NOTICE:

*Construction in Harris County Flood Control District Right-of-Way requires:

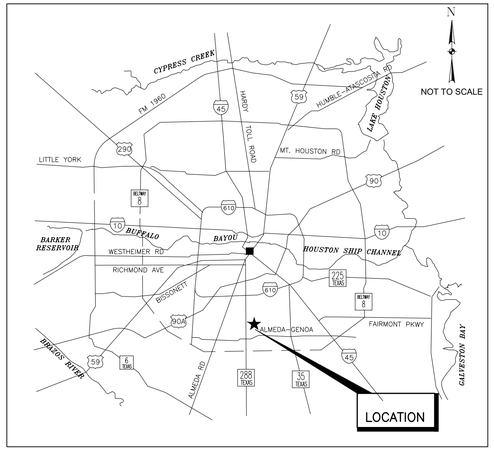
Site plans must be approved prior to obtaining the required HCFCD Right-of-Way Notification. Be advised that the HCFCD Right-of-Way Notification is separate from the site development permit package.

1.) HCFCD Right-of-Way Notification (permit)
2.) HCFCD 48-hr Pre-Construction Notification

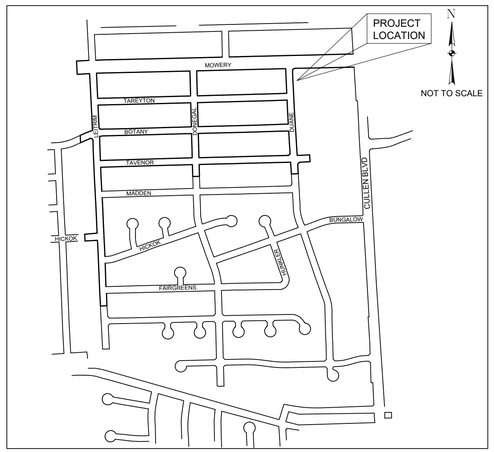
Both are required prior to entering or working within Harris County Flood Control District right-of-way. Both the HCFCD Right-of-Way Notification and 48-hour notification must be provided to HCFCD at dcid@hcfcd.org.

To apply for the HCFCD Right-of-Way Notification please go to http://apps.harriscountytx.gov/EPermits and apply for the HCFCD ROW under ROW Notification.

Failure to provide both items could result in project delays.



LOCATION MAP



VICINITY MAP
KEY MAP NO. 573 L & M
HCAD 5452C
ZIP CODE 77047

TDLR EABPRJ _____

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA PAVING & DRAINAGE

WBS NO. N-210004-0001-4

MAYOR
SYLVESTER TURNER

CONTROLLER
CHRIS BROWN

DISTRICT COUNCIL MEMBERS

BRENDA STARDIG — DISTRICT A
JERRY DAVIS — DISTRICT B
ELLEN R. COHEN — DISTRICT C
DWIGHT A. BOYKINS — DISTRICT D
DAVE MARTIN — DISTRICT E
STEVE LE — DISTRICT F
GREG TRAVIS — DISTRICT G
KARLA CISNEROS — DISTRICT H
ROBERT GALLEGOS — DISTRICT I
MIKE LASTER — DISTRICT J
MARTHA GASTEX-TATUM — DISTRICT K

COUNCIL MEMBERS AT-LARGE

MIKE KNOX — POSITION 1
DAVID W. ROBINSON — POSITION 2
MICHAEL KUBOSH — POSITION 3
AMANDA EDWARDS — POSITION 4
JACK CHRISTIE — POSITION 5

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON JULY 8, 2019.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION, BIDDING OR PERMITTING PURPOSES.

UTILITY ONE CALL
CONTRACTOR TO CALL BEFORE DIGGING !!!!
PHONE:
HOUSTON (713) 223-4567
(STATEWIDE OUTSIDE HOUSTON)
1-(800)-545-6005

90% DESIGN REVIEW

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF ROAD
HOUSTON, TEXAS 77099
Tel. 713.784.7777
TEXAS REGISTERED FIRM F-12428

SURVEYED BY: GEOSERV INC.
FB NO. P-5325

PARKS-FORESTRY DEPT.

METRO

HOUSTON WATER

TRANSPORTATION & DRAINAGE OPERATIONS

CAPITAL PROJECTS

SURVEY

CITY ENGINEER DATE

DIRECTOR OF HOUSTON PUBLIC WORKS DATE

FOR CITY OF HOUSTON USE ONLY

SHEET NO 1 OF 159 SHEETS

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 ROOSEVELT LEE JR. AT (713) 567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

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

STORM CONSTRUCTION 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 (OCT. 2002) AS APPLICABLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. ALL STORM SEWER CONSTRUCTED IN SIDE LOT EASEMENT SHALL BE R.C.P (C-76, CLASS III) 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 SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1-1/2 SACK CEMENT/C.Y. STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.
4. ALL TRENCH BACKFILL SHALL BE IN 8"LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHANICALLY 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, CLASS III).
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 18-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.

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 NOTES FOR CONSTRUCTION DRAWINGS (HCFCD):

1. Obtain and comply with all applicable City, County, State, and Federal permits and approvals, with assistance from Engineer, if necessary. Obtain permit (certification) from Harris County Engineer to enter Harris County Flood Control District right-of-way.
2. Notify the Harris County Flood Control District's Development Coordination and Inspection Department in writing at least 48 hours prior to construction. Submit the HCFCD 48 Hour Pre-Construction Notification form, a copy of the approved construction drawings, and a copy of the Corps of Engineers individual Section 404 Permit or compliance with Nationwide Permit, if applicable, to HCFCD, 9900 Northwest Freeway, Houston, Texas 77092, Attn: Development Coordination and Inspection Dept. by hand delivery, by email DCID@hcfcd.org, or fax to 713-684-4129 (fax number).
3. Engineer shall submit certification letter and record drawings to the Harris County Flood Control District's Development Coordination and Inspection Section requesting inspection of items constructed in Harris County Flood Control District right-of-way. Prior to requesting inspection, the drainage right-of-way and/or easements shall be staked and flagged.
4. Protect, maintain, and restore existing backslope drainage systems.
5. Backslope swale and interceptor structure elevations and locations shown on plans are approximate. Final elevations and locations shall be field verified by the Engineer prior to installation.
6. Establish turf grass on all disturbed areas within the channel or detention right-of-way, except the channel bottom and where structural erosion measures are used. Minimum acceptance criteria are 75% coverage of live Bermuda grass and no erosion or rills deeper than 4".
7. Perform all activities within Harris County Flood Control District right-of-way in accordance with the most recent Harris County Flood Control District Standard Specifications Book.
8. Excavate channel flowline to design elevation as shown on plans and downstream, as necessary, to ensure no water remains in the facility (storm sewer, lateral channel, or dry bottom detention basin) during normal water surface conditions in the channel, so the facility will function as intended. For wet bottom detention basins, ensure no water is above the design level in the wet bottom during normal water surface conditions in the channel.
9. Maintain flow in channel during construction and restore channel to original condition.
10. Remove all excavated material from the Harris County Flood Control District or drainage right-of-way. No fill is to be placed within a designated flood plain area without first obtaining a fill permit from the appropriate jurisdictional authority.

NOTICE:

*CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT OF WAY REQUIRES:

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

BOTH ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT OF WAY. BOTH THE HCFCD RIGHT OF WAY NOTIFICATION AND 48 HOUR NOTIFICATION MUST BE PROVIDED TO HCFCD AT DCID@HCFCD.ORG. SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT OF WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT OF WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

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

FAILURE TO PROVIDE BOTH ITEMS COULD RESULT IN DELAYS AND ADDITIONAL CONSTRUCTION COSTS.

GENERAL NOTES- INSIDE CITY LIMITS

1. CONSTRUCT WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING IN ACCORDANCE WITH THE LATEST EDITION OF THE PUBLICATIONS STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING, AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS. WATER LINES, STORM DRAINAGE, AND STREET PAVING PUBLISHED BY HOUSTON PUBLIC WORKS.
2. THE GEOTECHNICAL INVESTIGATION FOR THIS PROJECT WAS CONDUCTED IN ACCORDANCE WITH CHAPTER 11 OF THE LATEST EDITION OF THE PUBLICATION INFRASTRUCTURE DESIGN MANUAL, PUBLISHED BY HOUSTON PUBLIC WORKS. SOILS REPORT WAS PREPARED BY [GEOTECHNICAL ENGINEERING FIRM] REPORT NO. [NO. OF REPORT], DATED [DATE OF REPORT].
3. 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.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS, STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, AND STREET PAVING AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING, REFERENCED ABOVE, AT NO ADDITIONAL COST.
5. 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.
6. 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.
7. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
8. CONTRACTOR SHALL COMPLY WITH LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.
9. CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS AND RECORD AS-BUILT CONDITIONS DURING CONSTRUCTION. THESE REDLINE MARKED UP DRAWINGS WILL BE SUBMITTED TO THE DESIGN CONSULTANT WHO WILL MAKE THE CHANGES ON THE ORIGINAL TRACINGS, LABEL EACH SHEET IN THE SET AS "RECORD DRAWINGS", AND RETURN IT TO THE OFFICE OF THE CITY ENGINEER.

TRAFFIC NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TEXAS MUTCD, MOST RECENT EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. NO TRAFFIC LANES SHALL BE CLOSED DURING THE HOURS OF 5:30AM TO 7:00PM MONDAY THRU FRIDAY IN DOWNTOWN/MIDTOWN AREA.
3. NO LANES ON MAJORITY THOROUGHFARES MAY BE BLOCKED FROM 6:00AM TO 9:00AM AND 4:00PM TO 7:00PM UNLESS OUTLINED IN THE MOBILITY PERMIT.
4. NO TRAFFIC LANES SHALL BE CLOSED IN ALL RESIDENTIAL AREAS FROM 7:00PM TO 7:00AM.
5. CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS.
6. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH STEEL PLATES ANCHORED PROPERLY DURING ON-WORKING HOURS, AND OPEN THE LANES FOR NORMAL TRAFFIC FLOW.
7. _OFF-DUTY UNIFORMED POLICE OFFICER(S)/:FLAGGER(S) IS/ARE REQUIRED TO DIRECT TRAFFIC WHEN THE LANES ARE BLOCKED.
8. IN THE EVENT THAT NO "TRAFFIC CONTROL PLANS" EXIST AS A PART OF CONTRACT DRAWINGS, CONTRACTOR MAY PREPARE PLANS* AND SUBMIT TO THE PLAN REVIEW SECTION FOR APPROVAL TEN DAYS PRIOR TO IMPLEMENTATION.
9. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, HE/SHE SHALL BE RESPONSIBLE FOR PREPARING AND SUBMITTING AN ALTERNATE SET OF PLANS* TO THE PLAN REVIEW SECTION FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION.
10. APPROVED COPIES OF TRAFFIC CONTROL PLANS AND MOBILITY PERMITS SHALL BE MADE AVAILABLE FOR INSPECTION AT THE JOB SITE AT ALL TIMES. CONTRACTORS MUST SECURE MOBILITY PERMITS FROM THE CITY'S TRAFFIC MANAGEMENT AND MAINTENANCE BRANCH BEFORE CLOSING A LANE/SIDEWALK. THE REQUEST MUST BE MADE AT LEAST 10 DAYS IN ADVANCE OF THE CLOSURE. NOTE THAT WORKING HOURS MAY BE RESTRICTED OR THE REQUEST MAY BE DENIED. CALL 832-395-3020 FOR AN APPLICATION OR LOGON TO WWW.GIMS.HOUSTONTX.GOV .

SANITARY SEWERS CONSTRUCTION NOTES

1. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC" AND ALL CURRENT AMENDMENTS THERETO AND BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 317, "DESIGN CRITERIA FOR SEWERAGE 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 2010 VERSION AS APPLICABLE.
3. SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHERWISE 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 HAVE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02317-01, 02317-02, OR 02317-03 AS APPLICABLE, WITH 1 ½ SACK CEMENT/CY STABILIZED SAND BACKFILL UP TO THE BOTTOM OF THE PAVEMENT SUBGRADE. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.
8. ALL SANITARY SEWERS CROSSING WATER LINES WITH A CLEARANCE BETWEEN 12 INCHES AND 9 FEET SHALL HAVE A MINIMUM OF ONE 18'JOINT OF 150 PSI 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 (2002).
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 317.2 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 30 317.2 WITHIN THE SPECIFIED TOLERANCES ON ALL GRAVITY SEWERS.
14. 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.

A. 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:

B. 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'
   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.

15. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"
16. 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"-1.3 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.

STREET & BRIDGE CONSTRUCTION NOTES

1. HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING" UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS ESTABLISHED IN THE "INFRASTRUCTURE DESIGN MANUAL" REFERENCED AT: https://edocs.publicworks.houstontx.gov/engineering-and-construction/design-manuals.html
2. 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.
3. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURBED INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.
4. CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.
5. 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.
6. 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.
7. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO SATISFACTION OF THE OWNING AUTHORITY.
8. 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.
9. CONTRACTOR TO TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG AREAS OF EXCAVATION.
10. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING AND SHORING AS SPECIFIED IN CITY OF HOUSTON ORDINANCE #87-1457.
11. WHEEL CHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF HOUSTON STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST AND THE EXISTING CURB OR SIDEWALK IS DAMAGED OR REMOVED DURING CONSTRUCTION.
12. WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS. WATER LINES, STORM DRAINAGE AND STREET PAVING" UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN SHOULD BE CONSISTENT WITH THE MINIMUM STANDARD ESTABLISHED IN THE "DESIGN MANUAL FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORMS DRAINAGE AND STREET PAVING".
13. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES TO EXISTING WATER, WASTEWATER, STORM SEWER AND TRAFFIC SIGNAL CONDUITS, ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENTS THERETO, AT NO COST TO THE CITY OF HOUSTON.
14. 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.
15. 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.

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LEGEND

SYMBOL		DESCRIPTION
EXISTING PLAN VIEW	PROPOSED PLAN VIEW	
		AT&T/SWBT TEXAS MH
		MAILBOX
		PEDESTAL
		POWER POLE
		GAS OR ELECT. YARD LIGHT
		STREET LIGHT
		SIGN
		MANHOLE
		GRATE INLET
		CURB INLET
		WATER VALVE
		FIRE HYDRANT
		WATER METER
		ROUND CONNECTIONS
		SPRINKLER VALVE
		GAS LAMP
		GAS VALVE
		GAS METER
		DECIDUOUS TREE
		CONIFER TREE
		SHRUB
		ASPHALT PAVEMENT
		AT&T TEXAS/SWBT
		CENTERPOINT GAS LINE
		CONCRETE WALK
		EASEMENT
		EDGE OF PAVEMNT
		ELECTRICAL, OVERHEAD
		FENCE
		SANITARY SEWER
		SANITARY SEWER W/RESTRAINED PIPE
		SANITARY SEWER (AUGERED)
		STORM SEWER (24" AND SMALLER)
		STORM SEWER (30" AND LARGER)
		WATER LINE
		WATER LINE W/RESTRAINED PIPE

SYMBOL		DESCRIPTION
EXISTING PROFILE VIEW	PROPOSED PROFILE VIEW	
		AT&T/SWBT TEXAS CONDUIT
		AT&T/SWBT TEXAS MANHOLE
		CENTERPOINT ENERGY GAS LINE
		HOUSTON LIGHTING & POWER CO. MANHOLE
		NORTH OR EAST DITCH OR CURB
		NORTH OR EAST RIGH-OF-WAY
		SOUTH OR WEST DITCH OR CURB
		SOUTH OR WEST RIGHT-OF-WAY
		SANITARY SEWER MANHOLE AND CLEANOUT
		SANITARY SEWER TUNNEL CONSTRUCTION
		SANITARY SEWER (24" AND SMALLER)
		SANITARY SEWER W/RESTRAINED PIPE
		SANITARY SEWER LINE (AUGERED)
		STORM SEWER (24" AND SMALLER)
		STORM SEWER (30" AND LARGER)
		STORM SEWER INLET
		STORM SEWER MANHOLE
		WATER LINE (4" AND LARGER)
		WATER LINE W/RESTRAINED PIPE
		WATER LINE STEEL SECTIONS OFFSET SECTION AS PER COH DETAILS 02511-01

ABBREVIATIONS

@	AT
&	AND
DA	DEFLECTION ANGLE
ABAN	ABANDONED
AB	ALL BELL
AC	ACRE
ADJ	ADJUSTMENT
APP	APPROXIMATE
ASPH	ASPHALT
AUG	AUGER
AVE	AVENUE
B-B	BACK TO BACK
BC	BACK OF CURB
B/F	BLIND FLANGE
BL	BUILDING LINE
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCH MARK
BV	BUTTERFLY VALVE
BW	BOTH WAYS
C	CURVE
C-C	CENTER TO CENTER
CF	CUBIC FEET
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT OR COUNTY
COH	CITY OF HOUSTON
COMM	COMMERCIAL
CON	CONCRETE
COND	CONDUIT
CONN	CONNECTION
COR	CORNER
CP&A	CUT PLUG AND ABANDON
C&P	CUT AND PLUG
CR	CREEK
CTB	CONCRETE TRAFFIC BARRIER
CUL	CULVERT
CV	CHECK VALVE
CY	CUBIC YARD
DEG	DEGREE OR DEGREE OF CURVATURE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DWY	DRIVEWAY
DTL	DETAIL
DWG	DRAWING
E	EAST
EA	EACH
EC	EDGE OF CONCRETE
ELEV	ELEVATION
ELEC	ELECTRIC
EOP	EDGE OF PAVEMENT
ESMT	EASEMENT
ESPL	ESPLANADE
EXIST	EXISTING
EXC	EXCAVATION
EXP	EXPANSION
FEN	FENCE
FF	FINISHED FLOOR
F-F	FACE TO FACE
FFF	FILTER FABRIC FENCE
FH	FIRE HYDRANT
FL	FLOW LINE
FM	FORCE MAIN
FND	FOUND
FT	FLUSH VALVE
GT	GUTTER
GALV	GALVANIZED
GM	GAS METER
GRAV	GRAVEL
GV	GATE VALVE
HB	HIGH BANK
HC	HARRIS COUNTY
HCFCD	HARRIS COUNTY FLOOD CONTROL DISTRICT
HGL	HYDRAULIC GRADE LINE
HL&P	HOUSTON LIGHTING & POWER
HMABC	HOT MIX ASPHALTIC BASE COURSE
HP	HIGH POINT
HWY	HIGHWAY
ID	INSIDE DIAMETER
INL	INLET
INV	INVERT ELEVATION
IP	IRON PIPE
IR	IRON ROD
JT	JOINT
L	LENGTH OF CURVE
LB	POUNDS
LC	CHORD LENGTH OF CURVE
LF	LINEAR FEET
LN	LANE
LP	LOW POINT OR LIGHT POLE
LS	LUMP SUM
LSSG	LIME STABILIZED SUBGRADE
LT	LEFT OR LIGHT
MAX	MAXIMUM
MATL	MATERIAL
MEG	MATCH EXISTING GRADE
MH	MANHOLE
MIN	MINIMUM
M/L	MATCH LINE
MOD	MODIFY
MON	MONUMENT
MRC	MONOLITHIC REINFORCED CONCRETE
MW	MONITORING WELL
N	NORTH
NE	NORTHEAST
NG	NATURAL GROUND
NIC	NOT IN CONTRACT
NO	NUMBER
NOR	NORMAL
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OHE	OVERHEAD ELECTRIC
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE OR PIPE LINE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PP	POWER POLE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PT	POINT OR POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE OR POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
QTY	QUANTITY
R	RADIUSOR RIVER
RC	REVEE CURVE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REF	REINFORCED
REM	REMOVE
RES	RESIDENTIAL
REQD	REQUIRED
RFFF	REINFORCED FILTER FABRIC FENCE
ROW	RIGHT-OF-WAY
RP	RADIUS POINT
RR	RAIL ROAD
RT	RIGHT
S	SOUTH OR SLOPE
SBL	SURVEY BASE LINE
SAN	SANITARY
SE	SOUTHEAST
SEC	SECTION
SF	SQUARE FEET
SH	SHEET
SHLDR	SHOULDER
SP	SPACED OR SPACING
SPEC	SPECIFICATION
SQ	SQUARE
ST	STREET OR SAINT
STA	STATION
STAB	STABILIZED
STD	STANDARD
STM	STORM
SUB	SUBGRADE
SW	SOUTHWEST
SWBT	SOUTHWESTERN BELL TELEPHONE COMPANY
SWK	SIDEWALK
SWR	SEWER
SY	SQUARE YARD
T	TANGENT
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TCT	TOP OF CASTING
TEL	TELEPHONE
TEMP	TEMPORARY
TMUTCD	TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
TP	TOP OF PAVEMENT
TS&V	TAPPING SLEEVE & VALVE
TW	TOP OF WALK
TXDOT	TEXAS DEPARTMENT OF TRANSPORTATION
TY	TYPE
TYP	TYPICAL
UG	UNDER GROUND
UTL	UTILITY
V	VERTICAL
VAR	VARIABLE
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VOL	VOLUME
W	WEST OR WHITE
W/	WITH
W/O	WITHOUT
WC	WET CONNECTION
WL	WATER LINE
WM	WATER METER
WS	WATER STOP
WV	WATER VALVE
WWF	WOVEN WIRE FABRIC
X	EASTING GRID COORDINATE
X-ING	CROSSING
X-SEC	CROSS SECTION
Y	NORTHING GRID COORDINATE OR YELLOW

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEGEND AND ABBREVIATIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 4 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\GENERAL\04-LEGEND AND ABBREVIATIONS.DWG JUL. 01, 2026-11:03am

(1) PROPOSED 6–INCH CONCRETE PAVEMENT W/8–INCH–8% LIME STABILIZED SUB–GRADE AND 6–INCH CONCRETE CURB.

