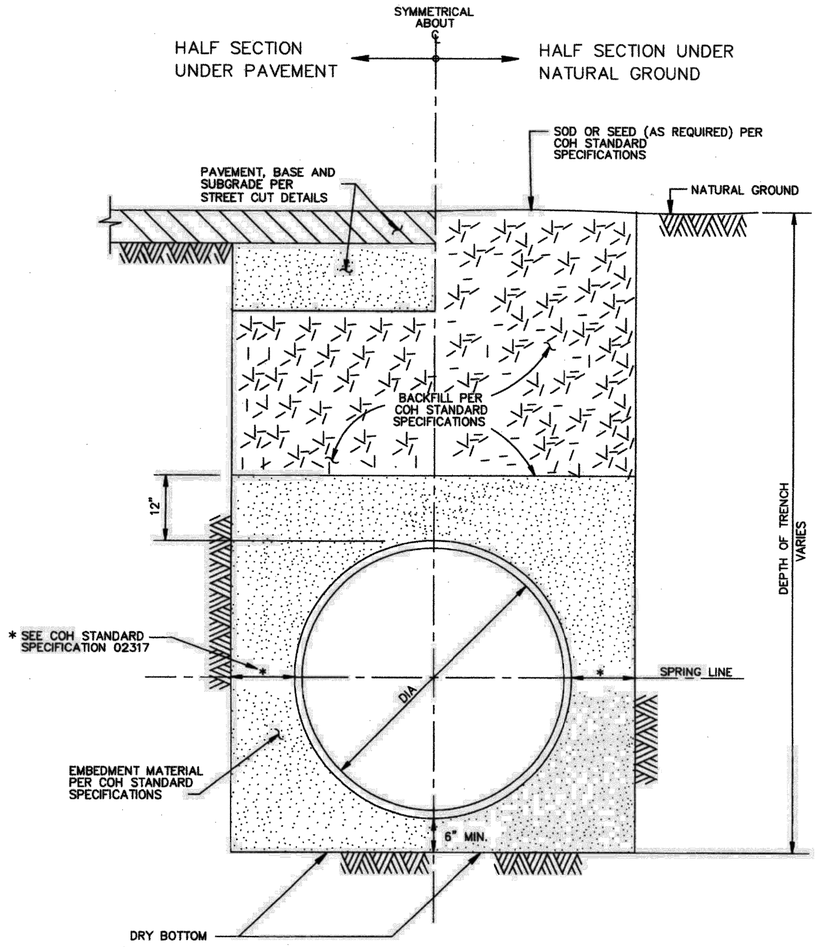
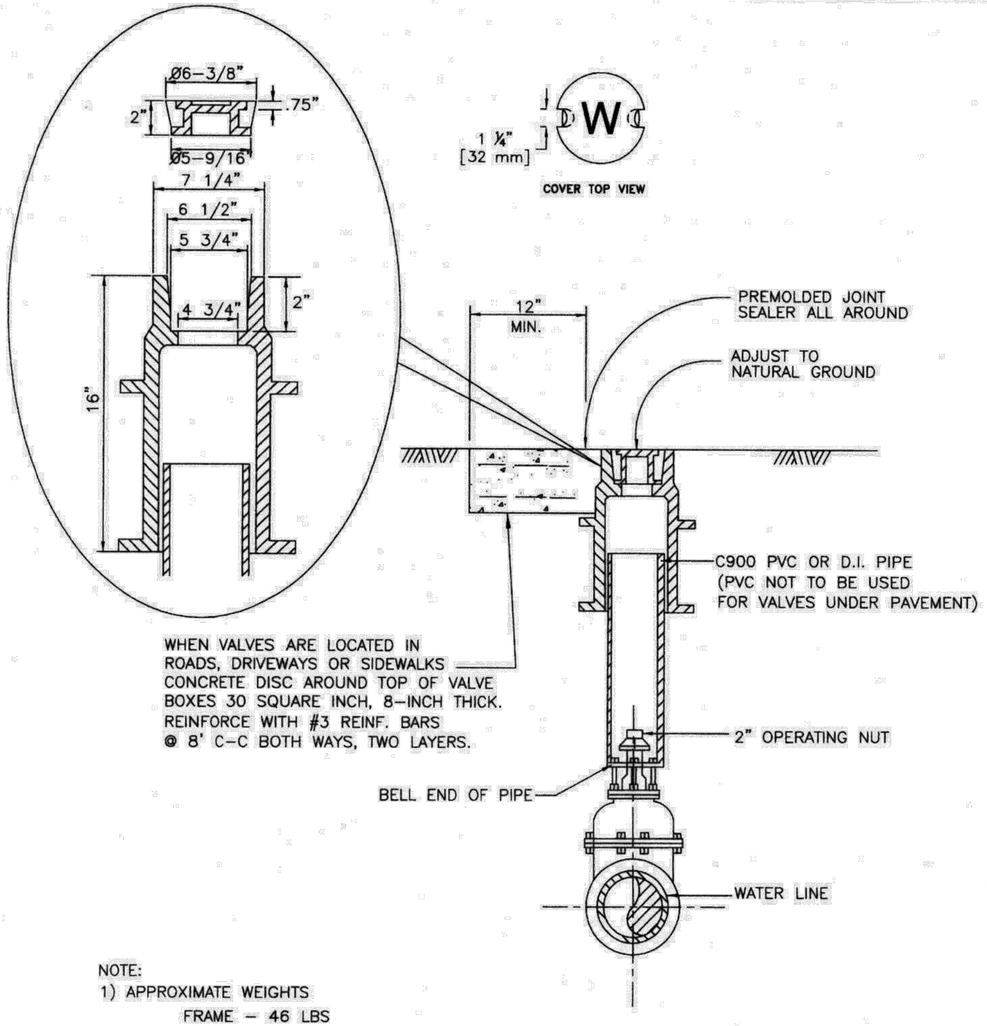


CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER DISTRIBUTION MAIN BEDDING AND BACKFILL FOR OPEN CUT TRENCHES (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02317-04



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

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

No.	Date	Revisions	App.

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P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 2 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 197 OF 343	

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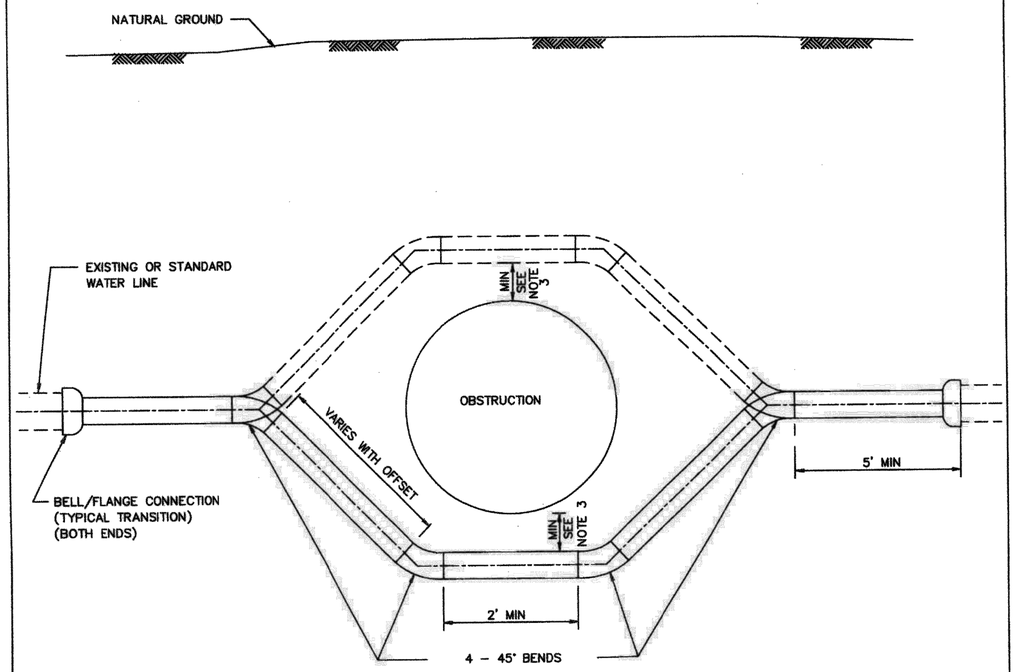
NOTE:

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



PIPE OFFSET ALTERNATES

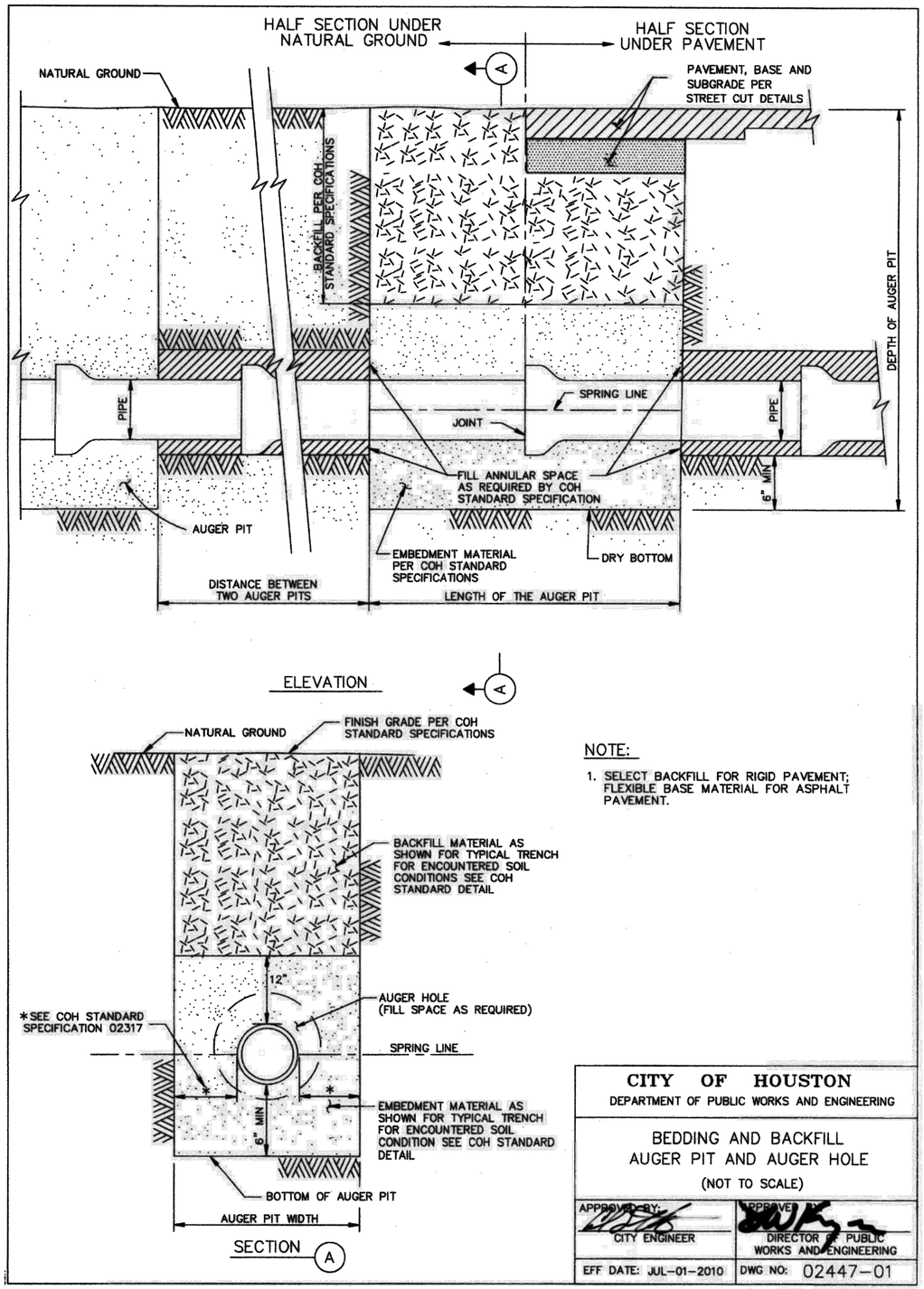
1. DUCTILE IRON PIPE PRESSURE 250 PSI WITH APPROVED RESTRAINED JOINTS.
2. PVC PIPE WITH INTEGRAL RESTRAINED JOINT SYSTEM, OR DUCTILE – IRON RESTRINED JOINT FITTINGS, EPOXY LINED AND COATED. USE 250 PSI AWWA C900 DR 14 FOR PVC RESTRAINED JOINTS.
3. PVC NOT ALLOWED FOR GREATER THAN 20 FT OF COVER OR FOR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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL STEEL PIPE OFFSET SECTION FOR WATER LINES

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02511-01



NOTE:

1. SELECT BACKFILL FOR RIGID PAVEMENT; FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BEDDING AND BACKFILL AUGER PIT AND AUGER HOLE

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02447-01

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P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 3 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 198 OF 343	

No. | Date | Revisions | App.

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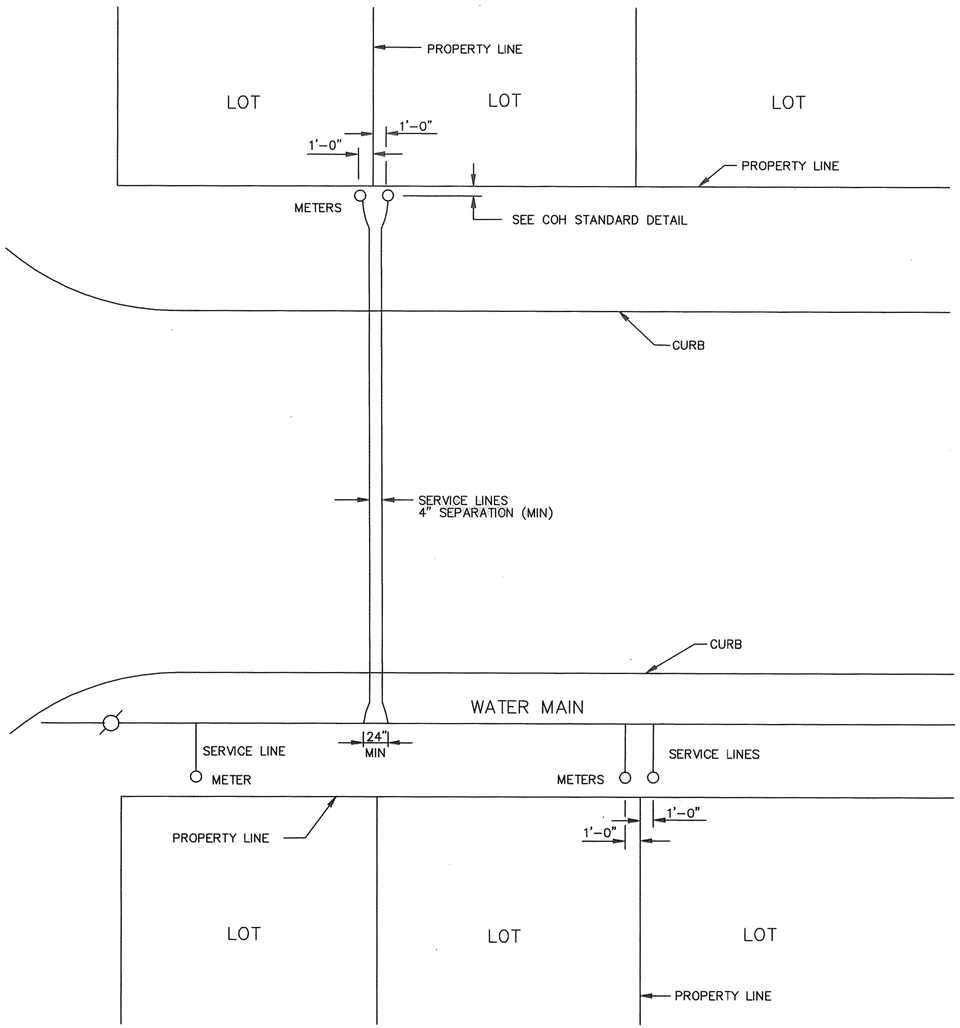


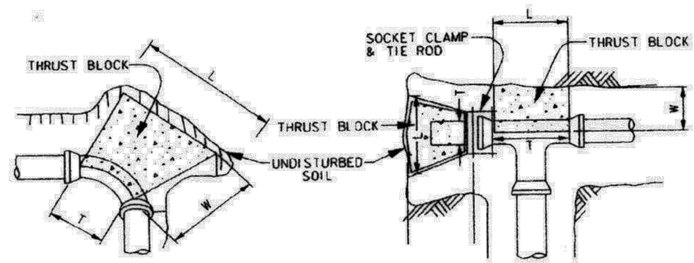
GENERAL NOTES:

1. TWO SERVICE LINES MAY BE INSTALLED IN SAME TRENCH PROVIDING 4" CLEARANCE IS MAINTAINED.
2. ONE METER PER SERVICE LINE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

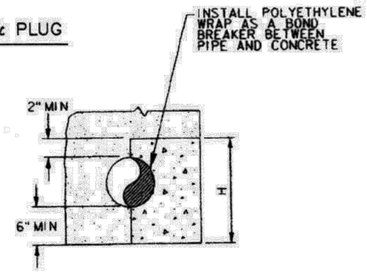
TYPICAL 3/4" THROUGH 2" SERVICE ARRANGEMENTS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2016	DWG NO: 02512-01



90° BEND
(45° BENDS SIMILAR)

TEE & PLUG



PIPE
CROSS SECTION

MINIMUM BLOCKING DIMENSION IN INCHES												
PIPE SIZE	90° BEND				45° BEND				TEE/PLUG			
	W	H	L	T	W	H	L	T	W	H	L	T
4"	6	12	14	10	6	8	11	8	6	10	12	12
6"	8	14	26	12	8	14	14	12	8	14	19	19
8"	10	16	40	16	10	18	20	16	10	18	26	26
10"	12	24	42	18	12	22	25	18	12	24	30	30
12"	14	36	40	30	14	26	30	22	14	26	40	40

CORRECTION FACTORS		
SOIL TYPE	SOIL BEARING STRENGTH S_b (lb/ft²)	MULTIPLY "L" AND "H" BY
SOFT CLAY	1000	1.73
SILT	1500	1.41
SANDY SILT	3000	1.00
SAND	4000	0.87
SANDY CLAY	6000	0.71
HARD CLAY	9000	0.58

NOTES:

1. DEPTH "W" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE.
2. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH. WHERE THIS IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY.
3. PROVIDE CONCRETE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 03315 – CONCRETE FOR UTILITY CONSTRUCTION.
4. BLOCKING DIMENSIONS SHOWN ARE BASED ON 3000 PSI SOIL BEARING STRENGTH AND 125 PSI INTERNAL WATER PRESSURE. FOR OTHER SOIL CONDITIONS, MULTIPLY DIMENSIONS "L" AND "H" BY THE APPROPRIATE CORRECTION FACTOR.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

THRUST BLOCK DETAIL
FOR WATER LINES
(4-INCH TO 12 INCH)
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02511-02

No.	Date	Revisions	Apv.

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P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 4 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 199 OF 343	

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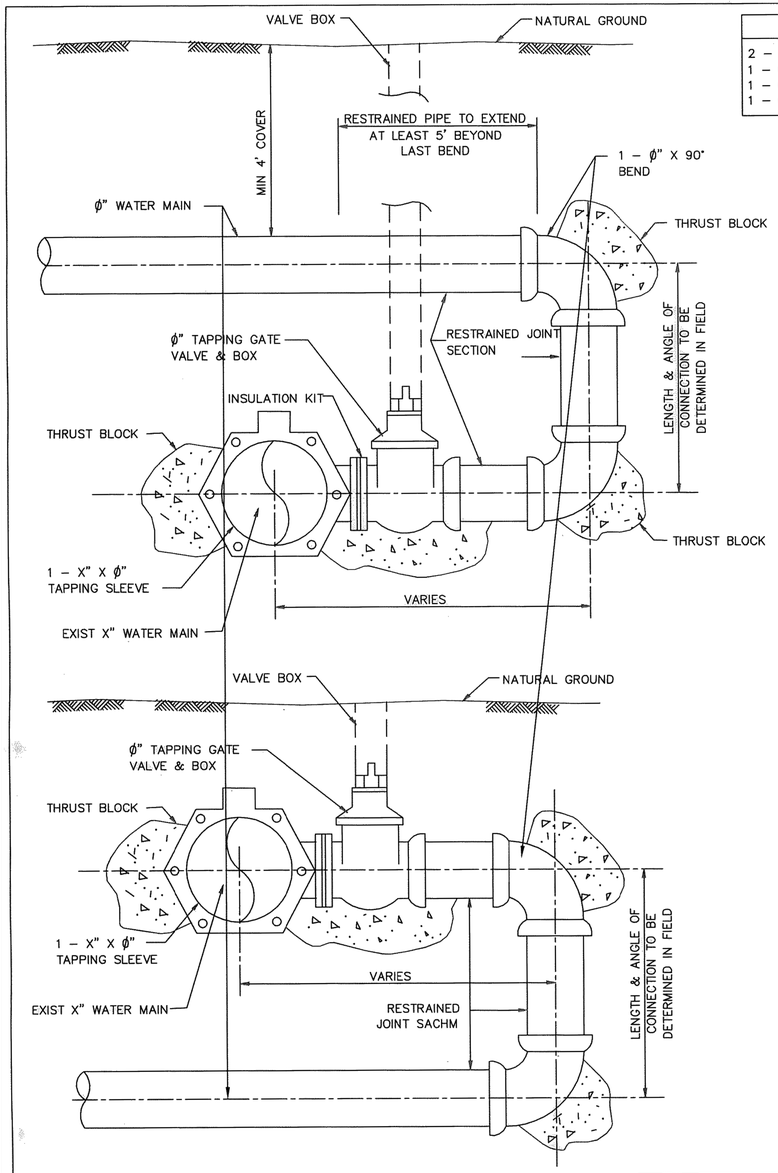


FITTINGS
2 – ϕ" X 90° BENDS
1 – ϕ" TS&V WITH BOX
1 – ϕ" INSULATING KIT
1 – ϕ" FLANG X M.J.

GENERAL NOTES:

1. X" AND ϕ" DENOTE RUN AND BRANCH LINE SIZES RESPECTIVELY.
2. 90° BENDS ARE TO BE ROLLED TO PROVIDE CLEARANCE FOR VALVE BOX.
3. WATER MAIN ASSEMBLY FOR BACK TAP SAME FOR PROPOSED WATER MAIN UNDER EXISTING MAIN.
4. PROVIDE RESTRAINED JOINT PIPE AS SHOWN.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BACK TAP
ON EXISTING LINE

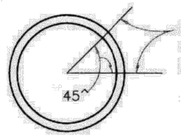
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2016	DWG NO: 02512-03

PIPE TAPPING SCHEDULE

WATER MAIN TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1 1/2"	2"
4" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
4" ASBESTOS (EXISTING) CEMENT	WBSS	WBSS	DSS, WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
16" AND UP CAST IRON OR DUCTILE IRON	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP ASBESTOS (EXISTING) CEMENT	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP PVC (AWWA C900)	DWBSS	DWBSS	DWBSS	DWBSS

DSS – DUAL STRAP SADDLES
WBSS – WIDE BAND STRAP SADDLES
DWBSS – DUAL WIDE BAND STRAP SADDLES



SERVICE TAPS TO BE MADE IN THIS ZONE EXCEPT FOR PVC FASTTAP

BLOW-OFF & CHLORINATION TAPS ARE MADE IN VERTICAL POSITION



WIDE BAND SINGLE SADDLE OR DUAL SADDLES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SERVICE TAPS

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02512-02

No.	Date	Revisions	App.

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DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 5 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 200 OF 343	

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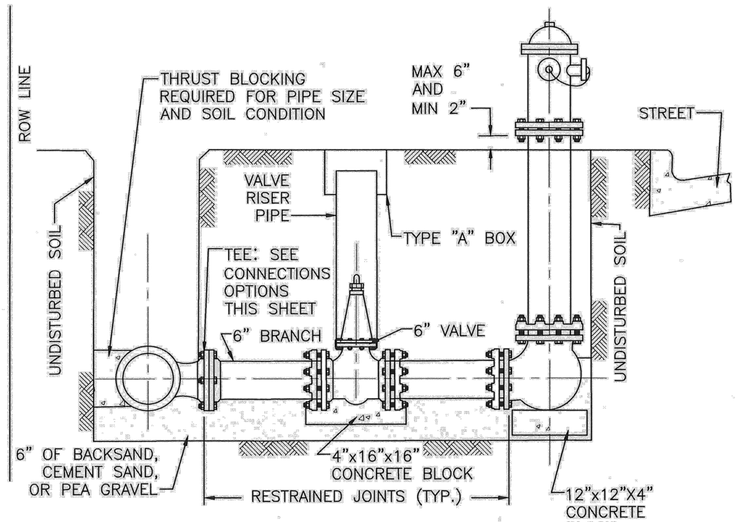
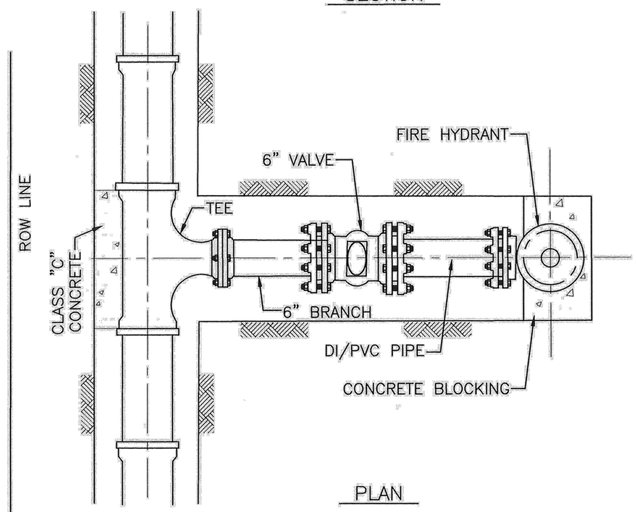
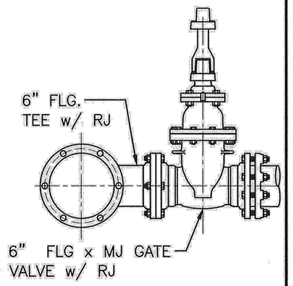


SECTION

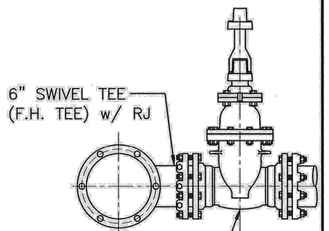


PLAN

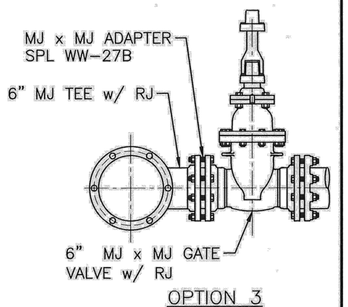
CONNECTION TO MAIN



OPTION 1



OPTION 2



OPTION 3

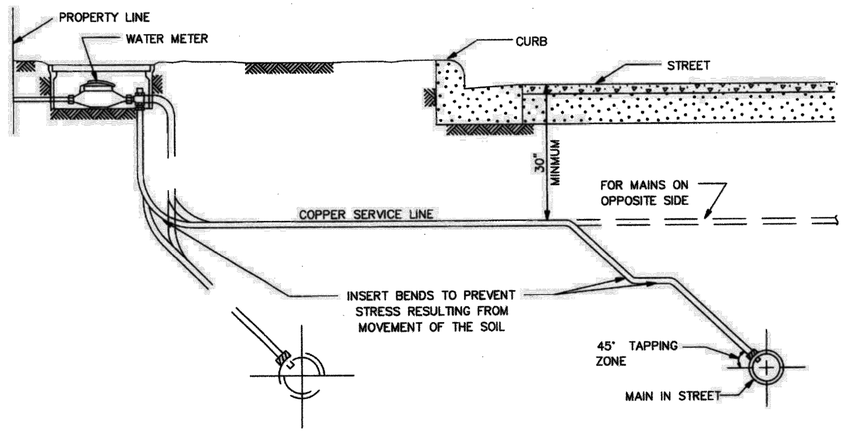
NOTES:

1. LOCATE FIRE HYDRANTS AT POINT OF CURVATURE (PC) OR POINT OF TANGENCY (PT) OF THE INTERSECTION CURB RADIUS, 3 FEET BEHIND CURB OR PROJECTED FUTURE CURB.
2. ON OPEN-DITCH ROADWAYS, SET THE FIRE HYDRANTS WITH IN 5 FEET OF RIGHT-OF-WAY LINES.
3. FIRE HYDRANT STEAMER NOZZLE SHALL FACE THE STREET.
4. LOCATE HYDRANT VALVE IMMEDIATELY ADJACENT TO WATER LINE.
5. ALL PIPING TO BE RESTRAINED JOINTS.

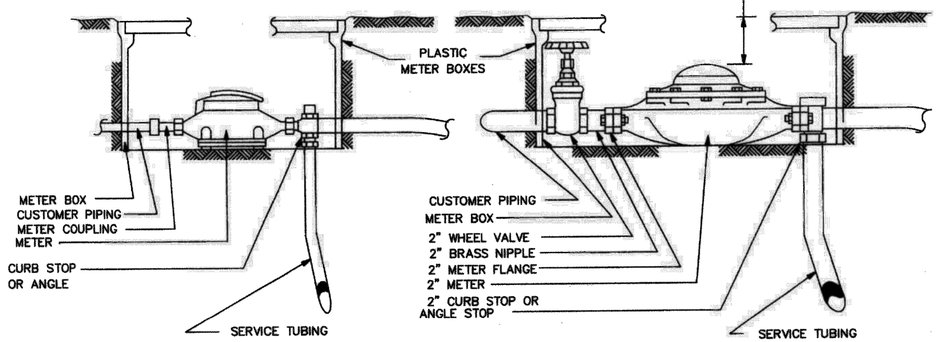
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD FIRE HYDRANT DETAIL (NOT TO SCALE)	
APPROVED BY: Suhail Kanwar CITY ENGINEER	APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021	DWG NO: 02520-01

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: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02526-01

No.	Date	Revisions	App.

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ISSUED FOR REVIEW
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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 6 OF 6

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 201 OF 343	

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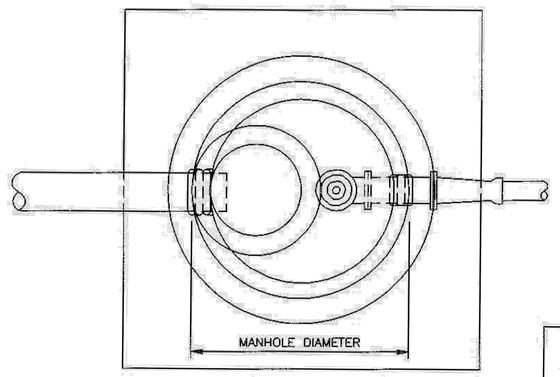
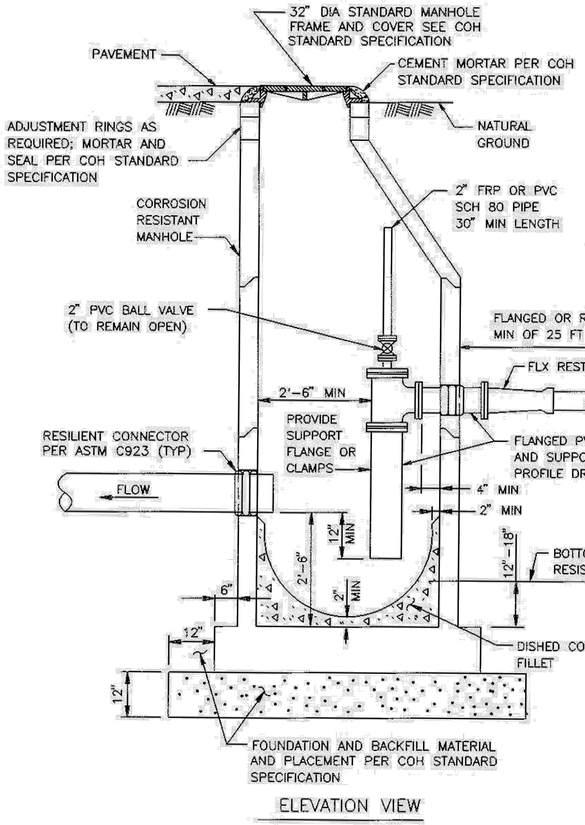


PLAN VIEW



ELEVATION VIEW

NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 @ 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".

NOTES TO SPECIFIER:

1. *INDICATE SIZE OF FORCE MAIN, INCREASER AND DISCHARGE EITHER ON THIS DETAIL OR ON PLAN AND PROFILE.*
2. *PROVIDE INVERT ELEVATIONS OR FORCE MAIN AND SEWER CONNECTIONS TO MH, ON THIS DETAIL OR PLAN AND PROFILE.*
3. *THIS DETAIL IS TO BE USED ONLY WHEN THERE ARE NO INTERSECTING GRAVITY SEWERS.*
4. *DETAIL MAY BE REVISED TO ORIENT INCOMING FORCE MAIN AT OTHER ANGLES RELATIVE TO GRAVITY SEWER.*
5. *IF LENGTH OF DISCHARGE DROP BELOW FLANGED TEE FITTING EXCEEDS 7 TIMES DISCHARGE DIAMETER, PROVIDE STAINLESS STEEL OR FRP PIPE SUPPORT.*

TABLE 02082-07

MANHOLE DIAMETER	4'-0"	5'-0"	6'-0"
MAX DISCHARGE SIZE	6"	14"	24"

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

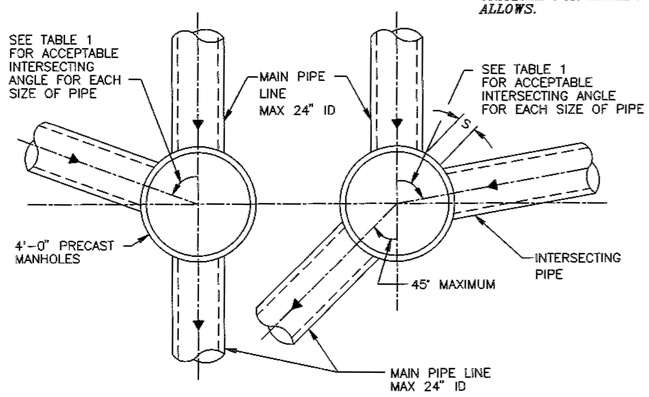
SANITARY SEWER
CORROSION RESISTANT MANHOLE
FOR FORCE MAIN DISCHARGE
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-07

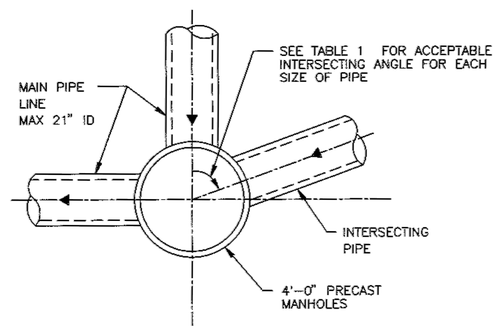
NOTES ON USE OF STANDARD DETAIL 02082-02

NOTES TO SPECIFIER:

1. *"-" INDICATES THAT A SPECIAL DESIGN OR THE NEXT LARGER MANHOLE SIZE SHALL BE USED.*
2. *TABLE 1 IS BASED ON A MIN SEPARATION DISTANCE "S" OF 15.5" OR INTERSECTION PIPE OD/2, WHICHEVER IS GREATER, BETWEEN MAIN AND INTERSECTING PIPES ALONG THE MANHOLE INSIDE WALL ARC.*
3. *PIPE WALL THICKNESS USED IN TABLE 1 ARE BASED ON RCP. THE DESIGN ENGINEER MAY CALCULATE TO SEE IF THINNER WALL PIPES CAN MEET THE SEPARATION CRITERIA FOR ANGLES SMALLER THAN THE TABLE ALLOWS.*



MAX 24" ID MAIN PIPE ALLOWED FOR STRAIGHT THROUGH TO 45° DEFLECTION



MAX 21" ID MAIN PIPE ALLOWED FOR 45° TO 90° DEFLECTION

TABLE 1

MIN ANGLE AND INTERSECTING PIPE SIZES FOR A 4'-0" DIA MANHOLE

INTERSECTING PIPE SIZE (INCHES)	MIN INTERSECTING ANGLE IN DEGREES FOR FOR VARIOUS MAIN PIPE SIZES IN INCHES							
	6"	8"	10"	12"	15"	18"	21"	24"
6	55	58	60	65	70	75	80	85
8		60	63	68	73	77	82	87
10			66	71	75	80	85	90
12				76	80	85	90	–
15					85	90	–	–
18						–	–	–
21							–	–
24								–

NOT APPLICABLE UNLESS HYDRAULICS DICTATE (INTERSECTING PIPE > MAIN PIPE)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
4'-0" DIAMETER PRECAST
CONCRETE MANHOLE NOTES
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082N-02

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 1 OF 9

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 202 OF 343

Revisions: No. | Date | App.

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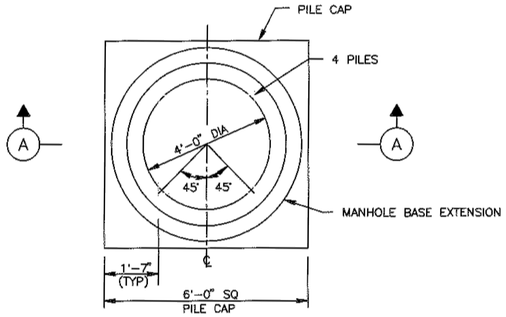
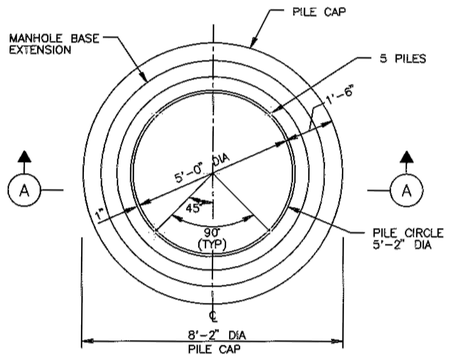
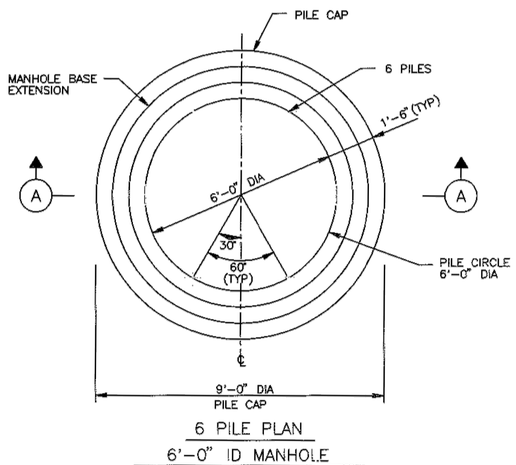


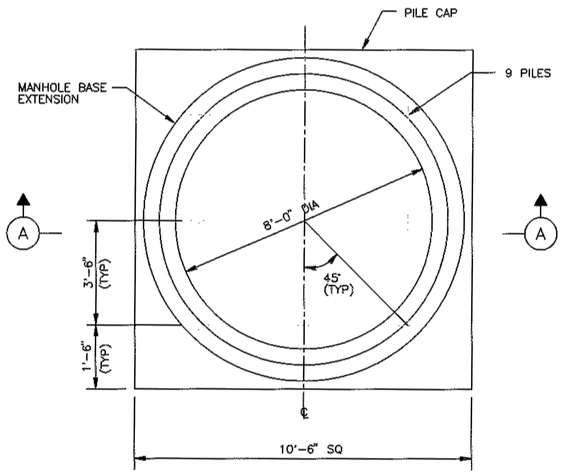
6 PILE PLAN
4'-0" ID MANHOLE



PLAN
5'-0" ID MANHOLE



6 PILE PLAN
6'-0" ID MANHOLE



9 PILE PLAN
8'-0" ID MANHOLE

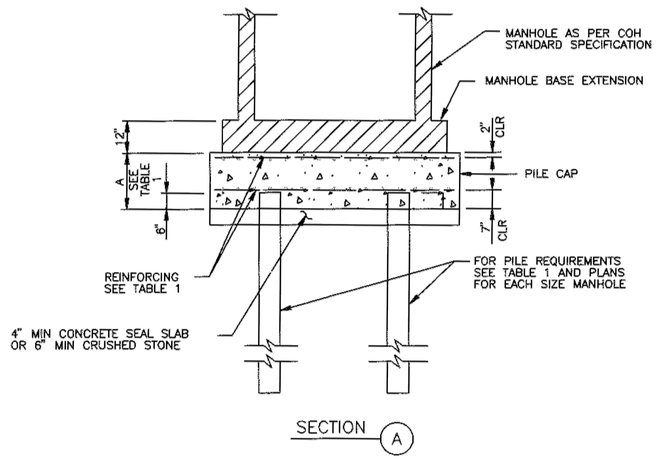
TABLE 1

PILE REQUIREMENTS

MANHOLE ID (FT)	NUMBER OF PILES	DEPTH TO INVERT (FT)	CAPACITY/ PILE (TONS) MINIMUM	PILE CAP DIMEN A (FT)	PILE CAP REINF (EW, T&B)
4	4	10	9	1'-9"	# 6 @ 6"
		12	10		
		15	11		
		20	13		
		25	15		
		30	17		
5	5	10	10	1'-9"	# 6 @ 6"
		12	11		
		15	12		
		20	15		
		25	17		
		30	20		
6	6	10	9	2'-0"	# 6 @ 6"
		12	10		
		15	12		
		20	15		
		25	17		
		30	20		
8	9	10	8	2'-0"	# 7 @ 6"
		12	9		
		15	10		
		20	13		
		25	16		
		30	18		

NOTES:

1. PILING SUPPORT SHALL BE INSTALLED AT ALL LOCATIONS WHERE HEAVING SUBGRADE CONDITIONS ARE LIKELY TO OCCUR, AS DETERMINED BY THE CITY ENGINEER.
2. THE CITY ENGINEER WILL PROVIDE THE SIZE, LENGTH, AND MATERIAL OF PILE NEEDED TO CARRY THE CAPACITY SHOWN ON TABLE 1 BASED ON ACTUAL CONDITIONS REVEALED AT TIME OF CONSTRUCTION.



SECTION (A)

NOTES TO SPECIFIER:

1. *INCLUDE THIS DETAIL ONLY IF THE GEOTECHNICAL REPORT INDICATES THAT AN UNSTABLE FOUNDATION (ONE WHICH WILL NOT ALLOW COMPACTION AND/OR DEWATERING AS SPECIFIED) IS POSSIBLE. IF THIS CONDITION IS REPORTED BY THE GEOTECHNICAL ENGINEER, NOTIFY THE CITY'S PROJECT MANAGER.*
2. *ALWAYS INCLUDE COMPANION STANDARD DETAIL SHOWING CRUSHED STONE SUPPORTED MANHOLE FOR UNSTABLE SUBGRADE WITH THIS DETAIL.*
3. *WHERE SOIL BORINGS ARE MADE AT MANHOLE LOCATIONS AND THE GEOTECHNICAL ENGINEER BELIEVES THAT THE CONDITIONS REQUIRING THIS DETAIL ARE LIKELY TO EXIST, PROVIDE PILE DESIGN INFORMATION DETERMINED BY THE GEOTECHNICAL ENGINEER FOR EACH SUCH MANHOLE. ADJUST NOTE#2 TO INDICATE THAT THE PILE INFORMATION PROVIDED MAY NEED TO BE ADJUSTED OR THE PILES ELIMINATED AND THAT OTHER MANHOLE LOCATIONS NOT SHOWN AS PILE SUPPORTED MAY NEED PILES DEPENDING ON ACTUAL CONDITIONS UNCOVERED.*
4. *PROVIDE APPROPRIATE PILE SPECIFICATIONS.*

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
PILE SUPPORTED MANHOLE
FOR UNSTABLE SUBGRADE
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-04

HRGreen
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SURVEYED BY: UNITED ENGINEERS, INC.

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P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 2 OF 9

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 203 OF 343

Revisions: No. | Date | Revisions | Appr.

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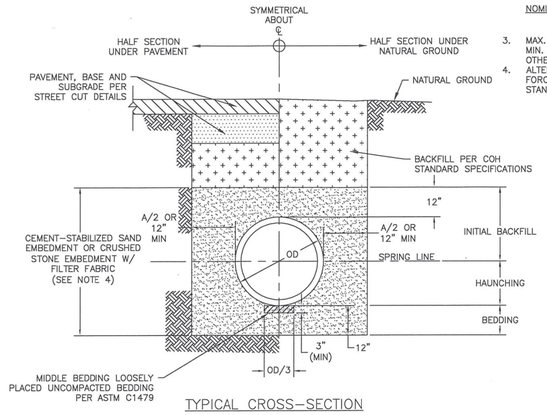
02317–03

NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN. TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

3. MAX. TRENCH WIDTH SHALL BE NOT GREATER THAN MIN. TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.



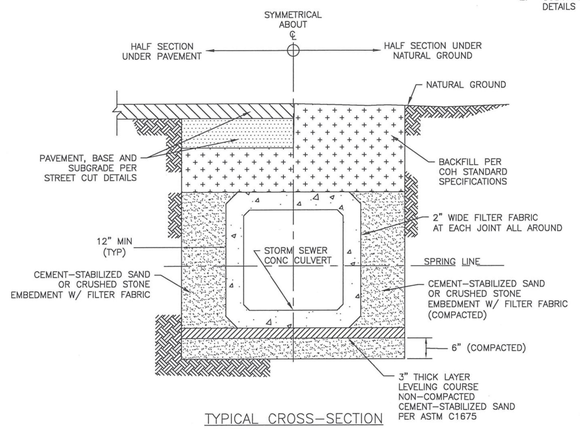
TYPICAL CROSS–SECTION

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

02317–05

NOTES:

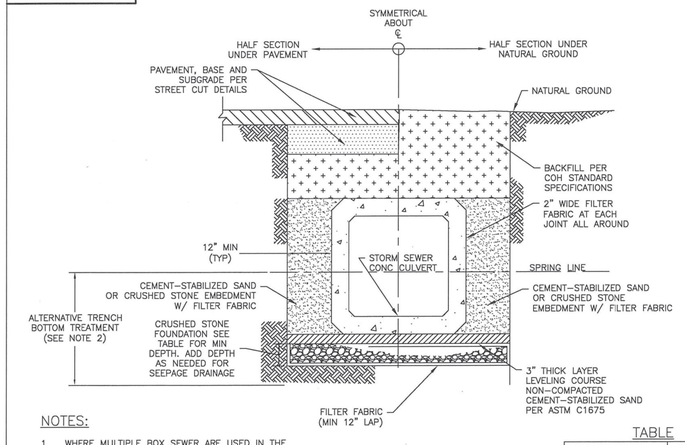
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. SUBGRADE AND PAVEMENT FOR STREET CUT DETAILS – 02951.



TYPICAL CROSS–SECTION

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

02317–06



NOTES:

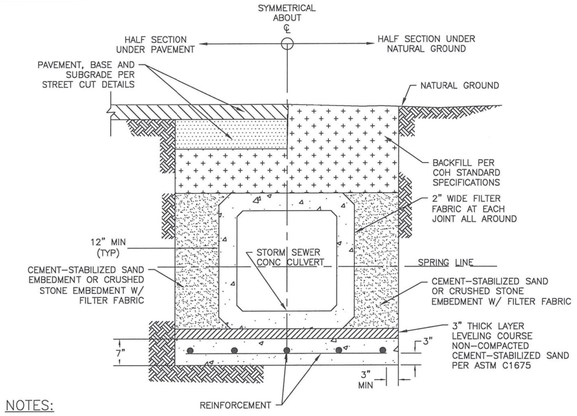
1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN. OUTSIDE TO OUTSIDE BOX SEWER SEPERATION SHALL BE 6".
2. ALTERNATIVE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY OF ENGINEERS AND AS PAID FOR IN THE PROPOSAL.

TABLE

CULVERT SIZE (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:

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

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

FIRM INFORMATION | ENGINEER'S SEAL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02317–03 THROUGH 07

APPROVED BY: _____ CITY ENGINEER
APPROVED BY: _____ DEPUTY DIRECTOR
APPROVED BY: Carol Haddock DIRECTOR

EFFECTIVE DATE: JUL–01–2019

FOR CITY OF HOUSTON USE ONLY

SHEET NO.

No.	Date	Revisions	App.

HRGreen — FIRM NO. F–11278, 11750 KATY FREEWAY SUITE 400, HOUSTON, TX 77079, PH: 832.318.8800, FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 3 OF 9

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 204 OF 343

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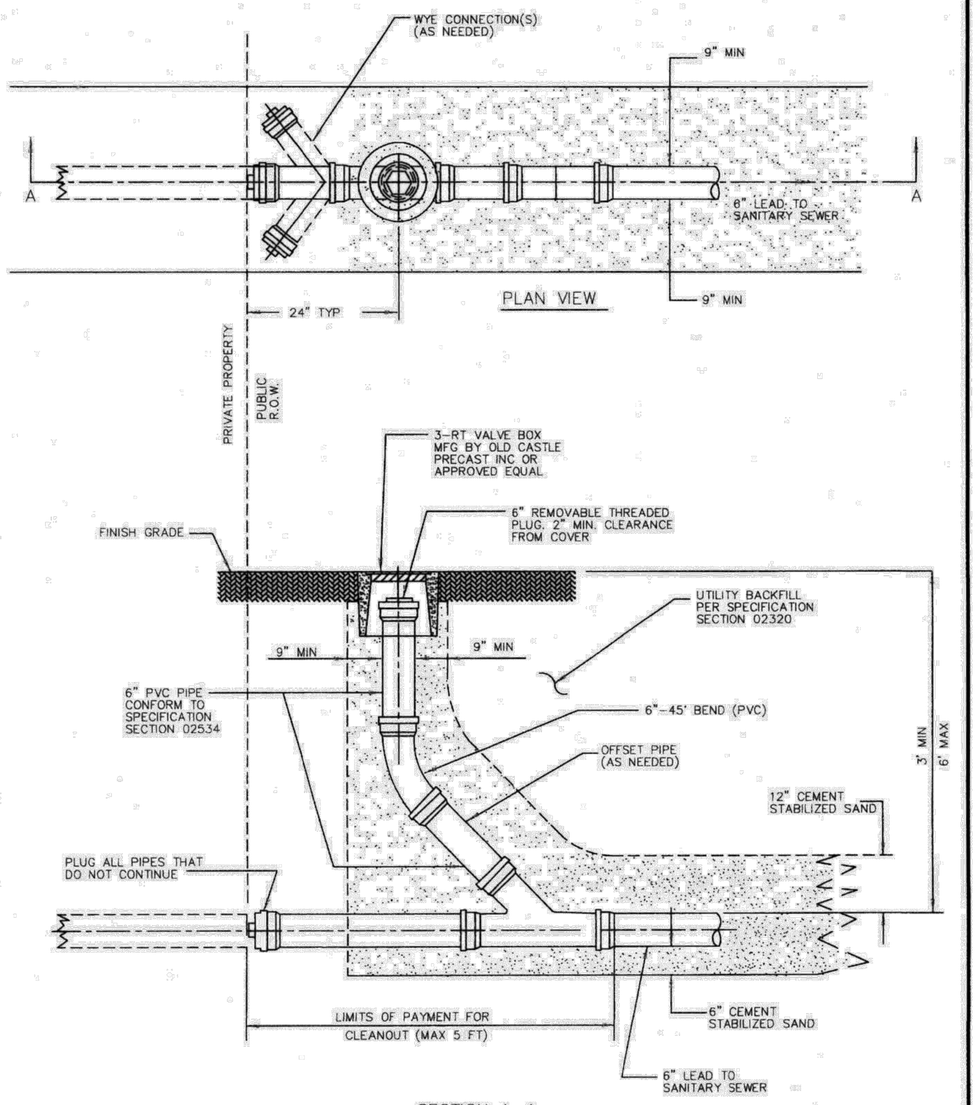


SECTION A-A

NOTES:

1. USE CEMENT STABILIZED SAND BEDDING 6" BELOW PIPE AND 12" ABOVE PIPE.
2. MAINTAIN MINIMUM CLEARANCE OF 12" FROM DRIVEWAY.
3. CLEANOUT COVER SHALL BE EMBOSSED WITH "SS CO COH".
4. DO NOT LOCATE WITHIN SIDEWALK PAVING, EXCEPT WHEN REQUIRED.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

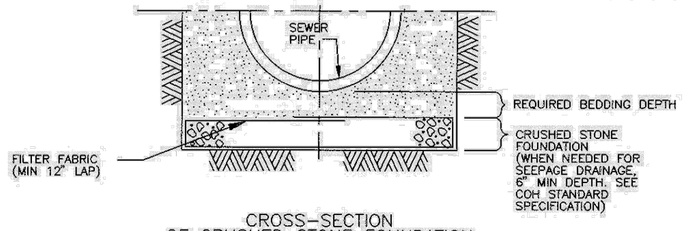
STANDARD CLEANOUT DETAIL ON SERVICE LEAD

(NOT TO SCALE)

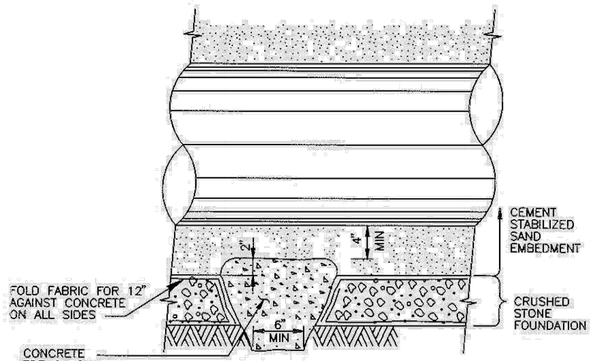
APPROVED BY: CITY ENGINEER	APPROVED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02534-05

NOTES:

1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, OR OTHER CLASS II EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.
3. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.



CROSS-SECTION
OF CRUSHED STONE FOUNDATION



LONGITUDINAL SECTION ALONG PIPE ℄
AT FOUNDATION TRENCH DAM

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY OR STORM SEWER CRUSHED STONE FOUNDATION FOR WET STABLE TRENCH

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02317-02

No.	Date	Revisions	App.

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BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 4 OF 9

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 205 OF 343

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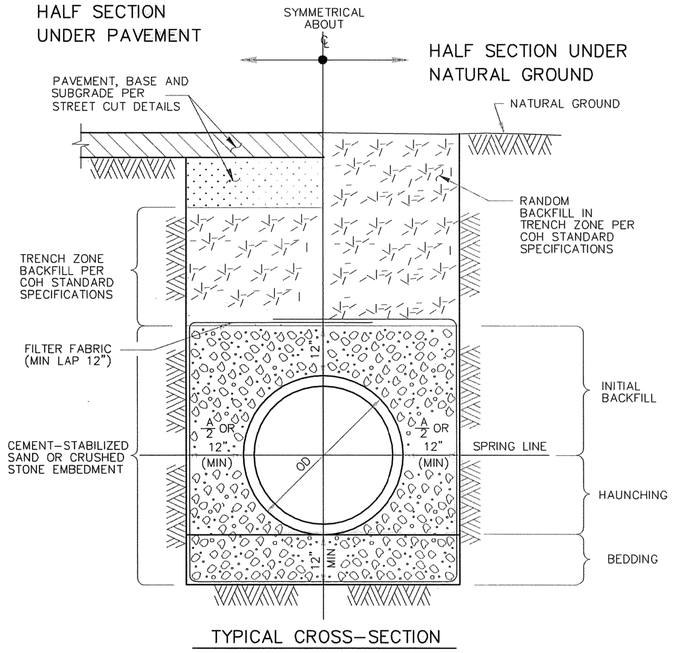
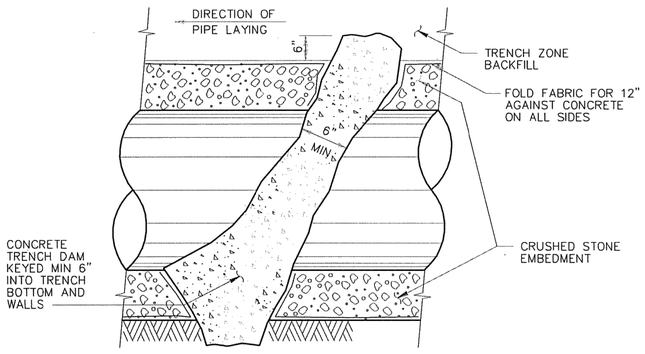


NOTES:

1. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

2. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
3. TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
4. TRENCH DAM SHALL BE PLACED AT LEAST 5 FT AWAY FROM ANY PIPELINE STRUCTURE. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
5. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
6. CEMENT–STABILIZED SAND IS PREFERRED FOR EMBEDMENT, BUT CRUSHED STONE MAY BE USED ONLY WHEN SPECIFIED ON THE PLANS.

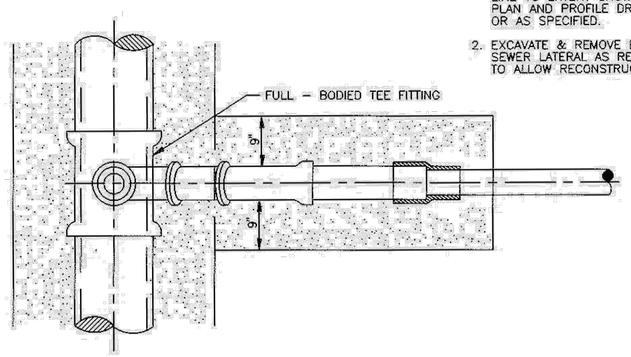


LONGITUDINAL SECTION ALONG PIPE ℄
AT EMBEDMENT TRENCH DAM

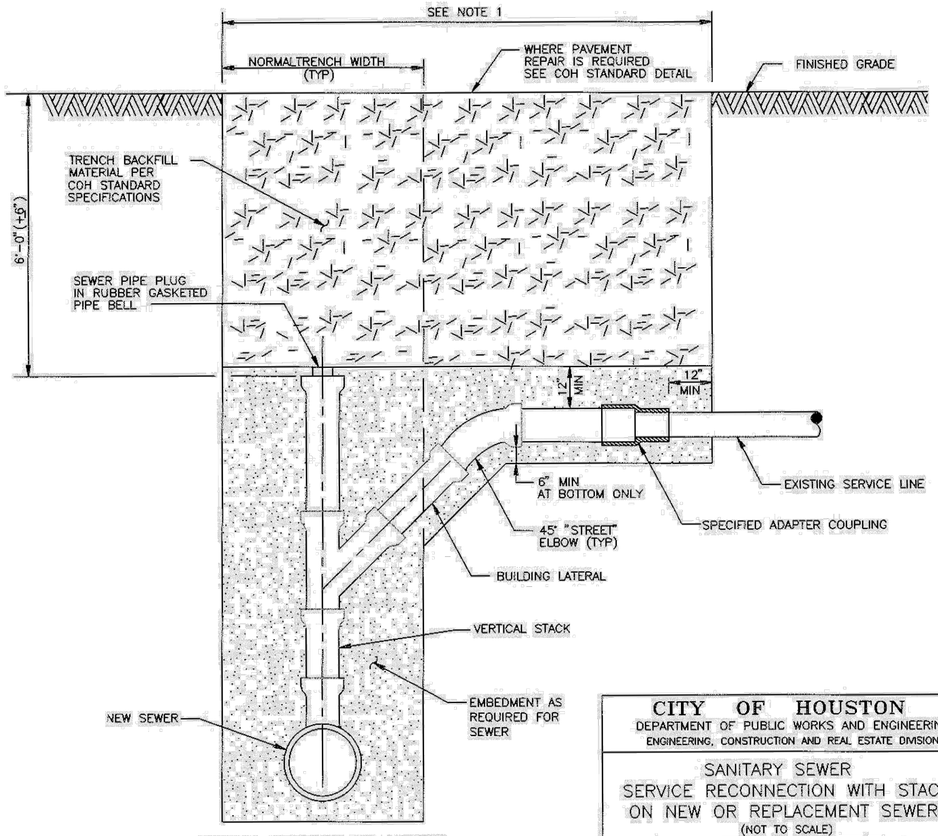
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
SANITARY SEWER EMBEDMENT AND TRENCH ZONE BACKFILL FOR DRY OR WET STABLE TRENCH (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL–01–2016	DWG NO: 02317–01

NOTES:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.
2. EXCAVATE & REMOVE EXISTING SEWER LATERAL AS REQUIRED TO ALLOW RECONSTRUCTION.



PLAN



CROSS–SECTION OF SEWER
AT SERVICE CONNECTION

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY SEWER SERVICE RECONNECTION WITH STACK ON NEW OR REPLACEMENT SEWER (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT–01–2002	DWG NO: 02534–02

No.	Date	Revisions	Appr.

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NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 5 OF 9

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 206 OF 343	

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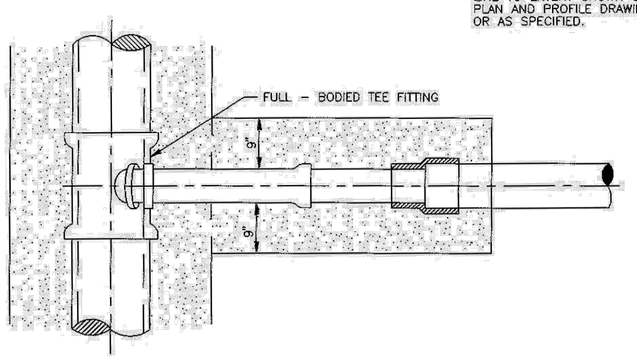
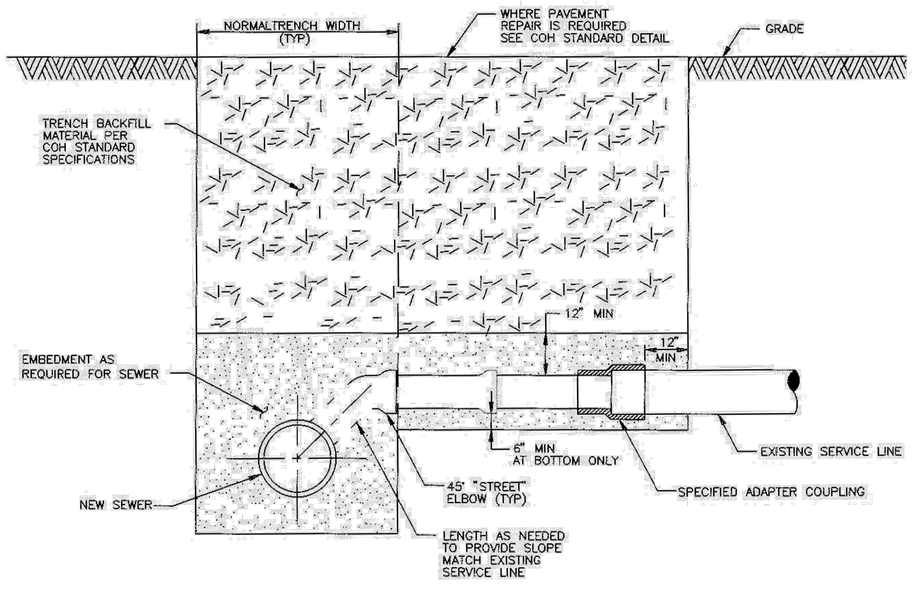
NOTE:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.

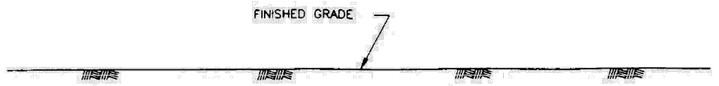


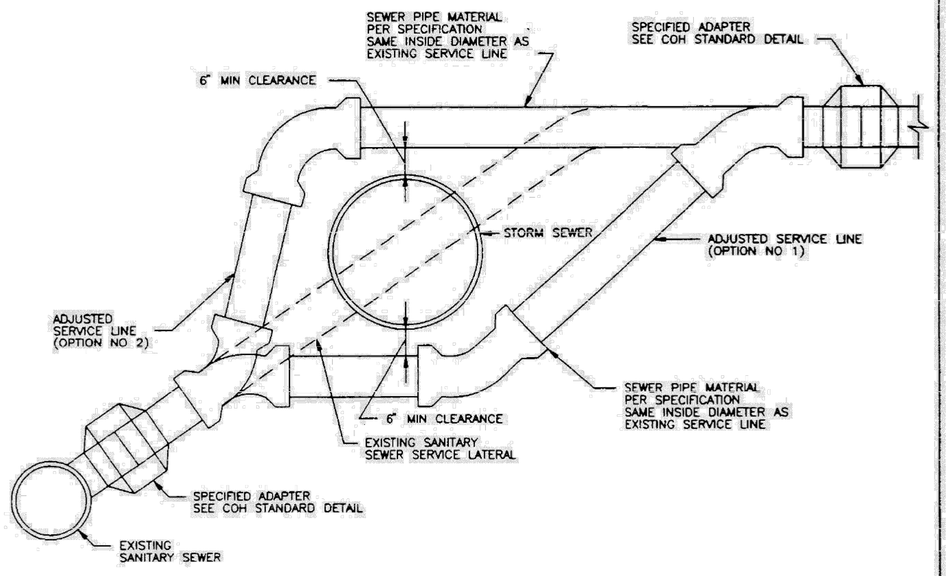
PLAN



CROSS–SECTION OF SEWER AT SERVICE CONNECTION

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY SEWER SERVICE RECONNECTION ON NEW OR REPLACEMENT SEWER (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT–01–2002	DWG NO: 02534–04





CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY SEWER SERVICE LINE RECONNECTION FOR STORM SEWER CONFLICTS (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT–01–2002	DWG NO: 02534–03

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
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FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 6 OF 9

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 207 OF 343	

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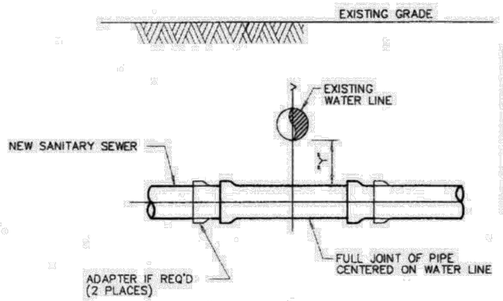
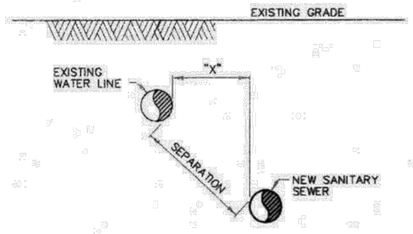


INSTALLATION REQUIREMENTS

1. IF "Y" IS GREATER THAN 1' AND "Y" IS LESS THAN 2', USE MINIMUM 18 FT JOINT OF PRESSURE-RATED PIPE PER COH STANDARD DRAWING.
2. IF "Y" IS GREATER THAN 2' AND "Y" IS LESS THAN 9', USE GRAVITY SEWER PIPE IN CEMENT-STABILIZED SAND EMBEDMENT.
3. IF "Y" IS GREATER THAN 9', USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.

NEW SANITARY SEWER CROSSING EXISTING WATER LINE



INSTALLATION REQUIREMENTS

1. IF SEPARATION IS LESS THAN 9', USE PRESSURE-RATED PIPE MH TO MH. "X" MUST BE AT LEAST 4 FT. VERTICAL SEPARATION MUST BE AT LEAST 2 FT.
2. IF SEPARATION IS 9' OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

NEW SANITARY SEWER PARALLEL TO EXISTING WATER LINE

NOTES:

1. 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.
2. WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
3. ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNES 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.
4. INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
5. "Y" MUST ALWAYS BE GREATER THAN OR EQUAL TO 1 FT FOR PRESSURE RATED SS AND 2 FT FOR NON-PRESSURE RATED SS.
6. "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
7. ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
8. SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS – REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES

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
APPROVED — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010
DWG NO: 02531-05

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

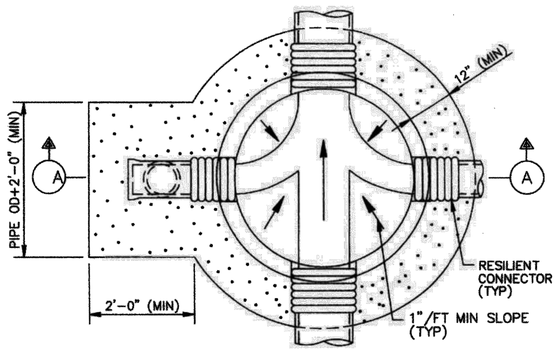
WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 208 OF 343

No. | Date | Revisions | App.

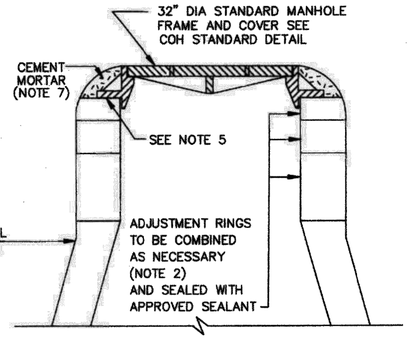
J:\2021\210601.01\cad\dwgs\sheets\11 - water & sanitary sewer standards\sanitary standard 07.dwg Plotted February 18, 2026 at 8:39 AM by Humi, John

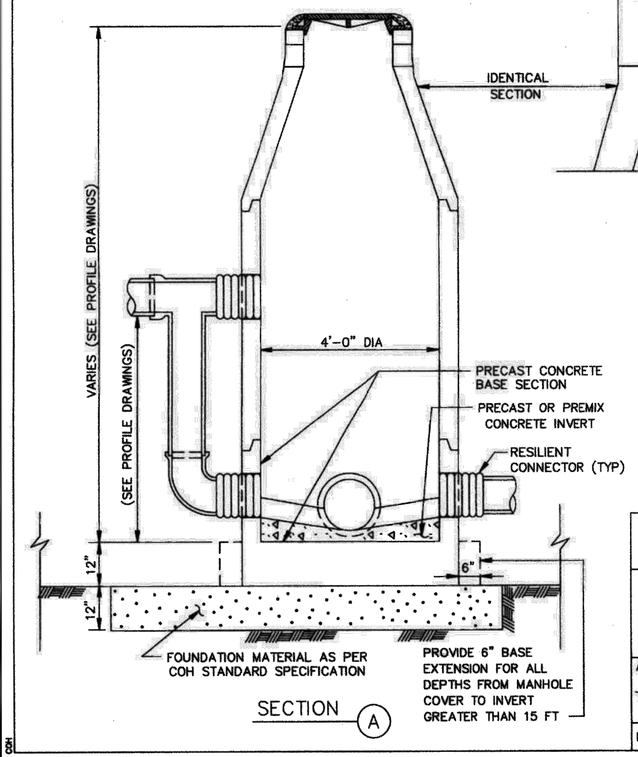
NOTES:

1. DEPTH OF MANHOLE DETERMINES SECTIONS REQUIRED.
2. PRECAST CONCRETE RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".
3. MANHOLE WALL THICKNESS FOR DEPTH EXCEEDING 12'-0" SHALL BE DETERMINED TO MEET LOADING CONDITIONS. MIN THICKNESS 5".
4. MANHOLE DROP AND INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
5. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
6. ECCENTRIC PRECAST CONCRETE MANHOLE MAY BE USED.
7. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
8. MIN REINFORCING IN THE PRECAST CONCRETE BASE SHALL BE # 5 @ 8 EW.



FOUNDATION PLAN



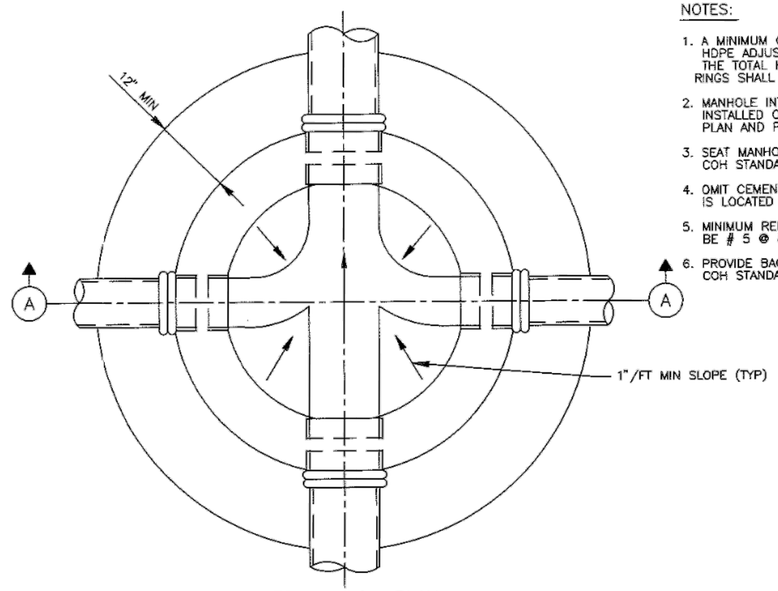


SECTION (A)

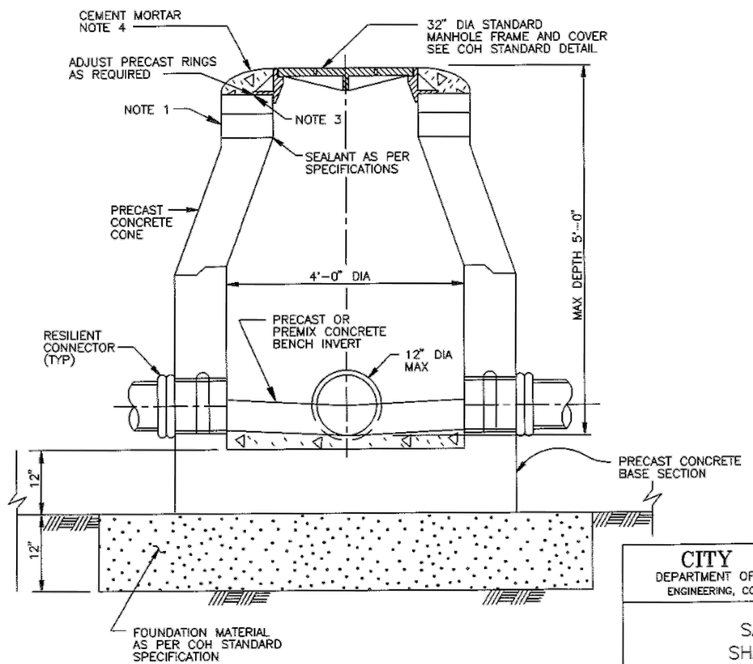
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
SANITARY SEWER 4'-0" DIAMETER PRECAST CONCRETE MANHOLE (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02082-02

NOTES:

1. A MINIMUM OF 3" PRECAST CONCRETE OR HDPE ADJUSTMENT RING SHALL BE PROVIDED. THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 12".
2. MANHOLE INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
3. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
4. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
5. MINIMUM REINFORCING IN THE BASE BE # 5 @ 8 EW.
6. PROVIDE BACKFILL MATERIAL AS PER COH STANDARD SPECIFICATION.



FOUNDATION PLAN



SECTION (A)

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY SEWER SHALLOW MANHOLE (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-01

No.	Date	Revisions	Appd

HRGreen
FIRM NO. F-11278
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NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAIL

SHEET 8 OF 9

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 209 OF 343	

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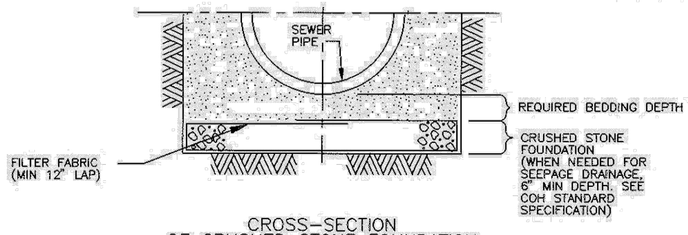
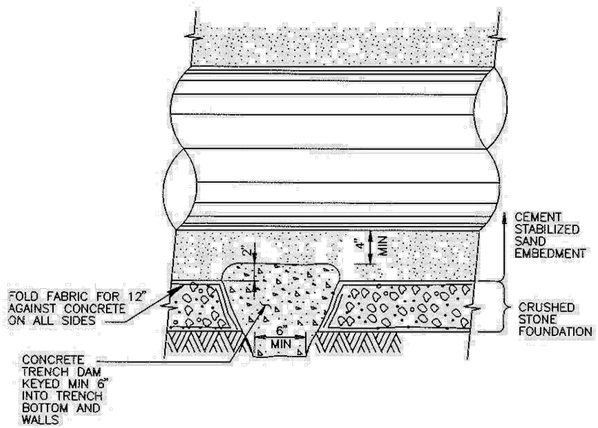
NOTES:

1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, OR OTHER CLASS II EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.
3. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.



CROSS-SECTION
OF CRUSHED STONE FOUNDATION

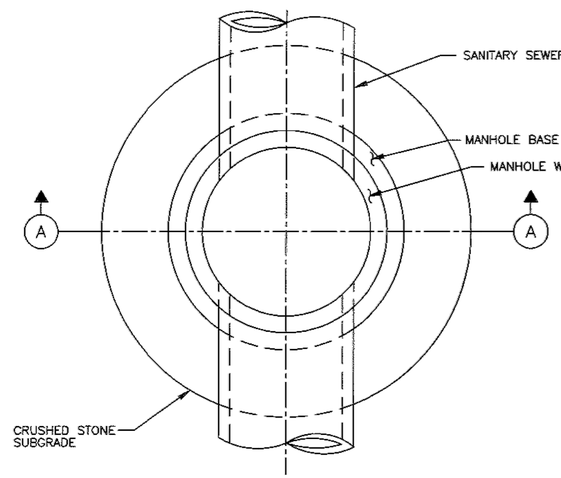


LONGITUDINAL SECTION ALONG PIPE ℄
AT FOUNDATION TRENCH DAM

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY OR STORM SEWER CRUSHED STONE FOUNDATION FOR WET STABLE TRENCH (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02317-02

NOTES:

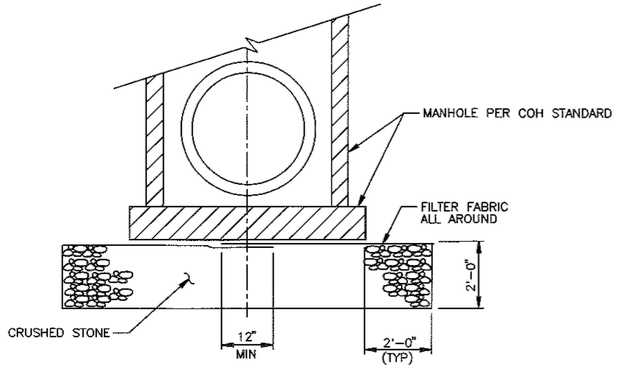
1. CRUSHED STONE SUPPORT UNDER A MANHOLE BASE SHALL BE INSTALLED AT LOCATIONS WHERE REQUIRED SUBGRADE COMPACTION OR DEWATERING CANNOT BE ACHIEVED.
2. WHERE HEAVING SUBGRADE CONDITIONS OCCUR, AS DETERMINED BY THE CITY ENGINEER, A PILE SUPPORTED MANHOLE SHALL BE PROVIDED.



PLAN

NOTE TO SPECIFIER:

1. ***INCLUDE THIS DETAIL ONLY IF THE GEOTECHNICAL REPORT INDICATES THAT AN UNSTABLE FOUNDATION (ONE WHICH WILL NOT ALLOW COMPACTION OR DEWATERING AS SPECIFIED) IS POSSIBLE. IF THIS CONDITION IS REPORTED BY THE GEOTECHNICAL ENGINEER, NOTIFY THE CITY'S PROJECT MANAGER.***
2. ***ALWAYS INCLUDE COMPANION STANDARD DETAIL FOR PILE SUPPORTED MANHOLE FOR UNSTABLE SUBGRADE WITH THIS DETAIL. IF GEOTECHNICAL REPORT INDICATES HEAVING SUBGRADE IS LIKELY.***



SECTION (A)

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
SANITARY SEWER CRUSHED STONE SUPPORTED MANHOLE FOR WET STABLE TRENCH (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-05

No.	Date	Revisions	App.

HRGreen — FIRM NO. F-11278, 11750 KATY FREEWAY SUITE 400, HOUSTON, TX 77079, PH: 832.318.8800, FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: AHMED ALOBAIDI
P.E. REGISTRATION NO. 155052
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 9 OF 9

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 210 OF 343	

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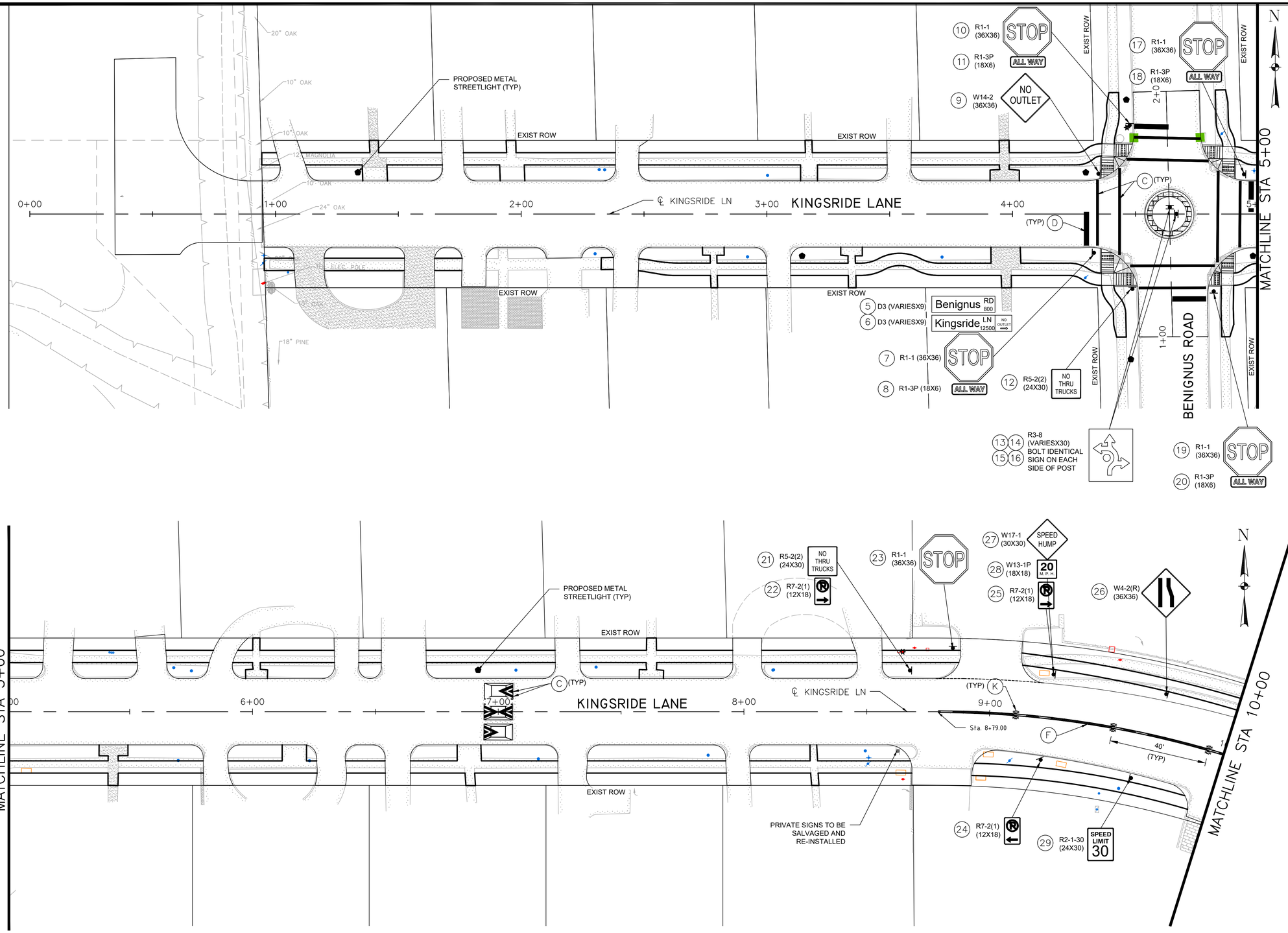

LEGEND

A	PAV MRK: WB4–C40
B	PAV MRK: WS6–C20
C	PAV MRK: WS12
D	PAV MRK: WS24
E	PAV MRK: YDS4–A20/A20
F	PAV MRK: YDS4–A40/A40
H	PAV MRK: ARROW (W)
I	PAV MRK: "ONLY" (W)
J	RAIS PAV MRK: TYPE I–C
K	RAIS PAV MRK: TYPE II–A–A
L	MEDIAN NOSE PAINT (Y)

No.	Date	Revisions	App.

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
3. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAFE–GUARDING EXISTING SIGNS SO THAT THEY EITHER CONTINUE TO REMAIN VISIBLE AND UPRIGHT IN THE FIELD OR ARE COLLECTED AND STORED IN A SECURED AREA WHEN TEMPORARY SIGNS ARE USED IN LIEU OF THE EXISTING SIGNS.
5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F–11278
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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 7

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 211 OF 343	

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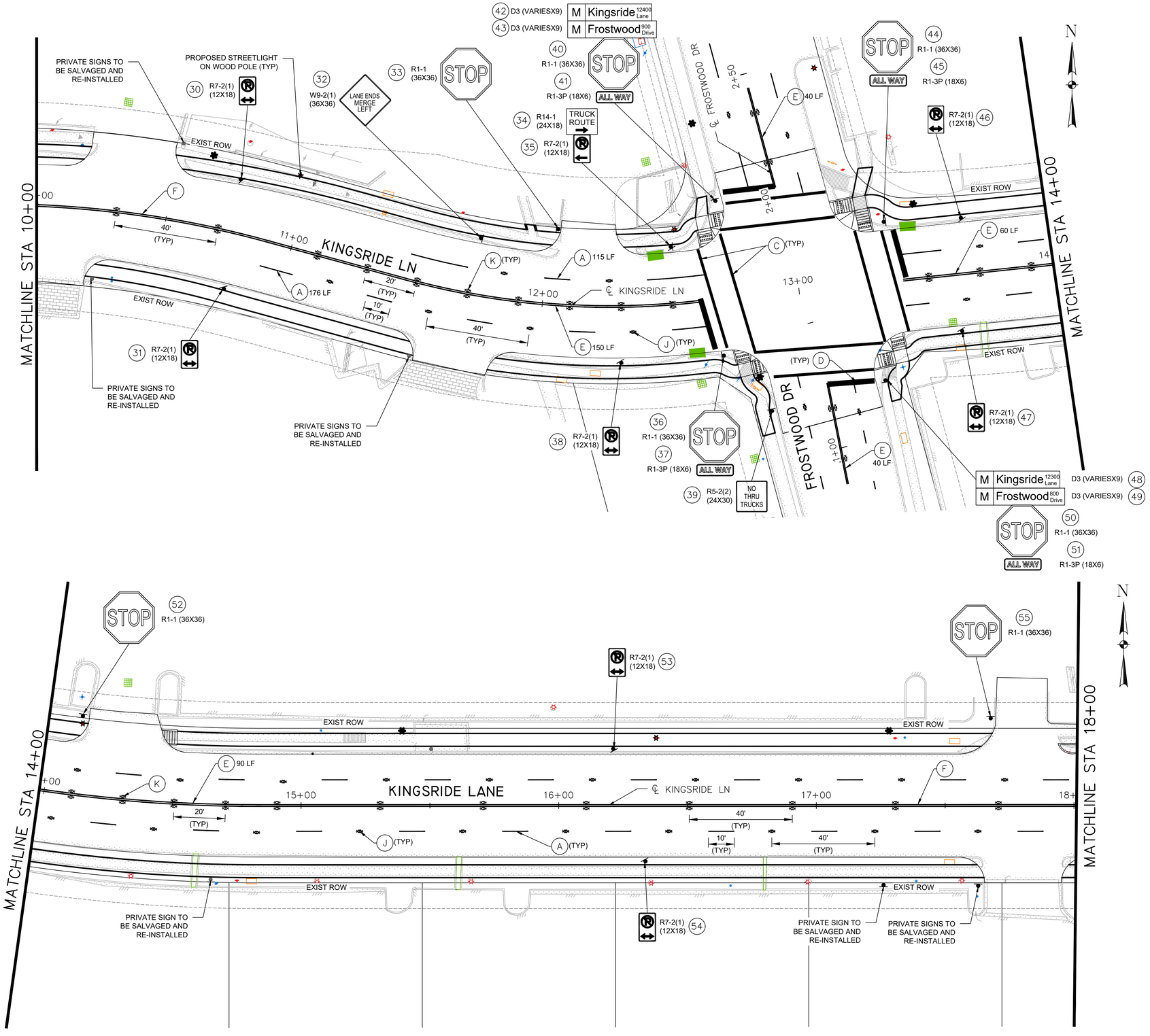

LEGEND

- (A) PAV MRK: WB4–C40
- (B) PAV MRK: WS6–C20
- (C) PAV MRK: WS12
- (D) PAV MRK: WS24
- (E) PAV MRK: YDS4–A20/A20
- (F) PAV MRK: YDS4–A40/A40
- (H) PAV MRK: ARROW (W)
- (I) PAV MRK: "ONLY" (W)
- (J) RAIS PAV MRK: TYPE I–C
- (K) RAIS PAV MRK: TYPE II–A–A
- (L) MEDIAN NOSE PAINT (Y)

No.	Date	Revisions	Appr.

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
3. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAFE–GUARDING EXISTING SIGNS SO THAT THEY EITHER CONTINUE TO REMAIN VISIBLE AND UPRIGHT IN THE FIELD OR ARE COLLECTED AND STORED IN A SECURED AREA WHEN TEMPORARY SIGNS ARE USED IN LIEU OF THE EXISTING SIGNS.
5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 7

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 212 OF 343	

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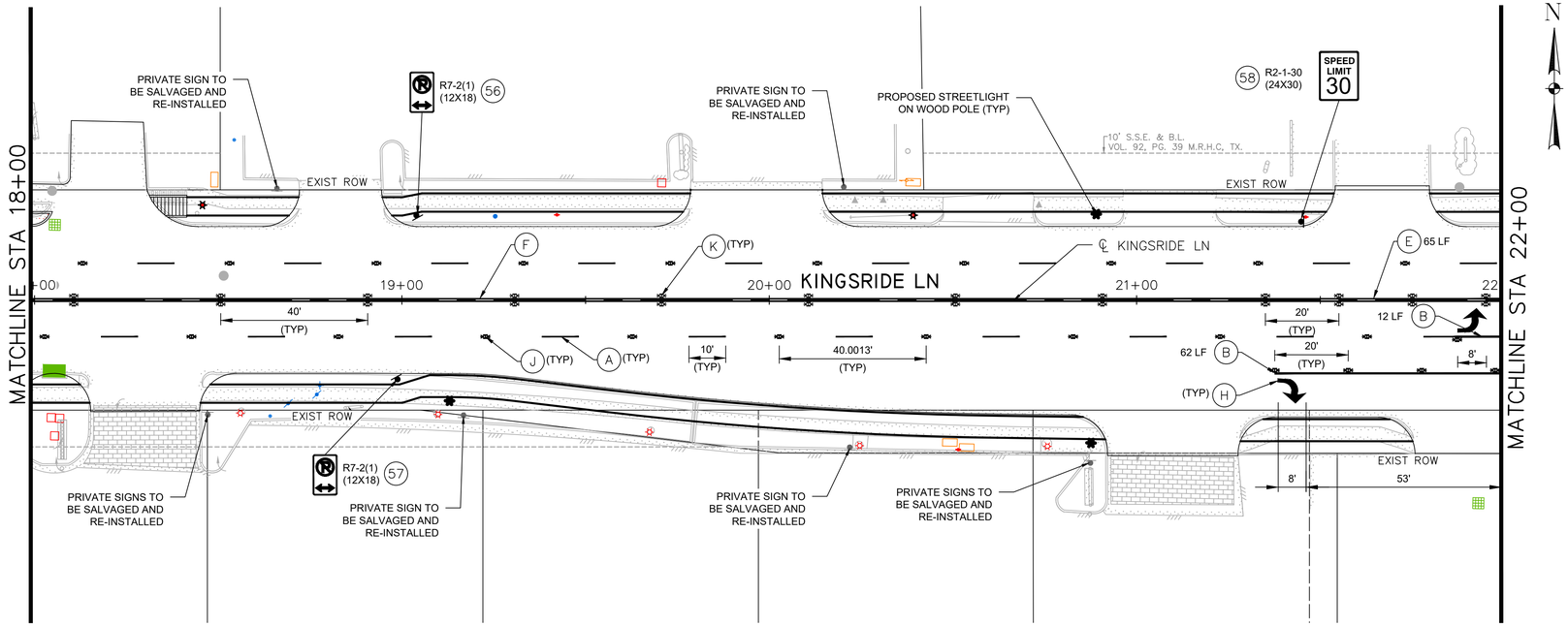

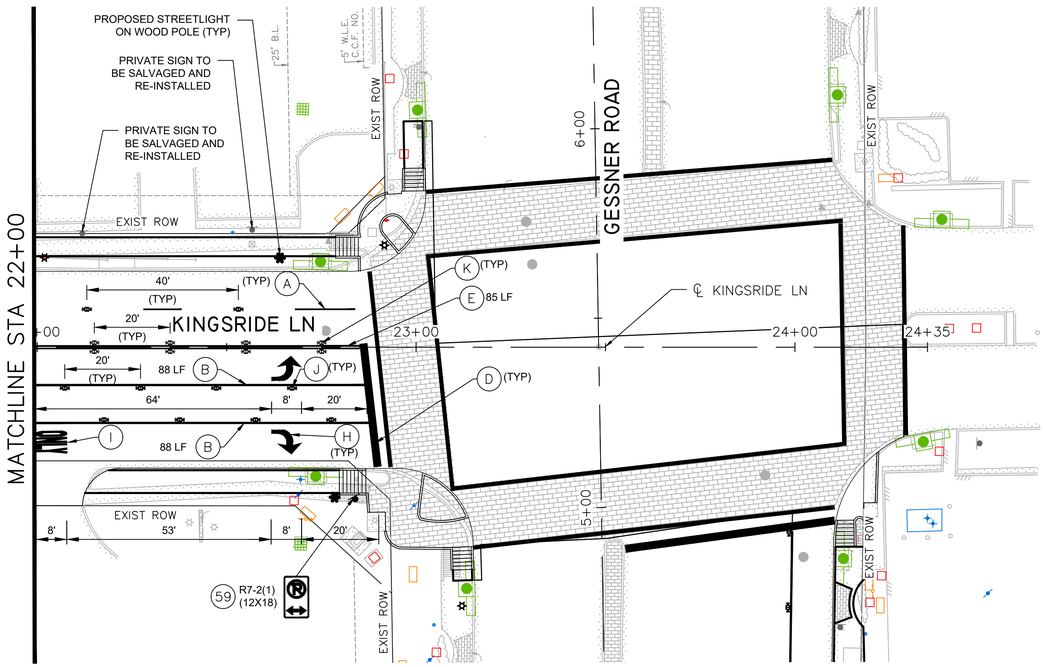

LEGEND

- (A) PAV MRK: WB4–C40
- (B) PAV MRK: WS6–C20
- (C) PAV MRK: WS12
- (D) PAV MRK: WS24
- (E) PAV MRK: YDS4–A20/A20
- (F) PAV MRK: YDS4–A40/A40
- (H) PAV MRK: ARROW (W)
- (I) PAV MRK: "ONLY" (W)
- (J) RAIS PAV MRK: TYPE I–C
- (K) RAIS PAV MRK: TYPE II–A–A
- (L) MEDIAN NOSE PAINT (Y)

No.	Date	Revisions	App.