(2) REMOVE EXISTING RAMP & CONSTRUCT PROPOSED WHEELCHAIR RAMP (SEE DETAIL 02775–02 & 02775–06.

(3) CONSTRUCT PROPOSED 5–FOOT WIDE 4 1/2–INCH THICK CONCRETE SIDEWALK.

(4) PROPOSED CONCRETE PAVING HEADER PER DETAIL.

(5) PROPOSED SIDEWALK TO MATCH EXISTING SIDEWALK.

(6) CAP & PLUG PROPOSED STORM OR SANITARY SEWER FOR FUTURE CONNECTION.

(7) PROPOSED 4–INCH 2–WAY REFLECTORIZED BLUE PAVEMENT MARKER. SHALL BE PLACED 6–INCHES OFFSET OF THE CENTERLINE AT ALL FIRE HYDRANT LOCATIONS. FIRE HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.

(8) PROPOSED SAWED JOINT AND EXPOSE 15 INCHES OF REINFORCING STEEL. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. SEE NOTE 19. CONTRACTOR TO COMPLY WITH STREET CUT ORDINANCE AND DETAILS

(9) REMOVE EXISTING RAMP & CONSTRUCT PROPOSED PARALLEL CURB RAMP (SEE DETAIL 02775–03).

(10) (10.1) (10.2) (10.3) (10.4) (10.5) (10.6) (10.7) (10.8)

Table 7.3
PROTECTION REQUIREMENTS AT
WATER LINE (WL) - SANITARY SEWER (SS) CROSSINGS

	PROPOSED WATER LINE				PROPOSED SANITARY SEWER			
	OVER		UNDER		OVER		UNDER	
	EXISTING SS	PROP SS	EXISTING SS	PROP SS	EXISTING WL	PROP WL	EXISTING WL	PROP WL
Minimum 2 feet vertical clearance	√[1]	√[1]	√	√	Not Allowed	√	√[1]	√[1]
Place 1 full section (min 18 ft) of WL centered at SS Crossing. Provide restrained joints on WL, spaced at least 9 ft horizontally from centerline of SS	√	√	√	√		√		√
Place 1 full section (min 18 ft) of SS centered at WL Crossing. Provide restrained joints on SS, spaced at least 9 ft horizontally from centerline of WL		√					√	√
Replace 1 full section of existing SS with pressure-rated DIP or pressure-rated PVC pipe with adapters and restrained joints centered at WL crossing	√[2,3]		√[3]					
Provide DIP for small diameter WL (less than 24 inches), PVC pipe is only allowed if encased as per TAC § 290.44, and use restrained joints for both DIP and PVC pipe			√	√		√		
Embed SS with CSS for the total length of 1 pipe segment plus 1 foot beyond the joints on each end	√[2,3]	√[4]	√[3]	√[4]		√[4]	√[4]	√[4]
Place 1 full section (min 18 ft) of min 150 psi SS centered at WL crossing. Provide restrained joints on SS, spaced at least 9 ft horizontally from centerline of WL or encase in a joint of 150 psi pressure pipe (min 18 ft) two nominal sizes larger with spacers at 5 ft interval.				√		√		

1. Minimum clearance is 2 feet for non-pressure rated SS and 1 foot for pressure rated SS
2. Required if existing SS is disturbed and /or there is evidence of leakage
3. Not required for augered WL unless there is evidence of leakage; completely fill augered hole with bentonite/clay mixture
4. Not required for augered SS; completely fill augered hole with bentonite/clay mixture

Note:
a. Both water lines and wastewater main or lateral must pass a pressure and leakage test as specified in AWWA C600 standards
b. Sanitary sewers (SS) is applicable to both gravity sanitary sewers and force mains.

(11) REMOVE AND REPLACE CONCRETE DRIVEWAY WITH 5' RADIUS (TYP), SAWCUT AT RIGHT–OF–WAY; UNLESS OTHERWISE SHOWN IN PLANS.

(12) REMOVE AND REPLACE EXISTING WALKWAYS AT THE EXISTING WIDTH WITH 4 1/2–INCH THICK CONCRETE.

(13) REMOVE EXISTING CONCRETE PAVEMENT, CONCRETE CURB, CONCRETE BASE, AND CEMENT STABILIZED SHELL BASE COURSE WITH OR WITHOUT ASPHALT SURFACING. (ALL THICKNESS)

(14) REMOVE EXISTING CONCRETE SIDEWALKS.

(15) REMOVE EXISTING WHEELCHAIR RAMP.

(16) REMOVE, DISPOSE AND BACKFILL OF EXISTING STORM SEWER PIPE (24"DIA & SMALLER).

(17) REMOVE, DISPOSE AND BACKFILL EXISTING MANHOLE TO FULL DEPTH.

(18) REMOVE, DISPOSE AND BACKFILL EXISTING INLET.

(19) HORIZONTAL DOWELS SHALL BE NO. 6 BARS, 24 INCHES LONG, DRILLED AND EMBEDDED 12 INCHES INTO THE CENTER OF THE EXISTING SLAB WITH PO ROC OR EQUAL. DOWELS SHALL BE 12 INCHES, CENTER TO CENTER, UNLESS OTHERWISE SPECIFIED. USE GRADE 60 STEEL.(INCIDENTAL)

(20) REMOVE & DISPOSE EXIST. SANITARY SEWER LINE.

(21) ADJUST OR RELOCATE EXISTING WATER METER AND/OR WATER VALVE TO GRADE. RELOCATE WATER METER BOX. IF IN PAVING. REPLACE MISSING OR DAMAGED METER/VALVE BOXES AND COVERS. CONTACT SENIOR CHIEF INSPECTOR AT SERVICE INSPECTION DESK AT 713–371–1367 48 HOURS BEFORE COMMENCING WORK

(22) REMOVE AND RELOCATE EXISTING FIRE HYDRANT AND EXISTING VALVE.

(23) ABANDON EXISTING STORM SEWER PIPE IN ACCORDANCE WITH SPEC SECTION 02222.

(24) ADJUST STORM OR SANITARY MANHOLE TO GRADE.

(25) REMOVE, DISPOSE AND BACKFILL EXIST. STORM SEWER PIPE.(30" & LARGER).

(26) PROPOSED PRECAST CONCRETE SANITARY SEWER MANHOLE WITH SEALED MANHOLE COVER OVER EXIST. LINE

(27) PROPOSED PRECAST CONCRETE SANITARY SEWER MANHOLE WITH SEALED MANHOLE COVER.

(28) PROPOSED 4–INCH ASPHALT TRANSITION W/10–INCH BLACK BASE AD 6–INCH STABILIZED SUB–GRADE.

(29) PROTECT EXIST. POWER POLE AND /OR TEL. PED. IN PLACE.

(30) PROTECT EXISTING FIRE HYDRANT IN PLACE & ADJUST EXIST. VALVE TO GRADE. CONTRACTOR IS RESPONSIBLE FOR DAMAGING THE FIRE HYDRANT.

(31) PLACE 1 FULL SECTION (MIN 18 FT) PRESSURE–RATED SANITARY SEWER CENTERED AT WATER LINE CROSSING. PROVIDE RESTRAINED JOINTS ON SANITARY SEWER, SPACED AT LEAST 9' HORIZONTALLY FROM CENTERLINE OF WATER LINE.

(32) CONSTRUCT 6–INCH SAN. LEAD WITH STACK, BEND, CLEAN OUT, ETC., COMPLETE IN PLACE.

(33) CRITICAL LOCATE IN ACCORDANCE WITH SPEC. SECTION 02317.

(34) CONSTRUCT 8–INCH SAN. SEWER INVERTED SIPHON.

(35) ABANDON EXIST. WATER LINE(S) IN ACCORDANCE WITH SPEC. SECTION 02516 AND TRANSFER SERVICES TO PROP. WATER LINE(S)

(36) REMOVE AND REPLACE EXIST. CONC. DRIVEWAY OUTSIDE ROW PER SHEET 78.

(37) REMOVE EXIST. ABANDONED WATER LINE WHEN IN CONFLICT WITH PROP. WATER LINE.

(38) PROPOSED HIGH EARLY STRENGTH 10–INCH CONCRETE PAVEMENT W/ 6–INCH CONCRETE CURB AND 8–INCH CEMENT SAND STABILIZED SUB–GRADE.

(39) RELOCATE EXIST. TRAFFIC SIGN(S).

(40) REMOVE AND RELOCATE EXIST. FENCE, GATE OR BRICK STRUCTURE WITHIN ROW.

(41) PROPOSED SANITARY SEWER VENT WITH CONCRETE BOLLARD.

(42) PROPOSED PRECAST CONCRETE SANITARY SEWER DROP MANHOLE WITH SEALED MANHOLE COVER OVER EXIST. LINE

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FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB–PROJECT 1

PLAN & PROFILE KEY NOTES

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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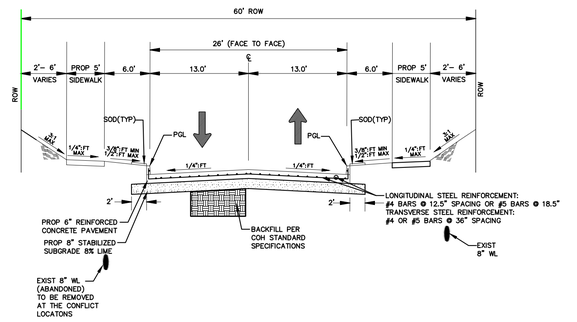
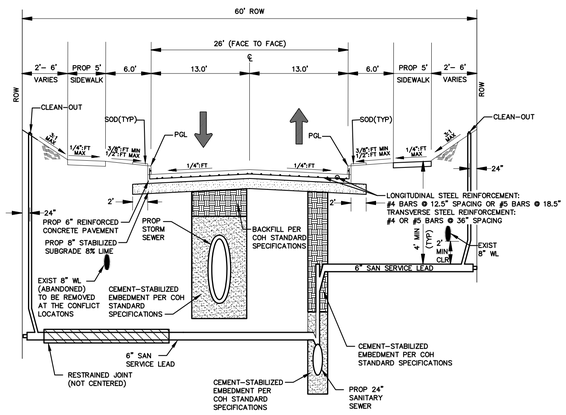
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 5 OF 159	

K:\331052–CLOVERLAND AREA P&D–COH FY15\DWG\DESIGN DRAWINGS\SUB–PROJECT–1\GENERAL\05–PLAN & PROFILE KEY NOTES.DWG JUL 01, 2026–10:55am



LEITRIM WAY

STA. 3+35.00 TO 4+38.00



LEITRIM WAY

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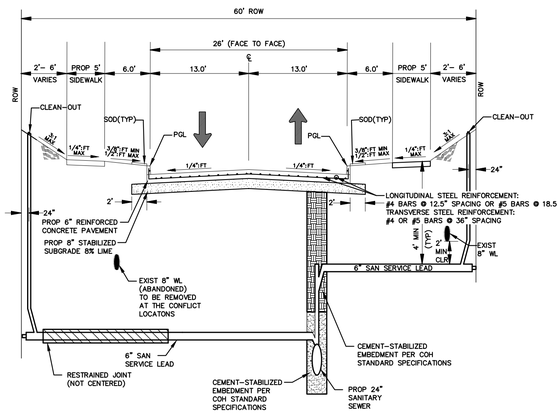

LEITRIM WAY

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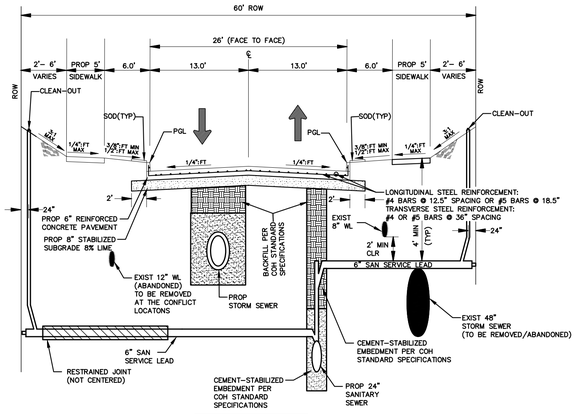
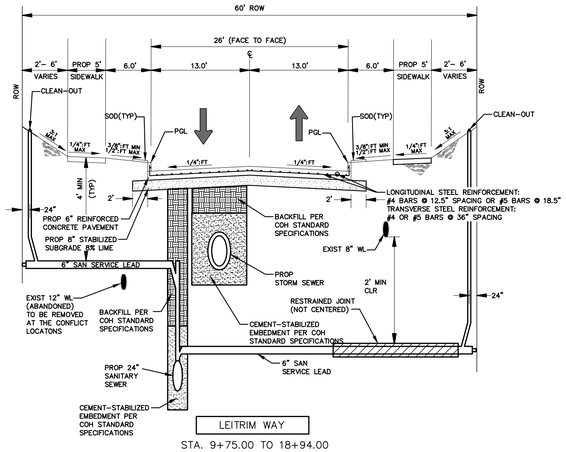


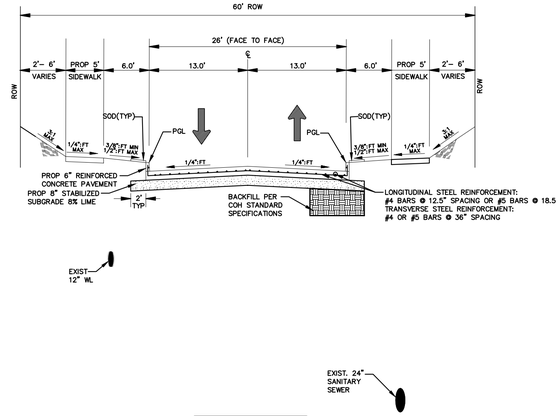
LEITRIM WAY

STA. 7+48.00 TO 9+75.00



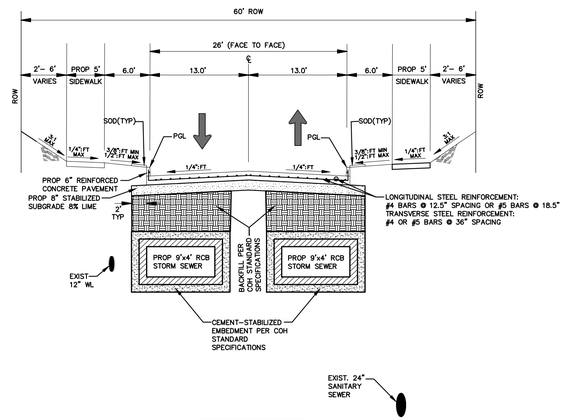
LEITRIM WAY

STA. 9+75.00 TO 18+94.00



LEITRIM WAY

STA. 18+94.00 TO 20+92.50



LEITRIM WAY

STA. 20+92.50 TO MOWERY

NOTES

1- LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND VARIES ALONG THE STREET PROFILE. SEE CONSTRUCTION PLANS.

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THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

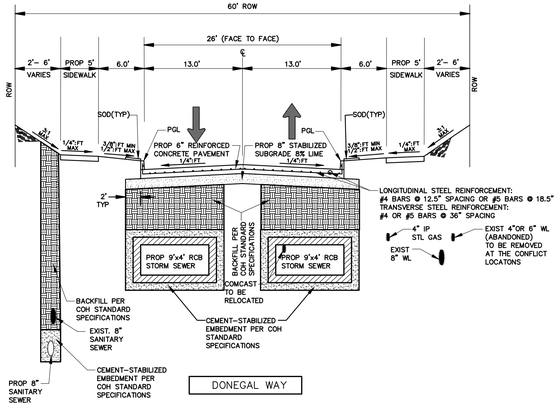
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

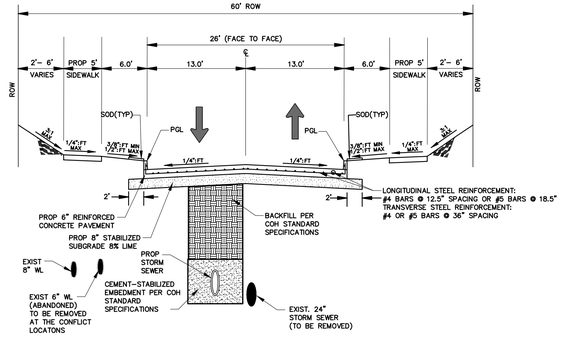
TYPICAL ROADWAY SECTIONS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=10' HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 18 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\GENERAL\018-TYPICAL ROADWAY SECTIONS SHEET 1 OF 2.DWG JUL. 01, 2026-10:58am

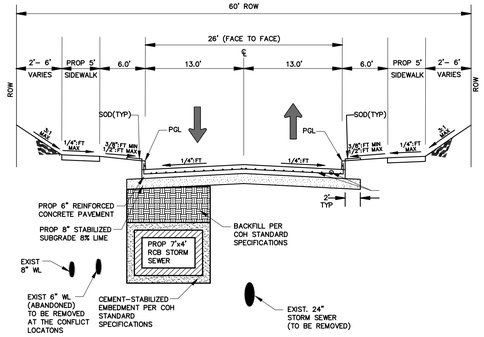


DONEGAL WAY



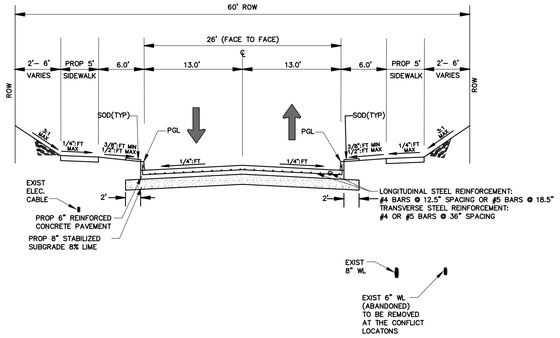
DUANE WAY

STA. 15+74.70 TO 18+78.00

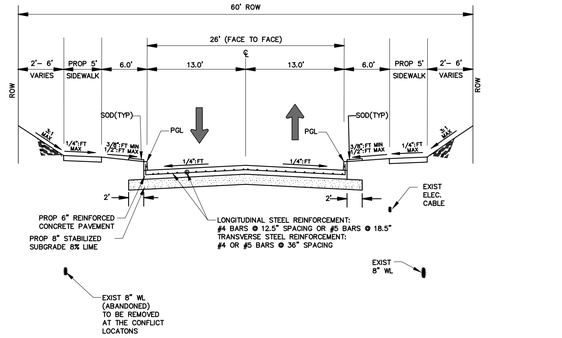


DUANE WAY

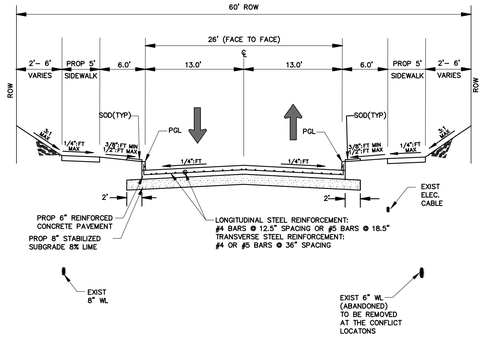
STA. 18+78.00 TO MOWERY



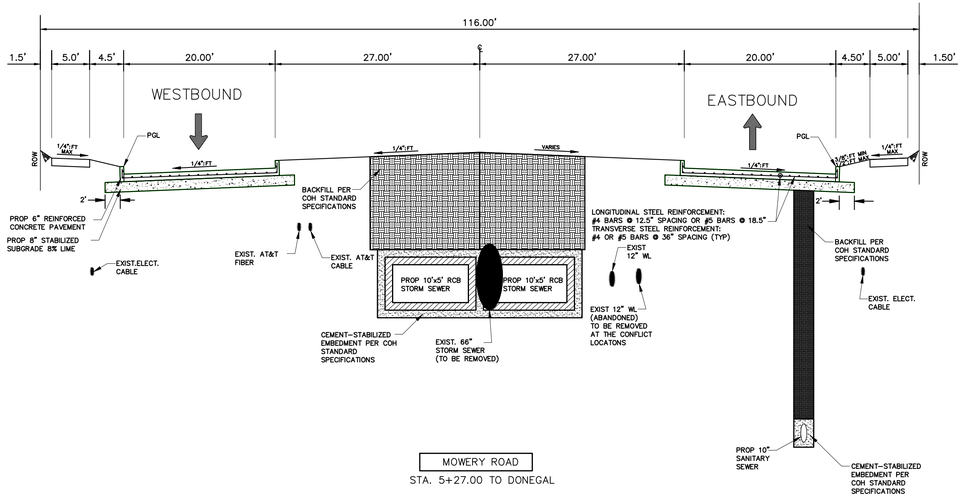
TRAYTON LANE



BOTANY LANE

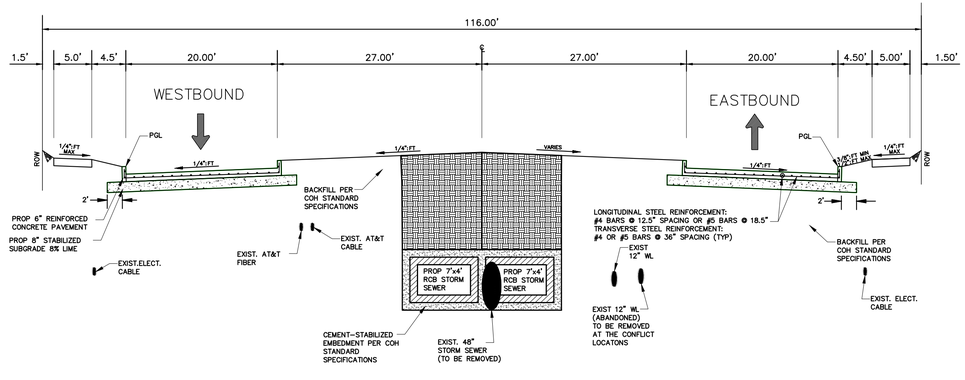


TAVENOR LANE



MOWERY ROAD

STA. 5+27.00 TO DONEGAL



MOWERY ROAD

DONEGAL TO DUANE

NOTES

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2– CONTRACTOR TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION.

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THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F–12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB–PROJECT 1

TYPICAL ROADWAY SECTIONS
SHEET 2 OF 2

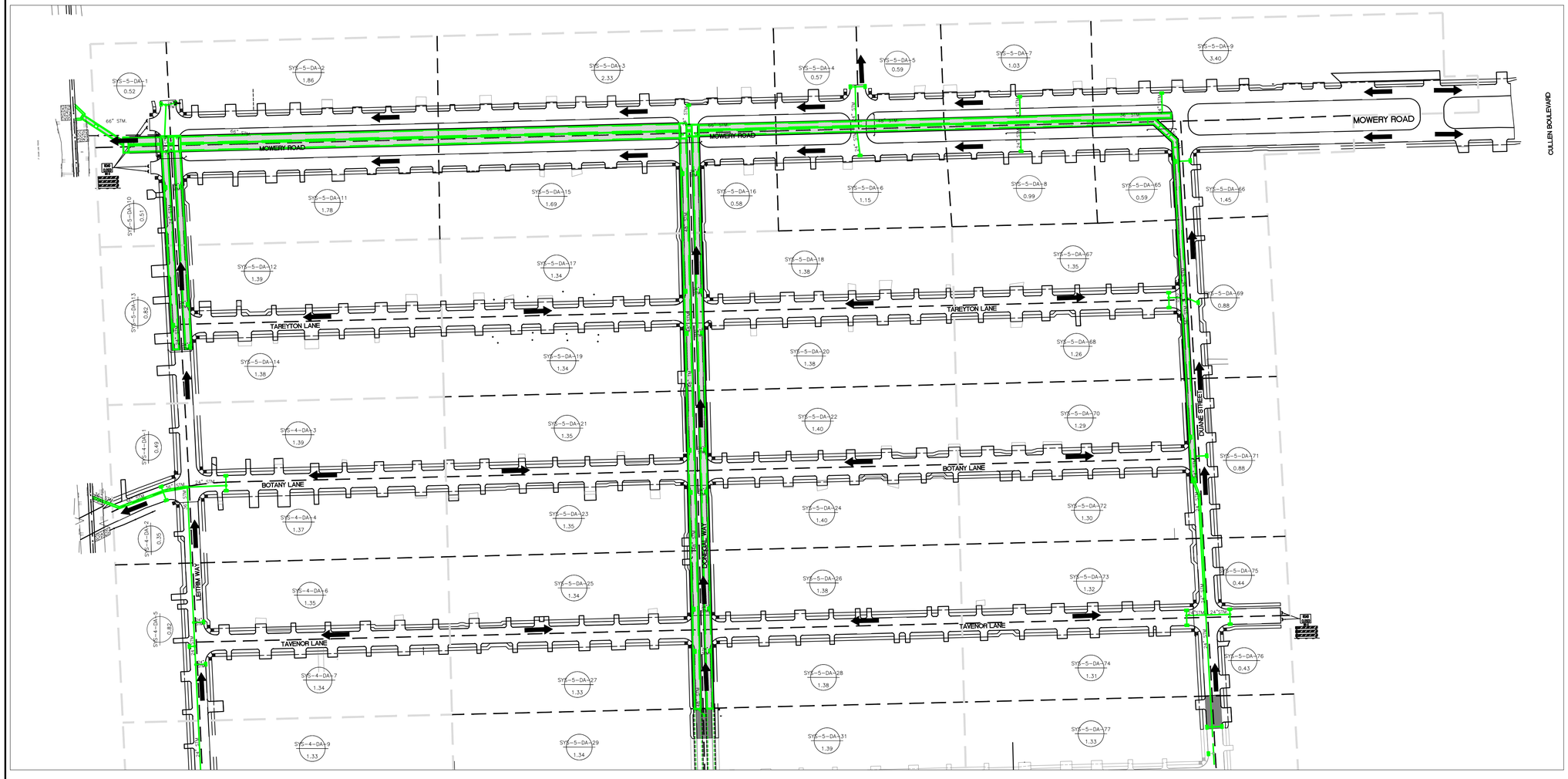
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N–210004–0001–4	
DRAWING SCALE	
VERT. HORIZ. 1"=10'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 19 OF 159	

K:\331052–CLOVERLAND AREA P&D–COH FY15\DWG\DESIGN DRAWINGS\SUB–PROJECT–1\GENERAL\019–TYPICAL ROADWAY SECTIONS SHEET 2 OF 2.DWG JUL 01, 2026–10:50am

LEGEND

- 100-YR SHEET FLOW DIRECTION
- C-2 / 0.54 — DRAINAGE AREA DESIGNATION / DRAINAGE AREA (ACRES)
- DRAINAGE AREA BOUNDARY
- DRAINAGE SUB-AREA BOUNDARY

FULL-SIZE (22"X34"): 1" = 100'
HALF-SIZE (11"X17"): 1" = 200'



K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DRAINAGE\020- DRAINAGE AREA MAP SHEET 1 OF 2.DWG JUL. 01, 2026-10:57am

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

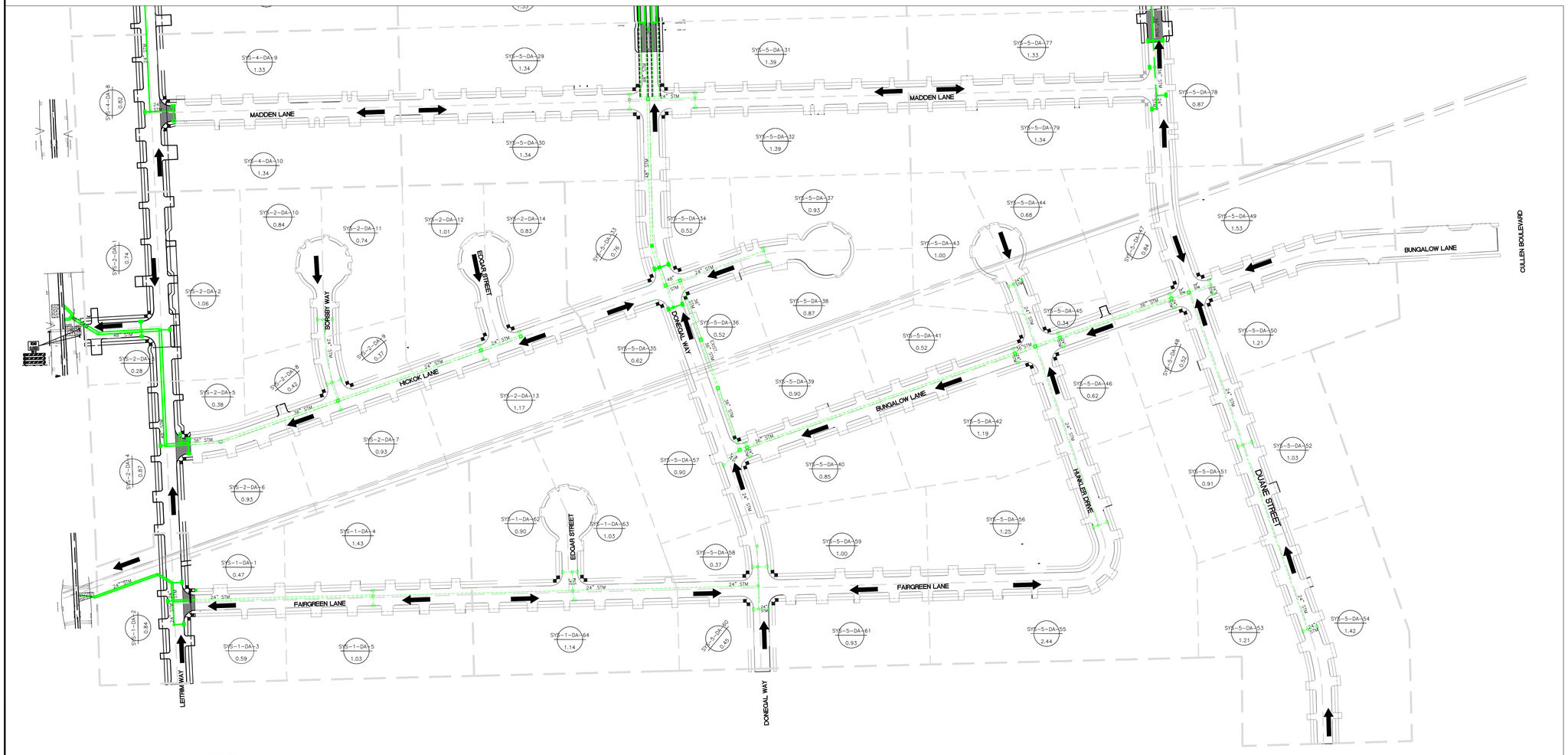
DRAINAGE AREA MAP
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

LEGEND

- 100-YR SHEET FLOW DIRECTION
- C-2 / 0.54 — DRAINAGE AREA DESIGNATION / DRAINAGE AREA (ACRES)
- DRAINAGE AREA BOUNDARY
- DRAINAGE SUB-AREA BOUNDARY

FULL-SIZE (22"X34"): 1" = 100'
HALF-SIZE (11"X17"): 1" = 200'



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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

DRAINAGE AREA MAP
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DRAINAGE\021- DRAINAGE AREA MAP SHEET 2 OF 2.DWG JUL. 01, 2026-10:44am

HouStorm (City Of Houston STORM DRAIN DESIGN) Version 2.1, Update: Nov/01/2007
Run @ 6/26/2019 9:15:11 AM

PROJECT NAME : SYSTEM-1
JOB NUMBER :
PROJECT DESCRIPTION :
PROJECT File: K:\331052-Cloverland Area P&D-COH FY15\H&H\Dehui Su\2019-6-8 (CO

ANALYSYS FREQUENCY : 2 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 2 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SYS1DA1	0.55	0.47	23.76	23.76	3.49	0.000	0.903
	0.55	0.47	Residential Lots < 1/4 acre				
SYS1DA2	0.55	0.84	24.70	24.70	3.43	0.000	1.583
	0.55	0.84	Residential Lots < 1/4 acre				
SYS1DA3	0.55	0.59	24.11	24.11	3.47	0.000	1.126
	0.55	0.59	Residential Lots < 1/4 acre				
SYS1DA4	0.55	1.33	25.52	25.52	3.37	0.000	2.466
	0.55	1.33	Residential Lots < 1/4 acre				
SYS1DA5	0.55	1.03	25.05	25.05	3.40	0.000	1.928
	0.55	1.03	Residential Lots < 1/4 acre				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim (ft)	Grate Area (sf)	Left-Slope Longi (%)	Left-Slope Transv (%)	Right-Slope Longi (%)	Right-Slope Transv (%)	n	Gutter DeprW (ft)	Gutter Head Allowed (ft)
SYS1DA1	Curb	5.00	0.00	1.00	2.00	0.41	2.00	0.014	1.50	1.50
SYS1DA2	Curb	5.00	0.00	2.62	2.00	1.00	2.00	0.014	1.50	1.50
SYS1DA5	Curb	5.00	0.00	1.30	2.00	1.00	2.00	0.014	1.50	1.50
SYS1DA3	Curb	5.00	0.00	1.45	2.00	1.00	2.00	0.014	1.50	1.50
SYS1DA4	Curb	5.00	0.00	1.00	2.00	0.35	2.00	0.014	1.50	1.50

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Actual Head (ft)	Ponded Left (ft)	Width Right (ft)
SYS1DA1Curb		5.00	n/a	n/a	0.903	15.022	0.255	5.10	6.00
SYS1DA2Curb		5.00	n/a	n/a	1.583	15.022	0.264	5.25	6.30
SYS1DA5Curb		5.00	n/a	n/a	1.928	15.022	0.271	6.45	6.75
SYS1DA3Curb		5.00	n/a	n/a	1.126	15.022	0.257	5.15	5.50
SYS1DA4Curb		5.00	n/a	n/a	2.466	15.022	0.284	7.40	9.05

SUMMARY OF STORM DRAIN STRUCTURE QUANTITIES

NOTE:
The convey length should be from upstream to downstream inside box.
This length may also be used as Pay Item.
Using hydraulic length, from node center to node center, may result in profile error,
and this length should not be used as Pay Item.

LINKS:

Type of Convey Structure	Material	Rise (ft)	Span (ft)	Number of Links of this type	Quantity (ft)

NODES:

Type of Inlet Structure	Type of Grate	Inlet Length (ft)	Grate Width (ft)	Grate Length (ft)	Grate Area (ft)	Grate Perimeter (ft)	Quantity (each)
Curb In Sag		5.0	0.0	0.0	0.0	0.0	5
Outlet		0.0	0.0	0.0	0.0	0.0	1
		END					

NORMAL TERMINATION OF HOUSTORM.

Warning Messages for current project:

HouStorm (City Of Houston STORM DRAIN DESIGN) Version 2.1, Update: Nov/01/2007
Run @ 6/26/2019 9:03:21 AM

PROJECT NAME : SYSTEM-2
JOB NUMBER :
PROJECT DESCRIPTION :
PROJECT File: K:\331052-Cloverland Area P&D-COH FY15\H&H\Dehui Su\2019-6-8 (CO

ANALYSYS FREQUENCY : 2 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 2 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SYS2DA3	0.55	0.28	22.99	22.99	3.55	0.000	0.547
	0.55	0.28	Residential Lots < 1/4 acre				
SYS2DA4	0.55	0.87	24.76	24.76	3.42	0.000	1.638
	0.55	0.87	Residential Lots < 1/4 acre				
SYS2DA5	0.55	0.38	23.43	23.43	3.52	0.000	0.735
	0.55	0.38	Residential Lots < 1/4 acre				
SYS2DA7	0.55	0.93	24.87	24.87	3.42	0.000	1.747
	0.55	0.93	Residential Lots < 1/4 acre				
SYS2DA8	0.55	0.42	23.58	23.58	3.51	0.000	0.810
	0.55	0.42	Residential Lots < 1/4 acre				
SYS2DA9	0.55	0.37	23.39	23.39	3.52	0.000	0.717
	0.55	0.37	Residential Lots < 1/4 acre				
SYS2DA10	0.55	0.84	24.70	24.70	3.43	0.000	1.583
	0.55	0.84	Residential Lots < 1/4 acre				
SYS2DA1	0.55	0.74	24.48	24.48	3.44	0.000	1.401
	0.55	0.74	Residential Lots < 1/4 acre				
SYS2DA2	0.55	1.06	25.10	25.10	3.40	0.000	1.982
	0.55	1.06	Residential Lots < 1/4 acre				
SYS2DA11	0.55	0.74	24.48	24.48	3.44	0.000	1.401
	0.55	0.74	Residential Lots < 1/4 acre				
SYS2DA12	0.55	1.01	25.02	25.02	3.41	0.000	1.892
	0.55	1.01	Residential Lots < 1/4 acre				
SYS2DA13	0.55	1.17	25.28	25.28	3.39	0.000	2.180
	0.55	1.17	Residential Lots < 1/4 acre				
SYS2DA14	0.55	0.83	24.68	24.68	3.43	0.000	1.565
	0.55	0.83	Residential Lots < 1/4 acre				
SYS2DA6	0.55	0.93	24.87	24.87	3.42	0.000	1.747
	0.55	0.93	Residential Lots < 1/4 acre				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim (ft)	Grate Area (sf)	Left-Slope Longi (%)	Left-Slope Transv (%)	Right-Slope Longi (%)	Right-Slope Transv (%)	n	Gutter DeprW (ft)	Gutter Head Allowed (ft)
SYS2DA1	Curb	5.00	0.00	1.75	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA2	Curb	5.00	0.00	1.00	2.00	0.39	2.00	0.014	1.50	1.50
SYS2DA3	Curb	5.00	0.00	1.00	2.00	0.39	2.00	0.014	1.50	1.50
SYS2DA4	Curb	5.00	0.00	0.38	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA5	Curb	5.00	0.00	0.38	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA7	Curb	5.00	0.00	0.35	2.00	0.50	2.00	0.014	1.50	1.50
SYS2DA8	Curb	5.00	0.00	0.35	2.00	0.35	2.00	0.014	1.50	1.50
SYS2DA10	Curb	5.00	0.00	1.00	2.00	0.35	2.00	0.014	1.50	1.50
SYS2DA11	Curb	5.00	0.00	2.08	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA12	Curb	5.00	0.00	2.06	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA13	Curb	5.00	0.00	1.00	2.00	0.35	2.00	0.014	1.50	1.50
SYS2DA14	Curb	5.00	0.00	0.35	2.00	1.00	2.00	0.014	1.50	1.50
SYS2DA9	Curb	5.00	0.00	1.00	2.00	0.56	2.00	0.014	1.50	1.50

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Actual Head (ft)	Ponded Left (ft)	Width Right (ft)
SYS2DA1Curb		5.00	n/a	n/a	1.401	15.022	0.261	5.40	6.00
SYS2DA2Curb		5.00	n/a	n/a	1.982	15.022	0.272	6.85	8.15
SYS2DA3Curb		5.00	n/a	n/a	0.547	15.022	0.252	4.20	5.05
SYS2DA4Curb		5.00	n/a	n/a	1.638	15.022	0.265	7.60	6.35
SYS2DA5Curb		5.00	n/a	n/a	0.735	15.022	0.253	5.65	4.70
SYS2DA7Curb		5.00	n/a	n/a	1.747	15.022	0.267	7.95	7.40
SYS2DA8Curb		5.00	n/a	n/a	0.810	15.022	0.254	5.95	5.95
SYS2DA10									
	Curb	5.00	n/a	n/a	1.583	15.022	0.264	6.30	7.65
SYS2DA11									
	Curb	5.00	n/a	n/a	1.401	15.022	0.261	5.20	6.00
SYS2DA12									
	Curb	5.00	n/a	n/a	1.892	15.022	0.270	5.85	6.70
SYS2DA13									
	Curb	5.00	n/a	n/a	2.180	15.022	0.276	7.10	8.60
SYS2DA14									
	Curb	5.00	n/a	n/a	1.565	15.022	0.264	7.60	6.25
SYS2DA9Curb		5.00	n/a	n/a	0.717	15.022	0.253	4.65	5.20

SUMMARY OF STORM DRAIN STRUCTURE QUANTITIES

NOTE:
The convey length should be from upstream to downstream inside box.
This length may also be used as Pay Item.
Using hydraulic length, from node center to node center, may result in profile error,
and this length should not be used as Pay Item.