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
3. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
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5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 7

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 213 OF 343	

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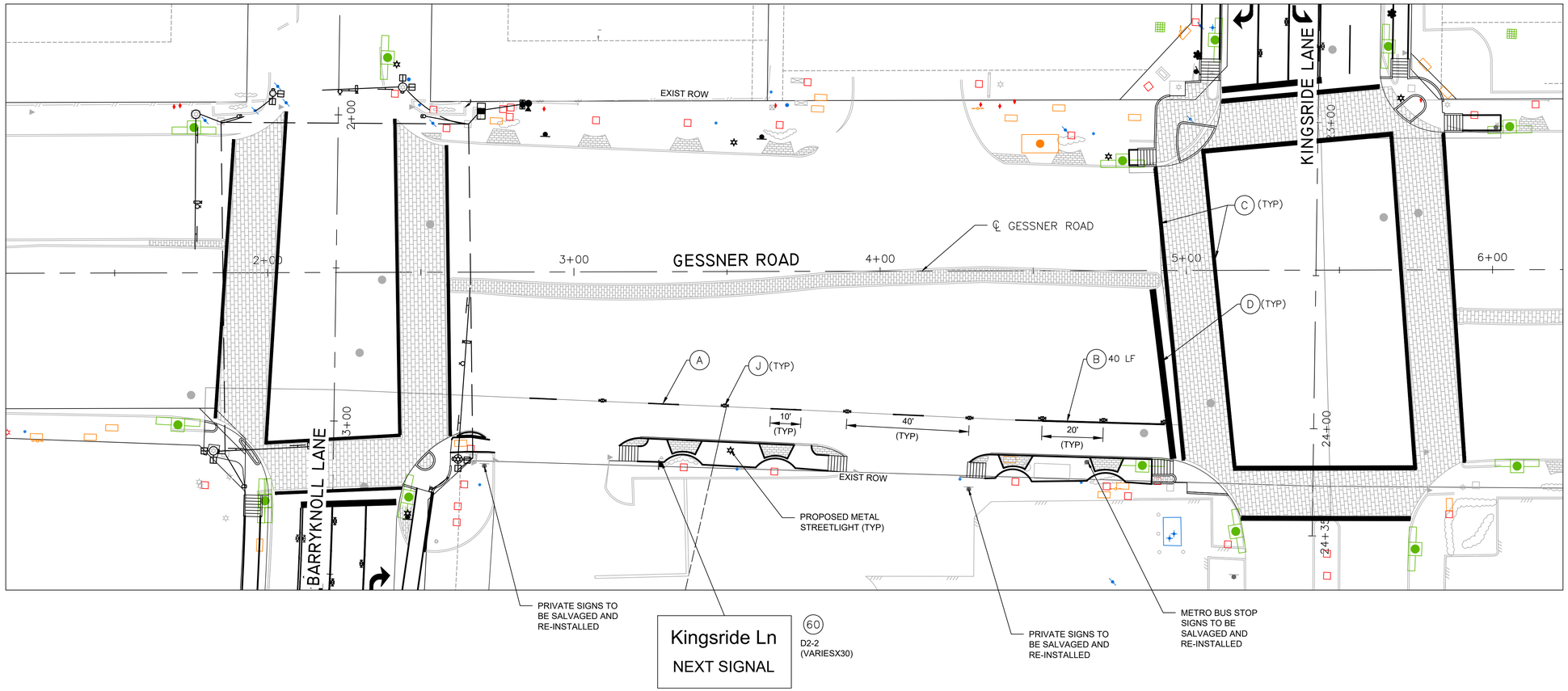

LEGEND

- (A) PAV MRK: WB4–C40
- (B) PAV MRK: WS6–C20
- (C) PAV MRK: WS12
- (D) PAV MRK: WS24
- (E) PAV MRK: YDS4–A20/A20
- (F) PAV MRK: YDS4–A40/A40
- (H) PAV MRK: ARROW (W)
- (I) PAV MRK: "ONLY" (W)
- (J) RAIS PAV MRK: TYPE I–C
- (K) RAIS PAV MRK: TYPE II–A–A
- (L) MEDIAN NOSE PAINT (Y)

No.	Date	Revisions	App.

NOTES:

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N

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HRGreen
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
GESSNER ROAD
BEGIN PROJECT TO END PROJET

SHEET 4 OF 7

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 214 OF 343	

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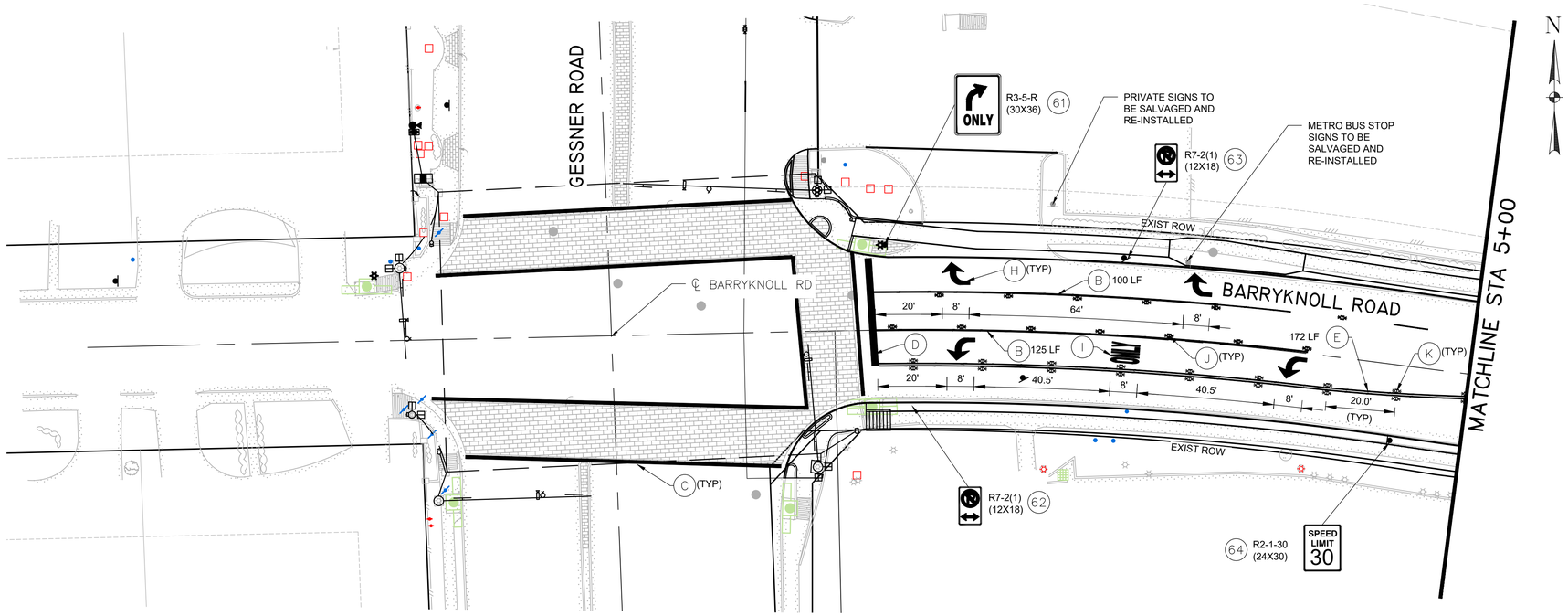

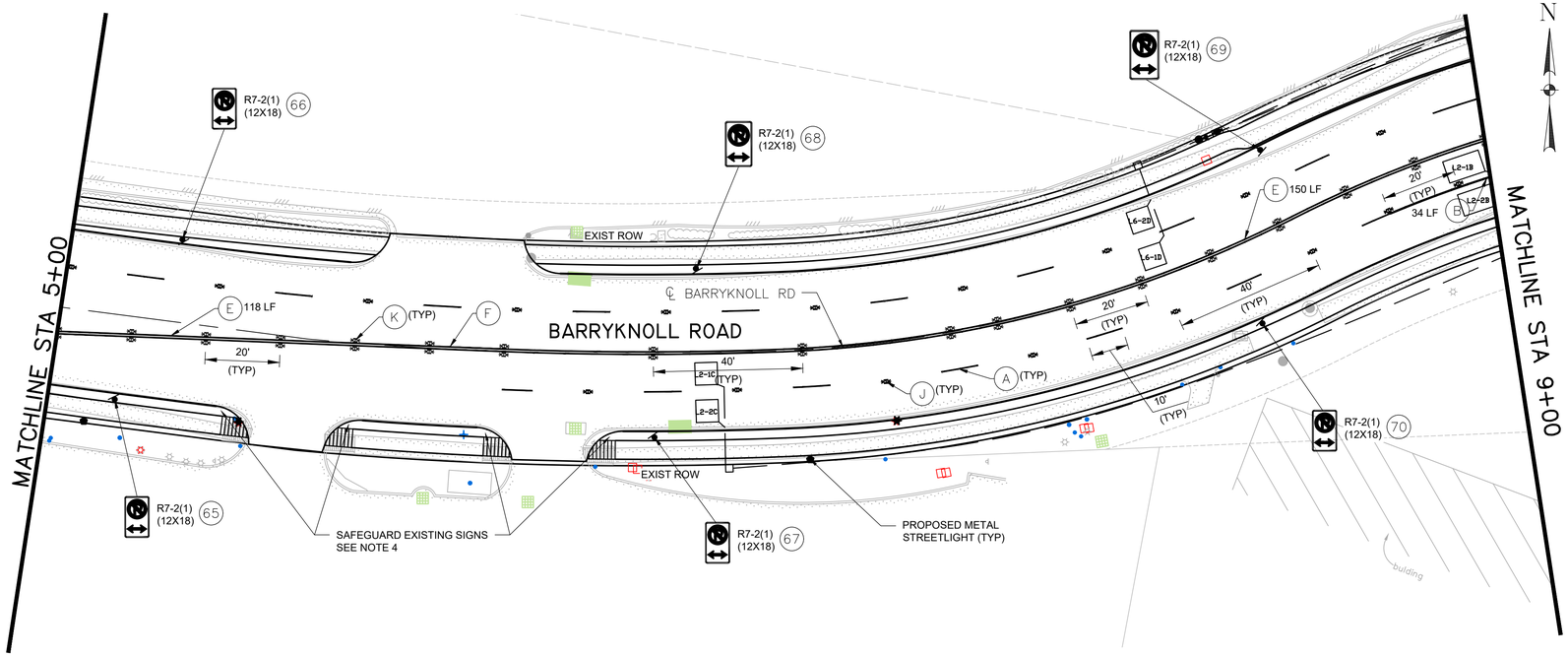

LEGEND

- (A) PAV MRK: WB4–C40
- (B) PAV MRK: WS6–C20
- (C) PAV MRK: WS12
- (D) PAV MRK: WS24
- (E) PAV MRK: YDS4–A20/A20
- (F) PAV MRK: YDS4–A40/A40
- (H) PAV MRK: ARROW (W)
- (I) PAV MRK: "ONLY" (W)
- (J) RAIS PAV MRK: TYPE I–C
- (K) RAIS PAV MRK: TYPE II–A–A
- (L) MEDIAN NOSE PAINT (Y)

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HRGreen
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HOUSTON, TX 77079
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
SIGNING & PVMT MARKING PLAN
BARRYKNOLL LANE
BEGIN PROJECT TO STA 9+00

SHEET 5 OF 7

WBS NO.	M–430296–0017–3
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO.	215 OF 343

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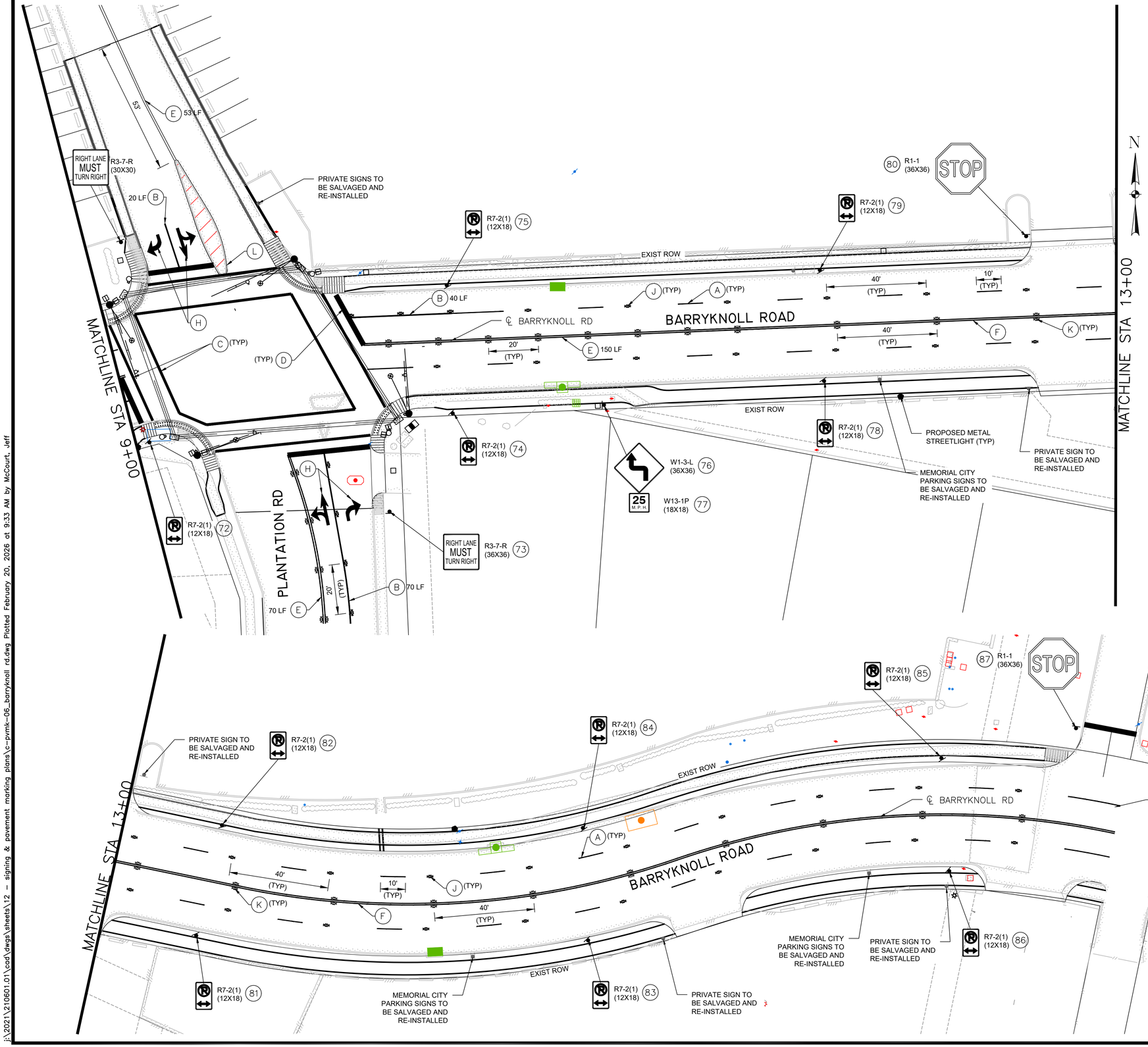

LEGEND

- (A) PAV MRK: WB4–C40
- (B) PAV MRK: WS6–C20
- (C) PAV MRK: WS12
- (D) PAV MRK: WS24
- (E) PAV MRK: YDS4–A20/A20
- (F) PAV MRK: YDS4–A40/A40
- (H) PAV MRK: ARROW (W)
- (I) PAV MRK: "ONLY" (W)
- (J) RAIS PAV MRK: TYPE I–C
- (K) RAIS PAV MRK: TYPE II–A–A
- (L) MEDIAN NOSE PAINT (Y)

No.	Date	Revisions	App.

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SUITE 400
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FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DANIELLE PAGE MARTY
P.E. REGISTRATION NO. 135958
DATE: 2/20/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
BARRYKNOLL LANE
STA 9+00 TO END PROJECT

SHEET 6 OF 7

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 216 OF 343	

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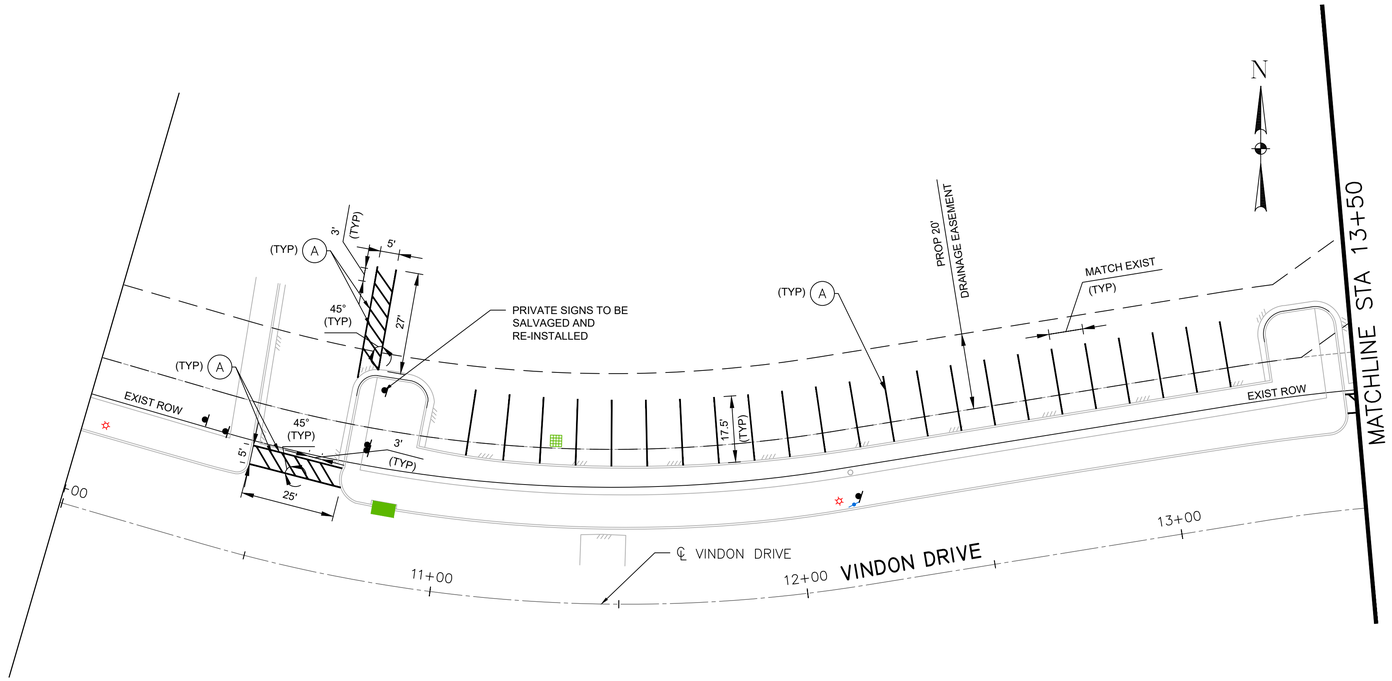

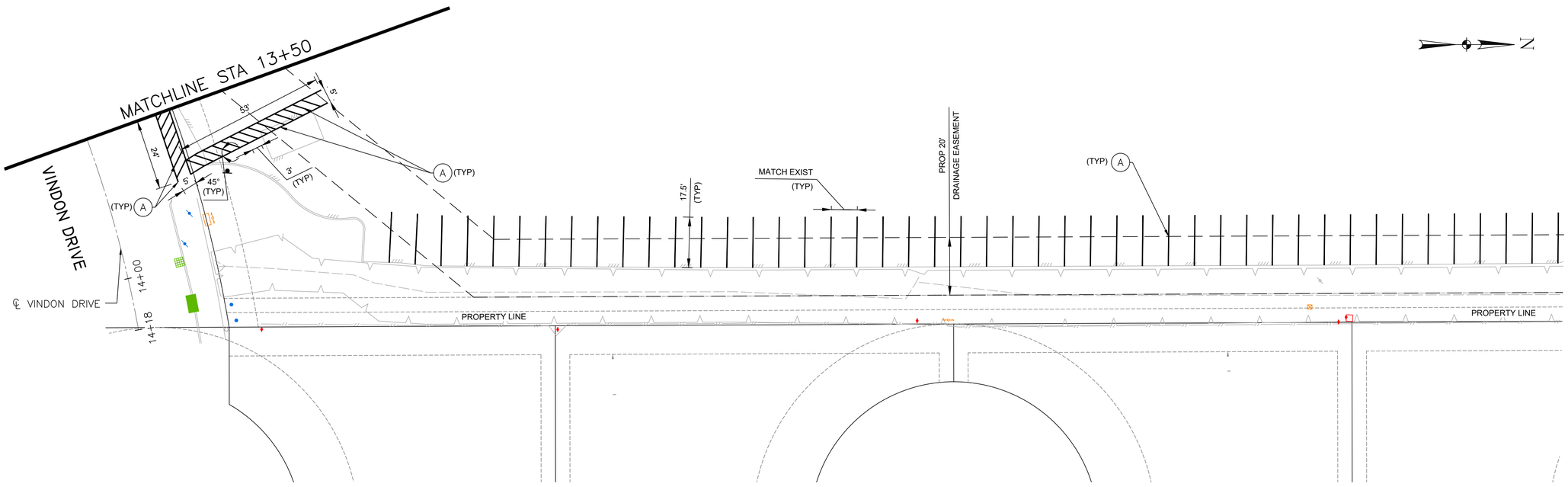

LEGEND

(A) PAV MRK: YS4

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HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/20/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
MEMORIAL MIDDLE SCHOOL
STA 10+00 TO STA 14+18

SHEET 7 OF 7

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34') H: 1"=40' (11'X17')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 217 OF 343

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSION	SQUARE POST	SIGNAL MOUNT	ROUND POST (PERMISSION NEEDED FROM CITY TRAFFIC ENGINEER)	NUMBER OF POSTS (1 OR 2)	SIGN AREA SQ. FT. (FOR INFORMATION ONLY NOT INTENDED FOR BID)	SIGN POST SIZE (TABLE A)
1	5	D3	BENIGNUS RD	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	6	D3	KINGSRIDE LN (NO OUTLET RIGHT ARROW)	VARIES X 9	X				VARIES	
	7	R1-1	STOP	36X36	X				9	
	8	R1-3P	ALL WAY	18X6	X				0.75	
	9	W14-2	NO OUTLET	36X36	X			1	9	1-3/4" X 1-3/4"
	10	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	11	R1-3P	ALL WAY	18X6	X				0.75	
	12	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	13	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
	14	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X				VARIES	
	15	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
	16	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X				VARIES	
	17	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	18	R1-3P	ALL WAY	18X6	X				0.75	
	19	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	20	R1-3P	ALL WAY	18X6	X				0.75	
	21	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	22	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X				1.5	
	23	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	24	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	25	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X			1	1.5	
	26	W4-2(R)	LANE ENDS MERGE LEFT	36X36	X			1	9	1-3/4" X 1-3/4"
	27	W17-1	SPEED HUMP	30X30	X			1	6.25	1-3/4" X 1-3/4"
	28	W13-1P	20 MPH	18X18	X				4	
	29	R2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
2	30	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	31	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	32	W9-2(1)	LANE ENDS MERGE LEFT	36X36	X			1	9	1-3/4" X 1-3/4"
	33	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	34	R14-1	TRUCK ROUTE (RIGHT ARROW)	24X18	X			1	3	1-3/4" X 1-3/4"
	35	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X				1.5	
	36	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	37	R1-3P	ALL WAY	18X6	X				0.75	
	38	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	39	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	40	R1-1	STOP	36X36	X				9	
	41	R1-3P	ALL WAY	18X6	X				0.75	
	42	D3	KINGSRIDE LN 12400 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	43	D3	FROSTWOOD DR 900 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X				VARIES	
	44	R1-1	STOP	36X36	X				9	
	45	R1-3P	ALL WAY	18X6	X				0.75	
	46	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	47	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	48	D3	KINGSRIDE LN 12300 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	49	D3	FROSTWOOD DR 800 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X				VARIES	
	50	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	51	R1-3P	ALL WAY	18X6	X				0.75	
	52	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	53	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	54	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	55	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
3	56	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	57	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	58	R2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
	59	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X				1.5	
4	60	D2-2	KINGSRIDE LN NEXT SIGNAL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
5	61	R3-5-R	RIGHT TURN ONLY	30X36	X			1	7.5	1-3/4" X 1-3/4"
	62	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	63	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
1	64	R-2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
	65	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	66	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	67	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	68	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	69	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	70	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
6	71	R3-7-R	RIGHT LANE MUST TURN RIGHT	36X36	X			1	9	1-3/4" X 1-3/4"
	72	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	73	R3-7-R	RIGHT LANE MUST TURN RIGHT	36X36	X			1	9	1-3/4" X 1-3/4"
	74	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	75	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	76	W1-3-L	REVERSE RIGHT ANGLE TURN	36X36	X			1	6.25	1-3/4" X 1-3/4"
	77	W13-1P	25 MPH	18X18	X				2.25	
	78	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
2	79	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	80	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	81	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
2	82	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	83	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	84	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	85	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	86	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	87	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"

No.	Date	Revisions	App.

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
SMALL SIGN SUMMARY

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 218 OF 343

j:\2021\210601.01\cad\dwgs\sheets\12 - signing & pavement marking plans\c-pvmk-08_small sign summary.dwg Plotted February 19, 2026 at 7:57 PM by Gawali, Ajinkya Ashok

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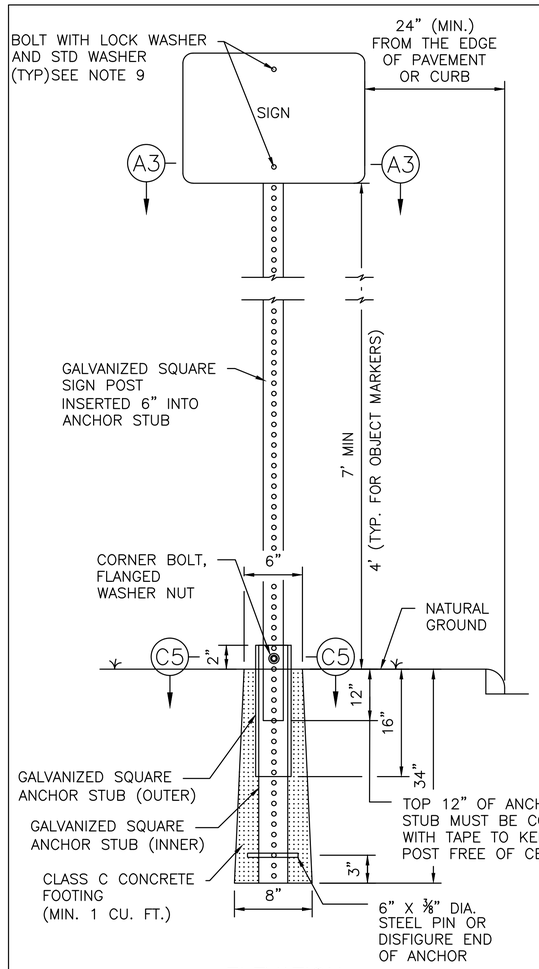
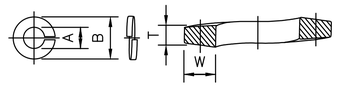


ELEVATION

TYPICAL GROUND SIGN INSTALLATION
PERFORATED SQUARE METAL TUBING

TABLE A	
GALVANIZED SQUARE SIGN POST (PERFORATED)	1–3/4"x–1–3/4" (14 GAUGE)
GALVANIZED SQUARE ANCHOR STUB (PREFORATAED) (INNER)	2"x2"x36" (14 GAUGE)
GALVANIZED SQUARE ANCHOR STUB (PERFORATED) (OUTER)	2 1/4" x 2 1/4" x 18" (14 GAUGE)



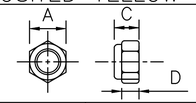
NOMINAL WASHER SIZE	A		B	T	W
	INSIDE DIAMETER		OUTSIDE DIAMETER	MEAN SECTION (THICKNESS)	SECTION WIDTH
	MAX	MIN	MAX		
5/16"	0.332"	0.314"	0.583"	0.078"	0.125"

DIMENSIONS: ASME B18.21.1

MATERIAL: ALLOY STEEL PER ASME B18.21.1

FINISH: MECHANICAL ZINC PER ASTM B695, CLASS 5, TYPE 2 (YELLOW)

5/16" SPLIT LOCK WASHER, HIGH ALLOY MECHANICAL DEPOSITED YELLOW SINK



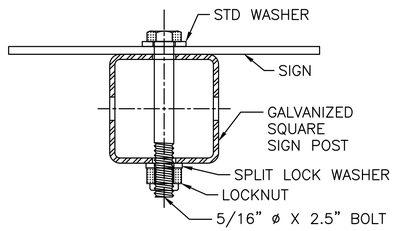
SIZE	C		A		D
	THICKNESS		WIDTH ACROSS FLATS		HEX HEIGHT
	MAX	MIN	MAX	MIN	MIN
0.313"	0.359"	0.329"	0.502"	0.489"	0.250"

DIMENSIONS: ASME B18.16.6

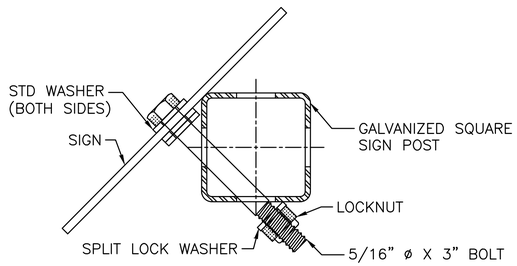
MATERIAL: CARBON STEEL, GRADE 8 PER ASME B18.16.6, NYLON 6⁄6

THREAD REQUIREMENTS: ASME B1.1 UNC & UNF CLASS 2B

HEX NYLON INSERT LOCKNUTS (NE), GRADE 8, YELLOW ZINC PLATED



STANDARD ORIENTATION

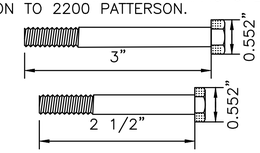


NON–STANDARD ORIENTATION

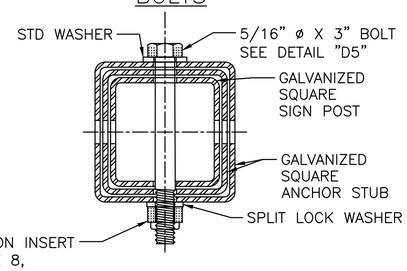
SECTION A3: SIGN CONNECTION DETAILS

NOTES:

1. THE EXISTING SIGNS LOCATED ON PUBLIC CONSTRUCTION SITE ARE THE PROPERTY OF THE CITY OF HOUSTON. THROUGHOUT THE PERIOD OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL INCLUDE THE PERIOD AFTER SIGNS ARE REMOVED FROM INSTALLATION AND STORED BY THE CONTRACTOR OR DELIVERED TO THE TRAFFIC OPERATIONS CENTER (2200 PATTERSON). THE GENERAL TRAFFIC SUPERINTENDENT (832–395–6771) MUST BE NOTIFIED 48 HOURS IN ADVANCE PRIOR TO DELIVERY.
2. AFTER SIGNS ARE REMOVED FROM INSTALLATION AND ARE BEING STORED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS DIVISION OF HOUSTON PUBLIC WORKS (832–395–6771) AND ARRANGE FOR A CONVENIENT TIME TO DELIVER ONLY CITY SIGNS AND POSTS IDENTIFIED BY TRAFFIC OPERATIONS DIVISION TO 2200 PATTERSON.



SECTION D5
BOLTS



SECTION C5
CORNER BOLT

3. PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION WILL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING THE SIGN TYPE, SIGN SIZE, SIGN CONDITION, SIGN LOCATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.
4. ALL GROUND MOUNTED STOP SIGNS, WARNING SIGNS, AND OTHER REGULATORY SIGNS SHALL USE AT A MINIMUM HIGH INTENSITY PRISMATIC REFLECTIVE SHEETING.
5. ALL OVERHEAD SIGNS SHALL USE DIAMOND GRADE REFLECTIVE SHEETING.
6. ALL OTHER SIGNS SHALL USE SUPER ENGINEER GRADE SHEETING.
7. ALL BLANKS TO BE INSTALLED SHALL BE ALUMINUM ALLOY 6061–T–6 OR 5052–H38 IN ACCORDANCE WITH ASTM B209.
8. ALL HOLES SHALL BE ⅜" DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND / OR ROUGH EDGES. WHERE NON–STANDARD ORIENTATION OF SIGN IS USED, ENLARGE HOLE IN SIGN POST AT SIGN CONNECTION NOT GREATER THAN 11/16" IN DIAMETER.
9. BOLT SIZE REQUIREMENTS FOR SIGN CONNECTION:
   - 9.1. STANDARD ORIENTATION = 5/16" DIA X 2 1/2" BOLT
   - 9.2. NON STANDARD ORIENTATION = 5/16" DIA X 3" BOLT
10. SIGN BLANK CORNERS TO BE ROUNDED AS SHOWN ON EACH DETAIL ON SHEET 01554–06.
11. ALL SIGN BLANKS ARE TO BE ETCHED, DEGREASED, AND HAVE A COATING MEETING THE REQUIREMENTS OF ASTM B449, CLASS 2, OR ASTM B921, CLASS 2. PRIOR TO APPLICATION OF LEGENDS.
12. ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN CONFORMANCE TO THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND STANDARD HIGHWAY SIGNS LATEST EDITION.

DISCLAIMER:
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

GENERAL NOTES AND GROUND MOUNTING SIGN

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER

CITY TRAFFIC ENGINEER

DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 01554–01

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY SUITE 400
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 1 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 219 OF 343

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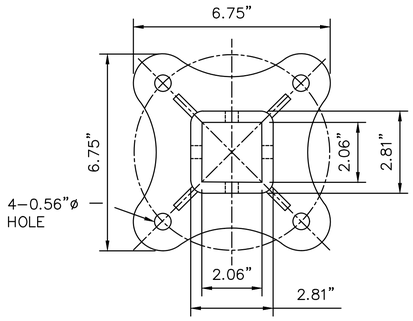
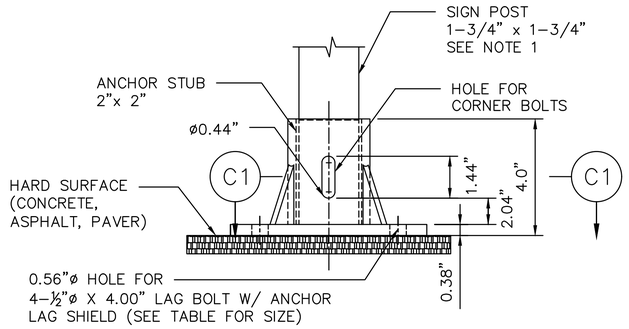


TOP VIEW



SIDE VIEW

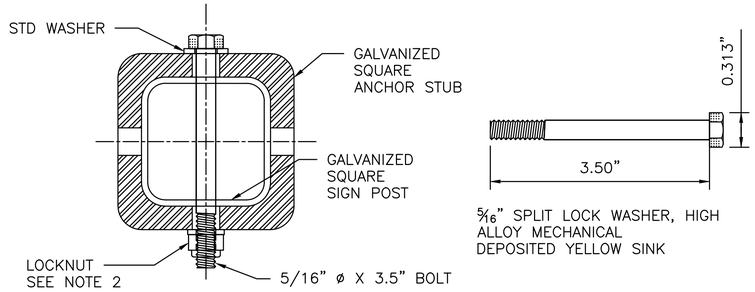
TYPICAL HARD SURFACE INSTALLATION GALVANIZED SIGN BASE

NOTES:

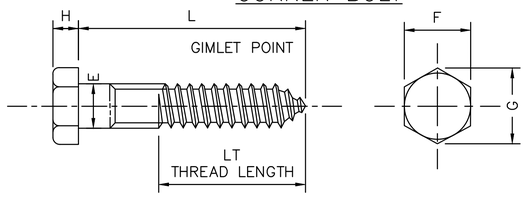
1. REFER TO COH STD DWG 01554–01 FOR SIGN AND POST REQUIREMENTS.
2. REFER TO DETAIL "C5" ON COH STD DWG 01554–01 FOR NUT AND BOLT REQUIREMENTS.

BASE PLATE NOTES:

1. MATERIAL: ASTM A–536 GRADE 65–45–12 DUCTILE IRON
2. HOT DIP GALVANIZE PER ASTM A–153
3. ALL DIMENSIONS ARE IN INCHES



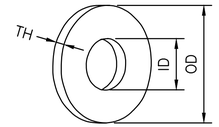
SECTION C1
CORNER BOLT



DIAMETER	E		F		G		H		L	LT
	BODY DIAMETER		WIDTH ACROSS FLATS		WIDTH ACRSS CORNERS		HEIGHT		LENGTH	THREAD LENGTH
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN		
1/2"	0.515"	0.482"	0.750"	0.725"	0.866"	0.826"	0.364"	0.302"	4.00"	3.84"

MATERIAL:PER A307 GRADE A
COATING: HOT DIP ZINC PER ASTM F2329 OR IN ACCORDANCE WITH CLASS C OF ASTM A153 AND CLASS D FOR ⅜" DIAMETER AND LESS

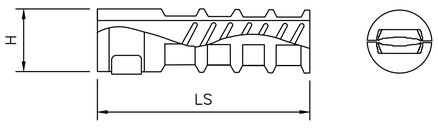
4" HEX LAG SCREWS, HOT DIPPED GALVANIZED



SAE FLAT WASHERS									
SIZE	ID			OD			THICKNESS – TH		
	BASIC	TOLERANCE		BASIC	TOLERANCE		BASIC	MAX	MIN
		PLUS	MINUS		PLUS	MINUS			
1/2"	0.531	0.015"	0.005"	1.062"	0.030"	0.007"	0.95"	0.121"	0.74"

DIMENSIONS: ASME B18.21.1, TYPE A PLAIN WASHERS
MATERIAL: CARBON STEEL
FINISH: Fe/Zn 3AT PER ASTM F1941

1/2" FLAT WASHERS, LOW CARBON, SAE, ZINC PLATED



TH	LS	H	L
LAG THREAD SIZE	LENGTH OF SHIELD	DRILLED HOLE SIZE	BOLT LENGTH REQ
	NOMINAL		
1/2"	3.00"	0.75"	4.00"

ANCHOR LAG SHIELD – ZINC ALLOY

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SIGN BASE
HARD SURFACE
MOUNTING DETAILS
(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER

CITY TRAFFIC ENGINEER

DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 01554–02

HRGreen
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P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 2 OF 13

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 220 OF 343

Revisions: No. | Date | Revisions | App.

DISCLAIMER:
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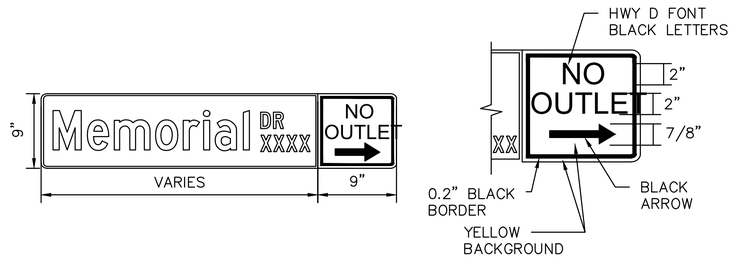
POST MOUNTED STREET NAME SIGN W/ NO OUTLET SIGN



D3 – POST MOUNTED STREET NAME SIGN



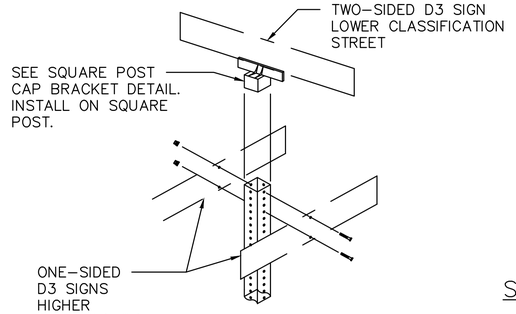
OVERHEAD STREET NAME SIGN DETAIL



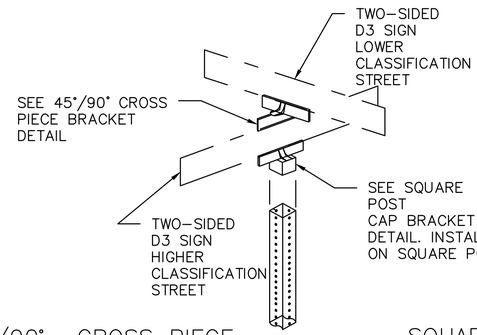
D3 – STREET NAME SIGN

	POST–MOUNTED SIGN	OVERHEAD SIGN
HEIGHT	9"	24"
LENGTH	30" MIN 48" MAX 6" INCREMENTS OF LENGTH	10" MAX 2' INCREMENT OF LENGTH
THICKNESS	0.125"	0.080"
SUBSTREATE	ALLUMINUM ALLOY, 5052–H38 (ASTM B–209)	
SIGN FACE MATERIALS	GREEN FILM OVER DIAMOND GRADE VIP SHEETING	
LEGENDS AND SYMBOLS	HIGHWAY GOTHIC SERIES D (USUAL) HIGHWAY GOTHIC SERIES C OR B FOR MAXIMUM LENGTH SIGN BLACK	
COLOR	LETTERS–WHITE REFLECTIVE BORDER–WHITE REFLECTIVE BACKGROUND–GREEN REFLECTIVE	

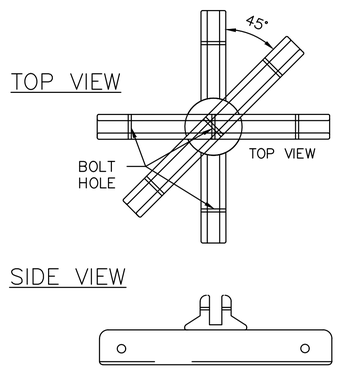
D3 SIGNS GREATER THAN 42" PLATES IN LENGTH



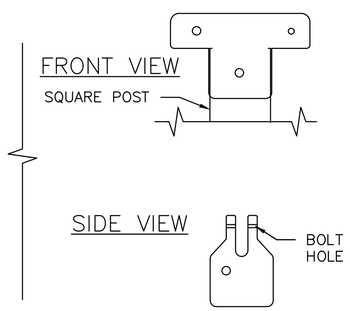
D3 SIGNS LESS THAN OR EQUAL TO 42" PLATES IN LENGTH



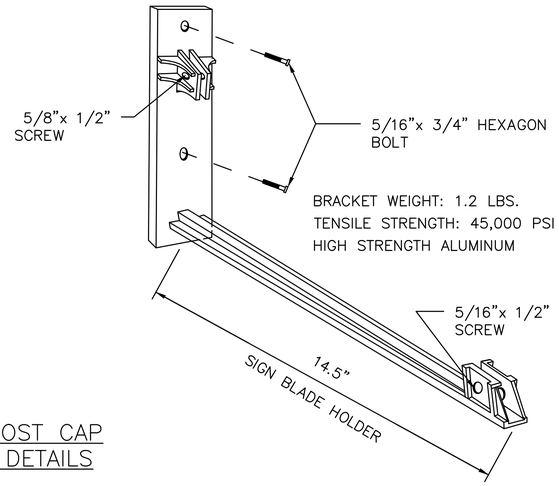
45°/90° CROSS PIECE SIGN BRACKET



SQUARE POST CAP BRACKET DETAILS



SIGNAL POLE MOUNTING DETAIL



NOTES:

1. TYPICAL SIGN PLATE SHOULD BE 30" MAX.
2. LONGER SIGN PLATE MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER.

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STREET NAME SIGN AND SIGN MOUNTING

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER

CITY TRAFFIC ENGINEER

DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 01554–03

HRGreen
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 3 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 221 OF 343

No.	Date	Revisions	App.

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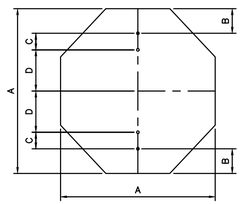
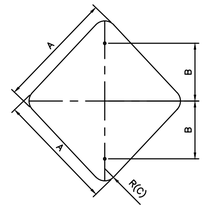


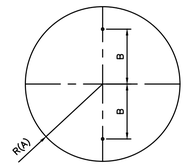
OCTAGONAL

A	B	C	D	T
24	3	3	12	0.08
36	3	3	24	0.08



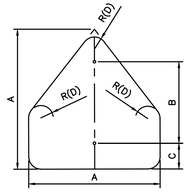
DIAMOND

A	B	C	T
24	12	1 1/2	0.08
30	15	1 1/2	0.08
36	18	1 1/2	0.08



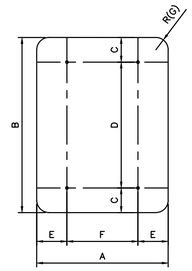
CIRCLE

A	B	T
15	15	0.08
18	12	0.08



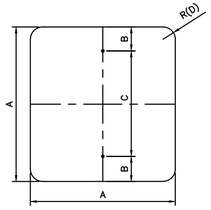
PENTAGON (SCHOOL)

A	B	C	D	T
36	24	3	1 1/2	0.08



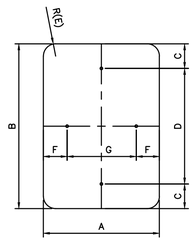
VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
36	48	6	36	6	24	1 1/2	0.08
48	60	6	48	9	30	1 1/2	0.08
18	30	3	24	–	–	1 1/2	0.08



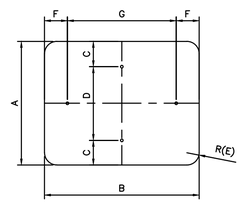
SQUARE (A)

A	B	C	D	T
18	3	12	1 1/2	0.08
24	3	18	1 1/2	0.08
36	3	30	1 1/2	0.08



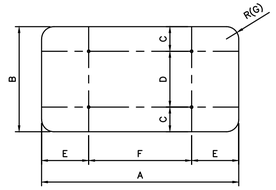
VERTICAL/HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
12	18	1 1/2	15	1 1/2	1 1/2	9	0.08
12	36	3	30	1 1/2	1 1/2	9	0.08
18	24	3	18	1 1/2	1 1/2	15	0.08
24	30	3	24	1 1/2	3	18	0.08
24	36	3	30	1 1/2	3	18	0.08
24	48	3	36	1 1/2	3	18	0.08
30	36	3	30	1 1/2	3	24	0.08



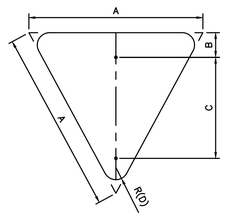
HORIZONTAL/VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
12	6	–	–	1 1/2	1	4	0.08
18	6	–	–	1 1/2	1	4	0.08
12	9	1	10	1 1/2	–	–	0.08
24	12	1 1/2	9	1 1/2	2	8	0.08
24	18	3	12	1 1/2	2	14	0.08
30	24	3	18	1 1/2	3	18	0.08
36	12	1 1/2	9	1 1/2	2	8	0.08



HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
36	24	3	18	6	24	1 1/2	0.08
48	24	3	18	9	30	1 1/2	0.08
48	36	6	24	9	30	1 1/2	0.08
60	24	3	18	12	36	1 1/2	0.08
60	36	6	24	12	36	1 1/2	0.08



EQUILATERAL TRIANGLE

A	B	C	D	T
36	3	21	1 1/2	0.08

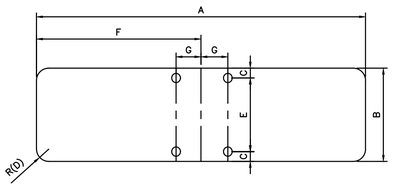


TABLE – D3 SIGNS (BRACKETS)

A	B	C	D	E	F	G	T
30	9	5/16	1 1/2	8 3/8	15	1 3/4	0.125
36	9	5/16	1 1/2	8 3/8	18	1 3/4	0.125
42	9	5/16	1 1/2	8 3/8	21	1 3/4	0.125
48	9	5/16	1 1/2	8 3/8	24	1 3/4	0.125

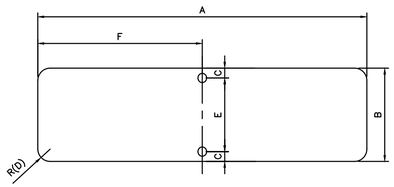


TABLE – D3 SIGNS

A	B	C	D	E	F	T
30	9	1 1/2	1 1/2	6	15	0.125
36	9	1 1/2	1 1/2	6	18	0.125
42	9	1 1/2	1 1/2	6	21	0.125
48	9	1 1/2	1 1/2	6	24	0.125

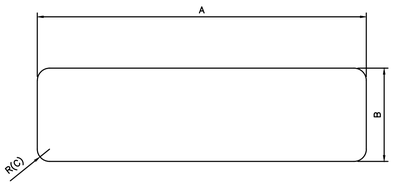
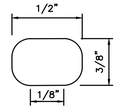


TABLE – D1 SIGNS

A	B	C	T
60	24	1 1/2	0.08
72	24	1 1/2	0.08
84	24	1 1/2	0.08
96	24	1 1/2	0.08

NOTES:

1. A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "NO OUTLET" SUPPLEMENT IS REQUIRED.
2. THE CITY OF HOUSTON "STOP" AND "YIELD" SIGNS SHALL BE A MINIMUM 36". SPECIAL PERMISSION FROM THE CITY TRAFFIC ENGINEER IS REQUIRED FOR LESS THAN 36" SIGNS.
3. ALL PUNCHED HOLES ARE 3/8"x 1/2" OVAL.
4. ALL CORNER RADII ARE 1 1/2".
5. ALL DIMENSIONS ARE IN INCHES.
6. T = THICKNESS



APPROVED BY:	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 01554–06

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

GROUND MOUNTED SIGN SIZES

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

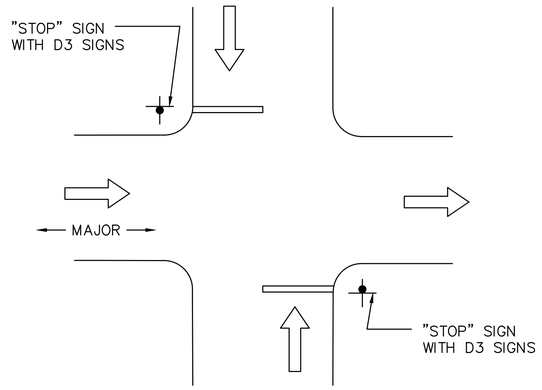
SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 4 OF 13

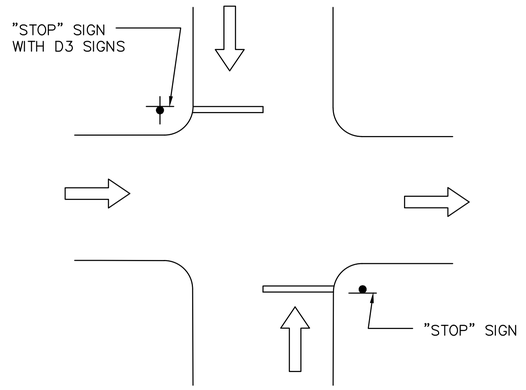
WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 222 OF 343	

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

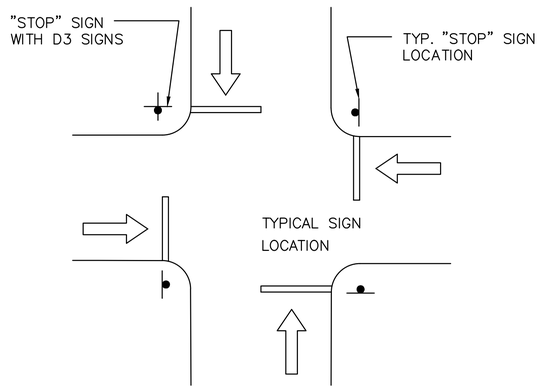
TYPICAL SIGN PLACEMENT



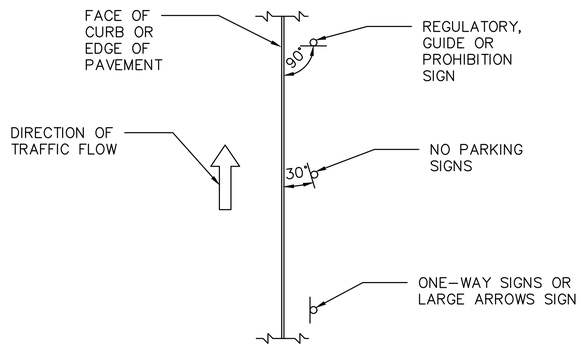
TWO-WAY STOP
AND ONE-WAY OPERATION
ON MAJOR/LOCAL INTERSECTION



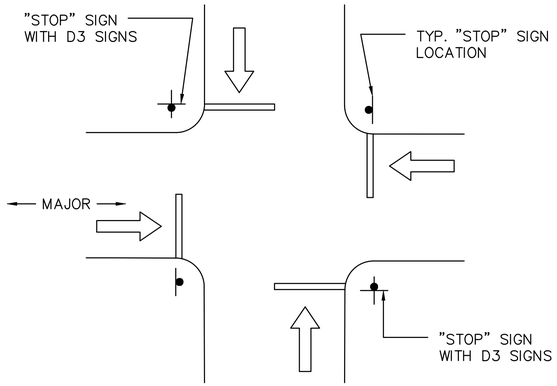
TWO-WAY STOP
AND ONE-WAY OPERATION
ON LOCAL/LOCAL INTERSECTION



FOUR-WAY STOP CONTROL
ON LOCAL/LOCAL INTERSECTION



MAST ARM INSTALLATION
REFER TO TRAFFIC SIGNAL DETAILS
FOR ADDITIONAL INFORMATION.



FOUR-WAY STOP CONTROL
ON MAJOR/LOCAL INTERSECTION

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIGN PLACEMENT

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER

DIRECTOR OF HPW

CITY TRAFFIC ENGINEER

EFF DATE: NOV-27-2023 | DWG NO: 01554-07

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 5 OF 13

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 223 OF 343

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DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
STOP	R1-1	36x36
YIELD	R1-2	36x36x36
ALL WAY PLAQUE	R1-3P	18x6
YIELD HERE TO PEDISTRIANS	R1-5a	36x48
EXCEPT RIGHT TURN (PLAQUE)	R1-10P(1)	24x18
EXCEPT BUSES (PLAQUE)	R1-10P(2)	24x18
SPEED LIMIT	R2-1	30x36
MINIMUM SPEED LIMIT (PLAQUE)	R2-4P	24x30
NO RIGHT TURNS	R3-1	36x36
NO LEFT TURNS	R3-2	36x36
NO U-TURNS	R3-4	36x36
LEFT/RIGHT TURN ONLY	R3-5	30x36
THRU ONLY	R3-5a	30x36
LEFT TURN/THRU	R3-6	30x36
LEFT/RIGHT LANE MUST TURN LEFT/RIGHT	R3-7	36x36
ADVANCE INTERSECTION LANE CONTROL (VARIES)	R3-8	VARIESx30
TWO-WAY LEFT TURN ONLY (OVERHEAD)	R3-9a	30x36
TWO-WAY LEFT TURN LANE (POST MOUNTED)	R3-9b	24x36
BEGIN	R3-9cP	30x12
END	R3-9dP	30x12
REVERSIBLE LANE CONTROL (SYMBOL)	R3-9e	108x48
REVERSIBLE LANE CONTROL (POST MOUNTED)	R3-9f	36x54
ADVANCE REVERSIBLE LANE CONTROL TRANSITION	R3-9g,9h	108x36
END REVERSIBLE LANE	R3-9i	108x48
BIKE LANE	R3-17	24x18
SLOWER TRAFFIC KEEP RIGHT	R4-3	24x30
BEGIN RIGHT TURN LANE YIELD TO BIKES	R4-4	36x30
KEEP RIGHT	R4-7	24x30
KEEP LEFT	R4-8	24x30
DO NOT DRIVE ON SHOULDER	R4-17	24x30
DO NOT PASS ON SHOULDER	R4-18	24x30
DO NOT ENTER	R5-1	36x36
WRONG WAY	R5-1a	42x30
NO TRUCKS (SYMBOL)	R5-2(1)	24x24
NO THRU TRUCKS (TEXT)	R5-2(2)	24x30
ONE WAY (LONG)	R6-1	54x18
ONE WAY	R6-2	30x36
ROUNDABOUT DIRECTIONAL (2 CHEVRONS)	R6-4	30x24
ROUNDABOUT CIRCULATION (PLAQUE)	R6-5P	30x30
BEGIN ONE WAY	R6-6	30x36
END ONE WAY	R6-7	30x36
PARKING RESTRICTION (ARROW)	R7-2(1)	12x18
PARKING RESTRICTION (TO CORNER)	R7-2(2)	12x18
PARKING RESTRICTION (BUS ZONE)	R7-2(3)	12x18

REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
PARKING RESTRICTION (VALET ZONE)	R7-2(4)	12x18
PARKING RESTRICTION (PEAK PERIOD)	R7-2(5)	12x18
PARKING RESTRICTION (EMERGENCY VEH. ONLY)	R7-2(6)	12x18
PARKING RESTRICTION (TAXI ZONE)	R7-2(7)	12x18
PARKING RESTRICTION (NO STOPPING OR STANDING)	R7-2(8)	12x18
PARKING RESTRICTION (JITNEY STOP)	R7-2(9)	12x18
PARKING RESTRICTION (PED-CAB ZONE)	R7-2(10)	12x18
PARKING RESTRICTION (LIMO ZONE)	R7-2(11)	12x18
PARKING RESTRICTION (COMMERCIAL VEH. ZONE)	R7-2(12)	12x18
PARKING RESTRICTION (FED/CITY AUTHORIZED VEH. ONLY)	R7-2(13)	12x18
PARKING RESTRICTION (U.S. MARSHAL PARKING ONLY)	R7-2(14)	12x18
PARKING RESTRICTION (EMERGENCY)	R7-2(15)	12x18
PARKING TIME LIMIT (VARIES)	R7-108	12x18
HANDICAPPED PARKING	R7-8T	12x18
TOW AWAY ZONE (PLAQUE)	R7-201P	12x6
PARKING METER (COH)	R7-110	12x18
ON TRACKS (PLAQUE)	R8-3eP	24x18
CROSS ONLY AT CROSSWALKS (SYMBOL)	R9-2	12x18
NO PEDESTRIAN CROSSING (SYMBOL)	R9-3	18x18
NO PEDESTRIAN CROSSING	R9-3a	12x18
PEDESTRIAN CROSSING	R9-8	36x18
SIDEWALK CLOSED	R9-9	24x12
SIDEWALK CLOSED-USE OTHER SIDE	R9-10	24x12
SIDEWALK CLOSED CROSS HERE	R9-11a	24x12
PUSH BUTTON FOR PEDESTRIAN CROSSING	R10-3e	9x15
LEFT ON GREEN ARROW ONLY	R10-5	30x36
STOP HERE ON RED	R10-6	24x36
DO NOT BLOCK INTERSECTION	R10-7	24x30
LEFT/RIGHT TURN SIGNAL	R10-10	30x36
NO TURN ON ROAD (TEXT)	R10-11a	36x48
LEFT TURN YIELD ON GREEN	R10-12	30x36
CROSSWALK, STOP ON RED	R10-23	24x30
KEEP OFF MEDIAN	R11-1	24x30
ROAD CLOSED	R11-2	48x30
ROAD CLOSED LOCAL TRAFFIC ONLY	R11-3a	60x30
BRIDGE OUT LOCAL TRAFFIC ONLY	R11-3b	60x30
ROAD CLOSED TO THRU TRAFFIC	R11-4	60x30
WEIGHT LIMIT XX TONS	R12-1	24x30
AXLE WEIGHT LIMIT XX TONS/LBS	R12-2	24x30
NO TRUCKS OVER XX TONS/LBS EMPTY WEIGHT	R12-3	24x36
WEIGHT LIMIT XX TONS PER AXLE XX TONS GROSS	R12-4	36x24
LOAD ZONED BRIDGE	R12aT	VARIESx36
TRUCK ROUTE	R14-1	24x18
GRADE CROSSING (CROSSBUCK)	R15-1	48x9
NUMBER OF TRACKS (PLAQUE)	R15-2P	27x18

REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
RIGHT ANGLE TURN	CW1-1	36X36
HORIZONTAL CURVE	CW1-2	36X36
REVERSE RIGHT ANGLE TURNS	CW1-3	36X36
REVERSE HORIZONTAL CURVES	CW1-4	36X36
REVERSE CURVE (2 LANES)	CW1-4b	36X36
REVERSE CURVE (MORE THAN 2 LANES)	CW1-4c	36X36
ONE-DIRECTION LARGE ARROW	CW1-6	48X24
UPWARD SLOPING ARROW	CW1-6aT	36X36
CHEVRON	CW1-8	18X24
STOP AHEAD	CW3-1	36X36
SIGNAL AHEAD	CW3-3	36X36
BE PREPARED TO STOP	CW3-4	36X36
ROAD NARROWS	CW5-1	36X36
NARROW BRIDGE	CW5-2	36X36
TWO-WAY TRAFFIC FLOW	CW6-3	36X36
TWO-WAY TRAFFIC	CW6-4	12X18
BUMP	CW8-1	36X36
DIP	CW8-2	36X36
SOFT SHOULDER	CW8-4	36X36
TRUCK CROSSING	CW8-6	36X36
ROUGH ROAD	CW8-8	36X36
UNEVEN LANES	CW8-11	36X36
LEFT LANE ENDS	CW9-1(1)	36X36
RIGHT LANE ENDS	CW9-1(2)	36X36
DOUBLE ARROW	CW12-1	30X30
ADVISORY SPEED (PLAQUE)	CW13-1P	24X24
XX FEET (PLAQUE)	CW16-2P	24X18
AHEAD (PLAQUE)	CW16-3	24X12
ROAD WORK AHEAD	CW20-1	36X36
DETOUR AHEAD	CW20-2	36X36
ROAD CLOSED AHEAD	CW20-3	36X36
ONE LANE ROAD	CW20-4	36X36
LEFT LANE CLOSED	CW20-5(1)	36X36
RIGHT LANE CLOSED	CW20-5(2)	36X36
FLAGGER (SYMBOL)	CW20-7	36X36
NARROW LANES AHEAD	CW20-8T	36X36
SHOULDER WORK AHEAD	CW21-5	36X36
UTILITY WORK AHEAD	CW21-7	36X36
DOUBLE REVERSE CURVE (1 LANE)	CW24-1	36X36
DOUBLE REVERSE CURVE (2 LANE)	CW24-1a	36X36
DOUBLE REVERSE CURVE (3 LANE)	CW24-1b	36X36
END ROAD WORK	G20-2	36X18
DETOUR WITH ARROWS	M4-9	30X24
END DETOUR	M4-8a	24X18
PEDESTRIAN DETOUR	M4-9b	30X24
DETOUR	M4-10	48X18

DISCLAIMER:
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Revisions			
No.	Date		App.

APPROVED BY:	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-08

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL CITY OF HOUSTON SIGNS

SHEET 1 OF 2

	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 6 OF 13

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 224 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\13 - signing & pavement marking standards\standards sheets\new\typical city of houston signs.dwg Plotted February 18, 2026 at 8:59 AM by Huml, John

DocuSign Envelope ID: 9B122261-CF05-457B-9A65-2650F40B66D5

DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES

LINE SERIES	COLOR	DESCRIPTION	WIDTH (INCHES)	TYPICAL APPLICATIONS
WB	WHITE	BROKEN (10' STRIPE W/30' GAP)	4"	LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS PERMITTED.
WS	WHITE	SOLID	4"	EDGE LINES TO DELINEATE THE RIGHT EDGE OF THE ROADWAY.
			6"	LEFT EDGE OF BICYCLE LANE AND LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS DISCOURAGED.
			12"	PERPENDICULAR CROSSWALK LINES.
			24"	STOP BARS AT INTERSECTIONS (SIGNALIZED AND UNSIGNALIZED).
				HATCHING AT HIGH VISIBILITY CROSSWALKS.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN SAME DIRECTION OF TRAVEL LANES.
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	GUIDE LINES THROUGH INTERSECTIONS.
				TAPER LINES FOR TURN LANES.
				GUIDE LINES FOR BICYCLE LANES.
YS	YELLOW	SOLID	4"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
			6"	BIDIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDS	YELLOW	DOUBLE SOLID	4" – (4") – 4" (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YDB	YELLOW	DOUBLE BROKEN	4" – (4") – 4" (GAP)	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLS DURING INTERMITTENT PERIODS.
YB	YELLOW	BROKEN (10' STRIPE W/30' GAP)	4"	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YB (BIKE)	YELLOW	BROKEN (3' STRIPE W/9' GAP)	4"	SEPARATES BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YSB	YELLOW	SOLID & BROKEN BROKEN (10' STRIPE W/30' GAP)	4" – (4") – 4" (GAP)	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
				USED FOR EDGE OF TWO-WAY LEFT TURN LANES (TWLTL).
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	PED/BIKE CROSSING
				VEHICLE / BIKE/ CONFLICT AREA
YIELD LINE	WHITE	TRIANGLE	16" x 24"	MID-BLOCK CROSSING.

DESCRIPTION AND APPLICATION OF REFLECTIVE RAISED PAVEMENT MARKERS (RPM)

RRPM TYPES	COLOR	COH SPEC. SEC. 02764 EQUIVALENT	DESCRIPTION
C	CLEAR	TYPE I-C	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE DOES NOT REFLECT.
R	CLEAR & RED	TYPE II-C-R	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE REFLECTS RED LIGHT.
A	AMBER & AMBER	TYPE II-A-A	APPROACH FACE AND THE OTHER SIDE BOTH REFLECT AMBER LIGHT.

LINE STYLE DESIGNATION : YSB4 – A40/A40

- COLOR
- PATTERN
- WIDTH OF STRIPE
- RPM SPACING
- RPM TYPE
- RPM SPACING
- RPM TYPE

GENERAL PAVEMENT MARKING NOTES:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE DUPLICATED AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECT'S COMPLETION.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
4. THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC PLACED OVER THE TEMPORARY STRIPING WITHIN 14 TO 30 CALENDAR DAYS AFTER COMPLETION OF THE FINAL PAVEMENT SURFACE, OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER. ALL OTHER PAVEMENT MARKINGS SHALL BE APPLIED AT THE SAME TIME. TEMPORARY STRIPING SHALL BE WATER BASED PAINT.
8. ALL FINAL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. ALL PAVEMENT ARROWS AND LEGENDS SHALL ALSO BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. PREFORMED THERMOPLASTIC APPLICATIONS MAY BE USED IF ONLY APPROVED BY THE CITY TRAFFIC ENGINEER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
14. BLUE RPMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

APPROVED BY:	APPROVED BY:
CITY ENGINEER	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

DRAWING SCALE
NOT TO SCALE

FOR CITY OF HOUSTON USE ONLY

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
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PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 7 OF 13

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 225 OF 343

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j:\2021\210601.01\cad\dwgs\sheets\13 - signing & pavement marking standards\standards sheets\new\pavement markings general notes and legends.dwg Plotted February 18, 2026 at 8:59 AM by Huml, John

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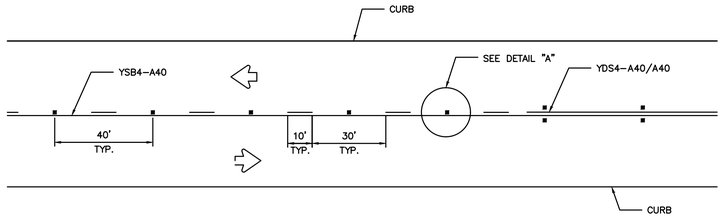
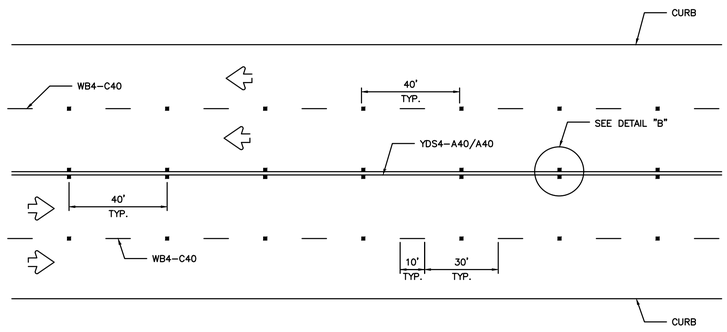
CENTERLINE & FOR ALL TWO LANE STREETS WITH PASSING ZONE

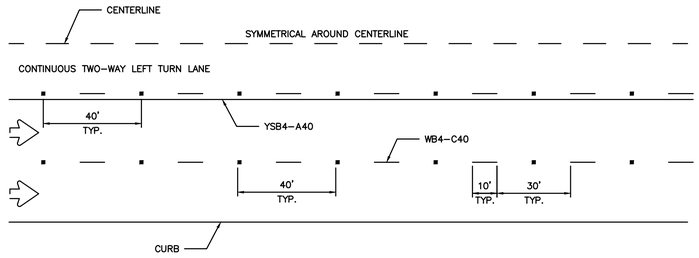


CENTERLINE & LANE LINES FOR FOUR LANE TWO–WAY STREETS

RRPM TYPE C, CLEAR FACE TOWARD NORMAL TRAFFIC, SHALL BE PLACED ON 40–FOOT CENTERS.

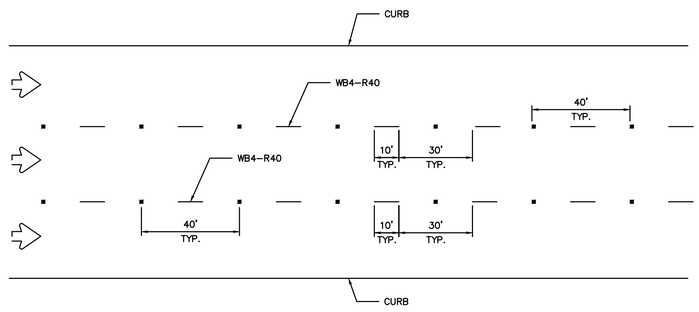


CENTERLINE & LANE LINES FOR TWO–WAY LEFT TURN LANE



LANE LINES FOR ONE–WAY MULTILANE STREET

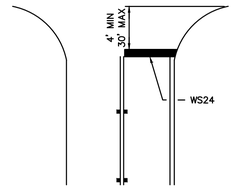
RRPM TYPE R SHALL HAVE CLEAR FACE TOWARD NORMAL TRAFFIC AND RED FACE TOWARD WRONG–WAY TRAFFIC.



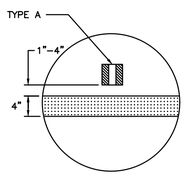
GENERAL NOTES:

1. EDGELINE ADJACENT TO CURB AND GUTTER IS 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 WAYS 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.

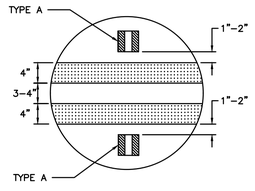
GUIDE FOR PLACEMENT OF STOP LINES & CENTERLINE



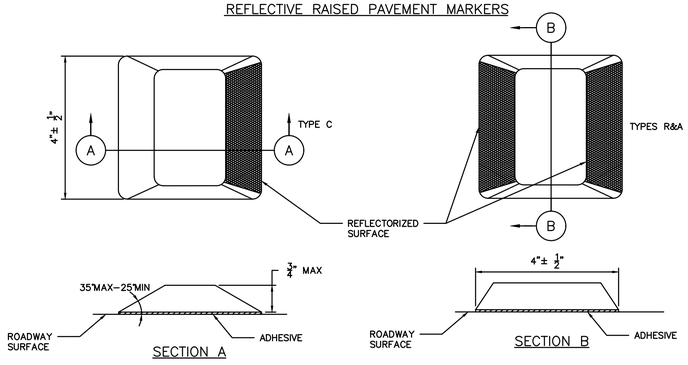
DETAIL "A"



DETAIL "B"



REFLECTIVE RAISED PAVEMENT MARKERS



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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02760–05

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE

FOR CITY OF HOUSTON USE ONLY

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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 8 OF 13

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 226 OF 343

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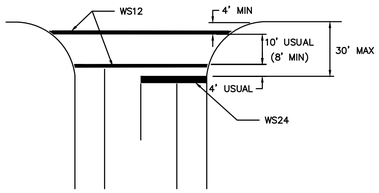
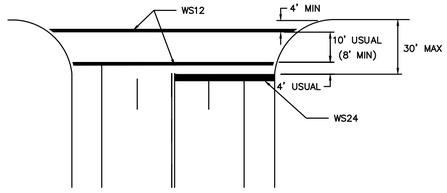
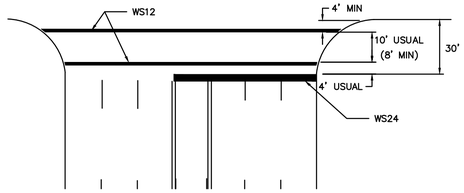
TWO LANES WITH SHOULDERS



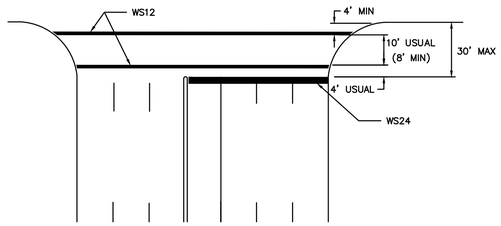
FOUR LANES WITH SHOULDERS



MULTI – LANES



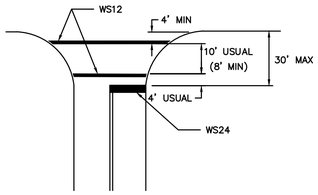
MULTI – LANE WITH MEDIAN



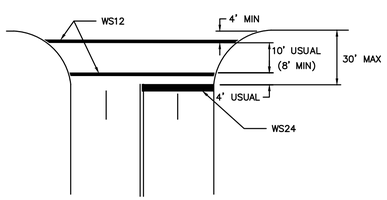
NOTES:

1. CROSSWALKS AND STOP LINES SHALL BE WHITE.
2. "D" IS EQUAL TO ONE HALF THE WIDTH OF TRAVEL LANE.

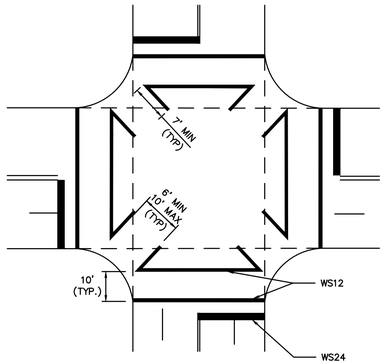
TWO LANES



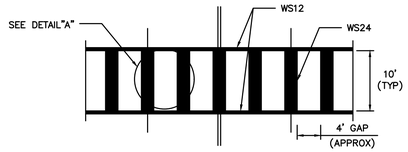
FOUR LANES



EXCLUSIVE PEDESTRIAN PHASE

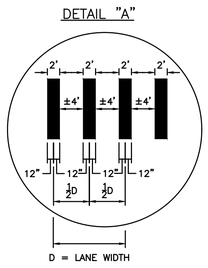


HIGH VISIBILITY CROSSWALK DETAIL

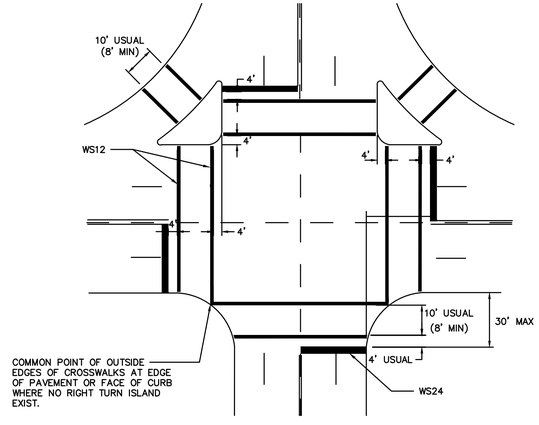


TYPICALLY USED AT SIGNALIZED AND NON–SIGNALIZED CROSSINGS ON COLLECTOR AND ARTERIAL ROADWAYS AND AT LOCATIONS REQUIRING EXTRA EMPHASIS.

DETAIL "A"



INTERSECTION WITH RIGHT – TURN ISLANDS



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CITY ENGINEER	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

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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 9 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 227 OF 343

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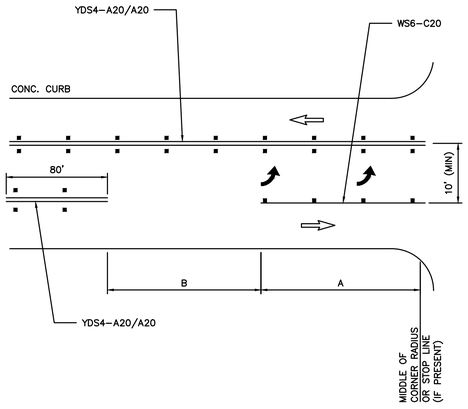
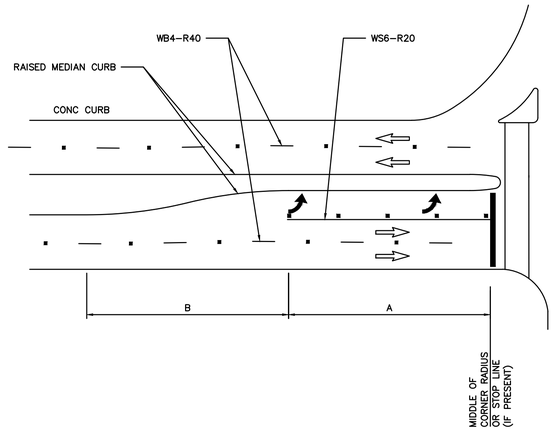
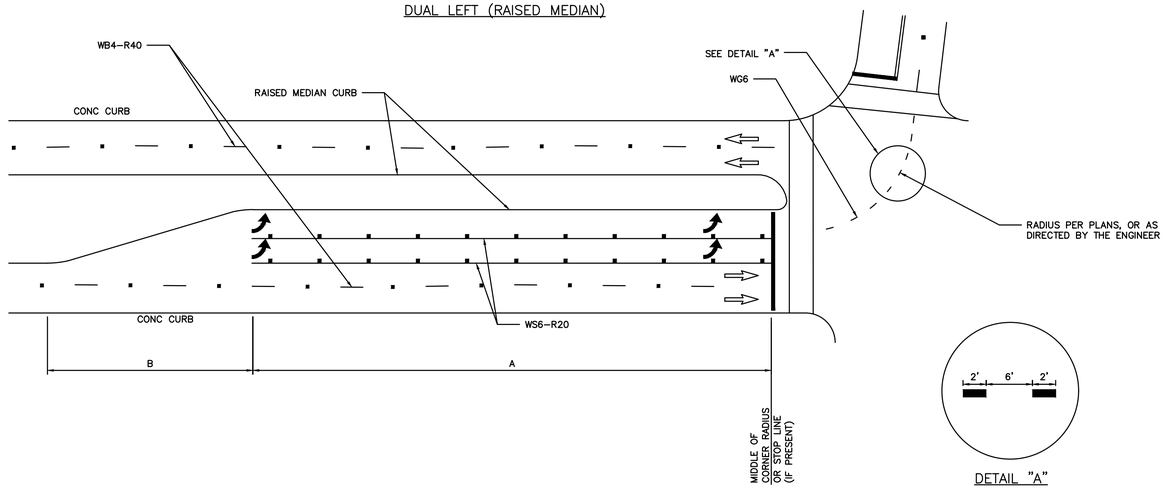
LEFT–TURN LANE



LEFT–TURN LANE (RAISED MEDIAN)



DUAL LEFT (RAISED MEDIAN)



DETAIL "A"

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:	APPROVED BY:
CITY ENGINEER	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

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 10 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 228 OF 343

DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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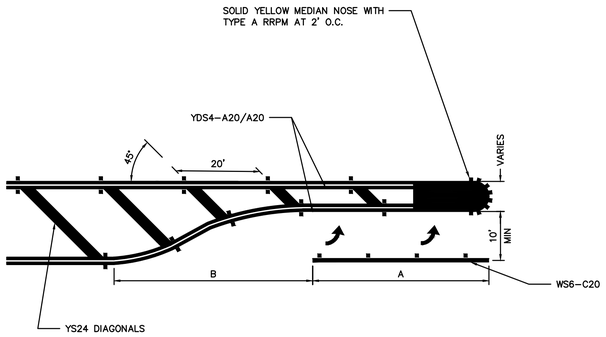
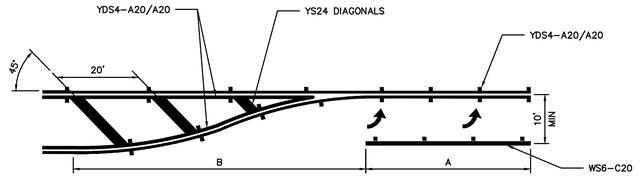
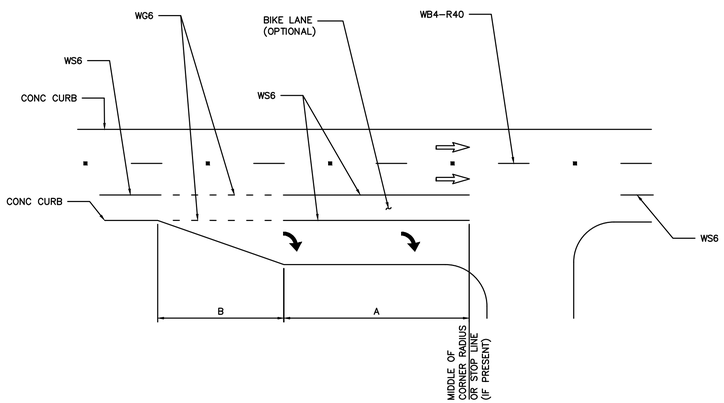
PAINTED MEDIAN LEFT TURN BAY DETAILS





UNSIGNALIZED RIGHT-TURN LANE



GENERAL NOTES:

1. STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS OR APPROXIMATE CALCULATIONS.
2. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS REFER TO 02760-02 – LEFT/RIGHT TURN "ONLY" AND ARROW SPACING.
3. 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.
4. 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:	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-14

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

LEFT TURN LANE &
RIGHT TURN LANE DESIGN

SHEET 02 OF 02

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE

NOT TO SCALE

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 11 OF 13

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 229 OF 343

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.

j:\2021\210601.01\cad\dwgs\sheets\13 - signing & pavement marking standards\standards sheets\new\left-turn lane & right-turn lane design worksheet 2.dwg Plotted February 18, 2026 at 8:59 AM by Humi, John

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

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 12 OF 13

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 230 OF 343

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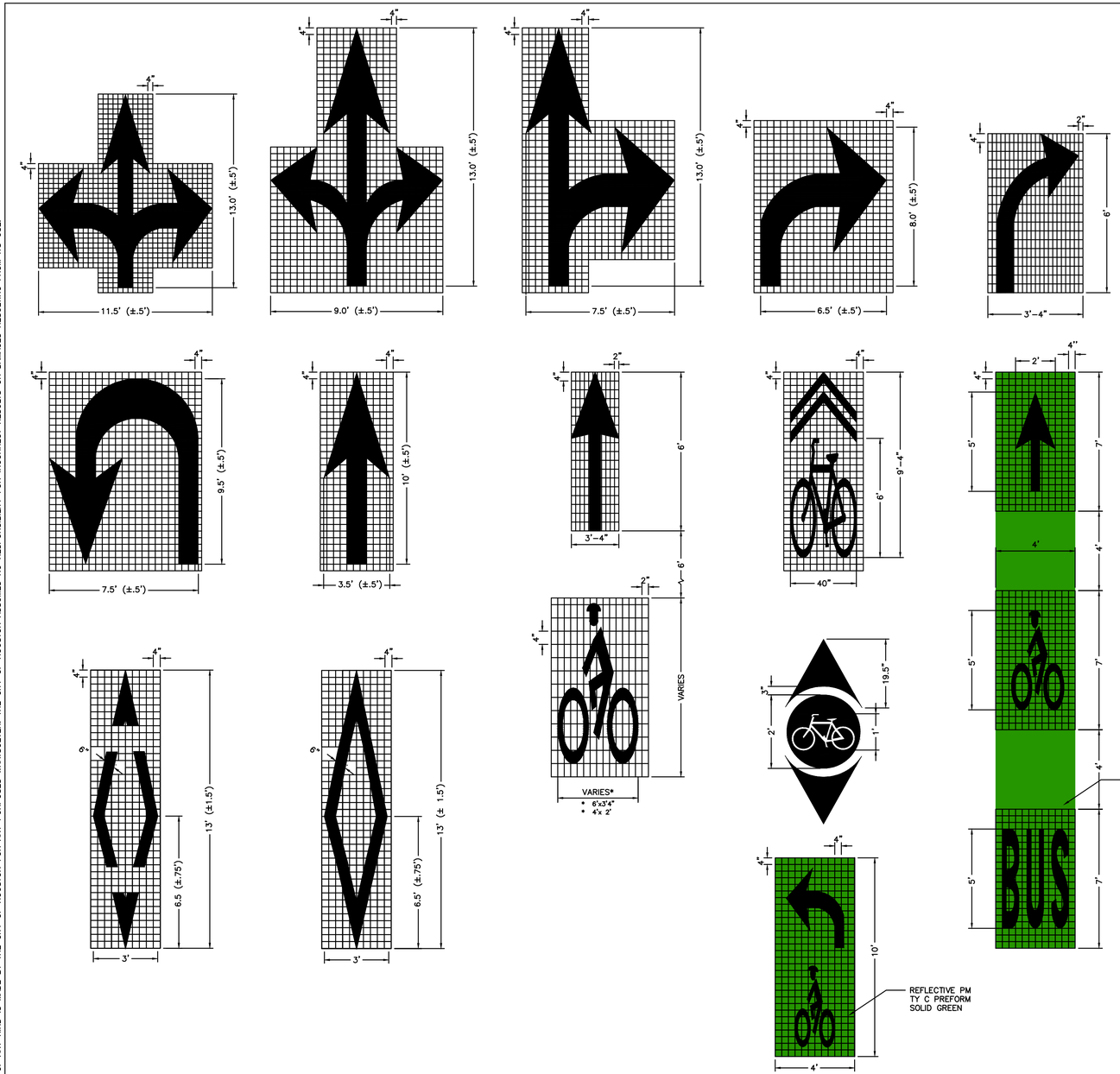
DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THER USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR 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.



NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":

1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.
2. THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE–THIRD DEPENDING ON CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR REDUCTION BELOW ONE–THIRD OF STANDARD SIZES.
3. THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET, OR AS INDICATED ON THE PLANS.
4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:

   A. REGULATOR
      STOP
      RIGHT (LEFT) TURN ONLY, SYMBOL ARROWS.

   B. WARNING
      STOP AHEAD
      SIGNAL AHEAD
      SCHOOL
      SCHOOL X–ING
      PED X–ING
      R X R (SEE SHEET 02760–08 DETAILS
      OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER CERTAIN CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR SPECIAL CONDITIONS.

5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.
6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES (ALL–WAY STOP).
7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION. FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
8. SPACING BETWEEN STANDARD SIZE LETTERS SHOULD BE 4 INCHES (MIN). THE WIDTH OF NON–STANDARD SIZE LETTERS MAY VARY DEPENDING ON THE WIDTH OF THE TRAVEL LANES. APPROVAL BY CITY TRAFFIC ENGINEER. SPECIAL PERMISSION NEEDED FOR NON–STANDARD SIZE "LETTER" AND/OR "ARROWS".
9. LANE–USE ARROW MARKINGS MAY BE USED TO CONVEY EITHER GUIDANCE OR MANDATORY MESSAGES. SINGLE TURN ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".
10. PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED IN THE DESIGN PLANS.

APPROVED BY:	APPROVED BY:
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY:	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02760–04

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STANDARD PAVEMENT MARKING – SYMBOLS

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 13 OF 13

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 231 OF 343	

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SIGNAL LEGEND

EXISTING POLE W/ MAST ARM

EXISTING PEDESTAL POLE

EXISTING PEDESTRIAN PUSH BUTTON

EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE

EXISTING PEDESTRIAN SIGNAL HEAD

EXISTING CONTROLLER CABINET

EXISTING POLE MOUNTED METER

EXISTING PULL BOX - TYPE B

EXISTING MAST ARM SIGN

EX. ROW

EX. PRE-EMPT SENSOR

N

0 20'

1" = 20'

EX. POLE MOUNTED METER (UIP)

EX. CONTROLLER (UIP)

Ø2 PED

Ø4 PED

Ø4 PB

S1

Ø4

S5

Ø7

Ø8 PED

Ø2 PED

Ø2 PB

Ø1 Ø6 Ø6 Ø6

Ø4 PED

Ø4 PB

Ø6 PED

EX. STRAIN POLE G, SIGNAL HEADS, SIGNS, DETECTION, PRE-EMPT SENSOR, AND LUMINAIRE (UIP), EX. PB4, W7, AND W8 (TBR&R)

EX. STRAIN POLE C, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB1, W1, AND W2 (TBR&R)

EX. POLE E (UIP), PB2, W3, W4 (TBR&R)

EX. STRAIN POLE D, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP)

EX. STRAIN POLE C, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB1, W1, AND W2 (TBR&R)

EX. STRAIN POLE F, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB3, W5, AND W6 (TBR&R)

Ø6 PED

Ø8 PB

Ø8 PED

Ø8

Ø2 Ø2 Ø2 Ø5

S2 S6

S6 S4

S7 S3

EXIST ROW

BARRYKNOLL LANE

GESSNER ROAD

1+00 2+00 3+00 4+00

NOTES:
ALL PEDESTRIAN SIGNAL INDICATIONS AND PUSH BUTTONS TO BE REMOVED AS PART OF THIS PROJECT. ALL SIGNAL POLES, MAST ARMS, SIGNAL HEADS, CONDUIT AND CABLE TO BE USED IN PLACE.

EXISTING SIGNS (UIP)

S1: "GESSER ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "GESSER ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LANE USAGE SIGN
S6: "LEFT TURN SIGNAL" SIGN
S7: "LEFT TURN YIELD" SIGN

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY SUITE 400 HOUSTON, TX 77079
PH: 832.318.8800 FAX: 713.965.0044 FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TRAFFIC SIGNAL AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 232 OF 343

No.	Date	Revisions	App.

SIGNAL LEGEND

- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTAL POLE
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING CONTROLLER CABINET
- EXISTING POLE MOUNTED METER
- EXISTING PULL BOX - TYPE B
- EXISTING SIGN
- EX. ROW
- EX. PRE-EMPT SENSOR

N

0 20'
1" = 20'

Appv. | Revisions | Date | No.

EX. STRAIN POLE (TBR)
EX. POWER POLE METERED (TBR)
EX. STRAIN POLE (TBR)
EX. POLE 4 (TBR)
EX. SIGNAL CONTROLLER (TBR)
EX. STRAIN POLE (TBR)
Ø4 PED
Ø4 PB
Ø2 PED
Ø4 PED
Ø2 PB
Ø2 PED
Ø4 PB
Ø6 S4
Ø6
S5
S1
Ø4
S5
Ø8
Ø4
S5
Ø8
Ø8 PED
Ø8 PB
Ø2 PB
S2 Ø2
Ø2
S5
Ø8 PB
S3
Ø8 PED
Ø2 PED
EXIST ROW
EXIST ROW
EXIST ROW
BARRYKNOLL LANE
PLANTATION ROAD
4+55
4+00
3+00
10+00
9+00
8+00
7+00
6+00
2+00
1+00
8" water
6" water
12" gas
12" gas
21" san.
8" san.
centerpoint energy 2" ip st/gas line
san. m.h. rim: 77.47 (E)(21") inv.= 63.31 (N)(12") inv.= 63.97 (S)(12") inv.= 63.87 (S)(6") inv.= 65.82 (W)(24") inv.= 63.52
san. m.h. rim: 78.52 (E)(21") inv.= 63.57 (S)(21") inv.= 63.52
san. m.h. rim: 78.52 (S)(21") inv.= 66.22 (W)(21") inv.= 63.37
san. m.h. rim: 78.52 (SE)(21") inv.= 73.20 (E)(21") inv.= 72.80
building

EXISTING SIGNS

S1: "PLANTATION ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "PLANTATION ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LEFT TURN YIELD SIGN

NOTES:

ALL EXISTING SIGNAL POLES, SPAN-WIRE ASSEMBLIES, SIGNAL HEADS, PUSH BUTTONS, CONTROLLER, METERED SERVICE, AND CABLE SHALL BE REMOVED AS PART OF THIS PROJECT.