LINKS:

Type of Convey Structure	Material	Rise (ft)	Span (ft)	Number of Links of this type	Quantity (ft)

NODES:

Type of Inlet Structure	Type of Grate	Inlet Length (ft)	Grate Width (ft)	Grate Length (ft)	Grate Area (ft)	Grate Perimeter (ft)	Quantity (each)
Curb In Sag		5.0	0.0	0.0	0.0	0.0	13
Outlet		0.0	0.0	0.0	0.0	0.0	1
		END					

NORMAL TERMINATION OF HOUSTORM.

Warning Messages for current project:

HouStorm (City Of Houston STORM DRAIN DESIGN) Version 2.1, Update: Nov/01/2007
Run @ 6/26/2019 9:05:13 AM

PROJECT NAME : SYSTEM-4
JOB NUMBER :
PROJECT DESCRIPTION :
PROJECT File: K:\331052-Cloverland Area P&D-COH FY15\H&H\Dehui Su\2019-6-8 (CO

ANALYSYS FREQUENCY : 2 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 2 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SYS4DA1	0.55	0.49	23.82	23.82	3.49	0.000	0.941
	0.55	0.49	Residential Lots < 1/4 acre				
SYS4DA2	0.55	0.35	23.31	23.31	3.53	0.000	0.679
	0.55	0.35	Residential Lots < 1/4 acre				
SYS4DA3	0.55	1.39	25.60	25.60	3.37	0.000	2.573
	0.55	1.39	Residential Lots < 1/4 acre				
SYS4DA4	0.55	1.37	25.57	25.57	3.37	0.000	2.538
	0.55	1.37	Residential Lots < 1/4 acre				
SYS4DA5	0.55	0.82	24.66	24.66	3.43	0.000	1.547
	0.55	0.82	Residential Lots < 1/4 acre				
SYS4DA6	0.55	1.35	25.54	25.54	3.37	0.000	2.502
	0.55	1.35	Residential Lots < 1/4 acre				
SYS4DA7	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				
SYS4DA8	0.55	0.82	24.66	24.66	3.43	0.000	1.547
	0.55	0.82	Residential Lots < 1/4 acre				
SYS4DA9	0.55	1.33	25.52	25.52	3.37	0.000	2.466
	0.55	1.33	Residential Lots < 1/4 acre				
SYS4DA10	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim (ft)	Grate Area (sf)	Left-Slope Longi (%)	Left-Slope Transv (%)	Right-Slope Longi (%)	Right-Slope Transv (%)	n	Gutter DeprW (ft)	Gutter Head Allowed (ft)
SYS4DA3	Curb	5.00	0.00	0.30	2.00	1.00	2.00	0.014	1.50	1.50
SYS4DA4	Curb	5.00	0.00	0.30	2.00	1.00	2.00	0.014	1.50	1.50
SYS4DA1	Curb	5.00	0.00	0.98	2.00	1.00	2.00	0.014	1.50	1.50
SYS4DA2	Curb	5.00	0.00	0.69	2.00	1.00	2.00	0.014	1.50	1.50
SYS4DA5	Curb	5.00	0.00	0.36	2.00	1.00	2.00	0.014	1.50	1.50
SYS4DA6	Curb	10.00	0.00	0.81	2.00	0.36	2.00	0.014	1.50	1.50
SYS4DA7	Curb	5.00	0.00	50.00	100.00	0.50	1.00	0.015	1.50	1.50
SYS4DA8	Curb	10.00	0.00	1.52	2.00	0.36	2.00	0.014	1.50	1.50
SYS4DA9	Curb	5.00	0.00	0.70	2.00	0.70	2.00	0.014	1.50	1.50

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Actual Head (ft)	Ponded Left (ft)	Width Right (ft)
SYS4DA3Curb		5.00	n/a	n/a	2.573	15.022	0.287	9.45	7.55
SYS4DA4Curb		5.00	n/a	n/a	2.538	15.022	0.286	9.40	7.50
SYS4DA1Curb		5.00	n/a	n/a	0.941	15.022	0.255	5.20	5.15
SYS4DA2Curb		5.00	n/a	n/a	0.679	15.022	0.253	4.90	4.55
SYS4DA5Curb		5.00	n/a	n/a	1.547	15.022	0.263	7.55	6.20
SYS4DA6Curb		10.00	n/a	n/a	2.502	30.045	0.259	7.75	9.05
SYS4DA7Curb		5.00	n/a	n/a	2.484	15.022	0.284	0.32	13.40
SYS4DA8Curb		10.00	n/a	n/a	1.547	30.045	0.253	6.15	6.95
SYS4DA9Curb		5.00	n/a	n/a	2.466	15.022	0.284	7.95	7.95

SUMMARY OF STORM DRAIN STRUCTURE QUANTITIES

NOTE:
The convey length should be from upstream to downstream inside box.
This length may also be used as Pay Item.
Using hydraulic length, from node center to node center, may result in profile error,
and this length should not be used as Pay Item.

LINKS:

Type of Convey Structure	Material	Rise (ft)	Span (ft)	Number of Links of this type	Quantity (ft)

NODES:

Type of Inlet Structure	Type of Grate	Inlet Length (ft)	Grate Width (ft)	Grate Length (ft)	Grate Area (ft)	Grate Perimeter (ft)	Quantity (each)
Curb In Sag		5.0	0.0	0.0	0.0	0.0	7
Curb In Sag		10.0	0.0	0.0	0.0	0.0	2
Outlet		0.0	0.0	0.0	0.0	0.0	1
		END					

NORMAL TERMINATION OF HOUSTORM.

Warning Messages for current project:
Computed right ponded width exceeds allowable width at inlet Id= SYS4DA7
Computed left ponded width exceeds allowable width at inlet Id= SYS4DA7

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

2 YEAR DRAINAGE CALCULATIONS
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~01~~159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DRAINAGE\022- 2 YEAR DRAINAGE CALCULATIONS- 1 OF 3.DWG JUL. 01, 2026-10:41am

HouStorm (City Of Houston STORM DRAIN DESIGN) Version 2.1, Update: Nov/01/2007
Run @ 7/3/2019 2:34:37 PM

PROJECT NAME : SYSTEM-5
JOB NUMBER :
PROJECT DESCRIPTION :
PROJECT File: K:\331052-Cloverland Area P&D-COH FY15\H&H\Dehui Su\2019-6-8 (CO

ANALYSYS FREQUENCY : 2 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 2 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SYS5DA1	0.55	0.52	23.91	23.91	3.48	0.000	0.996
	0.55	0.52	Residential Lots < 1/4 acre				
SYS5DA2	0.55	1.86	26.15	26.15	3.33	0.000	3.406
	0.55	1.86	Residential Lots < 1/4 acre				
SYS5DA3	0.55	2.33	26.61	26.61	3.30	0.000	4.229
	0.55	2.33	Residential Lots < 1/4 acre				
SYS5DA4	0.55	0.57	24.06	24.06	3.47	0.000	1.089
	0.55	0.57	Residential Lots < 1/4 acre				
SYS5DA5	0.55	0.59	24.11	24.11	3.47	0.000	1.126
	0.55	0.59	Residential Lots < 1/4 acre				
SYS5DA6	0.55	1.15	25.25	25.25	3.39	0.000	2.144
	0.55	1.15	Residential Lots < 1/4 acre				
SYS5DA7	0.55	1.03	25.05	25.05	3.40	0.000	1.928
	0.55	1.03	Residential Lots < 1/4 acre				
SYS5DA8	0.55	0.99	24.98	24.98	3.41	0.000	1.856
	0.55	0.99	Residential Lots < 1/4 acre				
SYS5DA9	0.55	3.40	27.40	27.40	3.25	0.000	6.078
	0.55	3.40	Residential Lots < 1/4 acre				
SYS5DA100	0.55	0.51	23.88	23.88	3.49	0.000	0.978
	0.55	0.51	Residential Lots < 1/4 acre				
SYS5DA110	0.55	1.78	26.07	26.07	3.33	0.000	3.265
	0.55	1.78	Residential Lots < 1/4 acre				
SYS5DA120	0.55	1.39	25.60	25.60	3.37	0.000	2.573
	0.55	1.39	Residential Lots < 1/4 acre				
SYS5DA130	0.55	0.82	24.66	24.66	3.43	0.000	1.547
	0.55	0.82	Residential Lots < 1/4 acre				
SYS5DA140	0.55	1.38	25.58	25.58	3.37	0.000	2.556
	0.55	1.38	Residential Lots < 1/4 acre				
SYS5DA150	0.55	1.69	25.97	25.97	3.34	0.000	3.106
	0.55	1.69	Residential Lots < 1/4 acre				
SYS5DA160	0.55	0.58	24.09	24.09	3.47	0.000	1.107
	0.55	0.58	Residential Lots < 1/4 acre				
SYS5DA170	0.55	1.34	24.09	24.09	3.47	0.000	2.558
	0.55	1.34	Residential Lots < 1/4 acre				
SYS5DA180	0.55	1.38	25.58	25.58	3.37	0.000	2.556
	0.55	1.38	Residential Lots < 1/4 acre				
SYS5DA190	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				
SYS5DA200	0.55	1.38	25.58	25.58	3.37	0.000	2.556
	0.55	1.38	Residential Lots < 1/4 acre				
SYS5DA210	0.55	1.35	25.54	25.54	3.37	0.000	2.502
	0.55	1.35	Residential Lots < 1/4 acre				
SYS5DA220	0.55	1.40	25.61	25.61	3.37	0.000	2.591
	0.55	1.40	Residential Lots < 1/4 acre				
SYS5DA230	0.55	1.35	25.54	25.54	3.37	0.000	2.502
	0.55	1.35	Residential Lots < 1/4 acre				
SYS5DA240	0.55	1.40	25.61	25.61	3.37	0.000	2.591
	0.55	1.40	Residential Lots < 1/4 acre				
SYS5DA250	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				
SYS5DA350	0.55	0.62	24.19	24.19	3.46	0.000	1.181
	0.55	0.62	Residential Lots < 1/4 acre				
SYS5DA360	0.55	0.52	23.91	23.91	3.48	0.000	0.996
	0.55	0.52	Residential Lots < 1/4 acre				
SYS5DA370	0.55	0.93	24.87	24.87	3.42	0.000	1.747
	0.55	0.93	Residential Lots < 1/4 acre				
SYS5DA380	0.55	0.87	24.76	24.76	3.42	0.000	1.638
	0.55	0.87	Residential Lots < 1/4 acre				
SYS5DA390	0.55	0.90	24.82	24.82	3.42	0.000	1.692
	0.55	0.90	Residential Lots < 1/4 acre				
SYS5DA400	0.55	0.85	24.72	24.72	3.43	0.000	1.602
	0.55	0.85	Residential Lots < 1/4 acre				
SYS5D41	0.55	0.52	23.91	23.91	3.48	0.000	0.996
	0.55	0.52	Residential Lots < 1/4 acre				
SYS5DA420	0.55	1.19	25.31	25.31	3.39	0.000	2.216
	0.55	1.19	Residential Lots < 1/4 acre				
SYS5DA430	0.55	1.00	25.00	25.00	3.41	0.000	1.874
	0.55	1.00	Residential Lots < 1/4 acre				
SYS5DA260	0.55	1.38	25.58	25.58	3.37	0.000	2.556
	0.55	1.38	Residential Lots < 1/4 acre				
SYS5DA270	0.55	1.33	25.52	25.52	3.37	0.000	2.466
	0.55	1.33	Residential Lots < 1/4 acre				
SYS5DA280	0.55	1.38	25.58	25.58	3.37	0.000	2.556
	0.55	1.38	Residential Lots < 1/4 acre				
SYS5DA290	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				
SYS5DA300	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				
SYS5DA310	0.55	1.39	25.60	25.60	3.37	0.000	2.573
	0.55	1.39	Residential Lots < 1/4 acre				
SYS5DA320	0.55	1.39	25.60	25.60	3.37	0.000	2.573
	0.55	1.39	Residential Lots < 1/4 acre				
SYS5DA330	0.55	0.76	24.53	24.53	3.44	0.000	1.438
	0.55	0.76	Residential Lots < 1/4 acre				
SYS5DA340	0.55	0.52	23.91	23.91	3.48	0.000	0.996
	0.55	0.52	Residential Lots < 1/4 acre				
SYS5DA440	0.55	0.68	24.34	24.34	3.45	0.000	1.291
	0.55	0.68	Residential Lots < 1/4 acre				
SYS5DA450	0.55	0.34	23.27	23.27	3.53	0.000	0.660
	0.55	0.34	Residential Lots < 1/4 acre				
SYS5DA460	0.55	0.62	24.19	24.19	3.46	0.000	1.181
	0.55	0.62	Residential Lots < 1/4 acre				
SYS5DA470	0.55	0.84	24.70	24.70	3.43	0.000	1.583
	0.55	0.84	Residential Lots < 1/4 acre				
SYS5DA480	0.55	0.52	23.91	23.91	3.48	0.000	0.996
	0.55	0.52	Residential Lots < 1/4 acre				
SYS5DA490	0.55	1.53	25.78	25.78	3.35	0.000	2.822
	0.55	1.53	Residential Lots < 1/4 acre				
SYS5DA500	0.55	1.21	25.34	25.34	3.38	0.000	2.252
	0.55	1.21	Residential Lots < 1/4 acre				
SYS5DA510	0.55	0.91	24.84	24.84	3.42	0.000	1.711
	0.55	0.91	Residential Lots < 1/4 acre				
SYS5DA520	0.55	1.03	25.05	25.05	3.40	0.000	1.928
	0.55	1.03	Residential Lots < 1/4 acre				
SYS5DA620	0.55	0.90	24.82	24.82	3.42	0.000	1.692
	0.55	0.90	Residential Lots < 1/4 acre				
SYS5DA630	0.55	1.03	25.05	25.05	3.40	0.000	1.928
	0.55	1.03	Residential Lots < 1/4 acre				
SYS5DA640	0.55	1.14	25.23	25.23	3.39	0.000	2.126
	0.55	1.14	Residential Lots < 1/4 acre				
SYS5DA650	0.55	0.59	24.11	24.11	3.47	0.000	1.126
	0.55	0.59	Residential Lots < 1/4 acre				
SYS5DA660	0.55	1.45	25.68	25.68	3.36	0.000	2.680
	0.55	1.45	Residential Lots < 1/4 acre				
SYS5DA670	0.55	1.35	25.54	25.54	3.37	0.000	2.502
	0.55	1.35	Residential Lots < 1/4 acre				
SYS5DA680	0.55	1.26	25.42	25.42	3.38	0.000	2.341
	0.55	1.26	Residential Lots < 1/4 acre				
SYS5DA690	0.55	0.88	24.78	24.78	3.42	0.000	1.656
	0.55	0.88	Residential Lots < 1/4 acre				
SYS5DA700	0.55	1.29	25.46	25.46	3.38	0.000	2.395
	0.55	1.29	Residential Lots < 1/4 acre				
SYS5DA530	0.55	1.21	25.34	25.34	3.38	0.000	2.252
	0.55	1.21	Residential Lots < 1/4 acre				
SYS5DA540	0.55	1.42	25.64	25.64	3.36	0.000	2.627
	0.55	1.42	Residential Lots < 1/4 acre				
SYS5DA550	0.55	2.33	26.61	26.61	3.30	0.000	4.229
	0.55	2.33	Residential Lots < 1/4 acre				
SYS5DA560	0.55	1.25	25.40	25.40	3.38	0.000	2.323
	0.55	1.25	Residential Lots < 1/4 acre				
SYS5DA570	0.55	0.90	24.82	24.82	3.42	0.000	1.692
	0.55	0.90	Residential Lots < 1/4 acre				
SYS5DA580	0.55	0.37	23.39	23.39	3.52	0.000	0.717
	0.55	0.37	Residential Lots < 1/4 acre				
SYS5DA590	0.55	1.00	25.00	25.00	3.41	0.000	1.874
	0.55	1.00	Residential Lots < 1/4 acre				
SYS5DA600	0.55	0.45	23.69	23.69	3.50	0.000	0.866
	0.55	0.45	Residential Lots < 1/4 acre				
SYS5DA610	0.55	0.93	24.87	24.87	3.42	0.000	1.747
	0.55	0.93	Residential Lots < 1/4 acre				
SYS5DA710	0.55	0.88	24.78	24.78	3.42	0.000	1.656
	0.55	0.88	Residential Lots < 1/4 acre				
SYS5DA720	0.55	1.30	25.47	25.47	3.37	0.000	2.413
	0.55	1.30	Residential Lots < 1/4 acre				
SYS5DA730	0.55	1.32	25.50	25.50	3.37	0.000	2.449
	0.55	1.32	Residential Lots < 1/4 acre				
SYS5DA740	0.55	1.31	25.49	25.49	3.37	0.000	2.431
	0.55	1.31	Residential Lots < 1/4 acre				
SYS5DA750	0.55	0.44	23.65	23.65	3.50	0.000	0.848
	0.55	0.44	Residential Lots < 1/4 acre				
SYS5DA760	0.55	0.43	23.62	23.62	3.50	0.000	0.829
	0.55	0.43	Residential Lots < 1/4 acre				
SYS5DA770	0.55	1.33	25.52	25.52	3.37	0.000	2.466
	0.55	1.33	Residential Lots < 1/4 acre				
SYS5DA780	0.55	0.87	24.76	24.76	3.42	0.000	1.638
	0.55	0.87	Residential Lots < 1/4 acre				
SYS5DA790	0.55	1.34	25.53	25.53	3.37	0.000	2.484
	0.55	1.34	Residential Lots < 1/4 acre				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim (ft)	Grate Area (sf)	Left-Slope Longi (%)	Left-Slope Transv (%)	Right-Slope Longi (%)	Right-Slope Transv (%)	Gutter n	Gutter DeprW (ft)	Head Allowed (ft)
SYS5DA1	Curb	5.00	0.00	0.35	2.00	0.62	2.00	0.014	1.50	1.50
SYS5DA2	Curb	5.00	0.00	1.00	2.00	0.35	2.00	0.014	1.50	1.50
SYS5DA3	Curb	5.00	0.00	0.43	2.00	0.37	2.00	0.014	1.50	1.50
SYS5DA4	Curb	5.00	0.00	4.30	2.00	0.37	2.00	0.014	1.50	1.50
SYS5DA5	Curb	5.00	0.00	1.00	2.00	0.55	2.00	0.014	1.50	1.50
SYS5DA6	Curb	5.00	0.00	1.00	2.00	0.55	2.00	0.014	1.50	1.50
SYS5DA7	Curb	5.00	0.00	2.08	2.00	1.00	2.00	0.014	1.50	1.50
SYS5DA8	Curb	5.00	0.00	2.08	2.00	1.00	2.00	0.014	1.50	1.50
SYS5DA9	Curb	5.00	0.00	0.39	2.00	0.35	2.00	0.014	1.50	1.50
SYS5DA10	Curb	5.00	0.00	0.62	2.00	0.35	2.00	0.014	1.50	1.50
SYS5DA11	Curb	5.00	0.00	0.35	2.00	0.35	2.00	0.014	1.50	1.50
SYS5DA12	Curb	5.00	0.00	0.51	2.00	0.35	2.00	0.014	1.50	1.50
SYS5DA13	Curb	5.00	0.00	1.00	2.00	0.41	2.00	0.014	1.50	1.50
SYS5DA14	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA15	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA16	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA17	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA18	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA19	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA20	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA21	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA70	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA71	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA72	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA73	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA74	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DRAINAGE\023- 2 YEAR DRAINAGE CALCULATIONS- 2 OF 3.DWG JUL. 01, 2026-10:40am