EXISTING SIGNS SHALL BE REINSTALLED ON THE NEW MAST ARMS. ALL MOUNTING HARDWARE, EQUIPMENT, LABOR, INSTALLATION, AND ANCILLARY ITEMS REQUIRED TO COMPLETE THIS WORK, WHETHER SPECIFICALLY MENTIONED OR NOT, SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)
SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TRAFFIC SIGNAL AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

POSTED SPEED LIMIT

BARRYKNOLL LANE - 30 MPH
PLANTATION ROAD - 30 MPH

NOTES:
1. THE CONTRACTOR MUST LOCATE AND USE EXISTING CONDUITS, ALL EXISTING SIGNAL HEADS, AND OVERHEAD SIGNS TO BE USED IN PLACE
WHERE IT IS APPROPRIATE, EXISTING DRAWN CONDUITS ARE APPROXIMATE IN LOCATION AND LENGTH
2. REPLACE ALL EXISTING PEDESTRIAN SIGNAL HEADS AND PUSH BUTTONS AS SHOWN ON THE PLANS, ALL SHALL BE ADA COMPLIANT
3. USE EXISTING CONDUITS AND MULTI-CONDUCTOR CABLE TO WIRE NEW PEDESTRIAN SIGNAL HEADS AND APS PUSH BUTTONS, AS APPROPRIATE

EXISTING SIGNS

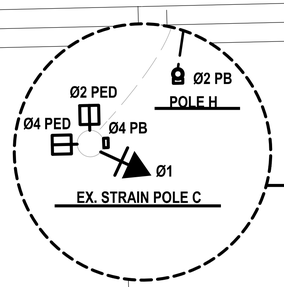
S1: "GESSER ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "GESSER ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LANE USAGE SIGN
S6: "LEFT TURN SIGNAL" SIGN
S7: "LEFT TURN YIELD" SIGN

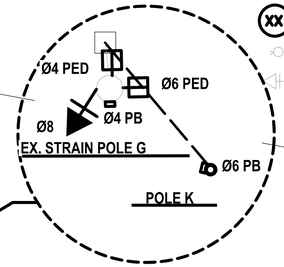
PROPOSED TRAFFIC SIGNAL PHASING						
Ø1	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Ø1	Ø2 PED Ø2 Ø5	Ø4 PED Ø4 Ø7	Ø5	Ø1 Ø6 Ø6 PED	Ø7	Ø8 Ø8 Ø8 PED

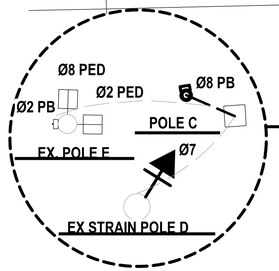
CAUTION:
EXISTING GAS FACILITIES IN AREA

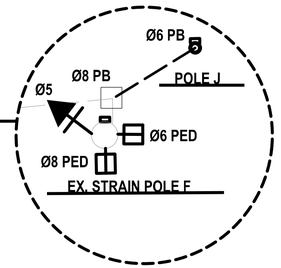
CAUTION:
EXISTING GAS FACILITIES IN AREA

CAUTION:
EXISTING GAS FACILITIES IN AREA











SIGNAL LEGEND

- EXISTING POLE W/ MAST ARM
- EXISTING PEDESTAL POLE
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED PEDESTAL POLE
- PROPOSED PEDESTRIAN PUSH BUTTON
- EXISTING CONDUIT
- PROPOSED CONDUIT
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING CONTROLLER CABINET
- EXISTING POLE MOUNTED METER
- EXISTING PULL BOX - TYPE B
- EXISTING MAST ARM SIGN
- EX. ROW
- CONDUIT RUN
- EX. PRE-EMPT SENSOR
- EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222.
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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL MODIFICATION AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 234 OF 343

Apps. | Revisions | Date | No.

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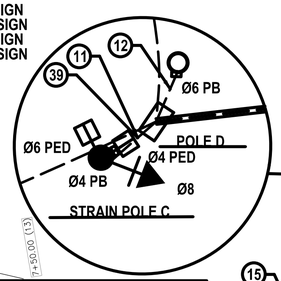
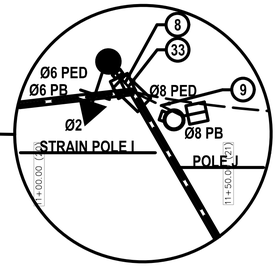
POSTED SPEED LIMIT
BARRYKNOLL LANE - 30 MPH
PLANTATION ROAD - 30 MPH

NOTES:
1. EXISTING OPTICOMS, AND LUMINAIRES NOT SHOWN.
2. ONLY RELEVANT CONDUIT TURN SHOWN, CONDUITS ARE DIAGRAMATIC ONLY. FIELD CONDITIONS MAY VARY.
3. USE EXISTING STREET NAME SIGNS, AND LEFT ON GREEN SIGNS ON THE PROPOSED MAST ARM

EXISTING SIGNS
S1: "PLANTATION ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "PLANTATION ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: "LEFT TURN YIELD" SIGN





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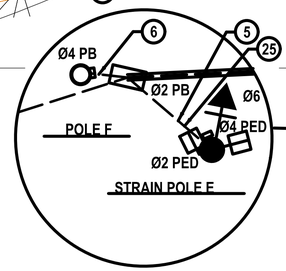

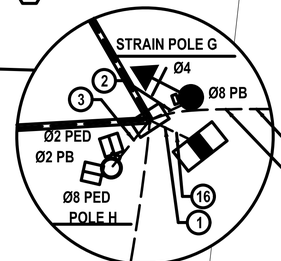

CAUTION:
EXISTING GAS FACILITIES IN AREA

EXIST ROW
BARRYKNOLL LANE
PLANTATION ROAD
7+00
8+00
9+00
10+00
11+00
12+00
13+00

STOP LINE & LOOP DETECTOR LOCATIONS

ITEM BY DIRECTION	STATION BARRYKNOLL ROAD	OFFSET
SB @ PLANTATION ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+20.39	37.48' LT
PH 4 CALL LOOP	9+34.06	37.53' LT
1A LEADING EDGE		
PH 4 CALL LOOP	9+23.03	38.30' LT
2A LEADING EDGE		
PH 4 CALL LOOP	9+32.83	47.43' LT
1B LEADING EDGE		
PH 4 CALL LOOP	9+22.09	48.25' LT
2B LEADING EDGE		

PROPOSED TRAFFIC SIGNAL PHASING

Ø2	Ø4	Ø6	Ø8
Ø2 Ø2 Ø2 PED	Ø4 PED Ø4 Ø4	Ø6 PED Ø6 Ø6	Ø8 Ø8 Ø8 PED

STOP LINE & LOOP DETECTOR LOCATIONS

ITEM BY DIRECTION	STATION BARRYKNOL	OFFSET
NB @ PLANTATION ROAD (THRU & TURN		
STOP LINE @ GUTTER	10+00.06	41.12' RT
PH 8 CALL LOOP	9+70.53	44.88' RT
1A LEADING EDGE		
PH 8 CALL LOOP	9+90.38	42.74' RT
2A LEADING EDGE		
PH 8 CALL LOOP	9+72.74	53.85' RT
1B LEADING EDGE		
PH 8 CALL LOOP	9+89.40	52.71' RT
2B LEADING EDGE		
PH 8 CALL LOOP	9+82.62	270.19' RT
1C LEADING EDGE		
PH 8 CALL LOOP	9+94.43	270.09' RT
2C LEADING EDGE		

STOP LINE & LOOP DETECTOR LOCATIONS

ITEM BY DIRECTION	STATION BARRYKNOL L ROAD	OFFSET
EB BARRYKNOLL ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+03.83	20.20' RT
PH 2 CALL LOOP	8+99.89	2.06' RT
1A LEADING EDGE		
PH 2 CALL LOOP	9+01.32	11.64' RT
2A LEADING EDGE		
PH 2 CALL LOOP	8+89.84	2.79' RT
1B LEADING EDGE		
PH 2 CALL LOOP	8+90.96	12.00' RT
2B LEADING EDGE		
PH 2 CALL LOOP	6+76.65	1.87' RT
1C LEADING EDGE		
PH 2 CALL LOOP	6+76.68	12.50' RT
2C LEADING EDGE		
PH 2 CALL LOOP	10+99.98	2.51' RT
1D LEADING EDGE		
PH 2 CALL LOOP	10+99.97	12.60' RT
2D LEADING EDGE		

STOP LINE & LOOP DETECTOR LOCATIONS

ITEM BY DIRECTION	STATION BARRYKNOL	OFFSET
WB BARRYKNOLL ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+88.98	20.18' LT
PH 6 CALL LOOP	9+98.92	2.62' LT
1A LEADING EDGE		
PH 6 CALL LOOP	9+93.65	13.11' LT
2A LEADING EDGE		
PH 6 CALL LOOP	10+08.92	2.43' LT
1B LEADING EDGE		
PH 6 CALL LOOP	10+03.65	12.92' LT
2B LEADING EDGE		
PH 6 CALL LOOP	12+12.07	2.48' LT
1C LEADING EDGE		
PH 6 CALL LOOP	12+12.14	12.49' LT
2C LEADING EDGE		
PH 6 CALL LOOP	7+94.89	2.37' LT
1D LEADING EDGE		
PH 6 CALL LOOP	7+94.90	12.67' LT
2D LEADING EDGE		

SIGNAL LEGEND

- PROPOSED POLE W/ MAST ARM
- PROPOSED PEDESTAL POLE
- PROPOSED PEDESTRIAN PUSH BUTTON
- PROPOSED CONDUIT
- PROPOSED CONDUIT
- PROPOSED VEHICLE SIGNAL HEAD W/BLACK PLATE
- PROPOSED PEDESTRIAN SIGNAL HEAD
- PROPOSED CONTROLLER CABINET
- PROPOSED POLE MOUNTED METER
- PROPOSED LUMINAIRE W/PHOTO CELL
- PROPOSED PULL BOX TYPE B
- PROPOSED LOOP DETECTOR
- EX. SIGN
- EX. ROW
- CONDUIT RUN (XX)
- PROPOSED PRE-EMPT SENSOR

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CABLE COMPANY — DATE

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HRGreen
11750 KATY FREEWAY
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PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TRAFFIC SIGNAL AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 235 OF 343

No.	Date	Revisions	Appr.

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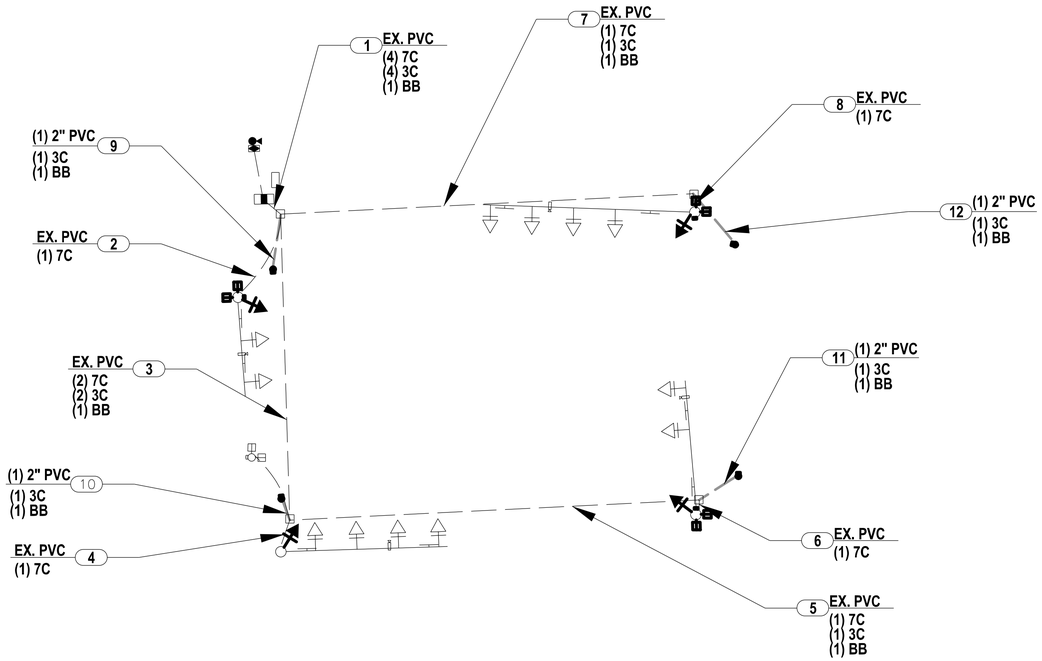
No.	Date	Revisions	App.



HGIH VOLTAGE CIRCUT

(X) Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
(X) = NUMBER OF CABLES (SIGNAL)
XX = #14 AWG SOLID CONDUCTOR CABLE
SL = STREET LIGHTING, 2-#10 AWG XHHW
BB = BARE BOND #8 AWG SOLID
BG = BARE GROUND, #8 AWG SOLID
SLG = STREET LIGHT GROUNDING FOR LUMINAIRE #12 AWG XHHW
SP = SIGNAL POWER (SEE NOTES BELOW)
PC = PHOTO CELL, #10 AWG XHHW

NOTE:
SP1 SHALL CONSIST OF : 6 - #4 AWG XHHW
2 - WHITE,
1 - BLACK,
1 - RED,
2 - GREEN

SP2 SHALL CONSIST OF=: 3 - #4 AWG XHHW

NOTE:
ALL OTHER EXISTING SIGNAL CABLE AND CONDUIT NOT IDENTIFIED ON THIS SHEET SHALL BE USED IN PLACE

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL AND GESSNER
HIGH VOLTAGE CIRCUIT

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 236 OF 343

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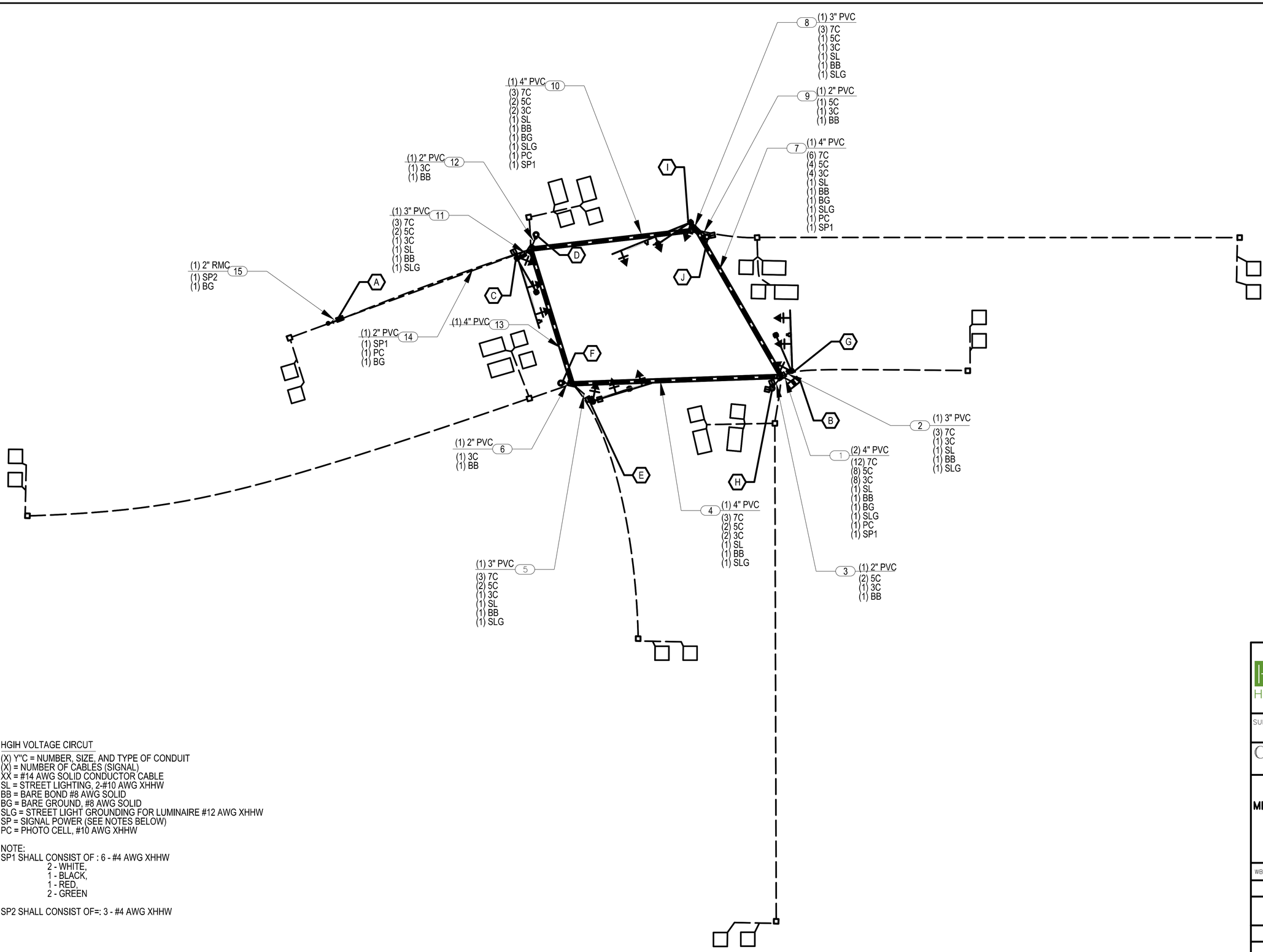

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(X) = NUMBER OF CABLES (SIGNAL)
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SL = STREET LIGHTING, 2-#10 AWG XHHW
BB = BARE BOND #8 AWG SOLID
BG = BARE GROUND, #8 AWG SOLID
SLG = STREET LIGHT GROUNDING FOR LUMINAIRE #12 AWG XHHW
SP = SIGNAL POWER (SEE NOTES BELOW)
PC = PHOTO CELL, #10 AWG XHHW

NOTE:
SP1 SHALL CONSIST OF : 6 - #4 AWG XHHW
2 - WHITE,
1 - BLACK,
1 - RED,
2 - GREEN

SP2 SHALL CONSIST OF=: 3 - #4 AWG XHHW

No.	Date	Revisions	Appr.

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BARRYKNOLL AND PLANTATION
HIGH VOLTAGE CIRCUIT

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 237 OF 343

DATE: 2/17/2026 8:13:46 AM
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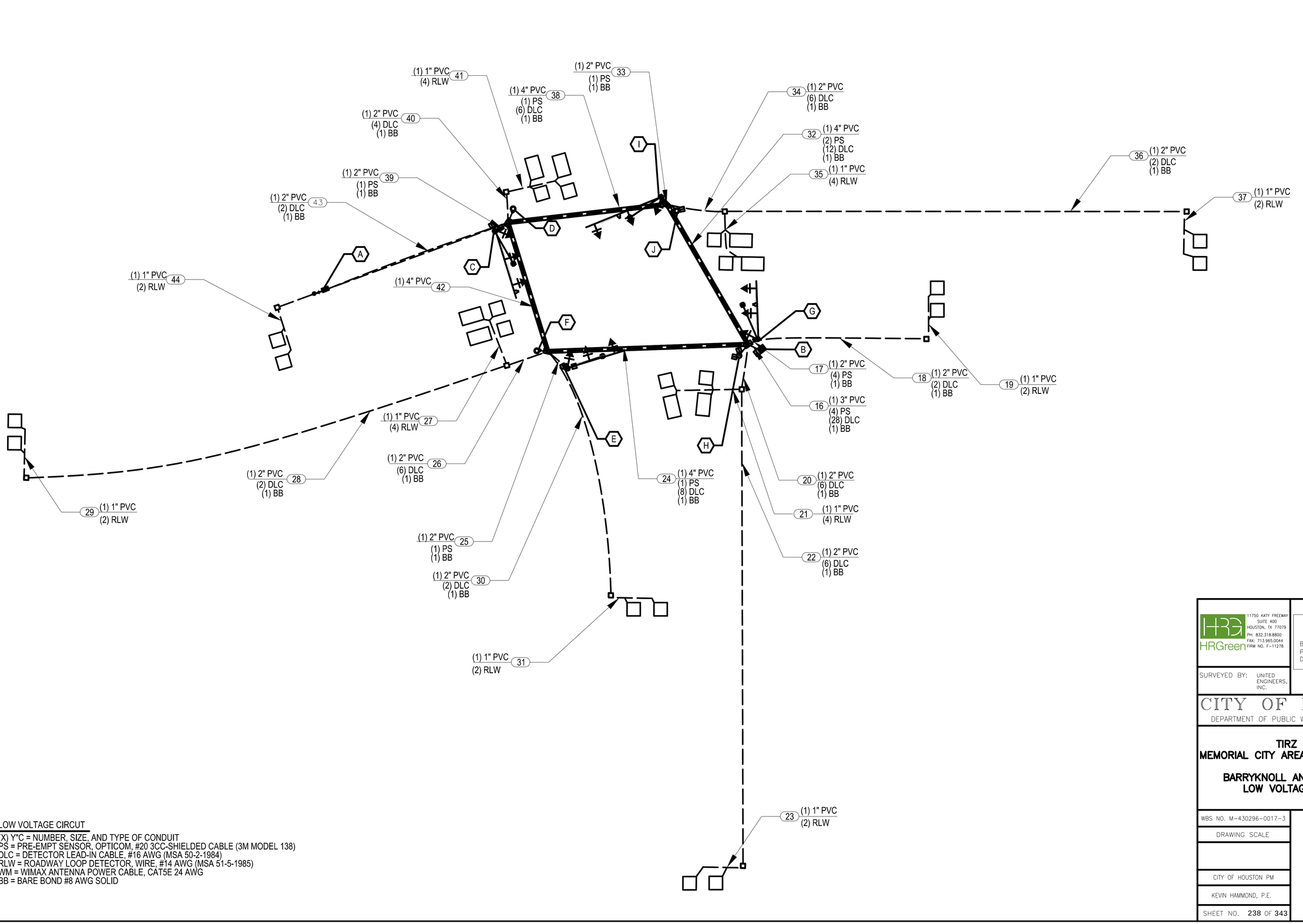

LOW VOLTAGE CIRCUT

(X) Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
PS = PRE-EMPT SENSOR, OPTICOM, #20 3CC-SHIELDED CABLE (3M MODEL 138)
DLC = DETECTOR LEAD-IN CABLE, #16 AWG (MSA 50-2-1984)
RLW = ROADWAY LOOP DETECTOR, WIRE, #14 AWG (MSA 51-5-1985)
WM = WIMAX ANTENNA POWER CABLE, CAT5E 24 AWG
BB = BARE BOND #8 AWG SOLID

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LOW VOLTAGE CIRCUIT

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DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 238 OF 343

DATE: 2/17/2026 8:24:47 AM
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POLE SCHDULE

POLE I.D.	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
C Ø1 S1 Ø4 S5 Ø7 Ø2 PED Ø2 PB Ø4 PED	EXIST	25' ARM (EX.)	-	-	1-H3 (EX.) 1-H5L (EX.) 2-PED (NEW) 1-V4LF (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, REMOVE EXISTING PUSH BUTTON, AND INSTALL A NEW PUSH BUTTON WHERE IT SHOWS ON THE POLE	1+90.66, 20.89' LT	-
D Ø7 Ø2 Ø2 Ø2 Ø5 S2 S6	EXIST	44' ARM (EX.)	-	-	3-H3 (EX.) 1-H4LF (EX.) 1-V5L (NEW)	-	-	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE.	2+00.47, 46.56' RT	-
E Ø8 PED Ø2 PB Ø2 PED	EXIST 15' PED POLE	-	-	-	2-PED (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	1+93.29, 21.51' RT	-
F Ø5 S3 Ø8 S7 Ø8 Ø8 PB Ø8 PED Ø6 PED	EXIST	25' ARM (EX.)	-	-	2-H3 (EX.) 2-PED (NEW) 1-V4LF (NEW)	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	3+10.30, 39.19' RT	-
G Ø4 S4 Ø6 Ø6 Ø6 S6 Ø1 Ø4 PB Ø6 PED Ø4 PED	EXIST	55' ARM (EX.)	-	-	3-H3 (EX.) 1-H4LF (EX.) 2-PED (NEW) 1-V3 (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	3+11.90, 40.71' LT	-
H Ø4 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	-	2+00.06, 28.04' LT	-
I Ø8 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)		2+00.92, 32.60' RT	-
J Ø6 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	-	3+21.92, 29.28' RT	-
K Ø6 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	-	3+22.07, 31.85' LT	-

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
A	EXISTING	EXISTING	-	INSTALL NEW APS COMPATIBLE PED MODULE	STA 1+698.60, 45.89' LT	-
B	EXISTING	-	-	-	STA 1+95.16, 62.11' LT	-

No.	Date	Revisions	App.

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P.E. REGISTRATION NO.
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING AND PROPOSED SIGNAL POLE CHART AT BARRYKNOLL LANE AND GESSNER ROAD

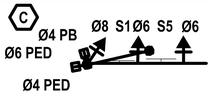
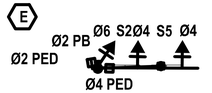
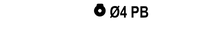
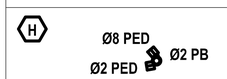
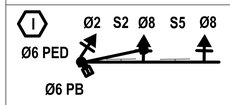
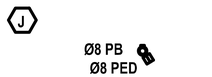
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

POLE SCHDULE

POLE NUMBER	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
C 	HOU 1	30	YES	-	2-H3 2-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+03.94, 28.98' LT	-
D 	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+13.10, 37.10' LT	-
E 	HOU 1	25	YES	-	2-H3 2-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+24.44, 37.90' RT	-
F 	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+10.92,27.59' RT	-
G 	HOU 1	35	YES	-	2-H3 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	10+16.22, 28.49' RT	-
H 	15' PEDESTAL POLE	-	NO	-	2-PED	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	10+07.83, 35.97' RT	-
I 	HOU 1	25	YES	-	2-H3 1-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+73.33, 35.32 LT	-
J 	15' PEDESTAL POLE	-	-	-	1-PED	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+79.79, 29.12' LT	-

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
A 	D (120/240) 70 (NS) SS (E) SP (U)	METERED POLE SERVICE WITH ONE 30 AMP AND ONE 60 AMP BREAKERS	-	PROVIDE METER SOCKET WINDOW, w/ PHOTOCELL	STA 8+22.53, 18.44' LT	-
B 	340	2070 L WITH GPS SERIAL COMMUNICATIONS MODULE & UPS BATTERY BACK-UP SYSTEM	-	STANDARD SPECIFICATION 16730, 16731, 16732, 16733, 16734, & 16785	STA 10+16.92, 33.43' RT	-

No.	Date	Revisions	App.

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO. _____
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED POLE CHART AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

ELECTRICAL SCHEDULE
SIGNAL MODIFICATION AT BARRYKNOLL LANE GESSNER ROAD

ITEM	DESCRIPTION	RUN DESIGNATION											
		1	2	3	4	5	6	7	8	9	10	11	12
Power	1/C - #8 BARE BOND	1	1	1	1	1	1	1	1				
	1/C - #4 XHHW												
Luminaire/Sign Lights	2/C #14 (IMSA 20-1)												
Signal Cable	3/C - #14 (IMSA 20-1)	4	1	2	1	1	1	1	1				1
	4/C - #14 (IMSA 20-1)												
	7/C - #14 (IMSA 20-1)	4		2		1		1		1	1	1	1
Loop Detectors	2 - #14 XHHW STRANDED												
	2/C #14 (IMSA 50-2)												
Schedule 40 PVC conduit	1"												
	2"		1		1		1		1				1
	3"												
	4"												

Notes: ALL OTHER MULTI-CONDUCTOR CABLE TO BE USED IN PLACE, CONTRACTOR SHALL RESUE 3C AND 4C PEDESTRIAN CABLE. AS APPROPRIATE

NOTES TO CONTRACTOR:

1. LOCATION OF UTILITIES SHOWN ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PUBLIC AND PRIVATE) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE AND PRESERVE THESE UTILITIES. WHETHER UNDERGROUND, ABOVE-GROUND, OR OVERHEAD.

2. CALL THE FOLLOWING NUMBER FOR LOCATION OF UNDERGROUND FACILITIES 72 HOURS PRIOR TO ANY EXCAVATION IN THE AREA:

   UTILITIES: (713) 223-4567 (HOUSTON)

   1-800-669-8344 (OUTSIDE HOUSTON)

   PIPELINES: 1-800-245-4545 AND 1-800-344-8377

3. ALL CONSTRUCTION SIGNS AND BARRICADES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". LATEST EDITION.

4. ALL CONDUITS UNDER ROAD WAYS AND DRIVEWAYS SHALL BE BORED AND JACKED. CONTRACTOR SHALL EXERCISE CAUTION WHEN BORING AND / OR EXCAVATING IN THE VICINITY OF UNDERGROUND UTILITIES.

5. NO LOOP DETECTOR SHALL BE CUT IN A PARALLEL EXPANSION JOINT THAT IS PARALLELING A REQUITED LOOP DETECTOR LOCATION. LOOPS CUT CROSS EXPANSION JOINTS SHALL HAVE SLACK CABLE FOR EXPANSION

6. EXACT LOCATION OF POLES, CONTROLLER, SIGNAL HEADS, PULL BOXES AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD SUBJECT TO FINAL APPROVAL BY ENGINEER IN THE FIELD. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY EXACT LOCATIONS FROM CITY OF HOUSTON ENGINEERING DEPARTMENT. CONSTRUCTION PROGRAMS DIVISION, PRIOR TO CONSTRUCTION.

7. ALL CONDUITS UNDER PAVED SHOULDERS OR NATURAL GROUND SHALL BE TRENCHED AND BURIED. HOWEVER, THE CONTRACTOR SHALL BACKFILL, COMPACT AND RESTORE TRENCHED AREA TO ORIGINAL CONDITION AND WATCH EXISTING SURFACE CONDITION TO THE DENSITY OF ADJACENT AREA.

8. REFER TO SIGNING AND PAVEMENT MARKING PLAN AND PAVING PLAN FOR ADDITIONAL INFORMATION PERTAINING TO NEW WHEELCHAIR RAMPS, STOP LINES, ETC. LOCATIONS.

9. CONTRACTOR SHALL CONTACT 811 AT LEAST 48 HOURS BEFORE DIGGING.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ELECTRICAL SCHEDULE AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

ELECTRICAL SCHEDULE
BARRYKNOLL LANE AT PLANTATION ROAD (HIGH VOLTAGE)

ITEM	DESCRIPTION	RUN DESIGNATION														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Power	1/C - #4 XHHW SP1	1						1			1				1	
	1/C - #4 XHHW SP2															1
	1/C - #8 BARE BOND	1	1	1	1	1	1	1	1	1	1	1	1			
	1/C - #8 BARE GROUND	1						1			1				1	1
Luminaire/Sign Lights	2/C #10	1	1		1	1		1	1		1	1				
SLG	1/C #12	1	1		1	1		1	1		1	1				
PC	1/C #10	1						1			1				1	
Signal Cable	3/C - #14	8	1	1	2	1	1	4	1	1	2	1	1			
	5/C - #14	8		2	2	2		4	1	1	2	2				
	7/C - #14	12	3		3	3		6	3		3	3				
Schedule 40 PVC conduit	1"															
	2"			1			1			1			1		1	
	3"		1			1			1			1				
	4"	2			1			1			1			1		
Schedule 2" RMC conduit	2"															1

Notes:

ELECTRICAL SCHEDULE
BARRYKNOLL LANE AT PLANTATION ROAD (LOW VOLTAGE)

ITEM	DESCRIPTION	RUN DESIGNATION																													
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Power	1/C - #8 BARE BOND	1	1	1		1		1		1	1	1		1		1		1	1	1		1		1	1	1			1	
Loop Detectors	DLC	28		2		6		2		8		6		2		2		12		6		2		8		4			2	
	RLW				2		4		2				4		2		2				4		2				4			2
Pre-emption	PS	4	1							1	1							2	1					1	1					
Schedule 40 PVC conduit	1"				1		1		1				1		1		1				1		1				1			1
	2"		1	1		1		1			1	1		1		1			1	1		1			1	1			1	
	3"	1																												
	4"									1								1						1				1		

Notes:

ELECTRICAL SERVICE DATA

POLE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE HARRIS COUNTY ELECTRICAL DETAILS)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CHT. BRK. POLE / AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING	CIRCUIT NO.	BRANCH CKT. BRK. POLE / AMPS	KVA LOAD
9	TY D 120 / 240 070 (NS) SS (E) SP (0)	1 - 1/4	3 / #4	N/A	2P/70	20	70	SIGNAL	1P / 50	<7.1
								LUMINAIRE	1P / 20	

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Revisions

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HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DANIEL SHANE
P.E. REGISTRATION NO.
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LOOP DETECTOR & ELECTRICAL SCHEDULE AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

BASIS OF ESTIMATE				
ITEM	DESCRIPTION	UNIT	ESTIMATE	FINAL
2582-105	4 INCH POLE, ALL STYLES, WITH FOUNDATION	EA	4	
2893-300	REMOVE AND SALVAGE EXISTING TRAFFIC SIGNAL EQUIPMENT	LS	1	
16711-205	2-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	59	
16715-300	3-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	1	
16715-400	4-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	2	
16715-500	5-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	1	
16716-100	LED PEDESTRIAN SIGNAL HEAD ASSEMBLY (SYMBOLIC)	EA	8	
16719-100	COUNTDOWN PEDESTRIAN SIGNAL MODULE	EA	8	
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE BOND	LF	389	
16720-300	3/C-#14 AWG SOLID CABLE	LF	535	
16720-705	7/C-#14 AWG SOLID CABLE	LF	629	
16750-100	ACCESSIBLE PEDESTRIAN PUSH BUTTON STATION	EA	8	

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

QUANTITIES ESTIMATE AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

BASIS OF ESTIMATE				
ITEM	DESCRIPTION	UNIT	ESTIMATE	FINAL
2221-301	REMOVE EXISTING POLE FOUNDATION	EA	5	
2582-105	4 INCH POLE, ALL STYLES, WITH FOUNDATION	EA	4	
2582-201	25-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	2	
2582-202	30-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	1	
2582-203	35-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	1	
2590-100	TRAFFIC SIGNAL POLE LUMINAIRE	EA	4	
2893-100	ELECTRICAL SERVICE POLE ASSEMBLY	EA	1	
2893-300	REMOVE AND SALVAGE EXISTING TRAFFIC SIGNAL EQUIPMENT	LS	1	
16710-100	TYPE A PULL BOX WITH GRAVEL AND GROUND ROD	EA	4	
16710-200	TYPE B PULL BOX WITH GRAVEL AND GROUND ROD	EA	4	
16711-105	1-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	269	
16711-205	2-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	1,160	
16711-207	2-INCH RMC UNDERGROUND, EARTH	LF	5	
16711-308	3-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	33	
16711-405	4-INCH PVC SCH.80 UNDER PAVEMENT, BORE	LF	592	
16711-406	4-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	12	
16715-300	3-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	12	
16716-100	LED PEDESTRIAN SIGNAL HEAD ASSEMBLY (SYMBOLIC)	EA	8	
16719-100	COUNTDOWN PEDESTRIAN SIGNAL MODULE	EA	8	
16720	EMERGENCY VEHICLE PREEMPTION CABLE	LF	372	
16720	FURNISH AND INSTALL #4 XHHW POWER CABLE 1/C - #4 XHHW SP1	LF	259	
16720	FURNISH AND INSTALL #4 XHHW POWER CABLE 1/C - #4 XHHW SP2	LF	13	
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE BOND	LF	1,612	
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE GROUND	LF	266	
XXXX	PHOTOTCELL	EA	1	
16720-206	#10 THIN LUMINAIRE WIRE	LF	492	
16720-206	#12 THIN LUMINAIRE GROUNDING WIRE	LF	292	
16720-206	DETECTOR LEAD-IN CABLE 2/C-14 AWG IMSA 50-2-1984	LF	5,082	
16720-206	2/C-#14 AWG SOLID CABLE (Loop Detector Cable)	LF	868	
16720-300	3/C-#14 AWG SOLID CABLE	LF	866	
16720-505	5/C-#14 AWG SOLID CABLE	LF	901	
16720-705	7/C-#14 AWG SOLID CABLE	LF	1,569	
16724-100	EMERGENCY VEHICLE PREEMPTION	EA	4	
16727-100	LOOP DETECTOR SAWCUT	LF	2,128	
16730-110	ITS CONTROLLER CABINET ASSEMBLY (MODEL 340) INCLUDING FOUNDATION AND APRON	EA	1	
16731-100	MODEL 2070 CONTROLLER UNIT	EA	1	
16732-100	UNINTERRUPTIBLE POWER SUPPLY	EA	1	
16733-100	HARDENED ETHERNET SWITCH	EA	1	
16734-100	WIMAX	EA	1	
16736-100	PRIMARY FIBER DISTRIBUTION UNIT	EA	1	
16737-100	COMMUNICATIONS SERVICE BOX	EA	1	
16738-100	SPREAD SPECTRUM 900 MHZ ETHERNET RADIO SYSTEM, MOUNTED AND HOOKED UP COMPLETE	EA	1	
16739-100	BLUETOOTH EQUIPMENT	EA	1	
16747-100	RADAR VEHICLE SENSING DEVICE	EA	1	
16750-100	ACCESSIBLE PEDESTRIAN PUSH BUTTON STATION	EA	8	

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

QUANTITIES ESTIMATE AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

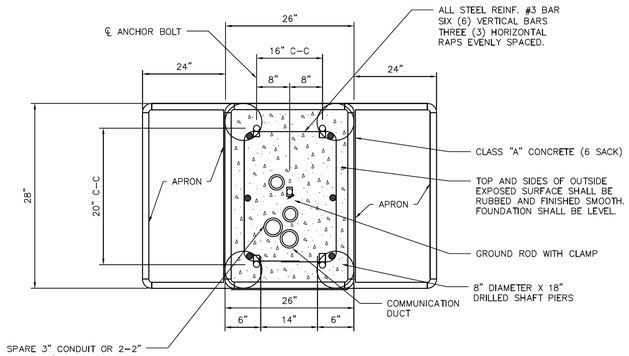
DRAWING SCALE

CITY OF HOUSTON PM

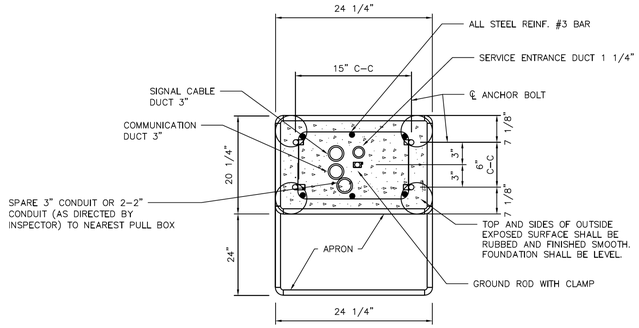
KEVIN HAMMOND, P.E.

DocuSign Envelope ID: 9B122261-CF05-457B-9A65-2650F40B66D5

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.



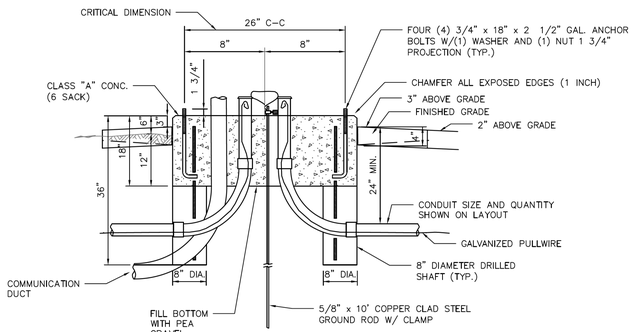
336 DETAIL
TOP VIEW



MODEL ITS 346 AND ATC 356i DETAIL
TOP VIEW

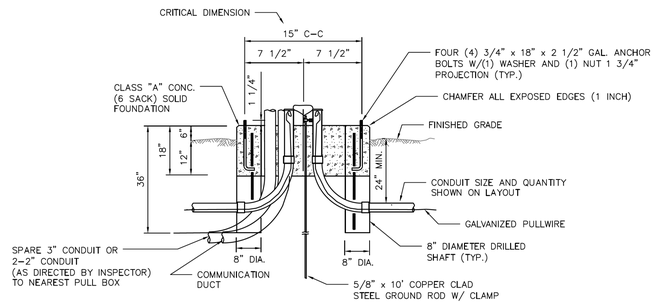
NOTES:

1. APRON TO BE INSTALLED IF NEEDED.

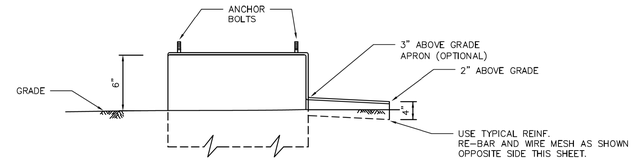


336 DETAIL
SIDE VIEW

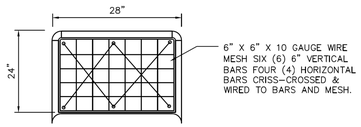
APRON
SIDE VIEW



MODEL ITS 346 AND ATC 356i DETAIL
SIDE VIEW



MODEL ITS 346 AND ATC 356i DETAIL



APRON DETAIL
TOP VIEW

APPROVED BY:	APPROVED BY:
Docusigned by: Salil Kanwar	Docusigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: Docusigned by: Carl Stadelbach	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 16730–02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 02 OF 03

	FOR CITY OF HOUSTON USE ONLY
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No.	Date	Revisions	App'd

HRGreen — FIRM NO. F–11278, 11750 KATY FREEWAY SUITE 400 HOUSTON, TX 77079, PH: 832.318.8800 FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____
P.E. REGISTRATION NO.
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 245 OF 343	

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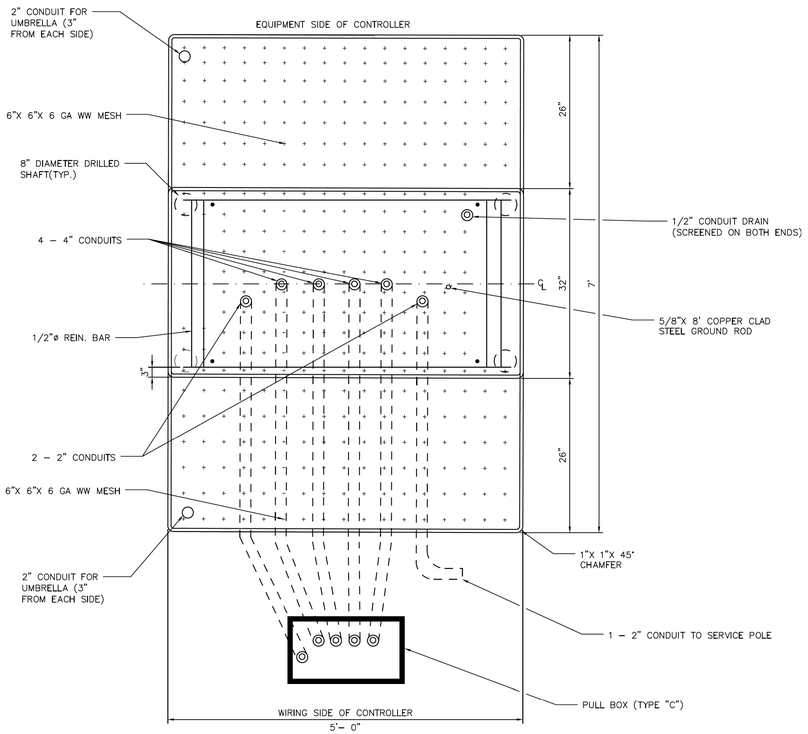
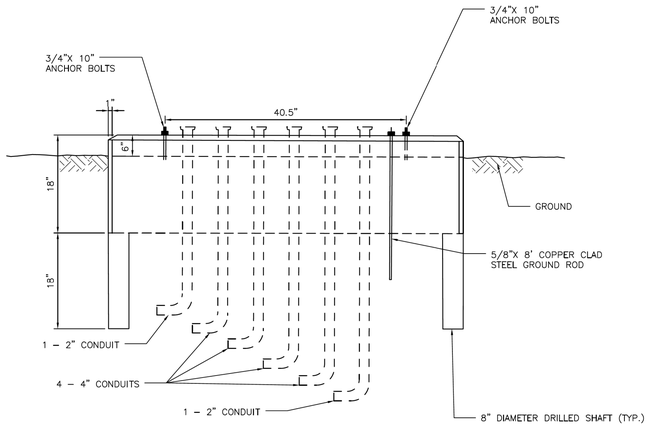
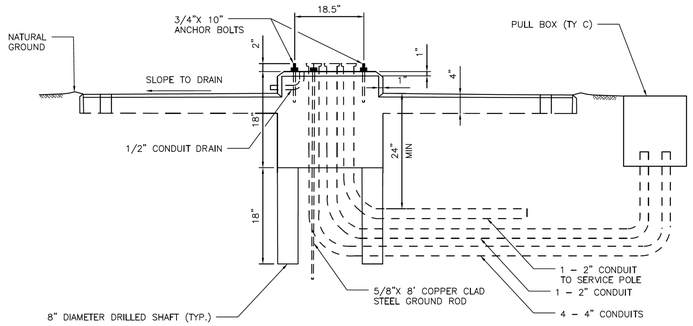


MODEL ITS 340 AND ACT 350i DETAIL
TOP VIEW



MODEL ITS 340 AND 350i DETAIL
FRONT VIEW



MODEL ITS 340 AND 350i DETAIL
SIDE VIEW

NOTES:

1. ALL CONCRETE TO BE IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATION SECTION 03310.
2. SET THE TOP OF THE STEP OF THE CONTROLLER FOUNDATION NO LOWER THAN THE LEVEL OF THE PAVEMENT SURFACE. ANY NECESSARY ADJUSTMENT SHALL BE APPROVED BY THE ENGINEER.
3. CENTER THE CABINET ON THE FOUNDATION.
4. THE FOUNDATION SHALL BE SUPPORTED BY UNDISTURBED SOIL OR BY SOIL THAT HAS BEEN COMPACTED TO 90% PROCTOR DENSITY IN 6" LIFTS.
5. ALL CONDUIT ELBOWS TO BE RGS.

APPROVED BY:	APPROVED BY:
DocuSigned by: Sukul Kanwar 9EF880C64191478...	DocuSigned by: KHANG NGUYEN 95A295EFDA7684CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock 8A5CA19E1E6A4E6...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 16730–03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 3 OF 3

DRAWING SCALE	FOR CITY OF HOUSTON USE ONLY
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No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

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BY:_____
P.E. REGISTRATION NO. _____
DATE:_____

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 246 OF 343	

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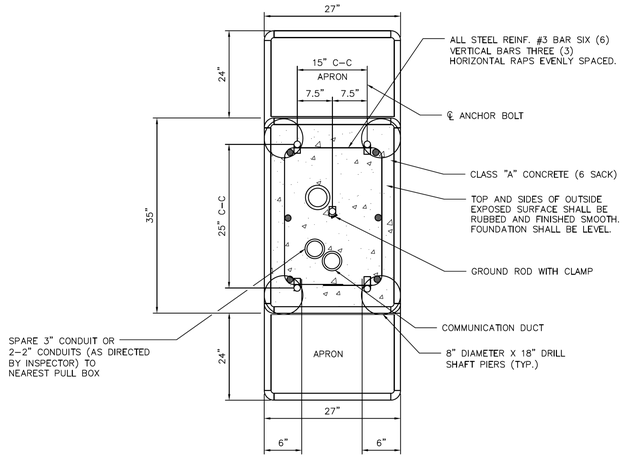
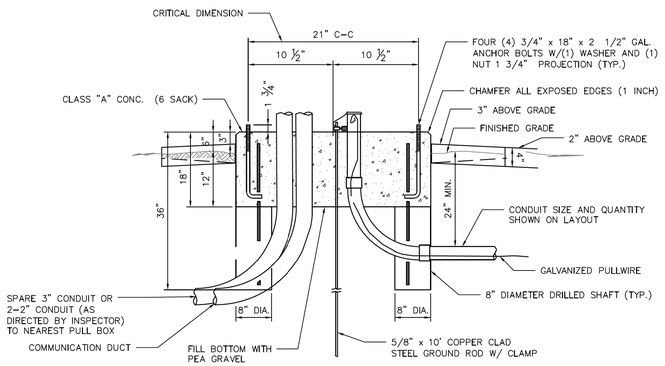
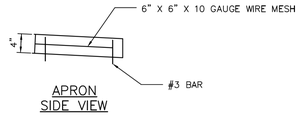


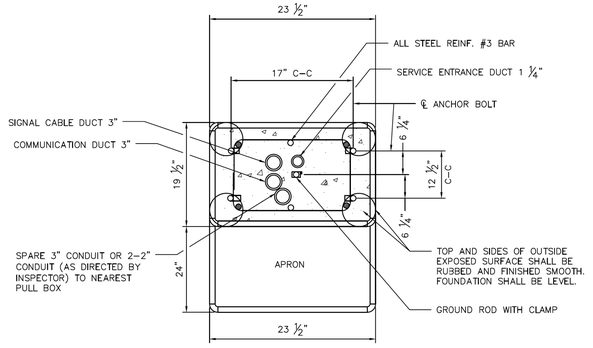
342–HOUSING 1 DETAIL
TOP VIEW



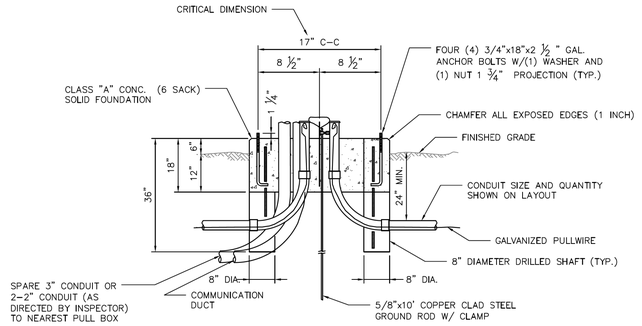
342–HOUSING 1 DETAIL
SIDE VIEW



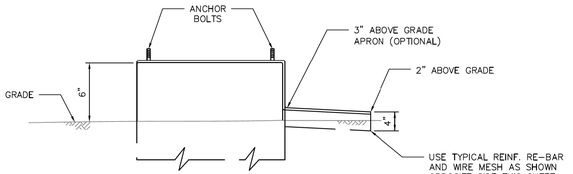
APRON
SIDE VIEW



303 DETAIL



303 DETAIL
SIDE VIEW



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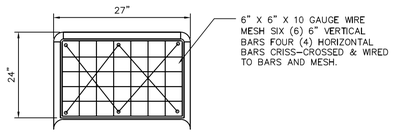

APRON DETAIL
TOP VIEW

NOTES:

1. ALL CONDUIT ELBOWS TO BE RGS

APPROVED BY: (DocuSigned by: Sulaiman Kauwar, 3EF8B0C941174F8...)	APPROVED BY: (DocuSigned by: KHANG NGUYEN, 95A29EFDA75B4CD...)
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: (DocuSigned by: Carol Haddock, A05C41EE1264454...)	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 16730–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 01 OF 03

DRAWING SCALE	FOR CITY OF HOUSTON USE ONLY
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No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M–430296–0017–3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 247 OF 343	

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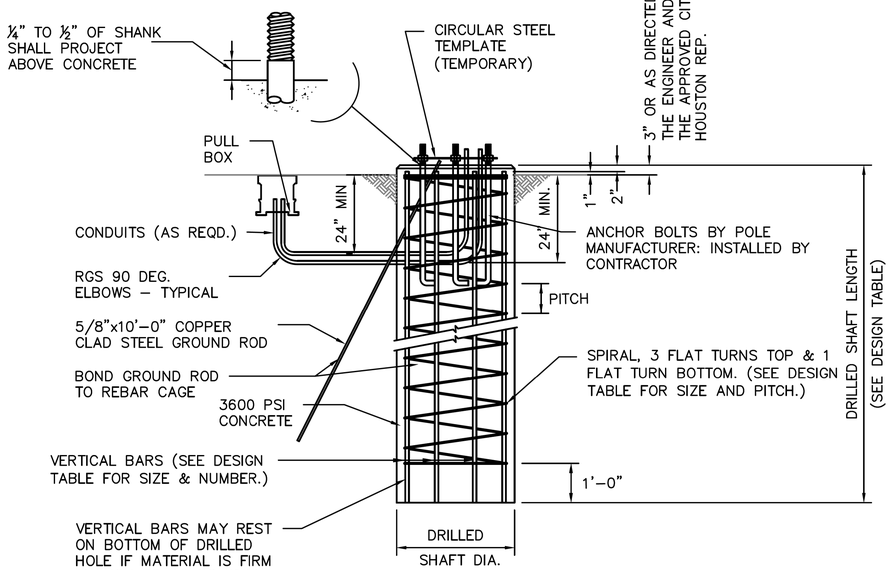
FOUDATION DESIGN TABLE								
POLE MARK	DRILLED SHAFT DIA.	REINFORCING STEEL		DRILLED SHAFT LENGTH FT.	BOLT CIRCLE DIA.	FOUNDATION DESIGN LOADS (1)			TYPICAL APPLICATION
		VERT. BARS	SPIRAL & PITCH			MOMENT K–FT.	SHEAR KIPS	TORQUE K–FT.	
HOU 1	30"	8–#9 BAR	#3 BAR @9"	14'–0"	18"	72.2	3.4	51.9	MAST ARM ASSEMBLY (25'–35') IN COHESIVE SOILS
HOU 2	30"	8–#9 BAR	#3 BAR @9"	18'–0"	18"	89.9	4.0	98.0	MAST ARM ASSEMBLY (40'–55') IN COHESIVE SOILS MAST ARM ASSEMBLY (25'–55') IN NON–COHESIVE SOILS

FOUNDATION DESIGN TABLE NOTES:

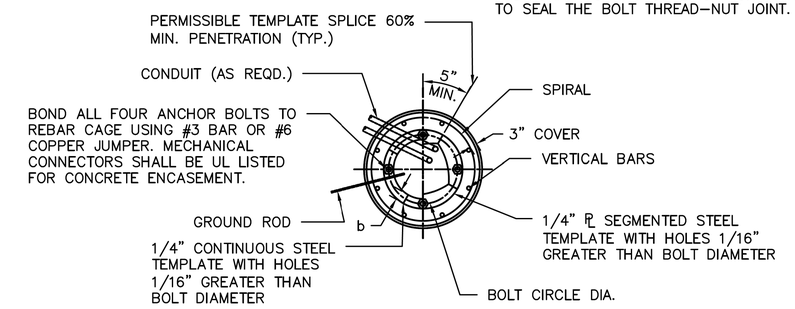
(1) FOUNDATION DESIGN LOADS ARE THE ALLOWABLE MOMENTS, SHEARS AND TORQUES AT THE TOP OF THE FOUNDATION.

(2) CONSTRUCT IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATION SECTION 02465, "DRILLED SHAFT FOUNDATIONS".

(3) FOUNDATION DESIGN IS BASED UPON AN UNDRAINED SHEAR STRENGTH OF 1500 PSF FOR COHESIVE SOILS AND A TEXAS CONE PENETROMETER MINIMUM OF 10 BLOWS/FOOT IN NON–COHESIVE SOILS. WHERE COHESIVE AND NON–COHESIVE LAYERS EXIST WITHIN THE SPECIFIED SHAFT LENGTH, THE NON–COHESIVE SOILS SHALL GOVERN. LOWER SOIL PARAMETERS WILL REQUIRE A SPECIAL DESIGN.



FOUNDATION DETAILS



TOP VIEW

NOTE:

1. b = MINIMUM STEEL TEMPLATE WIDTH EQUAL TO TWO TIMES ANCHOR BOLT DIAMETER.
2. STEEL TEMPLATE MAY BE OF CONTINUOUS WIDTH OR SEGMENTED WIDTH.
3. SEE FOUNDATION DESIGN TABLE FOR BOLT CIRCLE DIAMETER.
4. BOLTS SHOULD BE CHECKED FOR PLUMB AFTER CONCRETE IS POURED AND BEFORE INITIAL SET.

GENERAL NOTES:

1. DESIGN IS FOR CITY OF HOUSTON STANDARD TRAFFIC SIGNAL MAST ARM SUPPORT STRUCTURES BY VALMONT INDUSTRIES, INC.
2. DESIGN CONFORMS TO 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND INTERIM REVISIONS THERETO FOR A 90 MPH WIND ZONE WITH A 1.3 GUST FACTOR AND ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318–02).
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
4. CONCRETE SHALL BE 6 SACK, 3600 PSI.
5. ALL ANCHOR BOLTS SHALL BE GALVANIZED THE ENTIRE LENGTH OF BOLT. EXPOSED NUTS AND WASHERS SHALL ALSO BE GALVANIZED.

INSTALLATION PROCEDURE

THREADS OF ANCHOR BOLTS SHALL BE COATED WITH PIPE JOINT COMPOUND PRIOR TO INSTALLATION OF UPPER NUTS WHEN ERECTING POLE. AFTER POLE IS PLUMBED AND IN PERMANENT ALIGNMENT, THE EXPOSED THREADS OF PAINTED BOLTS SHALL BE CLEANED AND AN ADDITIONAL COATING OF ZINC–RICH PAINT APPLIED TO SEAL THE BOLT THREAD–NUT JOINT.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

DRILLED SHAFT FOUNDATIONS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Sulail Kanwar 9EF8B0C841F5478... CITY ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453... DIRECTOR OF HPW

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD... CITY TRAFFIC ENGINEER

EFF DATE: NOV–27–2023 | DWG NO: 02465–01

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800 FAX: 713.965.0044

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P.E. REGISTRATION NO. _____
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRILLED SHAFT FOUNDATION

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 248 OF 343

Revisions | Date | No.

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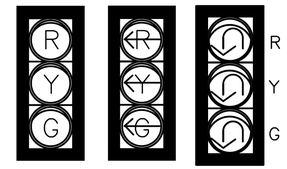
	NEW	EXISTING
TRAFFIC SIGNAL POLE	○	○
PEDESTAL POLE	○	○
POLE W/MAST ARM	○———	○———
VEHICLE SIGNAL HEAD	↓	▽
VEHICLE SIGNAL HEAD W/BACK PLATE	↓	▽
PEDESTRIAN SIGNAL HEAD	⊟	⊟
PEDESTRIAN PUSH BUTTON	⊓	⊓
PULL BOX – TYPE A	◇	◇
PULL BOX – TYPE B	▭	▭
PULL BOX – TYPE C	⊞	⊞
PULL BOX – TYPE B W/EXTENSION	⊠	⊠
CONDUIT	———	———
VIDEO DETECTION CAMERA	▭	▭
PRE–EMPT SENSOR		
LUMINAIRE		
LUMINAIRE W/PHOTO CELL		
CONTROLLER CABINET		
METERED POWER PEDESTAL		
POLE MOUNTED METER		
FIBER OPTIC CONDUIT	—FO—	—FO—
MAST ARM SIGN	⊥	⊥

SIGNAL TYPES



V3

V3L

V3U

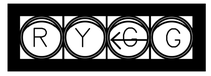


H3

H3L



H3U



H4TL


H4LF



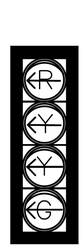
H5L



H5R



CDP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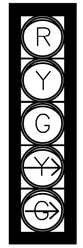
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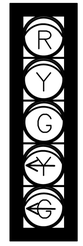

V5L



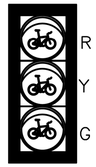
HAWK



FL–R



FL–Y



B3



R10–3e

NOTE:

ALL TRAFFIC SIGNAL HEAD TYPES HAVE 12–INCH LENSES.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

HARDWARE LEGENDS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C841F5478...
CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV–27–2023

DWG NO: 02893–01

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
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BY:_____
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DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HARDWAERE LEGENDS

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 249 OF 343

Revisions: No. | Date | Description

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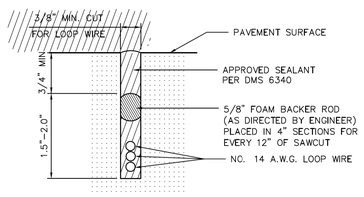
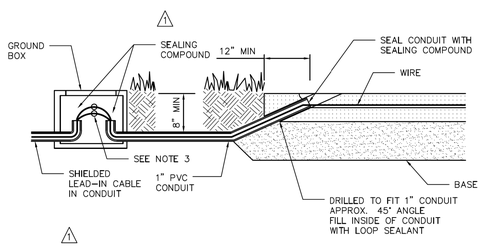
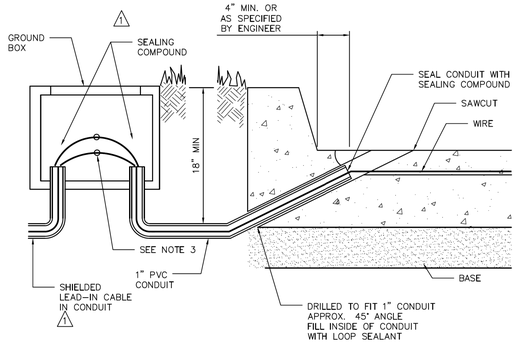


LOOP SAW CUT CROSS-SECTION

* SAWCUTS IN BRIDGE DECKS ARE TYPICALLY 1" DEPTH MAXIMUM SAWCUTS IN BRIDGE DECKS AND ACROSS EXPANSION JOINTS SHALL BE AS APPROVED BY ENGINEER



TYPICAL LEAD IN CONFIGURATION (WITHOUT CURBING)



TYPICAL LEAD IN CONFIGURATION (WITH CURBING)

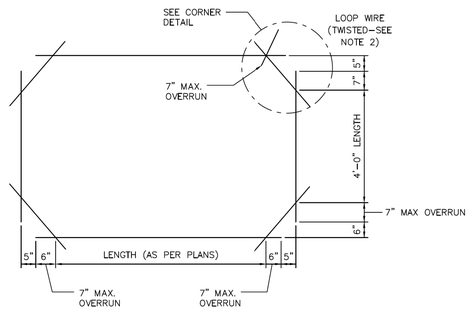
GENERAL NOTES:

1. THE PAVEMENT CUT IS TO BE MADE WITH A CONCRETE SAW TO NEAT LINES AND LOOSE MATERIAL REMOVED. THE CUT SHALL BE CLEAN AND DRY WHEN THE WIRE AND SEALING COMPOUND IS PLACED.
2. LOOP WIRE SHALL BE 14 AWG STRANDED TYPE XHHW. WIRE FROM THE LOOP TO THE GROUND BOX SHALL BE TWISTED A MINIMUM OF 5 TURNS PER FOOT. NO SPLICES SHALL BE PERMITTED IN THE LOOP OR IN THE RUN TO THE GROUND BOX.
3. THE HOME RUN CABLE FROM THE PULL BOX TO THE CONTROLLER SHALL BE IMSA 50-2 SHIELDED CABLE AND SHALL BE SOLDERED TO THE LOOP WIRE. THE SOLDER JOINTS SHALL BE SEALED WITH SCOTCHCAST OR OTHER METHOD ACCEPTABLE TO THE ENGINEER. THE SHIELD SHALL BE GROUNDED ONLY AT THE CONTROLLER END. LOOP HOME RUN CABLE SHALL BE TWO CONDUCTOR 14 AWG SHIELDED, TYPE XHHW.
4. ALL WIRE PLACED IN THE SAW CUT SHALL BE SEALED BY FULLY ENCAPSULATING IT IN A SEALANT ACCEPTABLE TO THE ENGINEER. SEALING COMPOUND SHALL BE IN ACCORDANCE WITH DMS 6340.
5. THE LOOP LOCATION, CONFIGURATION AND NUMBER OF TURNS SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

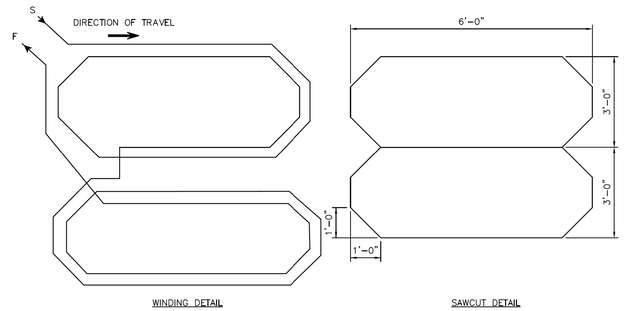
RECOMMENDED NUMBER OF TURNS FOR LOOP DETECTORS

LOOPS PERIMETER SIZE (FT.)	NUMBER OF TURNS	APPROXIMATE LOOP SIZES INCLUDED
24' or Less	3 or 4	5' x 5', 6' x 6'
25' - 110'	2 or 3	6' x 10', 6' x 45'
110' or More	1 or 2	6' x 50' or Longer

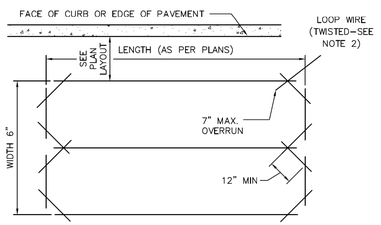
6. A SEPARATE SAW CUT SHALL BE MADE FROM EACH LOOP TO THE EDGE OF PAVEMENT OR AS SPECIFIED BY THE ENGINEER.
7. SPLICES BETWEEN THE LOOP LEAD-IN CABLE AND LOOP DETECTOR SHALL BE MADE ONLY IN THE GROUND BOX NEAR THE LOOP IT IS SERVING.
8. CIRCULAR LOOPS MAY USE PREWOUND LOOPS ENCASED IN CONTINUOUS PVC TUBING. SAWCUT WIDTH MAY BE ADJUSTED TO ACCOMMODATE TUBING.
9. THE LEAD-IN WIRE IN THE CIRCULAR LOOP SHALL BE COILED AT THE 3 INCH DRILLED CORNER TO REDUCE BENDING STRESS.
10. LOOP DUCT MAY BE USED AS SPECIFIED BY ENGINEER. FOR ADDITIONAL INFORMATION REFER TO "TEXAS TRAFFIC SIGNAL DETECTOR" MANUAL, TTI REPORT 1163-1.
11. ROUND CORNERS OF ACUTE ANGLES TO PREVENT DAMAGE TO CONDUCTORS.
12. INSTALL 3 TURNS WHEN ONLY ONE TYPE D LOOP IS ON A SINGLE CHANNEL. INSTALL 5 TURNS WHEN ONE TYPE D IS CONNECTED W/3-6'X6' LOOPS ON A SINGLE CHANNEL.



RECTANGULAR



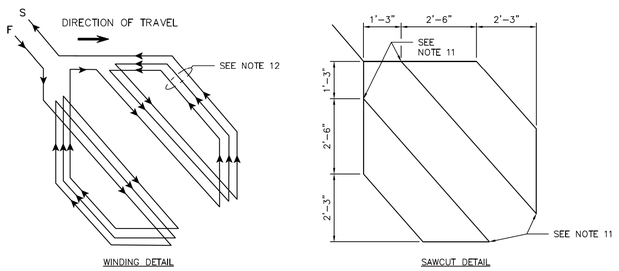
QUADRUPOLE (Q) TYPE LOOP DETECTOR CONFIGURATION



QUADRAPOLE

TYPICAL VEHICULAR LOOP DETECTOR LAYOUT

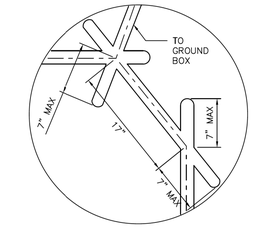
(AS SPECIFIED IN PLANS)



DIAGONAL SLASHED (D) TYPE LOOP DETECTOR CONFIGURATION

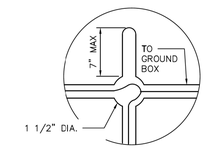
TYPICAL BICYCLE LOOP DETECTOR LAYOUT

(AS SPECIFIED IN PLANS. SEE PAVEMENT MARKINGS DETAILS FOR LOCATION RELATIVE TO BICYCLE SYMBOL)



RECTANGULAR & HEXIGON LOOP

SAWCUT CORNER DETAIL
7" OVERRUN BASED ON
24" DIAMETER SAW BLADE



RECTANGULAR & HEXIGON LOOP (ALT.)

DRILLED CORNER DETAIL

TYPICAL CORNER DETAILS

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A83C410B7283453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 16727-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

LOOP DETECTOR INSTALLATION DETAILS

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE

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No.	Date	Revisions	App'd

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
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BY:_____
P.E. REGISTRATION NO. _____
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

LOOP DETECTOR INSTALLATION DETAILS

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 250 OF 343

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DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES

LINE SERIES	COLOR	DESCRIPTION	WIDTH (INCHES)	TYPICAL APPLICATIONS
WB	WHITE	BROKEN (10' STRIPE W/30' GAP)	4"	LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS PERMITTED.
WS	WHITE	SOLID	4"	EDGE LINES TO DELINEATE THE RIGHT EDGE OF THE ROADWAY.
			6"	LEFT EDGE OF BICYCLE LANE AND LANE LINES BETWEEN TRAVEL LANES IN THE SAME DIRECTION WHERE CHANGING OF LANES IS DISCOURAGED.
			12"	PERPENDICULAR CROSSWALK LINES.
			24"	STOP BARS AT INTERSECTIONS (SIGNALIZED AND UNSIGNALIZED).
				HATCHING AT HIGH VISIBILITY CROSSWALKS.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN SAME DIRECTION OF TRAVEL LANES.
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	GUIDE LINES THROUGH INTERSECTIONS.
				TAPER LINES FOR TURN LANES.
				GUIDE LINES FOR BICYCLE LANES.
YS	YELLOW	SOLID	4"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
			6"	BIDIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDS	YELLOW	DOUBLE SOLID	4" – (4") – 4" (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YDB	YELLOW	DOUBLE BROKEN	4" – (4") – 4" (GAP)	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLS DURING INTERMITTENT PERIODS.
YB	YELLOW	BROKEN (10' STRIPE W/30' GAP)	4"	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YB (BIKE)	YELLOW	BROKEN (3' STRIPE W/9' GAP)	4"	SEPARATES BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YSB	YELLOW	SOLID & BROKEN BROKEN (10' STRIPE W/30' GAP)	4" – (4") – 4" (GAP)	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
				USED FOR EDGE OF TWO-WAY LEFT TURN LANES (TWLTL).
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	PED/BIKE CROSSING
				VEHICLE / BIKE/ CONFLICT AREA
YIELD LINE	WHITE	TRIANGLE	16" x 24"	MID-BLOCK CROSSING.

DESCRIPTION AND APPLICATION OF REFLECTIVE RAISED PAVEMENT MARKERS (RPM)

RRPM TYPES	COLOR	COH SPEC. SEC. 02764 EQUIVALENT	DESCRIPTION
C	CLEAR	TYPE I-C	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE DOES NOT REFLECT.
R	CLEAR & RED	TYPE II-C-R	APPROACH FACE THAT REFLECTS WHITE LIGHT, AND THE OTHER SIDE REFLECTS RED LIGHT.
A	AMBER & AMBER	TYPE II-A-A	APPROACH FACE AND THE OTHER SIDE BOTH REFLECT AMBER LIGHT.

LINE STYLE DESIGNATION : YSB4 – A40/A40

- COLOR
- PATTERN
- WIDTH OF STRIPE
- RPM SPACING
- RPM TYPE
- RPM SPACING
- RPM TYPE

GENERAL PAVEMENT MARKING NOTES:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE DUPLICATED AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECT'S COMPLETION.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
4. THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC PLACED OVER THE TEMPORARY STRIPING WITHIN 14 TO 30 CALENDAR DAYS AFTER COMPLETION OF THE FINAL PAVEMENT SURFACE, OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER. ALL OTHER PAVEMENT MARKINGS SHALL BE APPLIED AT THE SAME TIME. TEMPORARY STRIPING SHALL BE WATER BASED PAINT.
8. ALL FINAL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. ALL PAVEMENT ARROWS AND LEGENDS SHALL ALSO BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. PREFORMED THERMOPLASTIC APPLICATIONS MAY BE USED IF ONLY APPROVED BY THE CITY TRAFFIC ENGINEER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
14. BLUE RPMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock 4B8241067284A16...	
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

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11750 KATY FREEWAY
SUITE 400
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS

WBS NO. M-430296-0017-3

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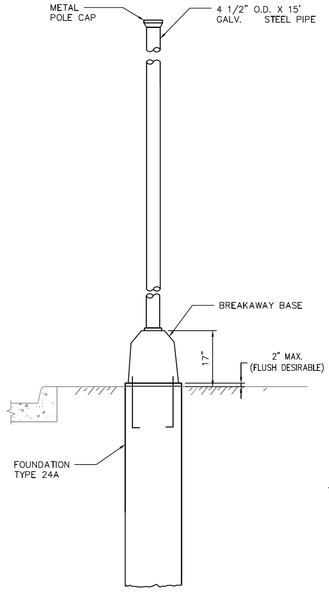
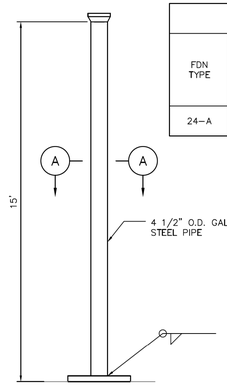




PEDESTAL POLE

FOUNDATION DESIGN TABLE										
FDN TYPE	DRILLED SHAFT DIA.	REINFORCING STEEL		DRILLED SHAFT LENGTH FT	ANCHOR BOLT DESIGN (SEE NOTE 5)				FOUNDATION DESIGN LOAD (SEE NOTE 6)	
		VERT. BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER 10 BLOWS/ FT	ANCHOR BOLT DIA.	FY (KSI)	BOLT CIR. DIA.	ANCHOR TYPE	MOMENT K-FT	SHEAR KIPS
24-A	24"	4-#5 BARS	#2 BAR AT 12"	6	3/4"	36	*13"	1	10	1

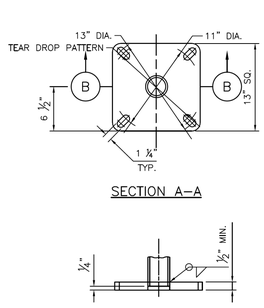
* 10 1/2" B.C. FOR PUSH BUTTON POLE

ANCHOR BOLT & TEMPLATE SIZES						
BOLT DIA. IN.	**BOLT LENGTH	TOP THREAD	BOTT. THREAD	BOLT CIRCLE	R_2	R_1
3/4"	1'-6"	3"	–	13"	7 1/8"	5 5/8"

** MIN DIMENSIONS GIVEN, LONGER BOLTS ARE ACCEPTABLE.

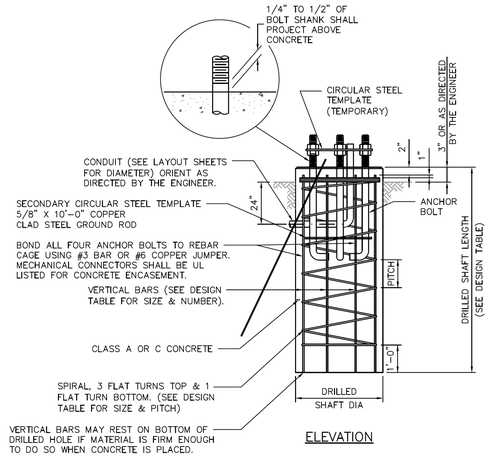
GENERAL NOTES

1. DESIGN CONFORMS TO 1994 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS AND INTERIM REVISIONS THERETO.
2. CONCRETE SHALL BE CLASS A OR C.
3. THREADS FOR ANCHOR BOLTS AND NUTS SHALL BE ROLLED OR CUT THREADS OF UNIFIED NATIONAL COARSE THREAD SERIES EXCEPT FOR A19357 BOLTS WHICH SHALL HAVE 8 PITCH THREAD SERIES. BOLTS AND NUTS SHALL HAVE CLASS 2A AND 2B FIT TOLERANCES. GALVANIZED NUTS SHALL BE TAPPED AFTER GALVANIZING.
4. ANCHOR BOLTS THAT ARE 1" IN DIAMETER OR LESS SHALL CONFORM TO ASTM A36. GALVANIZE ALL ANCHOR BOLTS UNLESS OTHERWISE NOTED. EXPOSED NUTS SHALL BE GALVANIZED OR COATED WITH ZINC-RICH PAINT. WASHERS SHALL BE GALVANIZED. TEMPLATES AND EMBEDED NUTS NEED NOT BE GALVANIZED.
5. ANCHOR BOLT DESIGN DEVELOPS THE FOUNDATION CAPACITY GIVEN UNDER FOUNDATION DESIGN LOADS.
6. FOUNDATION DESIGN LOADS ARE THE ALLOWABLE MOMENTS AND SHEARS AT THE BASE OF THE STRUCTURE.
7. ANCHOR BOLT ASSEMBLY INSTALLATION PROCEDURE
   - 7.1. THREADS OF ANCHOR BOLTS SHALL BE COATED WITH PIPE JOINT COMPOUND PRIOR TO INSTALLATION OF UPPER NUTS WHEN ERECTING POLE. AFTER POLE IS PLUMBED AND IN PERMANENT ALIGNMENT, THE EXPOSED THREADS OF PAINTED BOLTS SHALL BE CLEANED AND AN ADDITIONAL COATING OF ZINC-RICH PAINT APPLIED TO SEAL THE BOLT THREAD-NUT JOINT.
8. DETAILS DEPICTED ON THIS SHEET SHOW A TYPICAL PEDESTAL POLE ASSEMBLY WITH A DRILLED SHAFT FOUNDATION.
9. USE 24 IN. DRILLED SHAFT FOUNDATION AS SHOWN.
10. PROVIDE BREAKAWAY FUSE HOLDER WITH DOUBLE-POLE HOUSING. ENSURE FUSE HOLDER IS POLARIZED, WATER-RESISTANT, UL RECOGNIZED, AND RATED FOR 30A MAXIMUM CURRENT CAPACITY AT 600V OR LESS. PROVIDE BREAKAWAY FUSE HOLDER FROM MANUFACTURERS PRE-QUALIFIED BY TXDOT TRAFFIC OPERATIONS DIVISION. SEE https://www.txdot.gov/business/resources/materials/material-producer-list.html FOR LIST OF PRE-QUALIFIED MANUFACTURERS. CATEGORY IS "ROADWAY ILLUMINATION AND ELECTRICAL SUPPLIES." PROVIDE 10 AMP TIME DELAY FUSES.
11. POLE SHAFT SHALL BE ONE PIECE. ALUMINUM CONDUIT WILL NOT DEVELOP THE NECESSARY STRENGTH AND WILL NOT BE ALLOWED. IN HIGH WINDS, USE A POLE AND BASE COLLAR ASSEMBLY TO ADD STRENGTH AND PREVENT LOOSENING ON CONNECTION.
12. PER MANUFACTURER'S RECOMMENDATIONS, ENGAGE ALL THREADS ON THE PEDESTAL POLE BASE AND PIPE UNLESS THE PIPE IS FULLY SEATED INTO BASE.
13. PROVIDE NON-FUSED WATERTIGHT BREAKAWAY ELECTRICAL CONNECTORS FOR BREAKAWAY POLES (BUSSMANN HET, LITTELFUSE LET, FERRAZ-SHAWMUT FEBN, OR APPROVED EQUAL).
14. PROVIDE SIGNAL HEADS AND MOUNTING AS SHOWN ELSEWHERE ON THE PLANS.



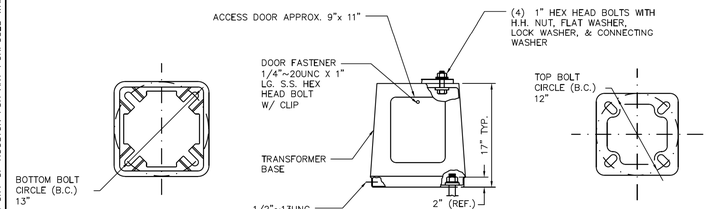
SECTION A-A

SECTION B-B



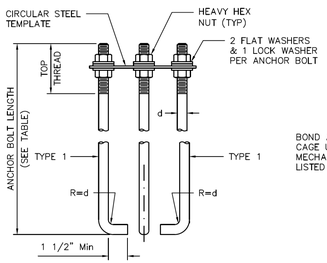
ELEVATION

FOUNDATION DETAILS

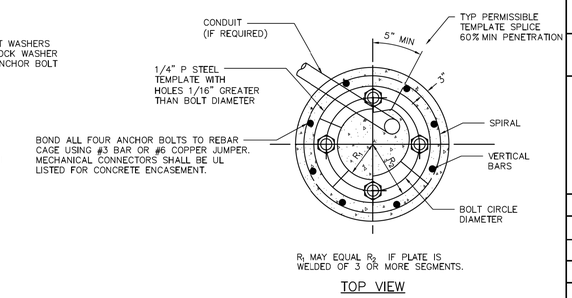


BOTTOM PLAN ELEVATION TOP PLAN

BREAKAWAY BASE DETAILS



HOOKED ANCHOR (TYPE 1)



R_1 MAY EQUAL R_2 IF PLATE IS WELDED OF 3 OR MORE SEGMENTS.

TOP VIEW

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APPROVED BY: DocuSigned by: Carol Haddock A05C41EE1264454... DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02465-02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PEDESTAL/PUSHBUTTON POLE DRILLED SHAFT FOUNDATION

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE

NOT TO SCALE

Rev.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____
P.E. REGISTRATION NO. _____
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PEDESTAL/PUSHBUTTON POLE DRILLED SHAFT FOUNDATION

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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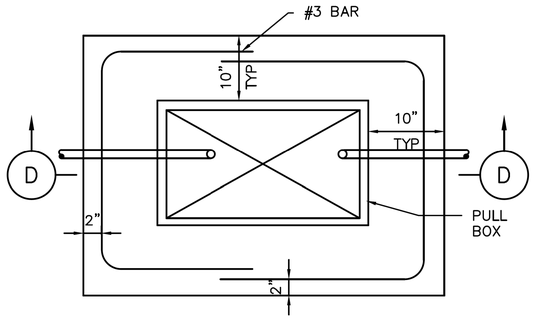
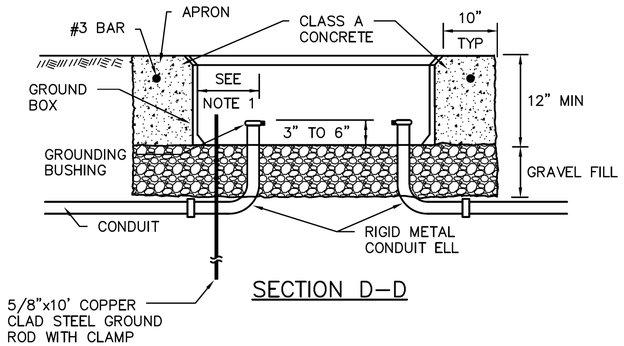


PLAN VIEW

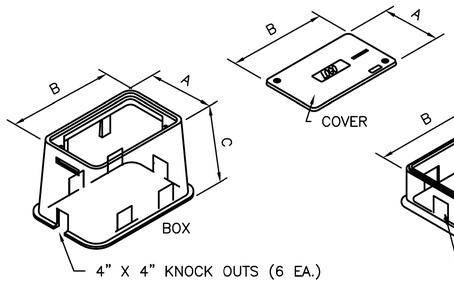


SECTION D–D

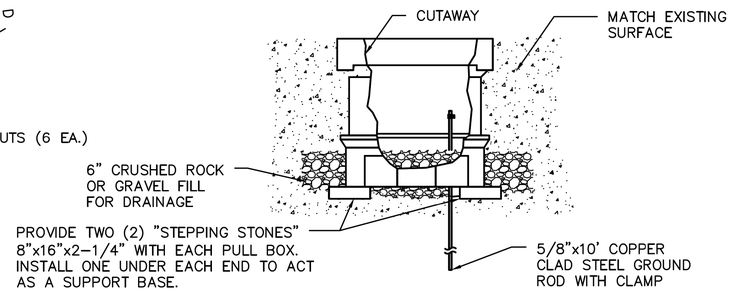
APRON FOR PULL BOXES

NOTES:

1. FINAL POSITION OF END OF CONDUIT SHALL NOT EXCEED ONE–HALF THE DISTANCE TO THE SIDE OF BOX OPPOSITE THE CONDUIT ENTRY.
2. PLACE GRAVEL "UNDER" THE BOX, NOT "IN" THE BOX. GRAVEL SHOULD NOT ENCROACH ON THE INTERIOR VOLUME OF THE BOX.
3. INSTALL BUSHING ON THE UPPER END OF ALL ELLS.
4. PROVIDE A 5/8" GROUND ROD IN ALL PULL BOXES AND CONNECT IT TO ANY AND ALL EQUIPMENT GROUNDING CONDUCTORS USING A LISTED CONNECTOR.
5. MAINTAIN SUFFICIENT SPACE BETWEEN ALL CONDUITS SO AS TO ALLOW FOR PROPER INSTALLATION OF BUSHINGS.
6. ALL CONDUITS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
7. ALL CONDUITS INSTALLED IN THE GROUND BOX SHALL BE SEALED AFTER COMPLETION OF CONDUCTOR INSTALLATION AND ANY REQUIRED PULL TESTS. SILICONE SHALL NOT BE USED AS THE SEALANT.



NOMINAL DIMENSIONS FOR TRAFFIC SIGNAL PULL BOXES				
TYPE	A	B	C	D
DETECTOR TYPE A	13"	18"	24"	12"
TRAFFIC SIGNAL TYPE B	17"	30"	24"	12"
COMMUNICATION TYPE C	26"	38"	24"	12"



SIDE VIEW

ELECTRICAL PULL BOX ASSEMBLY

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PULL BOXES

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C841F5478...
CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 16710–01

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PULL BOXES

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 253 OF 343

Revisions: No. | Date | Description

DISCLAIMER:
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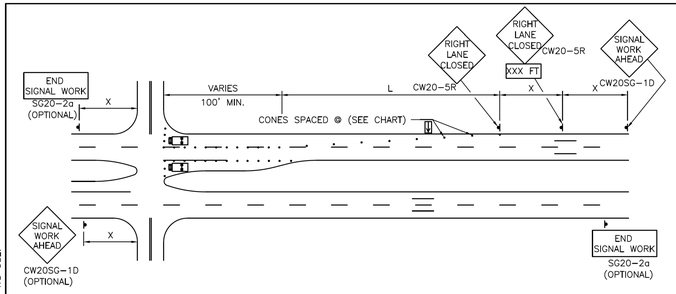
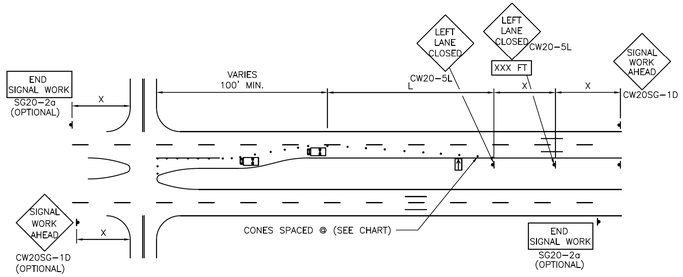
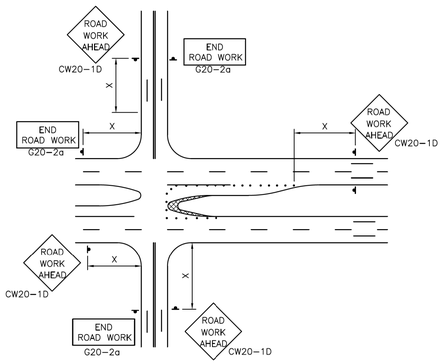
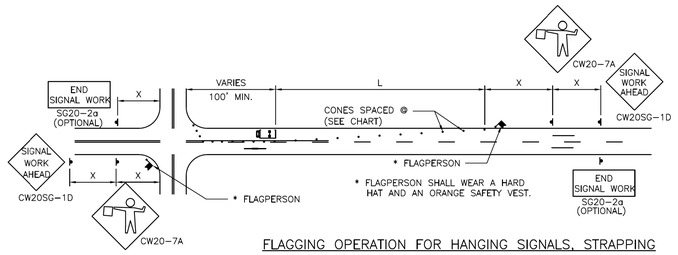


ONE LANE CLOSURE W/ RIGHT LANE AND/OR LEFT TURN LANE CLOSED

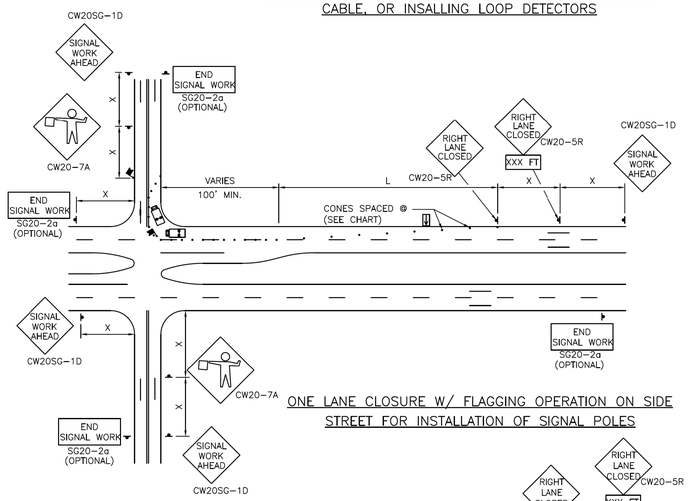


ONE LANE CLOSURE W/ LEFT LANE AND/OR LEFT TURN LANE CLOSED

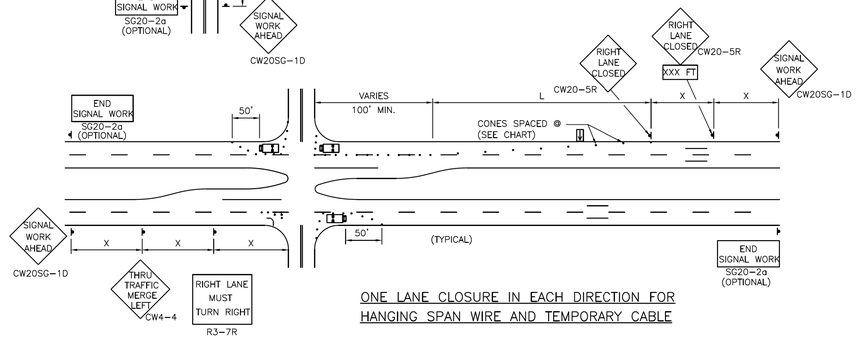




FLAGGING OPERATION FOR HANGING SIGNALS, STRAPPING CABLE, OR INSALLING LOOP DETECTORS



ONE LANE CLOSURE W/ FLAGGING OPERATION ON SIDE STREET FOR INSTALLATION OF SIGNAL POLES



ONE LANE CLOSURE IN EACH DIRECTION FOR HANGING SPAN WIRE AND TEMPORARY CABLE

NOTES:

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2. THE MINIMUM LANE WIDTH ALLOWED IS 10 FEET. THE MINIMUM BUFFER ZONE BETWEEN THE WORK ZONE AND ADJACENT TRAFFIC IS 2 FEET.
3. FLORESCENT ORANGE SHALL BE THE BACKGROUND COLOR ON ALL WORK ZONE SIGNS.
4. THE CONTRACTOR SHALL REMOVE ADVANCE SIGNS WHEN NO CONSTRUCTION OPERATIONS ARE UNDERWAY.
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8. FLAGGER AND FCW20-7a SIGN MAY BE REQUIRED ACCORDING TO FIELD CONDITIONS.
9. VEHICLES PARKED IN ROADWAY SHALL BE EQUIPPED WITH TWO STROBES.

LEGEND:

HEAVY WORK VEHICLE

FLASHING ARROW PANEL

TYPICAL TRANSITION LENGTHS

SUGGESTED MAXIMUM SPACING OF DEVICES

POSTED SPEED	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS **			SUGGESTED MAXIMUM SPACING OF DEVICE		MINIMUM SIGN SPACING X DISTANCE
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT	
30		150'	165'	180'	30'	60'–75'	120'
35	$L=WS^2/60$	205'	225'	245'	35'	70'–90'	160'
40		265'	295'	320'	40'	80'100'	240'
45		450'	495'	540'	45'	90'–110'	320'
50	L=WS	500'	550'	600'	50'	100'–125'	400'
55		550'	605'	660'	55'	100'–140'	500'
60		600'	660'	720'	60'	120'–150'	600'

** TAPER LENGTHS HAVE BEEN ROUNDED OFF
L=LENGTH OF TAPER (FT.)
W=WIDTH OF OFFSET (FT.)
S=POSTED SPEED(MPH)

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Faruqui 8EF8B0C641F1478...	DocuSigned by: HANG NGUYEN 4AA39E1EA7584CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A80C4105738D453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-13

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC CONTROL PLAN FOR SIGNAL CONSTRUCTION

DRAWING SCALE
NOT TO SCALE

FOR CITY OF HOUSTON USE ONLY

Revisions

No.	Date	Revisions	App'd

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN FOR SIGNAL CONSTRUCTION

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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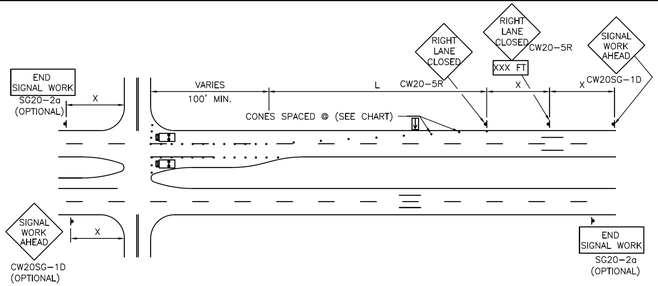

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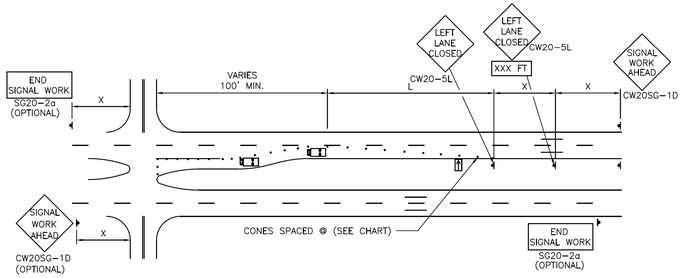

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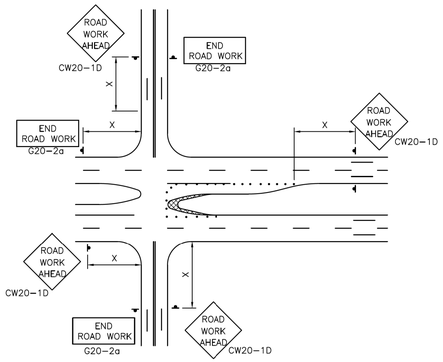
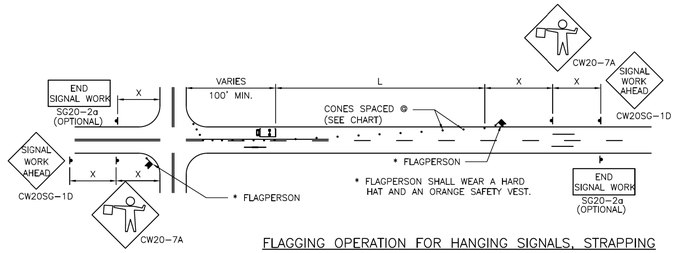


MEDIAN NOSE MODIFICATION



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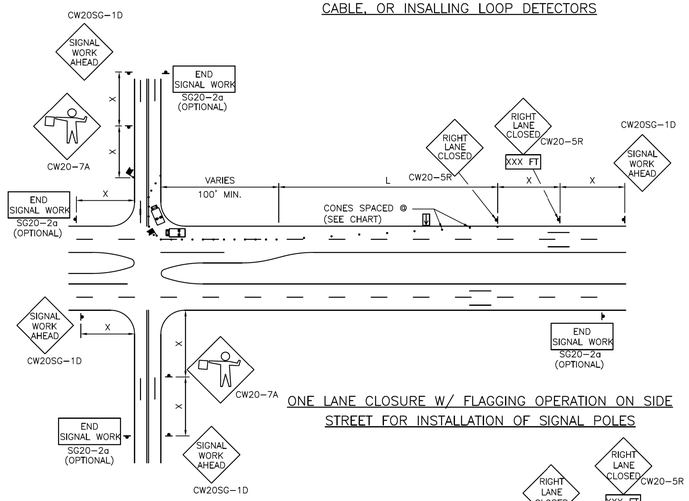

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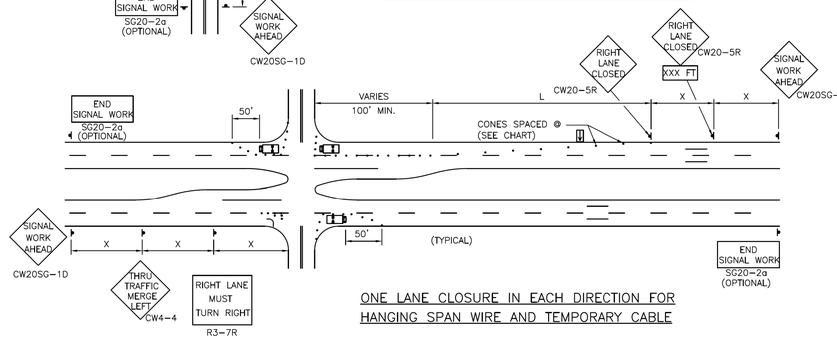

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FLASHING ARROW PANEL

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SUGGESTED MAXIMUM SPACING OF DEVICES

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DocuSigned by: Sulaiman Kawwas 8EF8B0C64F1F4A7...	DocuSigned by: HANG NGUYEN 95A29EFDA758403...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A65C410B7283453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-13

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC CONTROL PLAN FOR SIGNAL CONSTRUCTION

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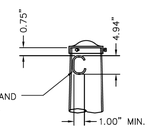
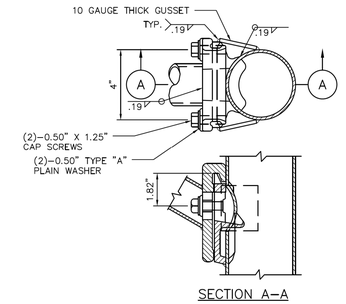
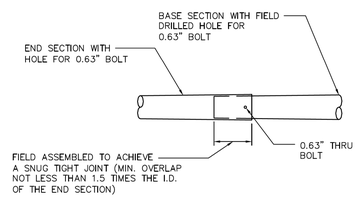


DETAIL 1 — POLE TOP

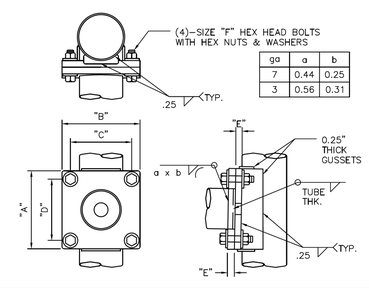


DETAIL 2 — LUMINAIRE ARM ATTACHMENT



ITEM	BASE SECTION		END SECTION	
	LENGTH	GAUGE	LENGTH	GAUGE
55.00'	26.42'	3	30.71'	7

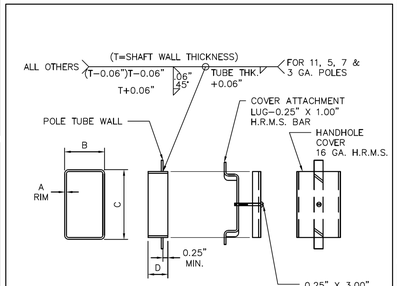
DETAIL 3 — SIGNAL ARM SLIP JOINT



ga	a	b
7	0.44	0.25
3	0.56	0.31

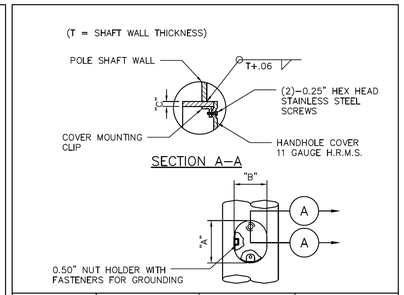
POLE TYPE	"A"	"B"	"C"	"D"	"E"	"F"
1	17.75"	17.75"	14.50"	14.50"	1.50"	1.25" X 4.50"
2	18.75"	18.75"	15.00"	15.00"	1.75"	1.50" X 5.25"

DETAIL 4 — SIGNAL ARM ATTACHMENT



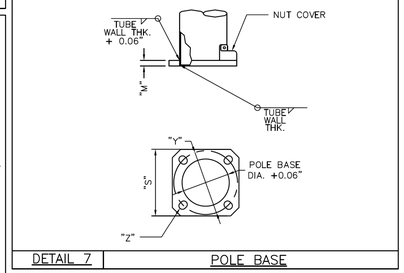
POLE TYPE	A	B	C	D
1	7 GA.	3.00"	5.00"	1.50"
2	0.50"	4.00"	6.00"	2.50"

DETAIL 5 — HANDHOLE

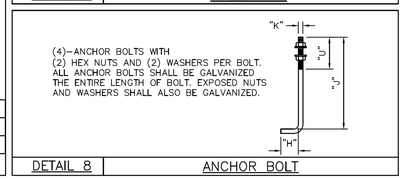


POLE TYPE	A	B	C
1	7.56"	5.19"	0.280"
2	7.31"	5.63"	0.432"

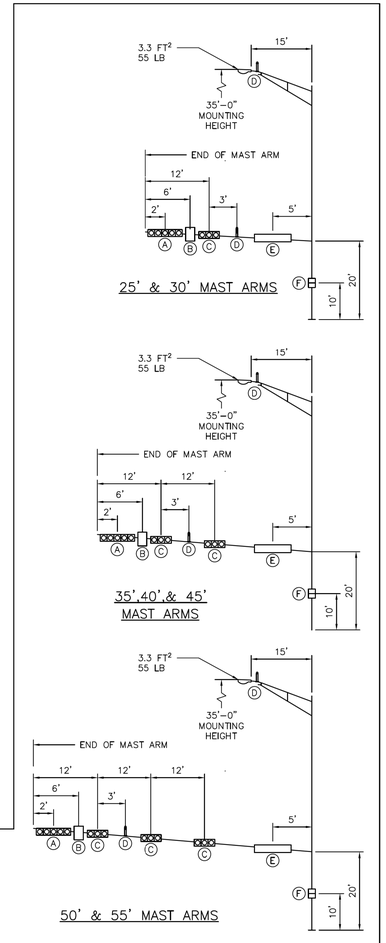
DETAIL 6 — HANDHOLE



DETAIL 7 — POLE BASE



DETAIL 8 — ANCHOR BOLT



DESIGN NOTE:

DESIGNS ARE BASED ON THE LOADING CHART SHOWN ON THIS DRAWING AND ARE IN ACCORDANCE WITH MATERIALS AND ALLOWABLE STRESS REQUIREMENTS OF THE 1994 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" FOR A 90 MPH WIND ZONE WITH A 1.3 GUST FACTOR.

DEVICE	DESCRIPTION	PROJ. AREA (FT^2)	WEIGHT (LBS)
(A)	12"–5 SEC. SIGNAL WITH BACKPLATES	13.33	96
(B)	30" X 36" SIGNAL ARM MOUNTED SIGN	7.50	15
(C)	12"–3 SEC. SIGNAL WITH BACKPLATES	8.67	53
(D)	VIVDS CAMERA	1.00	15
(E)	24" X 72" STREET NAME SIGN	12.00	30
(F)	PEDESTRIAN SIGNAL	4.00	40

MAXIMUM LOADING INFORMATION

APPROVED BY:	APPROVED BY:
Docusigned by: Suhail Kanwar	Docusigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
Docusigned by: Carol Haddock
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023 | DWG NO: 02582–03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC SIGNAL STRUCTURES

SHEET 02 OF 02

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____
P.E. REGISTRATION NO.
DATE:_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL STRUCTURES

WBS NO. M–430296–0017–3

DRAWING SCALE

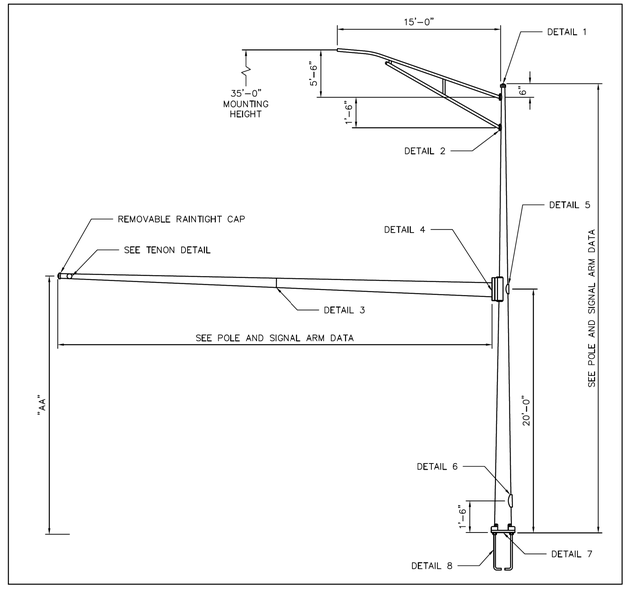
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

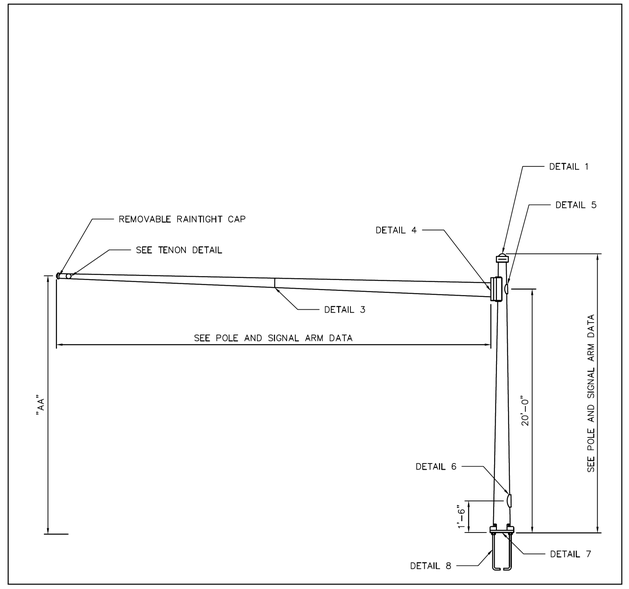
SHEET NO. 256 OF 343

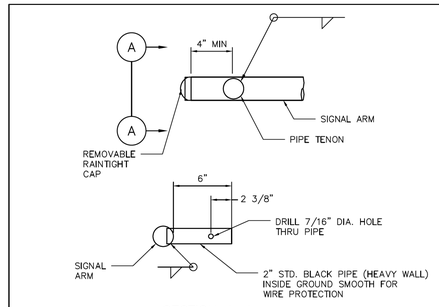
No.	Date	Revisions	App'd

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

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.







SECTION A–A

TENON DETAIL

ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES. BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES, VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. ARMS SHALL BE VISUALLY INSPECTED IN 5 TO 20 MPH WIND CONDITIONS AFTER SIGNAL HEAD INSTALLATION AND, IF VERTICAL MOVEMENTS WITH A TOTAL EXCURSION (MAXIMUM POSITIVE TO MAXIMUM NEGATIVE) OF MORE THAN APPROXIMATELY 8 INCHES ARE OBSERVED AT ARM TIP, DAMPING DEVICES OR OTHER MEANS SHALL BE FITTED TO THE ARM(S). THE NECESSARY DAMPING DEVICE(S) OR OTHER REMEDIAL MEASURES SHALL BE AS RECOMMENDED BY THE CONTRACTOR. EXCESSIVE VIBRATIONS SHALL NOT BE ALLOWED TO CONTINUE FOR MORE THAN 2 DAYS.

VIBRATION DISCLAIMER

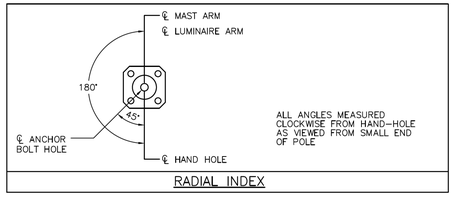
POLE AND MAST ARM DATA

DESIGNATION KEY			POLE TUBE						POLE BASE				ANCHOR BOLT				SIGNAL ARM TUBE				
POLE SERIES	POLE TYPE	SIGNAL ARM SPAN (FT)	BASE DIA. (IN)	TOP DIA. (IN) WITH LUM ARM	TOP DIA. (IN) WITHOUT LUM ARM	LENGTH (FT) WITH LUM ARM	LENGTH (FT) WITHOUT LUM ARM	GAUGE OR THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE / SLOT "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAUGE OR THICK (IN)	SPAN (FT)	TIP HEIGHT "AA" (FT)
HOU	1	25	13.00	8.80	10.00	30.00	21.50	3	19.00	18.00	2.25	2.50	2.25	89.00	7.00	9.00	8.00	3.50	7	25.00	20.2
		30															9.00	4.80	7	30.00	20.3
		35															10.00	5.10	7	35.00	20.3
HOU	2	40	13.00	8.80	10.00	30.00	21.50	0.375									10.50	4.90	7	40.00	20.3
		45															10.14	3.84	3	45.00	20.4
		50															11.00	4.00	3	50.00	20.4
		55															11.50	4.16	DET 3	55.00	20.5

MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFT – 3 GAUGE	A595 GR.A	55	MAST ARM CONN. BOLTS	F3125 GR A325*	
POLE SHAFT – 0.375"	A572 GR.55	55	LUM. ARM CONN. BOLTS	SAE GR.5	36
MAST ARM SHAFT	A595 GR.A	55	ANCHOR BOLTS	F1554 GR.55	55
LUMINAIRE ARM SHAFT	2" SCH. 80 PIPE		GALVANIZING	A123 & A153	
ARM ATTACHMENT PLATE	A36	36			
BASEPLATE	A36	36			

*LUBRICATE IN FIELD IF NECESSARY IN LIEU OF THE REQUIREMENTS IN F3125 GR.A325.



RADIAL INDEX

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar	DocuSigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02582–02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC SIGNAL STRUCTURES

SHEET 01 OF 02

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
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No.	Date	Revisions	App.

HRGreen — FIRM NO. F–11278, 11750 KATY FREEWAY SUITE 400, HOUSTON, TX 77079, PH: 832.318.8800, FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____
P.E. REGISTRATION NO. _____
DATE:_____

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL STRUCTURES

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 257 OF 343

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

DISCLAIMER:
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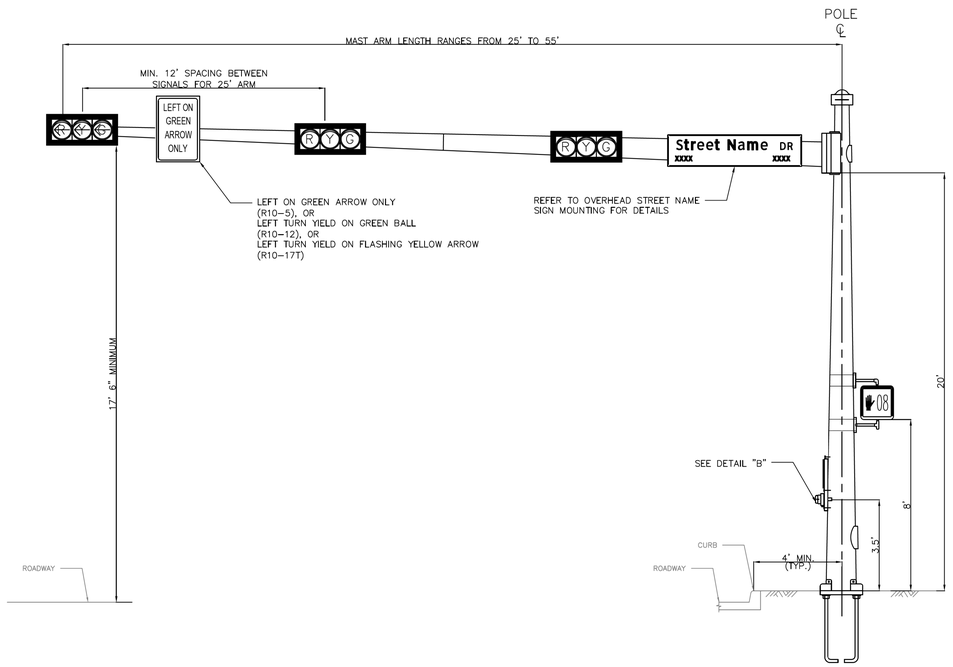
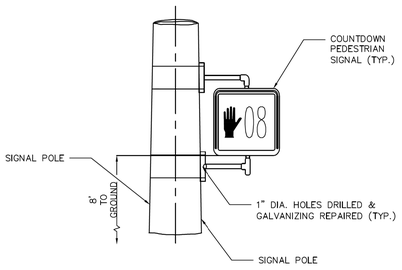




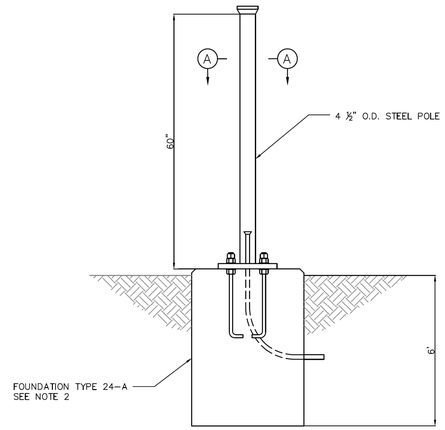
DETAIL "A"

TYPICAL PEDESTRIAN SIGNAL HEAD ON TRAFFIC POLE



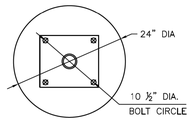
DETAIL "B"

2-WIRE POLARA NAVIGATOR PUSH BUTTON STATION WITH R10-3e SIGN

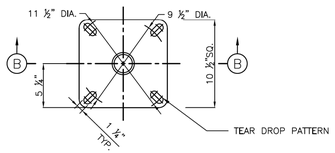


ELEVATION VIEW

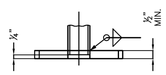
PEDESTRIAN PUSH BUTTON POLE



FOUNDATION PLAN



SECTION A-A



SECTION B-B

NOTE:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS STATED ON CITY OF HOUSTON STANDARD DETAIL 02465-02 "PEDESTAL/PUSH BUTTON POLE DRILLED SHAFT FOUNDATION".
2. REFER TO CITY OF HOUSTON STANDARD DETAIL 02465-02 "PEDESTAL/PUSHBTTON POLE DRILLED SHAFT FOUNDATION" FOR ANCHOR BOLT DETAILS.

No.	Date	Revisions	App'd

APPROVED BY:	APPROVED BY:
DocuSigned by: Sulail Kanwar	DocuSigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02582-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL MAST ARM/POLE FIXTURE CONFIGURATION

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HRGreen
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11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:_____
P.E. REGISTRATION NO. _____
DATE:_____

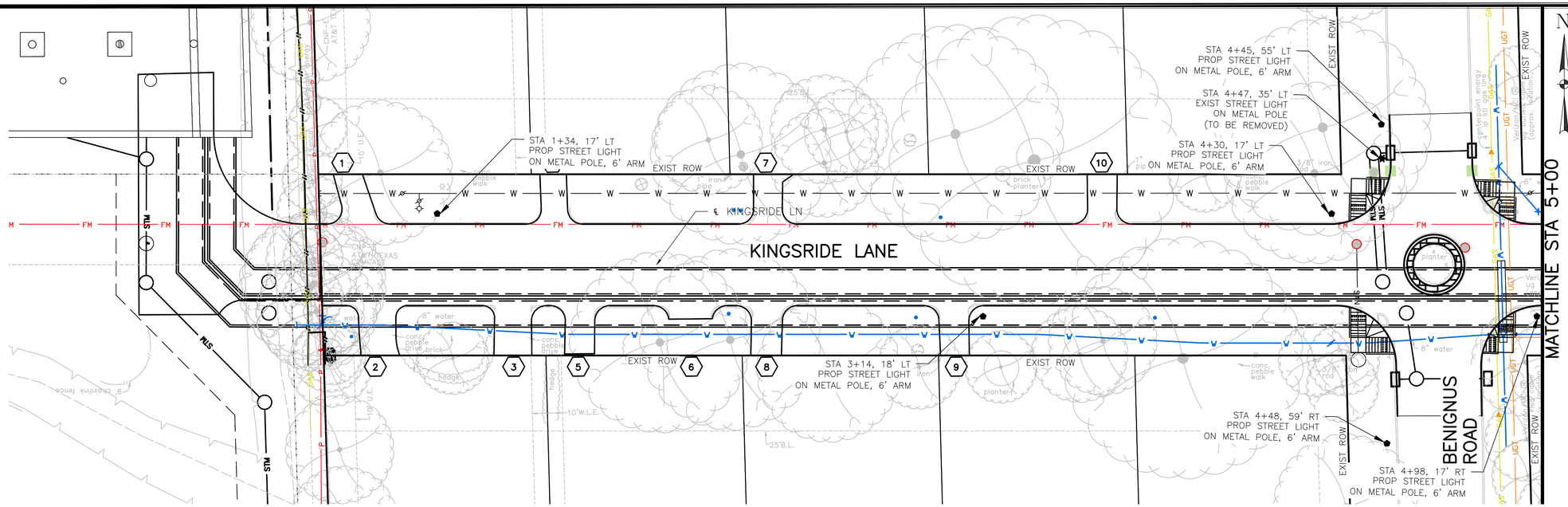
SURVEYED BY: UNITED ENGINEERS, INC.

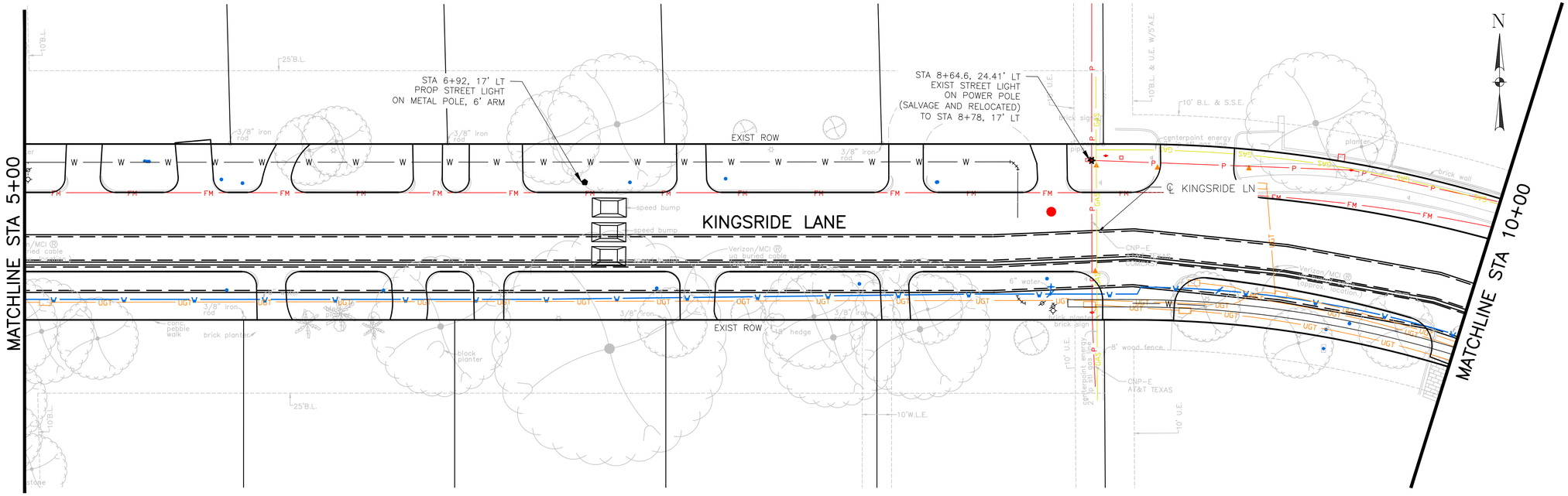
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TYPICAL MAST ARM/POLE FIXTURE CONFIGURATION

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 258 OF 343	





LEGEND

- PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMOVED)
- PROP STREET LIGHT ON METAL POLE WITH 6' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2–INCH PVC, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

1. COORDINATE WITH CNP FOR DE–ENERGIZING AND POLE REMOVAL/ DISPOSAL.
2. CONTRACTOR TO INSTALL CONDUIT & PULL BOXES. CABLING AND LIGHT POLES TO BE INSTALLED BY CNP.
3. POWER POLES TO BE RELOCATED TO ROW BY CNP.
4. DESIGN 2–INCH PVC SCHEDULE 40 CONDUITS FOR POTENTIAL FUTURE PEDESTRIAN LIGHTING ON BOTH SIDES OF ROADWAY. PLACE INSIDE OF SIDEWALK/SUP TO AVOID CONFLICT WITH POWER POLES.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 3

WBS NO. M–430296–0017–3
DRAWING SCALE
H: 1"=20' (22'X34') H: 1"=40' (11'X17')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. **259** OF **343**

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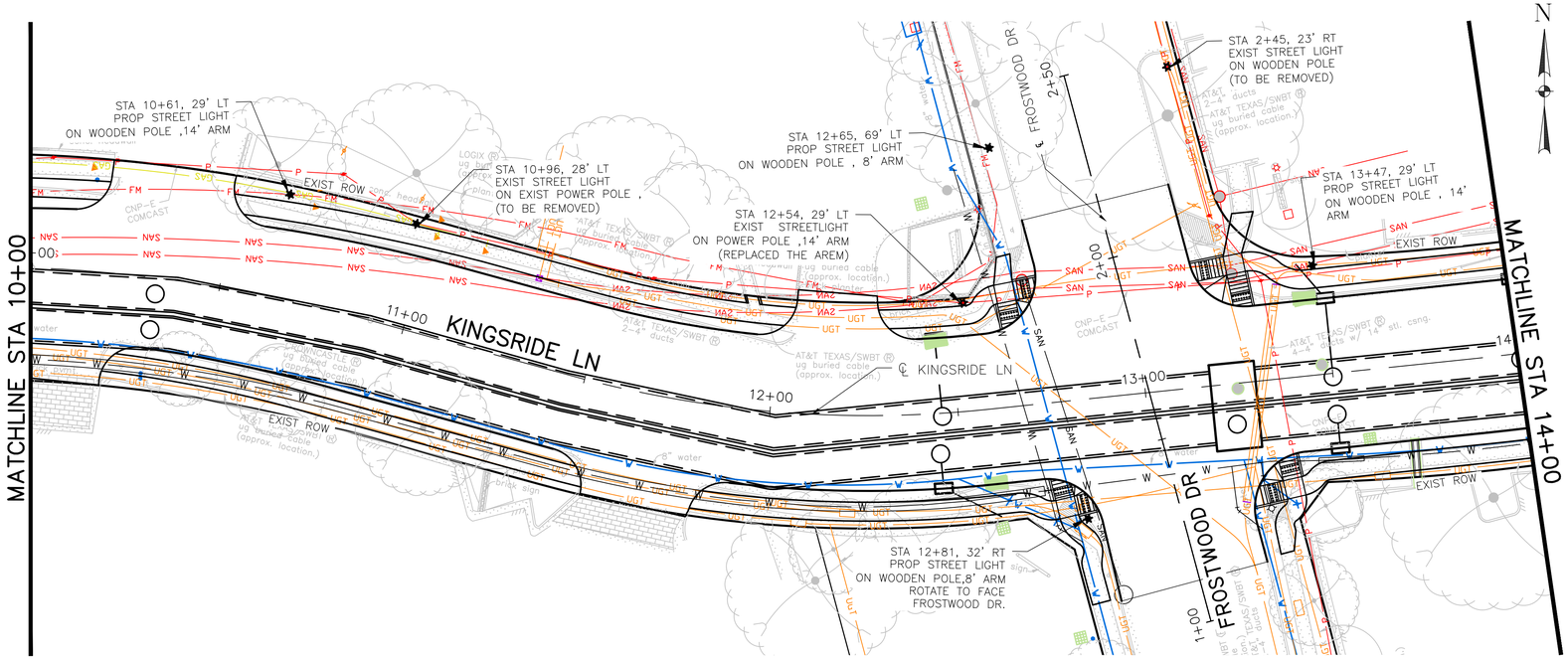

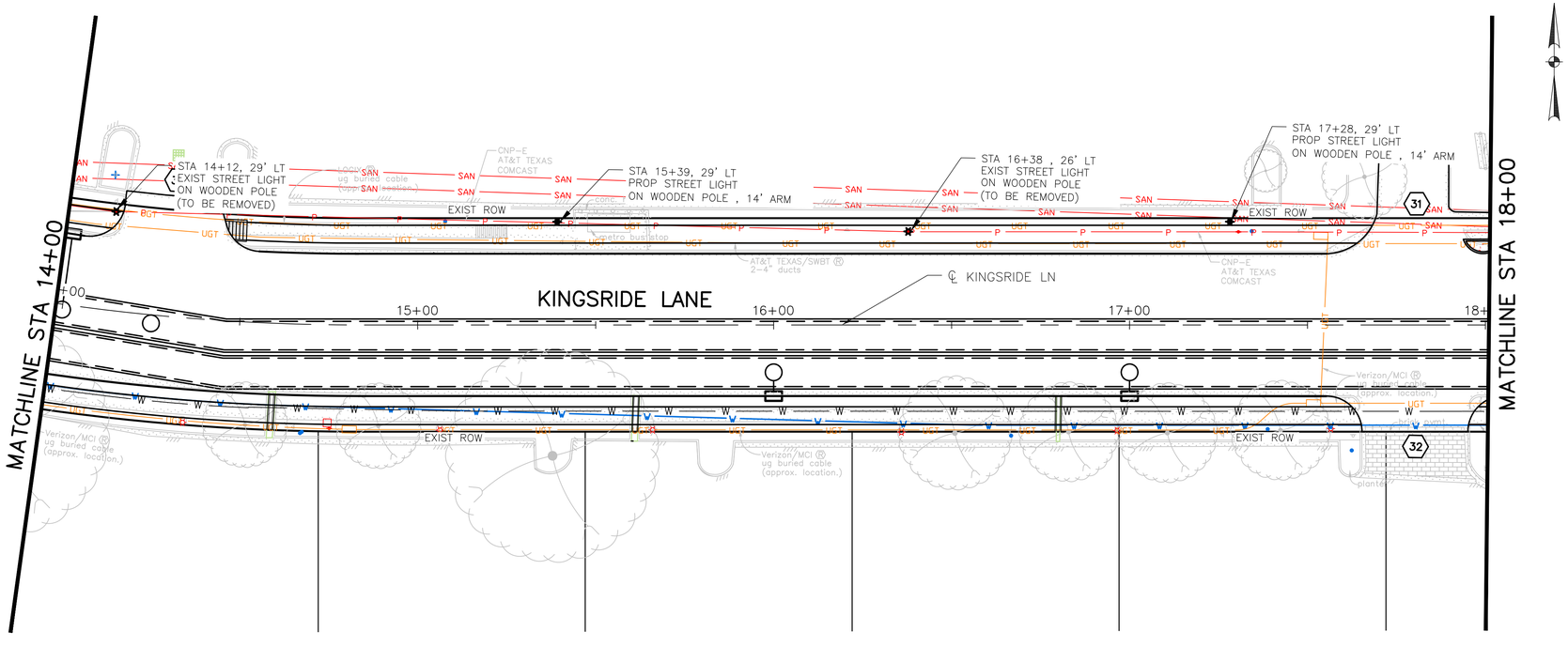

LEGEND

- PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
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- PROP GROUND BOX
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No.	Date	Revisions	App.

NOTES:

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10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

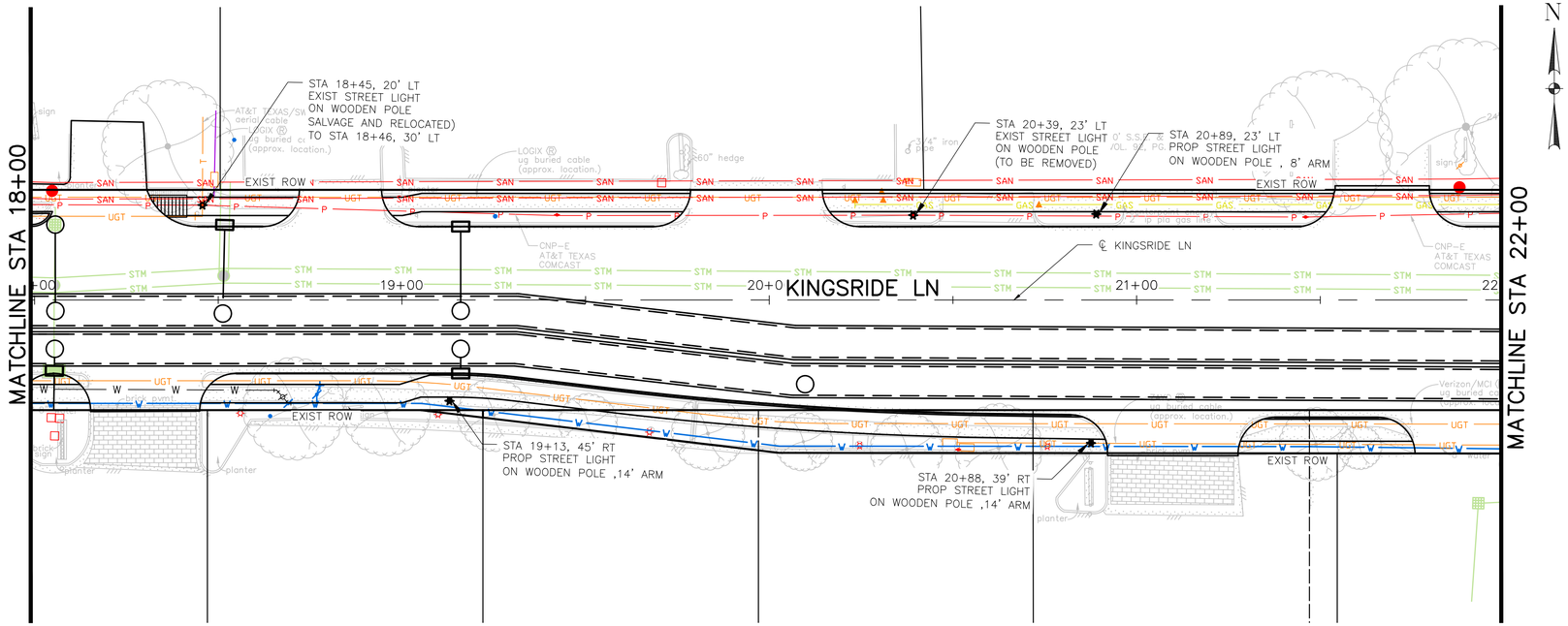
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

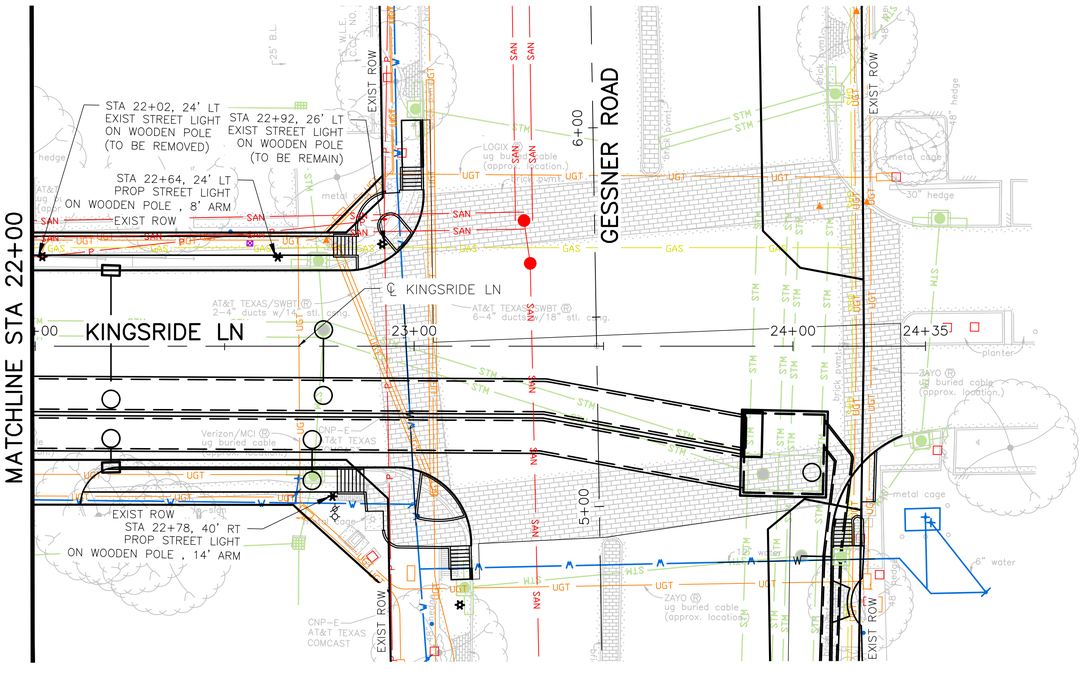
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. **260** OF **343**

I:\2021\210601.01\cad\dwgs\sheets\18 – illumination plans\prop – lighting_kingsride in_02.dwg Plotted February 18, 2026 at 4:31 PM by Huml, John





LEGEND

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- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
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- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2–INCH PVC, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

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10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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P.E. REGISTRATION NO. 125563
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

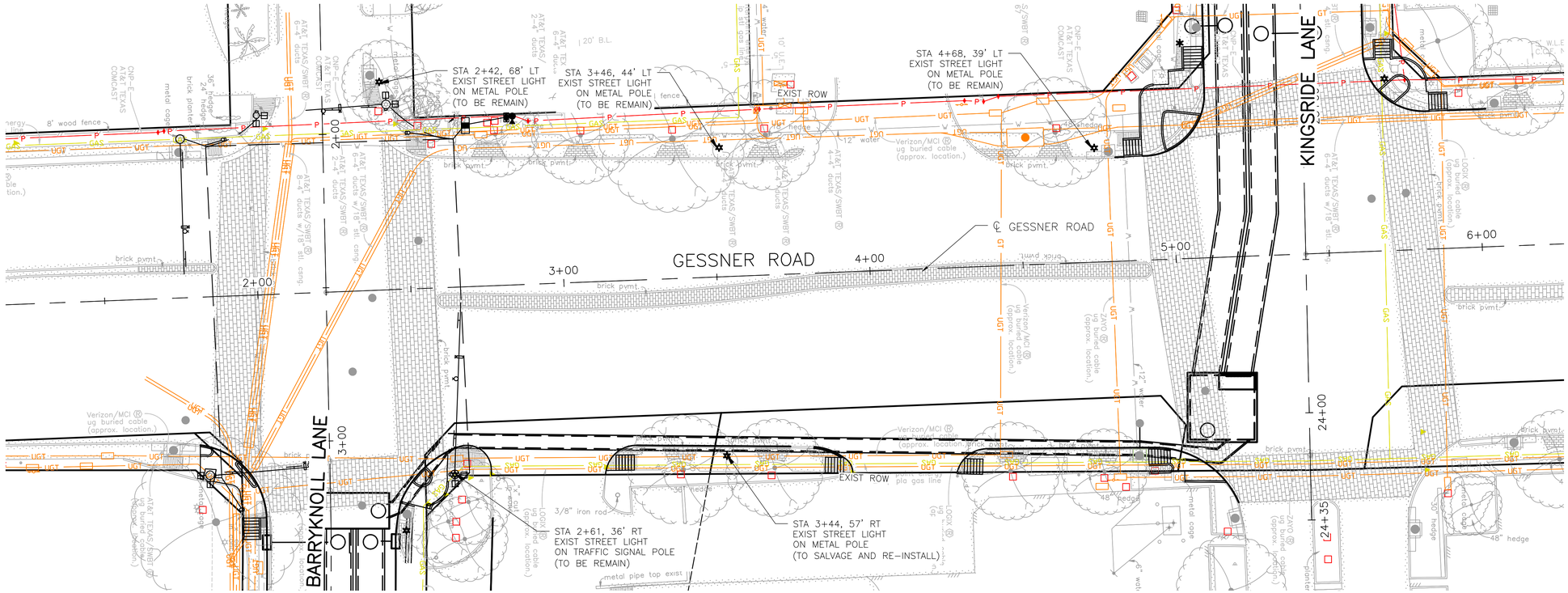
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. **261** OF **343**

J:\2021\210601.01\cad\dwgs\sheets\18 – illumination plans\prop – lighting_kingsride in_03.dwg Plotted February 18, 2026 at 4:32 PM by Huml, John



LEGEND

- PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMOVED)
- PROP STREET LIGHT ON METAL POLE WITH 6' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2-INCH PVC, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

1. COORDINATE WITH CNP FOR DE-ENERGIZING AND POLE REMOVAL/ DISPOSAL.
2. CONTRACTOR TO INSTALL CONDUIT & PULL BOXES. CABLING AND LIGHT POLES TO BE INSTALLED BY CNP.
3. POWER POLES TO BE RELOCATED TO ROW BY CNP.
4. DESIGN 2-INCH PVC SCHEDULE 40 CONDUITS FOR POTENTIAL FUTURE PEDESTRIAN LIGHTING ON BOTH SIDES OF ROADWAY. PLACE INSIDE OF SIDEWALK/SUP TO AVOID CONFLICT WITH POWER POLES.

N

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

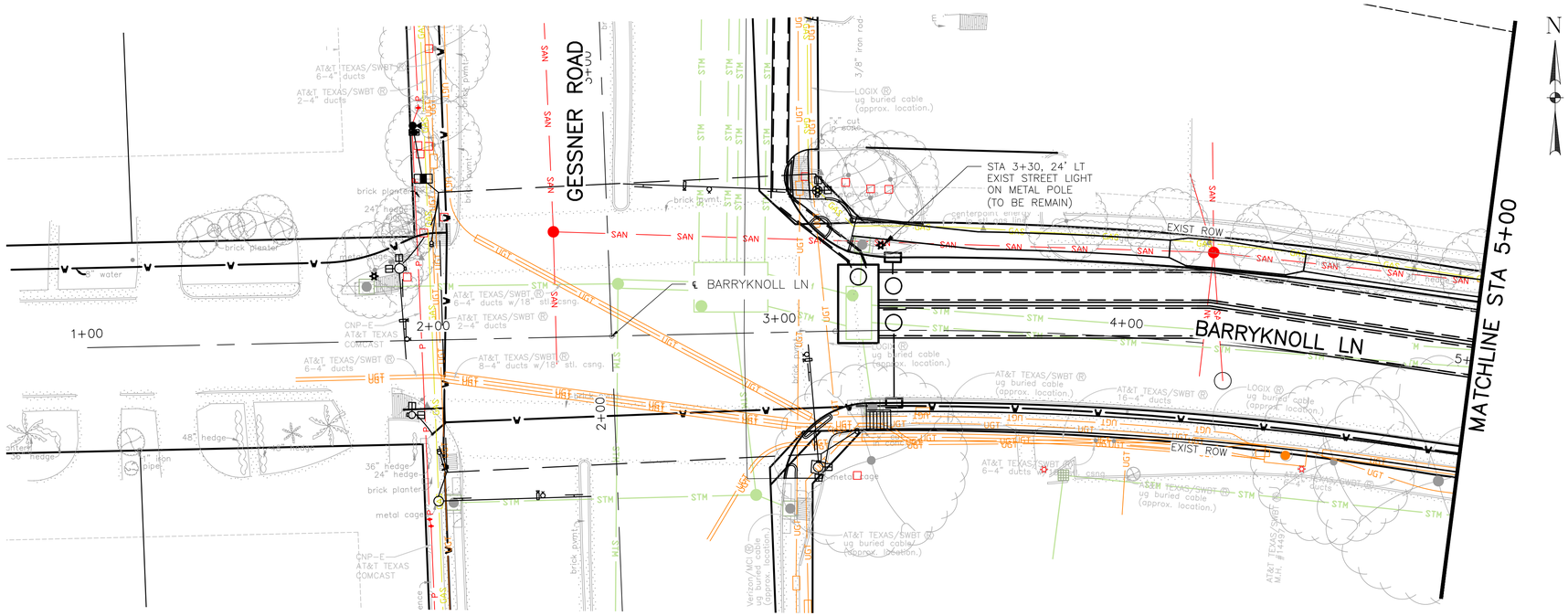
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

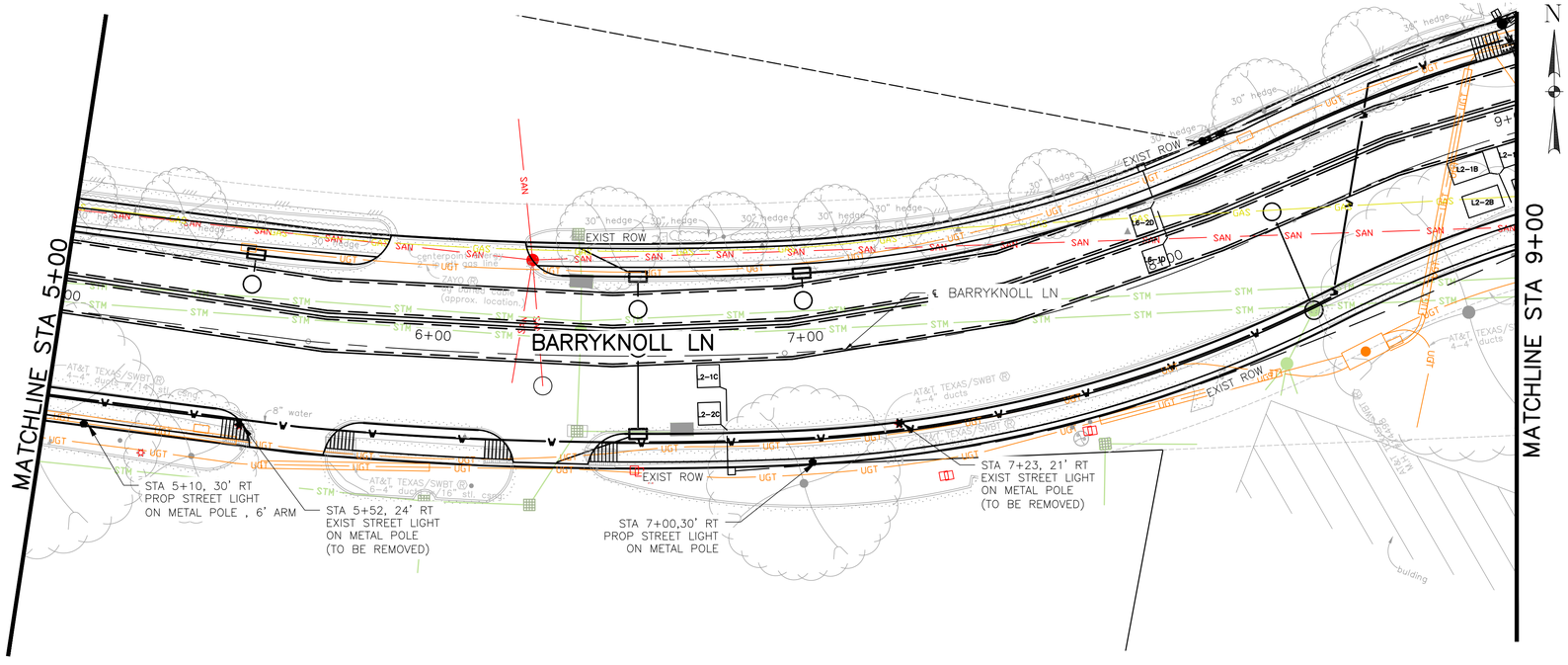
ILLUMINATION LAYOUT
GESSNER ROAD
BEGIN PROJECT TO END PROJET

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. **262** OF **343**	

j:\2021\210601.01\cad\dwgs\sheets\18 - illumination plans\prop - lighting_gessner rd.dwg Plotted February 18, 2026 at 4:34 PM by Huml, John





LEGEND

- PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMOVED)
- PROP STREET LIGHT ON METAL POLE WITH 6' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2-INCH PVC, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

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10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
BARRYKNOLL LANE
BEGIN PROJECT TO STA 9+00

SHEET 1 OF 2

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34') H: 1"=40' (11'X17')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. **263** OF **343**

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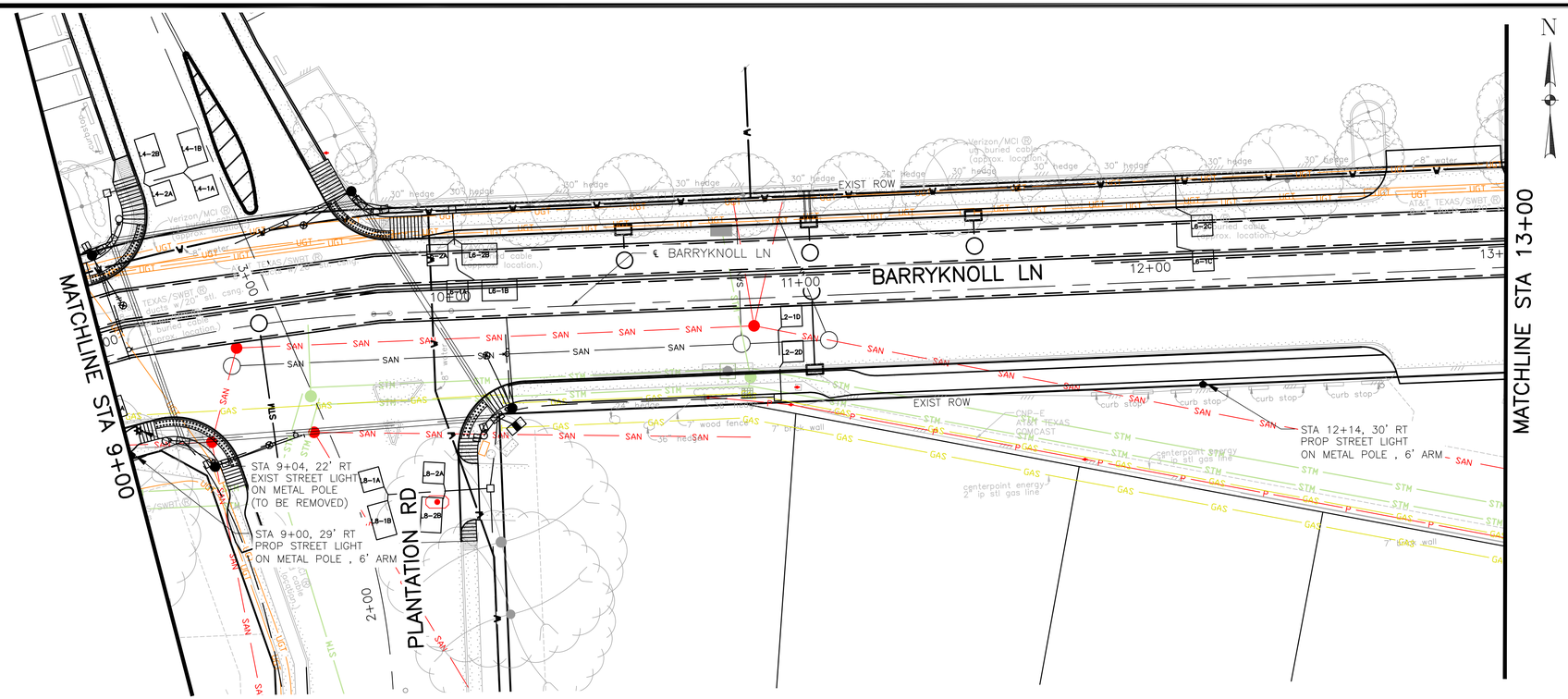

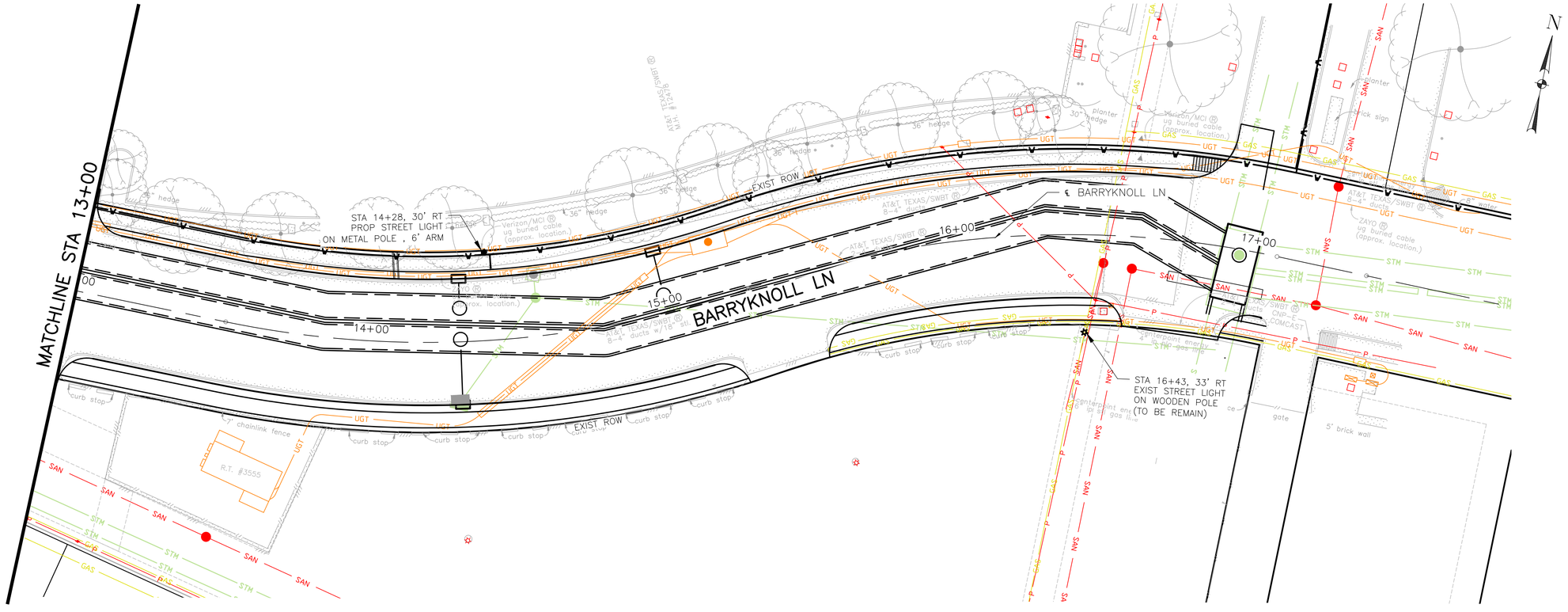

LEGEND

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- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMAIN)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMOVED)
- PROP STREET LIGHT ON METAL POLE WITH 6' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2–INCH PVC, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

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10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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P.E. REGISTRATION NO. 125563
DATE:___2/18/2026___

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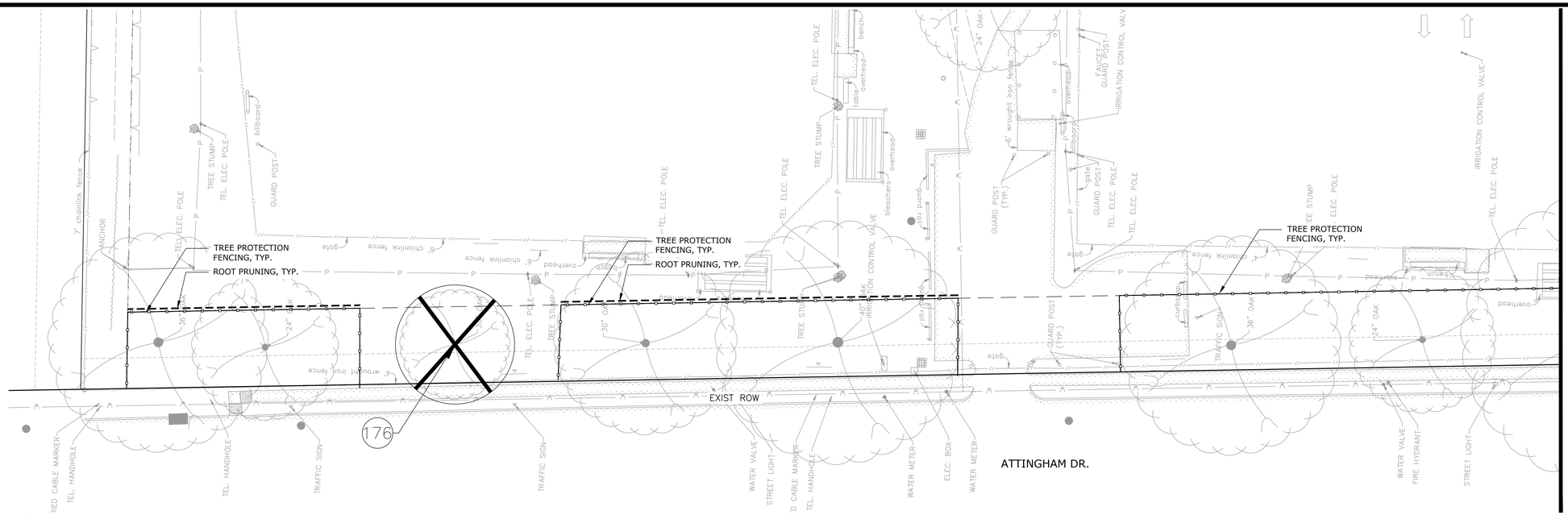
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ILLUMINATION LAYOUT
BARRYKNOLL LANE
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') H: 1"=40' (11'X17')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 264 OF 343	

J:\2021\210601.01\cad\dwgs\sheets\18 – illumination plans\prop – lighting_barryknoll rd.dwg Plotted February 18, 2026 at 4:36 PM by Huml, John



MATCHLINE 01/L1.02

1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

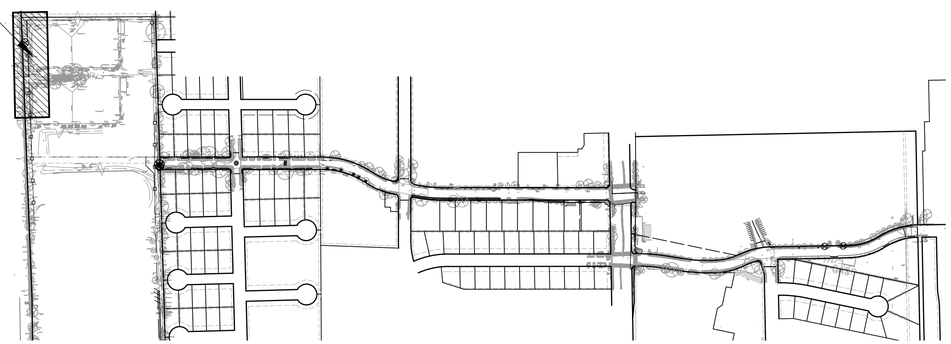
0 20 40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- —·—·— ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

SEE 1/THIS SHEET

KEY MAP



No.	Date	Revisions	App.

ASAKURA ROBINSON
2500 Summer Street, Suite 3228 Houston Texas 77007
P: 713.337.5830 www.asakurarobinson.com

SURVEYED BY: UNITED ENGINEERS, INC.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

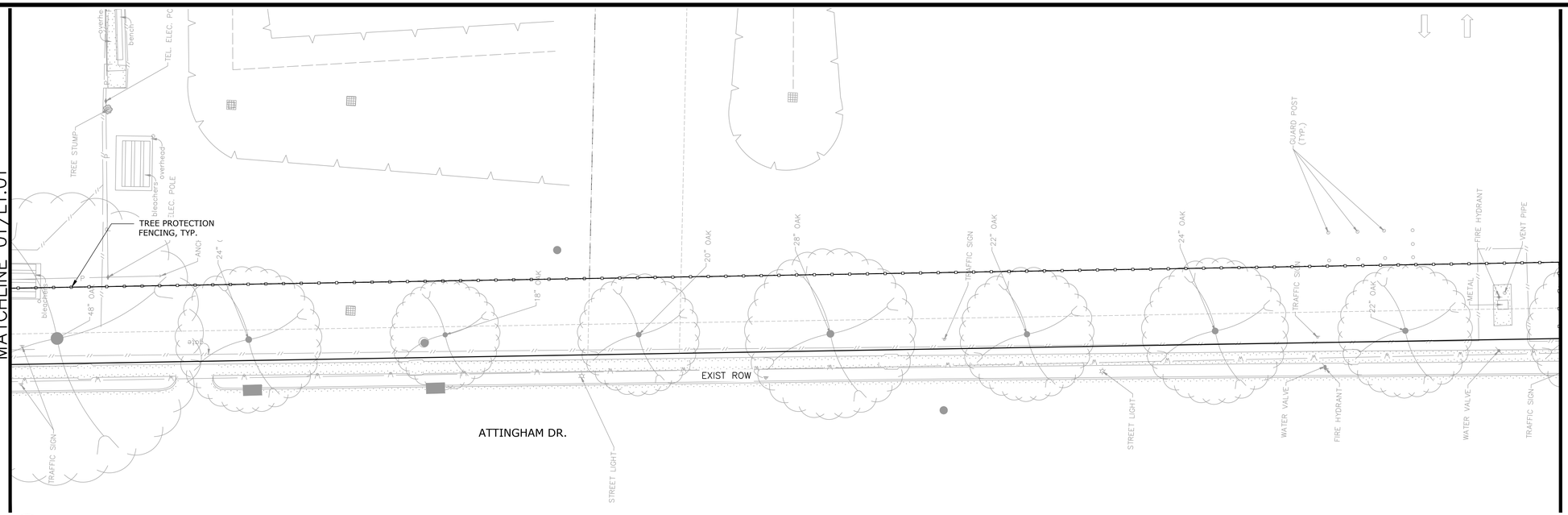
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 265 OF 343

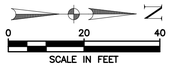
L1.01

I:\trg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:02 AM by Joshua Driscoll



1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

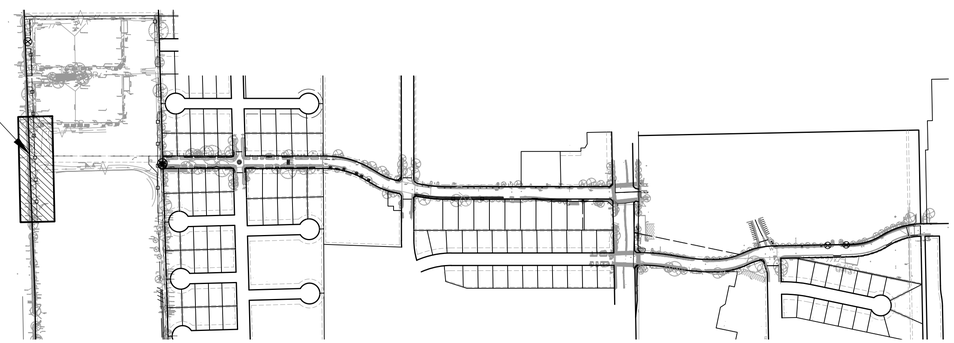


LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP

SEE 1/THIS SHEET



No.	Date	Revisions	Apv.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 266 OF 343

L1.02

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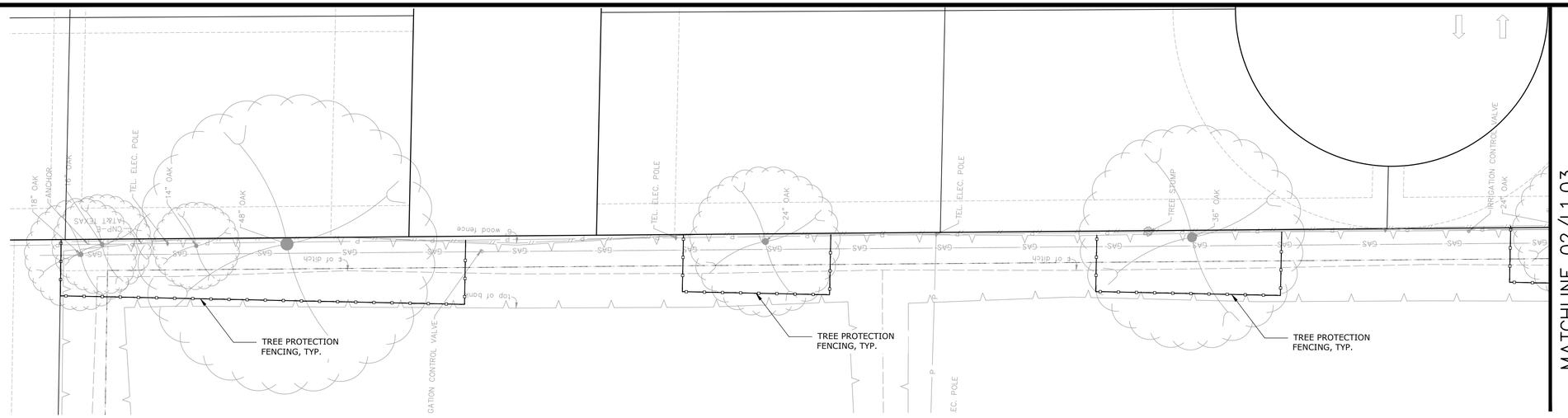


1 **TREE PROTECTION PLAN**

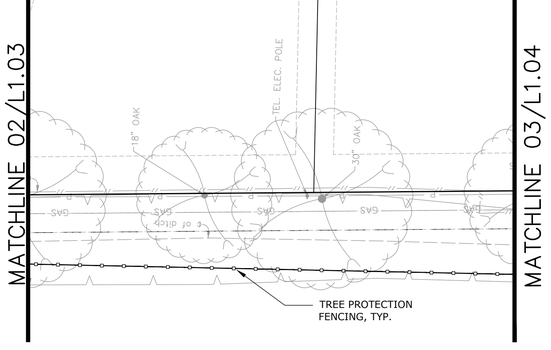
SCALE: 1"=20'-0"

0 20 40 N

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

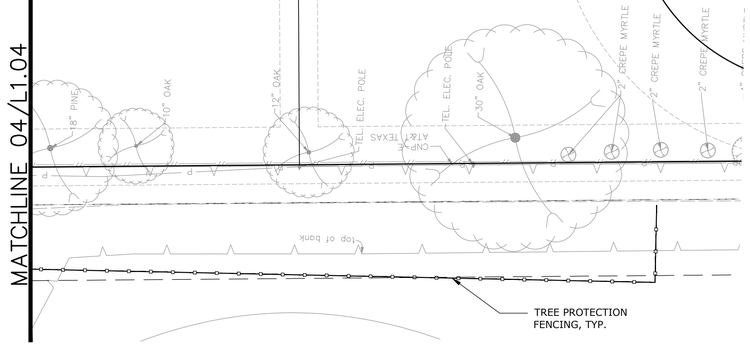


2 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

0 20 40 N

SCALE IN FEET



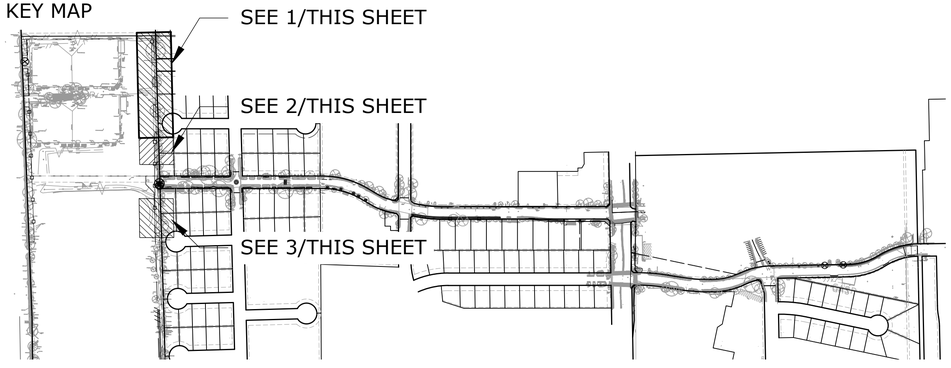
3 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

0 20 40 N

SCALE IN FEET

KEY MAP



No.	Date	Revisions	Appr.

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KEIJI ASAKURA, RLA
REGISTRATION NO. 1170.

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

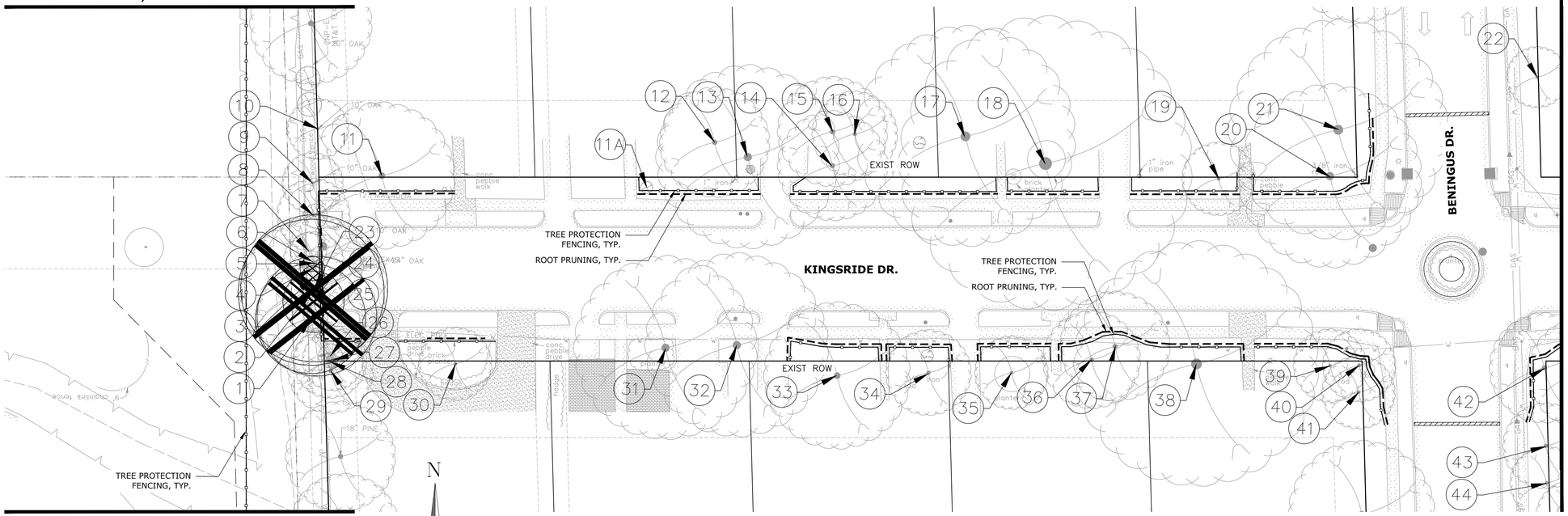
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
ATTINGHAM DR.
DETENTION

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22'X34') V: 1"=2' (22'X34')
CITY OF HOUSTON PM	
	KEVIN HAMMOND, P.E.
SHEET NO.	267 OF 343

L1.03

J:\hrg2401 tirz 17 memorial city area detention basin\or\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua Driscoll

MATCHLINE 3/L1.03



1 **TREE PROTECTION PLAN**

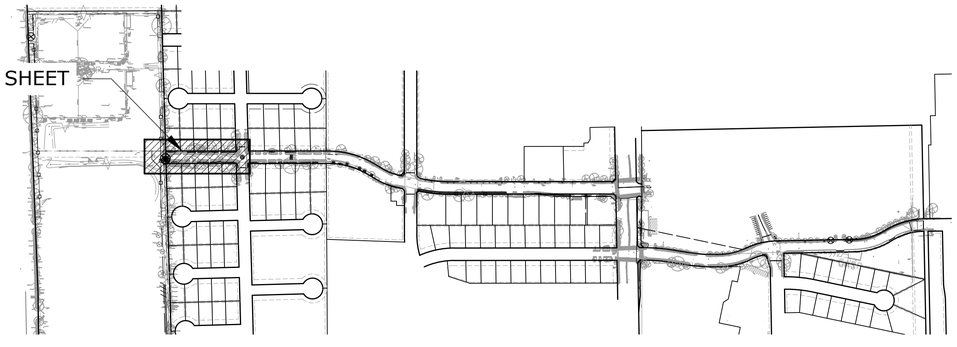
SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP

SEE 1/THIS SHEET



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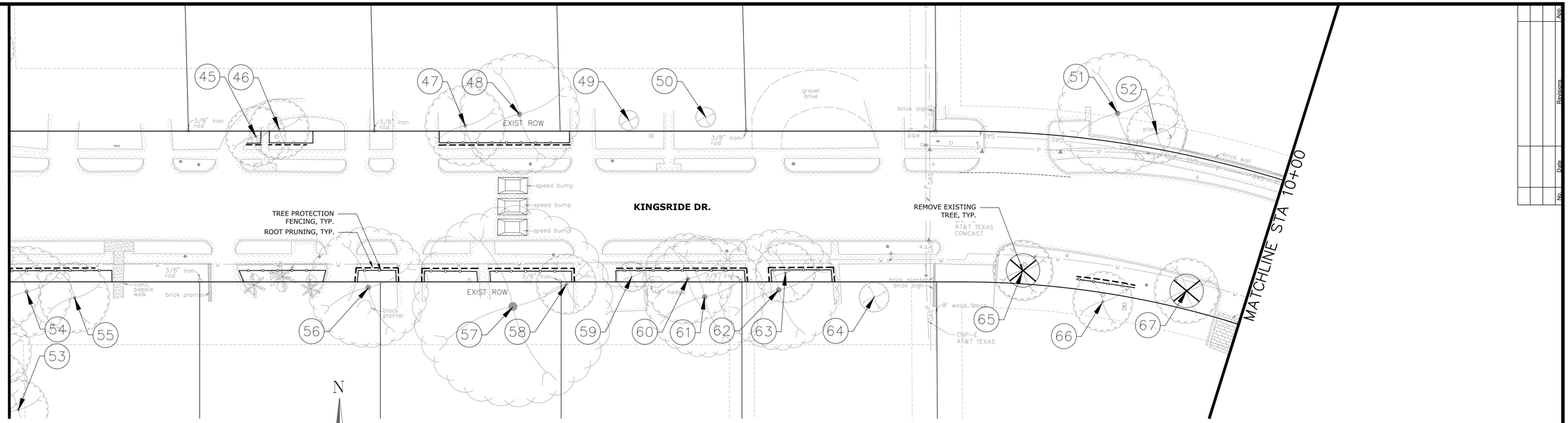
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
KINGSRIDE LANE
BEGIN PROJECT TO 5+00

WBS NO.	M-430296-0017-3
DRAWING SCALE	H: 1"=20' (22'X34') V: 1"=2' (22'X34')
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	268 OF 343

L1.04

J:\hrg2401 tirz 17 memorial city area detention basin\or\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua Driscoll



1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

N

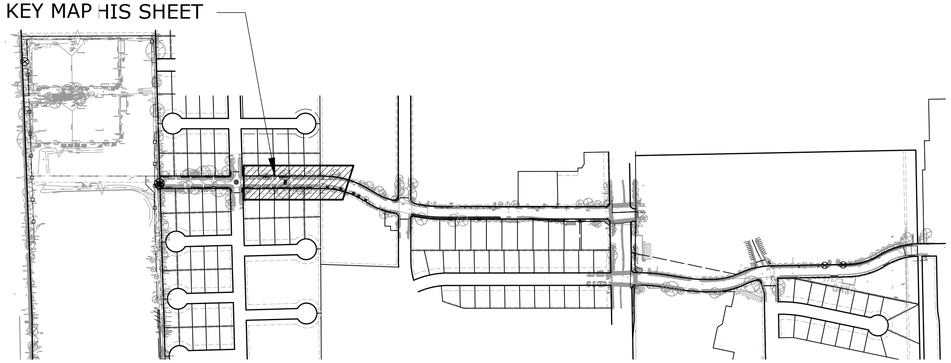
0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP HIS SHEET



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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY

TREE PROTECTION PLAN

KINGSRIDE LANE
5+00 TO 10+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

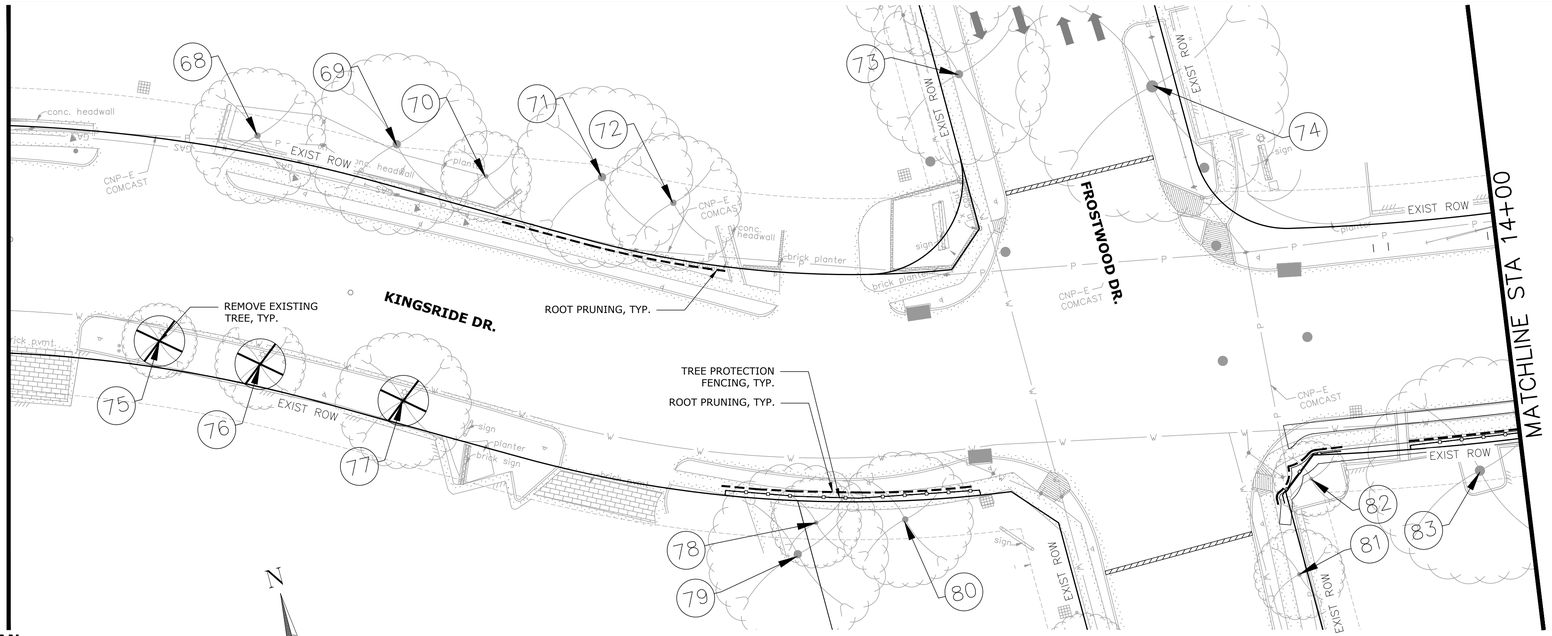
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 269 OF 343

L1.05

J:\tirz2401 tirz 17 memorial city area detention basin\arch\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:02 AM by Joshua Driscoll



1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

N

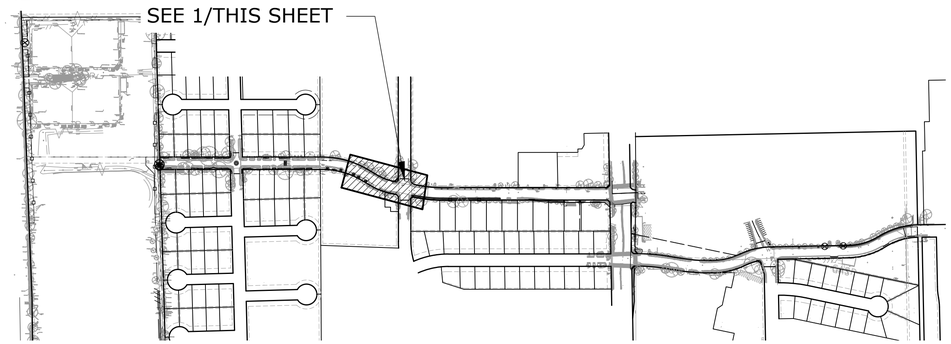
0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY
TREE PROTECTION PLAN

KINGSRIDE LANE
10+00 TO 14+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

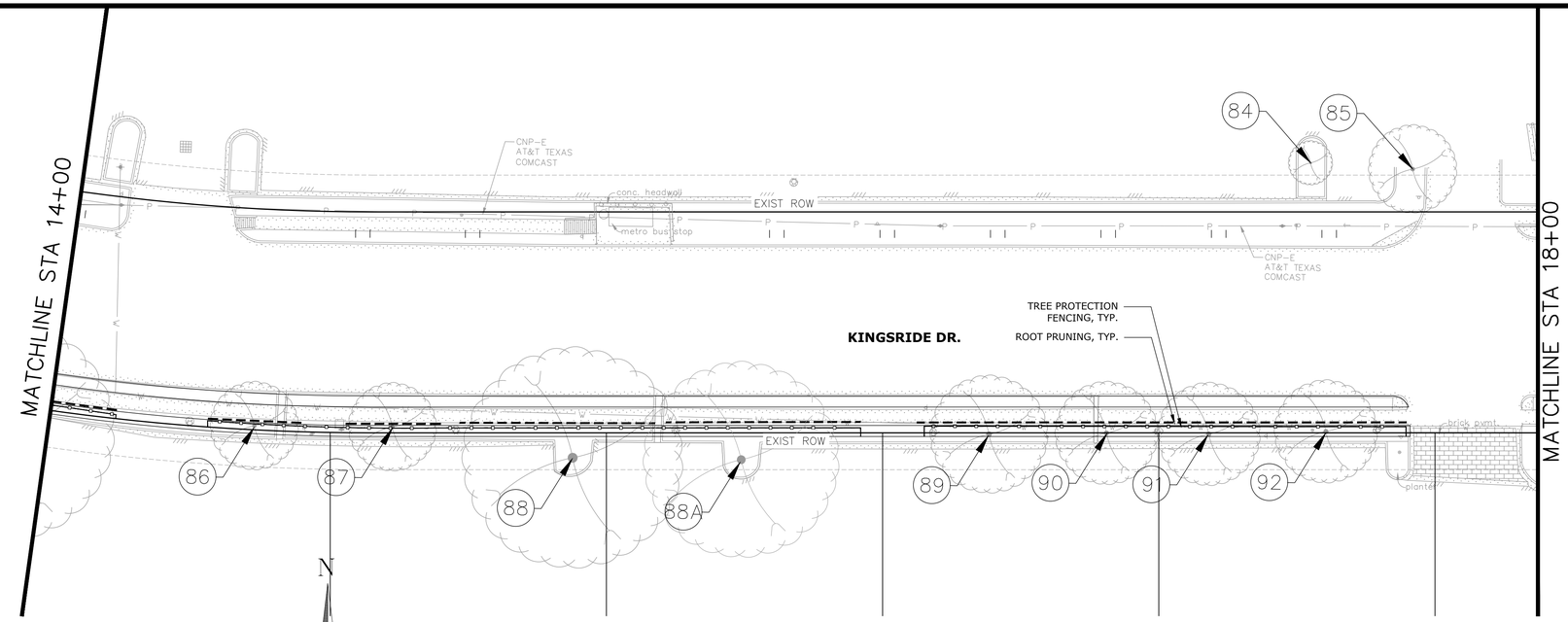
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 270 OF 343

L1.06

J:\tirz2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua Driscoll



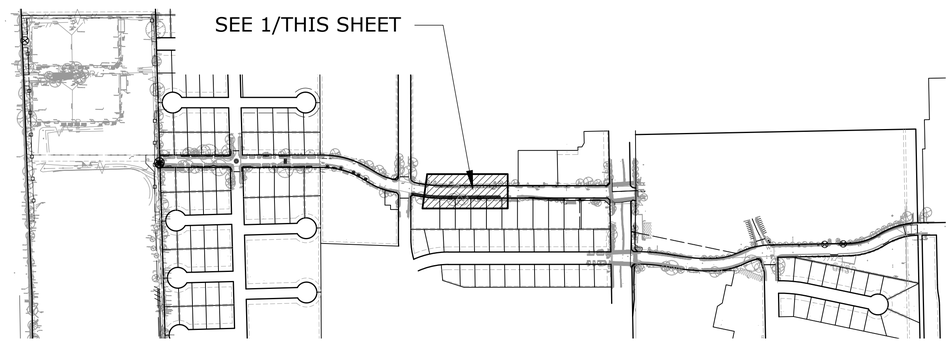
1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Apv.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY

TREE PROTECTION PLAN

KINGSRIDE LANE
14+00 TO 18+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

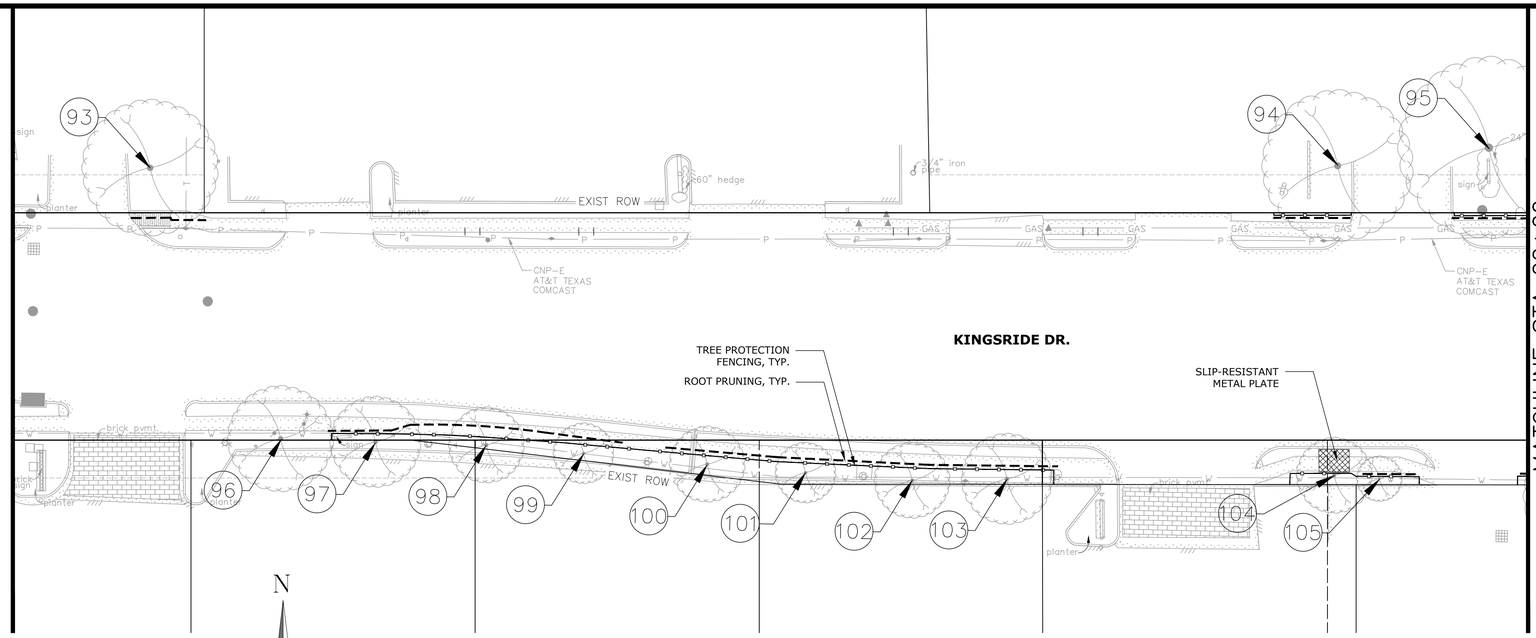
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 271 OF 343

L1.07

J:\tirz2401 tirz 17 memorial city area detention basin\cr\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua Driscoll



N

0 20 40
SCALE IN FEET

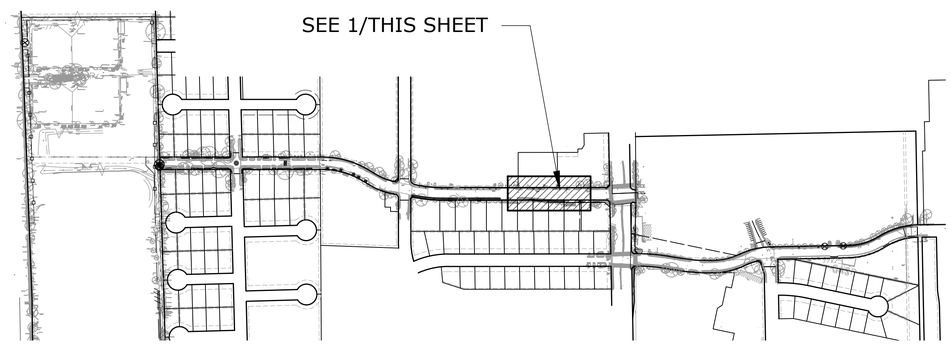
1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Appr.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
KINGSRIDE LANE
18+00 TO 22+00

WBS NO. M-430296-0017-3

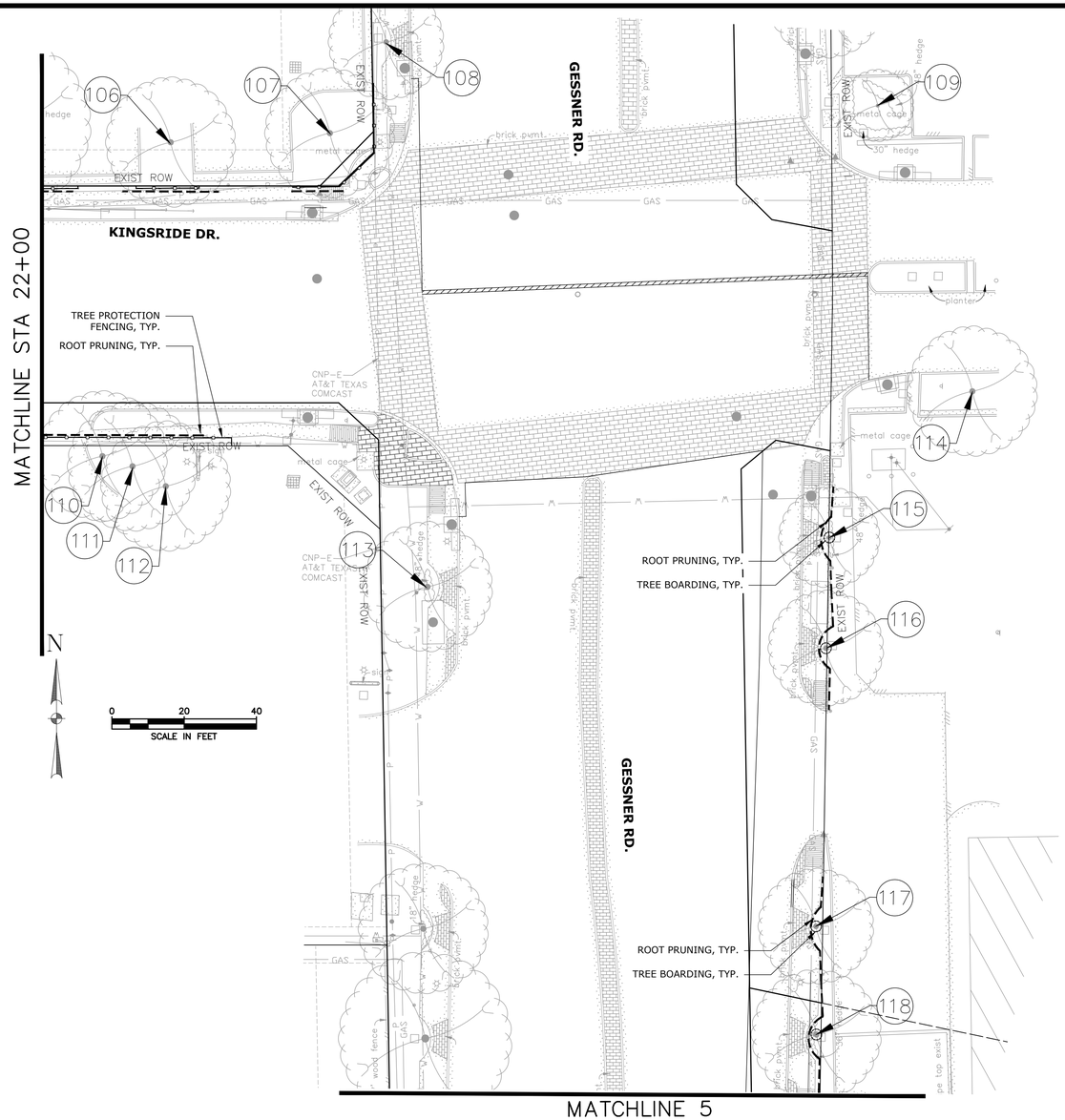
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 272 OF 343

L1.08

J:\tirz2401 tirz 17 memorial city area detention basin\arc\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua Driscoll



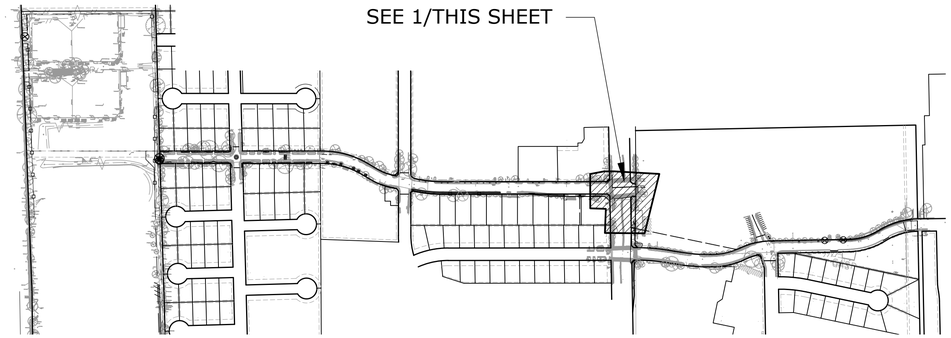
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Appr.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
KINGSRIDE LANE
22+00 TO GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X36")
V: 1"=2' (22"X36")