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

2 YEAR DRAINAGE CALCULATIONS
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

SYS5DA75	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA76	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA22	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA23	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA24	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA25	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA26	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA27	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA28	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA65	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA66	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA67	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA68	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50
SYS5DA69	Curb	5.00	0.00	0.50	2.00	0.50	2.00	0.014	1.50	1.50

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Actual Head (ft)	Ponded Left (ft)	Width Right (ft)
SYS5DA1	Curb	5.00	n/a	n/a	0.996	15.022	0.255	6.40	5.75
SYS5DA2	Curb	5.00	n/a	n/a	3.406	15.022	0.314	8.35	10.20
SYS5DA3	Curb	5.00	n/a	n/a	4.229	15.022	0.349	10.65	10.95
SYS5DA4	Curb	5.00	n/a	n/a	1.089	15.022	0.257	4.15	6.55
SYS5DA5	Curb	5.00	n/a	n/a	1.126	15.022	0.257	5.50	6.20
SYS5DA6	Curb	5.00	n/a	n/a	2.144	15.022	0.275	7.05	7.85
SYS5DA7	Curb	5.00	n/a	n/a	1.928	15.022	0.271	5.90	6.75
SYS5DA8	Curb	5.00	n/a	n/a	1.856	15.022	0.269	5.80	6.65
SYS5DA9	Curb	5.00	n/a	n/a	6.078	15.022	0.455	12.40	12.65
SYS5DA10	Curb	5.00	n/a	n/a	0.978	15.022	0.255	5.75	6.40
SYS5DA11	Curb	5.00	n/a	n/a	3.265	15.022	0.309	10.05	10.05
SYS5DA12	Curb	5.00	n/a	n/a	2.573	15.022	0.287	8.55	9.15
SYS5DA13	Curb	5.00	n/a	n/a	1.547	15.022	0.263	6.20	7.35
SYS5DA14	Curb	5.00	n/a	n/a	2.556	15.022	0.286	8.55	8.55
SYS5DA15	Curb	5.00	n/a	n/a	3.106	15.022	0.303	9.20	9.20
SYS5DA16	Curb	5.00	n/a	n/a	1.107	15.022	0.257	6.25	6.25
SYS5DA17	Curb	5.00	n/a	n/a	2.558	15.022	0.286	8.55	8.55
SYS5DA18	Curb	5.00	n/a	n/a	2.556	15.022	0.286	8.55	8.55
SYS5DA19	Curb	5.00	n/a	n/a	2.484	15.022	0.284	8.45	8.45
SYS5DA20	Curb	5.00	n/a	n/a	2.556	15.022	0.286	8.55	8.55
SYS5DA21	Curb	5.00	n/a	n/a	2.502	15.022	0.285	8.50	8.50
SYS5DA70	Curb	5.00	n/a	n/a	2.395	15.022	0.282	8.35	8.35
SYS5DA71	Curb	5.00	n/a	n/a	1.656	15.022	0.265	7.25	7.25
SYS5DA72	Curb	5.00	n/a	n/a	2.413	15.022	0.282	8.35	8.35
SYS5DA73	Curb	5.00	n/a	n/a	2.449	15.022	0.283	8.40	8.40
SYS5DA74	Curb	5.00	n/a	n/a	2.431	15.022	0.283	8.40	8.40
SYS5DA75	Curb	5.00	n/a	n/a	0.848	15.022	0.254	5.65	5.65
SYS5DA76	Curb	5.00	n/a	n/a	0.829	15.022	0.254	5.60	5.60
SYS5DA22	Curb	5.00	n/a	n/a	2.591	15.022	0.287	8.60	8.60
SYS5DA23	Curb	5.00	n/a	n/a	2.502	15.022	0.285	8.50	8.50
SYS5DA24	Curb	5.00	n/a	n/a	2.591	15.022	0.287	8.60	8.60
SYS5DA25	Curb	5.00	n/a	n/a	2.484	15.022	0.284	8.45	8.45
SYS5DA26	Curb	5.00	n/a	n/a	2.556	15.022	0.286	8.55	8.55
SYS5DA27	Curb	5.00	n/a	n/a	2.466	15.022	0.284	8.45	8.45
SYS5DA28	Curb	5.00	n/a	n/a	2.556	15.022	0.286	8.55	8.55
SYS5DA65	Curb	5.00	n/a	n/a	1.126	15.022	0.257	6.30	6.30
SYS5DA66	Curb	5.00	n/a	n/a	2.680	15.022	0.290	8.70	8.70
SYS5DA67	Curb	5.00	n/a	n/a	2.502	15.022	0.285	8.50	8.50
SYS5DA68	Curb	5.00	n/a	n/a	2.341	15.022	0.280	8.30	8.30
SYS5DA69	Curb	5.00	n/a	n/a	1.656	15.022	0.265	7.25	7.25

SUMMARY OF STORM DRAIN STRUCTURE QUANTITIES

NOTE:
The convey length should be from upstream to downstream inside box.
This length may also be used as Pay Item.
Using hydraulic length, from node center to node center, may result in profile error,
and this length should not be used as Pay Item.

LINKS:

Type of Convey Structure	Material	Rise (ft)	Span (ft)	Number of Links of this type	Quantity (ft)

NODES:

Type of Inlet Structure	Type of Grate	Inlet Length (ft)	Grate Width (ft)	Grate Length (ft)	Grate Area (ft)	Grate Perimeter (ft)	Quantity (each)
Curb In Sag		5.0	0.0	0.0	0.0	0.0	40
Outlet		0.0	0.0	0.0	0.0	0.0	1

END

NORMAL TERMINATION OF HOUSTORM.

Warning Messages for current project:

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

2 YEAR DRAINAGE CALCULATIONS
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DRAINAGE\024- 2 YEAR DRAINAGE CALCULATIONS- 3 OF 3.DWG JUL 01, 2026-10:40am

HGL of Existing Condition

XP SWMM NODE Name	2 YR HGL Elevation ft	2 YR Critical Elevation ft	100YR HGL Elevation ft	ALLOW MPE ft
O1-IN-1	37.418	39.5	40.095	43
O1-IN-2	37.418	39.3	40.095	43
O1-IN-3	37.416	40.61	40.089	43
O1-MH1	37.417	40.56	40.095	43
O1-MH2	37.416	41.27	40.089	43.5
O1-MH3	37.416	41.43	40.088	44
O2-IN-1	40.805	39.4	41.85	43
O2-IN-10	40.153	43.5	41.08	43.5
O2-IN-11	40.079	37.86	41.111	43
O2-IN-12	40.074	42.5	41.083	42.5
O2-IN-13	40.362	37.73	41.397	42.5
O2-IN-14	40.341	37.63	41.274	42.5
O2-IN-15	39.206	37.46	41.313	43
O2-IN-16	39.157	37.39	41.14	43
O2-IN-17	40.696	37.63	43.149	44
O2-IN-18	40.666	37.63	43	43
O2-IN-19	39.287	37.52	41.855	43
O2-IN-2	40.769	39.72	41.735	43
O2-IN-20	39.196	43	41.489	43
O2-IN-21	37.871	37.35	40.891	43
O2-IN-22	37.866	37.14	40.877	43
O2-IN-23	37.863	37.13	40.877	43
O2-IN-24	36.932	37.58	39.523	43
O2-IN-25	37.129	37.81	39.725	42.5
O2-IN-26	36.947	36.85	39.523	42.5
O2-IN-3	40.647	42.5	42.628	42.5
O2-IN-4	40.586	38.5	42.4	43
O2-IN-5	40.632	38.43	42.572	43
O2-IN-6	40.583	38.41	42.387	43
O2-IN-7	40.21	43	41.323	43
O2-IN-8	40.191	38.8	41.21	43
O2-IN-9	40.156	38.29	41.097	43
O2-MH-12	37.637	40.24	40.568	43
O2-MH1	40.755	42	41.695	42.53
O2-MH10	38.411	39.98	40.816	43
O2-MH11	37.816	39.9	40.761	43
O2-MH13	37.468	40.29	40.4	43
O2-MH14	37.132	40.64	39.721	43
O2-MH15	36.945	40.5	39.523	43
O2-MH2	40.242	40.5	41.064	43
O2-MH3	40.165	40.2	41.059	43
O2-MH4	40.149	40.1	41.058	43
O2-MH5	40.067	40.1	41.047	43
O2-MH6	40.297	39.6	41.036	43
O2-MH7	39.743	40.7	41.033	43
O2-MH8	39.084	40.3	40.913	43
O2-MH9	39.021	40.3	40.9	43
O3-In-1	36.234	36.4	38.962	42
O3-In-2	36.333	42	39.081	42
O3-In-3	36.495	37.17	39.158	42
O3-MH1	36.143	36.35	38.956	42
O4-In-1	36.847	36.85	39.844	42
O4-In-2	36.862	37.5	39.008	41
O4-In-3	36.731	36.92	39.333	41
O4-In-4	36.644	37.25	38.831	41
O4-MH1	36.554	37.15	38.41	41
O4-MH2	36.652	37.41	38.815	41
O5-In-1	38.188	36.54	39.176	40.5
O5-In-10	35.702	36.82	37.67	40
O5-In-11	39.387	37.28	40.5	40.5
O5-In-12	39.358	37.43	40.5	40.5
O5-In-13	39.073	37.22	39.794	40
O5-In-14	39.09	36.83	39.869	40.5
O5-In-15	38.613	36.37	40.595	41
O5-In-16	38.545	35.65	40.258	41
O5-In-17	38.292	36.15	39.008	40
O5-In-18	38.289	35.93	38.991	40
O5-In-19	35.732	35.16	38.2	41
O5-In-2	38.22	36.55	39.188	40.5
O5-In-20	35.732	34.36	38.201	41
O5-In-21	35.493	36.56	37.5	42
O5-In-22	34.953	35.75	35.987	41
O5-In-23	34.955	35.88	35.99	41
O5-In-24	35.052	36.17	35.915	41
O5-In-25	35.043	36.43	35.914	42
O5-In-3	37.973	37.05	38.832	40.5
O5-In-4	37.972	36.68	38.83	40.5
O5-In-5	37.634	35.72	38.885	42
O5-In-6	36.8	34.39	38.953	40
O5-In-7	36.784	34.71	38.91	40
O5-In-8	36.616	35.16	38.984	41
O5-In-9	35.576	36.02	37.973	40
O5-MH1	37.971	38.2	38.826	40
O5-MH10	35.325	39	37.482	40
O5-MH11	35.313	39	37.48	40
O5-MH12	34.88	40.35	36.51	40.5
O5-MH13	34.521	39.93	35.828	40.06
O5-MH14	34.201	40.1	35.791	40.22
O5-MH2	37.603	38.1	38.822	40
O5-MH3	36.735	37.9	38.819	40
O5-MH4	36.533	38.39	38.817	40.5
O5-MH5	35.566	39.6	37.806	40.5
O5-MH6	35.491	39.2	37.665	40.32
O5-MH7	38.907	39	39.146	40
O5-MH8	38.269	38.7	38.873	40
O5-MH9	35.712	38	38.133	39.5

HGL of Proposed Condition

XP SWMM NODE Name	2 YR HGL Elevation ft	2 YR Critical Elevation ft	100YR HGL Elevation ft	ALLOW MPE ft
SYS-1-MH-1	37.382	37.882	40.11	42.39
SYS-1-IN-2	37.382	37.882	40.119	42.36
SYS-1-IN-3	37.382	37.882	40.119	42.2
SYS-1-IN-5	37.398	37.898	40.125	41.15
SYS-1-IN-4	37.385	37.885	40.125	41.15
SYS-5-IN-64	40.226	40.726	40.57	41.01
SYS-5-IN-62	40.19	40.69	40.19	40.19
SYS-5-IN-63	40.19	40.69	40.19	40.19
SYS-5-IN-60	40.24	40.74	40.564	40.7
SYS-5-IN-58	40.239	40.739	40.582	40.77
SYS-5-IN-61	40.24	40.74	40.567	40.7
SYS-5-IN-59	40.24	40.74	40.586	40.77
SYS-5-IN-56	40.897	41.397	41.427	42.27
SYS-5-IN-55	40.898	41.398	41.432	42.27
SYS-5-IN-42	40.665	41.165	41.21	41.32
SYS-5-IN-41	40.664	41.164	41.204	41.32
SYS-5-IN-45	40.708	41.208	41.21	41.48
SYS-5-IN-46	40.708	41.208	41.211	41.48
SYS-5-IN-53	42.118	42.618	42.335	43.66
SYS-5-IN-54	42.123	42.623	42.34	43.66
SYS-5-IN-48	40.792	41.292	41.284	41.49
SYS-5-IN-47	40.792	41.292	41.284	41.49
SYS-5-IN-50	40.871	41.371	41.266	41.36
SYS-5-IN-49	40.872	41.372	41.265	41.36
SYS-5-IN-79	38.634	39.134	39.878	40.92
SYS-5-IN-77	38.616	39.116	39.839	40.92
SYS-5-IN-78	38.632	39.132	39.868	40.92
SYS-5-IN-74	38.443	38.943	39.424	39.94
SYS-5-IN-73	38.442	38.942	39.421	39.94
SYS-5-IN-76	38.429	38.929	39.37	40.02
SYS-5-IN-75	38.429	38.929	39.37	40.02
SYS-5-IN-72	37.701	38.201	39.299	39.74
SYS-5-IN-70	37.48	37.98	39.402	39.87
SYS-5-IN-71	37.504	38.004	39.406	39.81
SYS-5-IN-68	37.299	37.799	39.358	39.35
SYS-5-IN-67	37.299	37.799	39.35	39.35
SYS-5-IN-69	37.284	37.784	39.355	39.43
SYS-5-IN-65	37.146	37.646	39.34	39.34
SYS-5-IN-66	37.148	37.648	39.34	39.34
SYS-5-IN-8	36.95	37.45	39.336	40.13
SYS-5-IN-7	36.95	37.45	39.335	40.13
SYS-5-IN-6	37.067	37.567	38.913	40.35
SYS-5-MH-52	36.726	37.226	38.915	40.35
SYS-2-IN-14	37.363	37.863	39.354	41.04
SYS-2-IN-12	36.982	37.482	39.354	40.96
SYS-2-IN-7	36.636	37.136	39.352	40.9
SYS-2-IN-9	36.636	37.136	39.352	40.63
SYS-2-IN-8	36.636	37.136	39.352	40.63
SYS-2-IN-4	36.634	37.134	39.347	41.22
SYS-2-IN-6	36.634	37.134	39.347	41.16
SYS-2-IN-5	36.634	37.134	39.347	41.16
SYS-2-IN-3	36.871	37.371	39.345	41.22
SYS-2-IN-1	36.633	37.133	39.345	41.61
SYS-2-IN-2	36.633	37.133	39.345	41.61
SYS-4-IN-8	35.628	36.128	37.894	41.22
SYS-4-MH-8	35.894	36.394	37.97	40.44
SYS-4-IN-9	35.879	36.379	37.974	40.44
SYS-4-IN-5	34.825	35.325	37.63	41.34
SYS-4-IN-7	34.956	35.456	37.632	41.07
SYS-4-IN-6	34.979	35.479	37.626	41.16
SYS-4-IN-2	34.778	35.278	37.621	41.2
SYS-4-IN-1	34.338	34.838	37.621	41.2
SYS-4-IN-4	34.782	35.282	37.624	40.65
SYS-4-IN-3	34.782	35.282	37.624	40.65
SYS-4-MH-2	34.778	35.278	37.621	41.2
SYS-5-IN-13	36.791	37.291	38.219	41.25
SYS-5-IN-14	36.888	37.388	38.238	41.03
SYS-5-IN-12	36.949	37.449	38.166	41.29
SYS-5-IN-10	36.272	36.772	37.208	40.9
SYS-5-IN-11	36.275	36.775	37.244	40.9
SYS-5-IN-1	35.902	36.402	36.149	40.9
SYS-5-IN-2	35.858	36.358	36.164	40.9
SYS-5-IN-57	40.172	40.672	40.75	41.15
SYS-5-IN-40	40.173	40.673	40.793	41.05
SYS-5-IN-39	40.173	40.673	40.792	41.05
SYS-5-IN-35	39.064	39.564	40.177	40.47
SYS-5-IN-33	38.95	39.45	40.141	40.56
SYS-5-IN-36	39.065	39.565	40.177	40.47
SYS-5-IN-34	38.95	39.45	40.141	40.56
SYS-5-IN-30	38.725	39.225	39.88	39.95
SYS-5-IN-29	38.724	39.224	39.875	39.95
SYS-5-IN-32	38.747	39.247	39.83	39.83
SYS-5-IN-31	38.746	39.246	39.83	39.83
SYS-5-IN-27	38.45	38.95	39.744	40.15
SYS-5-IN-25	38.352	38.852	39.641	40.24
SYS-5-IN-28	38.451	38.951	39.748	40.15
SYS-5-IN-26	38.353	38.853	39.645	40.24
SYS-5-IN-23	38.028	38.528	39.261	39.69
SYS-5-IN-21	37.89	38.39	39.22	39.22
SYS-5-IN-24	38.029	38.529	39.266	39.69