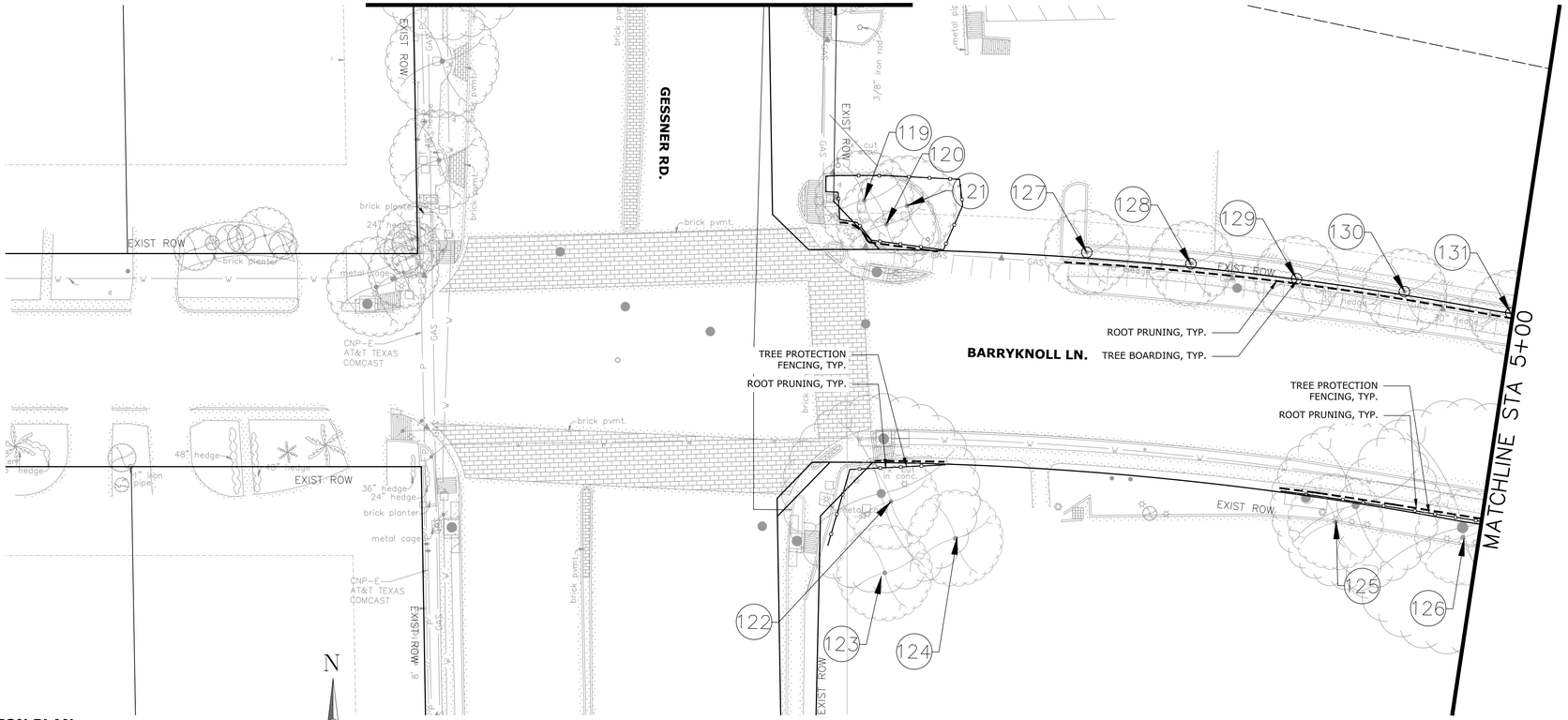
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 273 OF 343

L1.09

j:\hrg2401 tirz 17 memorial city area detention basin\arl\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua Driscoll

MATCHLINE 5



N

0 20 40
SCALE IN FEET

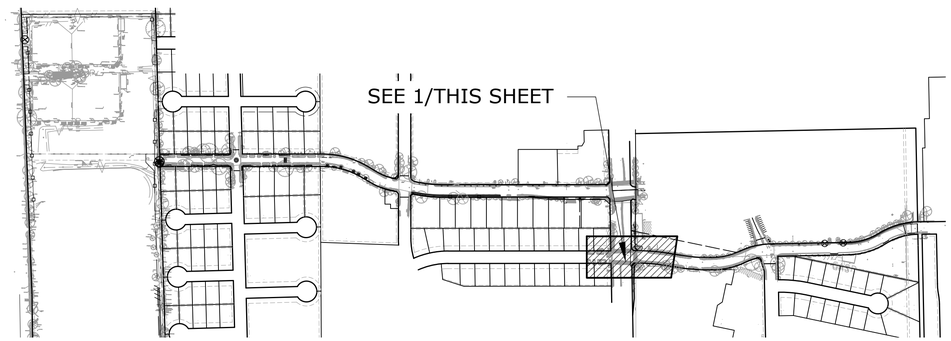
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
GESSNER ROAD
BARRYKNOLL START TO 5+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

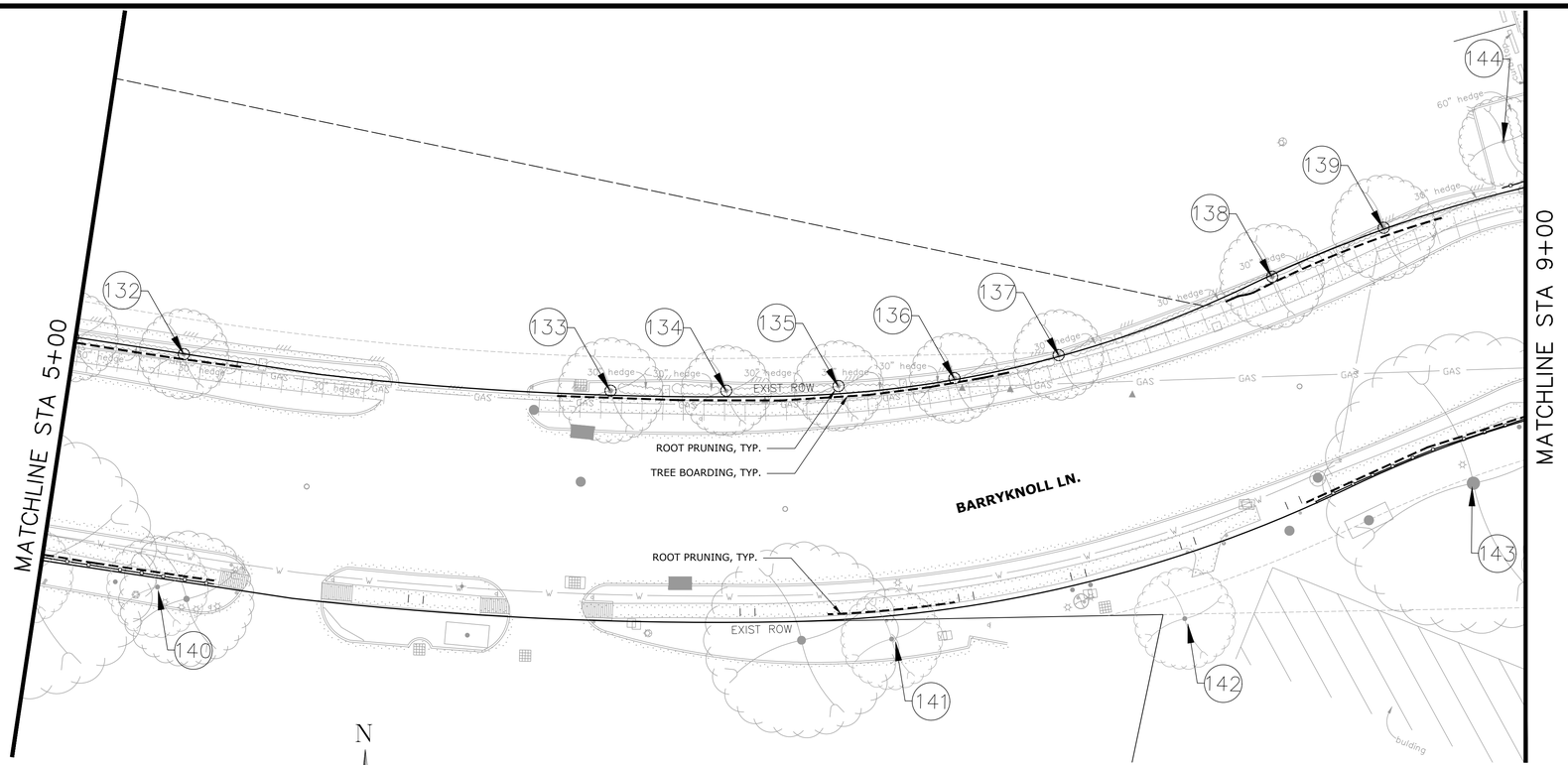
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 274 OF 343

L1.10

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:02 AM by Joshua Driscoll



1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

N

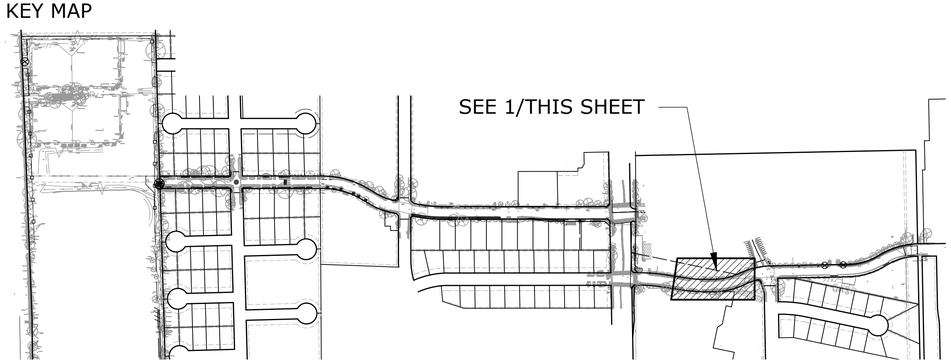
0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Apv.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
BARRYKNOLL LANE
5+00 TO 9+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

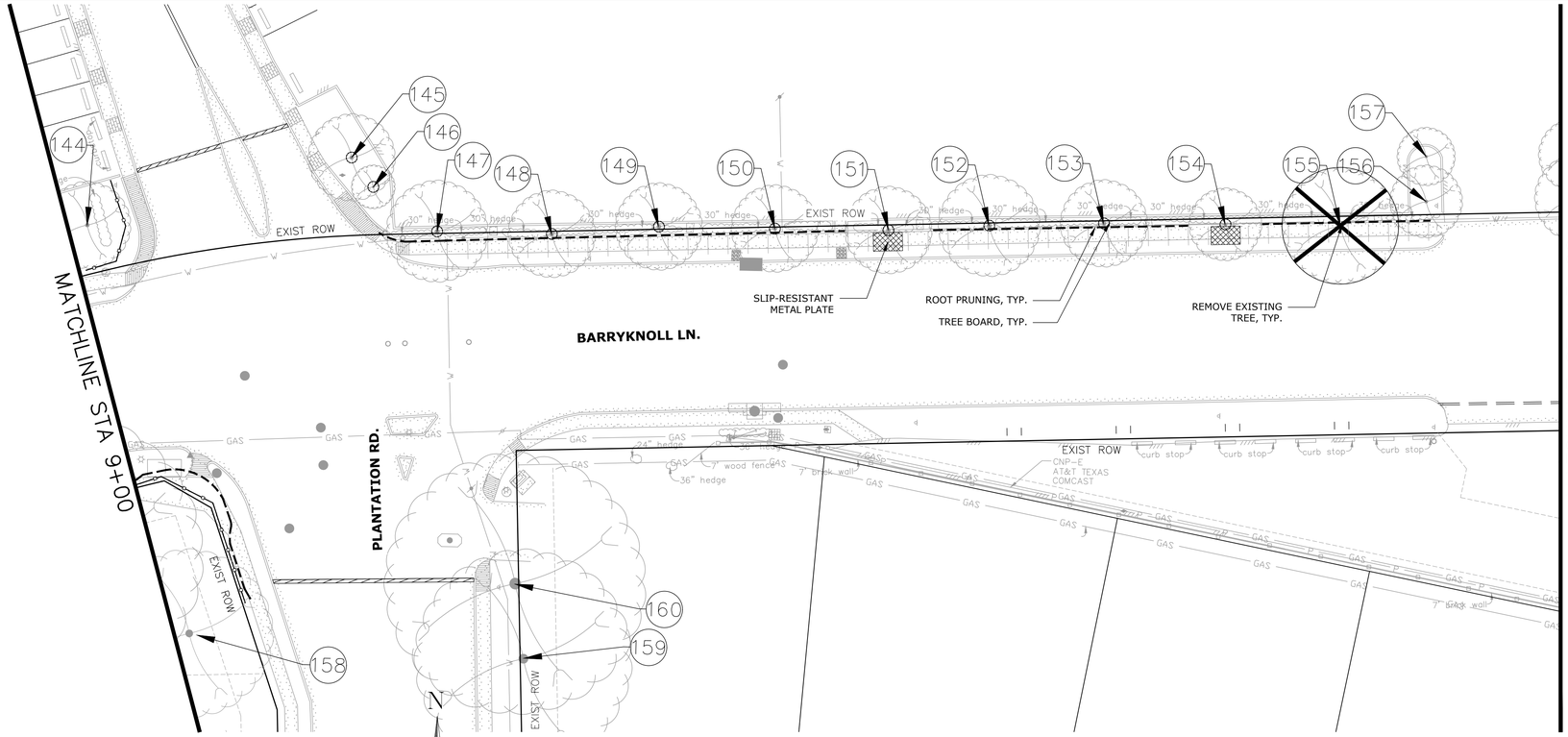
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 275 OF 343

L1.11

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua Driscoll



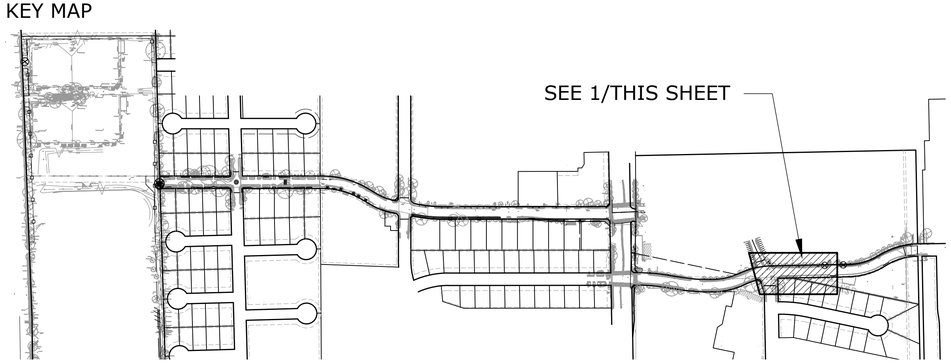
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Apv.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
BARRYKNOLL LANE
9+00 TO 13+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

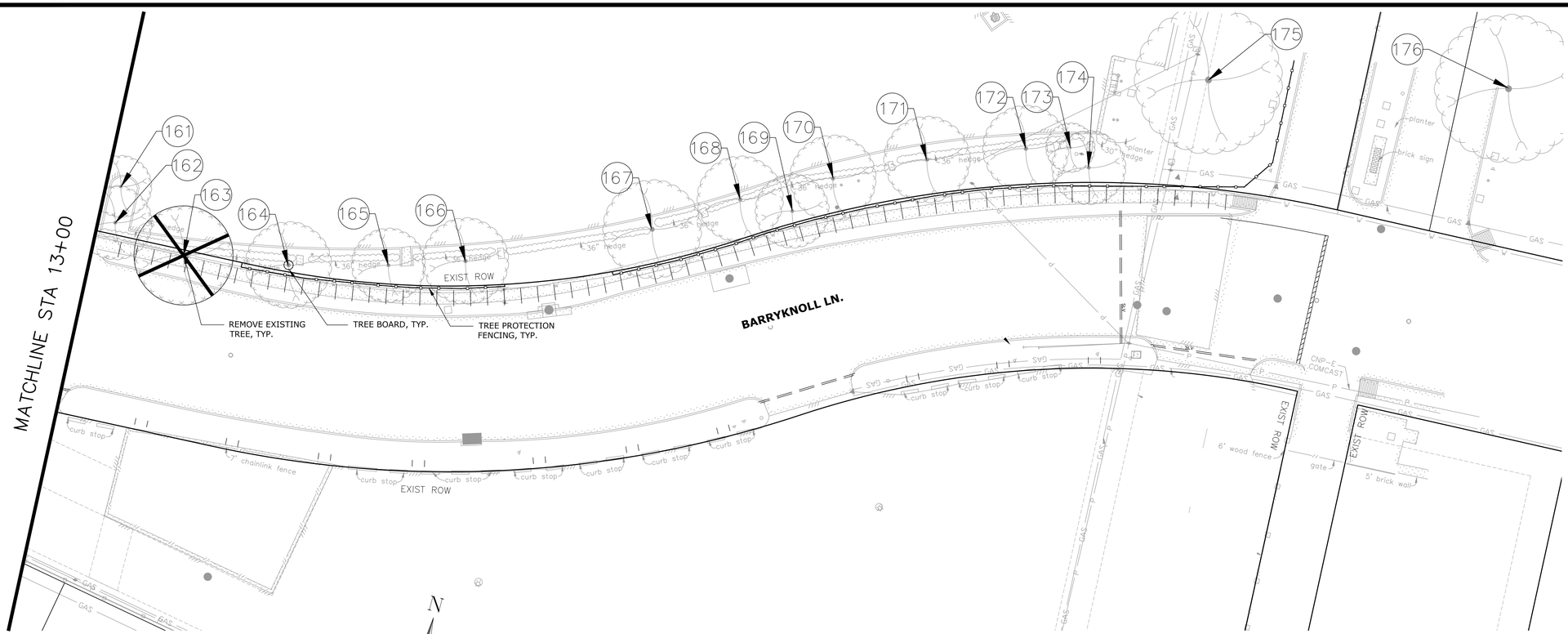
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 276 OF 343

L1.12

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua Driscoll



1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

N

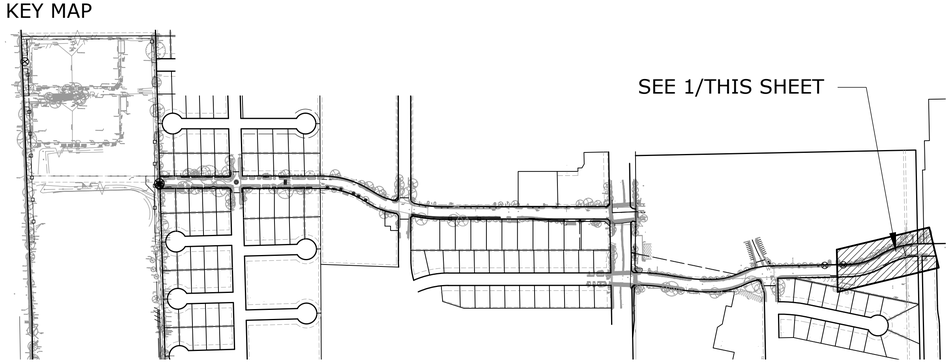
0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- TREE BOARDING
- SLIP-RESISTANT METAL PLATE

KEY MAP



No.	Date	Revisions	Apv.

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY

TREE PROTECTION PLAN

BARRYKNOLL LANE
STA 13+00 TO END

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L1.13
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 277 OF 343	

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\tree preservation plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua Driscoll

TREE MITIGATION CHART

TREE NO.	CALIPER INCHES	TREATMENT	SPECIES	LOCATION	COMMENTS	MITIGATION INCHES
1	18		Oak	Remove	Need agreement with ISD	18
2	24		Oak	Remove	Need agreement with ISD	24
3	4		Oak	Remove	Need agreement with ISD	4
4	4	Root Pruning, Tree Protection Fencing	Oak	Remove		N/A
5	16	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
6	10	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
7	6	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
8	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
9	10		Oak	Private		N/A
10	10		Oak	Private		N/A
11	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
11A	3	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
12	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
13	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
14	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
15	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
16	14	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
17	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
18	48	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
19	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
20	30	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
21	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
22	10	-	Oak	ROW		N/A
23	24		Oak	Remove	Need agreement with ISD	24
24	10		Oak	Remove	Need agreement with ISD	10
25	20		Oak	Remove	Need agreement with ISD	20
26	4	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
27	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
28	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
29	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
30	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
31	30	-	Crepe Myrtle	ROW		N/A
32	30	-	Crepe Myrtle	ROW		N/A
33	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
34	14	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
35	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
36	16	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
37	18	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
38	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
39	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
40	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
41	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
42	18	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
43	14	-	Crepe Myrtle	ROW		N/A
44	12	-	Crepe Myrtle	ROW		N/A
45	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
46	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
47	16	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
48	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
49	4	-	Oak	Private		N/A
50	4	-	Oak	Private		N/A
51	24		Oak	Private		N/A
52	12		Pine	Private		N/A
53	12	-	Magnolia	Private		N/A
54	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
55	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
56	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
57	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
58	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
59	6	Root Pruning, Tree Protection Fencing	Crepe Myrtle	ROW		N/A
60	18	Root Pruning, Tree Protection Fencing	Magnolia	ROW		N/A
61	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
62	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
63	12	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
64	6	-	Oak	Private		N/A
65	12	Remove	Magnolia	ROW		12
66	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
67	13	Remove	Magnolia	ROW		13
68	18	-	Pine	Private		N/A
69	24	-	Pine	Private		N/A
70	12	-	Pine	Private		N/A
71	24	Root Pruning	Oak	Private		N/A
72	18	Root Pruning	Oak	Private		N/A
73	24	-	Oak	ROW		N/A
74	36	-	Oak	ROW		N/A
75	10	Remove	Magnolia	ROW		10
76	12	Remove	Magnolia	ROW		12
77	18	Remove	Oak	ROW		18
78	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
79	24	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
80	18	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
81	12	-	Oak	ROW		N/A
82	10	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
83	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
84	6	-	Oak	Private		N/A
85	12	-	Oak	Private		N/A
86	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
87	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
88	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
88A	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A

TREE NO.	CALIPER INCHES	TREATMENT	SPECIES	LOCATION	COMMENTS	MITIGATION INCHES
89	16	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
90	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
91	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
92	14	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
93	18	Root Pruning	Oak	Private		N/A
94	20	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
95	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
96	14	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
97	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
98	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
99	8	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
100	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
101	8	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
102	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
103	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
104	10	Root Pruning, Tree Protection Fencing, Checker Plate	Oak	ROW		N/A
105	6	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
106	18	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
107	18	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
108	16	-	Bald Cypress	ROW		N/A
109	10	-	Crepe Myrtle	Private		N/A
110	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
111	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
112	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
113	18	-	Bald Cypress	ROW		N/A
114	18	-	Oak	Private		N/A
115	14	Root Pruning	Bald Cypress	ROW		N/A
116	16	Root Pruning	Bald Cypress	ROW		N/A
117	16	Root Pruning	Bald Cypress	ROW		N/A
118	18	Root Pruning	Bald Cypress	ROW		N/A
119	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
120	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
121	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
122	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
123	36	Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
124	36	Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
125	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
126	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
127	12	Root Pruning, Tree Boarding	Holly	Private	Trees not included in original survey	N/A
128	12	Root Pruning, Tree Boarding	Holly	Private	Trees not included in original survey	N/A
129	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
130	12	Tree Boarding	Holly	Private		N/A
131	12	Tree Boarding	Holly	ROW		N/A
132	12	Tree Boarding	Holly	ROW		N/A
133	14	Root Pruning, Tree Boarding	Holly	Private		N/A
134	12	Root Pruning, Tree Boarding	Holly	Private		N/A
135	12	Root Pruning, Tree Boarding	Holly	Private		N/A
136	12	Root Pruning, Tree Boarding	Holly	Private		N/A
137	12	Tree Boarding	Holly	ROW		N/A
138	14	Tree Boarding	Holly	ROW		N/A
139	14	Tree Boarding	Holly	Private		N/A
140	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
141	36	Root Pruning	Oak	Private		N/A
142	36	-	Oak	Private		N/A
143	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
144	12	Tree Protection Fencing	Crepe Myrtle	Private		N/A
145	12	Tree Boarding	Crepe Myrtle	Private		N/A
146	6	Tree Boarding	Crepe Myrtle	Private		N/A
147	14	Root Pruning, Tree Boarding	Holly	Private		N/A
148	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
149	12	Root Pruning, Tree Boarding	Holly	Private		N/A
150	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
151	12	Root Pruning, Tree Boarding, Checker Plate	Holly	ROW		N/A
152	14	Root Pruning, Tree Boarding	Holly	ROW		N/A
153	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
154	10	Root Pruning, Tree Boarding, Checker Plate	Holly	ROW		N/A
155	16	Remove	Holly	ROW		16
156	10	-	Crepe Myrtle	Private		N/A
157	8	-	Crepe Myrtle	Private		N/A
158	36	-	Oak	Private		N/A
159	30	-	Oak	Private		N/A
160	36	-	Oak	ROW		N/A
161	10	-	Crepe Myrtle	Private		N/A
162	12	-	Crepe Myrtle	Private		N/A
163	16	Remove	Holly	ROW		16
164	14	Tree Protection Fencing, Tree Boarding	Holly	Private		N/A
165	12	Tree Protection Fencing	Holly	Private		N/A
166	14	Tree Protection Fencing	Holly	Private		N/A
167	16	Tree Protection Fencing	Holly	Private		N/A
168	14	Tree Protection Fencing	Holly	Private		N/A
169	12	Tree Protection Fencing	Holly	Private		N/A
170	14	Tree Protection Fencing	Holly	Private		N/A
171	14	Tree Protection Fencing	Holly	Private		N/A
172	14	Tree Protection Fencing	Holly	Private		N/A
173	8	Tree Protection Fencing	Crepe Myrtle	Private		N/A
174	12	Tree Protection Fencing	Holly	Private		N/A
175	24	Tree Protection Fencing	Magnolia	Private		N/A
176	24	-	Magnolia	Private		N/A
177	24	Remove	Oak	ROW		24
					TOTAL MITIGATION REQUIRED	225

TREE PROTECTION NOTES :

1. IT IS CRUCIAL THAT TREE PROTECTION FENCES MUST BE ERECTED PRIOR TO THE BEGINNING OF ANY SITE DEMOLITION.
2. THE TREE PROTECTION FENCE SHALL BE T-POSTS AT 8'-0" O.C. W/ 4' HT. BRIGHT ORANGE, LIGHT WEIGHT, REUSABLE MESH SAFETY FENCING MADE OF HIGH DENSITY POLYETHYLENE WITH 1 1/2" X 3" SIZE MESH OR SIMILAR MATERIAL.
3. PROTECTION FENCE SHALL BE PLACED AROUND CRITICAL ROOT ZONE OF ALL TREES TO REMAIN. IN LOCATIONS SHOWN ON TREE PROTECTION PLANS. UNDER NO CIRCUMSTANCES SHALL FENCING BE DRAPED AROUND TREES OR AFFIXED TO TREE TRUNKS.
4. UNDER NO CIRCUMSTANCES, SHOULD A CONTRACTOR DRIVE OR PARK MACHINERY ON TREE ROOTS OR UNDER THE DRIPLINE.
5. AVOID DISTURBING ROOTS IN CRITICAL ROOT ZONE. IF ROOT CUTTING IS NECESSARY OR ANY ROOTS ARE DAMAGED, THEY SHALL BE CUT CLEANLY WITH THE APPROPRIATE PRUNING SHEARS OR PRUNING SAWS A FEW INCHES ON THE SIDE CLOSER TO THE TRUNK. ANY EXPOSED OR PRUNED TREE ROOTS MUST BE COVERED IMMEDIATELY WITH DIRT AND MULCH TO PREVENT ROOTS FROM DRYING OUT.
6. NO STORAGE OR CONCRETE DUMPING IS PERMITTED ON TREE ROOTS AND/OR UNDER DRIPLINE.
7. NO BUILDING MATERIALS ARE TO BE STACKED OR STOCKPILED WITHIN THE DRIPLINE OR WITHIN 6 FEET OF ANY TREE TO BE PRESERVED, WHICHEVER DISTANCE IS GREATER.
8. TOPSOIL SHALL NOT BE STOCKPILED WITHIN THE DRIP LINE OR WITHIN 6 FEET OF ANY TREE TO BE PRESERVED, WHICHEVER DISTANCE IS GREATER.
9. TREE BOARDING SHALL BE USED AS SHOWN ON PLAN AND IF WORK IS REQUIRED WITHIN FENCING.
10. ANY UNDERSTORY CLEARING WITHIN SIX FEET OF EXISTING TREE TRUNKS SHOULD BE DONE BY HAND.
11. CONTRACTORS ARE REQUIRED TO HIRE A CERTIFIED ARBORIST TO MONITOR AND ASSIST WITH FIELD LAYOUT (EXACT LOCATIONS OF FENCING, ROOT PRUNING, AND ZERO CURB CUTBACK) OF THE TREE PRESERVATION PROGRAM DURING DEMOLITION AND CONSTRUCTION TO ENSURE TREE PROTECTION PROCEDURES AND TECHNIQUES ARE PRACTICED AS SPECIFIED TO ADDRESS CONCERNS AND CONDITIONS WHICH OCCUR IN THE FIELD. AT A MINIMUM, THE INDIVIDUAL RESPONSIBLE FOR MONITORING AND FIELD LAYOUT OF THE TREE PROTECTION SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE AS A CONSULTANT, AND SHALL NOT BE AFFILIATED WITH A TREE CARE CONTRACTOR IN THE HARRIS COUNTY AREA. QUALIFICATIONS OF THE SELECTED CERTIFIED ARBORIST SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.
12. ROOT PRUNING CUT LIMITS SHOWN ON PLANS ARE APPROXIMATE, AND WILL NEED TO FIELD VERIFIED ONCE ROOTS ARE VISIBLE. ALL ROOT PRUNING OVER 1" IN DIAMETER SHALL BE DONE UNDER APPROVAL FROM CITY FORESTER AND PROJECT ARBORIST.

TREE MITIGATION CALCULATION :

- CATHEDRAL LIVE OAK: 23 EA X 4" = 46" TOTAL
- BALD CYPRESS: 14 EA X 4" = 56" TOTAL
- CEDAR ELM: 20 EA X 4" = 80" TOTAL
- REDBUD: 35 EA X 2" = 70" TOTAL
- SAVANNAH HOLLY: 02 EA X 4" = 8" TOTAL

MITIGATION PROVIDED: 269"
(TOTAL INCHES)

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TREE CHART

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 278 OF 343

L1.15

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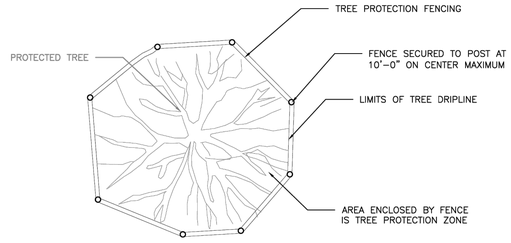
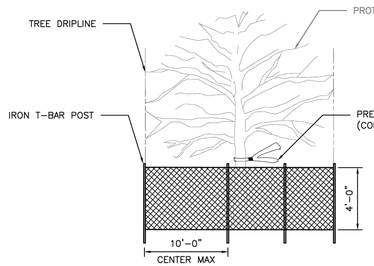
NOTES:

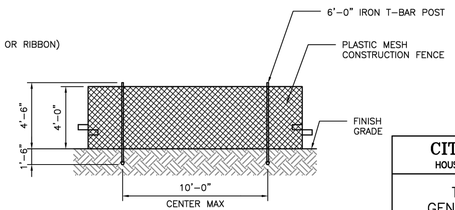
FENCE LOCATION MAY BE ADJUSTED TO ACTUAL SITE CONDITIONS.



PLAN VIEW
TREE PROTECTION FENCING DETAIL



FRONT VIEW
TREE PROTECTION FENCING DETAIL



DETAIL B–4
PROTECTIVE PLASTIC MESH FENCE

1 TREE PROTECTION GENERAL REQUIREMENTS

SCALE: N.T.S.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
GENERAL REQUIREMENTS

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–01

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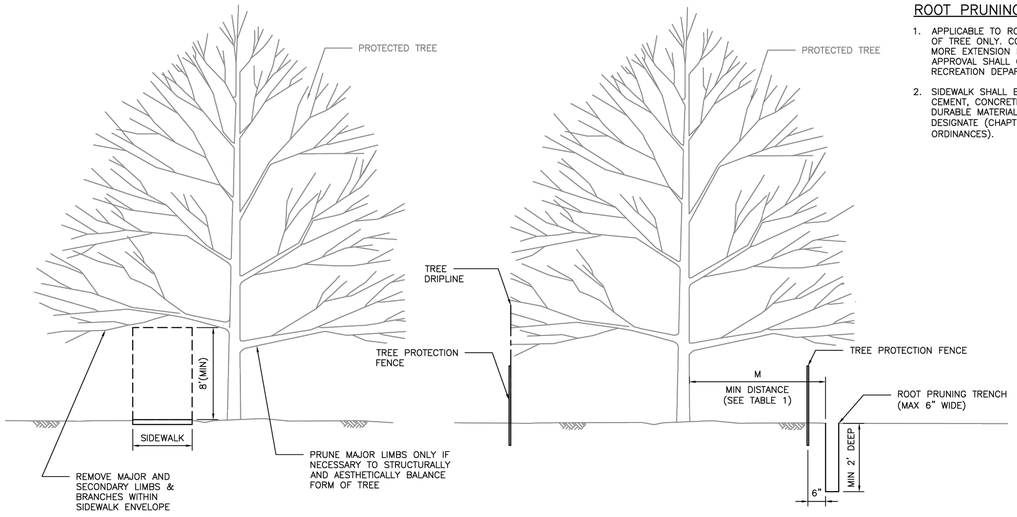

TREE PRUNING

ROOT PRUNING DETAIL

ROOT PRUNING NOTE:

1. APPLICABLE TO ROOT PRUNING ON ONE SIDE OF TREE ONLY. CONSULT CITY ARBORIST FOR MORE EXTENSION ROOT PRUNING. FINAL APPROVAL SHALL COME FROM PARKS AND RECREATION DEPARTMENT.
2. SIDEWALK SHALL BE CONSTRUCTED OF EITHER CEMENT, CONCRETE, ASPHALT OR OTHER DURABLE MATERIAL AS THE COUNCIL MAY DESIGNATE (CHAPTER 40–91, CODE OF ORDINANCES).

TABLE 1
"M" DISTANCE TABLE

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

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

2 TREE PROTECTION ROOT PRUNING

SCALE: N.T.S.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
TREE AND ROOT PRUNING

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–02

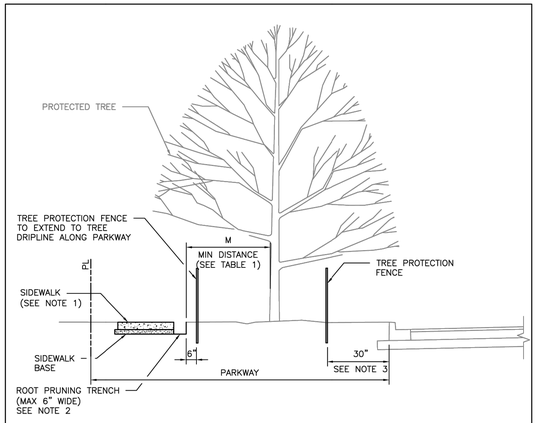

TABLE 1
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6" ≤ DIA. ≤ 20"	0.75 FEET PER DIA.–INCH
> 20"	CONSULT CITY ARBORIST

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

NOTES:

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

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3 TREE PROTECTION IN SIDEWALK REPAIRS

SCALE: N.T.S.

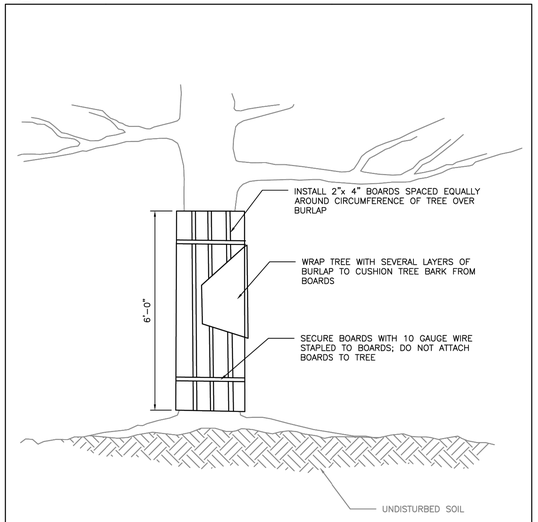
CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION/
IN SIDEWALK REPAIRS
IN PARKWAY AREAS

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–03



ELEVATION

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE BOARDING

(SCALE: NOT TO SCALE)

APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV–27–2023	DWG NO: 01562–07

4 TREE BOARDING

SCALE: N.T.S.

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TREE DETAILS

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L1.16
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 279 OF 343	

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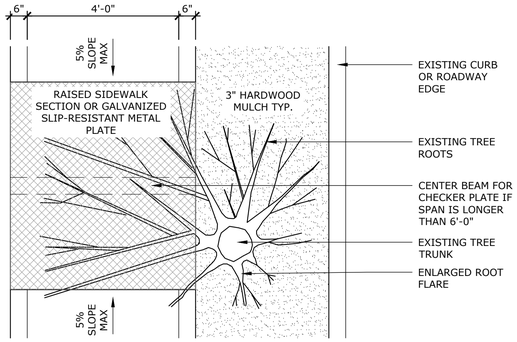

1 ROOT FLARE AT SIDEWALK INSTALLATION DETAIL

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

2 CENTER BEAM ATTACHMENT AT SIDEWALK

SCALE: 3/4" = 1'-0"

3 SLIP-RESISTANT METAL PLATE ATTACHMENT DETAIL

SCALE: 3/4" = 1'-0"

4 SLIP-RESISTANT METAL PLATE CENTER BEAM SUPPORT

SCALE: 3/4" = 1'-0"

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MEMORIAL CITY AREA DETENTION BASIN
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CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 280 OF 343

L1.17

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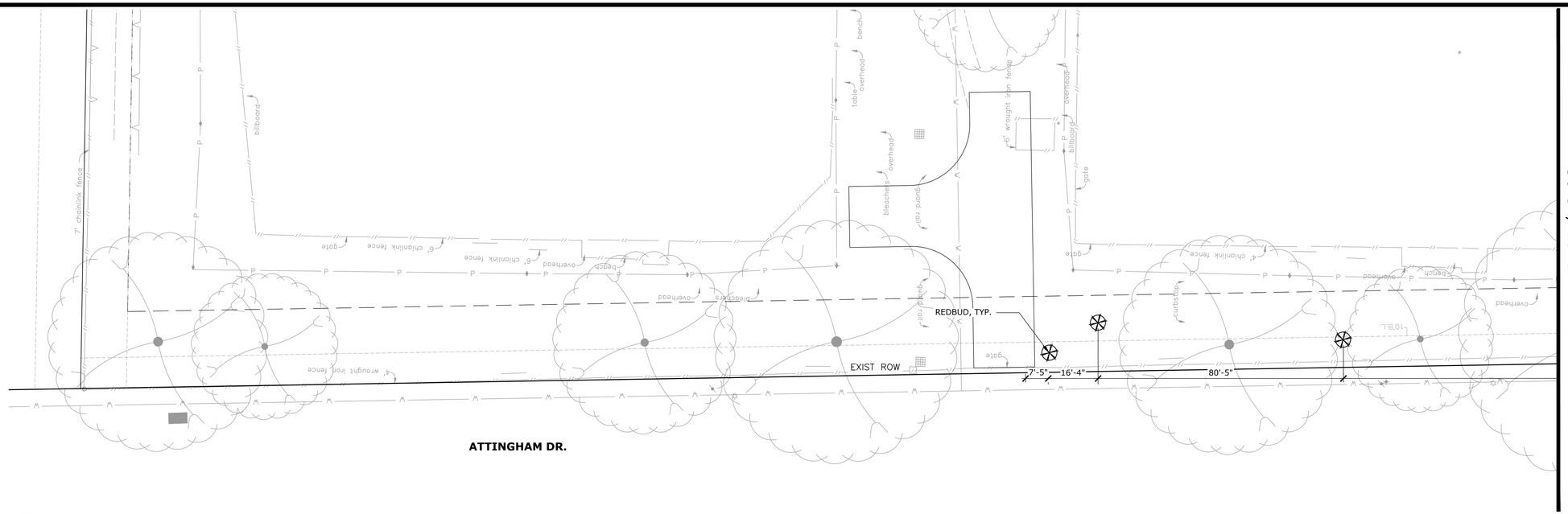


MATCHLINE 01/L2.02

1 PLANTING PLAN

SCALE: 1"=20'-0"

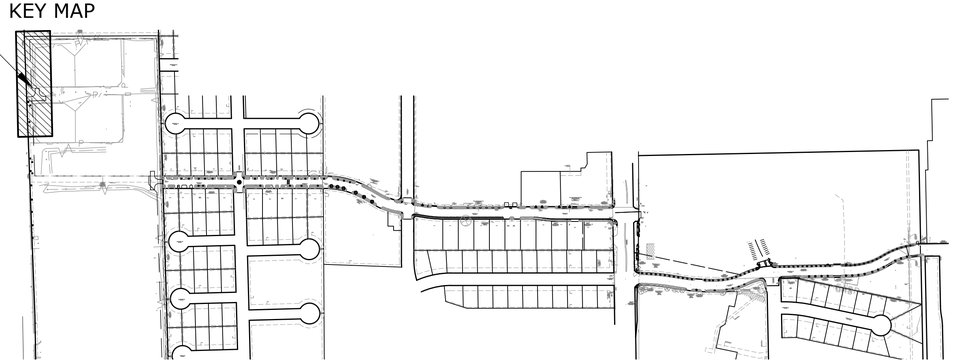
0 20 40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- GULF MUHLY
- HARDWOOD MULCH
- REPLACE EXISTING PAVERS
- TREE GRATE

SEE 1/THIS SHEET

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN
ATTINGHAM DR.
DETENTION

WBS NO.	M-430296-0017-3
DRAWING SCALE	
	H: 1"=20' (22'X34') V: 1"=2' (22'X34')
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	281 OF 343

L2.01

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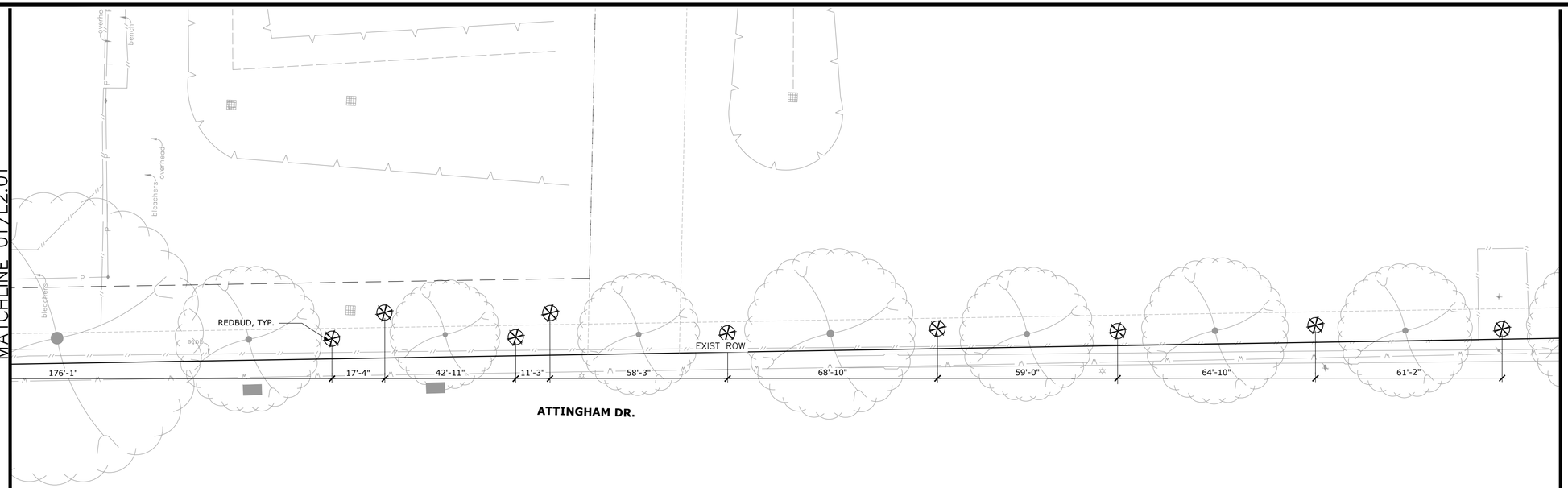
MATCHLINE 01/L2.01



1 **PLANTING PLAN**

SCALE: 1"=20'-0"

N

0 20 40

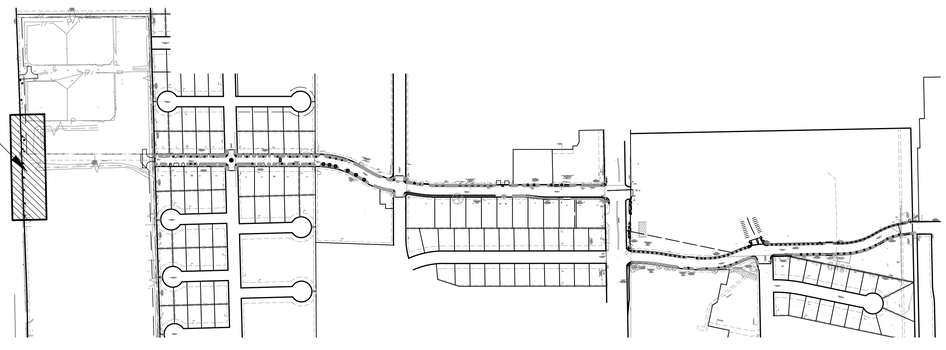
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- GULF MUHLY
- HARDWOOD MULCH
- REPLACE EXISTING PAVERS
- TREE GRATE

KEY MAP

SEE 1/THIS SHEET



No.	Date	Revisions	Apr.

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CITY OF HOUSTON PM	
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SHEET NO. 282 OF 343	

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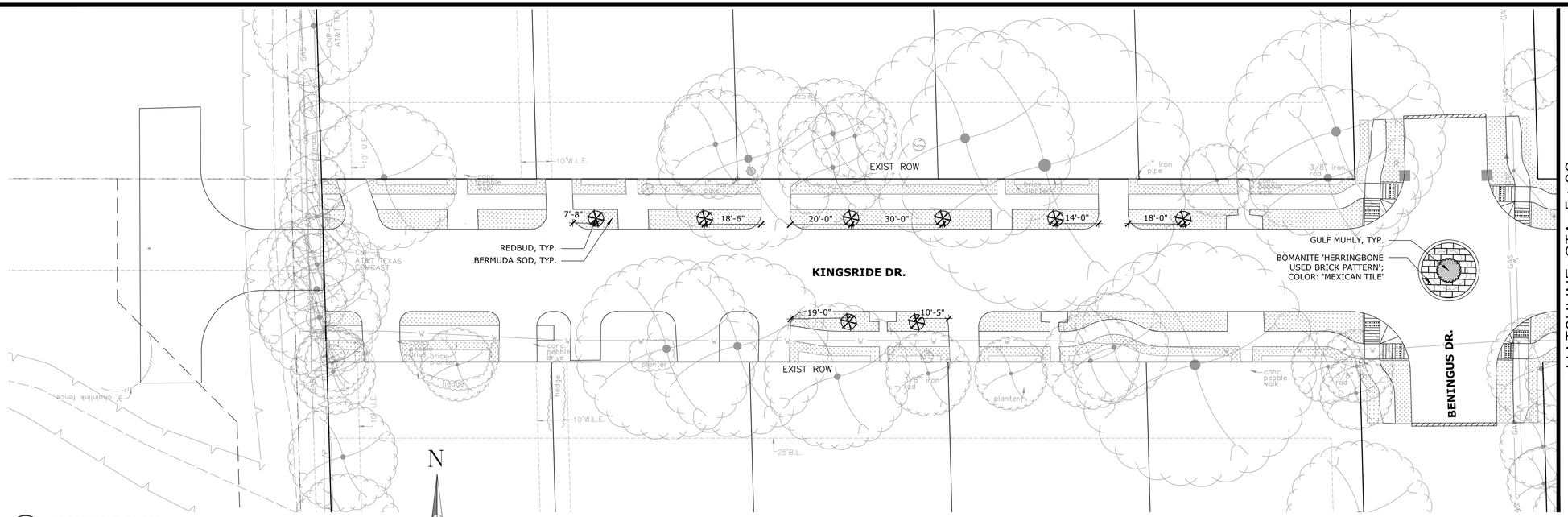

1 PLANTING PLAN

SCALE: 1"=20'-0"

N

0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
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- 4" SAVANNAH HOLLY
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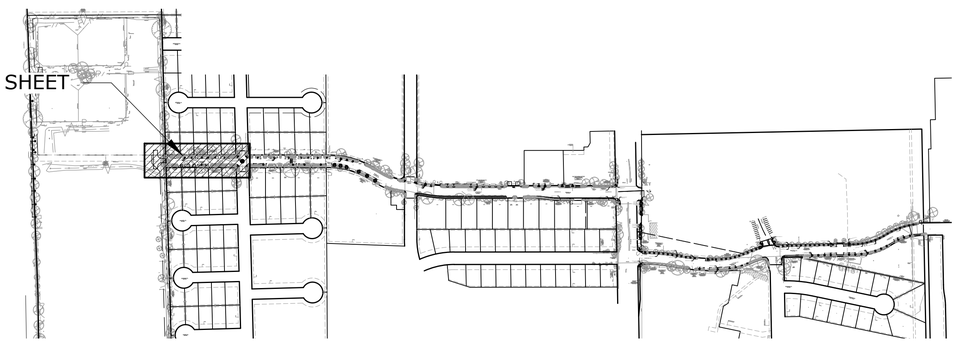
- BERMUDA SOD
- GULF MUHLY
- HARDWOOD MULCH
- REPLACE EXISTING PAVERS
- TREE GRATE

KEY MAP

SEE 1/THIS SHEET



No.	Date	Revisions	App.

ASAKURA ROBINSON
2500 Summer Street, Suite 3228 Houston Texas 77007
P: 713.337.5830 www.asakurarobinson.com

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

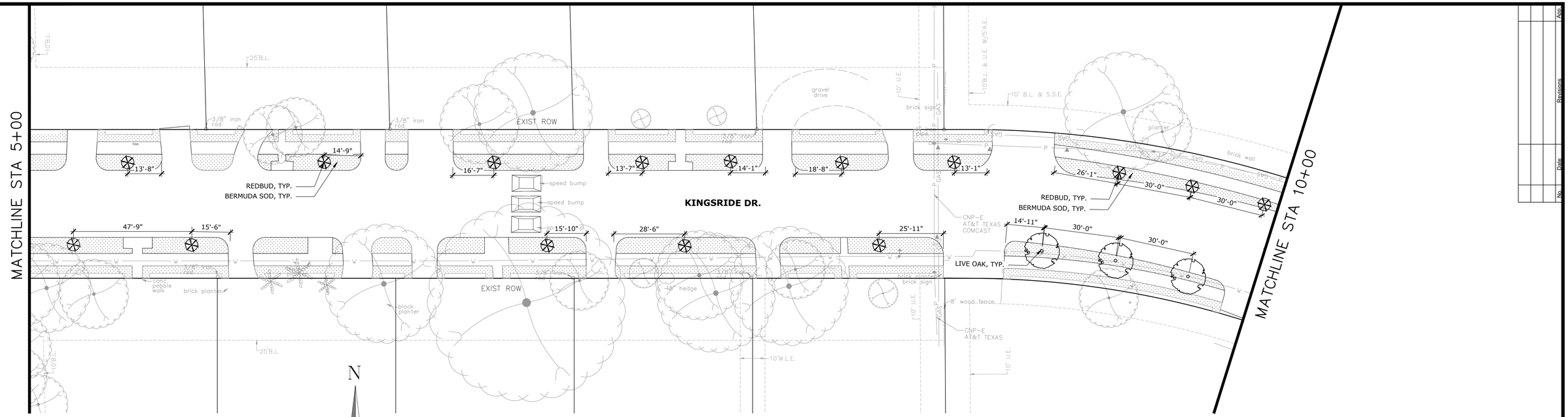
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

KINGSRIDE LANE
BEGIN PROJECT TO 5+00

WBS NO.	M-430296-0017-3
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	
CITY OF HOUSTON PM	KEVIN HAMMOND, P.E.
SHEET NO.	283 OF 343

L2.03

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua Driscoll



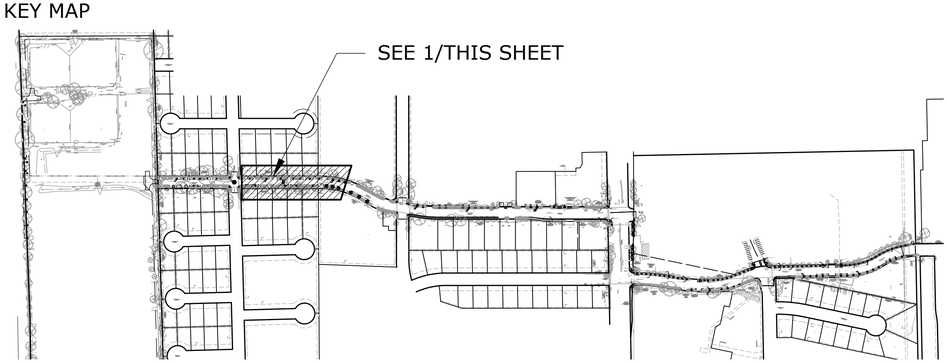
1 **PLANTING PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLV — SLEEVE, BY CIVIL

KEY MAP



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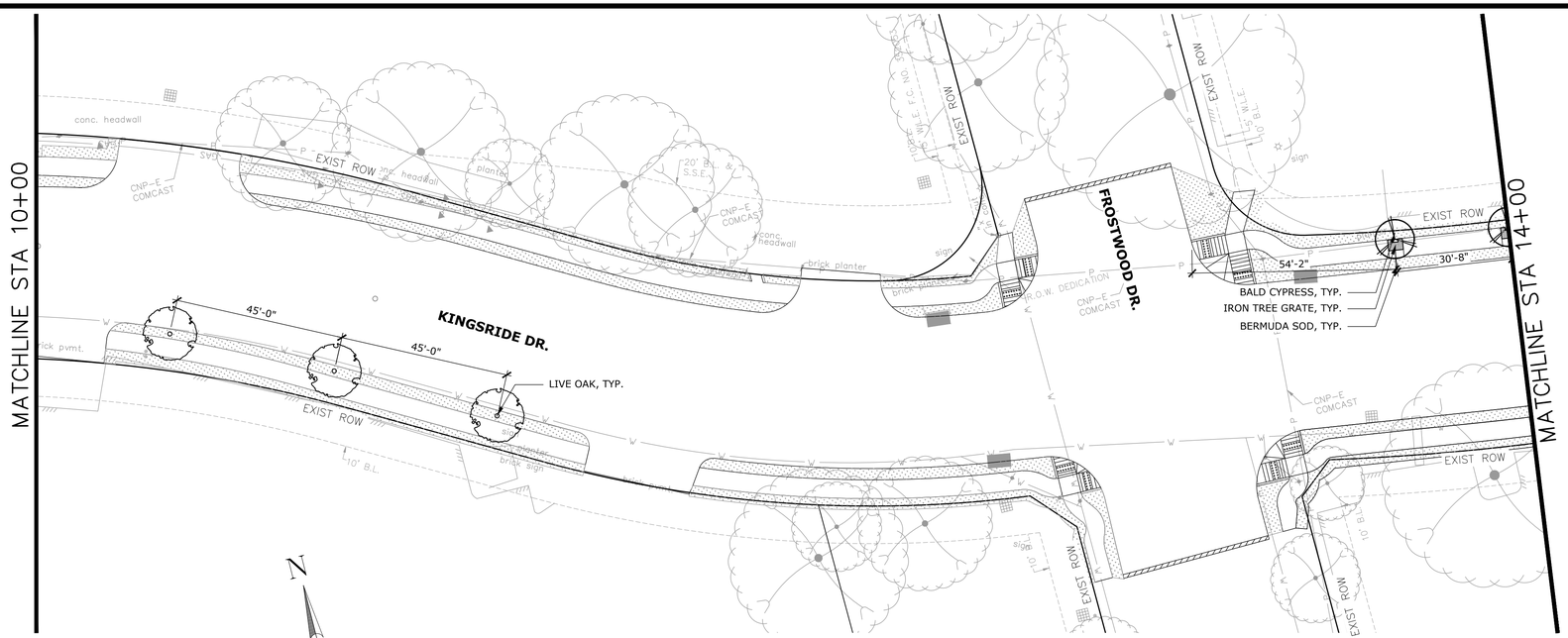
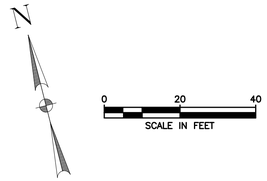
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN ROADWAY
HARDSCAPE AND PLANTING PLAN
KINGSRIDE LANE
5+00 TO 10+00

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L2.04
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 284 OF 343	

j:\trg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua Driscoll





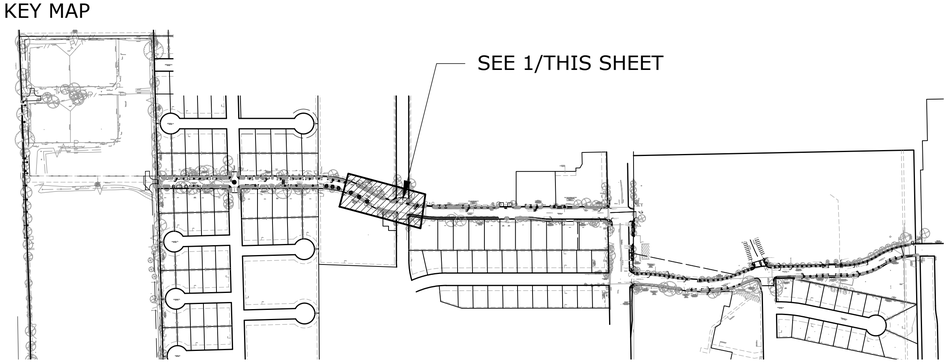
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLV — SLEEVE, BY CIVIL

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

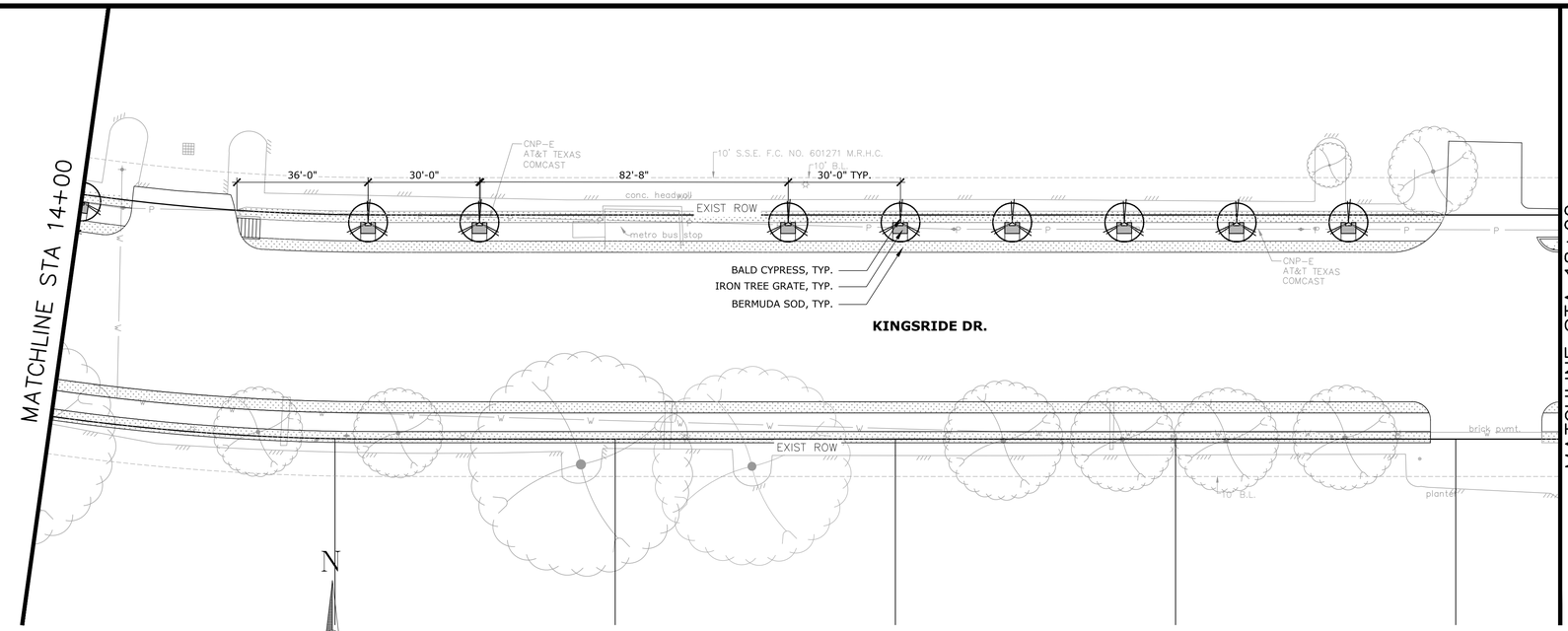
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY
HARDSCAPE AND PLANTING PLAN

KINGSRIDE LANE
10+00 TO 14+00

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	L.05
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 285 OF 343	

j:\hrg2401 tirz 17 memorial city area detention basin\cn\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua Driscoll



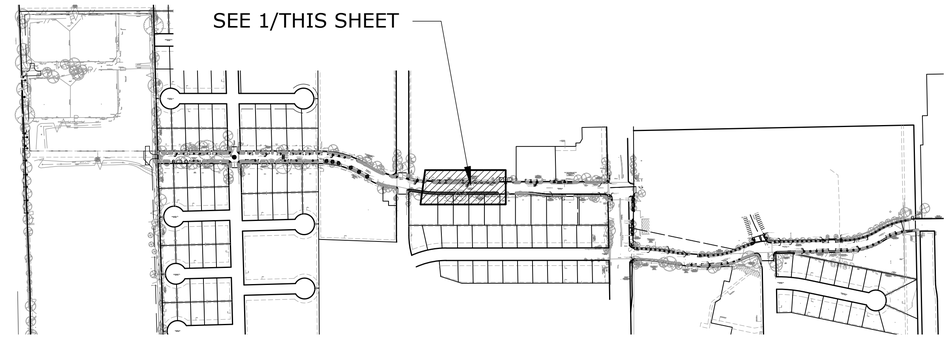
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLV — SLEEVE, BY CIVIL

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

KINGSRIDE LANE
14+00 TO 18+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 286 OF 343

L2.06

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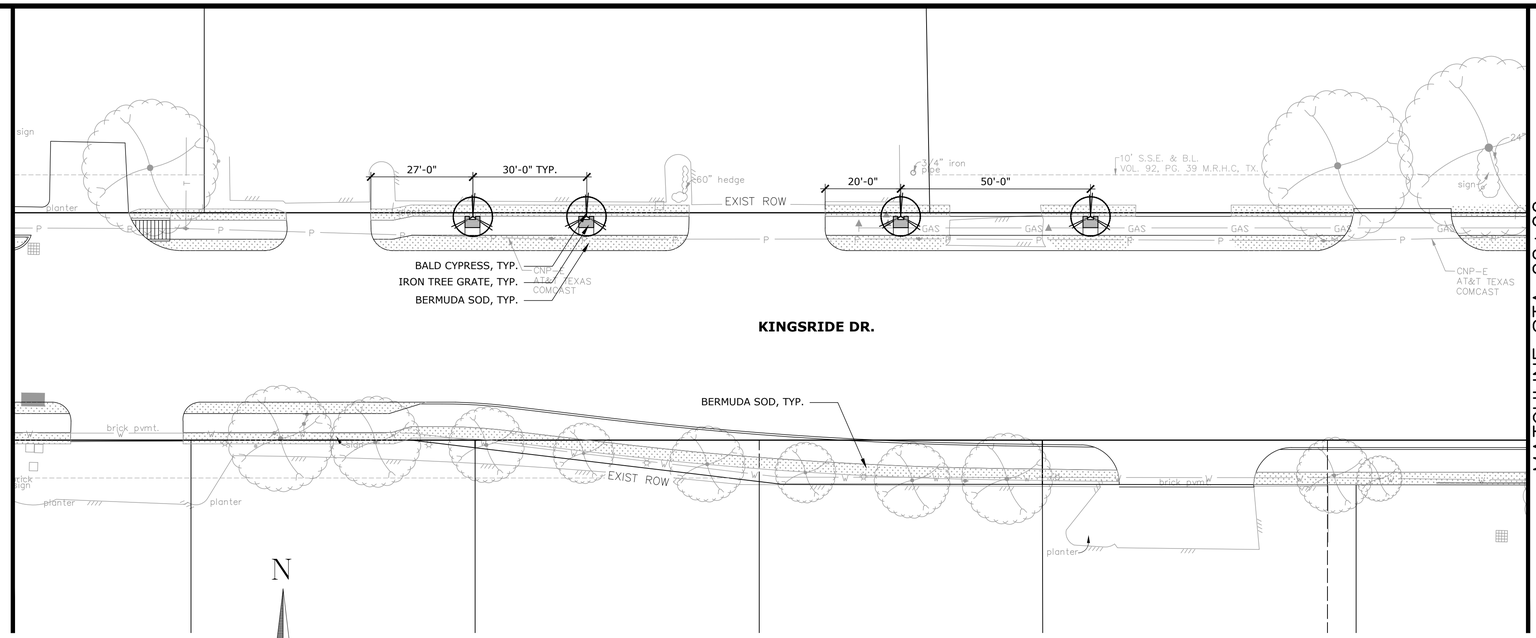


N

0 20 40
SCALE IN FEET

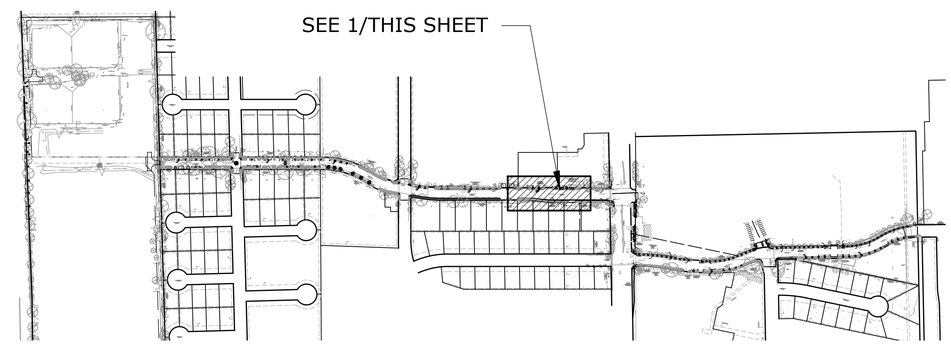
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLV — SLEEVE, BY CIVIL

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

KINGSRIDE LANE
18+00 TO 22+00

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 287 OF 343	L2.07

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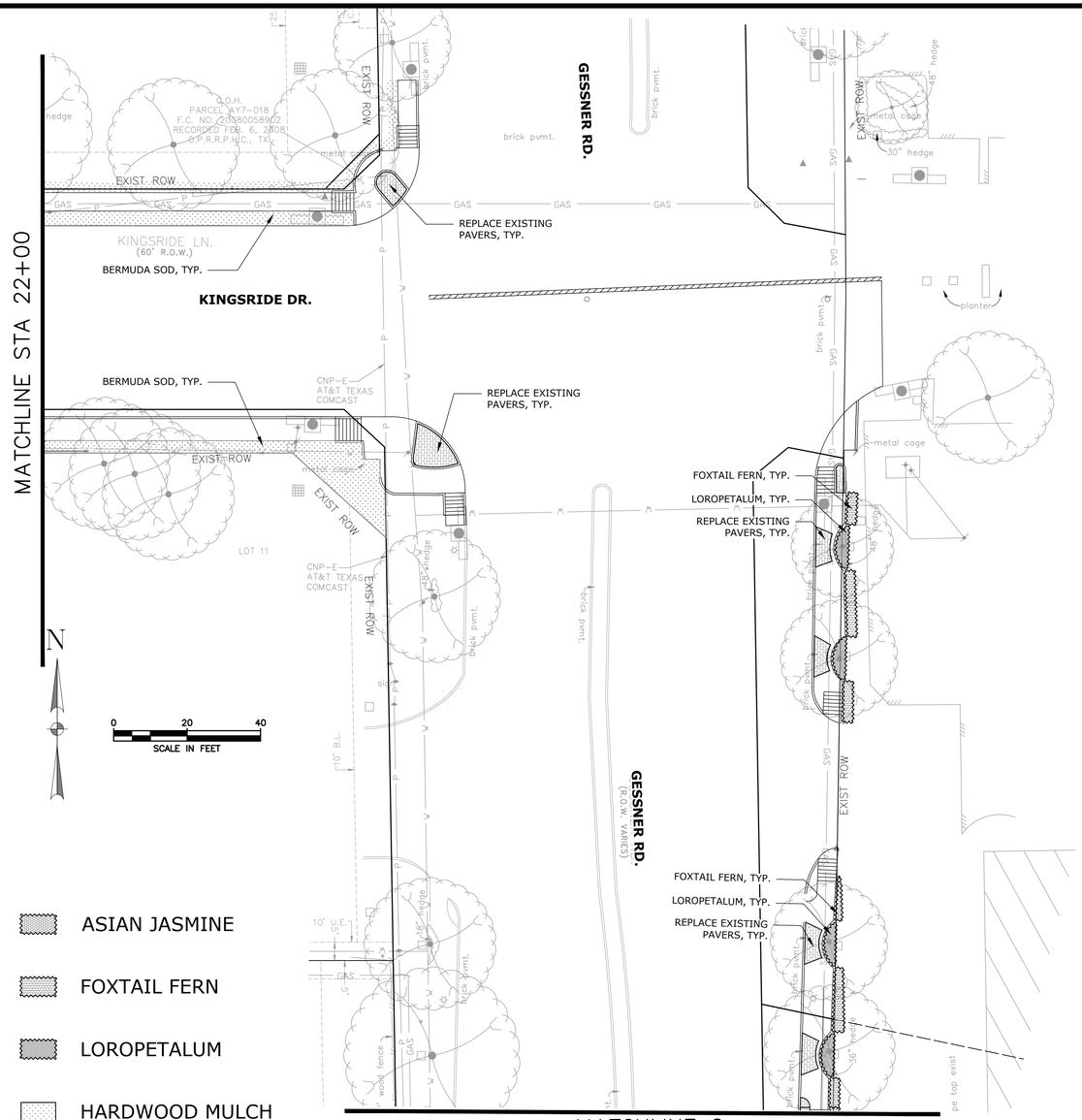


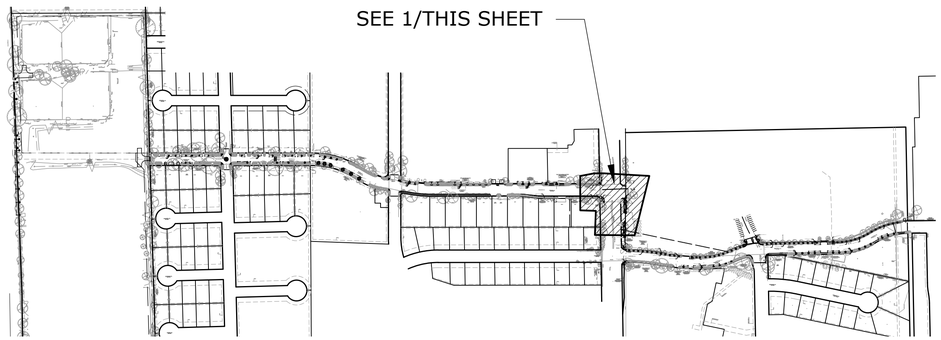
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- ASIAN JASMINE
- ASIAN JASMINE
- FOXTAIL FERN
- LOROPETALUM
- HARDWOOD MULCH
- PAVERS
- SLEEVE, BY CIVIL

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

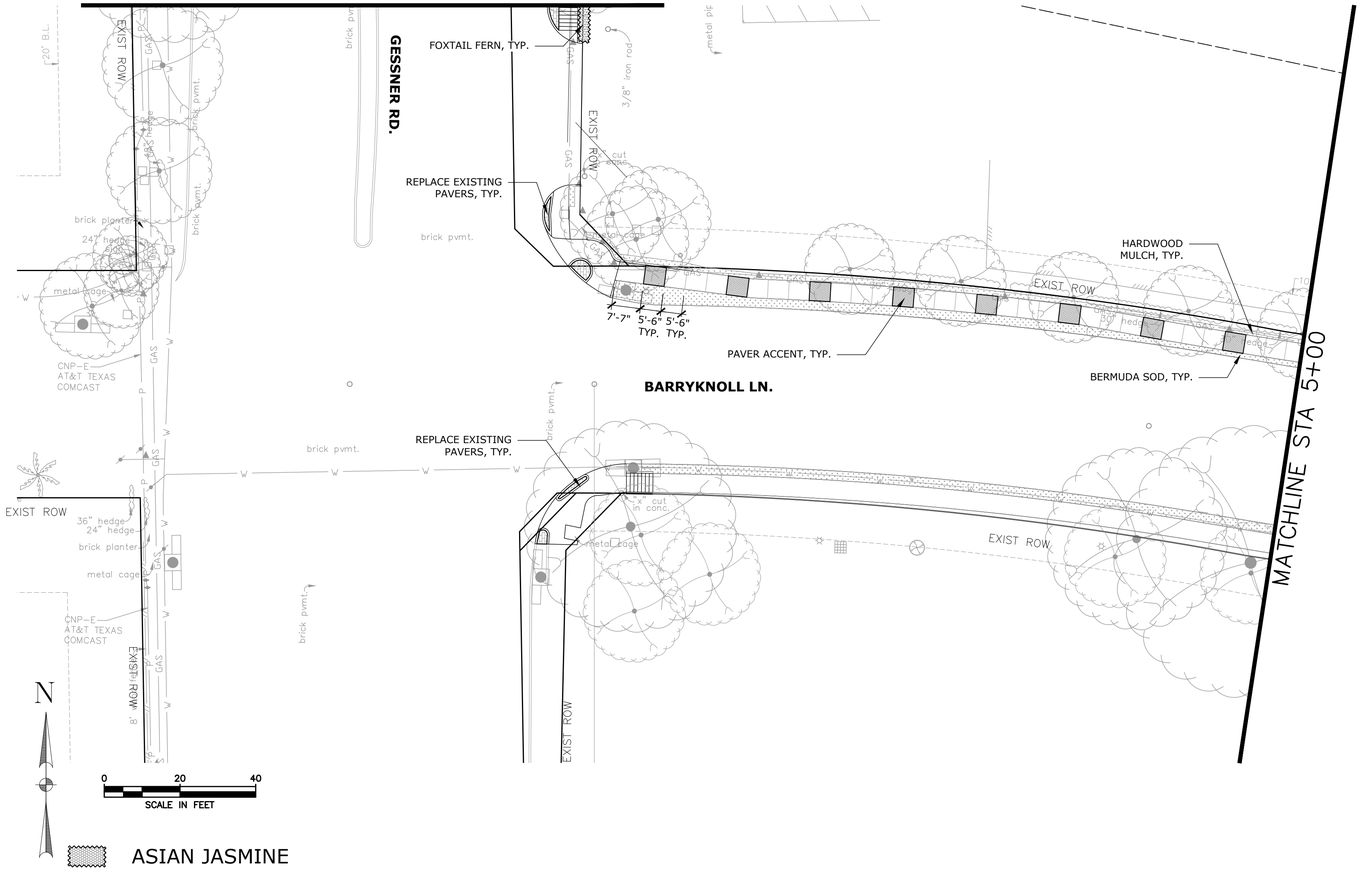
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

KINGSRIDE LANE
22+00 TO GESSNER ROAD

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X36') V: 1"=2' (22'X36')	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 288 OF 343	L2.08

J:\trg2401 tirz 17 memorial city area detention basin\dr\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua D'Ascoli

MATCHLINE 2



N

0 20 40
SCALE IN FEET

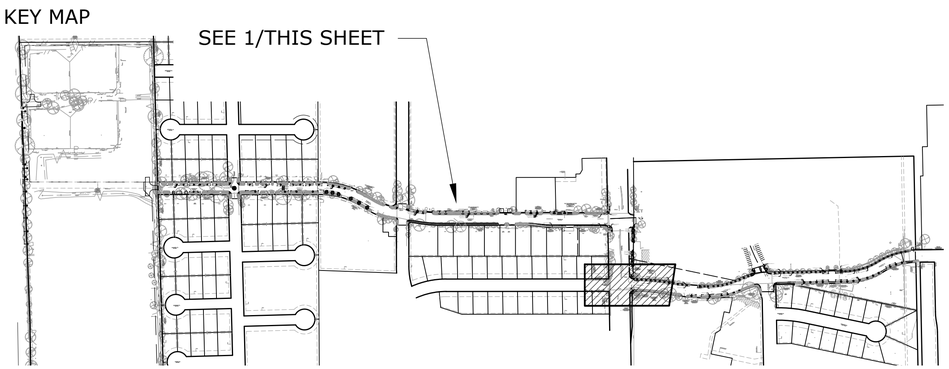
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- ASIAN JASMINE
- ASIAN JASMINE
- FOXTAIL FERN
- LOROPETALUM
- HARDWOOD MULCH
- PAVERS
- SLV SLEEVE, BY CIVIL

KEY MAP



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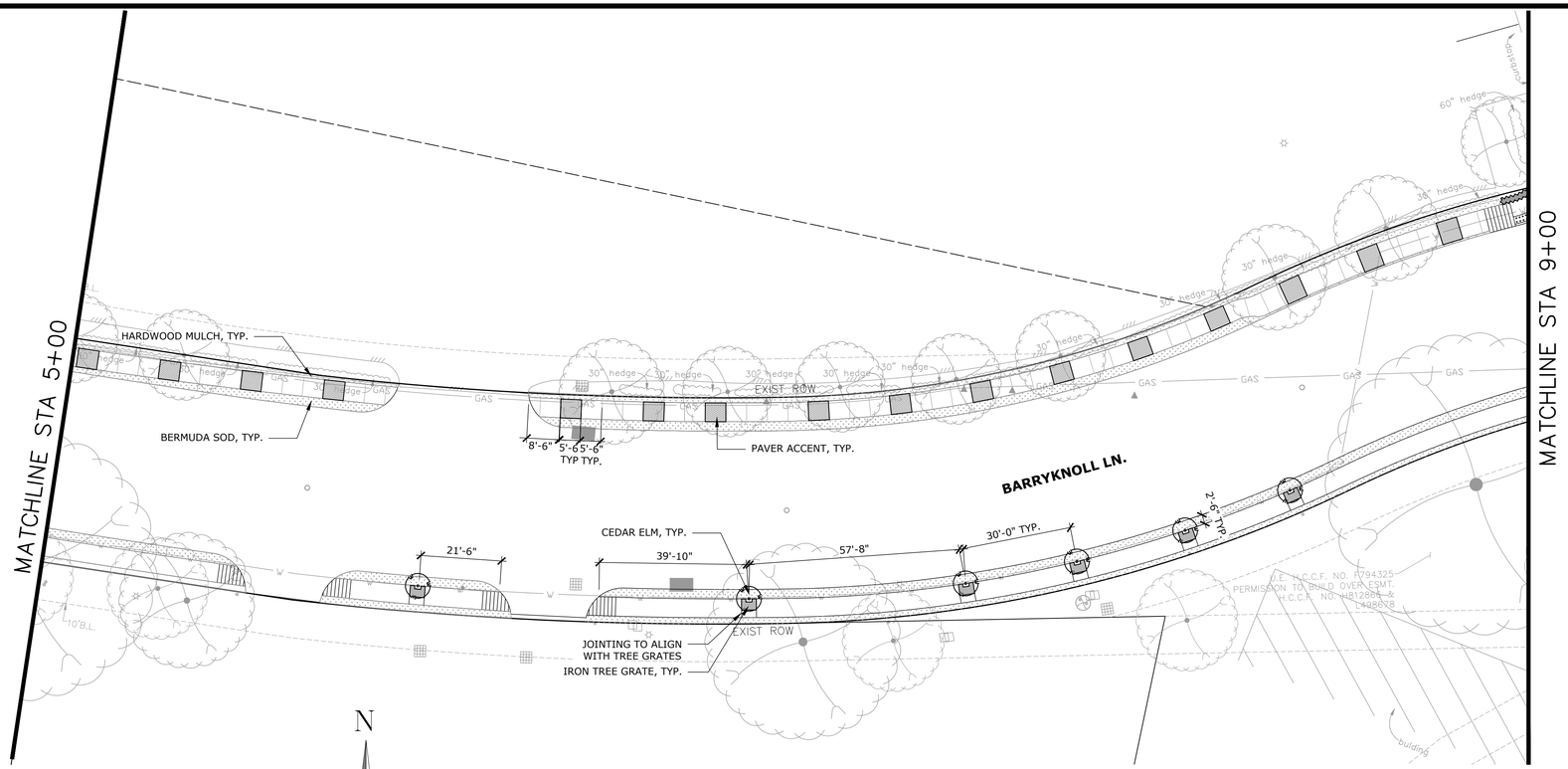
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

GESSNER ROAD
BARRYKNOLL START TO 5+00

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L2.09
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 289 OF 343	

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua D'Iscoll



1 **PLANTING PLAN**

SCALE: 1"=20'-0"

N

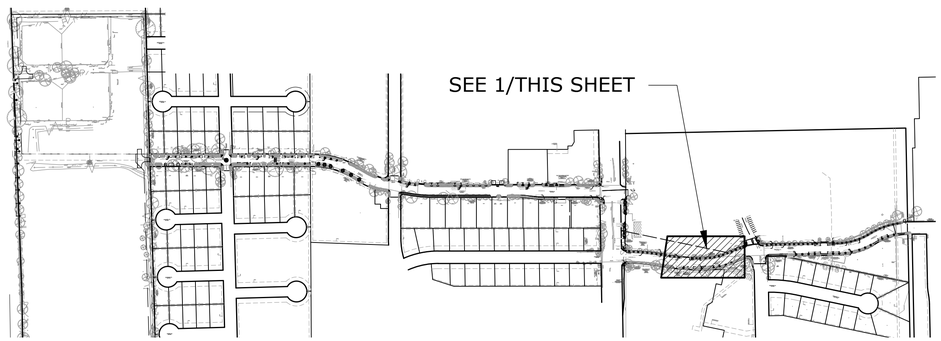
0 20 40

SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET

KEY MAP



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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

BARRYKNOLL LANE
5+00 TO 9+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

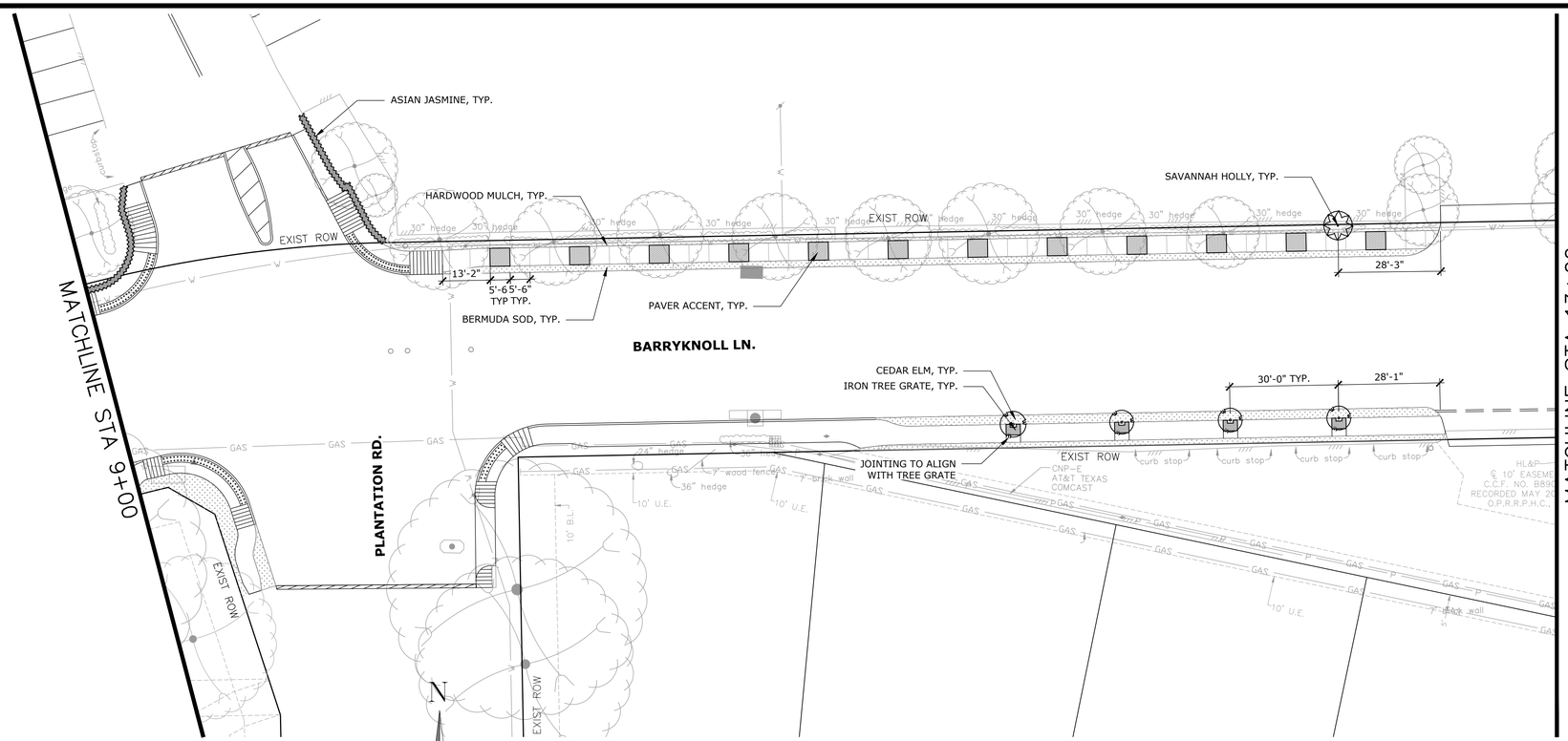
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 290 OF 343

L2.10

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua D'Iscoll



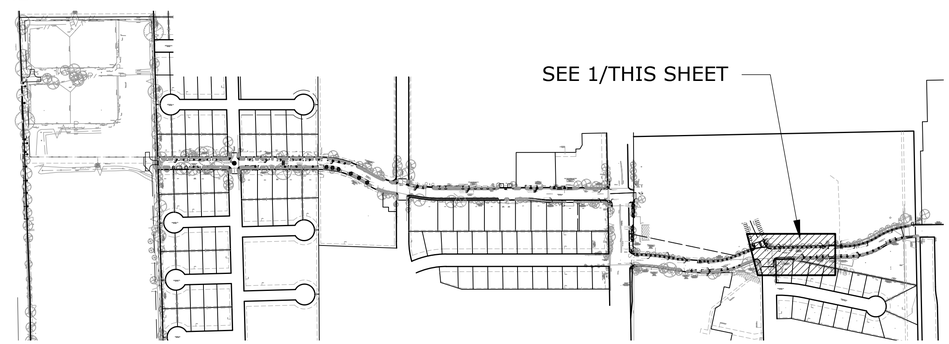
1 **PLANTING PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLEEVE, BY CIVIL

KEY MAP



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

BARRYKNOLL LANE
9+00 TO 13+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

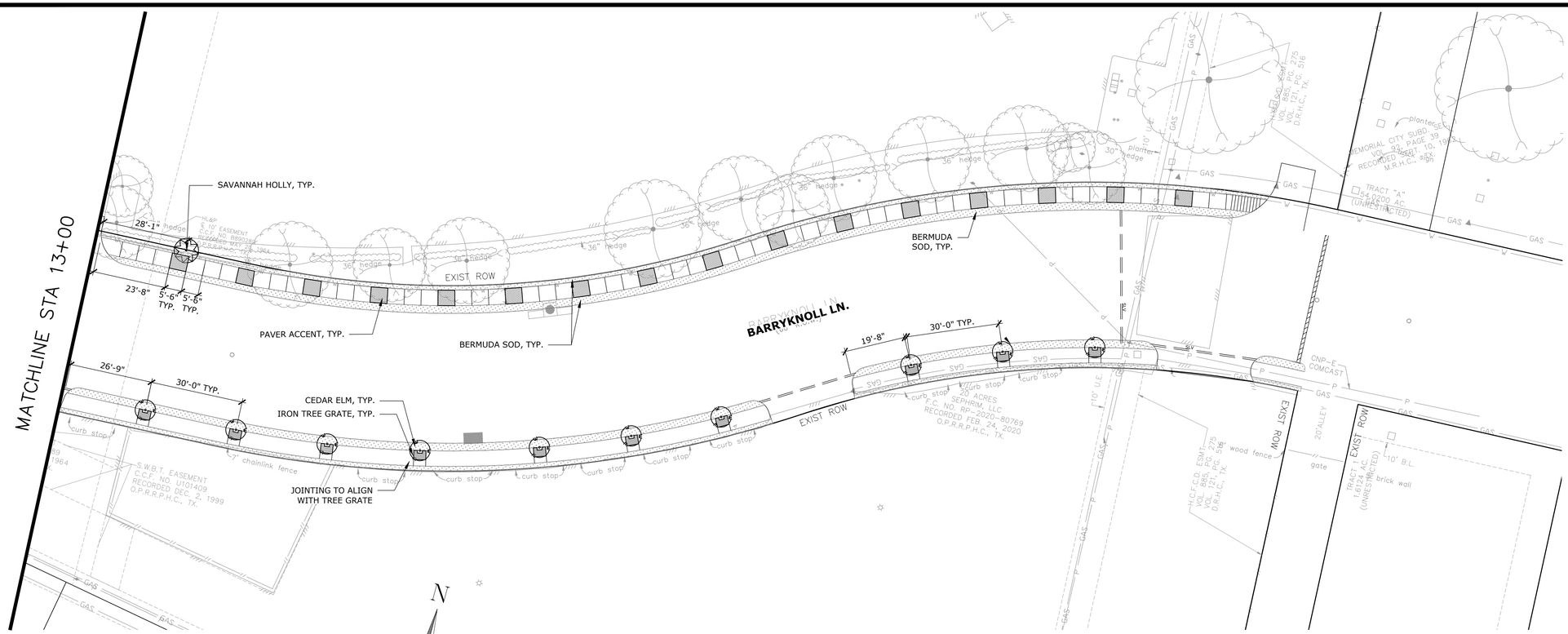
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 291 OF 343

L2.11

J:\hrg2401 tirz 17 memorial city area detention basin\cr\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua D'Iscoll



1 **PLANTING PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" BALD CYPRESS
- 4" CEDAR ELM
- 4" SAVANNAH HOLLY
- 2" REDBUD
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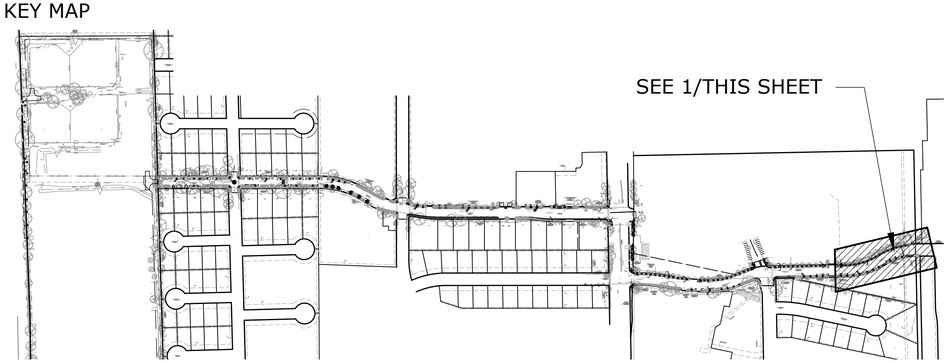
- HARDWOOD MULCH
- PAVERS
- TREE GRATE, RE: DETAIL 4/PLANTING DETAILS SHEET
- SLV — SLEEVE, BY CIVIL

KEY MAP



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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN ROADWAY
HARDSCAPE AND PLANTING PLAN
BARRYKNOLL LANE
STA 13+00 TO END

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L2.12
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 292 OF 343	

J:\thrg2401 tirz 17 memorial city area detention basin\or\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:04 AM by Joshua Driscoll

PLANTING SCHEDULE

QTY	COMMON NAME/BOTANICAL NAME	CALIPER / CONT.SIZE	HEIGHT	SPREAD	COMMENTS
TREES					
6 EA	CATHEDRAL LIVE OAK *Quercus virginiana 'Cathedral Oak'*	4" 100 GAL.	14'-16'	8' - 10'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED, CONTRACTOR TO TRIM CANOPY TO ALLOW 8' CLEARANCE
20 EA	CEDAR ELM *Ulmus crassifolia*	4" 100 GAL.	12'-14'	10'-12'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED, CONTRACTOR TO TRIM CANOPY TO ALLOW 8' CLEARANCE
14 EA	BALD CYPRESS *Taxodium mucronatum*	4" 100 GAL.	12'-14'	10'-12'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED, CONTRACTOR TO TRIM CANOPY TO ALLOW 8' CLEARANCE
ORNAMENTAL/SMALL TREES					
2 EA	EAGLESTON HOLLY *Ilex x attenuata 'savannah'*	2" 45 GAL.	4' - 5'	3' - 4'	MULTI-TRUNK W/ 3 TRUNKS MAX, FULL AND WELL BRANCHED, MIN TRUNK DIAMETER 1"
23 EA	REDBUD *Cercis canadensis*	2" 45 GAL.	4' - 5'	3' - 4'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED
SHRUBS					
210 SF	FOXTAIL FERN *Asparagus aethiopicus*	1 GAL	10" - 12"	8" - 12"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
125 SF	LOROPETALUM *Loropetalum chinese 'Plum Delight'*	7 GAL	24"-30"	24"-30"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
ORNAMENTAL GRASSES					
50 SF	'REGAL MIST' MUHLY *Muhlenbergia capillaris 'Regal Mist'*	3 GAL	12" - 18"	12" - 18"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
GROUNDCOVERS AND ANNUALS					
120 SF	ASIAN JASMINE *Trachelospermum asiaticum*	1 GAL	6" - 8"	8" - 12"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 18" O.C., TRIANGULATED SPACING
TURF AND GRASSES					
31,755 SF	COMMON BERMUDA *Cynodon dactylon*	NA	NA	NA	SOLID SOD, AS SHOWN PER PLAN
MULCH					
1,005 SF	HARDWOOD MULCH	NA	NA	NA	3" DEPTH

HARDSCAPE MATERIALS SCHEDULE

QTY	DESCRIPTION	COLOR	FINISH	CONTACT	COMMENTS
STEEL/ALUMINUM					
34 EA	TREE GRATE 'REGULAR JOE', IRON AGE DESIGNS	———	Raw	NAME / COMPANY: ROY PHILIP, MKM SALES EMAIL: ROY@MKMSALES.COM PHONE: 409-866-6702	REGULAR JOE 4' X 3' TREE GRATE - HEEL PROOF - HALF PANEL
PAVERS/BRICK					
370 SF	REPLACE EXISTING PAVERS KEYSTONE, COBBLESTONE TW/SQ/REC 60MM	TO MATCH EXISTING	———		TO MATCH EXISTING PAVERS; EXISTING PAVERS MAY BE REUSED. CHIPPED PAVERS SHALL NOT BE INSTALLED. OWNER TO PROVIDE ADDITIONAL PAVERS AS NEEDED.
1573 SF	PAVER ACCENT KEYSTONE, COBBLESTONE TW/SQ/REC 60MM	TO MATCH EXISTING	———		TO MATCH EXISTING PAVERS
204 SF	CONCRETE STAMP - TRUCK APRON BOMANITE, COBBLESTONE TW/SQ/REC 60MM	MEXICAN TILE	HARRINGBONE USED BRICK	NAME / COMPANY:ERIC ORTIZ, BOMANITE EMAIL: EORTIZ@BOMANITEHOUSTON.COM	

PLANTING NOTES :

1. CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES, AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF THESE UTILITIES.
2. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND THE OWNER'S AUTHORIZED REPRESENTATIVE.
3. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING.
5. CONTRACTOR SHALL NOTIFY OWNER'S AUTHORIZED REPRESENTATIVE 72 HOURS (WEEKENDS NOT INCLUDED) PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT OBSERVATION SCHEDULE.
6. IF CONFLICTS ARISE BETWEEN SIZE OF AREAS ON PLANS OR LAYOUT OF PLANS, CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR'S LIABILITY TO RELOCATE THE MATERIAL.
7. PROTECT ALL EXISTING TREES TO REMAIN. CONTRACTOR SHALL REPLACE ANY TREES DAMAGED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE FENCING, IF NECESSARY, AT THE TREE CANOPY DRIP LINE TO PROTECT TRUNK AND ROOTS AND TO PREVENT COMPACTION FROM VEHICLE TRAFFIC AND/OR MATERIAL STORAGE BELOW TREES.
8. CONTRACTOR SHALL PROVIDE FOR THE FEEDING, WATERING, AND GENERAL MAINTENANCE OF TREES TO KEEP THEM IN A HEALTHY CONDITION DURING CONSTRUCTION DURATION.
9. CONTRACTOR SHALL SUBMIT PHOTOS/PDFS OF REPRESENTATIVE TREES, SHRUBS, GRASSES, GROUNDCOVERS, AND VINES SHOWN ON THE PLANTING PLAN AND SCHEDULE, WITH INDICATION OF SPECIES, HEIGHT, WIDTH, AND CALIPER/CONTAINER SIZE. IF A NURSERY VISIT IS REQUIRED, THE CONTRACTOR WILL ARRANGE TO HAVE THE PARTICULAR NURSERIES PREPARED TO SHOW PLANT MATERIAL. SHOULD CONTRACTOR INSTALL PLANT MATERIAL INFERIOR TO INDUSTRY STANDARD OR DRAWING SPECIFICATIONS, IT IS AT CONTRACTOR'S RISK. ALL SUBMITTALS ARE TO BE APPROVED PRIOR TO PLANTING. NO UNAPPROVED MATERIAL IS TO BE INSTALLED.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH PLANT MATERIALS FREE OF PESTS AND DISEASES. PRE-SELECTED OR "TAGGED" MATERIAL MUST BE INSPECTED BY CONTRACTOR AND CERTIFIED PEST AND DISEASE FREE. IT IS THE CONTRACTOR'S OBLIGATION TO GUARANTEE ALL PLANT MATERIALS PER THE SPECIFICATIONS. TAGS PLACED BY THE LANDSCAPE ARCHITECT MUST REMAIN ON MATERIAL THROUGHOUT THE DURATION OF CONSTRUCTION.
11. CONTRACTOR SHALL STAKE ALL FINAL TREE LOCATIONS AND PLANTING BED LIMITS IN THE FIELD FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
12. STEEL EDGING SHALL BE PLACED BETWEEN ALL SHRUB BEDS AND TURF AREAS, AS WELL AS BETWEEN GRAVEL BED AND PLANTING BEDS.
13. UPON INSTALLATION, ALL TREE MATERIALS SHALL BE STAKED BY THE METHOD INDICATED IN THE SPECIFICATIONS AND PLANTING DETAILS.
14. IF REQUESTED BY OWNER, CONTRACTOR SHALL INSTALL DEEP ROOT BARRIERS AT ALL TREES WITHIN 5'-0" OF CONCRETE WALKWAYS, STRUCTURES, WALLS, CURBS, ETC.
15. ALL PLANTS SHALL BE TRIANGULARLY SPACED, UNLESS OTHERWISE INDICATED.
16. ALL PLANTING BEDS SHALL RECEIVE A MINIMUM OF 3" OF APPROVED SHREDDED MULCH.
17. CONTRACTOR SHALL FINE GRADE ALL DISTURBED AREAS TO PROVIDE FOR PROPER DRAINAGE.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE PLANS AND SPECIFICATIONS TO DETERMINE THE TOTAL SCOPE OF WORK AND REQUIRED COORDINATION. THE CONTRACTOR SHALL CONSULT WITH SITE SUPERINTENDENT AND APPROPRIATE AGENCIES IN ORDER TO DETERMINE THE LOCATION OF ALL UNDERGROUND UTILITIES, PIPES, AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF SAID UTILITIES.
2. ALL SITE IMPROVEMENTS ARE BASED UPON DRAWINGS PROVIDED BY CIVIL ENGINEER THE LANDSCAPE ARCHITECT BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THE DRAWINGS PROVIDED.CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE ACCURATE LOCATION OF PROPERTY LINES AND EASEMENTS, AND SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT CONSTRUCTION AREA DISCREPANCIES AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATIONS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS. ALL PIPING, CONDUIT, SLEEVES, ETC., SHALL BE SET IN PLACE PRIOR TO INSTALLATION OF CONSTRUCTION ITEMS.
5. ALL EXISTING TREES AND TREE PRESERVATION AREAS SHALL BE PROTECTED PRIOR AND DURING CONSTRUCTION WITH TEMPORARY FENCING AS SHOWN ON DETAILS SHEET.
6. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION OPERATIONS, INSIDE OR OUTSIDE OF THE PROPERTY LINE. MATERIALS INCLUDE BOTH HARDSCAPE AND LANDSCAPE.
7. ALL DIMENSIONS ARE MEASURED FROM FACE OF VERTICAL ELEMENTS. DIMENSIONS TAKEN FROM ROAD EDGE ARE FROM BACK OF CURB (B.O.C.) UNLESS OTHERWISE NOTED ON PLANS.
8. ALL CONSTRUCTION ITEMS FORMED WITH A COMPACTED SUBGRADE AND/OR STEEL REINFORCEMENT SHALL BE OBSERVED AND APPROVED PRIOR TO INSTALLATION BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
9. CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL SIDEWALKS, WALLS, AND ANY HARDSCAPE ELEMENT FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO COMMENCING CONSTRUCTION.
10. WHEN REQUIRED BY OWNER, CONTRACTOR SHALL SUBMIT 4' x 4' SAMPLES (OR SIZE AS REQUESTED BY OWNER), OF ALL PAVING WITH JOINTS IN PLACE, PAVING ALTERNATES, FINISHES, AND COLORS. ALL SAMPLES SHALL BE APPROVED BY OWNER'S AUTHORIZED REPRESENTATIVE, PRIOR TO CONSTRUCTION.
11. EXPANSION JOINTS SHALL BE PLACED IN ALL CASES WHERE CONCRETE OR NEW PAVING ABUTS VERTICAL STRUCTURES OR CONCRETE CURBS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING THE LOCATIONS OF ANY EXISTING SITE ELEMENTS (REQUIRING REMOVAL FOR CONSTRUCTION)TO BE RE-SET IN THE PREVIOUS HORIZONTAL LOCATION.
13. AT ALL LOCATIONS WHERE EXISTING CURBING, ASPHALT, OR CONCRETE PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.

No.	Date	Revisions	App.

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KEIJI ASAKURA, RLA
REGISTRATION NO. 1170.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HARDSCAPE AND PLANTING SCHEDULE

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

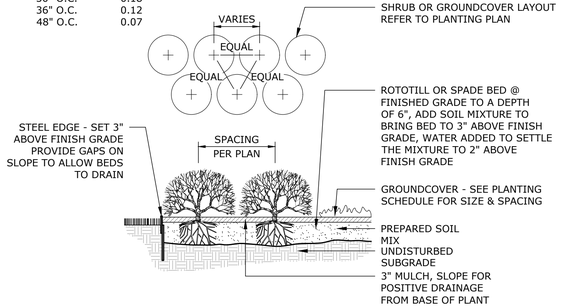
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 293 OF 343

L2.13

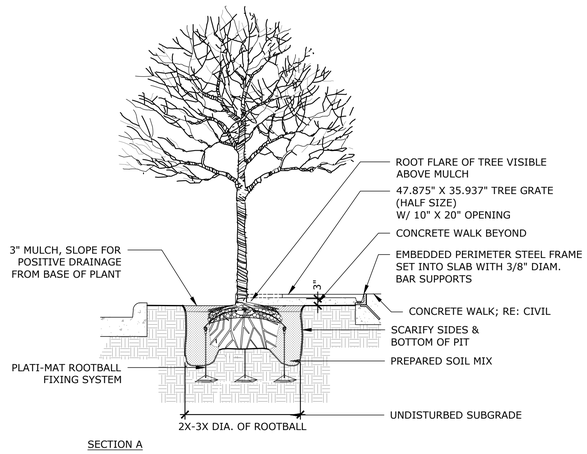
J:\hrg2401 tirz 17 memorial city area detention basin\cd\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:03 AM by Joshua Driscoll

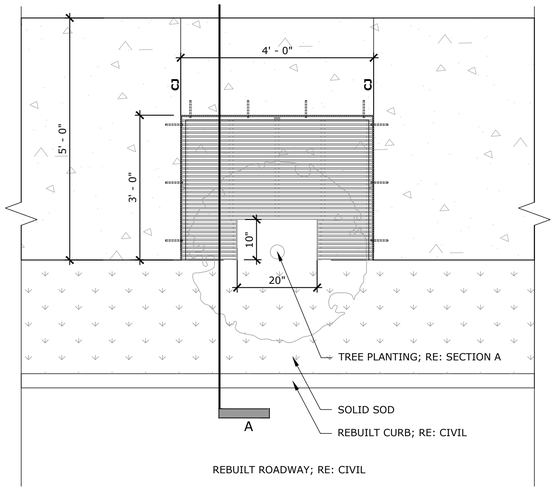
SPACING	PLANTS/SF
6" O.C.	4.61
8" O.C.	2.60
9" O.C.	1.78
10" O.C.	1.66
12" O.C.	1.15
18" O.C.	0.50
24" O.C.	0.28
30" O.C.	0.18
36" O.C.	0.12
48" O.C.	0.07



1 TYPICAL SHRUB / GROUND COVER PLANTING DETAIL & SPACING CHART

SCALE: 3/8" = 1'-0"





2 TYPICAL TREE PLANTING DETAIL AT 4'x3' TREE GRATE

SCALE: 3/8" = 1'-0"

3 TYPICAL CANOPY TREE PLANTING DETAIL

SCALE: 3/8" = 1'-0"

4 TYPICAL MULTI-TRUNK TREE PLANTING DETAIL

SCALE: 3/8" = 1'-0"

5 TYPICAL PAVER (PER TIRZ 17 STREETSCAPE STANDARDS)

SCALE: NTS

No.	Date	Revisions	App.

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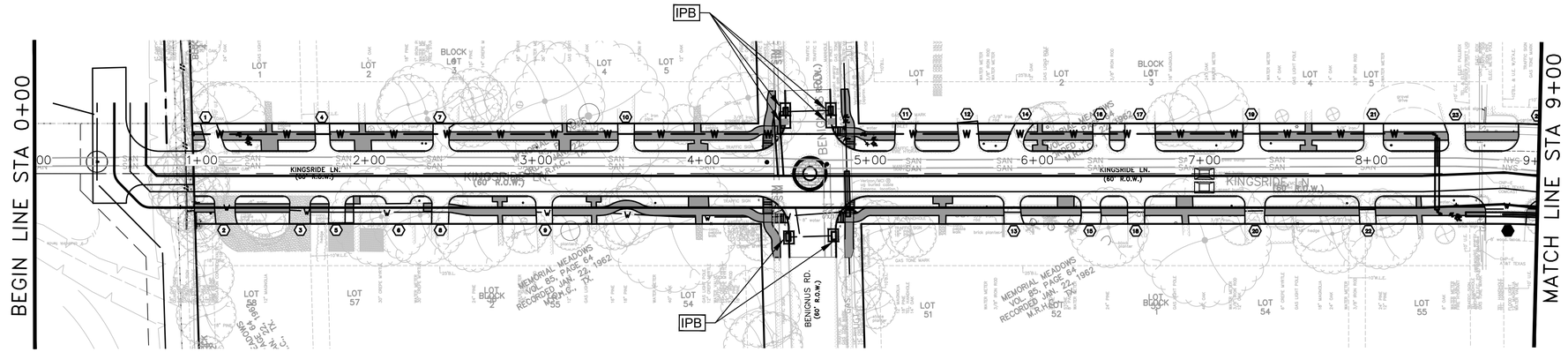
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

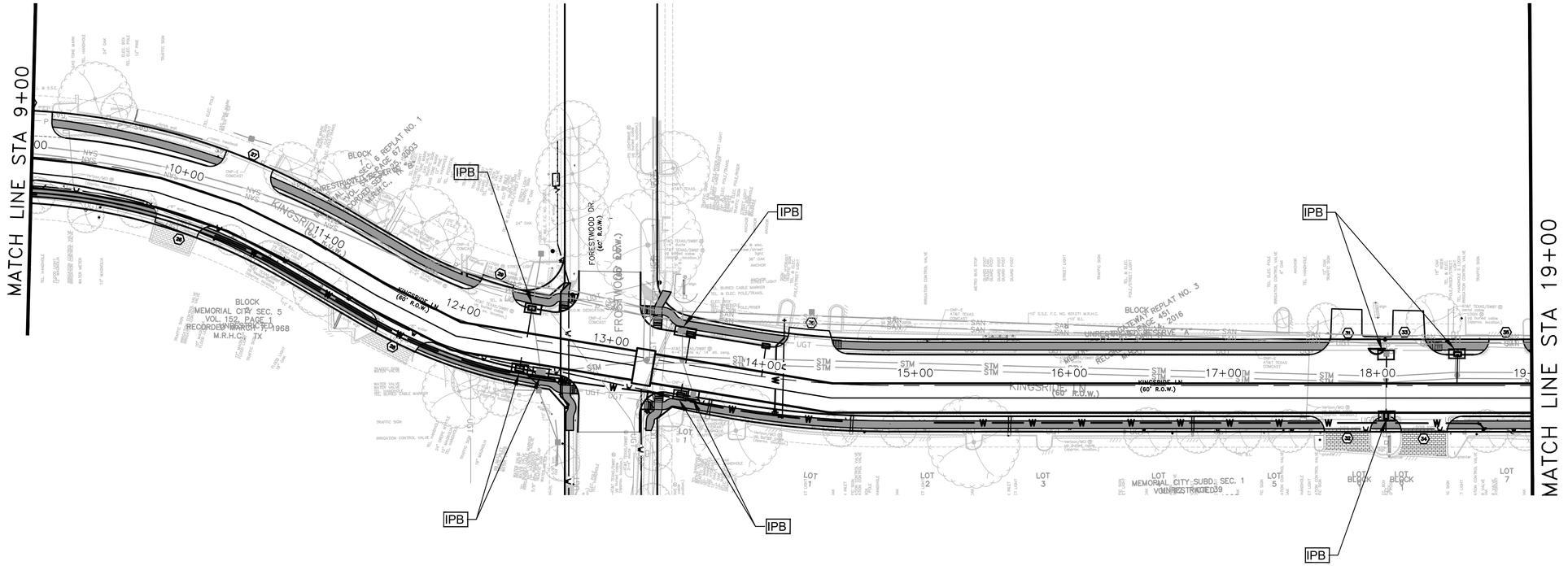
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HARDSCAPE AND PLANTING DETAILS

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22'X34') V: 1"=2' (22'X34')	L2.14
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 294 OF 343	

j:\hrg2401 tirz 17 memorial city area detention basin\er\03 cd\planting plan.dwg Plotted February 17, 2026 at 11:05 AM by Joshua Driscoll





NOTE:

1. SEE SHEET 4 OF 4 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
2. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

LEGEND

IPB — INLET PROTECTION BARRIER

N

0 40 80
SCALE IN FEET
FULL SIZE 1" = 40'
HALF SIZE 1" = 80'

No.	Date	Revisions	Appd.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

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NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: ____

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FCM Engineers, P.C.
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Tx Firm No. 13481

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN
KINGSRIDE LN STA 0+00 TO STA 19+00

SHEET 1 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

SCALE= 1"= 40'-0"

CITY OF HOUSTON PM

MOH'D WARRAD, P.E.

SHEET NO. 295 OF 343

Y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\cm sw3p - kingsride ln - sw3p (1).dwg Plotted February 11, 2026 at 4:10 PM by George Williams
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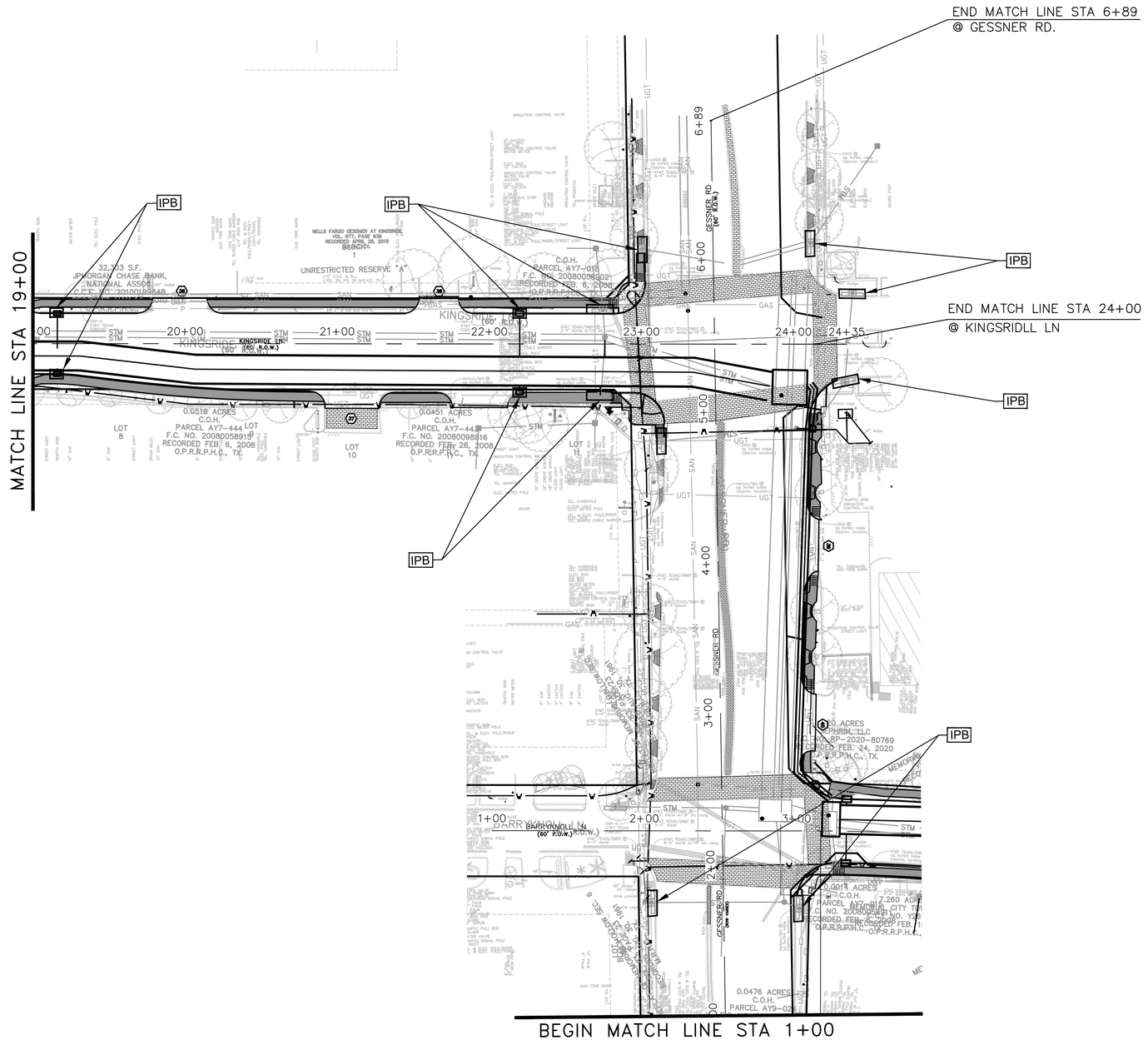

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION PERVENTION PLAN
KINGSRIDE LN STA 19+00 TO END STA 24+00
GESSNER RD TO STA 1+00 TO END STA 6+89
SHEET 2 OF 4

WBS NO. M-430296-0017-3	
DRAWING SCALE	
SCALE= 1"= 40'-0"	
CITY OF HOUSTON PM	
MOH'D WARRAD, P.E.	
SHEET NO. 296 OF343	

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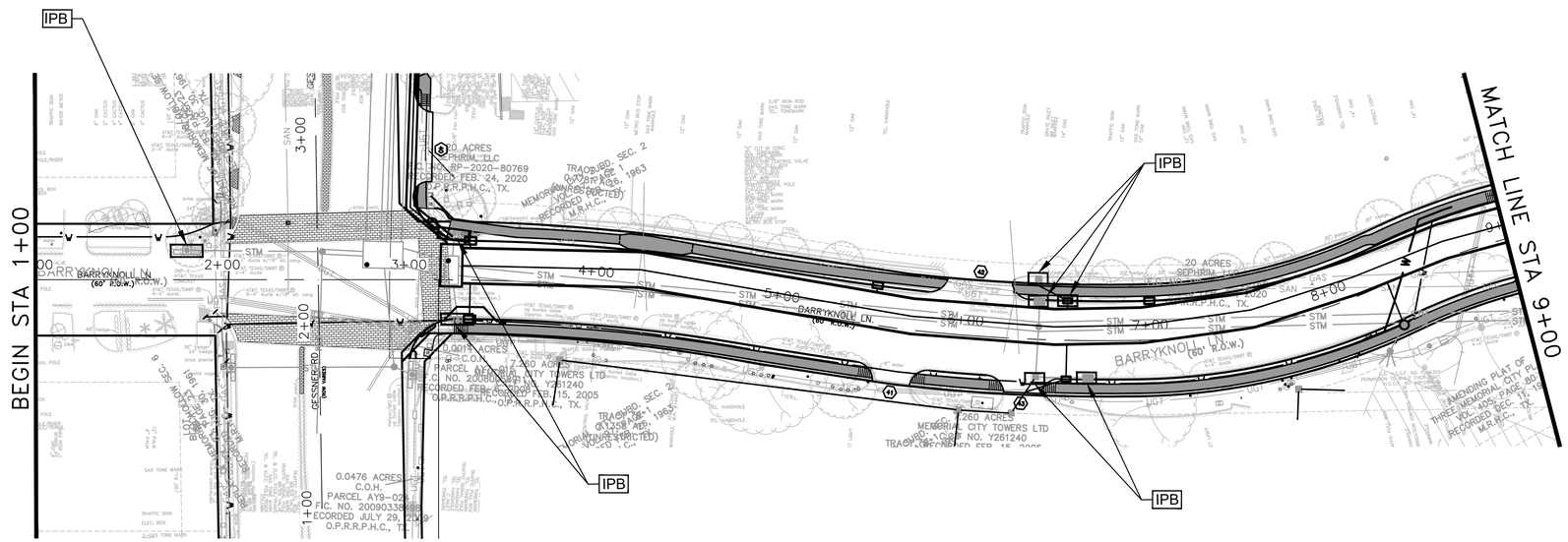

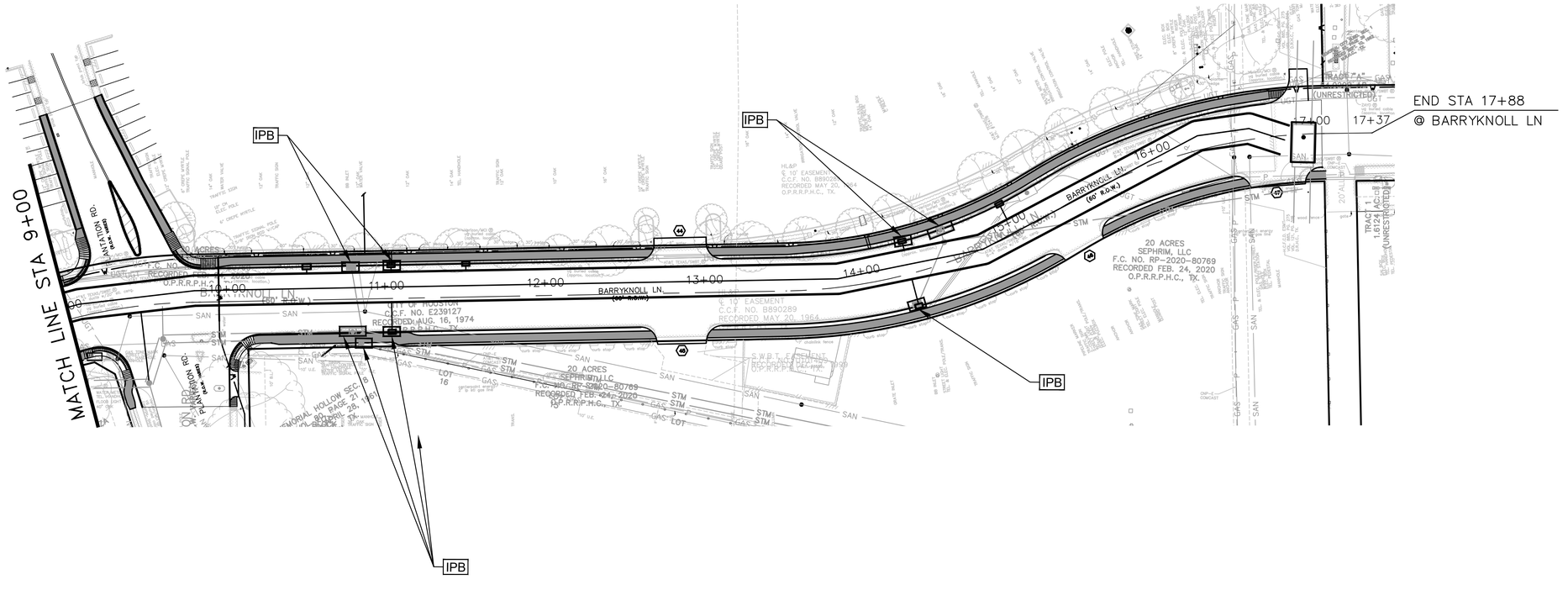

NOTE:

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LEGEND

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN
BARRYKNOLL LN
STA 1+00 TO END STA 17+88

SHEET 3 OF 4

WBS NO. M-430296-0017-3
DRAWING SCALE
SCALE= 1"= 40'-0"
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 297 OF 343

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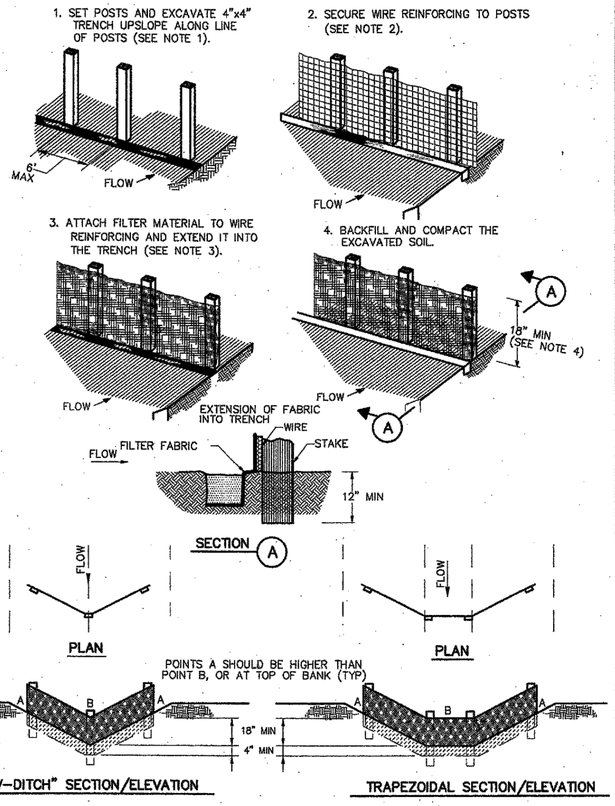
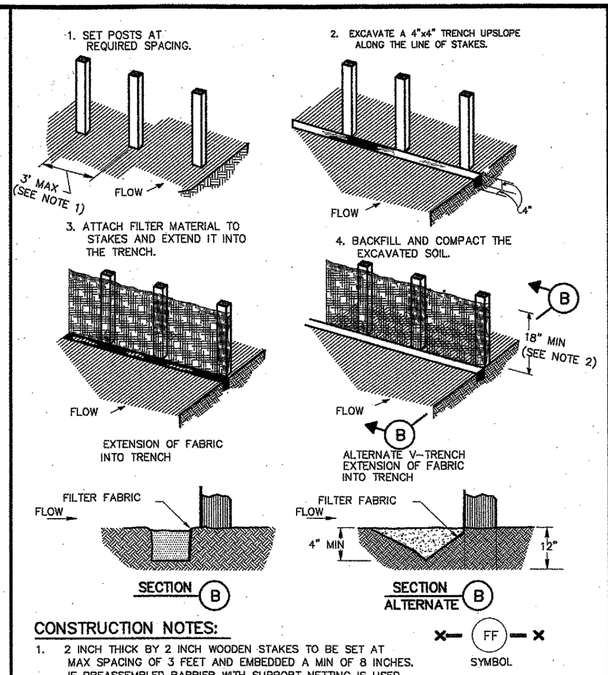


CONSTRUCTION NOTES:

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

RFB SYMBOL

REINFORCED FILTER FABRIC BARRIER

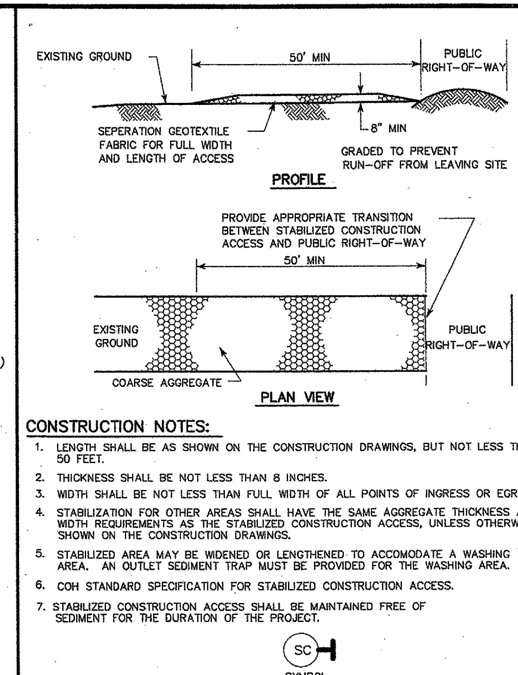


CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED BARRIER WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC BARRIER SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

FF SYMBOL

FILTER FABRIC BARRIER

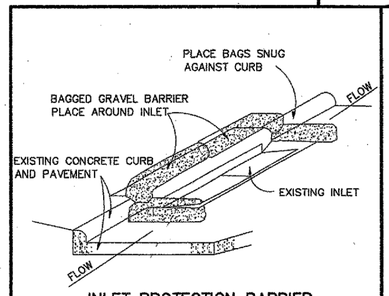


CONSTRUCTION NOTES:

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION ACCESS, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
6. COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
7. STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

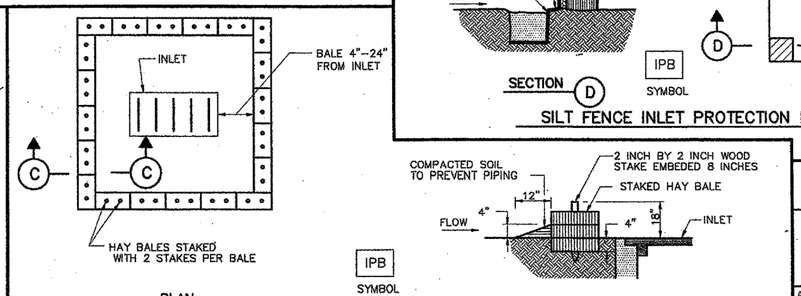
SC SYMBOL

STABILIZED CONSTRUCTION ACCESS

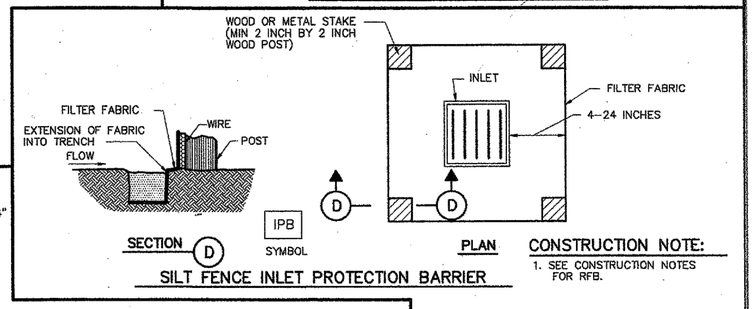


INLET PROTECTION BARRIER

(FOR STAGE II INLETS)
BAGGED GRAVEL BARRIER



HAY BALE INLET PROTECTION BARRIER



SILT FENCE INLET PROTECTION BARRIER

CONSTRUCTION NOTE:

1. SEE CONSTRUCTION NOTES FOR RFB.

CDH

No.	Date	Revisions	App'd

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: ____

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

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
F- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE- NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
xx / xx / xxxx

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLANS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS
(NOT TO SCALE)

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

SHEET 4 OF 4

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
MOH'D WARRAD, P.E.
SHEET NO. 298 OF 343

Y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\fcm_sw3p - DET_STAX.dwg, FCM_SW3P - DET_STAX, Sheet - (6), 2/11/2026 4:11:13 PM
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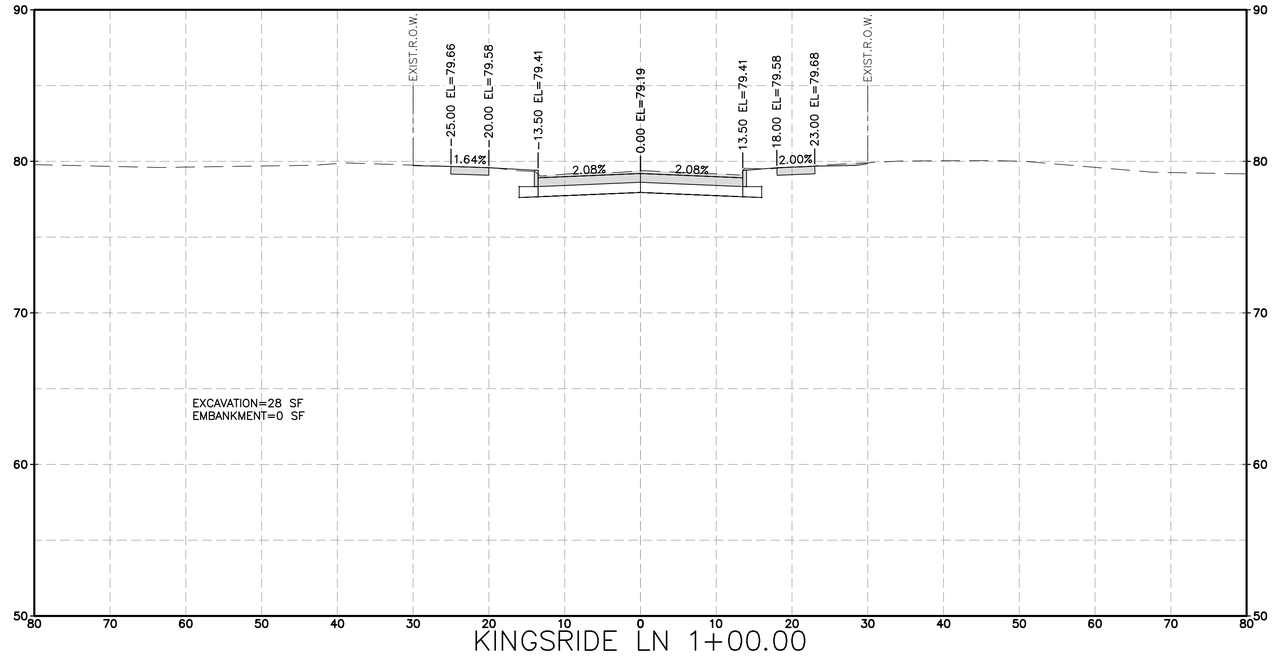
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF



KINGSRIDE LN 1+00.00

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

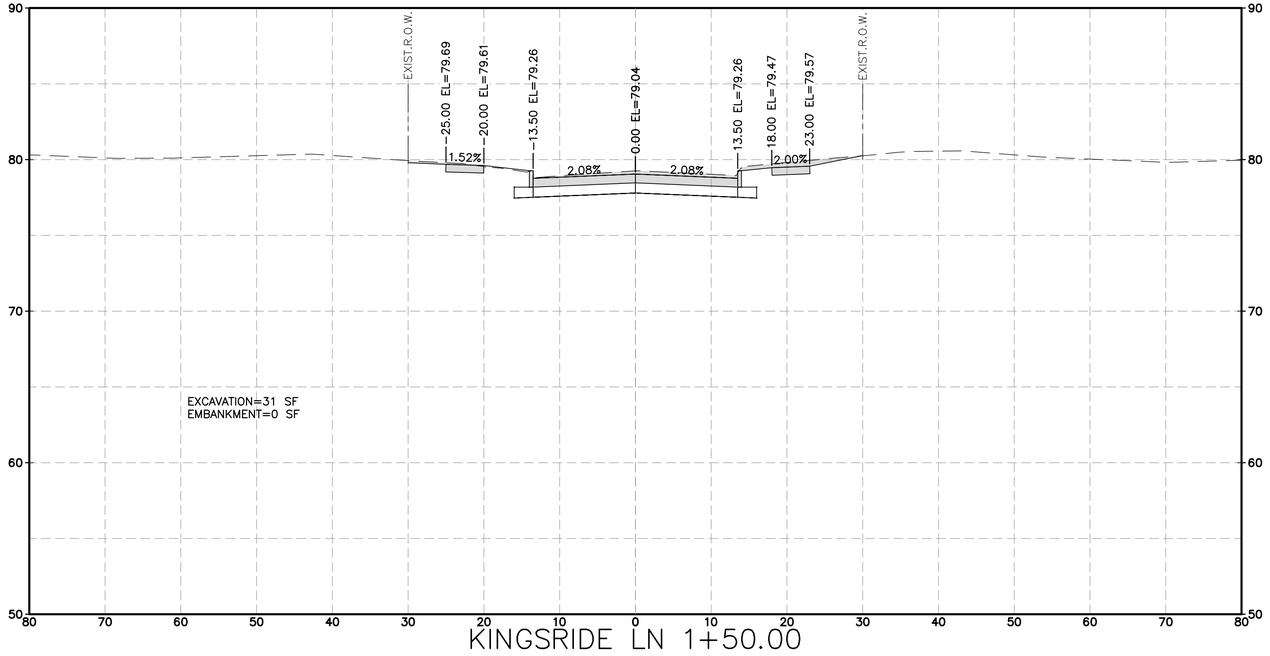
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

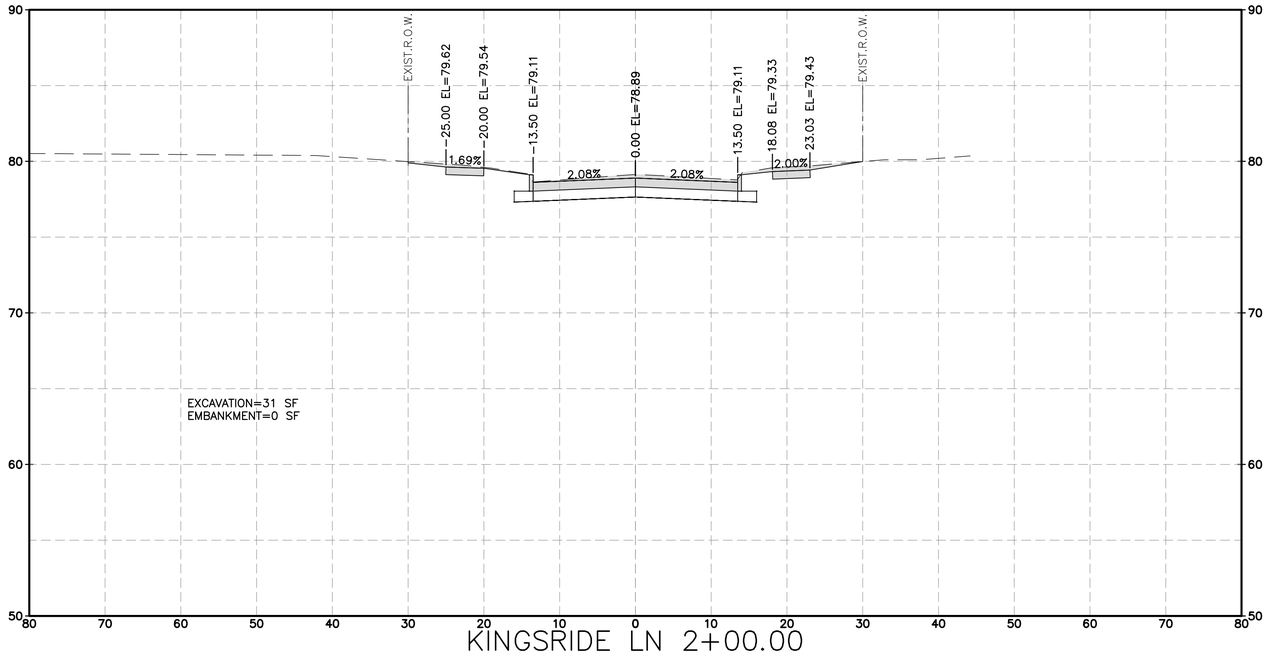
SHEET 1 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 299 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:38 PM by McCourt, Jeff



KINGSRIDE LN 1+50.00



KINGSRIDE LN 2+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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HOUSTON, TX 77079
PH: 832.318.8800
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BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

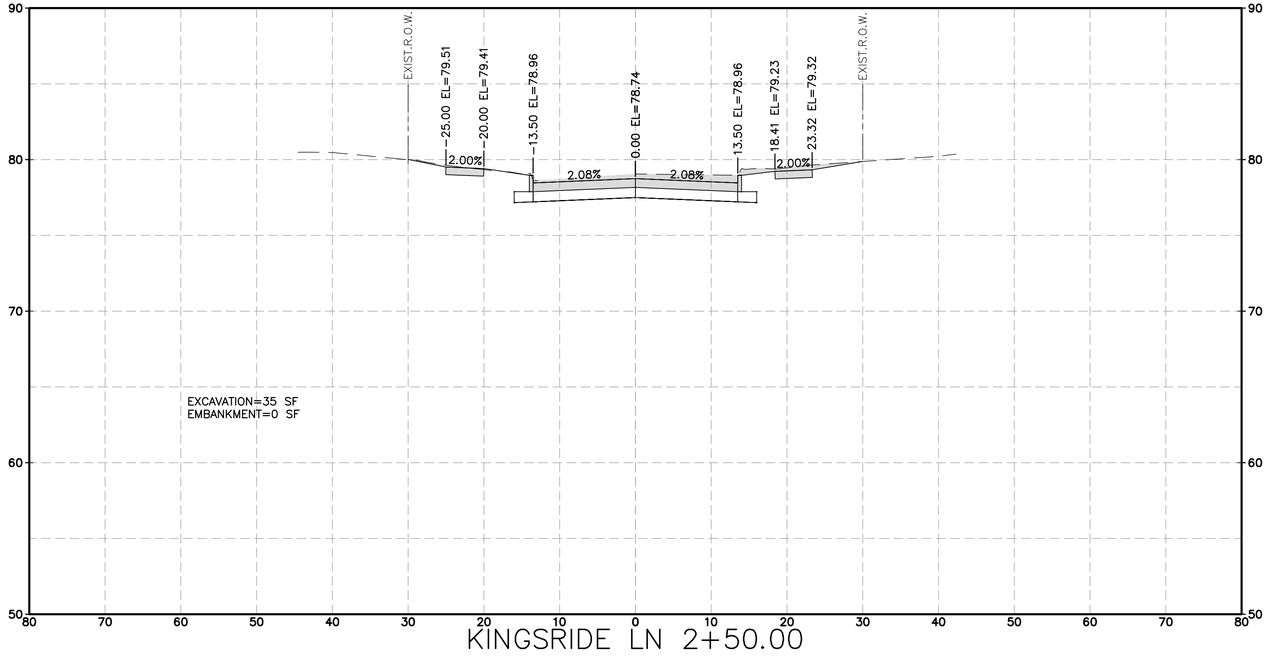
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 2 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 300 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:38 PM by McCourt, Jeff



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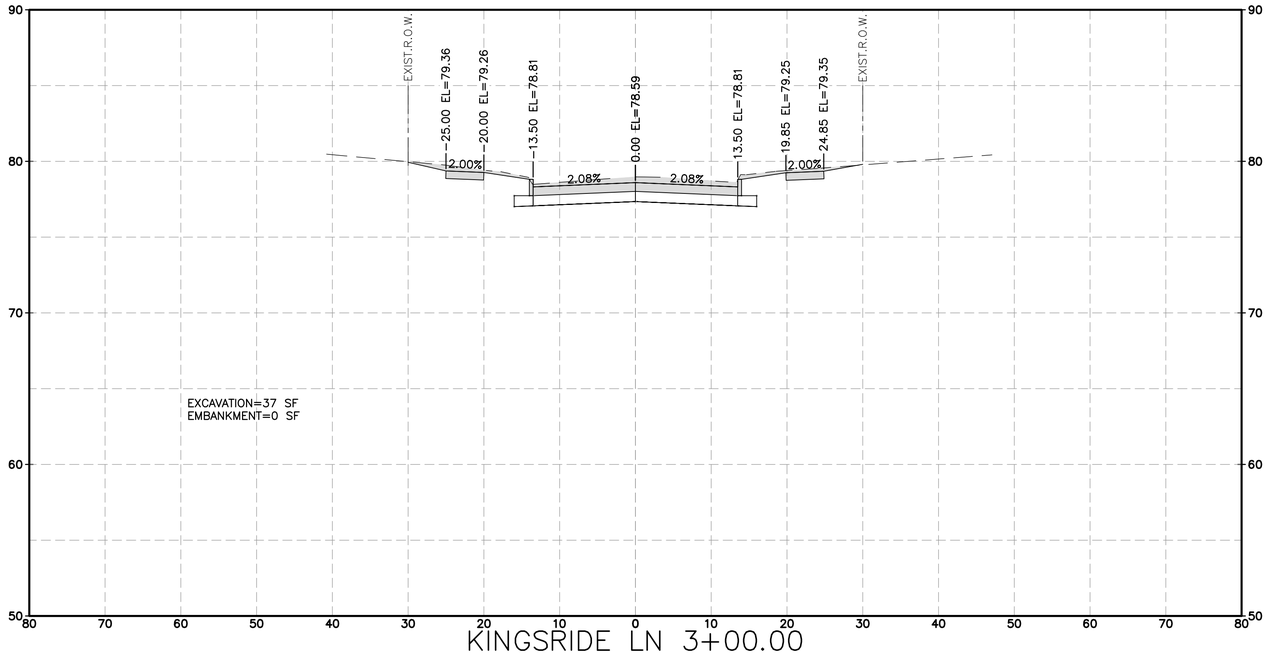

KINGSRIDE LN 3+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:___2/19/2026___

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 3 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 301 OF 343

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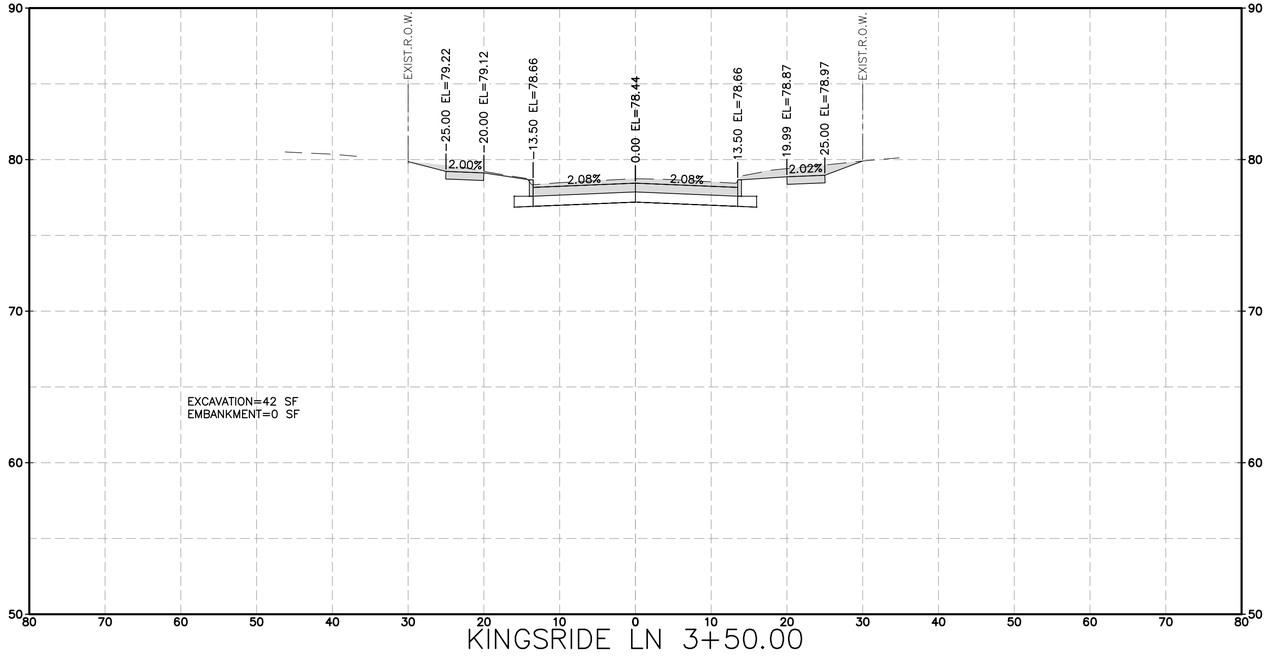

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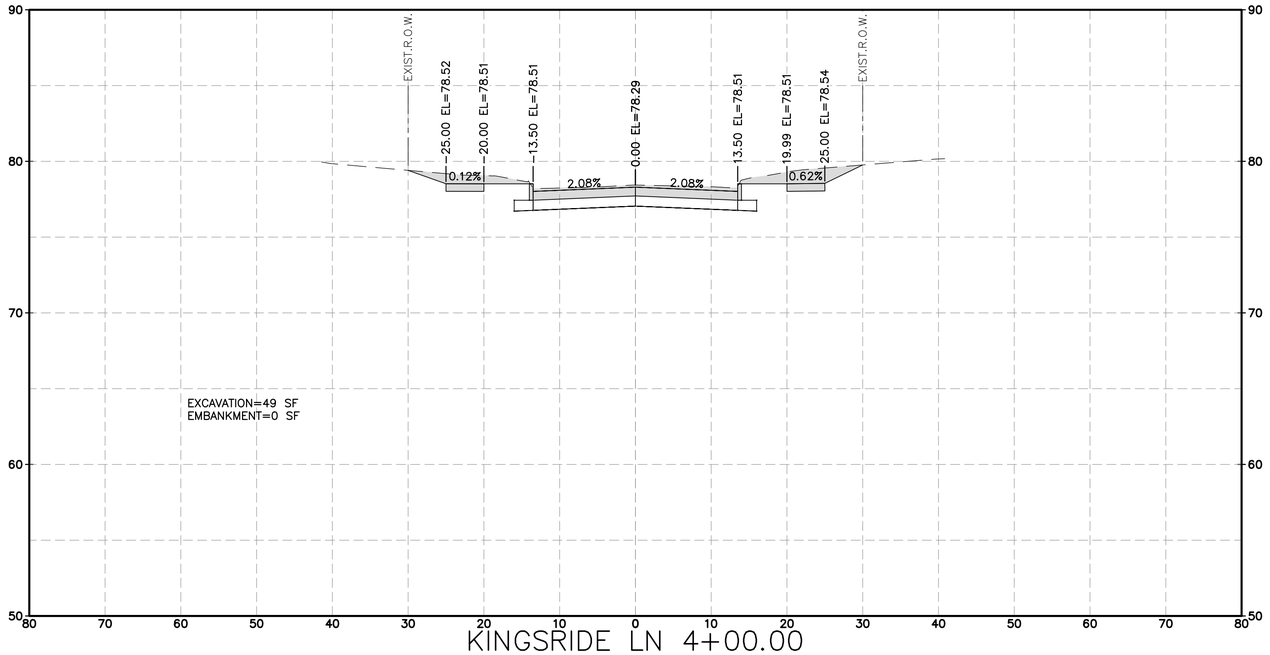

KINGSRIDE LN 4+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 4 OF 24

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 362 OF 343	

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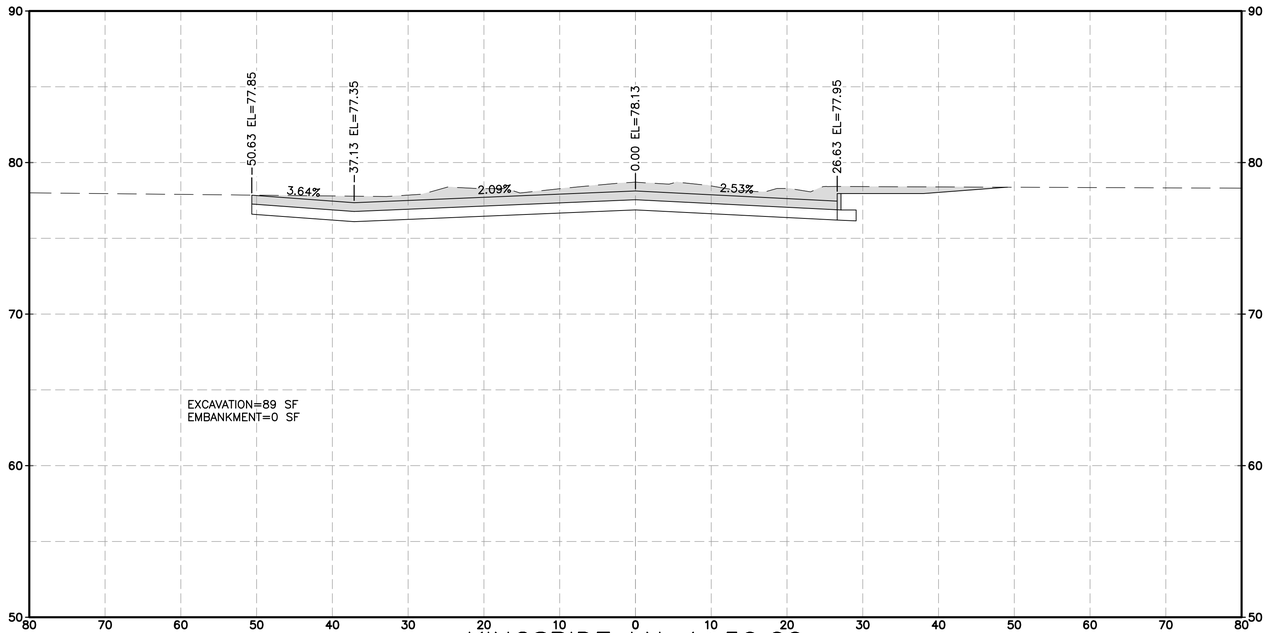

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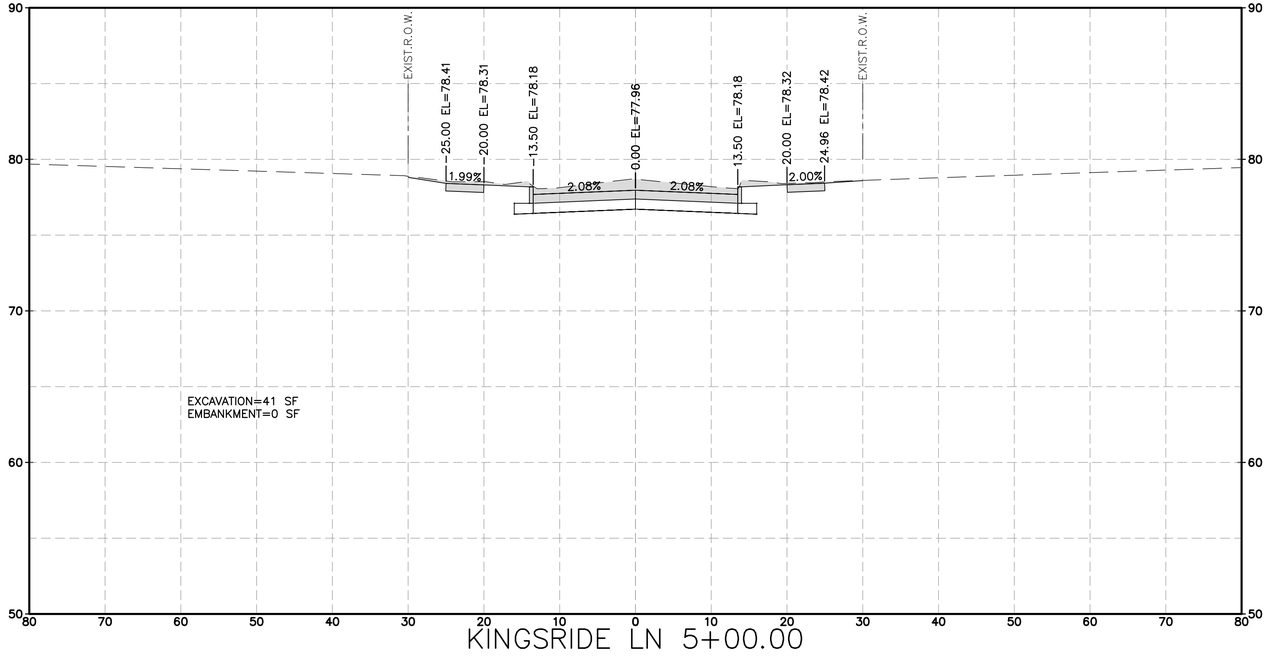

KINGSRIDE LN 5+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

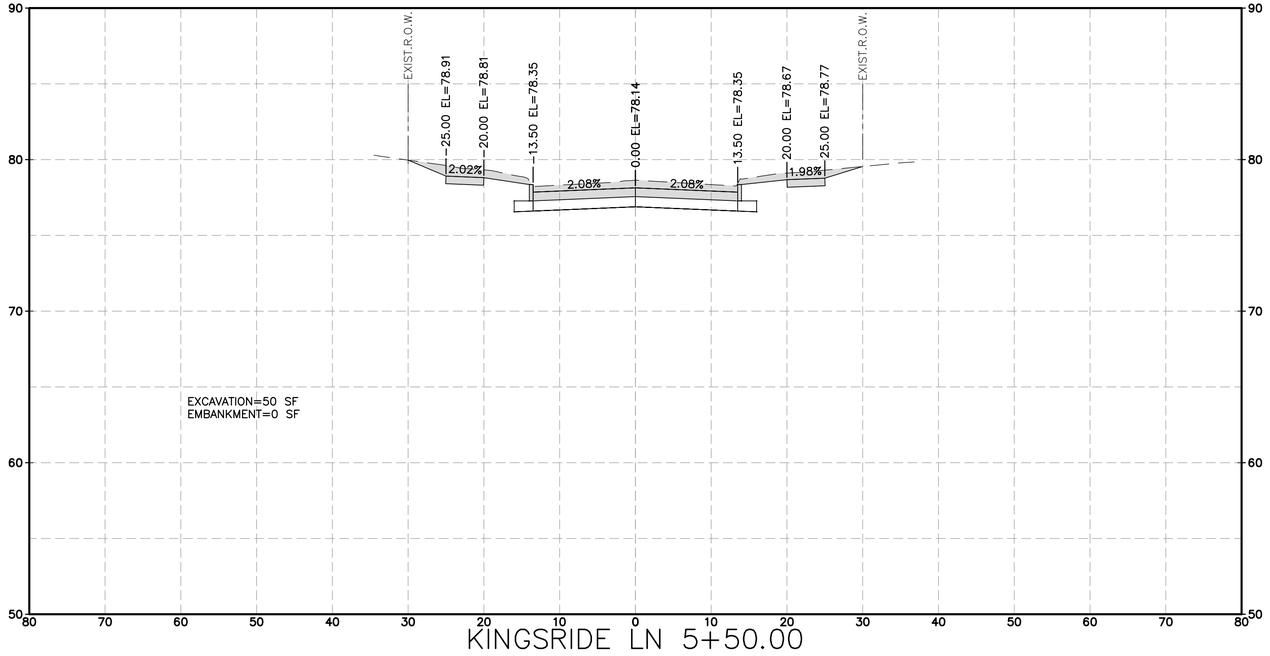
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 5 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 303 OF 343

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:39 PM by McCourt, Jeff



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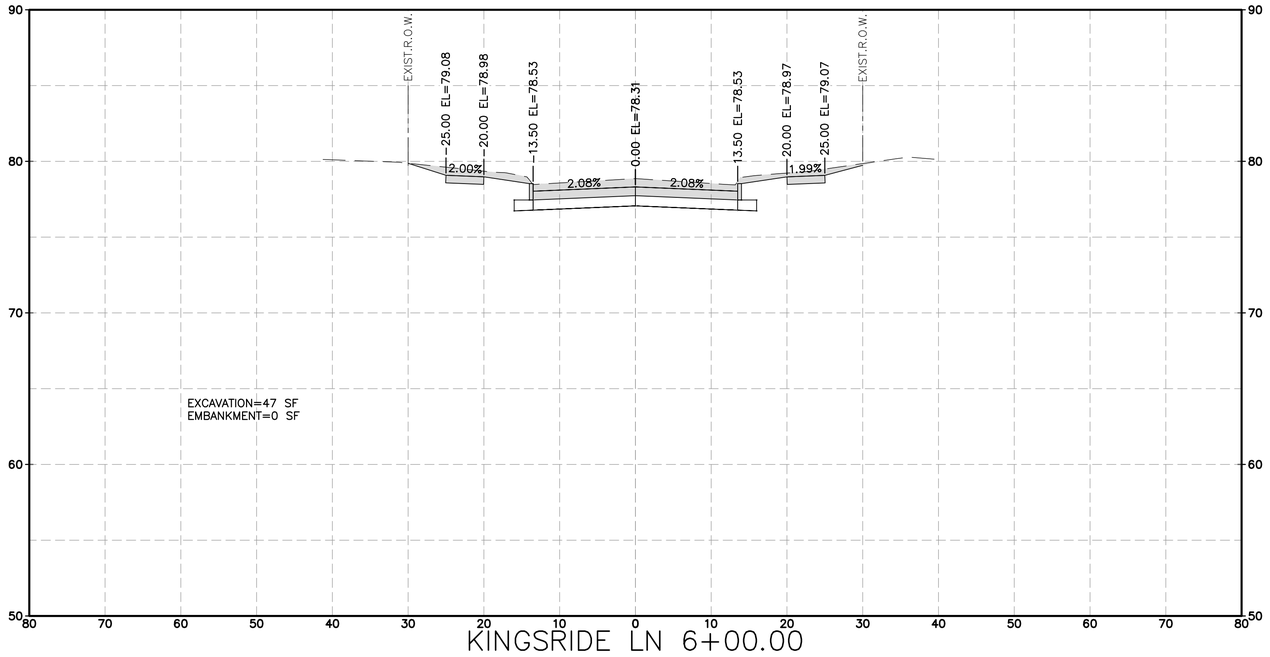


KINGSRIDE LN 6+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

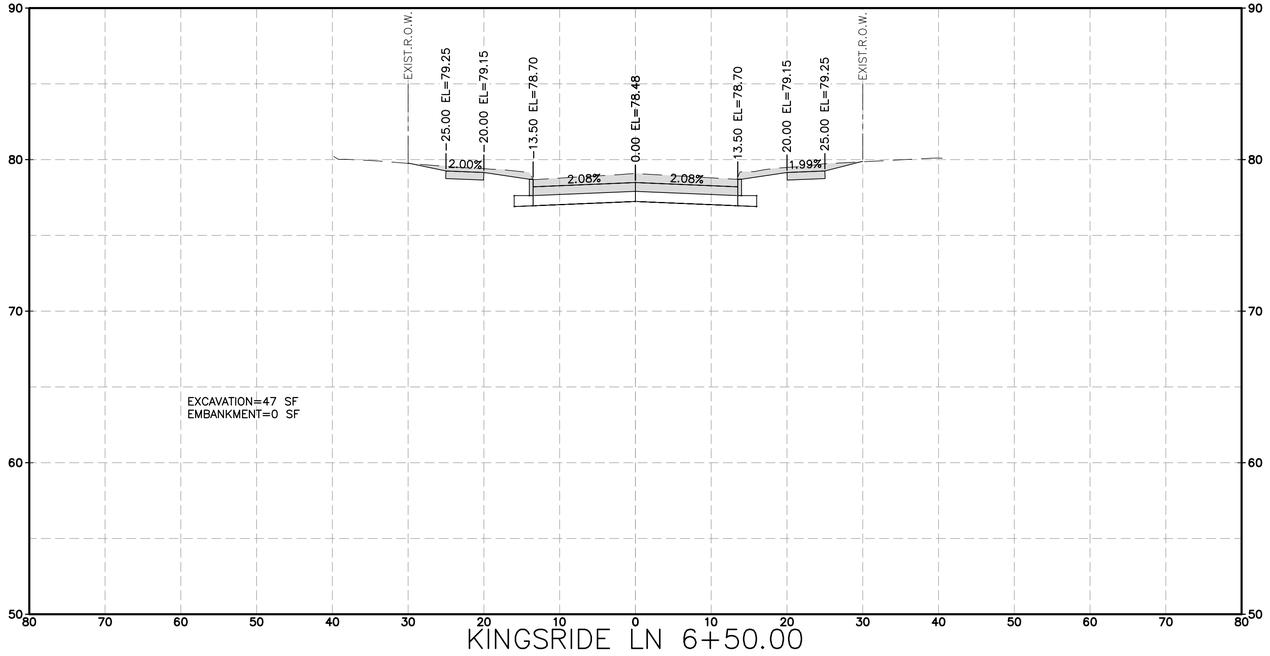
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 6 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 304 OF 343

J:\2021\210601.01\cad\dwgs\d'xs_kingsride.dwg Plotted February 19, 2026 at 5:39 PM by McCourt, Jeff



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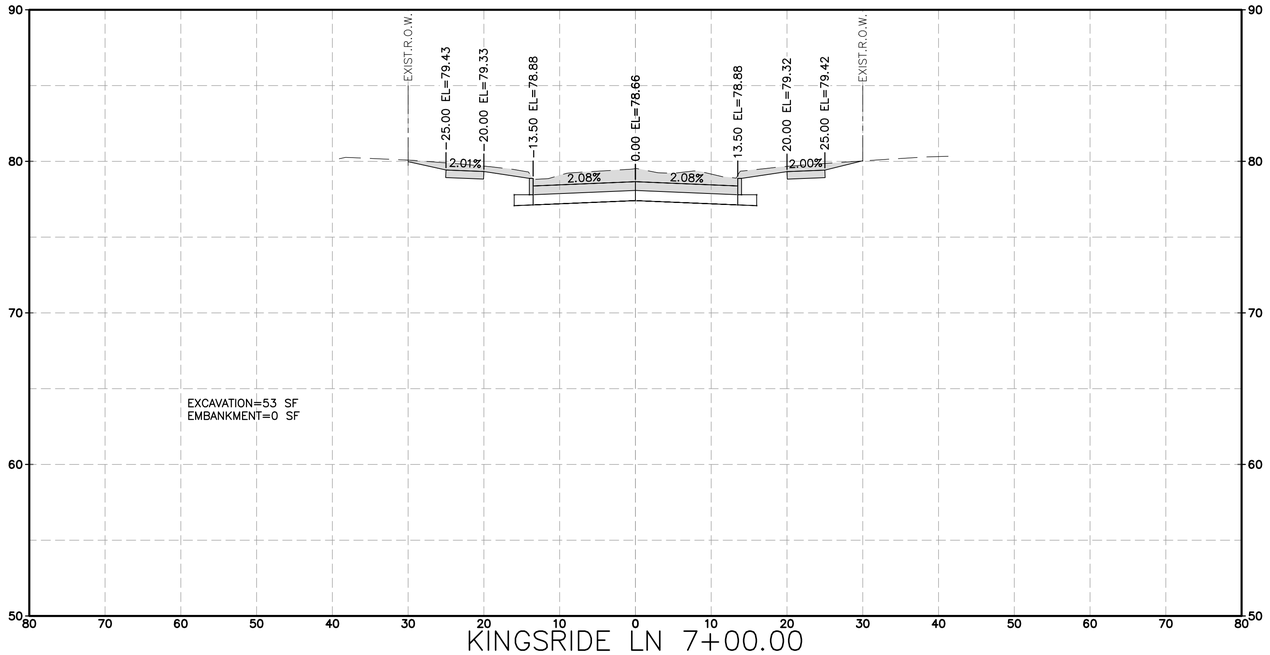

KINGSRIDE LN 7+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

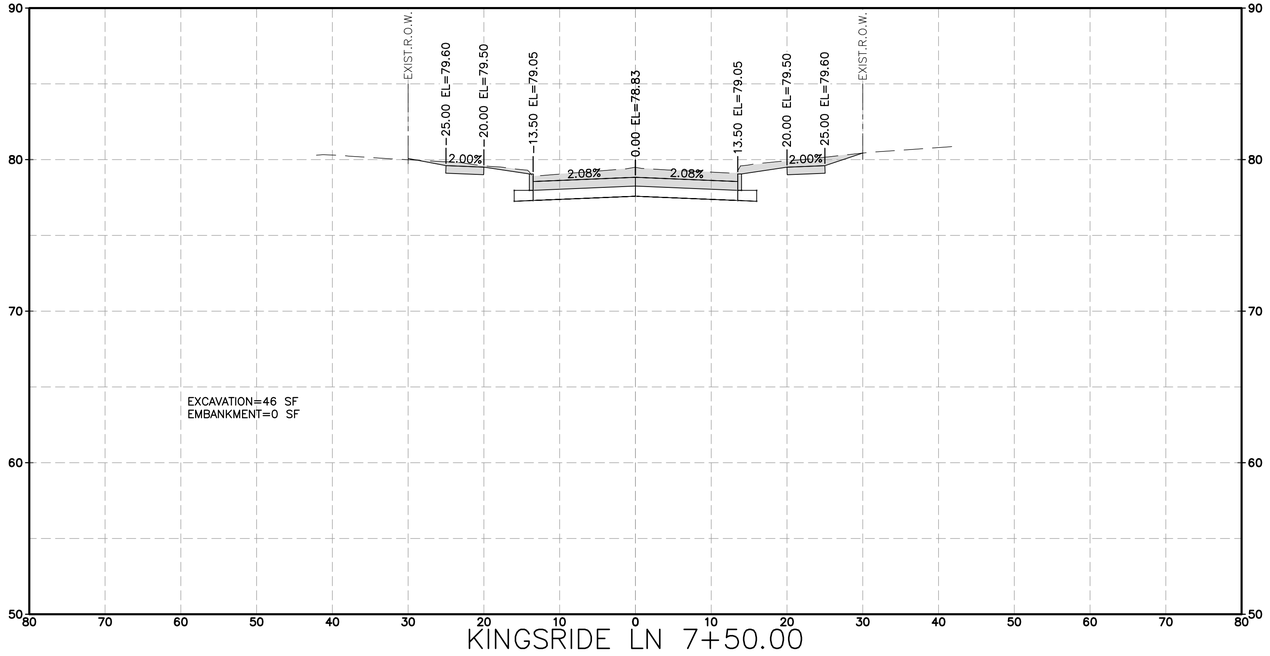
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

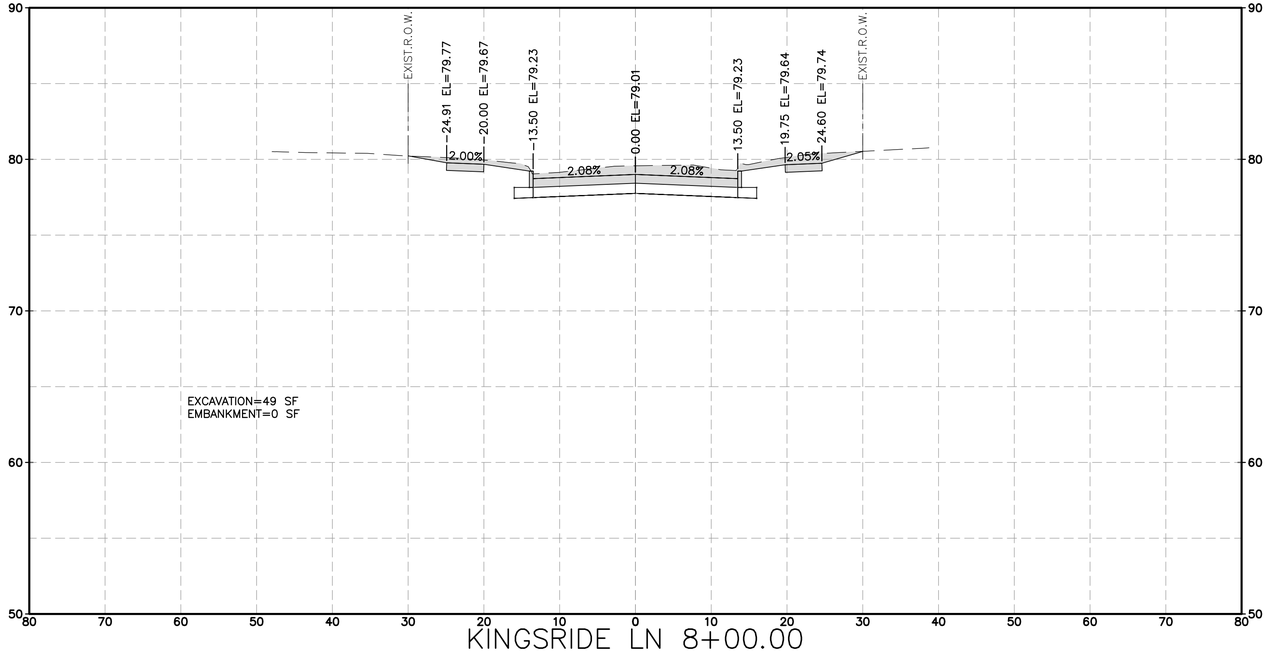
SHEET 7 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 305 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:39 PM by McCourt, Jeff



KINGSRIDE LN 7+50.00



KINGSRIDE LN 8+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

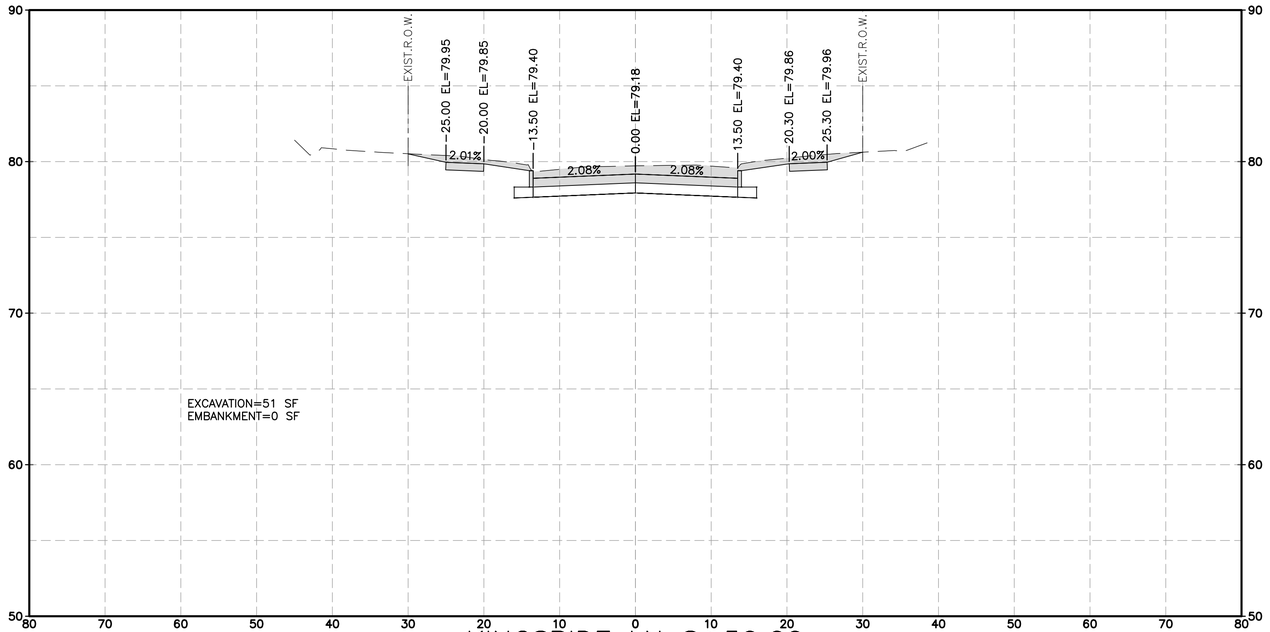
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 8 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 306 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:39 PM by McCourt, Jeff



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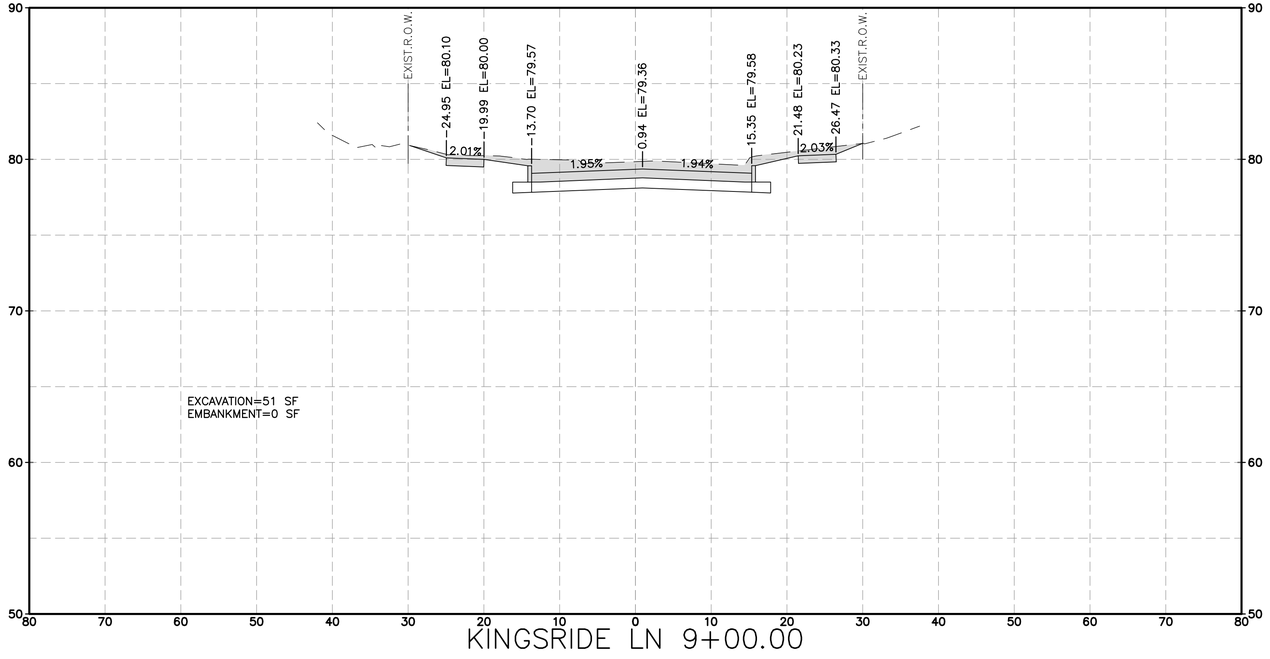

KINGSRIDE LN 9+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

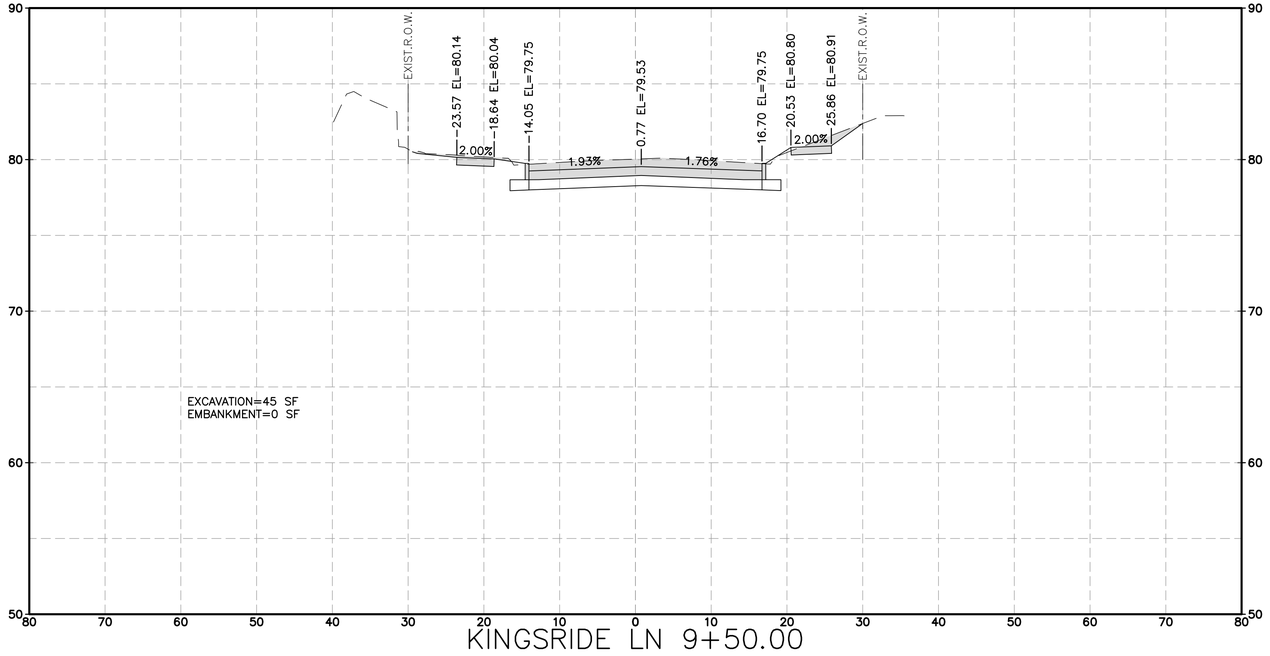
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

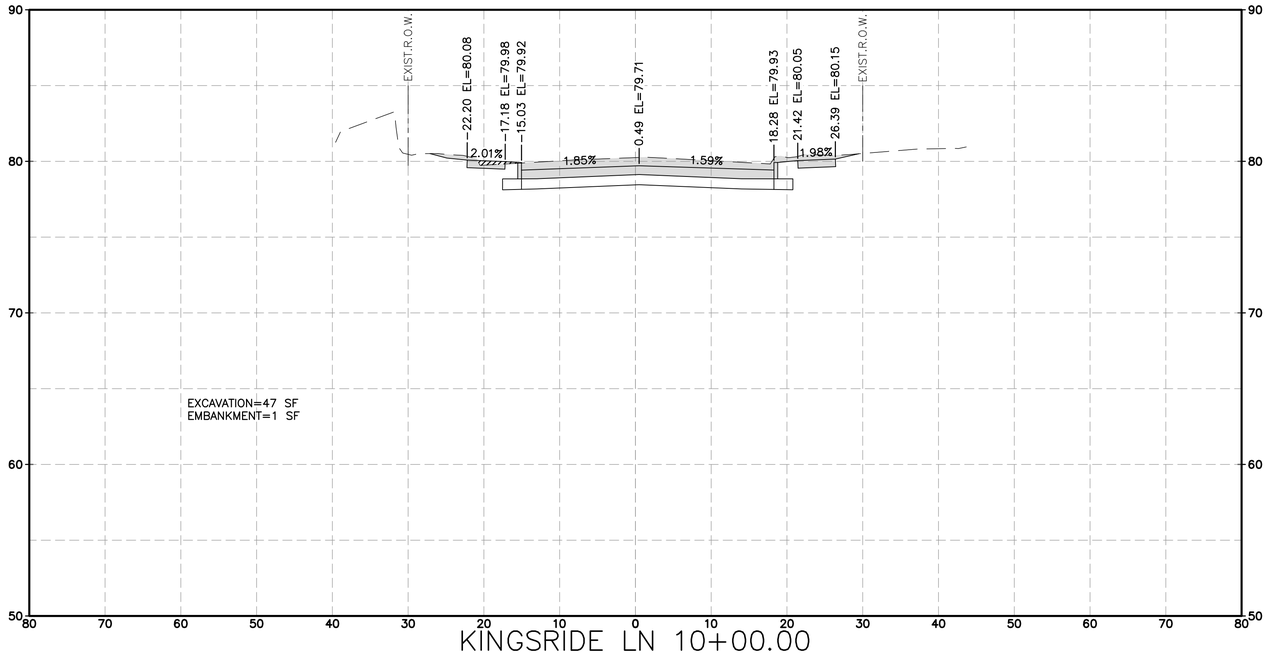
SHEET 9 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 307 OF 343

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:39 PM by McCourt, Jeff



KINGSRIDE LN 9+50.00



KINGSRIDE LN 10+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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P.E. REGISTRATION NO. 125563
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 10 OF 24

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DRAWING SCALE
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CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 308 OF 343

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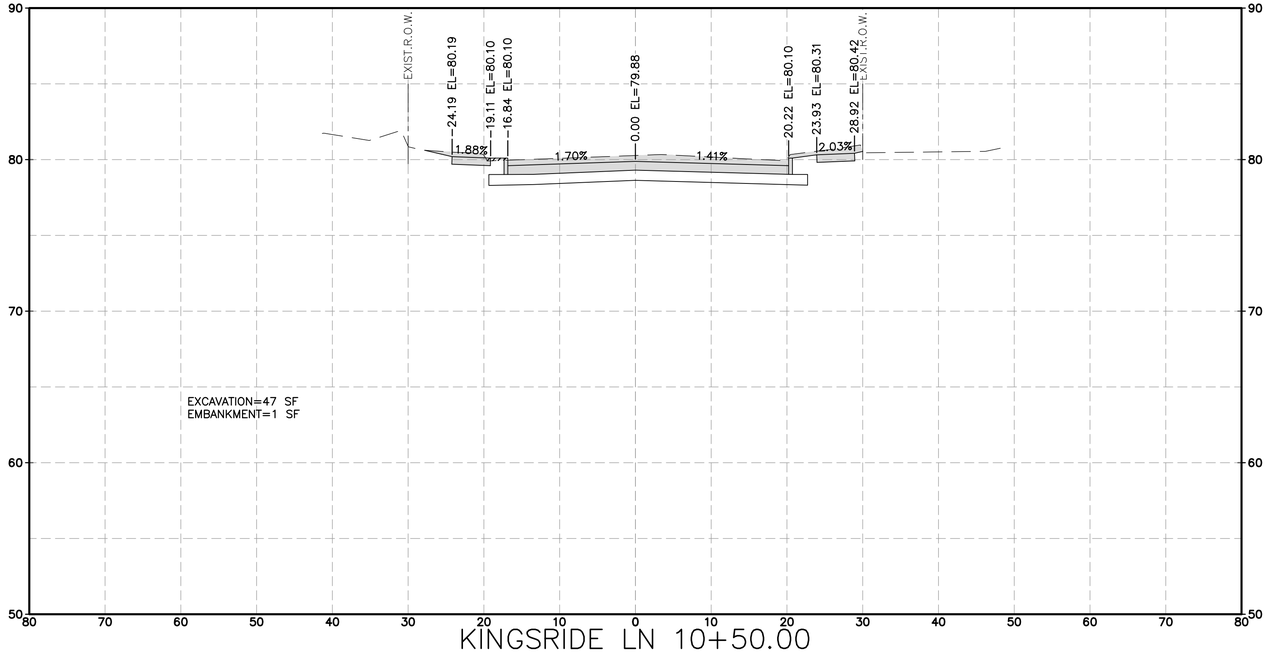
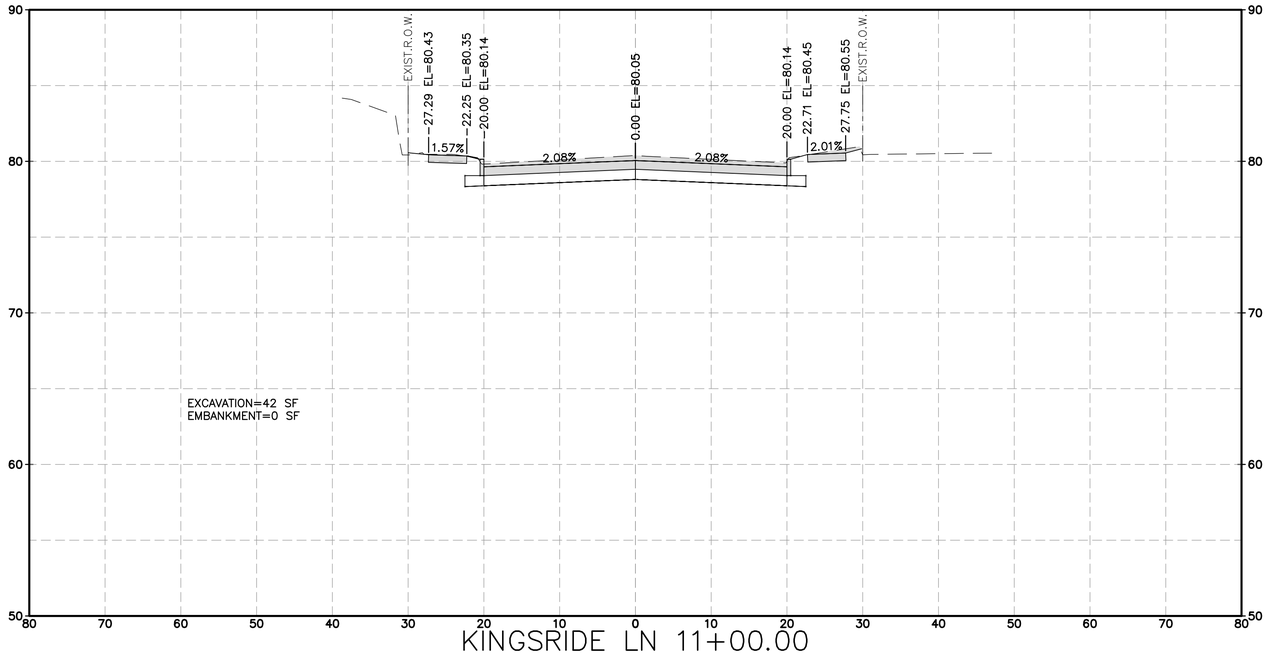


KINGSRIDE LN 10+50.00



KINGSRIDE LN 11+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

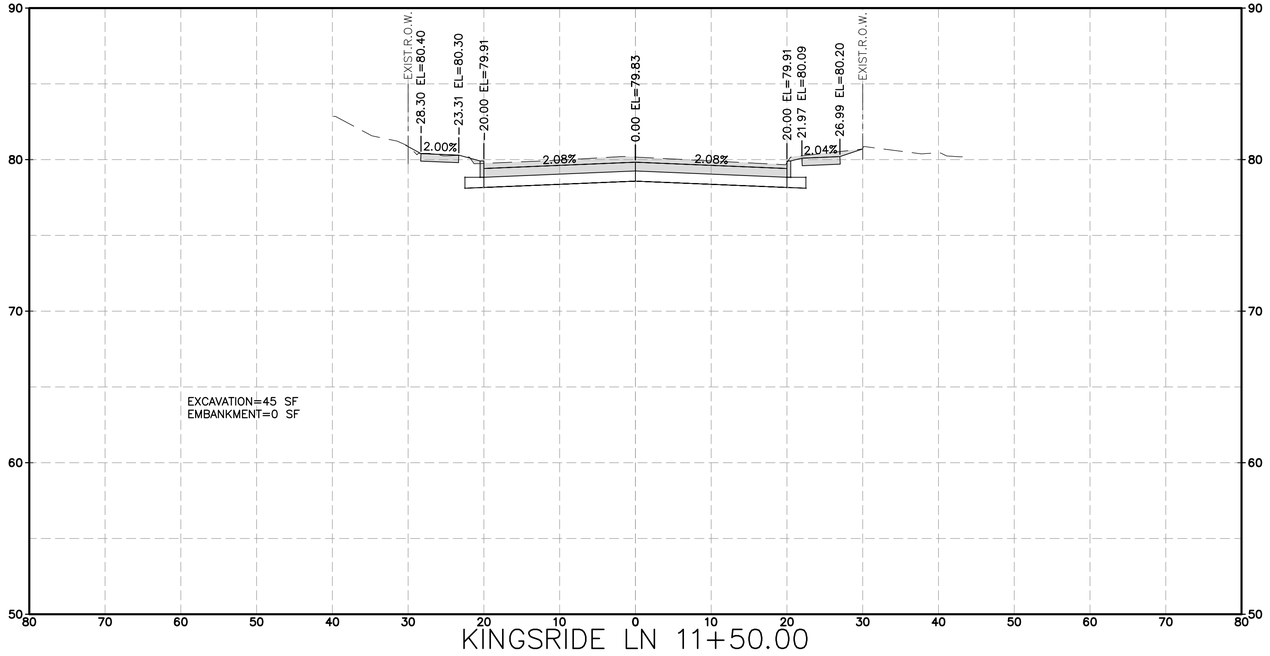
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