SYS-5-IN-22	37.891	38.391	39.22	39.22
SYS-5-IN-19	37.444	37.944	39.161	39.51
SYS-5-IN-17	37.261	37.761	39.081	39.85
SYS-5-IN-20	37.445	37.945	39.165	39.51
SYS-5-IN-18	37.262	37.762	39.085	39.85
SYS-5-IN-15	36.672	37.172	38.626	39.11
SYS-5-IN-16	36.671	37.171	38.621	39.11
SYS-2-MH-2	36.633	37.133	39.345	41.61
SYS-5-MH-1	34.282	34.782	35.786	40.22
SYS-4-MH-6	34.889	35.389	37.632	41.07
SYS-4-MH-7	35.798	36.298	37.893	41.22
SYS-1-MH-2	37.382	37.882	40.116	42.15
SYS-2-MH-8	36.636	37.136	39.352	40.9
SYS-2-MH-4	36.634	37.134	39.347	41.22
SYS-2-MH-6	36.634	37.134	39.347	41.16
SYS_5_MH-41	40.225	40.725	40.565	41.01
SYS-5-MH-31	40.684	41.184	41.218	41.32
SYS-5-MH-30	40.664	41.164	41.204	41.32
SYS-5-MH-50	38.633	39.133	39.873	40.92
SYS-5-MH-44	37.479	37.979	39.398	39.87
SYS-5-MH-14	37.26	37.76	39.077	39.85
SYS-5-MH-42	37.146	37.646	39.34	39.34
SYS-5-MH-12	36.822	37.322	38.242	41.03
SYS-5-MH-51	35.837	36.337	36.178	40.9
SYS-5-MH-6	36.721	37.221	38.895	40.35
SYS-5-MH-7	36.947	37.447	39.325	40.13
SYS-5-MH-2	34.757	35.257	35.797	40.9
SYS-1-MH-6	37.384	37.884	40.125	41.15
SYS-1-MH-4	37.382	37.882	40.119	42.36
SYS-1-IN-1	37.382	37.882	40.118	42.36
SYS-5-MH-40	40.239	40.739	40.56	40.56
SYS-5-MH-37	40.172	40.672	40.748	41.15
SYS-5-MH-28	40.152	40.652	40.762	41.24
SYS-5-MH-29	40.173	40.673	40.79	41.05
SYS-5-MH-20	38.707	39.207	39.871	39.89
SYS-5-MH-23	39.061	39.561	40.182	40.56
SYS-5-MH-18	38.351	38.851	39.637	40.24
SYS-5-MH-13	36.671	37.171	38.62	39.11
SYS-5-MH-32	40.708	41.208	41.209	41.48
SYS-5-MH-34	40.861	41.361	41.256	41.49
SYS-5-MH-56	40.895	41.395	41.42	42.27
SYS-5-MH-36	42.114	42.614	42.331	43.66
SYS-5-MH-47	38.426	38.926	39.363	39.98
SYS-5-MH-43	37.284	37.784	39.352	39.43
SYS-5-MH-16	37.889	38.389	39.22	39.22
SYS-4-MH-3	34.779	35.279	37.622	40.65
SYS-5-IN-37	39.16	39.66	40.219	40.49
SYS-5-IN-38	39.16	39.66	40.22	40.49
SYS-5-MH-47.1	39.159	39.659	40.217	40.49
SYS-2-MH-9	37.01	37.51	39.354	40.96
SYS-2-MH-3	36.633	37.133	39.345	41.22
SYS-4-MH-4	34.792	35.292	37.626	41.16
SYS-5-MH-8	37.081	37.581	39.344	39.55
SYS-5-MH-5	36.425	36.925	38.266	39.43
SYS-2-IN-13	36.941	37.441	39.354	40.96
SYS-5-IN-52	41.609	42.109	41.83	42.49
SYS-5-IN-51	41.592	42.092	41.827	42.49
SYS-5-MH-35	41.591	42.091	41.825	42.49
C127-outfall-1	37.382	37.882	40.108	43.8
C127-outfall-2	36.632	37.132	39.344	43.1
C127-outfall-3	35.994	36.494	38.791	42.7
C127-outfall-4	34.772	35.272	37.617	42.6
C127-outfall-5	32.878	33.378	35.783	42.9
C127-DS	31.987	32.487	34.988	43.2
SYS-5-MH-59	40.24	40.74	40.563	40.7
SYS-5-MH-24	39.064	39.564	40.176	40.47
SYS-2-MH-10	37.231	37.731	39.354	41.04
SYS-2-MH-12	36.636	37.136	39.352	40.63
SYS-4-IN-10	36.099	36.599	37.983	40.44
SYS-4-MH-8.1	34.782	35.282	37.624	40.65
SYS-5-IN-9	37.111	37.611	39.459	39.55
SYS-5-IN-5	36.727	37.227	38.916	40.35
SYS-5-IN-4	36.727	37.227	38.916	40.35
SYS-5-IN-3	36.438	36.938	38.317	39.43
SYS-5-MH-57	40.87	41.37	41.26	41.36
SYS-5-MH-33	40.792	41.292	41.282	41.49
SYS-5-MH-61	38.441	38.941	39.417	39.94
SYS-5-MH-62	38.428	38.928	39.37	40.02
SYS-5-MH-60	37.298	37.798	39.35	39.35
SYS_5_MH-58	40.19	40.69	40.19	40.19
SYS-1-MH-7	37.382	37.882	40.119	42.2
SYS-1-MH-3	37.382	37.882	40.118	42.36
SYS-5-MH-39	40.239	40.739	40.581	40.77
SYS-2-MH-11	36.636	37.136	39.353	40.44
SYS-2-IN-11	36.636	37.136	39.353	40.44
SYS-2-IN-10	36.636	37.136	39.353	40.44
SYS-2-MH-7	36.635	37.135	39.348	40.89
SYS-2-MH-1	36.632	37.132	39.344	42.19
SYS-4-MH-1	34.773	35.273	37.618	42
SYS-5-MH-9	36.267	36.767	37.206	40.9
SYS-5-MH-3	35.176	35.676	36.118	41.1
SYS-5-MH-4	35.824	36.324	37.19	41.94
SYS-5-MH-10	36.844	37.344	38.166	41.29
SYS-5-MH-11	36.793	37.293	38.216	41.25

SYS-5-MH-46	37.7	38.2	39.295	39.74
SYS-5-MH-45	37.503	38.003	39.403	39.81
SYS-5-MH-49	38.631	39.131	39.865	40.92
SYS-5-MH-48	38.615	39.115	39.835	40.92
SYS-5-MH-15	37.443	37.943	39.156	39.51
SYS-5-MH-17	38.027	38.527	39.257	39.69
SYS-5-MH-19	38.449	38.949	39.74	40.15
SYS-5-MH-21	38.917	39.417	40.1	40.56
SYS-5-MH-22	38.95	39.45	40.14	40.56
SYS-5-MH-25	39.129	39.629	40.21	40.56
SYS-5-MH-26	39.706	40.206	40.451	41.41
SYS-5-MH-27	39.9	40.4	40.53	41.92
SYS-5-MH-38	40.226	40.726	40.626	41.08
SYS-5-MH-55	40.686	41.186	41.217	41.41
SYS-5-IN-43	40.686	41.186	41.219	41.41
SYS-5-IN-44	40.686	41.186	41.219	41.41
SYS-5-MH-54.1	38.745	39.245	39.852	40.08
SYS-5-MH-53	38.723	39.223	39.872	39.95
SYS-1-MH-5	37.383	37.883	40.119	42.21
SYS-2-MH-5	36.634	37.134	39.347	41.16
SYS-4-MH-5	34.818	35.318	37.63	41.34
BD_HICKOK	36.669	37.169	39.527	43.5
BD_Botany	34.898	35.398	37.811	42

Table 7 - Comparison of 2, 100 Year Flows at Project outfalls and Swengel Ditch C127-00-00)

		2 Year			100YR		
	Name	EXIST(CFS)	PROP(CFS)	Diff	EXIST(CFS)	PROP(CFS)	Diff
SYSTEM OUTFALL	SYS-1-Out	5.0	7.9	3.0	11.8	16.433	4.6
	SYS-2-Out	56.6	18.8	-37.8	109.7	39.5	-70.2
	SYS-3-Out	3.4	N/A		7.1	N/A	
	SYS-4-Out	15.0	19.8	4.8	30.9	40.315	9.4
	SYS-5-Out	96.0	144.8	48.8	172.3	208.775	36.4
Ditch C-127	C127_01	232.8	232.8	0.0	606.0	606.715	0.7
	C127_02	234.8	233.0	-1.8	631.0	610.845	-20.1
	C127_03	234.9	233.0	-1.9	630.2	610.842	-19.4
	C127_04	235.2	233.6	-1.5	634.4	615.067	-19.4
	C127_Out	239.8	238.9	-0.9	659.8	652.094	-7.7

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

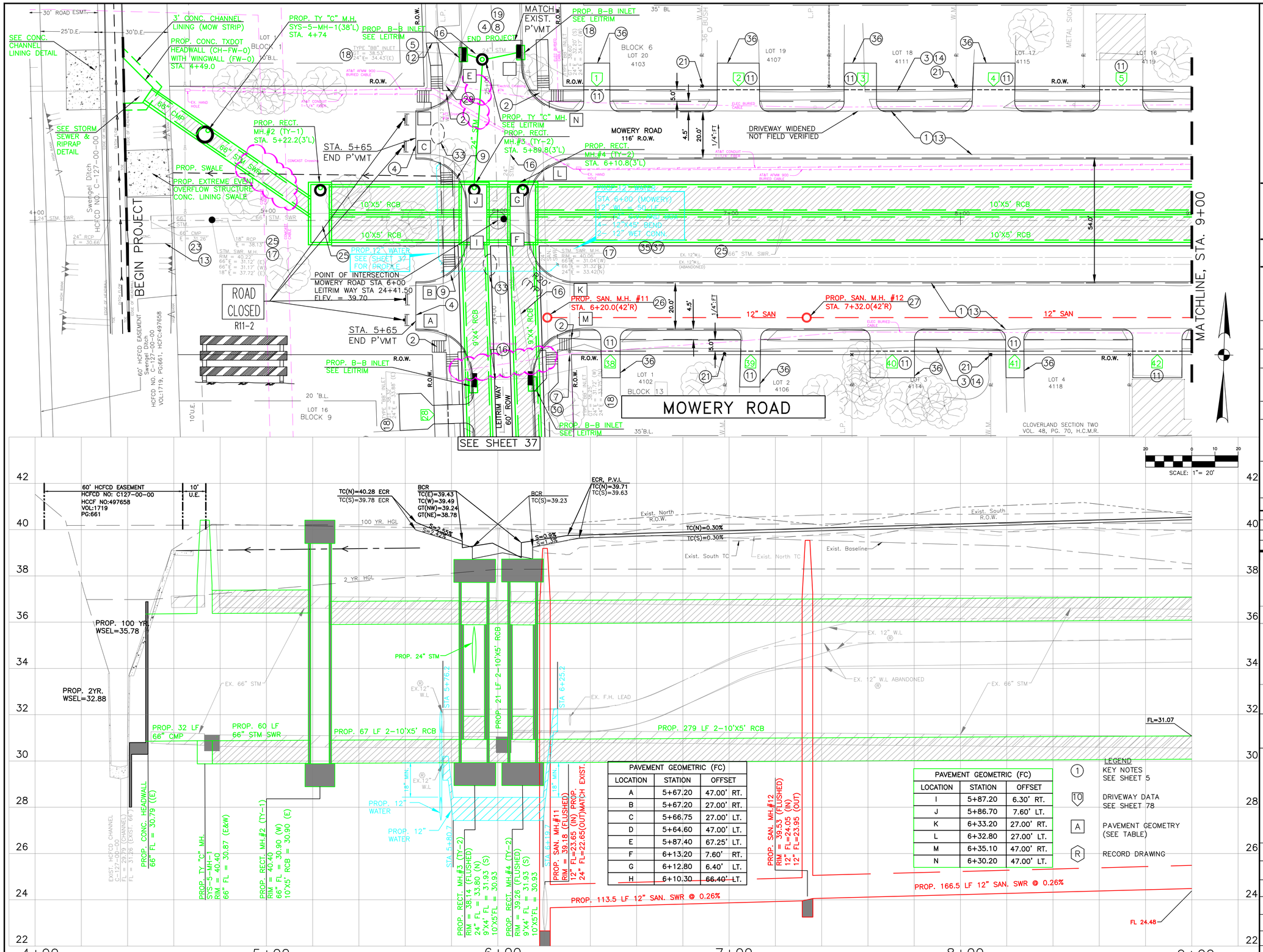
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB–PROJECT 1

2– 100 YEAR DRAINAGE CALCULATIONS COMPARISON

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N–210004–0001–4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. ––~~OF~~ 159	

K:\331052–CLOVERLAND AREA P&D–COH FY15\DWG\DESIGN DRAWINGS\SUB–PROJECT–1\DRAINAGE\025– 2– 100 YEAR DRAINAGE CALCULATIONS COMPARISON.DWG JUL 01, 2026–10:50am



PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	5+67.20	47.00' RT.
B	5+67.20	27.00' RT.
C	5+66.75	27.00' LT.
D	5+64.60	47.00' LT.
E	5+87.40	67.25' LT.
F	6+13.20	7.60' RT.
G	6+12.80	6.40' LT.
H	6+10.30	66.40' LT.

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
I	5+87.20	6.30' RT.
J	5+86.70	7.60' LT.
K	6+33.20	27.00' RT.
L	6+32.80	27.00' LT.
M	6+35.10	47.00' RT.
N	6+30.20	47.00' LT.

LEGEND
- (1) KEY NOTES SEE SHEET 5
- (10) DRIVEWAY DATA SEE SHEET 78
- (A) PAVEMENT GEOMETRY (SEE TABLE)
- (R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:
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THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

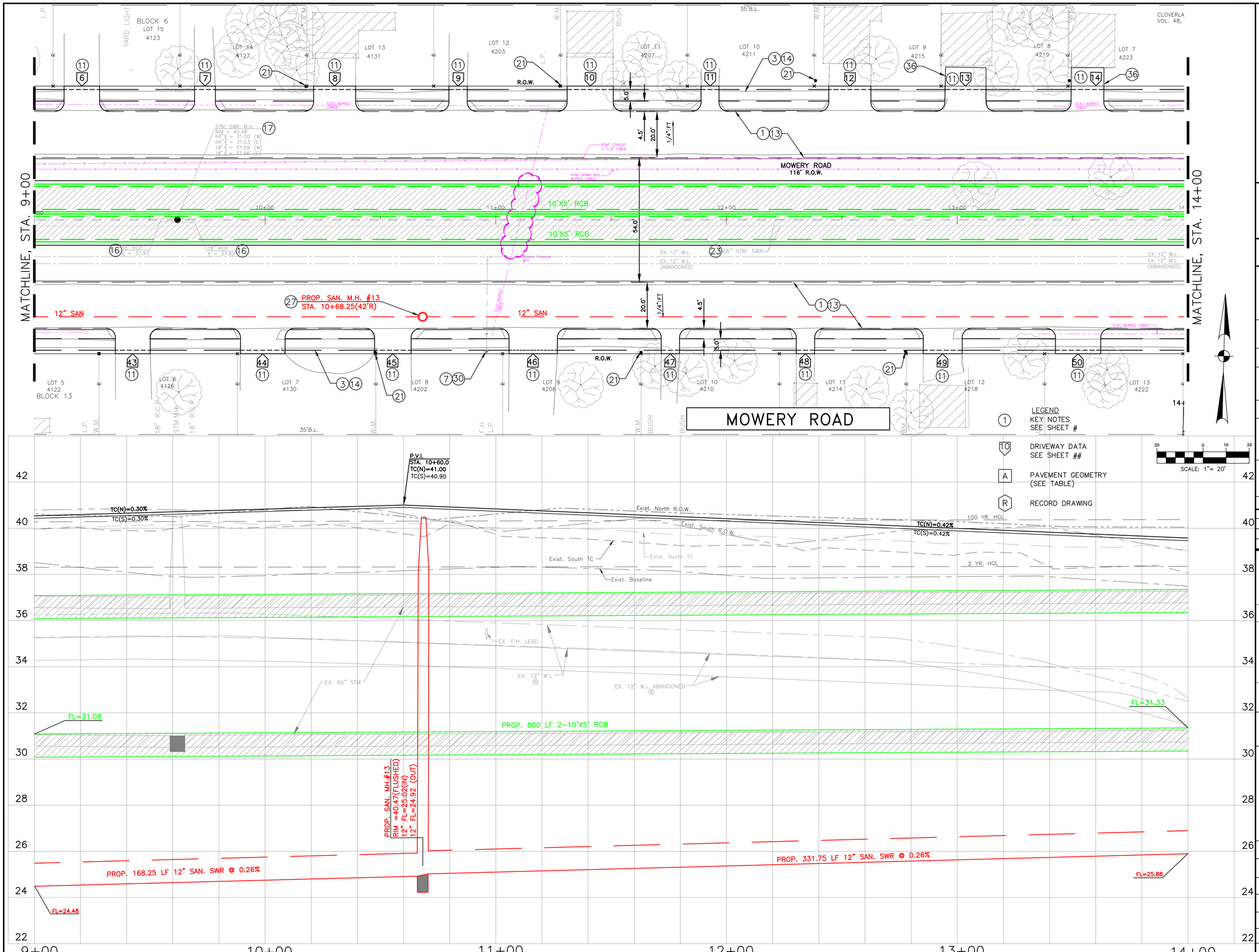
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

MOWERY ROAD
PLAN AND PROFILE
STA 4+40 TO STA 9+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 26 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\026-MOWE-PP01.DWG JUL. 01, 2026-11:04am



LEGEND
(1) KEY NOTES SEE SHEET #
(10) DRIVEWAY DATA SEE SHEET ##
(A) PAVEMENT GEOMETRY (SEE TABLE)
(R) RECORD DRAWING

SCALE: 1"= 20'

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

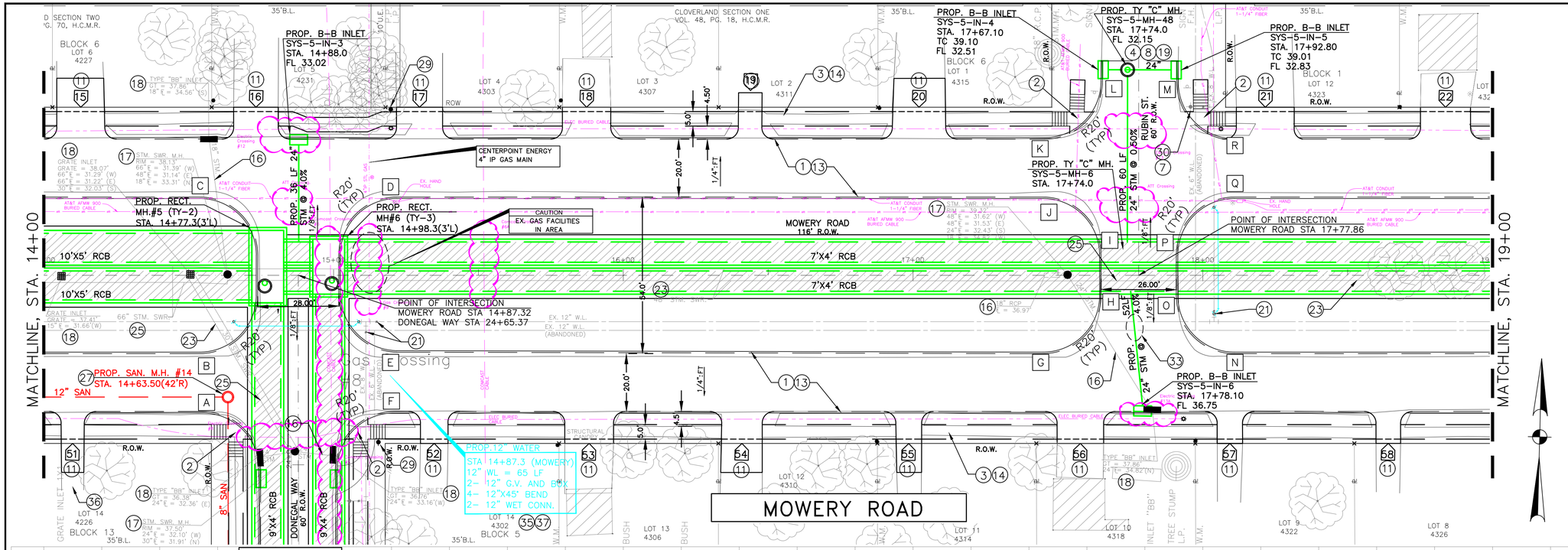
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