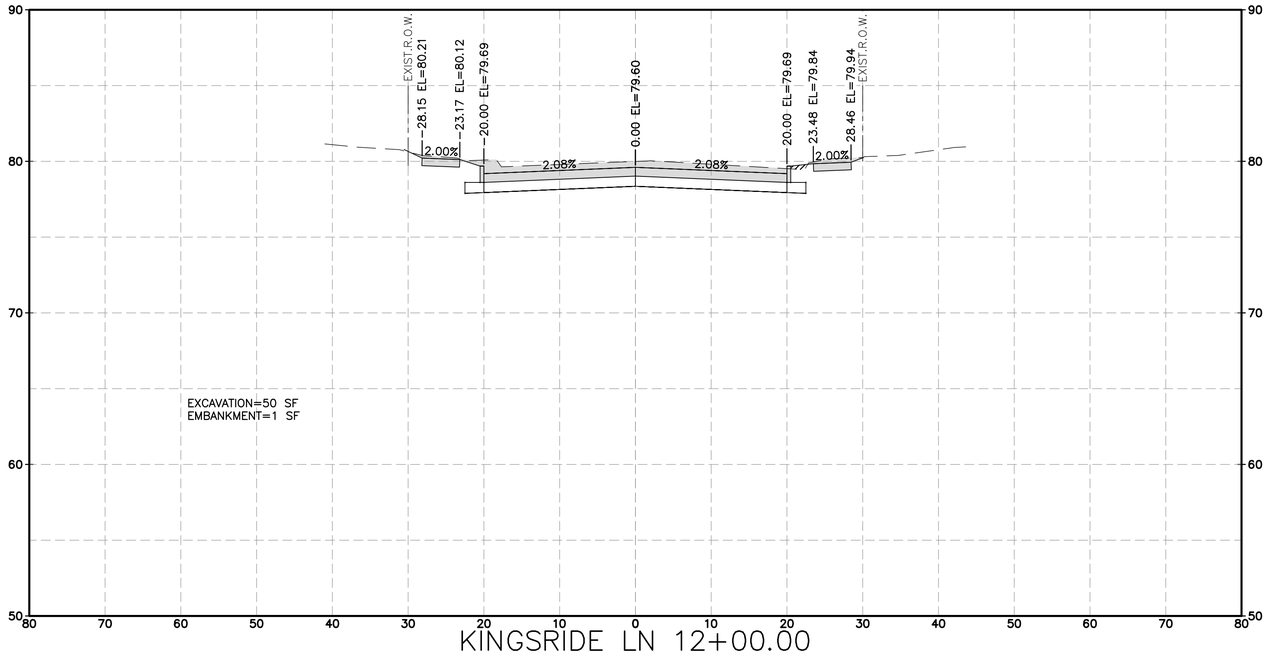
SHEET 11 OF 24

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 369 OF 343	

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:40 PM by McCourt, Jeff



KINGSRIDE LN 11+50.00



KINGSRIDE LN 12+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
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BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:___2/19/2026___

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

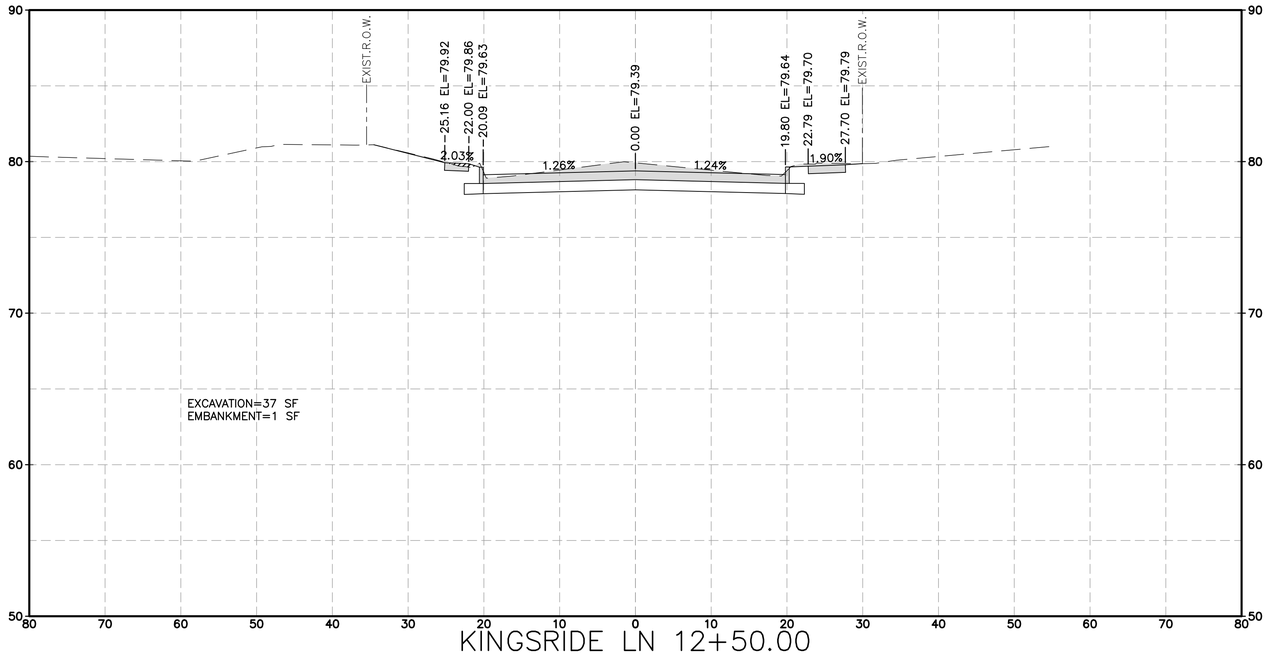
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

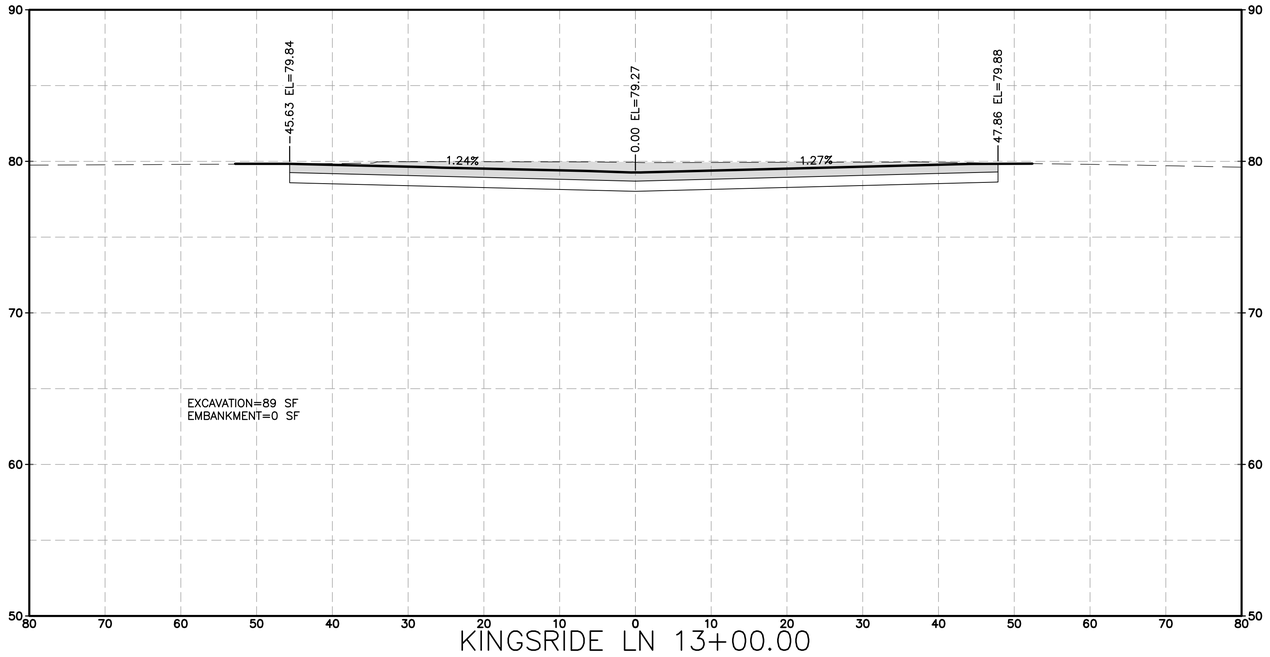
SHEET 12 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 310 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:40 PM by McCourt, Jeff



KINGSRIDE LN 12+50.00



KINGSRIDE LN 13+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

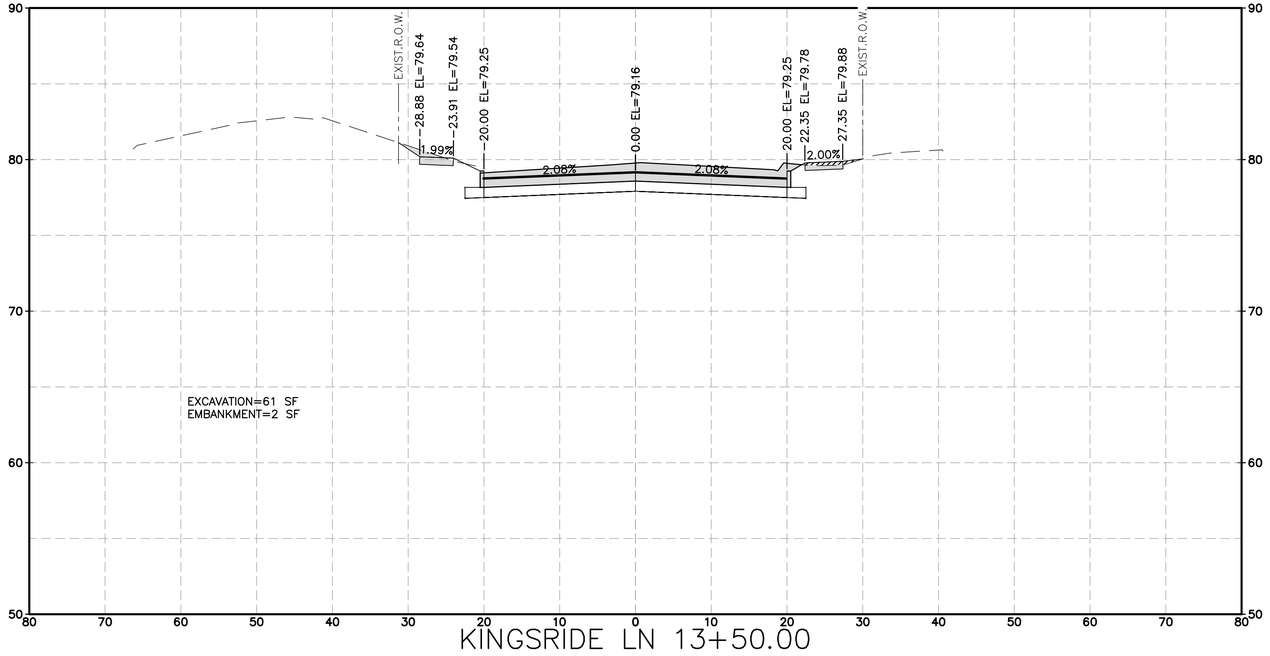
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

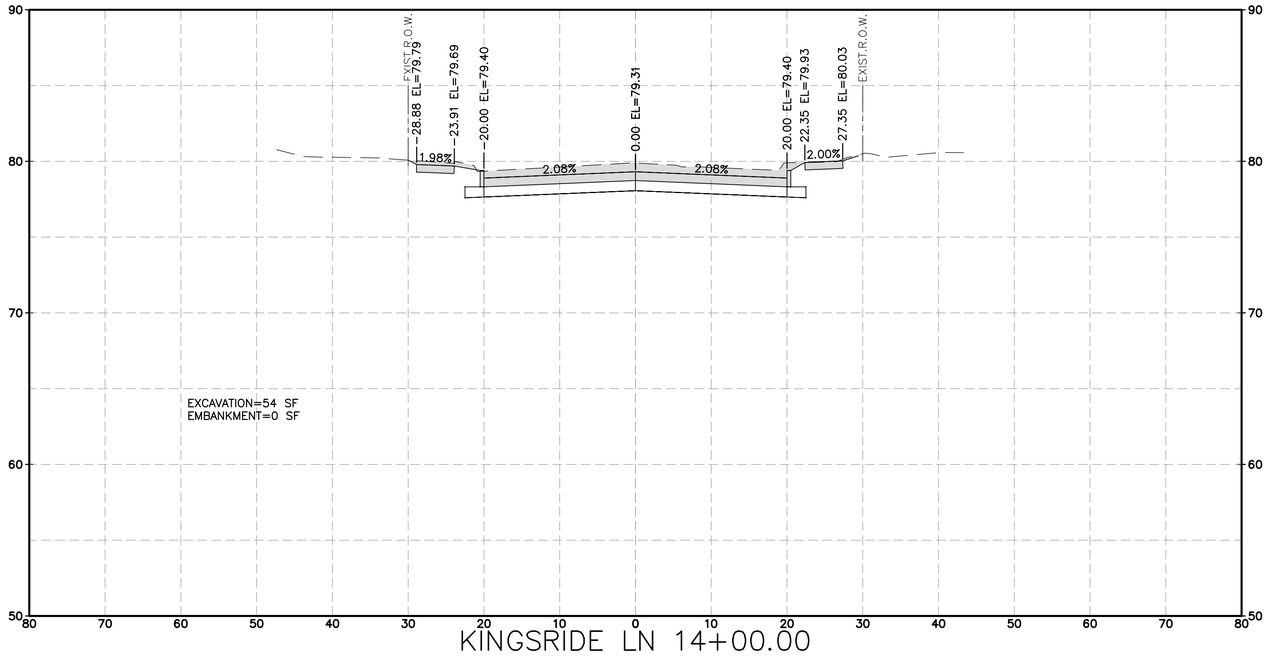
SHEET 13 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 311 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:40 PM by McCourt, Jeff



KINGSRIDE LN 13+50.00



KINGSRIDE LN 14+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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HOUSTON, TX 77079
PH: 832.318.8800
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P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

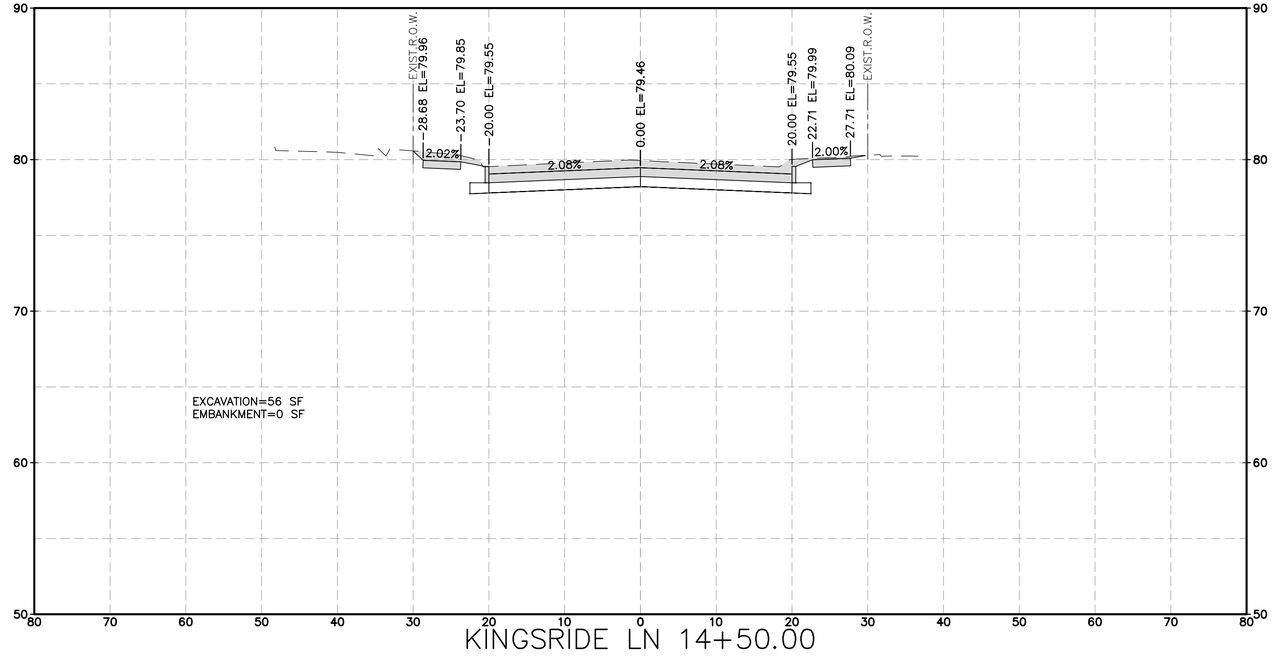
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

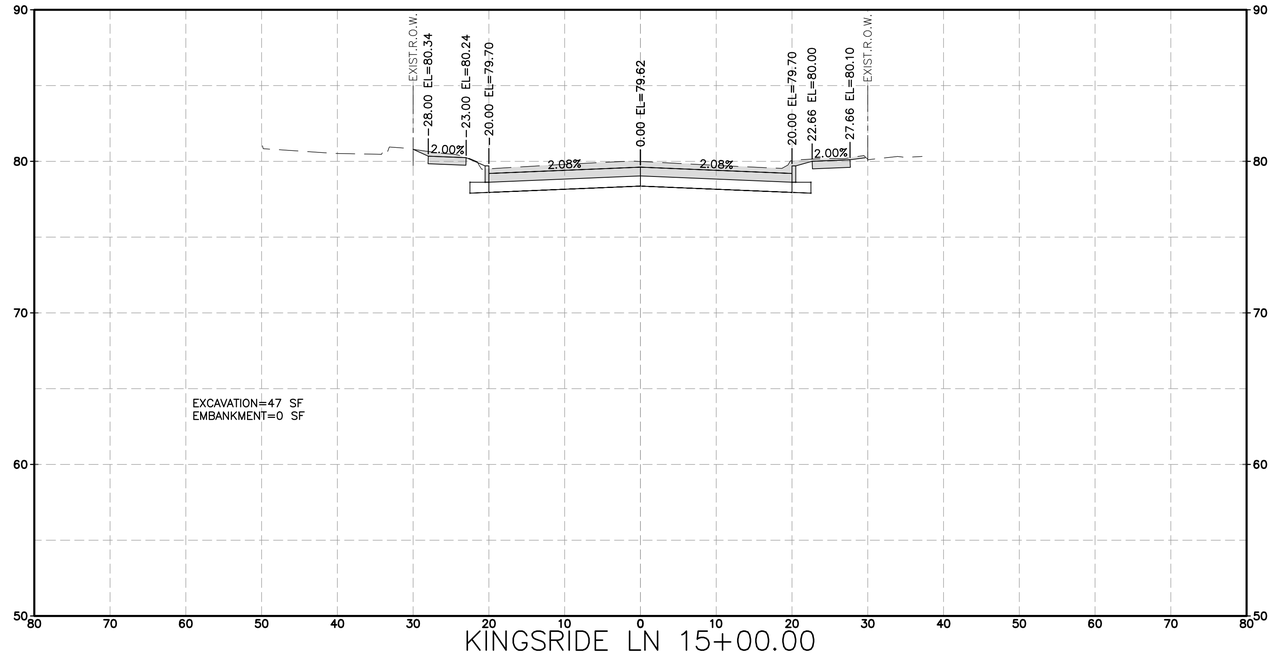
SHEET 14 OF 24

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 312 OF 343	

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:40 PM by McCourt, Jeff



KINGSRIDE LN 14+50.00



KINGSRIDE LN 15+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

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BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

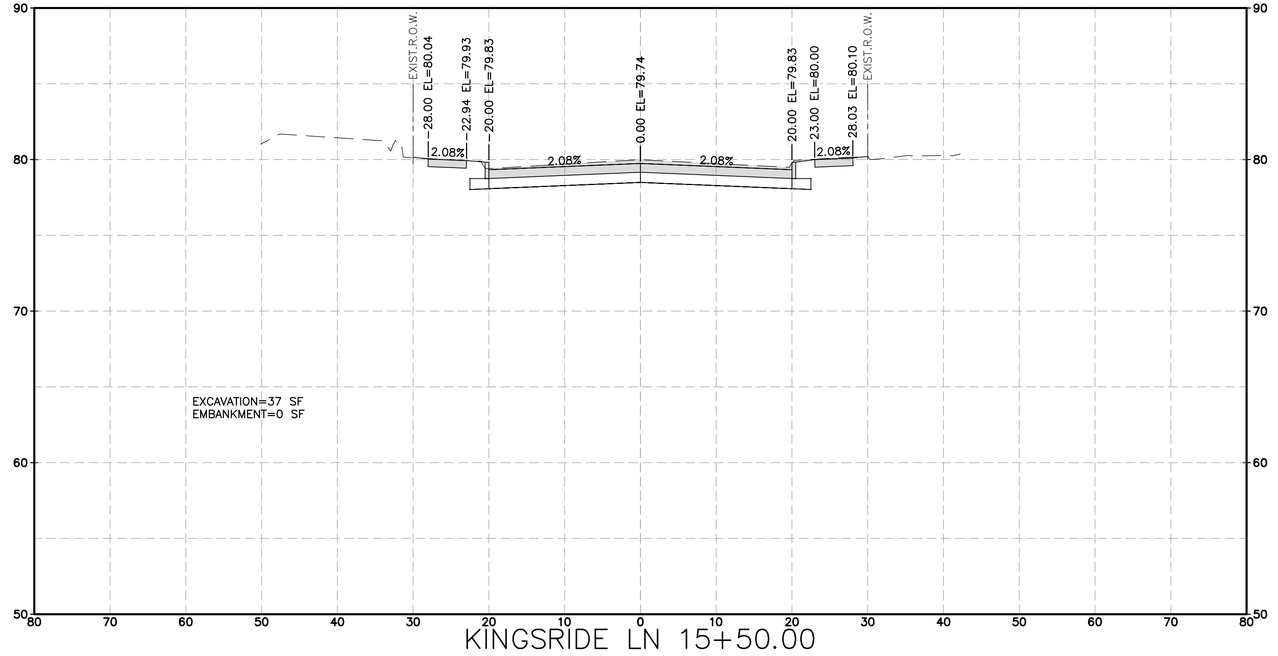
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

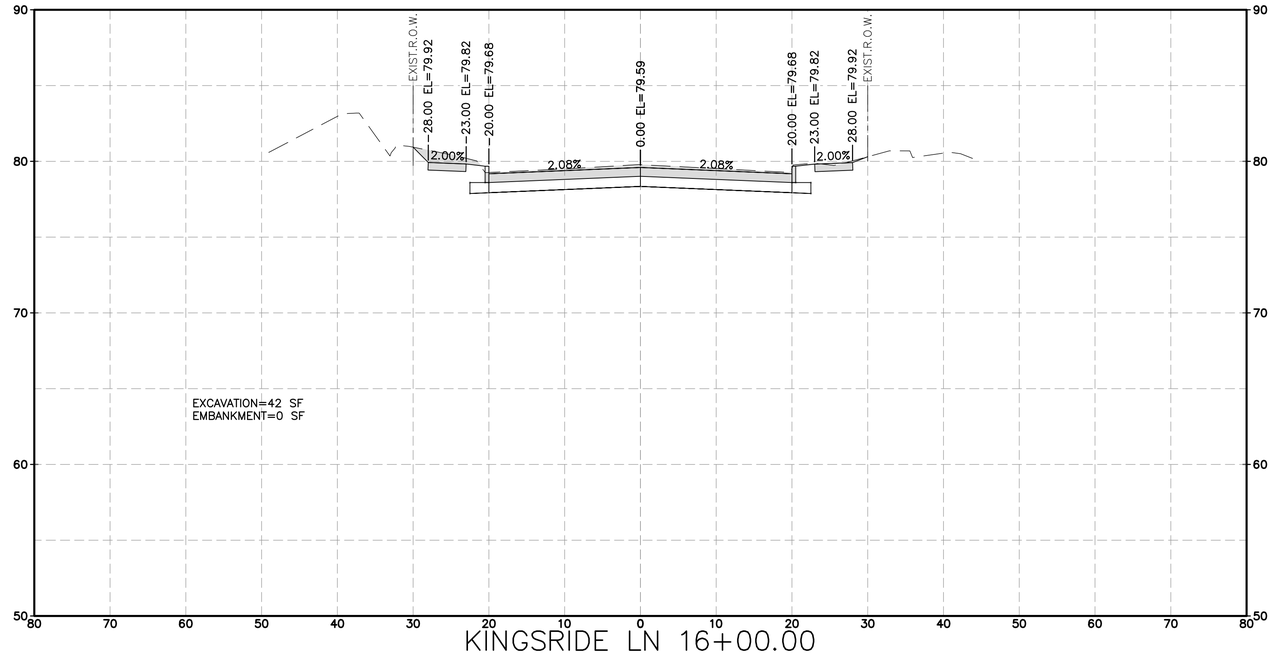
SHEET 15 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 313 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:40 PM by McCourt, Jeff



KINGSRIDE LN 15+50.00



KINGSRIDE LN 16+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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HOUSTON, TX 77079
PH: 832.318.8800
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BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

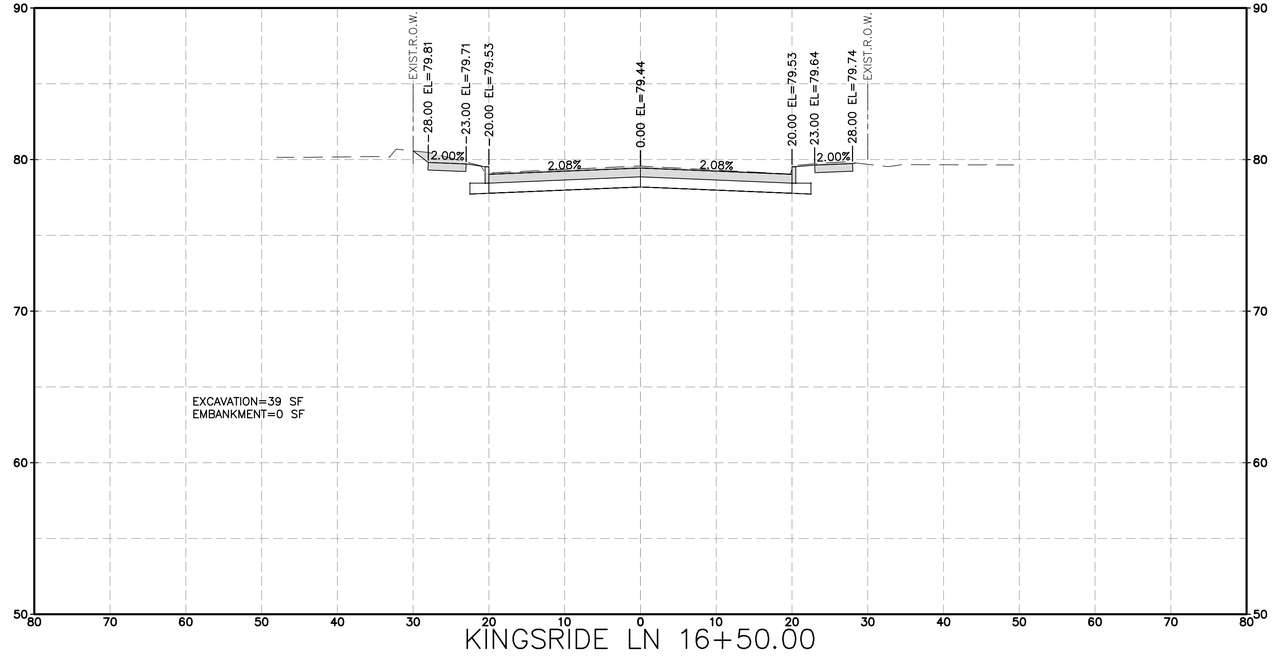
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

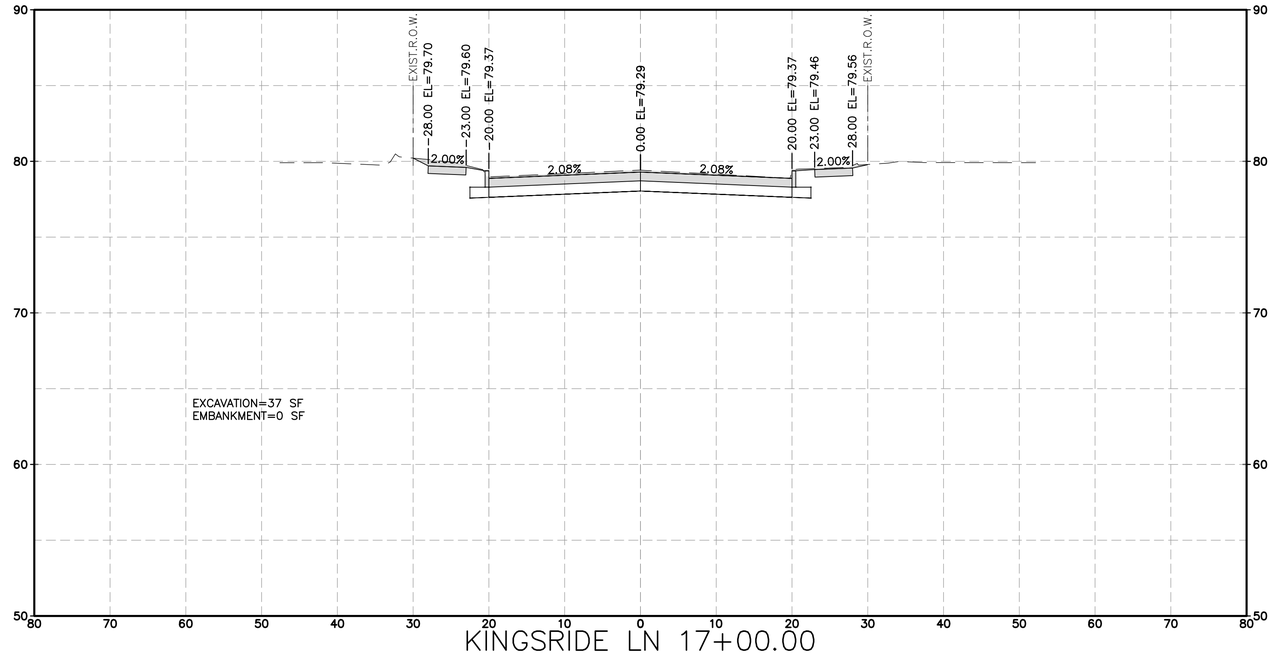
SHEET 16 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 314 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 16+50.00



KINGSRIDE LN 17+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

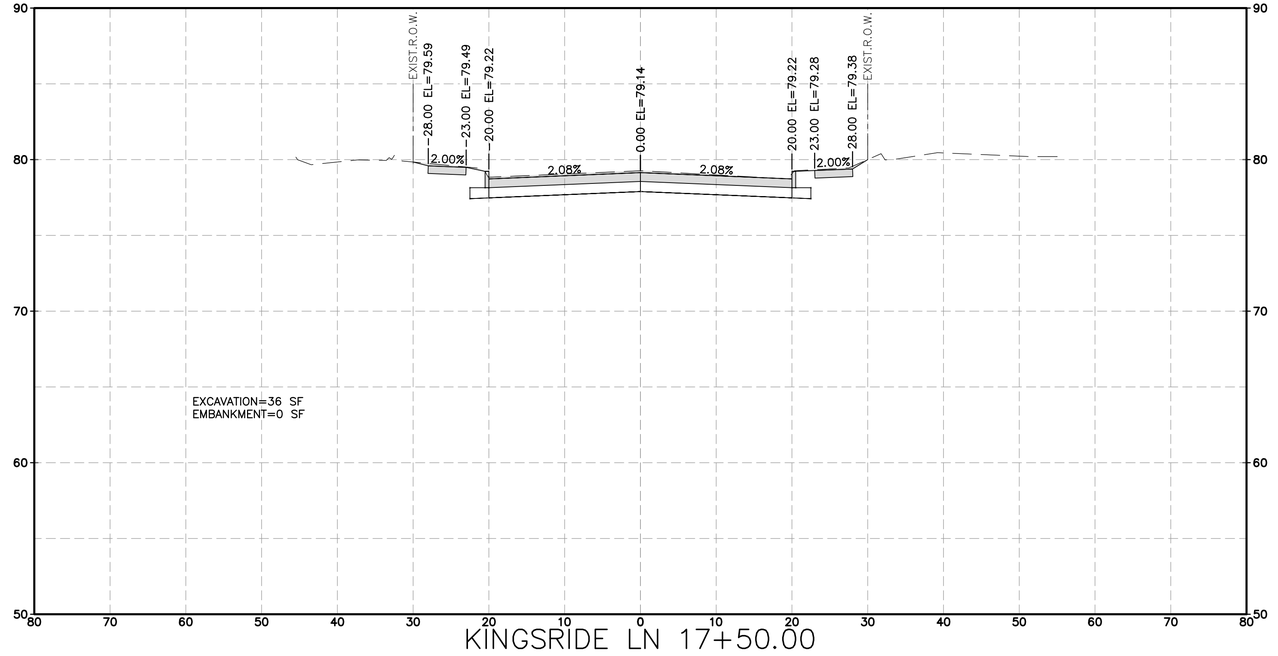
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

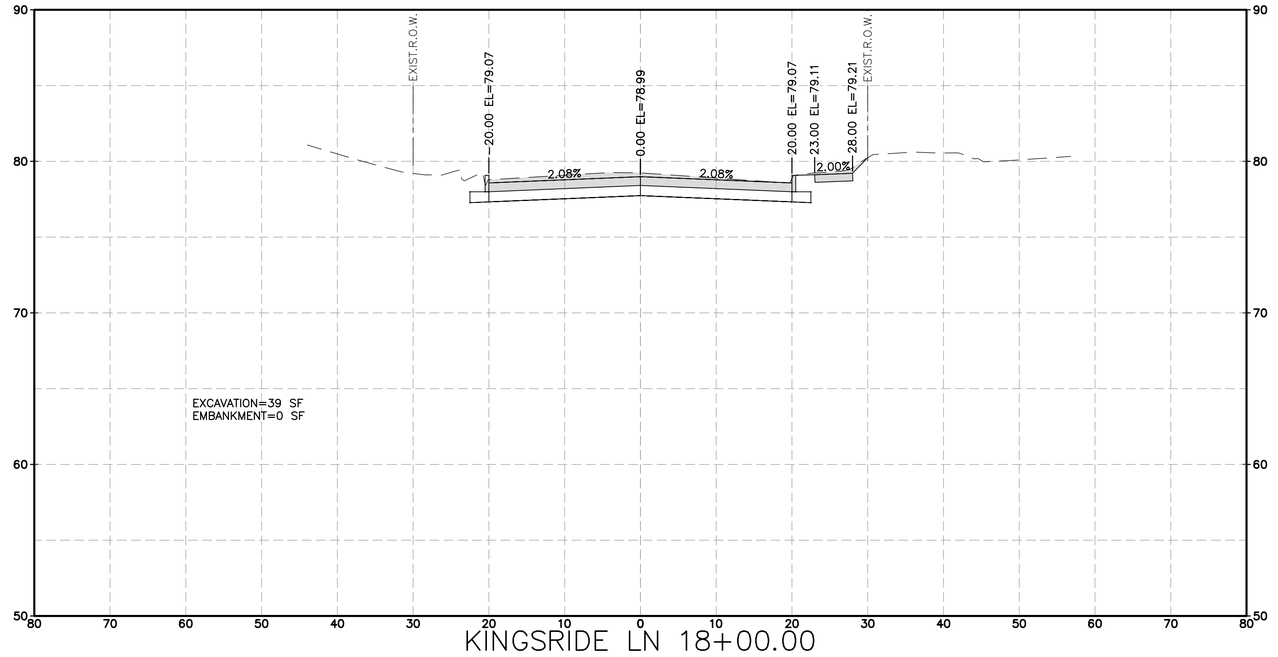
SHEET 17 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 315 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 17+50.00



KINGSRIDE LN 18+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:___DAVID G. GREANEY___
P.E. REGISTRATION NO. 125563
DATE:___2/19/2026___

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

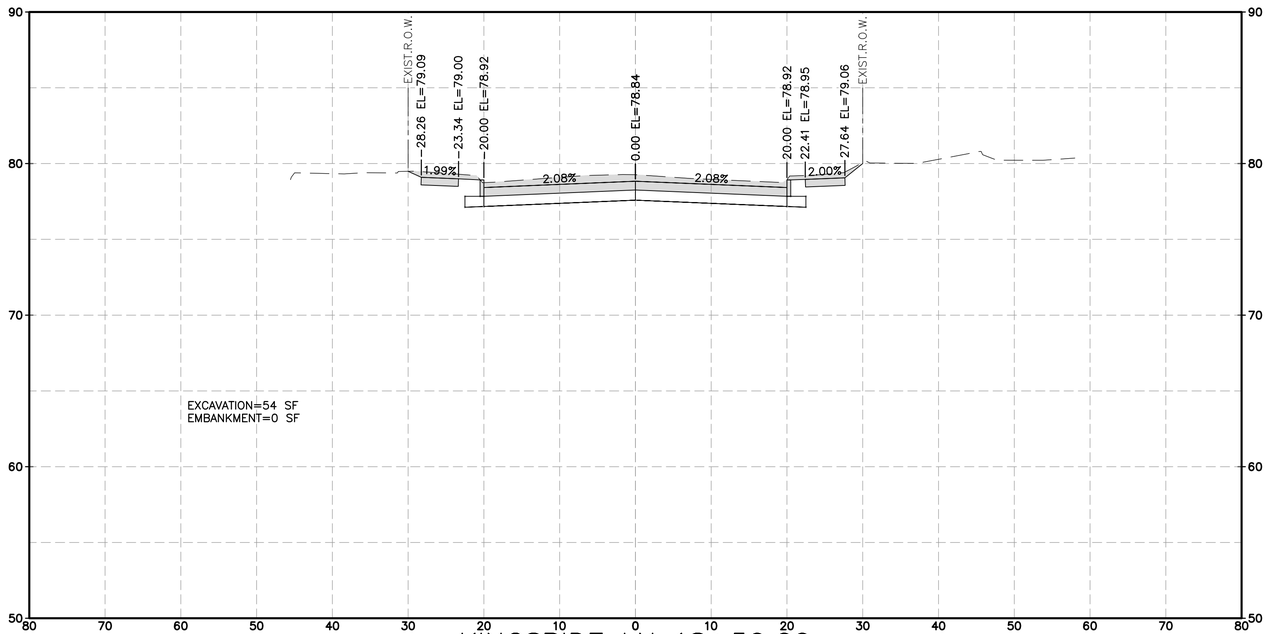
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

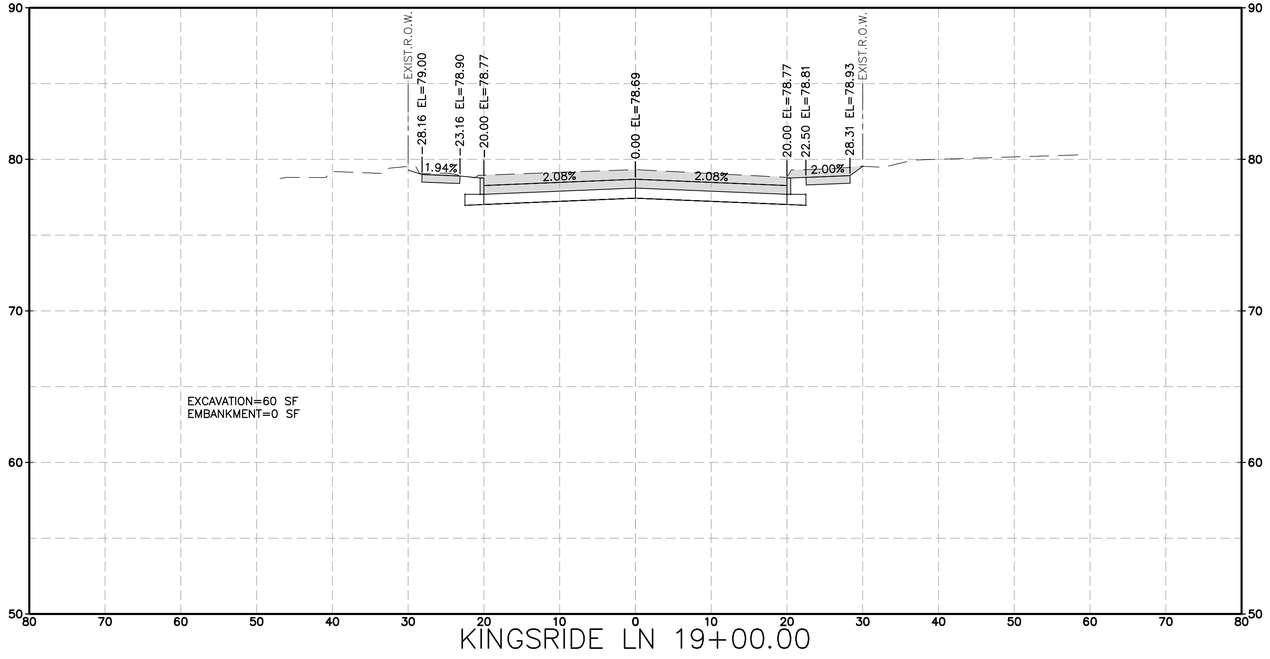
SHEET 18 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 316 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 18+50.00



KINGSRIDE LN 19+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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ISSUED FOR REVIEW
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

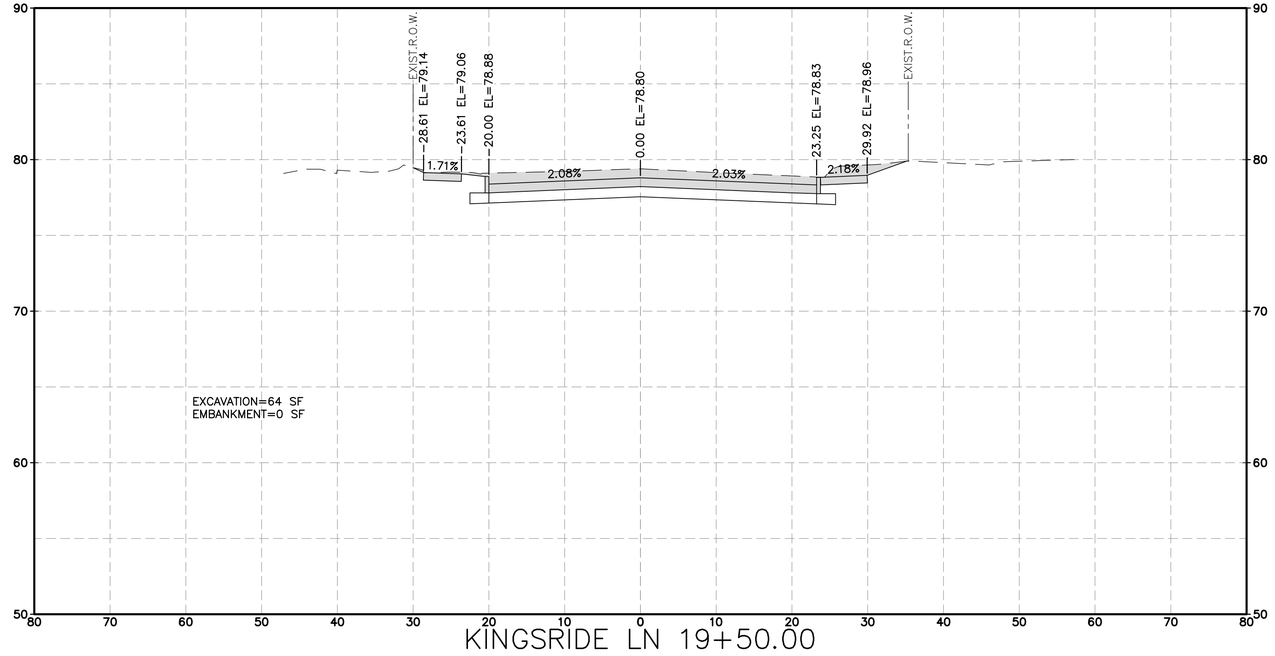
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

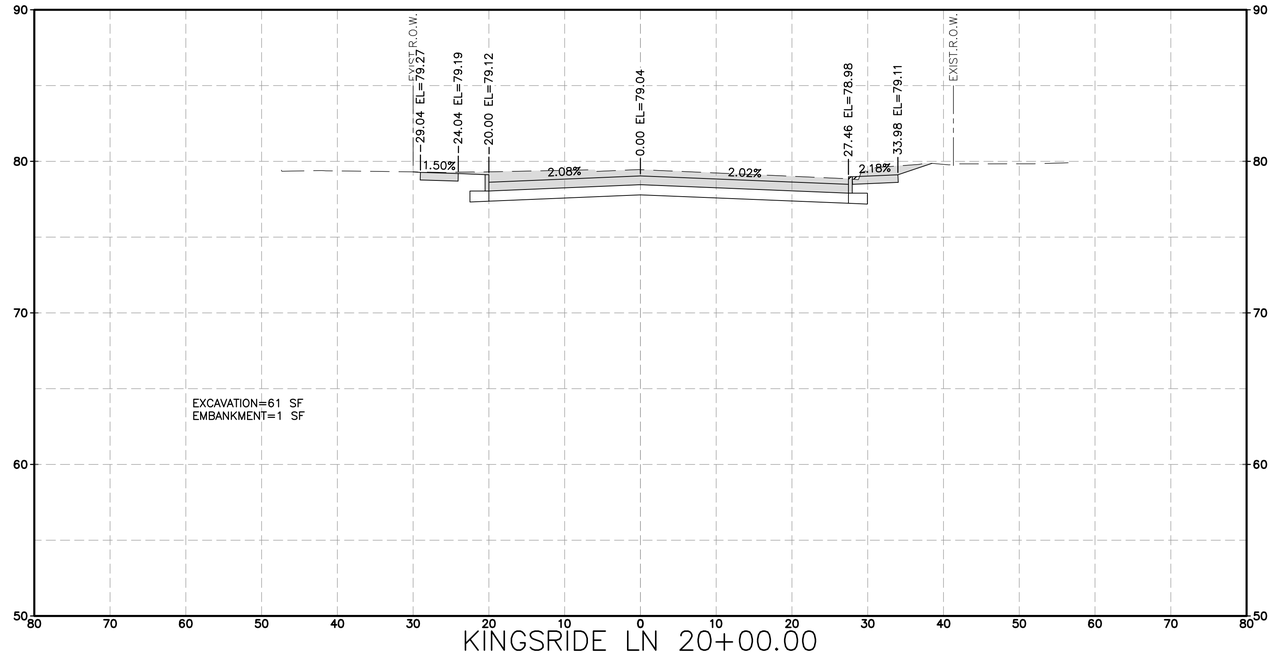
SHEET 19 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 317 OF 343

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 19+50.00



KINGSRIDE LN 20+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 20 OF 24

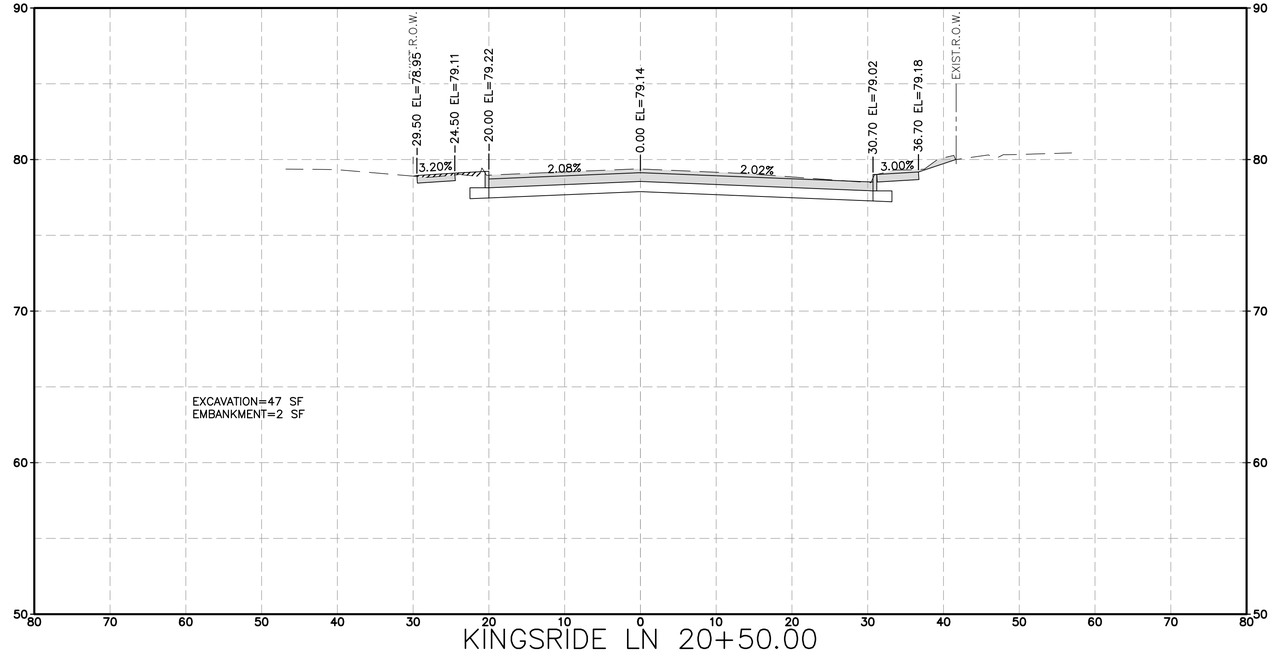
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

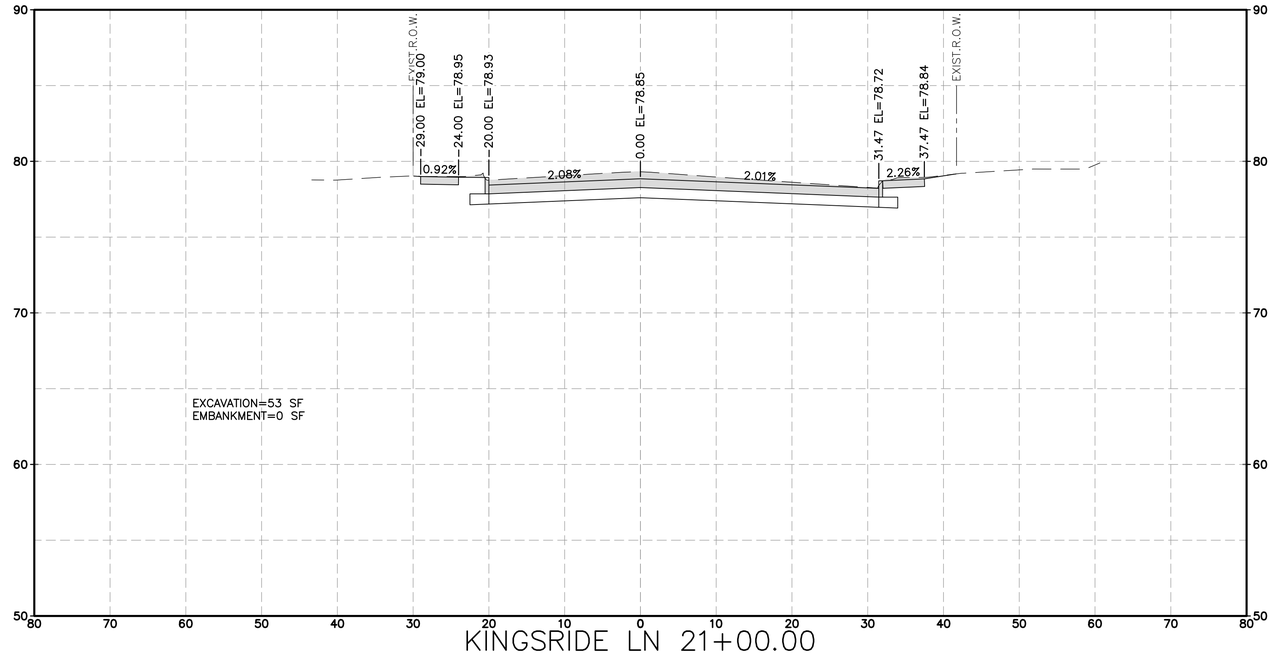
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 318 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 20+50.00



KINGSRIDE LN 21+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

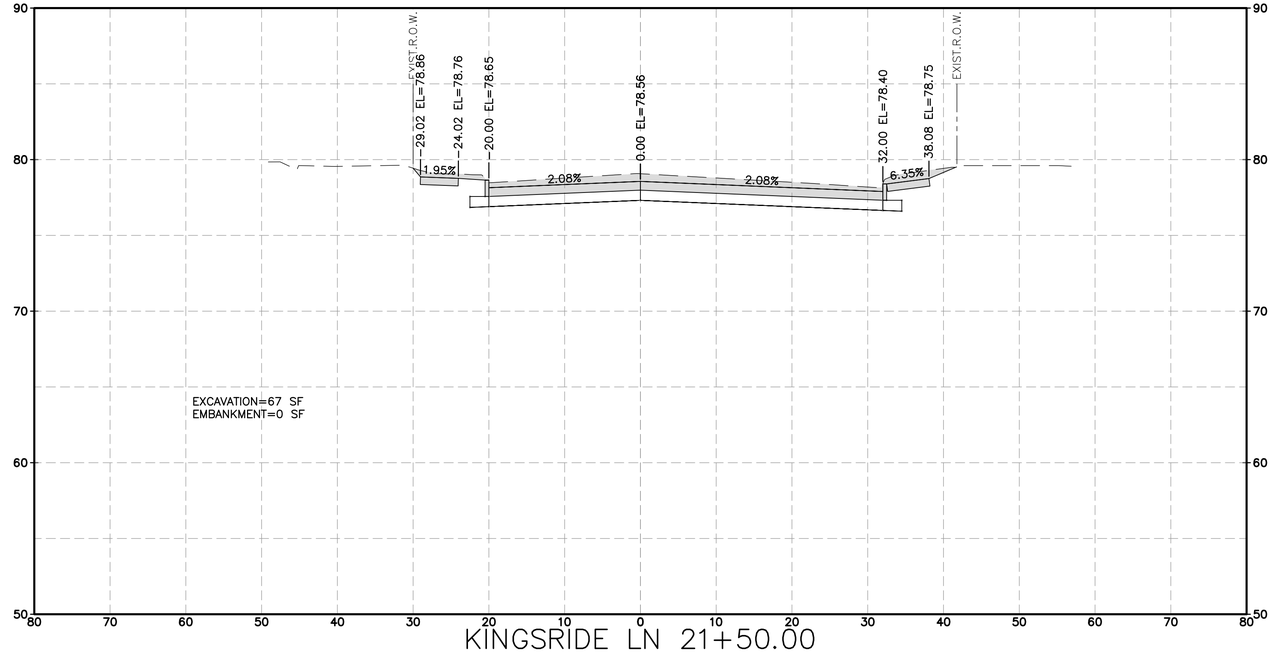
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

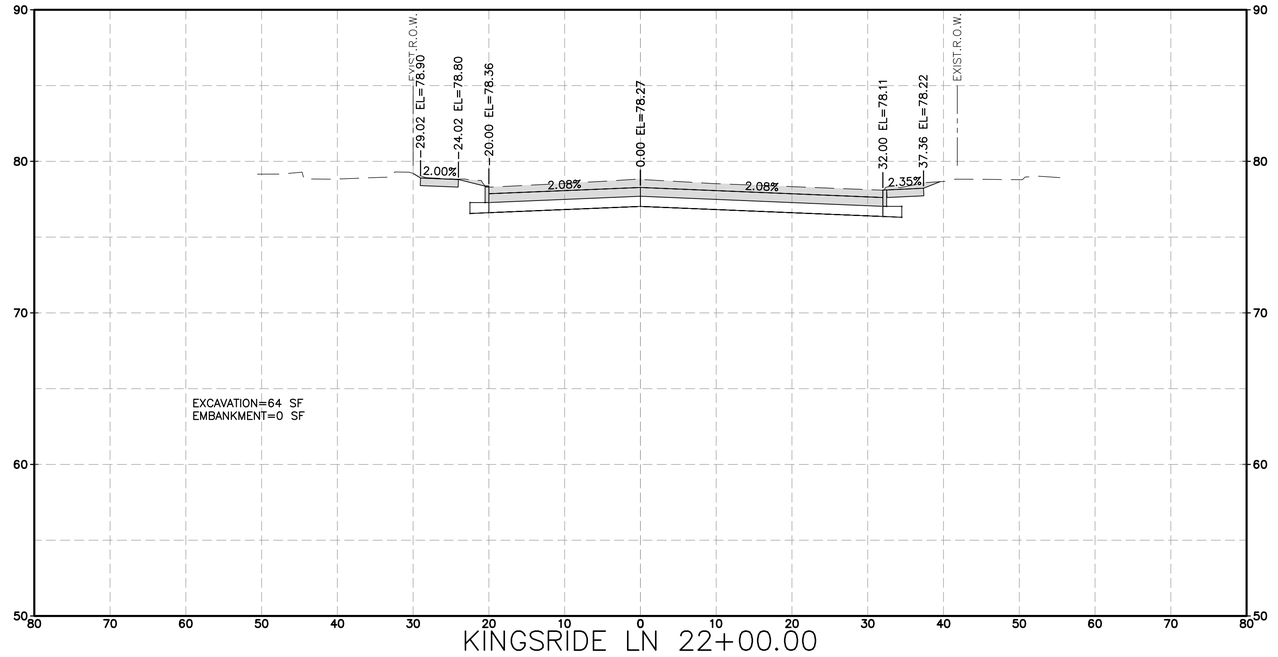
SHEET 21 OF 24

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 319 OF 343	

J:\2021\210601.01\cad\dwgs\d'xs_kingsride.dwg Plotted February 19, 2026 at 5:41 PM by McCourt, Jeff



KINGSRIDE LN 21+50.00



KINGSRIDE LN 22+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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SUITE 400
HOUSTON, TX 77079
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

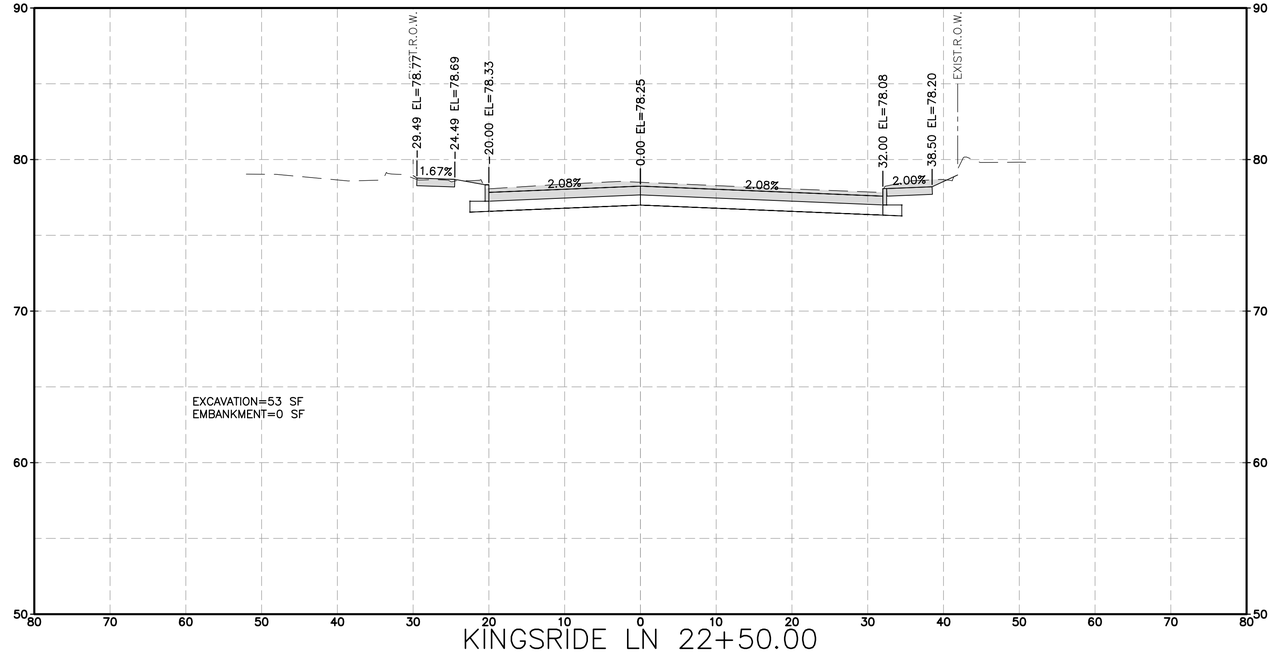
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

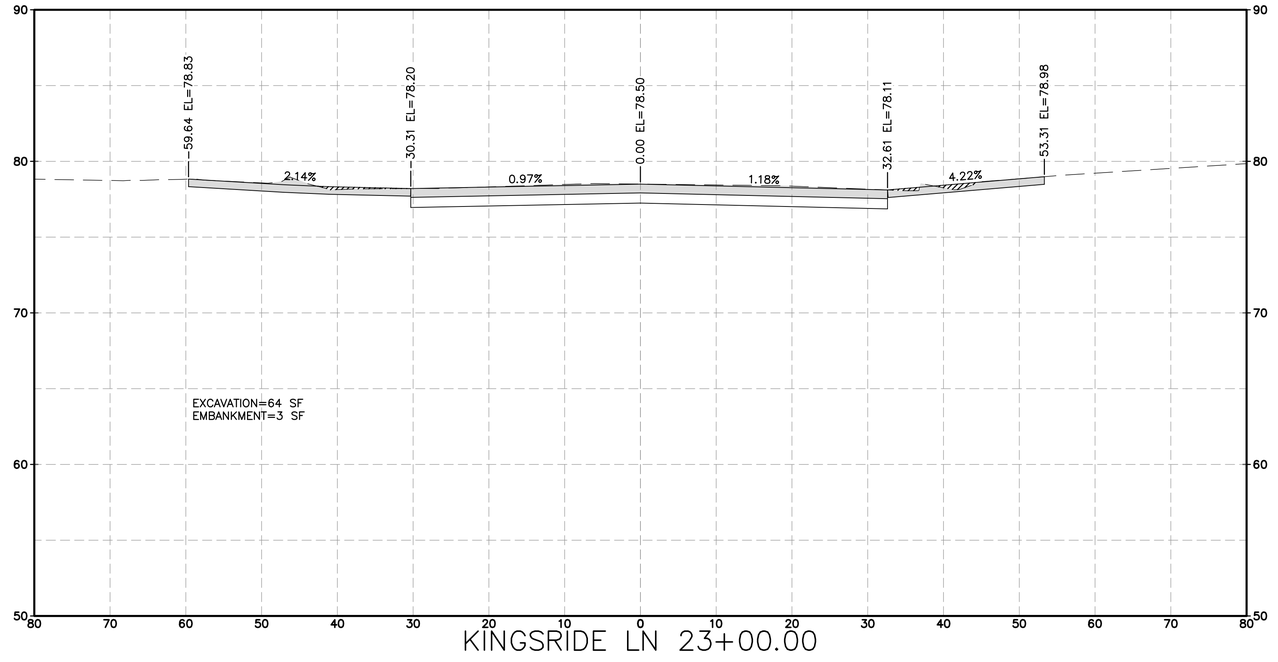
SHEET 22 OF 24

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 320 OF 343	

J:\2021\210601.01\cad\dwgs\d'xs_kingsride.dwg Plotted February 19, 2026 at 5:42 PM by McCourt, Jeff



KINGSRIDE LN 22+50.00



KINGSRIDE LN 23+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

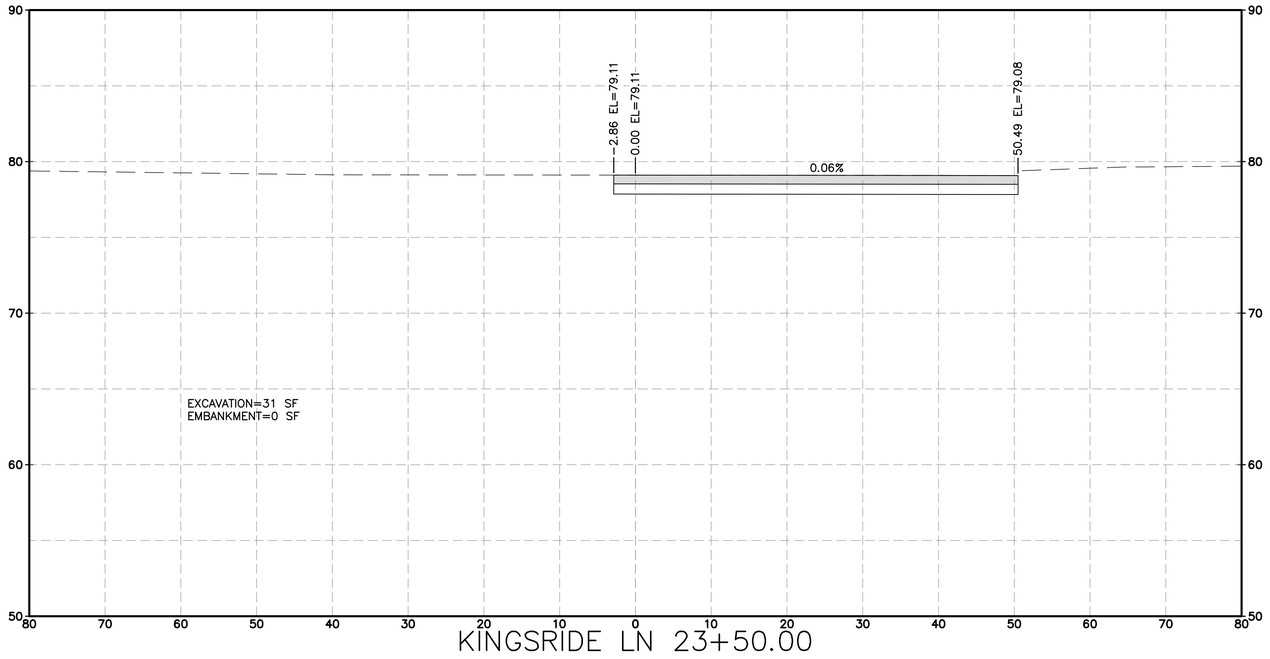
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 23 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 321 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted February 19, 2026 at 5:42 PM by McCourt, Jeff



KINGSRIDE LN 23+50.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

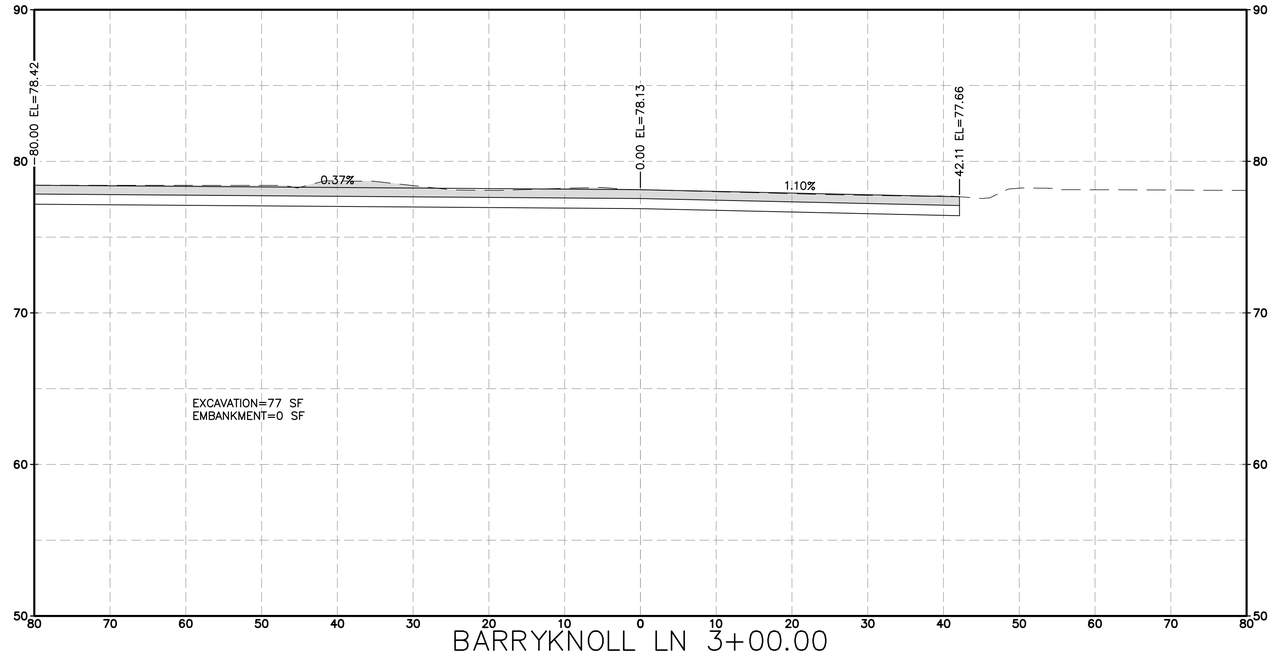
SHEET 24 OF 24

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 322 OF 343

J:\2021\210601.01\cad\dwgs\dtxs_kingsride.dwg Plotted February 19, 2026 at 5:42 PM by McCourt, Jeff

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF



BARRYKNOLL LN 3+00.00

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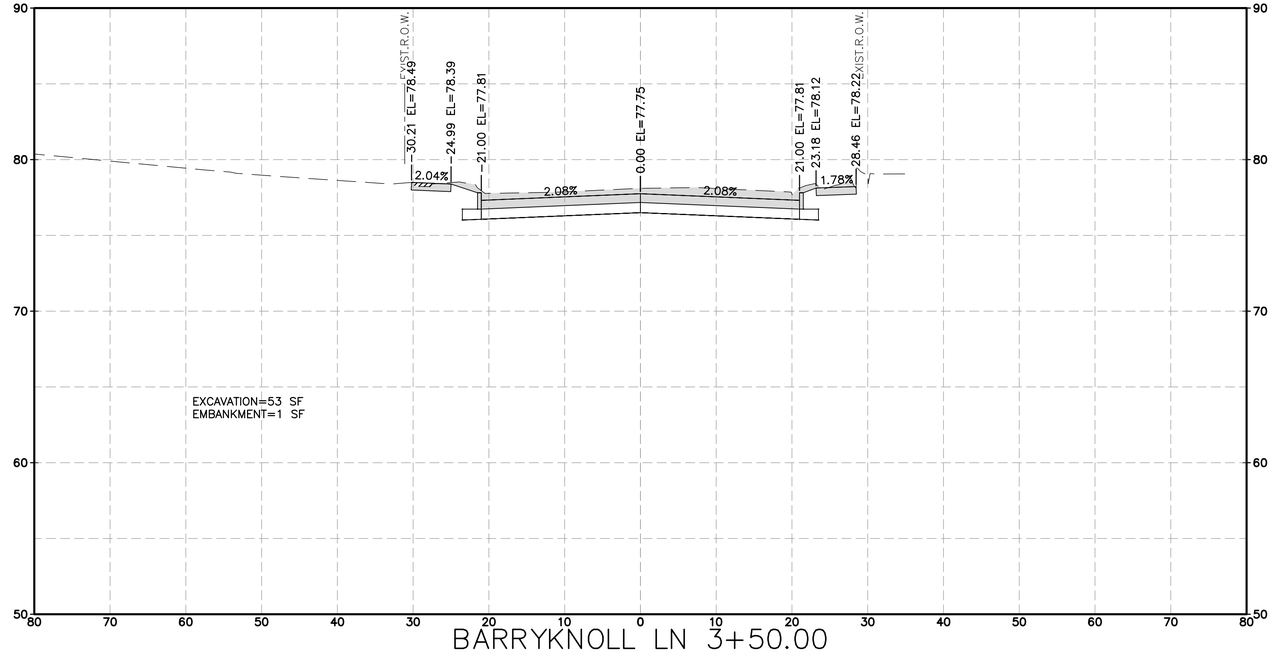
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

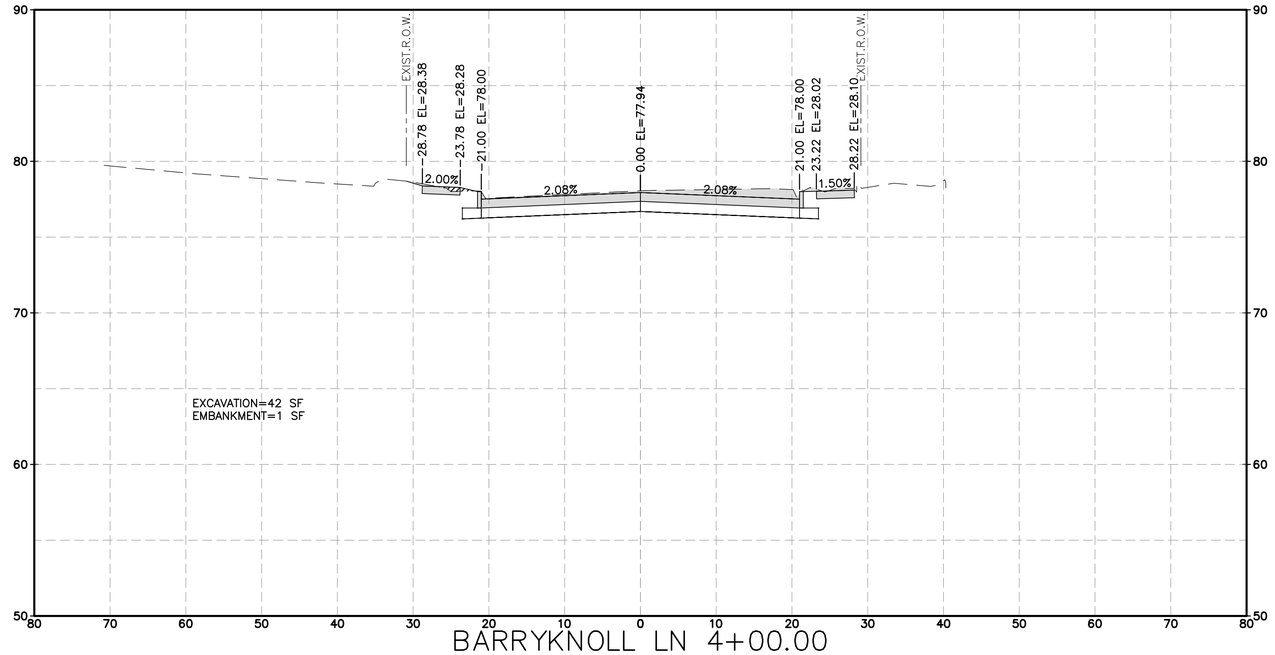
SHEET 1 OF 15

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 323 OF 343	

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:42 PM by McCourt, Jeff



BARRYKNOLL LN 3+50.00



BARRYKNOLL LN 4+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 2 OF 15

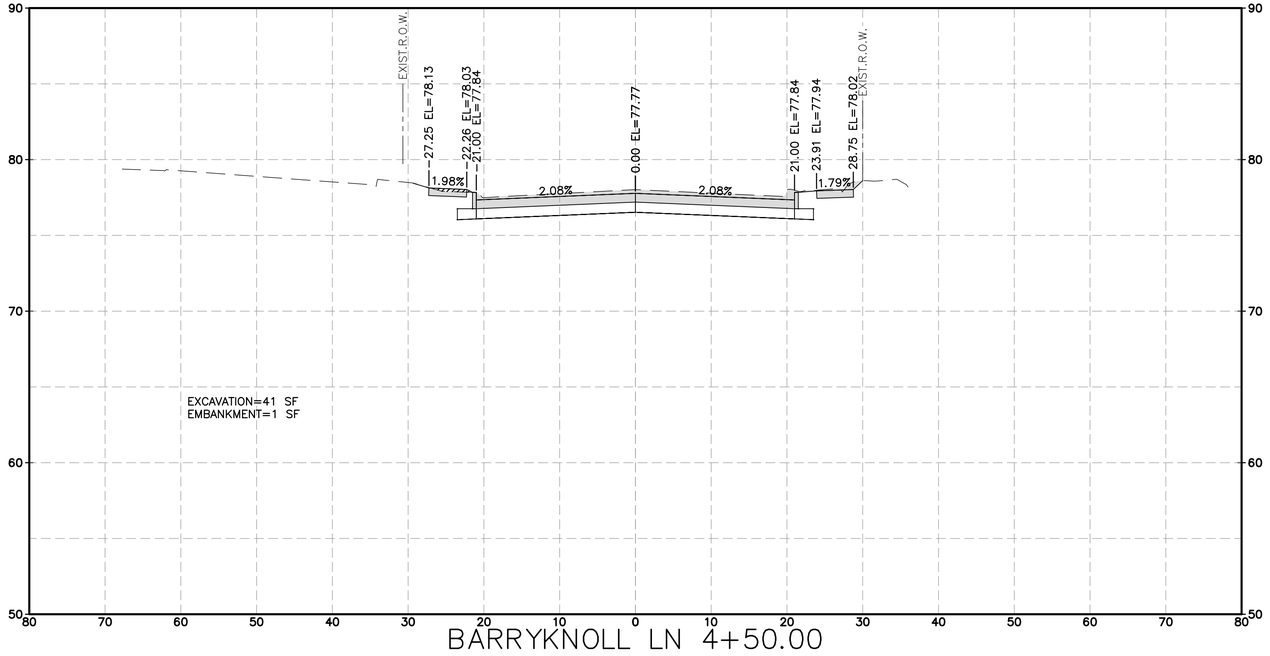
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

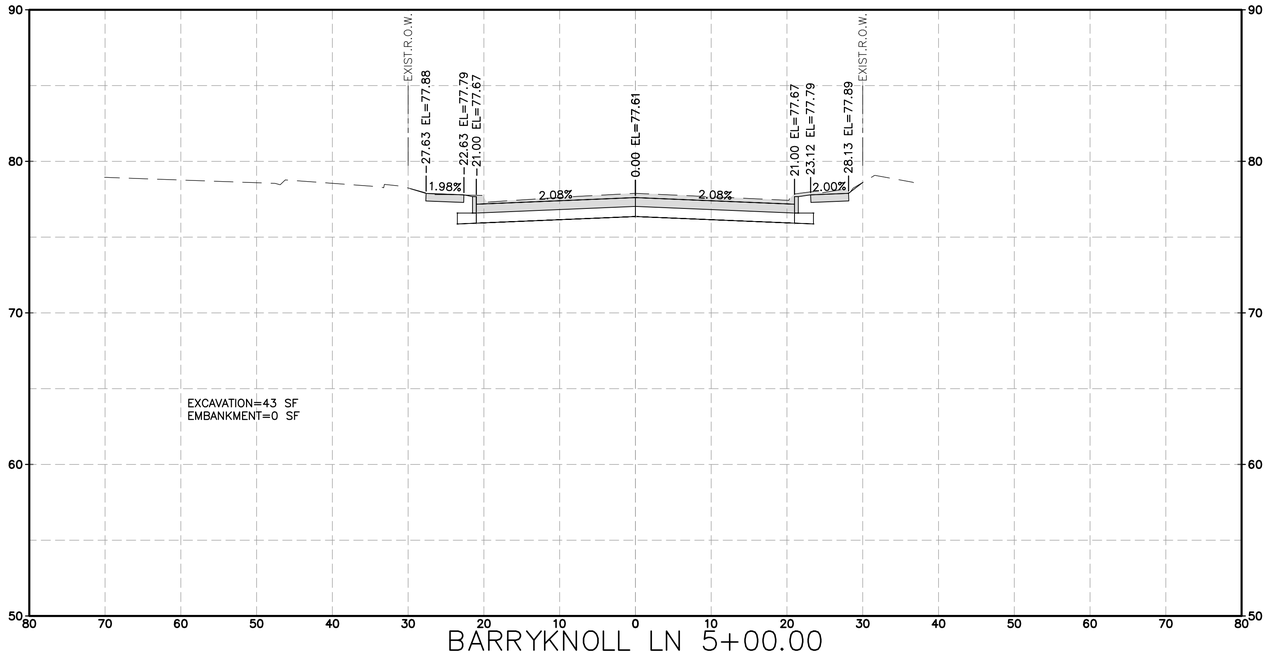
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 324 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:42 PM by McCourt, Jeff



BARRYKNOLL LN 4+50.00



BARRYKNOLL LN 5+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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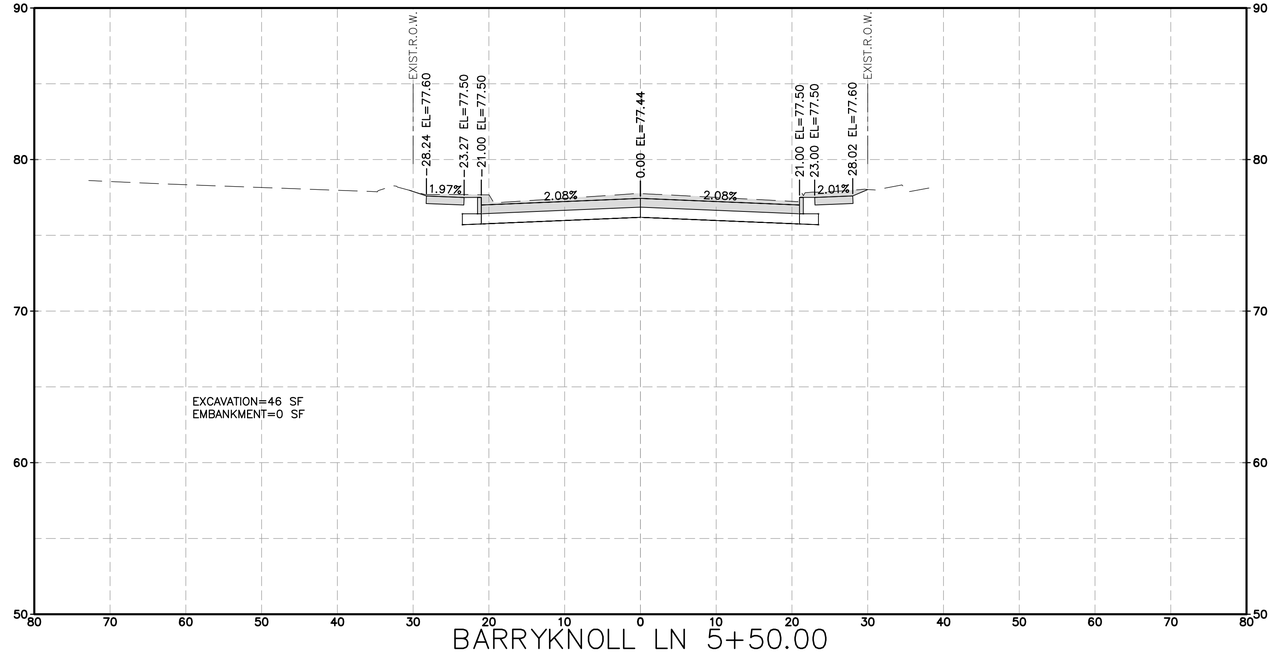
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

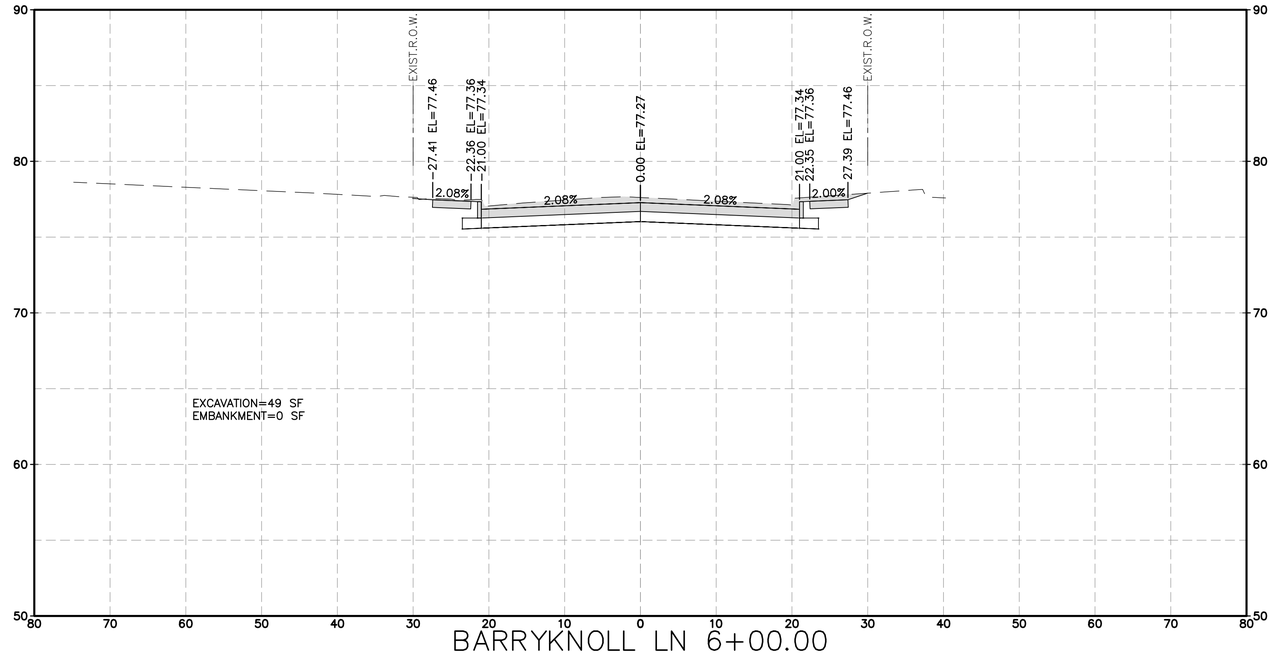
SHEET 3 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 325 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 5+50.00



BARRYKNOLL LN 6+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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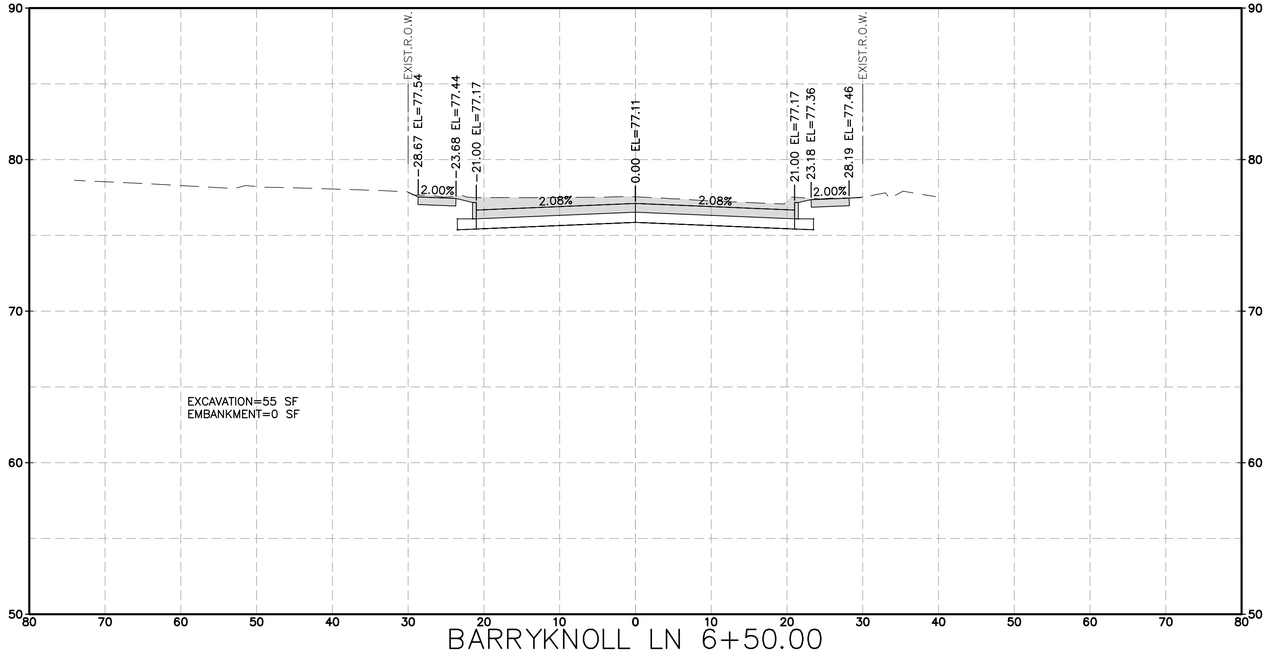
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

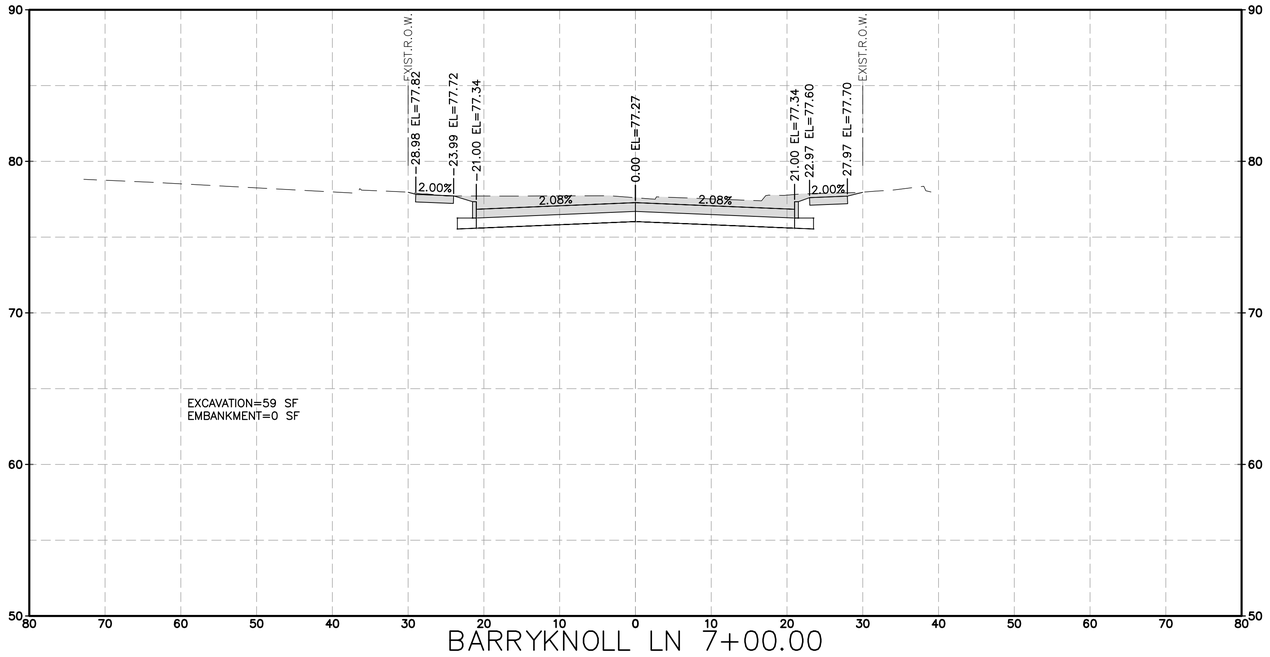
SHEET 4 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 326 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 6+50.00



BARRYKNOLL LN 7+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 5 OF 15

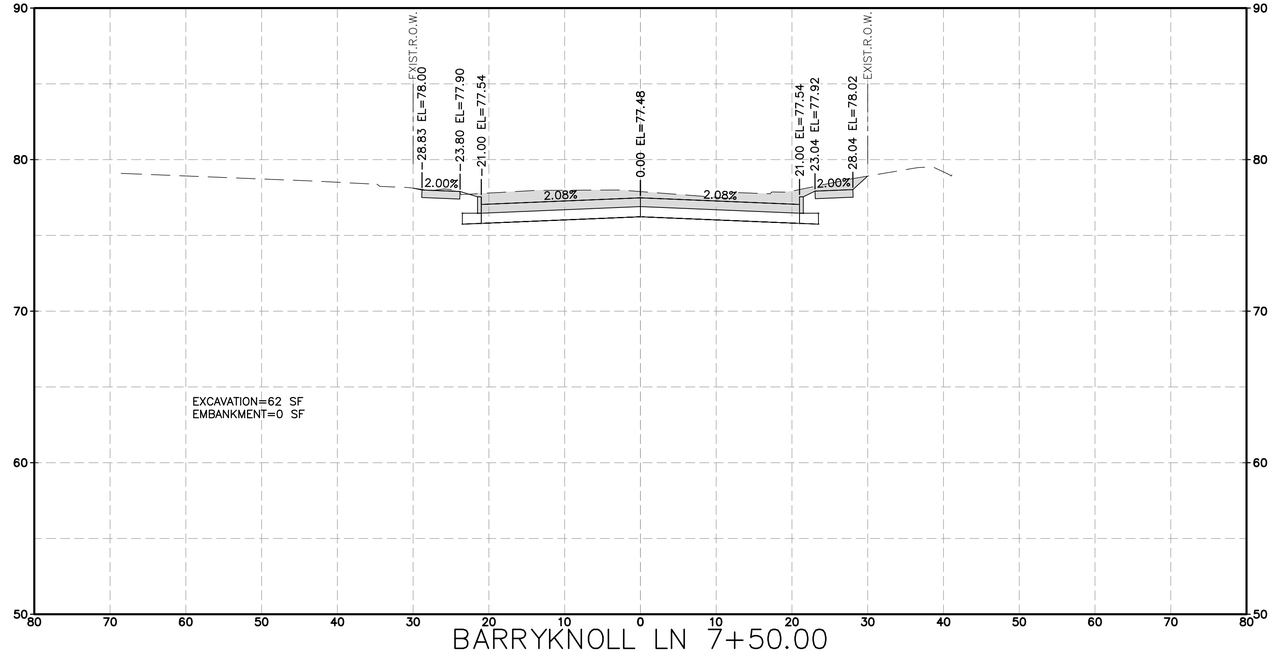
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

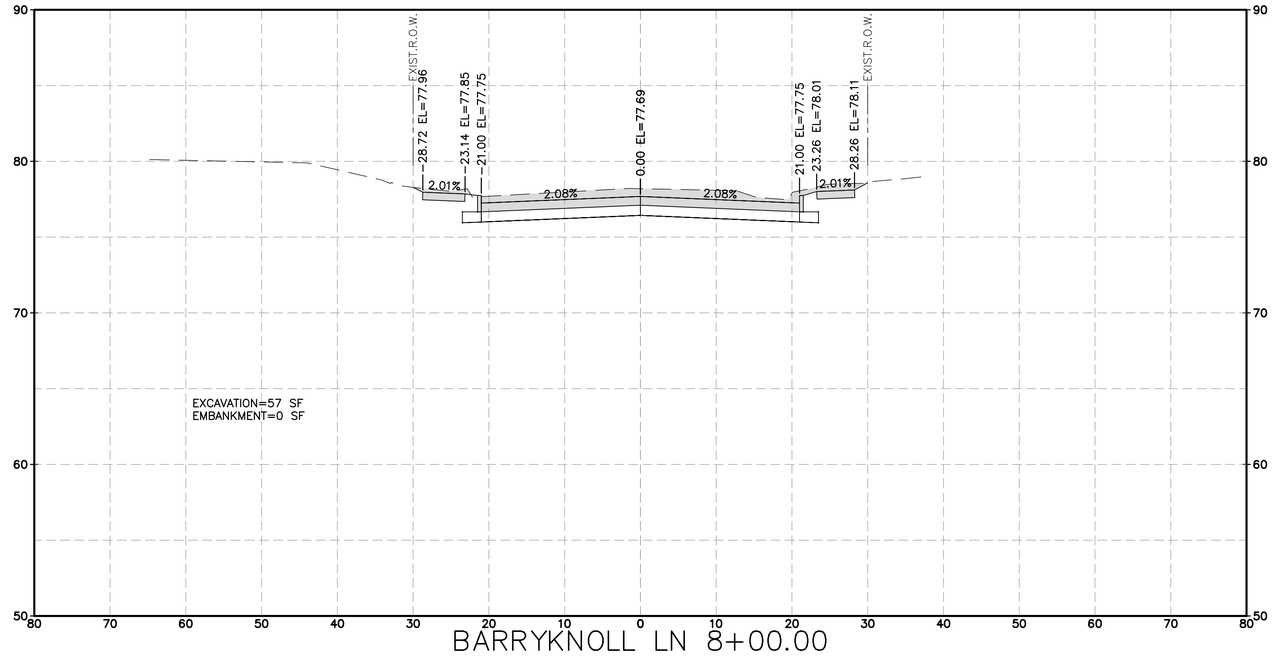
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 327 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 7+50.00



BARRYKNOLL LN 8+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

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HOUSTON, TX 77079
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P.E. REGISTRATION NO. 125563
DATE:_____2/19/2026_____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

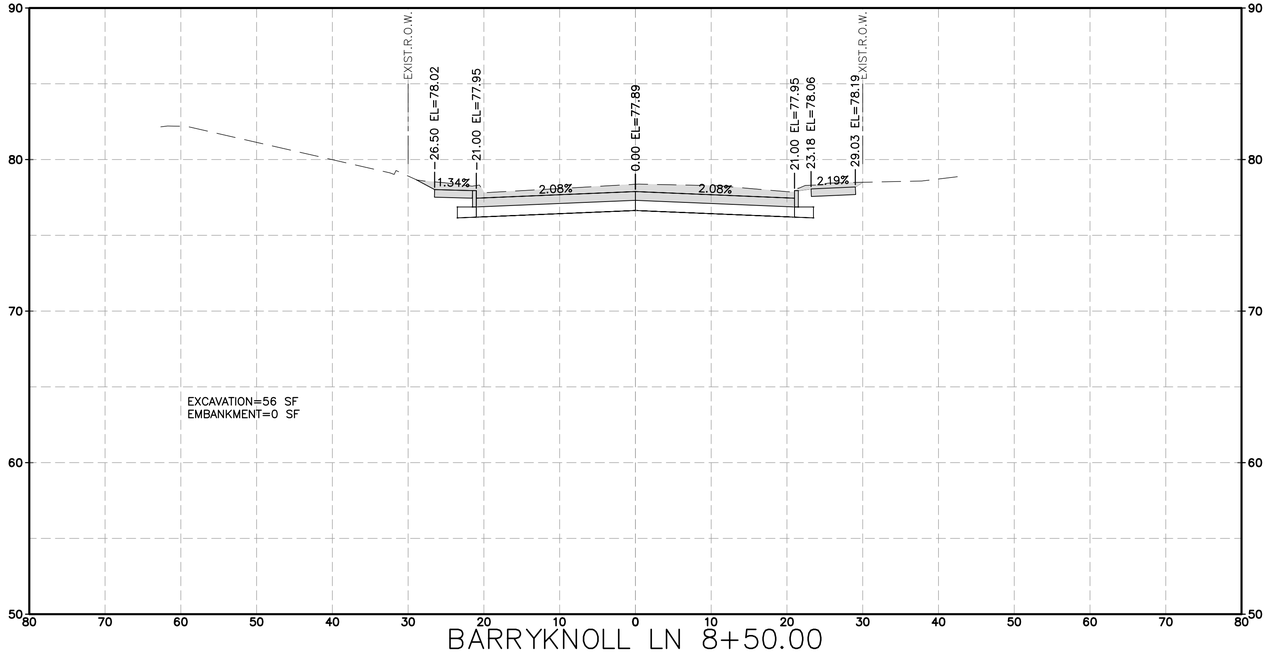
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

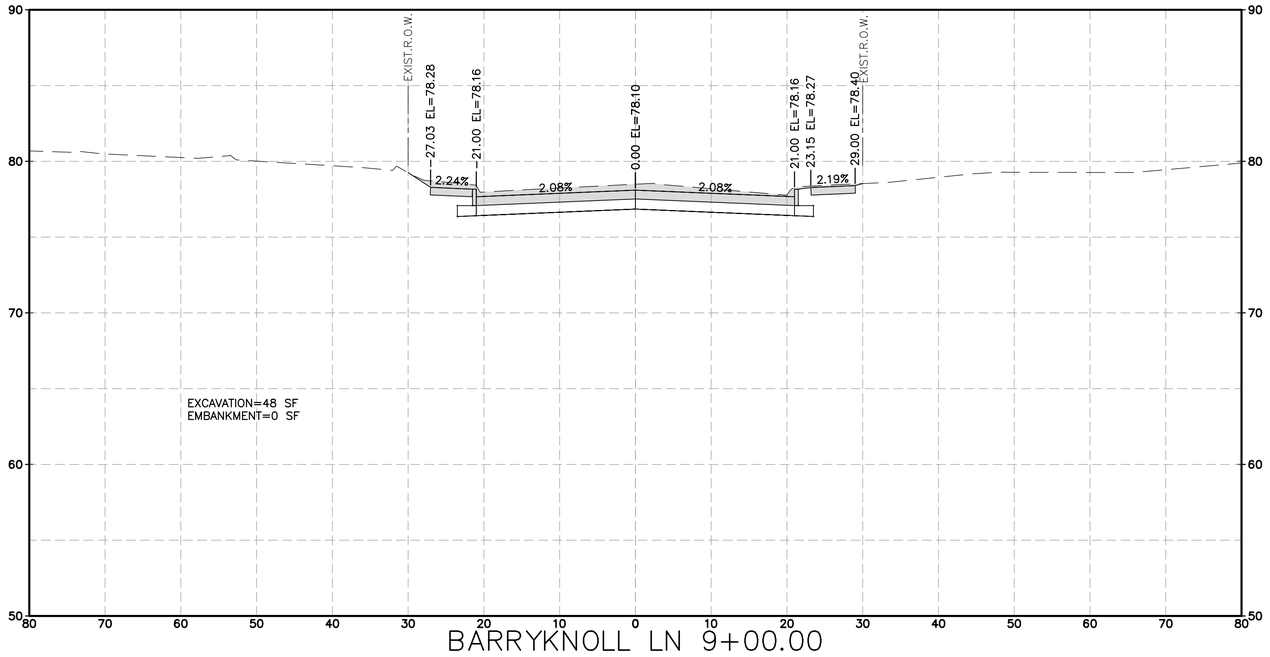
SHEET 6 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 328 OF 343

J:\2021\210601.01\cad\dwgs\d'xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 8+50.00



BARRYKNOLL LN 9+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 7 OF 15

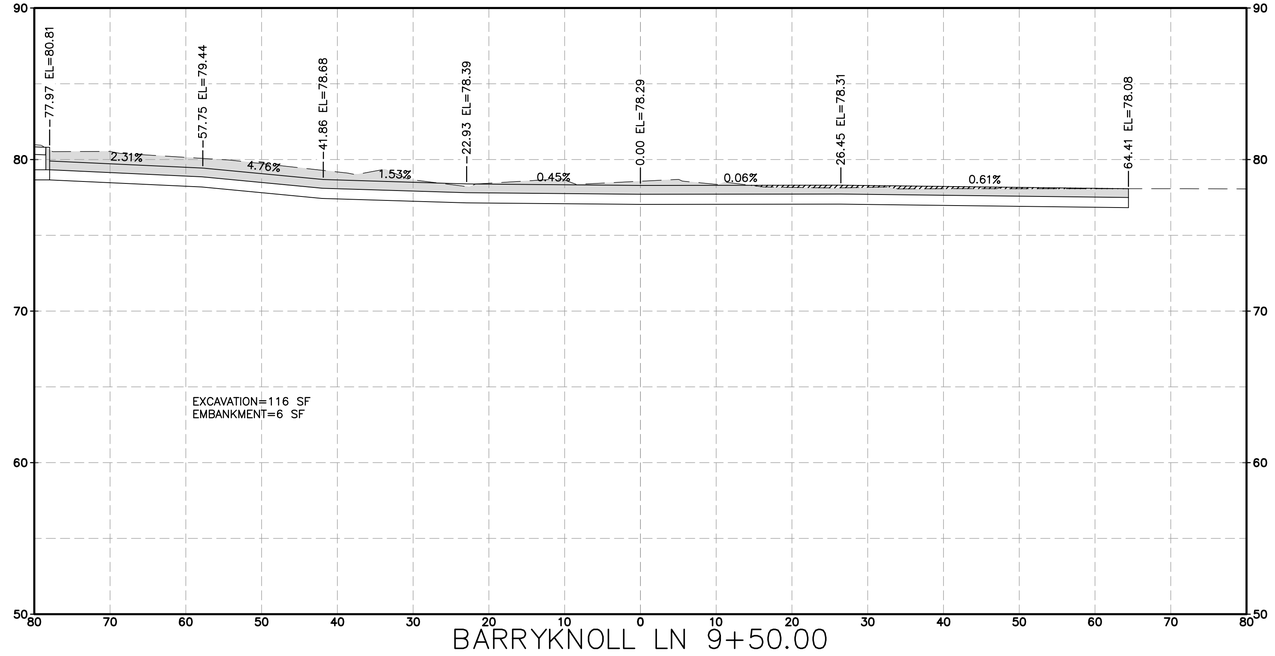
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

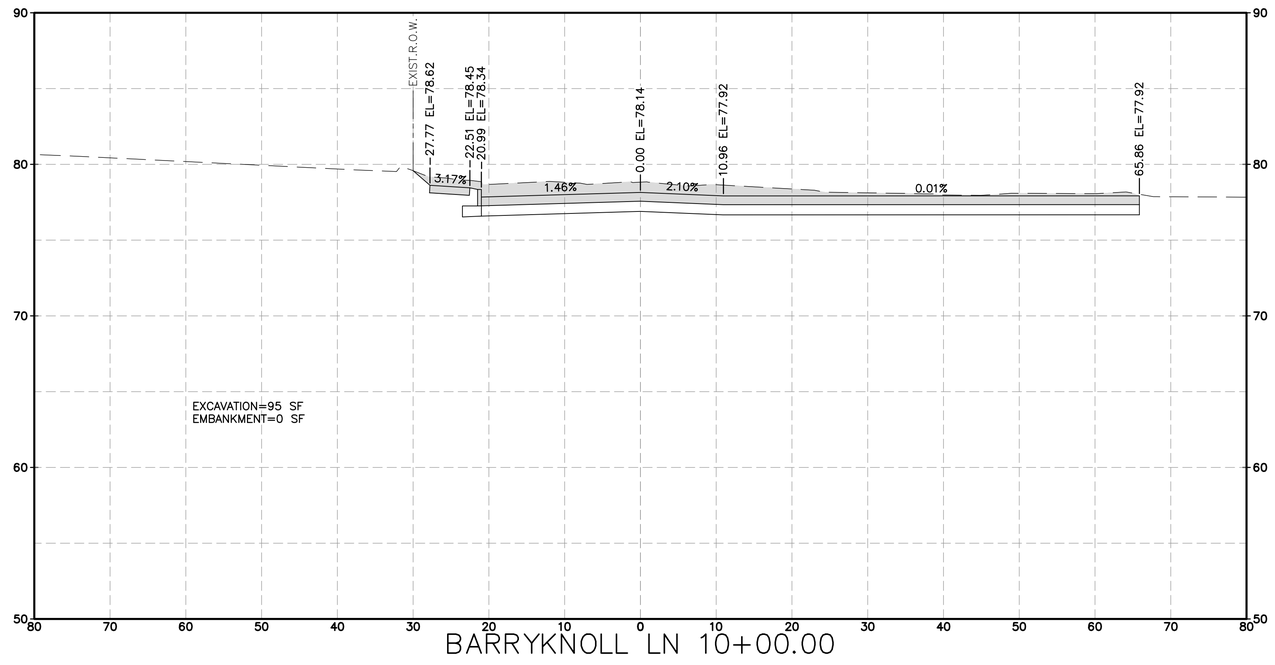
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 329 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 9+50.00



BARRYKNOLL LN 10+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 8 OF 15

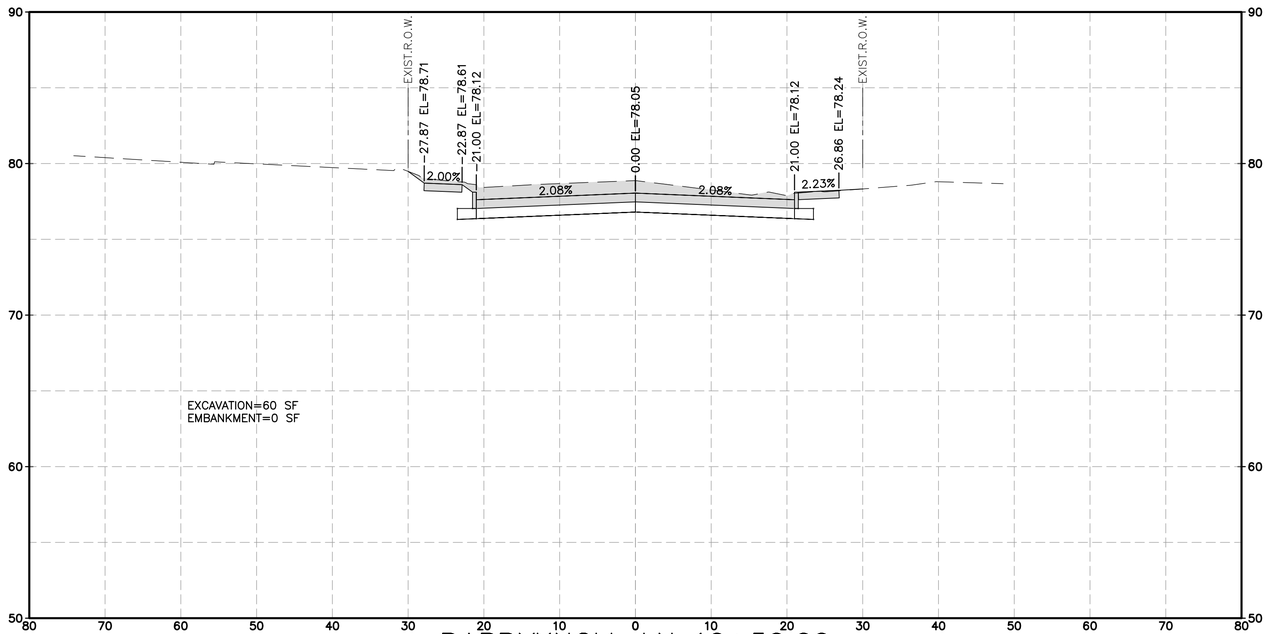
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

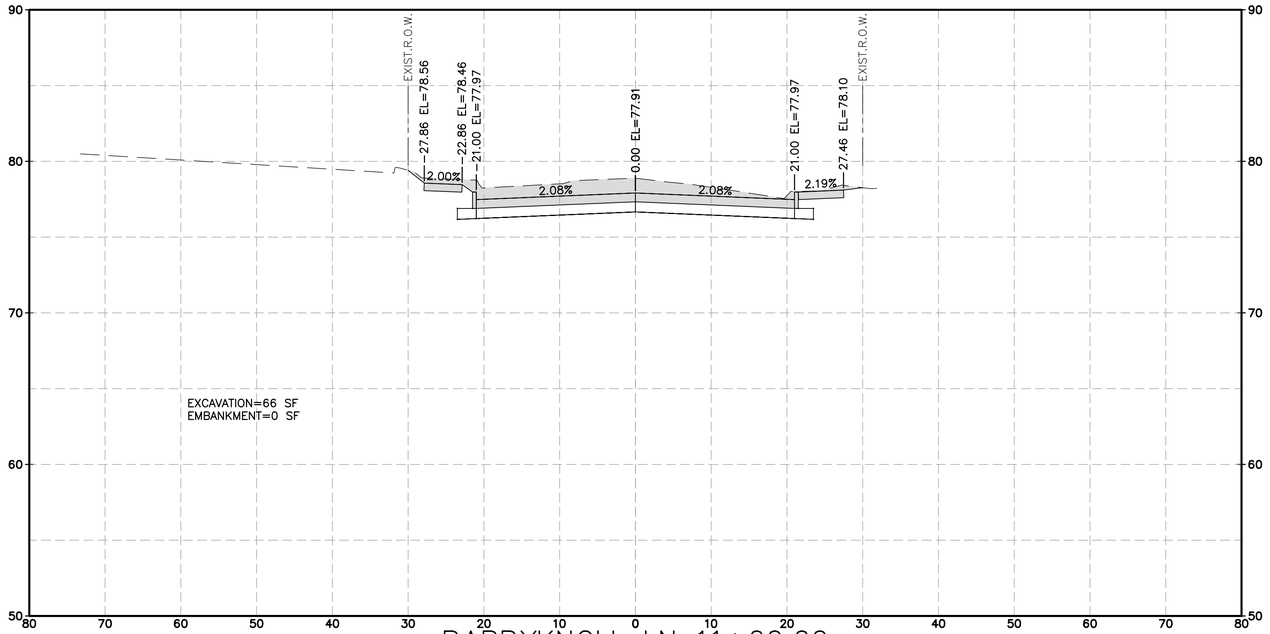
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 330 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:43 PM by McCourt, Jeff



BARRYKNOLL LN 10+50.00



BARRYKNOLL LN 11+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

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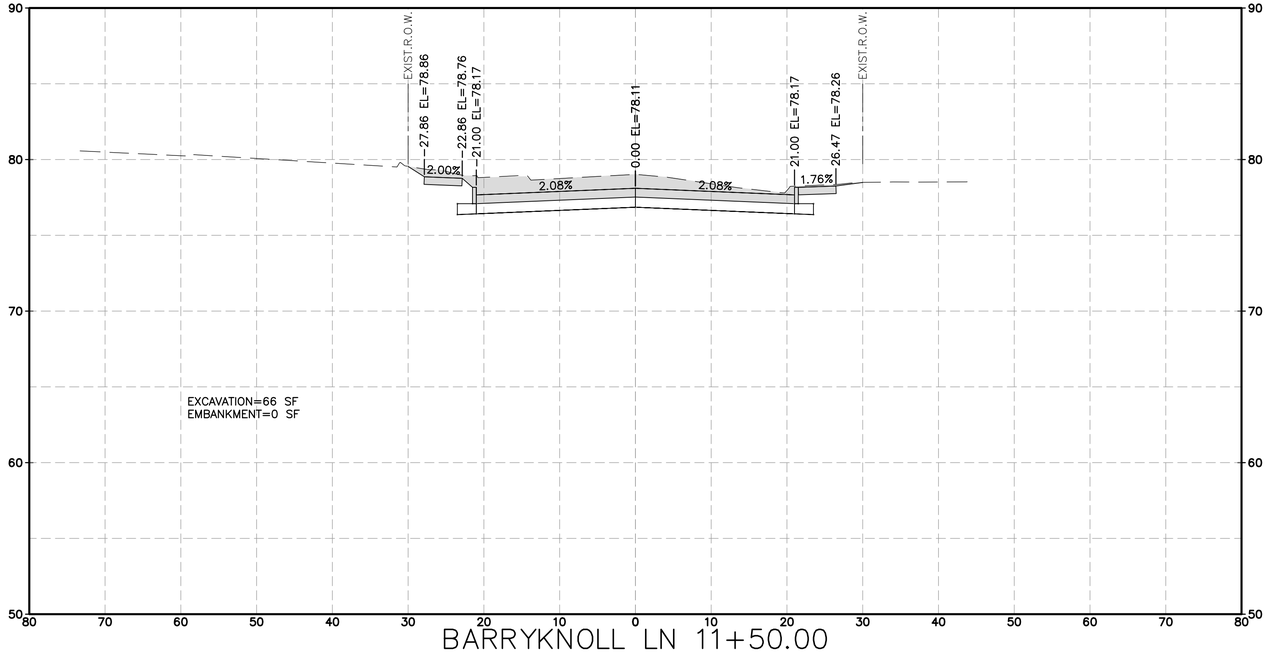
BARRYKNOLL LANE

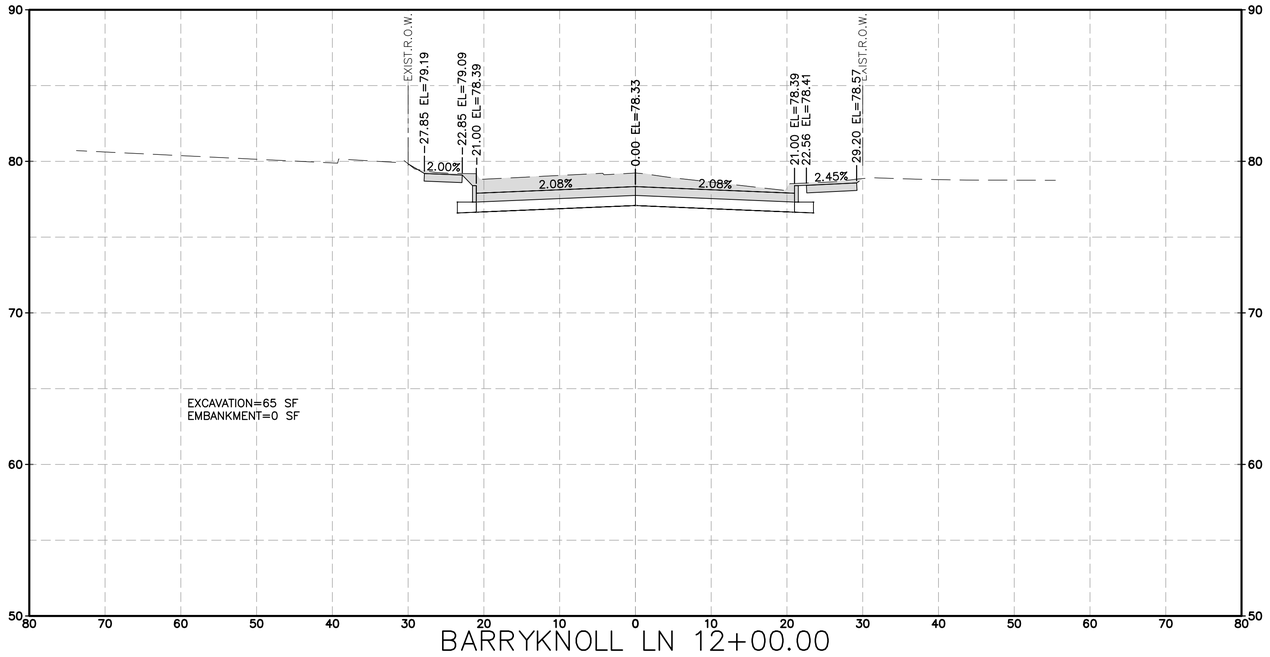
SHEET 9 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 331 OF 343

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:44 PM by McCourt, Jeff



BARRYKNOLL LN 11+50.00



BARRYKNOLL LN 12+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

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BARRYKNOLL LANE

SHEET 10 OF 15

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H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 332 OF 343

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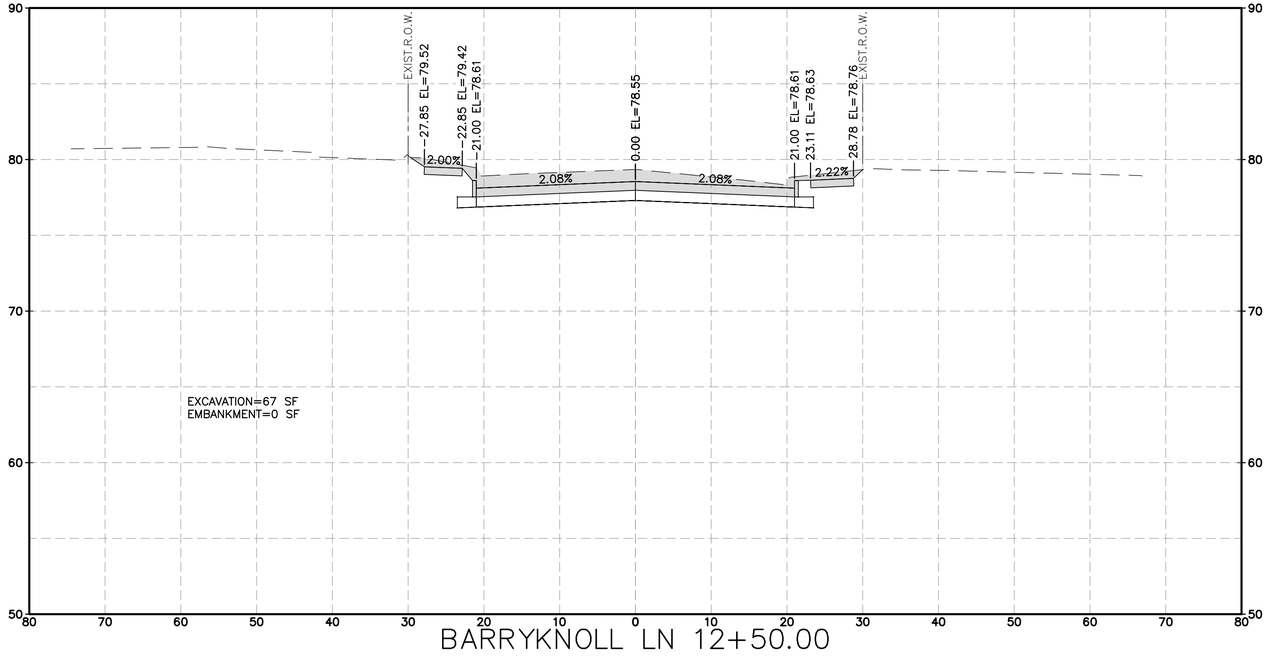
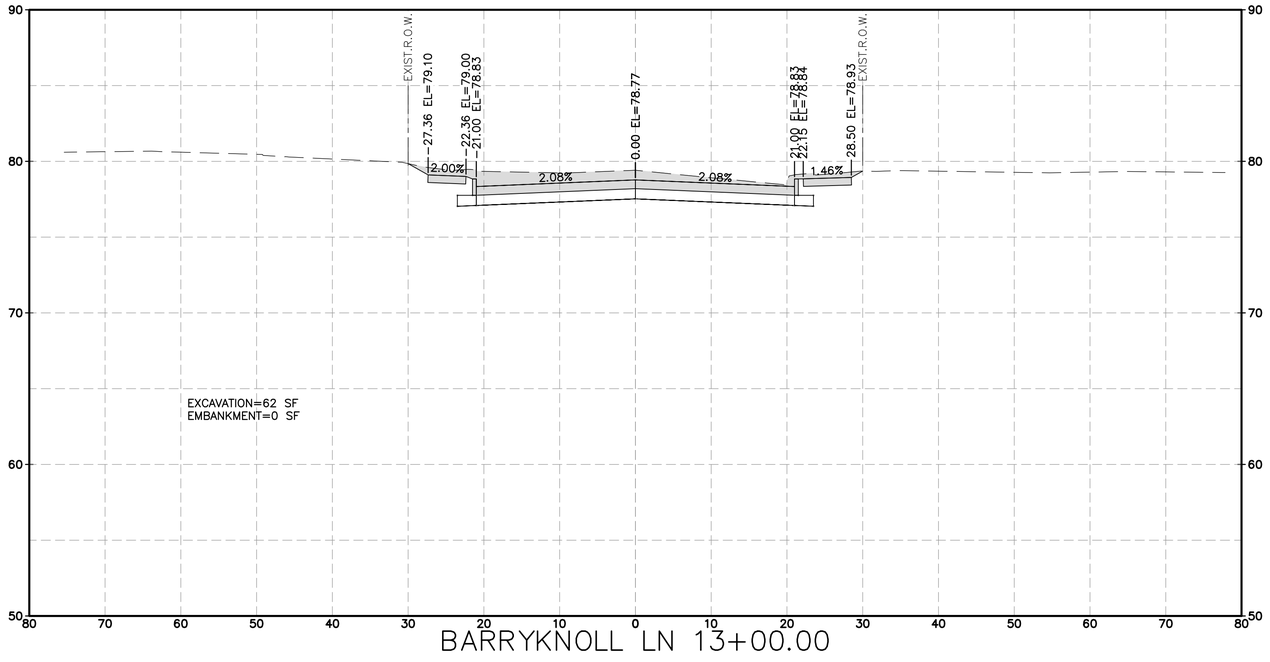


BARRYKNOLL LN 12+50.00



BARRYKNOLL LN 13+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

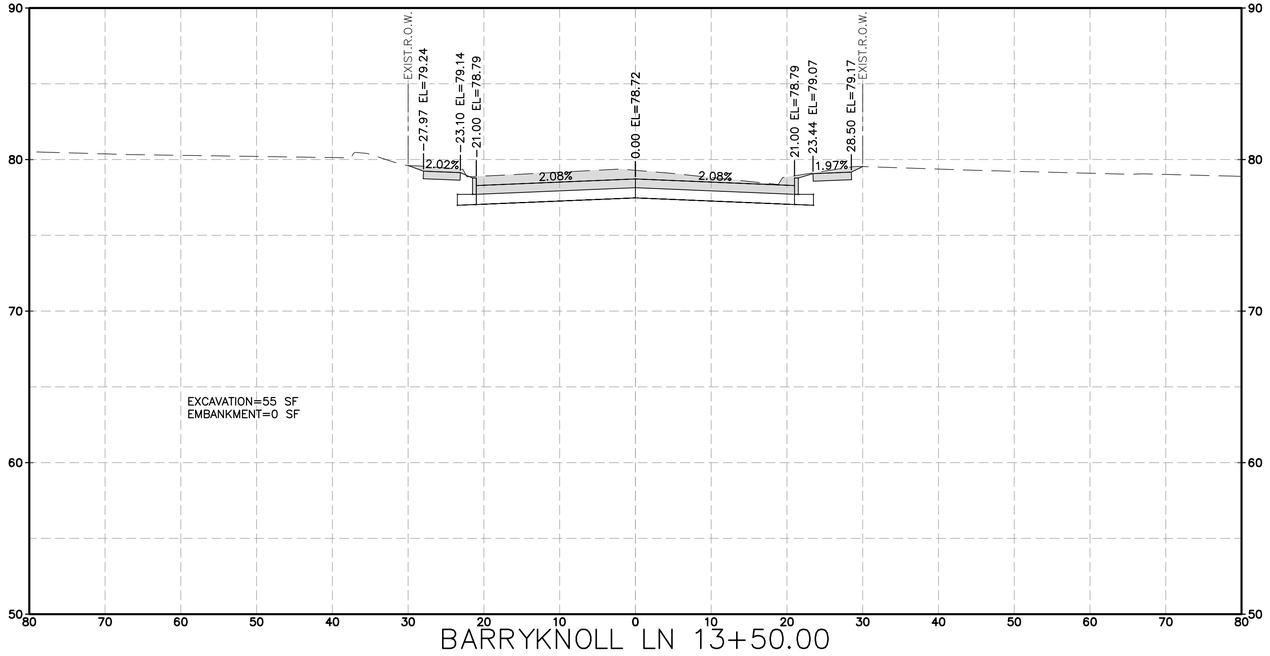
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

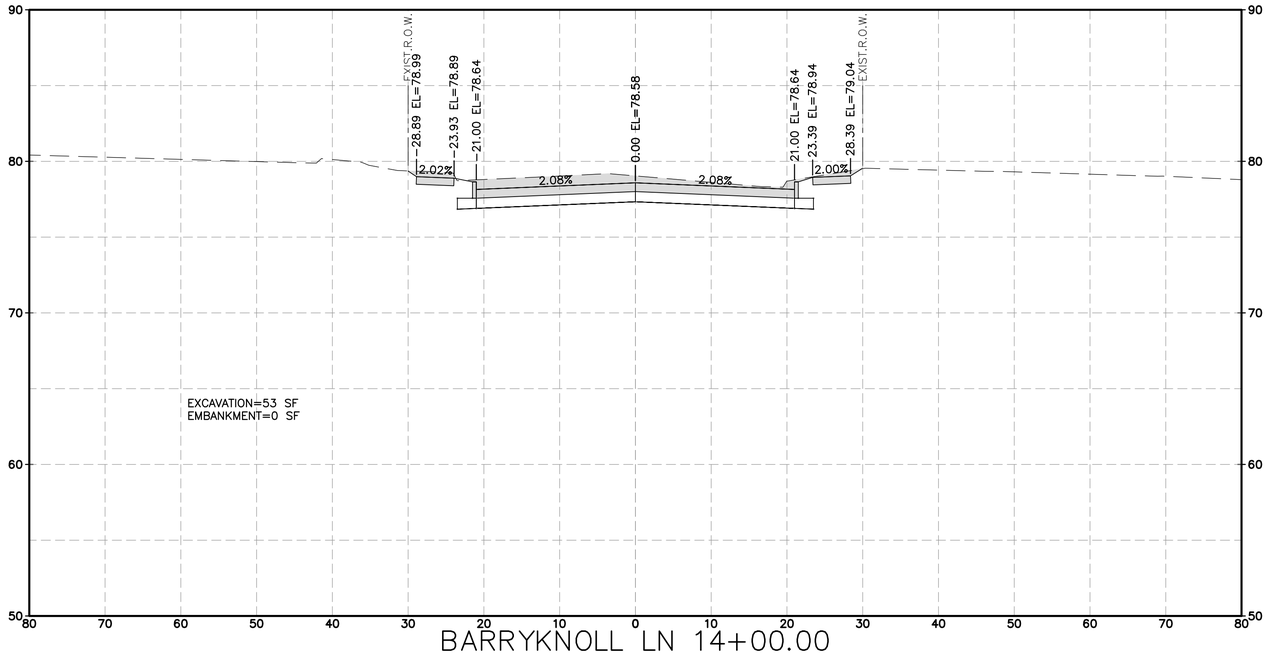
SHEET 11 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 333 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:44 PM by McCourt, Jeff



BARRYKNOLL LN 13+50.00



BARRYKNOLL LN 14+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

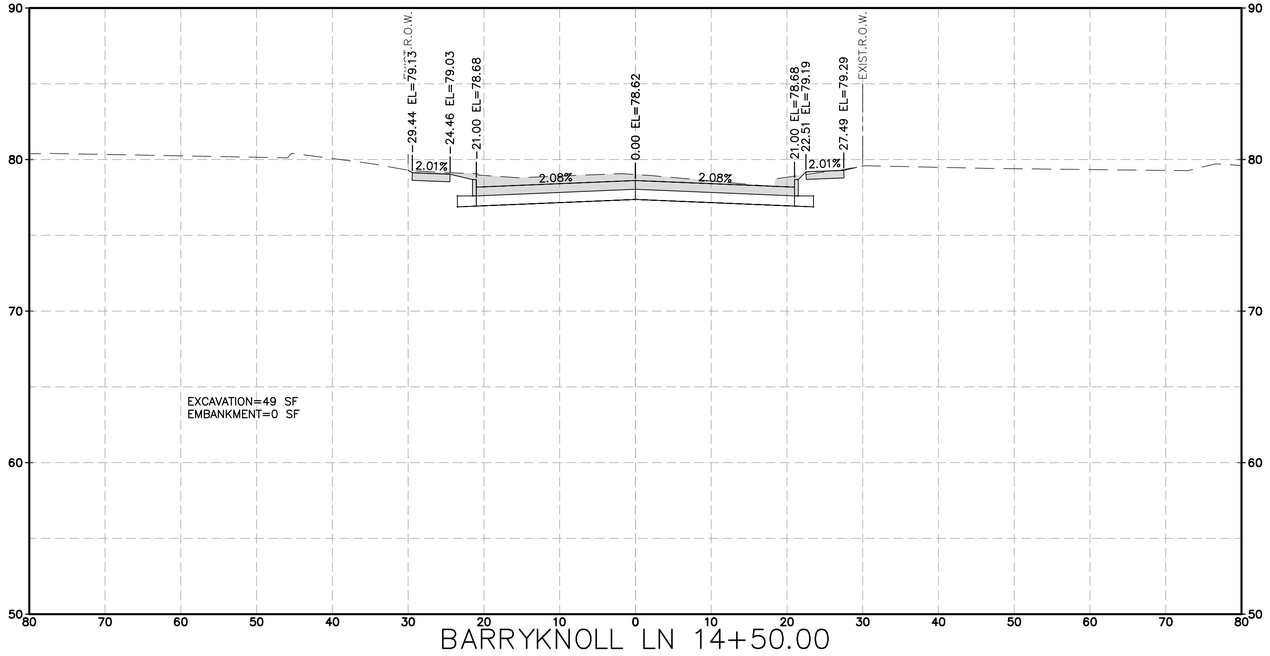
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

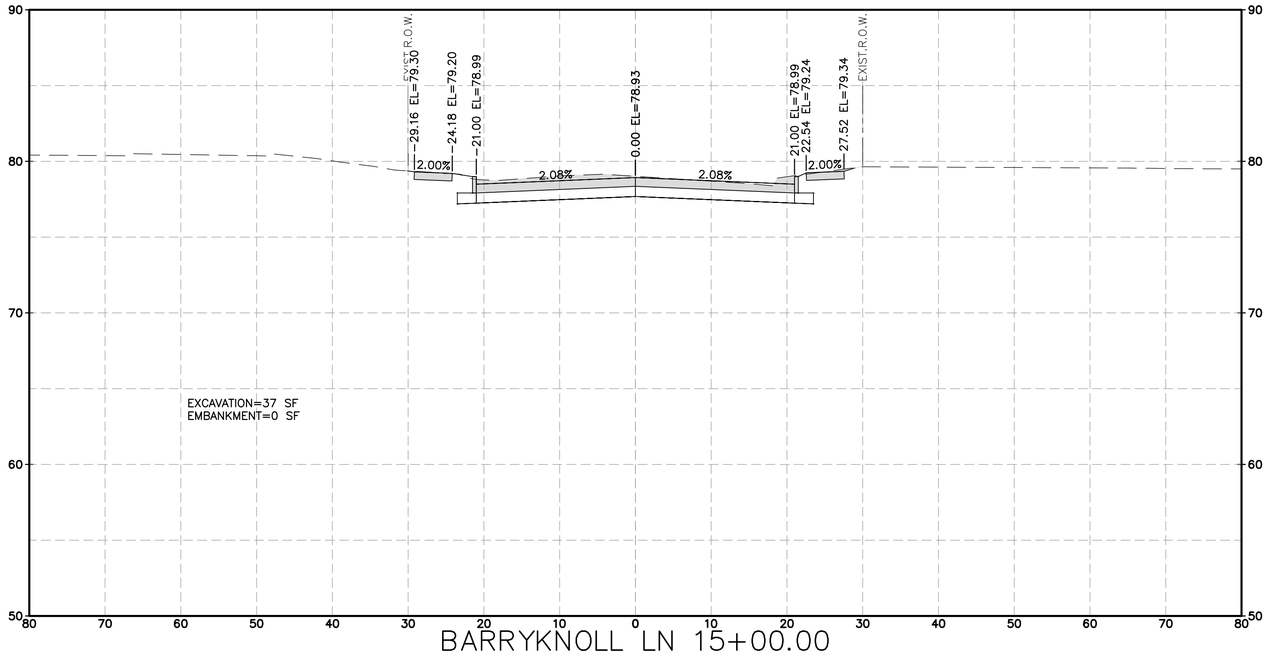
SHEET 12 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 334 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:44 PM by McCourt, Jeff



BARRYKNOLL LN 14+50.00



BARRYKNOLL LN 15+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY:____DAVID G. GREANEY____
P.E. REGISTRATION NO. 125563
DATE:____2/19/2026____

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

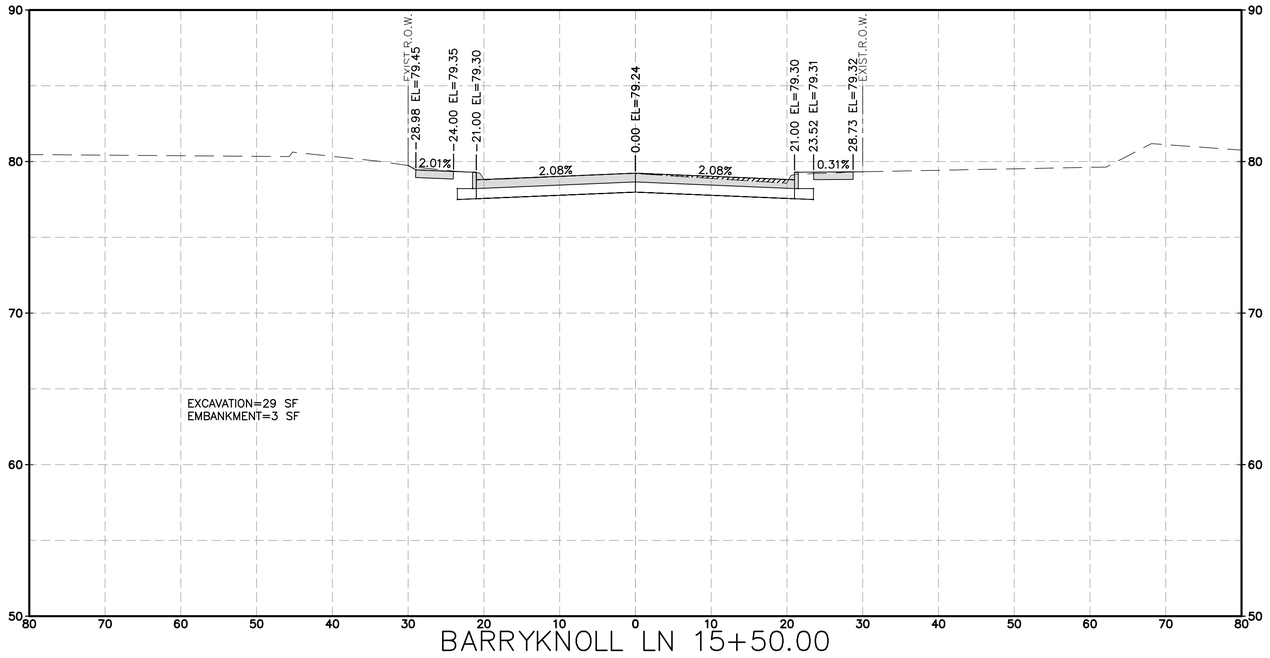
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

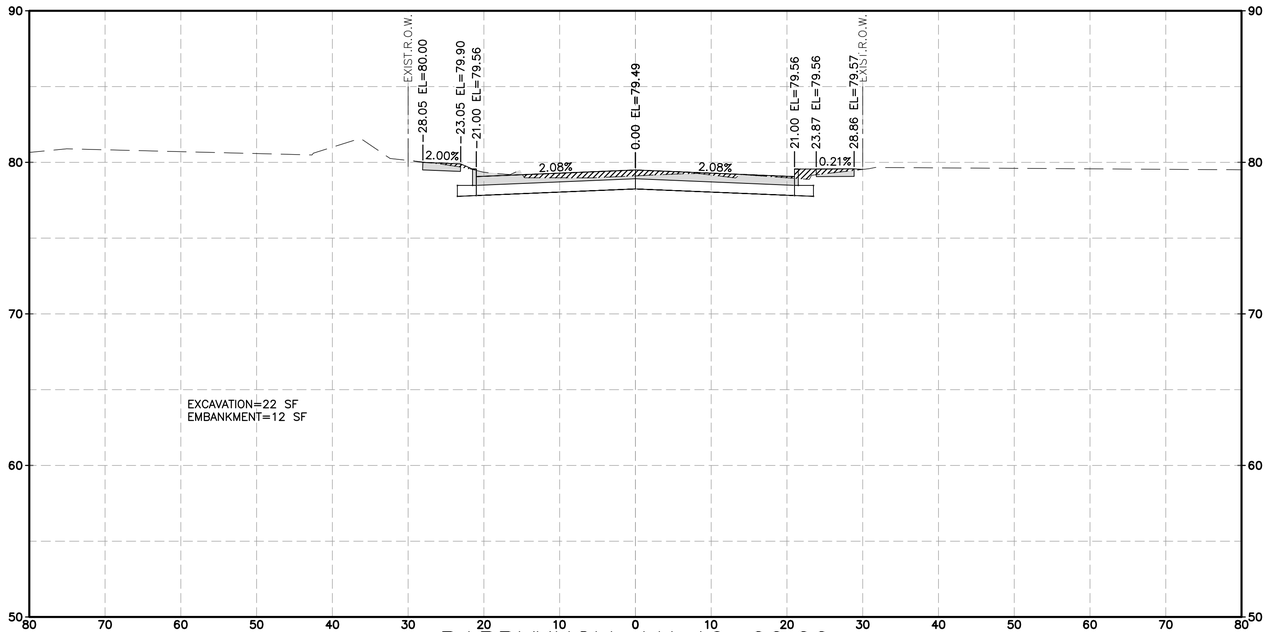
SHEET 13 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 335 OF 343

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:44 PM by McCourt, Jeff



BARRYKNOLL LN 15+50.00



BARRYKNOLL LN 16+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

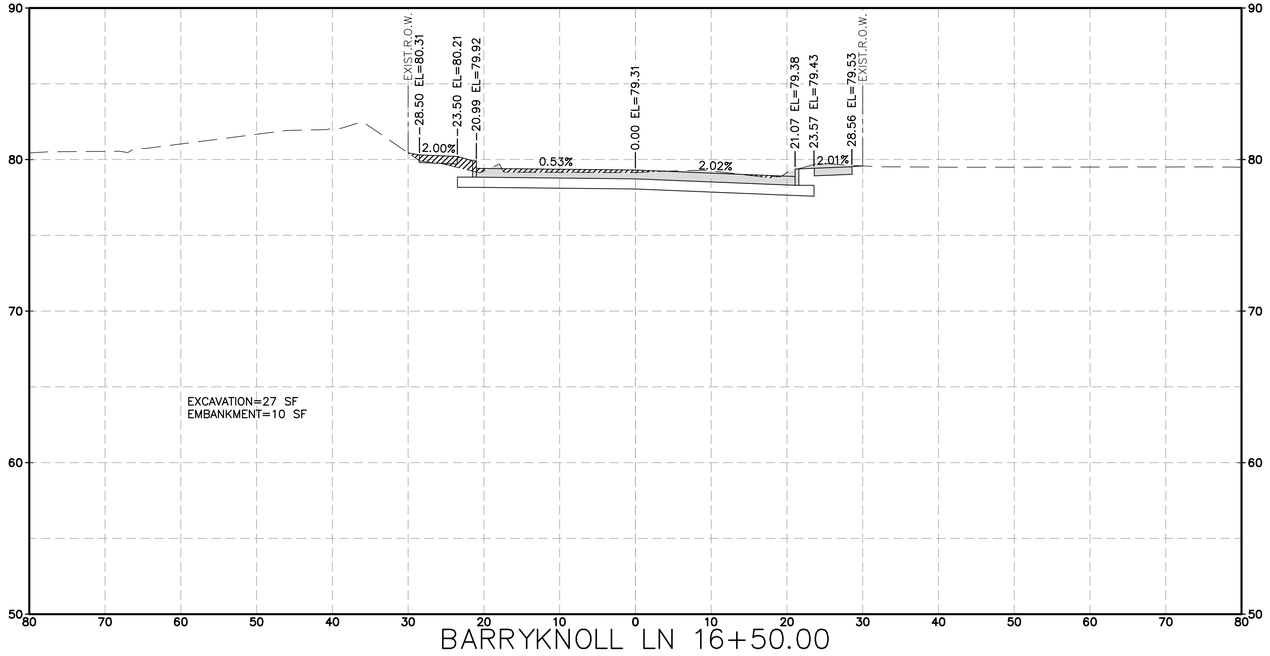
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

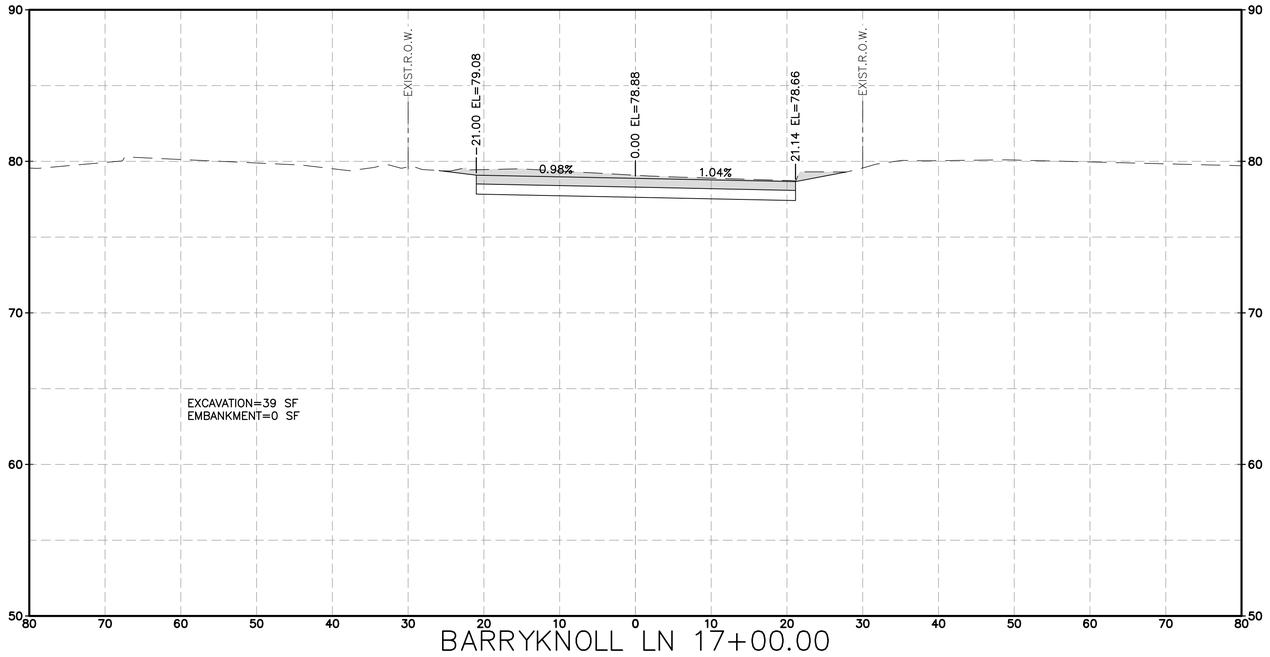
SHEET 14 OF 15

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=10' (FULL) V: 1"=5' (FULL)	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 336 OF 343	

J:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted February 19, 2026 at 5:44 PM by McCourt, Jeff



BARRYKNOLL LN 16+50.00



BARRYKNOLL LN 17+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF
EMBANKMENT=XX SF

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/19/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 15 OF 15

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL) V: 1"=5' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 337 OF 343

J:\2021\210601.01\cad\dwgs\d'xs_barryknoll.dwg Plotted February 19, 2026 at 5:45 PM by McCourt, Jeff

LOG OF BORING DB-1

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+45.42
OFFSET: 628.39' LT
SURFACE ELEVATION: 80.03 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, dark brown, Clayey Sand (SC) -with roots				19			
				Stiff to hard, brown and dark gray, LEAN CLAY WITH SAND (CL) -with ferrous stains 6'-8'		74.6	103	18	31	14	17
75	5							16			
				Gray and brown, CLAYEY SAND (SC) -with ferrous stains		46.3	119	16	35	15	20
70	10			Medium dense, gray, SILTY SAND (SM)	16	20.7		18	NP	NP	NP
					17			23			
65	15				26			22			
					30	35.3		24			
60	20			Dense, gray, POORLY GRADED SAND WITH SILT (SP-SM)	38	6.4		21	NP	NP	NP
				Very stiff to hard, gray, brown and reddish brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 22'-30' -disturbed sample 20'-22'	11			38			
55	25						119	16			
						79.9		16	43	17	26
50	30							17			
				Very stiff to hard, gray and brown, LEAN CLAY (CL) -with calcareous nodules 30'-40', gravel 30'-34' and ferrous stains 34'-40' -disturbed sample 30'-32'		85.5	110	7	40	17	23
45	35							19			
								21			
40	40						111	21			
				Hard, brown and reddish brown, SANDY SILTY CLAY (CL-ML) -with calcareous nodules 40'-44'	50	52.8		20			
35	45				50			16	21	14	7
				Hard, reddish brown, LEAN CLAY (CL) -disturbed sample 46'-48'		98.0		26			
								23	33	19	14
					50			21			
	50				34	99.4		27	63	28	35

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.2 FT; AFTER 10 MIN. AT 10.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.5 FT

Drilled By: West Oaks Logged By: CD

LOG OF BORING DB-1

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+45.42
OFFSET: 628.39' LT
SURFACE ELEVATION: 80.03 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Very stiff to hard, reddish brown, FAT CLAY (CH) -disturbed sample 48'-50' [Continued...]				22			
								22			
25	55			-with sand pockets 54'-58'			108	20			
								21			
20	60			Very dense, reddish brown, SILT (ML)	80	95.5		21	22	20	2
				Hard, reddish brown, LEAN CLAY (CL) -with silt pockets 60'-64'	47			26			
15	65				38	99.7		28	28	20	8
				Very stiff to hard, reddish brown, FAT CLAY (CH)				23			
10	70					99.1	103	22	63	25	38
								23			
5	75			-with calcareous nodules 74'-76' -gray and brown below 76'				28			
								29			
0	80					99.4	98	28	78	31	47
								27			
	85							29			
								29			
								29			

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.2 FT; AFTER 10 MIN. AT 10.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.5 FT

Drilled By: West Oaks Logged By: CD

LOG OF BORING DB-2

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+10.31
OFFSET: 640.78' LT
SURFACE ELEVATION: 80.48 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.5 FT
DATE: 8/22/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, loose, dark brown, Clayey Sand (SC) -with roots	5			12			
				Stiff to hard, gray, brown, SANDY LEAN CLAY (CL) -with calcareous nodules 4'-6'		61.1	117	14	33	14	19
75	5							14			
						56.9	111	19	41	13	28
70	10							23			
				Medium dense to dense, gray, SILTY SAND (SM)	11	15.9		22	NP	NP	NP
65	15				16	27.9		23			
					32			23			
60	20				46			22			
				Stiff to hard, gray and reddish brown, FAT CLAY (CH) -disturbed sample 20'-24'	41			22			
55	25				14	89.6		35	86	30	56
				Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL)			116	16			
50	30					81.0	117	15			
								16	34	12	22
45	35							17			
								17			
				Loose to medium dense, reddish brown, SILTY SAND (SM)	8	32.2		14			
40	40				9			27	NP	NP	NP
					13			24			
35	45				13			25			
					15			21			
					22			26			
	50			Stiff, reddish brown, SANDY FAT CLAY (CH)	11	60.0		23			
								30	64	29	35

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.5 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.4 FT

Drilled By: West Oaks Logged By: CD

LOG OF BORING DB-2

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+10.31
OFFSET: 640.78' LT
SURFACE ELEVATION: 80.48 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.5 FT
DATE: 8/22/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Hard, reddish brown, FAT CLAY (CH)		97.1		24	56	25	31
				-with sand pockets				16			
25	55			Stiff to very stiff, reddish brown, LEAN CLAY (CL) -disturbed sample 56'-58'	27	94.9		21	29	19	10
20	60							24			
				Medium dense, reddish brown, SILT WITH SAND (ML)	30	81.5		29	NP	NP	NP
				Very stiff, reddish brown, SILTY CLAY WITH SAND (CL-ML)	41			26	26	19	7
15	65			Hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules 64'-66'				19			
								22			
10	70							24			
						99.3	97	26	68	25	43
5	75							27			
								30			
0	80					97.0		29	67	27	40
							93	31			
	85							30			
								32			

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.9 FT; AFTER 10 MIN. AT 10.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD

LOG OF BORING DB-3 (PZ-01)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+74.74
OFFSET: 622.68' LT
SURFACE ELEVATION: 80.53 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.7 FT
DATE: 8/20/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, dark brown, Clayey Sand (SC) -with roots				11			
				Very stiff, gray, brown and dark brown, SANDY LEAN CLAY (CL)		62.1	108	17	31	15	16
75	5						113	15			
						52.2		13	33	16	17
70	10							15			
				Loose to dense, gray and brown, SILTY SAND (SM)	9			21			
65	15				18	31.4		23	NP	NP	NP
					44			22			
60	20				43			21			
					41			20			
				Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -disturbed sample 20'-22'	8	96.3		41	72	34	38
55	25						109	27			
								27	64	31	33
50	30			Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL)		84.0		14	46	18	28
							117	16			
45	35			-with calcareous nodules 32'-38'				16			
								19			
								17			
								12			
40	40			Hard, light gray and brown, SILTY CLAY WITH SAND (CL-ML) - with calcareous nodules 38'-42'	40	75.9		19	23	16	7
					35			21			
35	45			Loose to very dense, brown and reddish brown, CLAYEY SAND (SC)	6	22.0		26			
					66			24			
				-with gravel 46'-48'	81			19			
	50				61	39.3		20	37	20	17

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.9 FT; AFTER 10 MIN. AT 10.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD

LOG OF BORING DB-3 (PZ-01)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+74.74
OFFSET: 622.68' LT
SURFACE ELEVATION: 80.53 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.7 FT
DATE: 8/20/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Hard, reddish brown, FAT CLAY (CH)		97.1		24	56	25	31
				-with sand pockets				16			
25	55			Stiff to very stiff, reddish brown, LEAN CLAY (CL) -disturbed sample 56'-58'	27	94.9		21	29	19	10
20	60							24			
				Medium dense, reddish brown, SILT WITH SAND (ML)	30	81.5		29	NP	NP	NP
				Very stiff, reddish brown, SILTY CLAY WITH SAND (CL-ML)	41			26	26	19	7
15	65			Hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules 64'-66'				19			
								22			
10	70							24			
						99.3	97	26	68	25	43
5	75							27			
								30			
0	80					97.0		29	67	27	40
							93	31			
	85							30			
								32			

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.9 FT; AFTER 10 MIN. AT 10.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 1 OF 5

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 338 OF 343

Revisions
No. Date

J:\2021\210601.01\cad\dwgs\sheets\25-boring logs\boring log.dwg Plotted February 18, 2026 at 9:15 AM by Huml, John

LOG OF BORING DB-4

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 1+57.22
WBS NO.: M-430296-0017
OFFSET: 335.78' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.35 FT
CAVE-IN DEPTH: 11.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, medium dense, dark brown, Clayey Sand (SC) -with roots	11			11			
75	5			Gray and brown, CLAYEY SAND (SC) -with calcareous nodules 2'-6' and gravel 4'-6'		46.5	121	12	29	19	10
70	10			Stiff to very stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stain 8'-10'		66.6		17			
						64.2		24	41	18	23
								19			
				Medium dense, gray and brown, CLAYEY SAND (SC)	13	49.6		19	37	19	18
65	15			Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules and ferrous stains 14'-22'		92.0		26	63	29	34
							99	25			
								26			
60	20							24			
				Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 22'-24'			114	16			
55	25					83.5		14	29	14	15
				Very stiff to hard, gray and reddish brown, LEAN CLAY (CL) -with ferrous stains 30'-40'				19			
50	30							18			
						91.3		17	40	18	22
							117	18			
45	35			-with calcareous nodules 36'-40'				21			
								16			
40	40						113	21			
				-with silt pockets 40'-42' -disturbed sample 40'-42'	49	93.4		18	28	18	10
				Very stiff, reddish brown, LEAN CLAY WITH SAND (CL) -disturbed sample	29			23			
35	45				29	74.8		21			
				Dense, reddish brown, SILT (ML)	37			24			
	50				32	91.6		22	NP	NP	NP

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 12.2 FT; AFTER 10 MIN. AT 11.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.4 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

LOG OF BORING DB-4

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 1+57.22
WBS NO.: M-430296-0017
OFFSET: 335.78' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.35 FT
CAVE-IN DEPTH: 11.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Hard, reddish brown, FAT CLAY (CH)		95.1		23	50	26	24
	55						105	24			
25				Medium dense to dense, reddish brown, SILT (ML)				22			
								18			
20	60					99.7		23	NP	NP	NP
					35			25			
					26	99.6		27	NP	NP	NP
15	65			Very stiff to hard, reddish brown, FAT CLAY (CH) -with ferrous stains 74'-76'		99.0		25			
								23	60	29	31
10	70						104	24			
								27			
5	75							28			
				-gray and brown below 76'				28			
0	80						98	30			
						91		30			
	85					95.1		30	65	27	38
								25			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 12.2 FT; AFTER 10 MIN. AT 11.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.4 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

LOG OF BORING DB-5

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 4+12.68
WBS NO.: M-430296-0017
OFFSET: 337.88' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.69 FT
CAVE-IN DEPTH: 11.5 FT
DATE: 8/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, loose, dark brown, Clayey Sand (SC) -with roots	7			18			
					4			16			
75	5			Stiff to very stiff, gray and brown, SANDY LEAN CLAY (CL)		64.3	112	18	39	18	21
								16			
70	10							20			
				Gray and brown, LEAN CLAY (CL)		97.3		18	30	20	10
				Loose to medium dense, gray and brown, SILTY SAND (SM)	8			22			
65	15				14	29.4		26	NP	NP	NP
					17			24			
60	20				9			22			
				Stiff to very stiff, gray and reddish brown, LEAN CLAY WITH SAND (CL) -disturbed sample	15			39			
					24	80.4		23	42	19	23
55	25			Very stiff to hard, gray and reddish brown, LEAN CLAY (CL)				18			
				-with calcareous nodules 28'-30'		87.4	113	18	43	19	24
50	30							21			
								23			
45	35			Medium dense, reddish brown, SANDY SILT (ML)		52.2	114	19	NP	NP	NP
					23			13			
40	40							15			
				Dense to very dense, reddish brown, SILT WITH SAND (ML)	43	75.3		19	NP	NP	NP
					52			21			
35	45				50			19			
				Medium dense to dense, reddish brown, SILT (ML)	26	89.4		28	NP	NP	NP
	50				32			26			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 11.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.6 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

LOG OF BORING DB-5

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 4+12.68
WBS NO.: M-430296-0017
OFFSET: 337.88' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.69 FT
CAVE-IN DEPTH: 11.5 FT
DATE: 8/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Hard, reddish brown, FAT CLAY (CH)		99.7		25	63	31	32
	55						107	20			
25								18			
				Medium dense, reddish brown, SILT (ML)	17	98.1		23	NP	NP	NP
20	60				22			29			
					25			28			
15	65			Very stiff to hard, reddish brown, FAT CLAY (CH)		99.0		23	52	28	24
							104	23			
10	70							25			
						96.7		23	57	25	32
							97	28			
5	75			-with sand pockets 74'-76'				26			
				-gray and brown 76'-85'		98.5		26	59	27	32
0	80						101	26			
				-with calcareous nodules 80'-82'				28			
								30			
	85							29			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 11.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.6 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

LOG OF BORING DB-6

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 6+95.34
WBS NO.: M-430296-0017
OFFSET: 340.48' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.25 FT
CAVE-IN DEPTH: 9.3 FT
DATE: 8/21/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			FILL, dark brown, Clayey Sand (SC) -with roots				9			
						52.5	110	12	41	11	30
75	5			Very stiff to hard, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 6'-8'				15			
								14			
70	10			Stiff, gray, FAT CLAY (CH)		93.5	111	24	66	29	37
				-with sand pockets 10'-12'				18			
				Medium dense to dense, gray, POORLY GRADED SAND WITH SILT (SP-SM)	16			8			
65	15				32	11.2		22	NP	NP	NP
				Gray and reddish brown, CLAYEY SAND (SC) -with calcareous nodules 16'-20'		45.8		19	38	20	18
60	20							21			
				Stiff to hard, gray and reddish brown, FAT CLAY (CH) -with calcareous nodules 22'-26'		99.5	97	24	62	29	33
55	25							29			
								25			
				Very stiff to hard, gray, brown and reddish brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 26'-30'		82.1	114	17	39	18	21
50	30							17			
							112	19			
								18			
45	35			Dense to very dense, brown, SANDY SILT (ML)	53	58.5		21	NP	NP	NP
					40			24			
40	40				48	53.7		27	NP	NP	NP
					45			19			
				Dense to very dense, brown, SILTY SAND (SM)	62	43.5		23			
35	45				50			23			
					50			24			
	50				74	17.5		22	NP	NP	NP

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 9.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.0 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

LOG OF BORING DB-6

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
STATION: 6+95.34
WBS NO.: M-430296-0017
OFFSET: 340.48' LT
COMPLETION DEPTH: 85 FT
SURFACE ELEVATION: 80.25 FT
CAVE-IN DEPTH: 9.3 FT
DATE: 8/21/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
30	50			Hard, reddish brown, FAT CLAY (CH)				27			
	55							26			
25				Medium dense to dense, reddish brown, SILT (ML)		89.4	100	27			
					23	99.4		21	NP	NP	NP
20	60				48			27	NP	NP	NP
					30	98.3		28			
								24			
15	65			Very stiff to hard, reddish brown, FAT CLAY (CH)				20			
								19			
10	70					98.4	109	21	56	24	32
								28			
								28			
5	75							24			
				-gray and brown 76'-85'			101	27			
0	80							26			
						98.1	94	29	74	27	47
								30			
	85							27			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 9.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.0 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

No.	Date	Revisions	Appd.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 2 OF 5

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 339 OF 343

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PAGE 1 OF 2

LOG OF BORING DB-7

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 1+60.09
COMPLETION DEPTH: 85 FT
OFFSET: 53.22' LT
CAVE-IN DEPTH: 35 FT
SURFACE ELEVATION: 82.54 FT
DATE: 8/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 38 FT
WET ROTARY: 38 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	0									
80				FILL, medium dense, dark brown, Clayey Sand (SC) -with roots and gravel	22			6		
	5				23	48.4		7	28	14
				Medium dense, gray, brown and dark brown, CLAYEY SAND (SC)	18			10		14
75				-with calcareous nodules 4'-10'		48.5	122	6	29	16
	10				19			10		13
				-with ferrous stains 10'-14'				35		
70						38.4	113	16	27	17
	15			Medium dense, gray, SILTY, CLAYEY SAND (SC-SM)	16	40.1		20	24	18
▼ 65				Stiff to hard, reddish brown, FAT CLAY (CH) -with calcareous nodules 18'-36' and ferrous stains 20'-36'	14	95.6		32		10
	20							27		6
60						91.5	101	23	77	27
	25							15		50
								16		
55	30							17		
							109	21		
	35							21		
50								21	65	26
	40			Very stiff to hard, gray, brown and reddish brown, LEAN CLAY (CL) -with calcareous nodules and sand pockets -disturbed sample 38'-40'	46	86.2	112	20		39
45								22	27	18
	45			Hard, reddish brown, FAT CLAY (CH) -with calcareous nodules		99.6	103	23		9
40								26	71	28
	50							21		43
35				Dense to very dense, reddish brown, SILT (ML)	81			27		
					32	94.4		29	24	21
										3

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 28.2 FT; AFTER 10 MIN. AT 23.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 17.7 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 7

ODH: HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-7

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 1+60.09
COMPLETION DEPTH: 85 FT
OFFSET: 53.22' LT
CAVE-IN DEPTH: 35 FT
SURFACE ELEVATION: 82.54 FT
DATE: 8/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 38 FT
WET ROTARY: 38 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	50									
30					19			27		
				Very stiff to hard, reddish brown, FAT CLAY (CH)				24		
	55					89.7	104	22	57	26
25				-with calcareous nodules 56'-58'				24		31
				Hard, reddish brown, SILTY CLAY WITH SAND (CL-ML)						
	60				81	76.7		17	22	15
20				Dense, reddish brown, SILT (ML)	32			25		7
					34			23	23	16
	65				32			26		7
15				Very stiff to hard, reddish brown, FAT CLAY (CH)	25	99.1		25	56	25
	70							24		31
10						99.5	100	24	66	26
	75							25		40
5								29		
				-gray below 80'				26		
	80							26		
0						99.1	93	27		
	85							30	80	32
								27		48

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 28.2 FT; AFTER 10 MIN. AT 23.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 17.7 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 7

ODH: HG2110495.1.GPJ 1/13/25

PAGE 1 OF 2

LOG OF BORING DB-8 (PZ-02)

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 4+32.13
COMPLETION DEPTH: 85 FT
OFFSET: 55.18' LT
CAVE-IN DEPTH: 12.3 FT
SURFACE ELEVATION: 80.53 FT
DATE: 8/28/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	0									
80				FILL, loose, dark brown, Clayey Sand (SC) -with roots	8			10		
	5				10			15		
75				Very stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 6'-10'		58.4	114	15	31	19
	10							16		12
▼ 70						70.0	111	20	32	16
				Stiff, gray, FAT CLAY (CH)				22		16
	15			Medium dense, gray, SILTY SAND (SM)	8	95.4		24		
65					13	22.6		25	NP	NP
	20				21			26		NP
60				Very stiff to hard, gray and reddish brown, LEAN CLAY (CL) -with ferrous stains 20'-24'	23			23		
	25					90.8	117	20		
55				-with calcareous nodules 24'-32'				18	44	21
	30							17		23
50								17		
	35			-with silt pockets 34'-38'			107	17		
45				-disturbed sample 34'-38'	28	95.0		21		
	40			Very stiff to hard, gray and reddish brown, FAT CLAY (CH) -with calcareous nodules and ferrous stains 40'-44'	23			20		
40						98.6	104	24	28	19
	45							27		9
35				Very stiff to hard, reddish brown, LEAN CLAY WITH SAND (CL) -with sand pockets -disturbed sample	43	82.4		18	58	25
	50				25			25		33
					25			23	26	17
								29		9
								27		

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 8

ODH: HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-8 (PZ-02)

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 4+32.13
COMPLETION DEPTH: 85 FT
OFFSET: 55.18' LT
CAVE-IN DEPTH: 12.3 FT
SURFACE ELEVATION: 80.53 FT
DATE: 8/28/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	50									
30				Very stiff to hard, reddish brown, FAT CLAY (CH)		99.9	97	26	61	27
	55							25		34
25								20		
								21		
	60			Very stiff, reddish brown, LEAN CLAY (CL) -with silt pockets -disturbed sample 60'-64'	16	87.5	109	19		
20					26			27	29	16
	65			Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules 66'-70'				25		13
15								24		
								23		
	70					98.6	104	24	61	26
10				-with ferrous stains 70'-76'				27		35
	75							26		
5								25		
								27		
	80			-with calcareous nodules 80'-82'		98.7	96	28	65	27
0								30		38
	85							32		
								24		

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 8

ODH: HG2110495.1.GPJ 1/13/25

PAGE 1 OF 2

LOG OF BORING DB-9

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 7+05.82
COMPLETION DEPTH: 85 FT
OFFSET: 57.28' LT
CAVE-IN DEPTH: 17.2 FT
SURFACE ELEVATION: 79.45 FT
DATE: 8/29/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 18 FT
WET ROTARY: 18 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	0									
75				FILL, dark brown, medium dense, Clayey Sand (SC) -with roots	17			8		
	5			Very stiff to hard, gray and dark brown, SANDY SILTY CLAY (CL-ML) -with and calcareous nodules		55.9	120	9		
				Stiff to very stiff, gray and brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules and ferrous stains				10	26	19
70	10					74.8	110	18		7
▼				Loose to medium dense, gray and reddish brown, SILT (ML)	12	86.7		18	35	17
					7			20	NP	NP
65	15			Very stiff to hard, reddish brown, LEAN CLAY (CL) -with ferrous stains 14'-28'and calcareous nodules 14'-28'				38		
								26		
60	20					99.6	105	20	47	25
				-gray and brown 20'-28'				19		22
								18		
55	25							17		
								14		
						86.0	114	18	43	22
50	30			Medium dense, gray and reddish brown, SILT (ML) -with calcareous nodules 28'-30'	19			22		21
								20		
						93.6	112	20	NP	NP
45	35				23			26		NP
				Hard, reddish brown, LEAN CLAY (CL) -with ferrous stains 36'-42' and calcareous nodules 38'-40'				27		
40	40						101	27		
						99.8		23	43	22
								20		21
35	45			Dense, reddish brown, SILT (ML)	35	94.2		29	NP	NP
					36			24		NP
30	50			Very stiff to hard, reddish brown, LEAN CLAY (CL)				21		

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 17.1 FT; AFTER 10 MIN. AT 17.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.4 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 9

ODH: HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-9

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
STATION: 7+05.82
COMPLETION DEPTH: 85 FT
OFFSET: 57.28' LT
CAVE-IN DEPTH: 17.2 FT
SURFACE ELEVATION: 79.45 FT
DATE: 8/29/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 18 FT
WET ROTARY: 18 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %
	50									
25				Very stiff to hard, reddish brown, LEAN CLAY (CL) [Continued...]				25		
	55						103	22		
						99.3	106	23	43	25
20	60			Dense, reddish brown, SILT (ML)				20		18
					35	99.7		22		
				Very stiff to hard, reddish brown, LEAN CLAY (CL)	35			27	NP	NP
15	65					99.6	110	19		NP
								20	41	24
10	70							22		17
								26		
								21		
5	75						95	27		
								30		
				Very stiff to hard, gray and brown, FAT CLAY (CH)				28		
0	80							32	73	22
						97.2	91	22	62	29
-5	85							26		
								25		

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 17.1 FT; AFTER 10 MIN. AT 17.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.4 FT

Drilled By: West Oaks Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 9

ODH: HG2110495.1.GPJ 1/13/25

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
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SURVEYED BY: UNITED ENGINEERS, INC.

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 3 OF 5

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 340 OF 343

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PAGE 1 OF 1

LOG OF BORING DB-10

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 15 FT
CAVE-IN DEPTH: 14 FT
DATE: 10/12/2024

STATION: 7+37.32
OFFSET: 497.22' RT
SURFACE ELEVATION: 80.0 FT

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 15 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0			Hard, brown, Sandy Lean Clay (CL) -with gravel and roots 0'-2'				6			
				-with calcareous nodules 2'-6'		55.3		6	23	15	8
75	5							11			
				Gray and brown, CLAYEY SAND (SC) -with calcareous nodules 6'-8'		41.8	127	8	28	16	12
				-with ferrous stains 8'-12'				17			
70	10							19			
				Medium dense to dense, light brown, SILTY SAND (SM)	21	20.4		24	NP	NP	NP
65	15				31						

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 13.3 FT; AFTER 10 MIN. AT 13.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.2 FT

Drilled By: Soiltech Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 10

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 1

LOG OF BORING DB-11

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 15 FT

STATION: 7+40.50
OFFSET: 892.58' RT
SURFACE ELEVATION: 79.5 FT

DATE: 10/1/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 15 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0			1.5" Asphalt, 6" Shell Base							
				FILL, dark gray, Clayey Sand (SC)				16			
				Very stiff, dark gray, LEAN CLAY (CL) -with gravel 2'-6'		89.9	105	21	49	18	31
75	5							21			
				Brown, CLAYEY SAND (SC) -with gravel 6'-8' and calcareous nodules 6'-10'				15			
70	10					43.5		8	25	12	13
				Very stiff, reddish brown and gray, FAT CLAY (CH) -with calcareous nodules and ferrous stains				17			
						98.7	97	26	63	27	36
65	15							21			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: Not Observed
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Soiltech Logged By: CD

HVJ Associates, Inc.

APPENDIX A- 11

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 1

LOG OF BORING B-1 (PZ-03)

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 10.8 FT

STATION: 15+96.48
OFFSET: 10.13' RT
SURFACE ELEVATION: 79.11 FT

DATE: 9/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 16 FT
WET ROTARY: 16 TO 25 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0			Pavement: 7.5" Concrete							
				Very stiff, dark gray, SANDY LEAN CLAY (CL)		53.4	118	13	26	14	12
75	5			Stiff to very stiff, gray and brown, LEAN CLAY WITH SAND (CL) -with ferrous stains 4'-10'				19			
70	10					28.5		15	26	18	8
				Medium dense, gray and brown, CLAYEY SAND (SC)	19						
				Medium dense, light gray to gray, SILTY SAND (SM)	18	14.6		18	NP	NP	NP
65	15				16						
60	20			Stiff to hard, gray, brown, FAT CLAY WITH SAND (CH)		84.3		22	53	22	31
55	25			-reddish brown and gray below 24'							

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 10.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.5 FT

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

APPENDIX A- 12

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 1

LOG OF BORING B-2

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 10.1 FT

STATION: 11+52.78
OFFSET: 10.83' RT
SURFACE ELEVATION: 78.35 FT

DATE: 9/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 20 FT
WET ROTARY: 20 TO 25 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0			Pavement: 7" Concrete							
				Firm to very stiff, dark gray, SANDY LEAN CLAY (CL)							
				-gray and brown 2'-10'		60.9	122	13	31	14	17
75	5			-with ferrous stains 4'6'							
								20			
70	10			Medium dense to dense, gray and brown, SILTY SAND (SM)		39.8		18			
					12	12.9		23	NP	NP	NP
65	15			-light gray 14'-20'	38						
					25						
60	20				29	19.2		22	NP	NP	NP
				Stiff to very stiff, gray and reddish brown, FAT CLAY (CH)		97.7	89	37	85	36	49
55	25										

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 13.0 FT; AFTER 10 MIN. AT 9.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

APPENDIX A- 13

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 1

LOG OF BORING B-3

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 9.2 FT

STATION: 6+30.90
OFFSET: 22.89' LT
SURFACE ELEVATION: 77.41 FT

DATE: 19/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0			Pavement: 8" Concrete, 6" Cement Stabilized Sand							
				Stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 2'-4'		65.7	111	16	32	15	17
75	5										
				Very stiff, gray, brown and reddish brown, LEAN CLAY (CL)		95.4		17			
70	10			Medium dense to dense, light gray, SILTY SAND (SM)		23.9		22	NP	NP	NP
65	15				37			21			
					24						
60	20			Very stiff, gray and reddish brown, FAT CLAY (CH)	15	96.6		30	72	29	43
				-with sand seams 20'-22'			83	47			
55	25				14						

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 16.0 FT; AFTER 10 MIN. AT 8.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

APPENDIX A- 14

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 1

LOG OF BORING B-4

PROJECT: TIRZ 17 Detention and Conveyance Project
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT

STATION: 3+62.44
OFFSET: 0.64' RT
SURFACE ELEVATION: 79.35 FT

DATE: 12/6/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 17 FT
WET ROTARY: 17 TO 25 FT

UNDRAINED SHEAR STRENGTH, TSF: ○ HAND PENETROMETER ● UNCONFINED COMPRESSION ■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION △ TORVANE

ELEVATION, FT	DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0			PAVEMENT: 11" Concrete over 2.5" Asphalt over 8.5" Cement Treated Base							
				Stiff to very stiff, light brown, gray and brown, LEAN CLAY (CL) -with calcareous nodules at 2'-6'		89.1	119	15	29	14	15
75	5										
				-with sand seams 8'-10'		91.4		16			
70	10						110	19			
				Medium dense to very dense, gray, SANDY SILT (ML)		51.1		19	NP	NP	NP
65	15				63			23			
					37						
60	20				15			28			
				Stiff to very stiff, reddish brown, FAT CLAY (CH) -with ferrous stains and calcareous nodules 22'-25'		100.0	96	28	57	24	33
55	25										

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 10.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: RR

HVJ Associates, Inc.

APPENDIX A- 15

COH HG2110495.1.GPJ 1/13/25

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No.	Date	Revisions	App.

HRGreen
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ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 4 OF 5

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

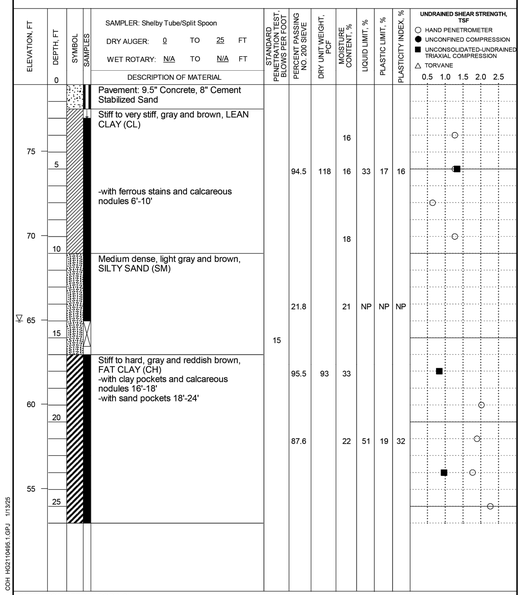
SHEET NO. 341 OF 343

PAGE 1 OF 1

LOG OF BORING B-5

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 21+24.77
OFFSET: 21.04' RT
SURFACE ELEVATION: 78.95 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 11.3 FT
DATE: 9/24/2024



DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 10.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

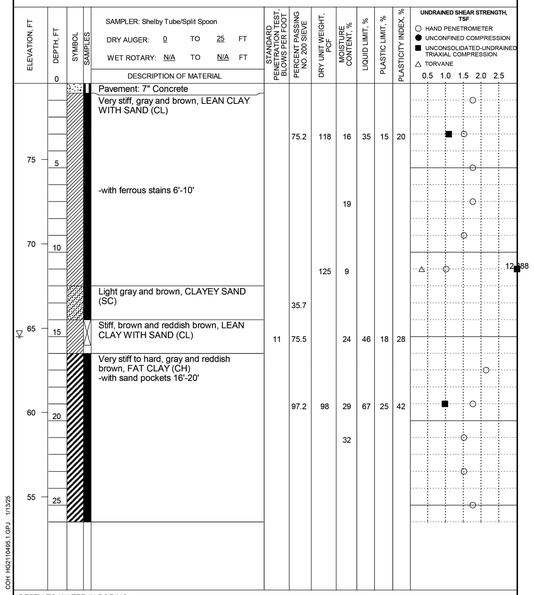
APPENDIX A- 16

PAGE 1 OF 1

LOG OF BORING B-6

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 17+28.20
OFFSET: 6.51' LT
SURFACE ELEVATION: 79.51 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 11.1 FT
DATE: 9/26/2024



DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 15.0 FT; AFTER 10 MIN. AT 9.0 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

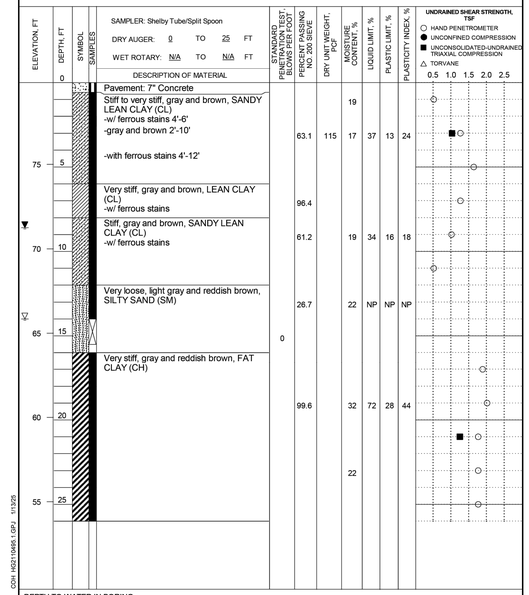
APPENDIX A- 17

PAGE 1 OF 1

LOG OF BORING B-7 (PZ-04)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 13+75.85
OFFSET: 1.86' RT
SURFACE ELEVATION: 79.84 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 13.2 FT
DATE: 9/25/2024



DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 8.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 8.6 FT

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

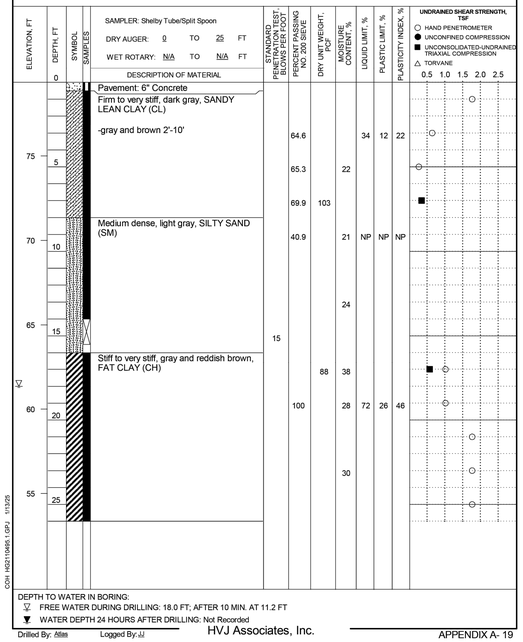
APPENDIX A- 18

PAGE 1 OF 1

LOG OF BORING B-8

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 8+54.40
OFFSET: 3.15' LT
SURFACE ELEVATION: 79.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 12.3 FT
DATE: 9/25/2024



DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 18.0 FT; AFTER 10 MIN. AT 11.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ

HVJ Associates, Inc.

APPENDIX A- 19

No.	Date	Revisions	Appd.

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BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 5 OF 5

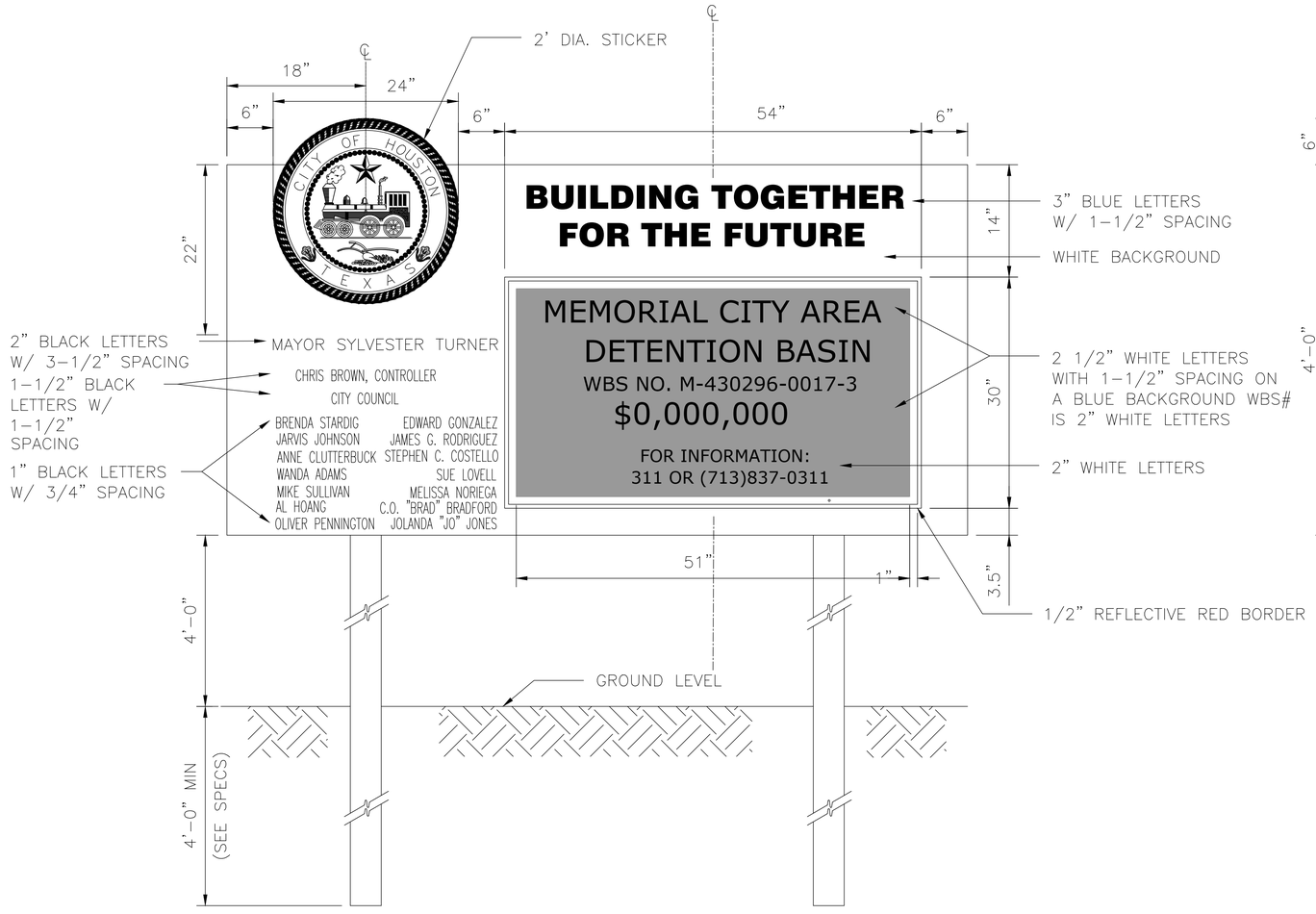
WBS NO. M-430296-0017-3

DRAWING SCALE

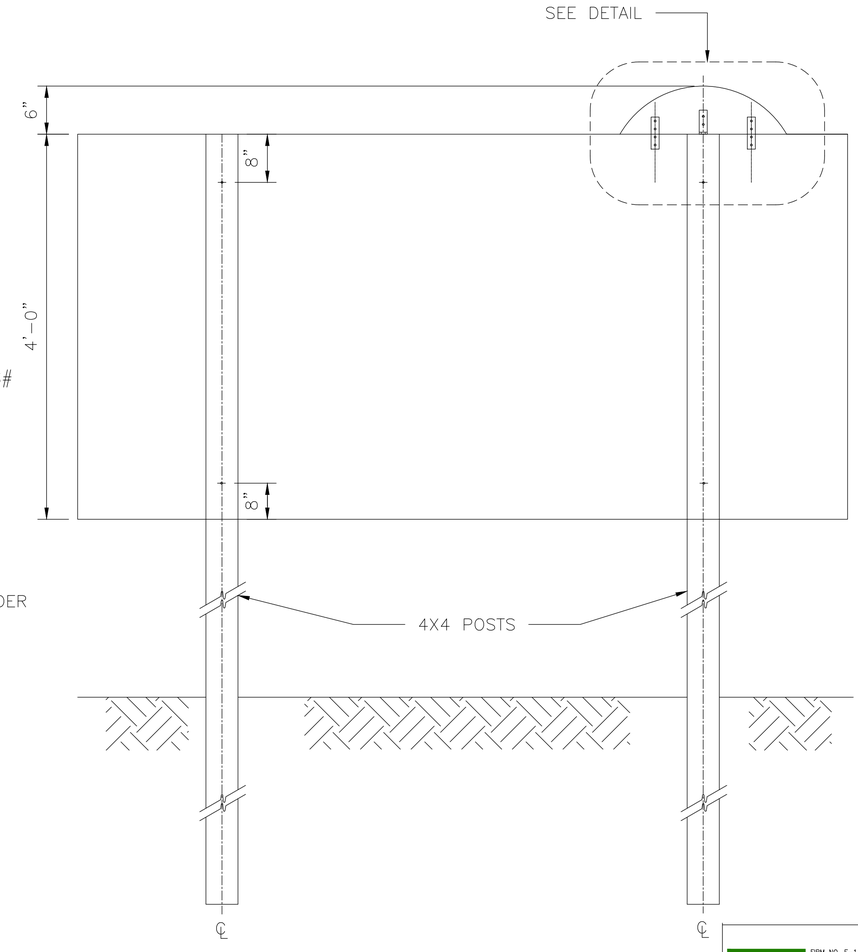
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 342 OF 343

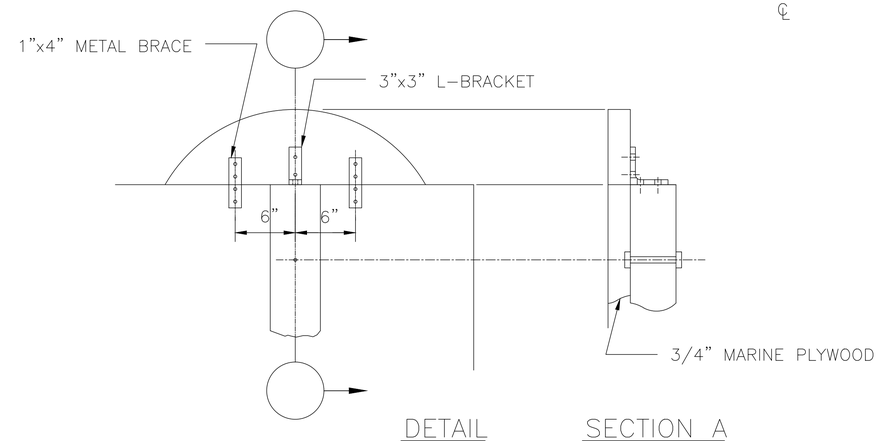
J:\2021\210601.01\cad\dwgs\sheets\25-boring logs\boring log -2.dwg Plotted: February 18, 2026 at 9:16 AM by Huml, John



FRONT VIEW



BACK VIEW



DETAIL SECTION A

NOTES:

1. SEE CITY OF HOUSTON WEBSITE FOR NAMES OF CURRENT MAYOR, CONTROLLER, AND CITY COUNCIL MEMBERS.

No.	Date	Revisions	Appr.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: DAVID G. GREANEY
P.E. REGISTRATION NO. 125563
DATE: 2/18/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONSTRUCTION SIGN

SHEET 1 OF 1

WBS NO. M-430296-0017-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 343 OF 343	

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