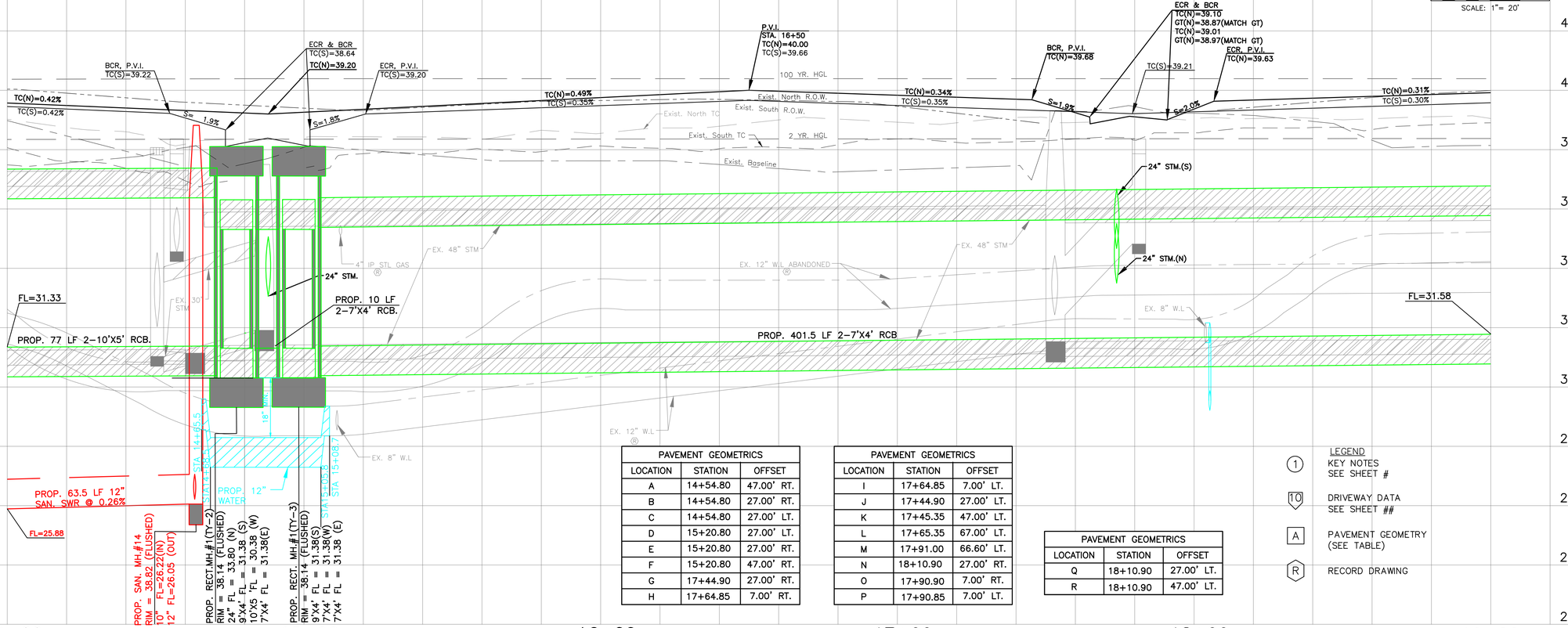
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

MOWERY ROAD
PLAN AND PROFILE
STA 9+00 TO STA 14+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 27 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\027-MOWE-PP02.DWG JUL. 01, 2026-11:02am





PAVEMENT GEOMETRICS		
LOCATION	STATION	OFFSET
A	14+54.80	47.00' RT.
B	14+54.80	27.00' RT.
C	14+54.80	27.00' LT.
D	15+20.80	27.00' LT.
E	15+20.80	27.00' RT.
F	15+20.80	47.00' RT.
G	17+44.90	27.00' RT.
H	17+64.85	7.00' RT.

PAVEMENT GEOMETRICS		
LOCATION	STATION	OFFSET
I	17+64.85	7.00' LT.
J	17+44.90	27.00' LT.
K	17+45.35	47.00' LT.
L	17+65.35	67.00' LT.
M	17+91.00	66.60' LT.
N	18+10.90	27.00' RT.
O	17+90.90	7.00' RT.
P	17+90.85	7.00' LT.

PAVEMENT GEOMETRICS		
LOCATION	STATION	OFFSET
Q	18+10.90	27.00' LT.
R	18+10.90	47.00' LT.

LEGEND
- (1) KEY NOTES SEE SHEET #
- (10) DRIVEWAY DATA SEE SHEET ##
- (A) PAVEMENT GEOMETRY (SEE TABLE)
- (R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0780L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

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DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

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DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

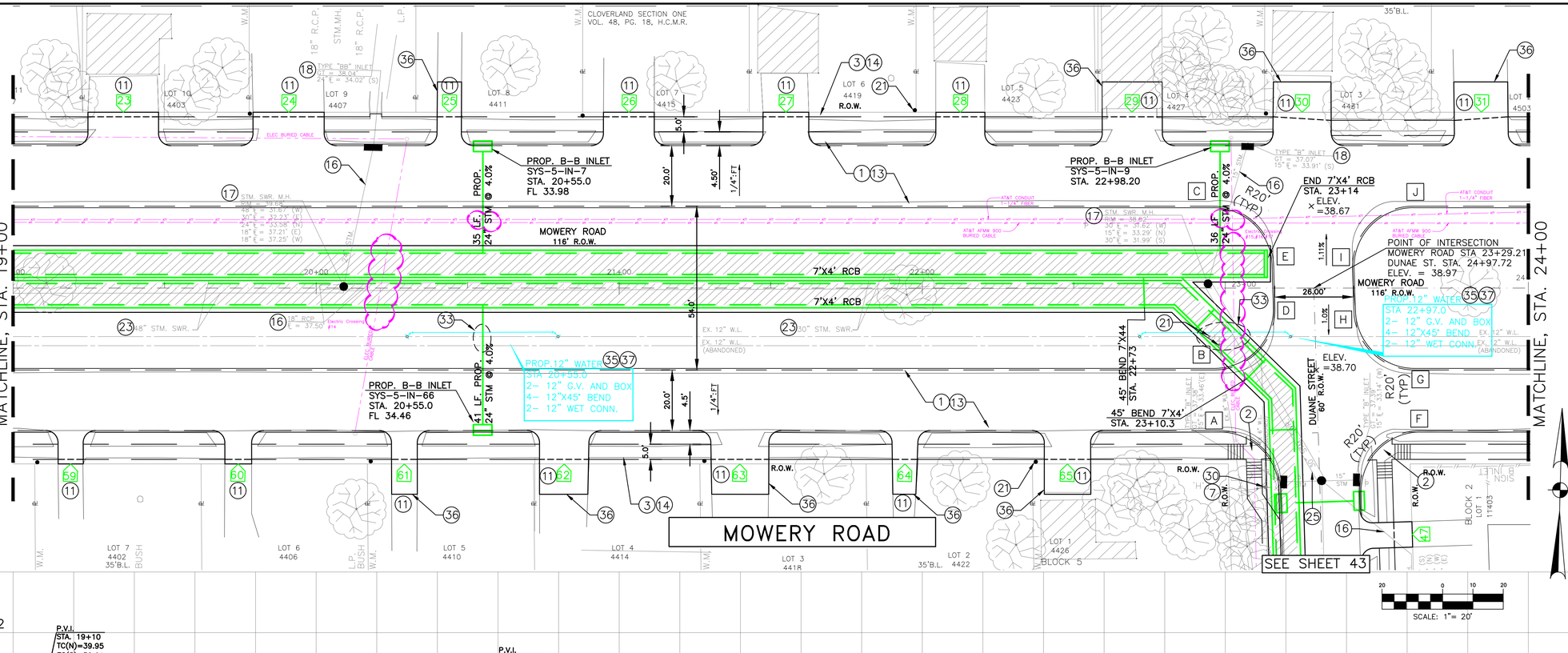
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

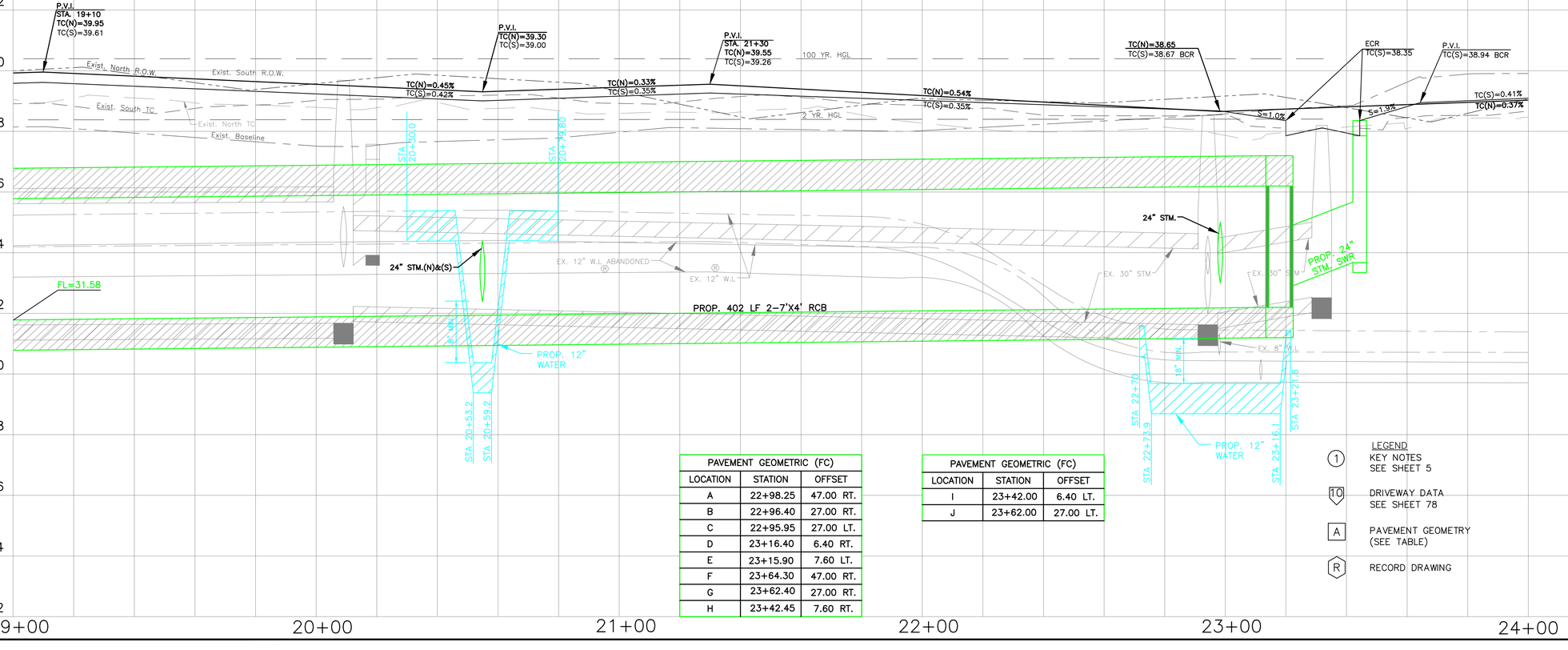
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

MOWERY ROAD
PLAN AND PROFILE
STA 14+00 TO STA 19+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 28 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\028-MOWE-PP03.DWG JUL. 01, 2026-10:55am





PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	22+98.25	47.00 RT.
B	22+96.40	27.00 RT.
C	22+95.95	27.00 LT.
D	23+16.40	6.40 RT.
E	23+15.90	7.60 LT.
F	23+64.30	47.00 RT.
G	23+62.40	27.00 RT.
H	23+42.45	7.60 RT.

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
I	23+42.00	6.40 LT.
J	23+62.00	27.00 LT.

LEGEND
(1) KEY NOTES SEE SHEET 5
(10) DRIVEWAY DATA SEE SHEET 78
(A) PAVEMENT GEOMETRY (SEE TABLE)
(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

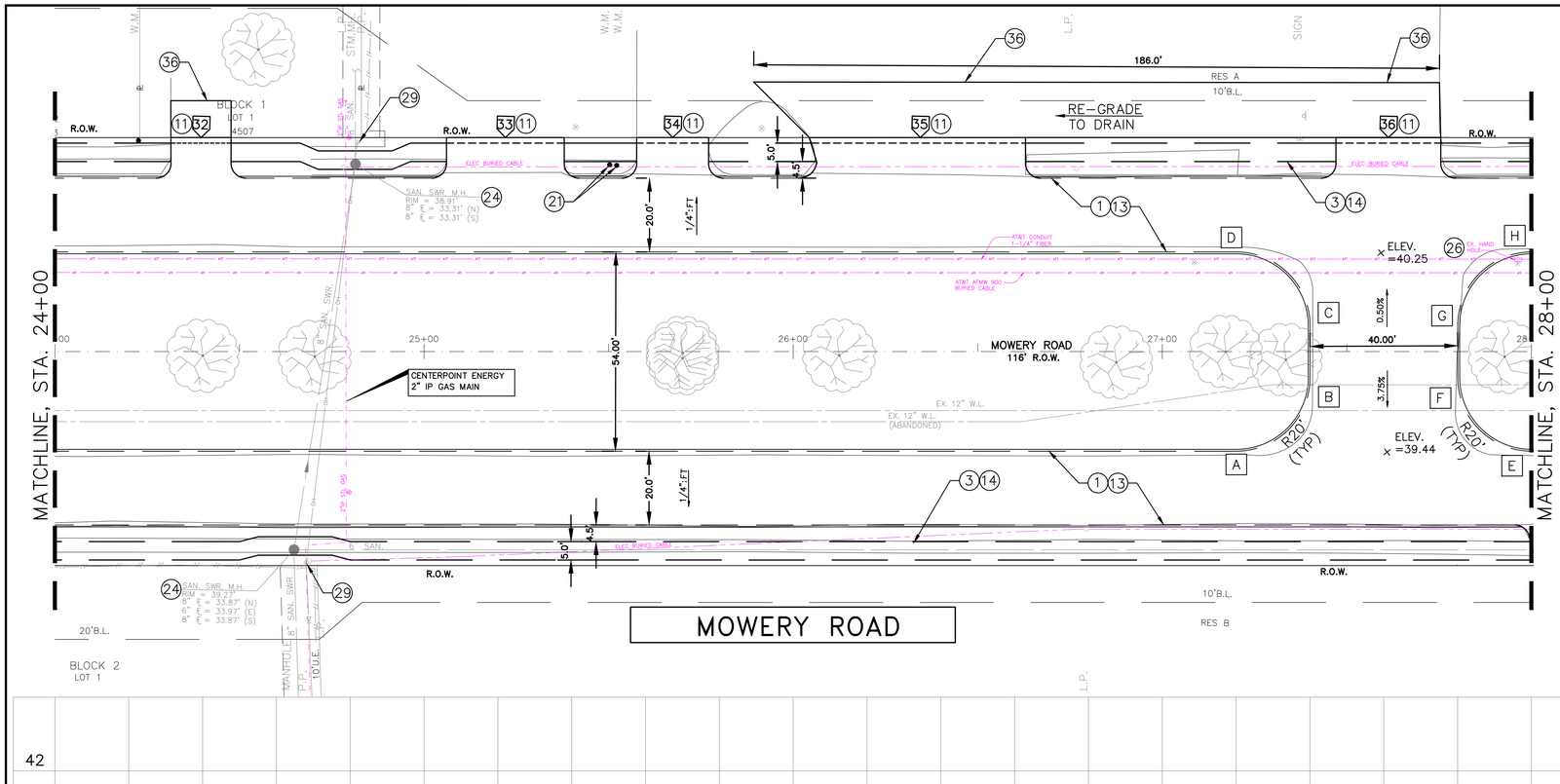
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

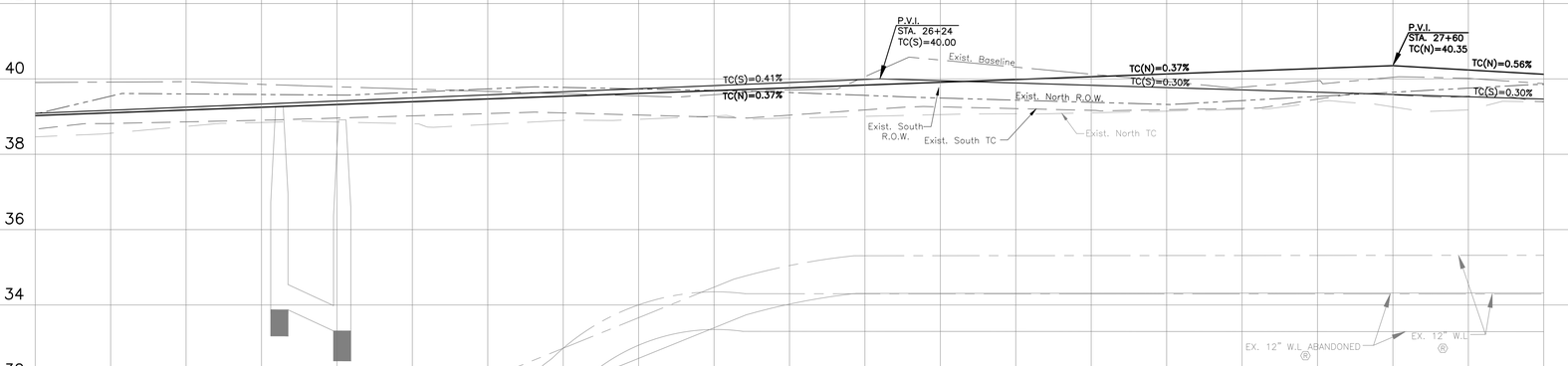
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

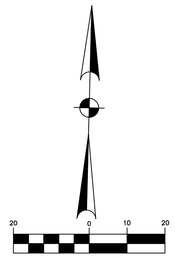
MOWERY ROAD
PLAN AND PROFILE
STA 19+00 TO STA 24+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 29 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\029-MOWE-PP04.DWG JUL. 01, 2026-10:54am







PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	27+20.00	27.00 RT.
B	27+40.00	7.00 RT.
C	27+40.00	7.00 LT.
D	27+20.00	27.00 LT.
E	28+00.00	27.00 RT.
F	27+80.00	7.00 RT.
G	27+80.00	7.00 LT.
H	28+00.00	27.00 LT.

LEGEND

1 KEY NOTES SEE SHEET 5

10 DRIVEWAY DATA SEE SHEET 78

A PAVEMENT GEOMETRY (SEE TABLE)

R RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
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ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

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SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

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TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

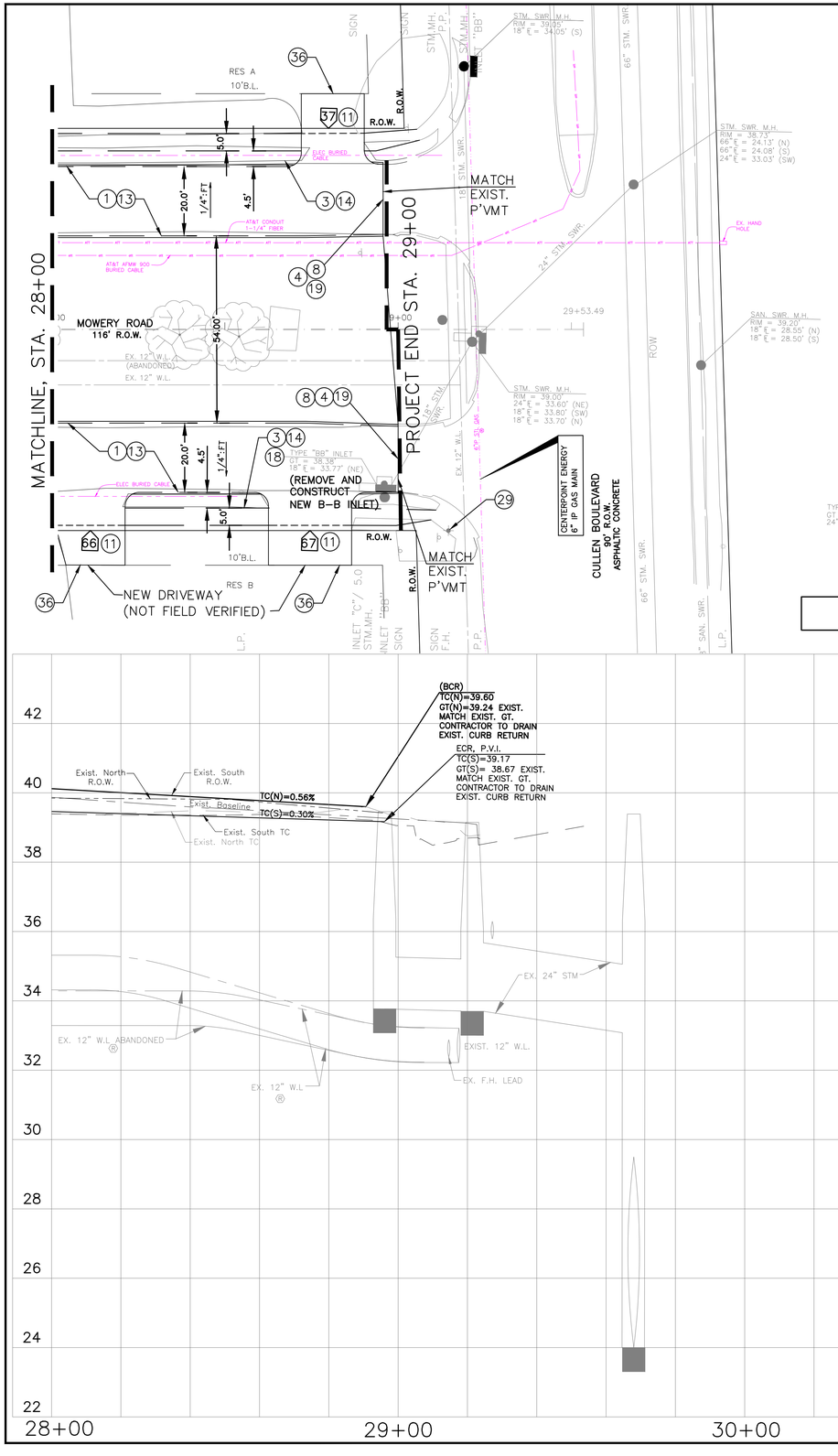
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

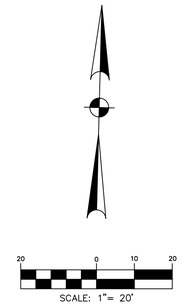
MOWERY ROAD
PLAN AND PROFILE
STA 24+00 TO STA 28+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 30 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\030-MOWE-PP05.DWG JUL. 01, 2026-11:01am



MOWERY ROAD



LEGEND

(1) KEY NOTES SEE SHEET 5

(10) DRIVEWAY DATA SEE SHEET 78

[A] PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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FEMA RM 030065
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DATE:

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DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

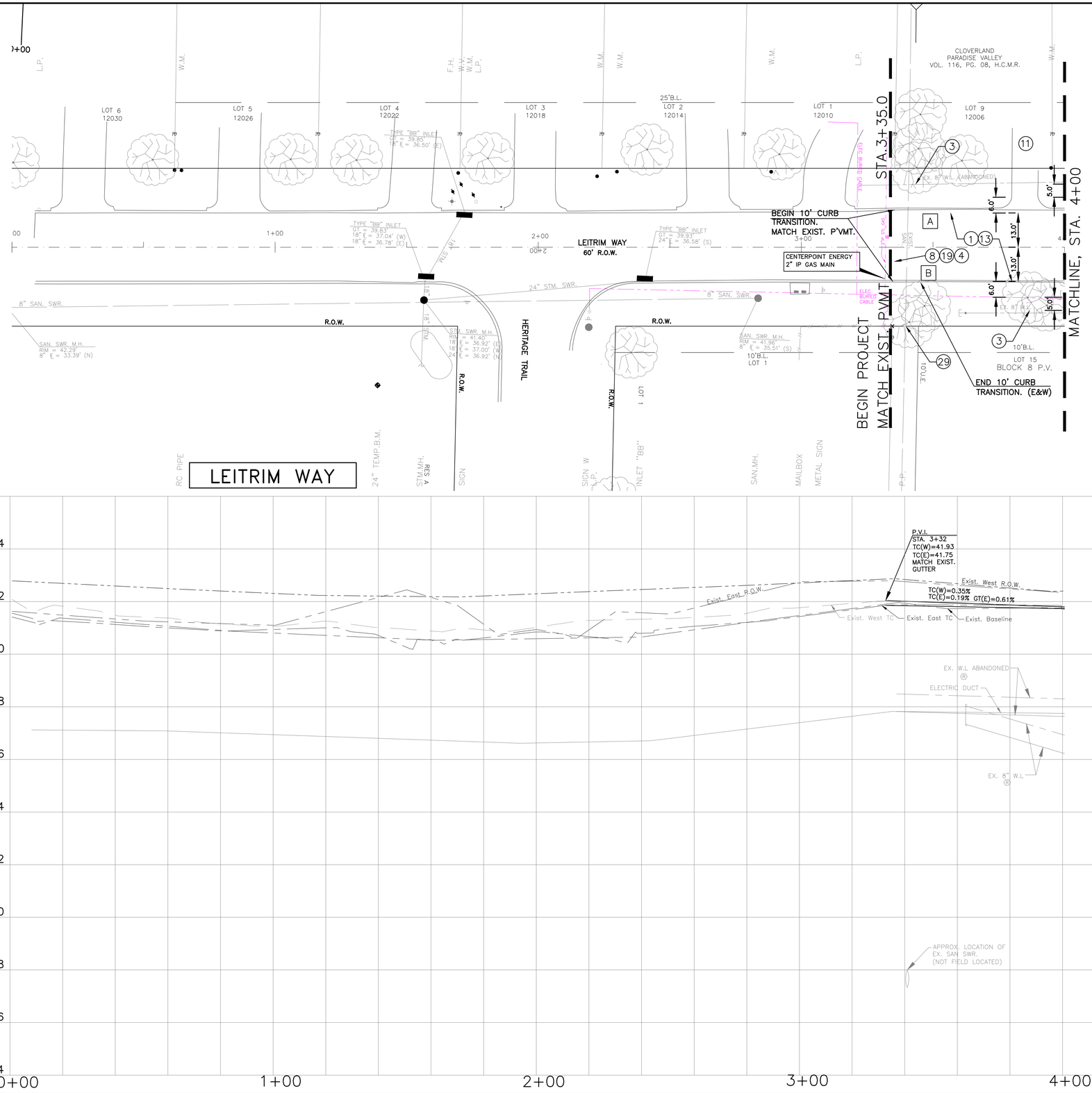
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

MOWERY ROAD
PLAN AND PROFILE
STA 28+00 TO STA 29+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 31 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\031-MOWE-PP06.DWG JUL. 01, 2026-11:06am



SCALE: 1"= 20'

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	3+45.40	13.00' LT.
B	3+45.40	13.00' RT.

LEGEND

(1) KEY NOTES SEE SHEET 5

(10) DRIVEWAY DATA SEE SHEET 78

(A) PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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TRW ENGINEERS, INC.
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Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 3+35 TO STA 4+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 32 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\032-LEIT-PP01.DWG JUL 01, 2026-11:01am

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\033-LEIT-PP02.DWG JUL. 01, 2026-11:00am

LEITRIM WAY

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	4+41.43	13.00' RT.
B	5+07.45	13.00' RT.
C	7+11.26	13.00' RT.
D	7+77.27	13.00' RT.

MATCHLINE, STA. 4+00

MATCHLINE, STA. 9+00

9+00

POINT OF INTERSECTION
LEITRIM WAY STA. 4+75.14
FAIRGREEN LN. STA 2+00

POINT OF INTERSECTION
LEITRIM WAY STA. 7+44.25
HICKOK LN STA. 2+00

END SUB-PROJECT I
FAIRGREEN LN.
STA. 2+33.70

END SUB-PROJECT I
HICKOK LN.
STA. 2+39

SEE SHEET 57

CAUTION
EXIST. PIPELINE
FACILITIES IN AREA

PROP. B-B INLET
SYS-1-IN-2
STA. 4+79.25
FL 35.16

PROP. TY "C" M.H.
SYS-1-MH-4
STA. 4+79.25

PROP. TY "C" MH.
SYS-1-MH-6
STA. 4+38.20

PROP. B-B INLET
SYS-1-IN-3
STA. 4+38.20
FL 35.44

PROP. SAN. M.H.#10
STA. 4+55.50(10'R)

PROP. SAN. M.H.#9
STA. 4+84.50(10'R)

PROP. 40 LF
6" SAN. LEAD W/STACK @0.70%
STA. 4+55.4

PROP. 40 LF
6" SAN. LEAD W/STACK @0.70%
STA. 6+15.32

PROP. 40 LF
6" SAN. LEAD W/STACK @0.70%
STA. 7+35.25

PROP. 40 LF
6" SAN. LEAD W/STACK @0.70%
STA. 8+55.10

PROP. TY "C" M.H.
SYS-1-MH-2
SEE SHEET 57

PROP. TY "C" M.H.
SYS-1-MH-3
STA. 5+10.50

PROP. SAN. M.H.#8
STA. 5+78.00(10'R)

PROP. B-B INLET
SYS-1-IN-4
STA. 7+47.50
FL 35.81

PROP. TY "C" M.H.
SYS-2-MH-4
STA. 7+47.50

PROP. SAN. M.H. #7
STA. 7+53.75(10'R)

EXIST. MH TO BE
REMOVED & REPLACED
WITH PROP. TY "C" M.H.
SYS-2-MH-5A
48" FL 34.00(S)

PROP. TY "C" M.H.
SYS-2-MH-5
STA. 2+22.50
48"FL 33.90 (N,E,W)

PROP. B-B INLET
SYS-2-IN-6
STA. 2+36.10
FL 35.87

PROP. TY "C" M.H.
SYS-2-MH-6
STA. 2+35.60
24"FL 35.82 (N,S)
48"FL 33.93 (E,W)

PROP. B-B INLET
SYS-2-IN-5
STA. 2+35.60
FL 35.85

PROP. TY "C" M.H.
SYS-1-MH-5A
STA. 2+36.65
FL 35.85

PROP. TY "C" M.H.
SYS-1-MH-5
STA. 2+29.50
FL 35.08

PROP. B-B INLET
SYS-1-IN-1
STA. 5+10.50
FL 35.43

PROP. 8" WATER
STA 2+26.40 (FAIRGREEN)
8" W.V. = 45 LF
2- 8" G.V. AND BOX
4- 8"X45° BEND
2- 8" WET CONN.

PROP. 41 LF
24" STM @ 0.30%

PROP. 31
LF 36" STM
@ 0.30%

PROP. 29
LF 36"
STM @
0.30%

PROP. 29 LF
24" SAN. SWR
@ 0.11%

PROP. 107 LF 24" SAN. SWR @ 0.11%

PROP. 175 LF 24" SAN. SWR @ 0.11%

PROP. 146 LF 24" SAN. S 0.11%

PROP. 152 LF
48" STM @ 0.30%

PROP. 20 LF
6" SAN. LEAD W/STACK
@0.70% STA. 8+55.64

FL=33.42

FL 25.90

PROP. SAN. MH. #10
RIM = 41.00 (FLUSHED)
24" FL=26.72 (OUT)

PROP. TY "C" MH.
RIM = 41.22 (FLUSHED)
SYS-1-MH-6
24" FL = 35.10

PROP. TY "C" MH.
RIM = 41.09 (FLUSHED)
SYS-1-MH-4
24" FL = 34.96(S,W)
24" FL = 34.71(N,E)

PROP. SAN. MH. #9
RIM = 41.00 (FLUSHED)
24" FL=26.69 (IN)
24" FL=26.59 (OUT)

PROP. TY "C" MH.
RIM = 41.19 (FLUSHED)
SYS-1-MH-3
24" FL = 34.86(E)
36" FL 34.64(S,W)

PROP. TY "C" MH.
SYS-1-MH-2
STA = 42.98
36" FL = 34.60(E,W)

PROP. SAN. MH. #8
RIM = 41.24 (FLUSHED)
24" FL=26.47 (IN)
24" FL=26.37 (OUT)

PROP. TY "C" STM. MH.
SYS-2-MH-4 (FLUSHED)
RIM = 40.38
24" FL 35.78(W)
48" FL 33.98(N&E)

PROP. SAN. MH. #7
RIM = 40.30 (FLUSHED)
8" FL=27.40 (IN)
24" FL=26.18 (IN)
24" FL=26.08 (OUT)

Gas Crossing #1

CENTERPOINT ENERGY
1-1/4" IP GAS MAIN

RESTRAINED PIPE

RESTRAINED PIPE

24" SAN.

8" SAN.

6" SAN. LEAD

6" SAN. LEAD

6" SAN. LEAD

6" SAN. LEAD

ECR, MATCH EXIST.
TC(N)=41.34, GT(N)=40.89
TC(S)=41.25, GT(S)=40.93

BCR
TC(E&W)=41.54

P.V.I.
STA. 4+80.0
TC(W)=41.41

BCR
TC(E&W)=41.51

P.V.I.
STA. 5+73.0
TC(E&W)=41.74

BCR
TC(E&W)=40.91

ECR, MATCH EXIST.
TC(N)=40.64, GT(N)=40.32
TC(S)=40.61, GT(S)=40.17

P.V.I.
TC(W)=40.70

BCR
TC(E&W)=40.77

P.V.I.
STA. 8+56.0
TC(E&W)=41.08

TC(W)=0.35%
TC(E)=0.19% GT(E)=0.61%
S=0.95%
S=0.45%
TC=0.35%
Exist. West R.O.W.
Exist. Baseline
TC=0.59%
Exist. West TC
Exist. East R.O.W.
Exist. East TC
S=1.0%
S=0.42%
TC=0.35%
TC=0.53%

100 YR. HGL
2 YR. HGL
8" ABANDONED (UNKNOWN)
8" ENTERPRISE
12" NUSTAR
6" ENTERPRISE
ELECTRIC DUCT
EX. W.L ABANDONED
EX. 8" W.L
EX. 48" STM
EX. 6" SAN
EX. F.H. LEAD

LEGEND
1 KEY NOTES SEE SHEET 5
10 DRIVEWAY DATA SEE SHEET 78
A PAVEMENT GEOMETRY (SEE TABLE)
R RECORD DRAWING
ASPHALT PAVEMENT

SCALE: 1" = 20'

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 4+00 TO STA 9+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 33 OF 159	

SEE SHEET 58

SEE SHEET 59

MATCHLINE, STA. 9+00

MATCHLINE, STA. 14+00

HICKOK LANE 48" R.O.W.

48" STM

PROP.TY"C" MH SYS-2-MH-2

24" STM

PROP. TY "C" MH SYS-2-MH-3 STA. 9+46.97 R.O.W.

POINT OF INTERSECTION LEITRIM WAY STA 9+50.36 HICKOK LN STA 2+00

LEITRIM WAY 60' R.O.W.

PROP. SAN. MH#5 STA. 9+75.20(10'L)

PROP. SAN. MH#6 STA. 9+56.50(10'R)

PROP. B-B INLET SYS-2-IN-3 STA. 9+46.40 24" FL = 36.37

PROP. 8" WATER SEE SHEET 58 FOR PROFILE

PROP. 8" WATER 8" WL = 150 LF 1- 8" G.V. AND BOX 4- 8"X45° BEND 1- 8" WET CONN.

PROP. 40 LF 6" SAN. LEAD W/STACK @0.70% STA. 9+81.50

PROP. 20 LF 6" SAN. LEAD W/STACK @0.70% STA. 10+50.70

PROP. 20 LF 6" SAN. LEAD W/STACK @0.70% STA. 11+12.80

PROP. 40 LF 6" SAN. LEAD W/STACK @0.70% STA. 11+77.26

PROP. 20 LF 6" SAN. LEAD W/STACK @0.70% STA. 12+43.30

PROP. 20 LF 6" SAN. LEAD W/STACK @0.70% STA. 13+66.40

CENTERPOINT ENERGY 2" IP GAS MAIN

PROP. TY "C" M.H. SYS-4-MH-7 STA. 13+23.15

PROP. SAN. M.H.#4 STA. 13+33.30(10'L)

PROP. B-B INLET SYS-4-IN-8 STA. 13+23.15 FL 35.88

POINT OF INTERSECTION LEITRIM WAY STA. 13+19.16 MADDEN LN STA. 2+00

PROP. B-B INLET SYS-4-IN-9 STA. 2+36.0 FL 36.07

PROP. TY "C" M.H. SYS-4-MH-8 STA. 2+36.5 24"FL 36.04(N,S,W)

PROP. B-B INLET SYS-4-IN-10 STA. 2+36.5 FL 36.09

PROP. B-B INLET SYS-4-IN-11 STA. 2+39.80

PROP. 8" WATER STA 2+25.0 (MADRON) 8" WL = 55 LF 3- 8" G.V. AND BOX 5- 8"X45° BEND 1- 8"X8"X8" TEE 3- 8" WET CONN.

MADDEN LANE 60' R.O.W. END SUB-PROJECT 1

PAVEMENT GEOMETRICS		
LOCATION	STATION	OFFSET
A	9+17.65	13.00' LT.
B	9+84.35	13.00' LT.
C	1+66.80	13.00' LT.
D	1+67.20	13.00' RT.

PAVEMENT GEOMETRICS		
LOCATION	STATION	OFFSET
E	12+85.45	13.00' RT.
F	13+51.50	13.00' RT.
G	2+33.45	13.00' RT.
H	2+32.55	13.00' LT.

LEGEND
1 KEY NOTES SEE SHEET 5
10 DRIVEWAY DATA SEE SHEET 78
A PAVEMENT GEOMETRY (SEE TABLE)
R RECORD DRAWING

LEITRIM WAY

BCR TC(E&W)=40.82 | ECR TC(N&S)=40.40 | P.V.I. TC(E&W)=40.60 | BCR TC(E&W)=40.74 | P.V.I. STA. 11+15.0 TC(E&W)=41.20 | ECR, MATCH EXIST. TC(N)=39.20, GT(N)=38.55 TC(S)=39.14, GT(S)=38.61 | BCR TC(E&W)=40.61 | P.V.I. TC(W)=40.48 | BCR TC(E&W)=40.58

TC=0.53% TC=1.4% TC=1.1% TC=0.38% TC=0.35% S=3.9% S=4.5% TC=0.32%

Exist. West R.O.W. Exist. Baseline Exist. East R.O.W. Exist. West TC Exist. East TC

100 YR. HGL 2 YR. HGL

EX. 48" STM EX. 18" STM 24" STM 48" STM

PROP. 47 LF 48" STM @ 0.30%

EX. F.H. LEAD

PROP. 8" WATER

EX. W.L ABANDONED EX. 8" W.L

ELECTRIC DUCT

PROP. 24" STM 8"

PROP. 77 LF 24" STM @ 0.50%

FL 35.46

EX. F.H. LEAD

EX. 8" W.L

STA 12+89.4 STA 13+19.3 STA 13+26.2 STA 13+39.4

FL 33.42 18" MIN. STA 9+21.2

PROP. TY C" MH. SYS-2-MH-3 24" FL=36.03(E) 48" FL=33.62(W&S)

PROP. SAN. MH. #6 24" FL 25.86(IN) 24" FL 25.76(OUT)

PROP. SAN. MH. #5 24" FL 25.73(IN) 24" FL 25.63 (OUT)

STA 9+75.8

6" SAN. LEAD

PROP. TY "C" MH. SYS-3-MH-7 24" FL=35.85(N,S,E)

PROP. SAN. MH. #4 24" FL=25.23(IN) 24" FL=25.13 (OUT)

6" SAN. LEAD

RESTRAINED PIPE

PROP. 56 LF 24" SAN. SWR @ 0.11%

PROP. 358 LF 24" SAN. SWR @ 0.11%

PROP. 66 LF 24" SAN. SWR @ 0.11%

FL 25.90

PROP. 26 LF 24" SAN. SWR @ 0.11%

FL 25.06

9+00 10+00 11+00 12+00 13+00 14+00

42 40 38 36 34 32 30 28 26 24 22

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\034-LEIT-PP03.DWG JUL. 01, 2026-10:46am

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0880L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR. BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:
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THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

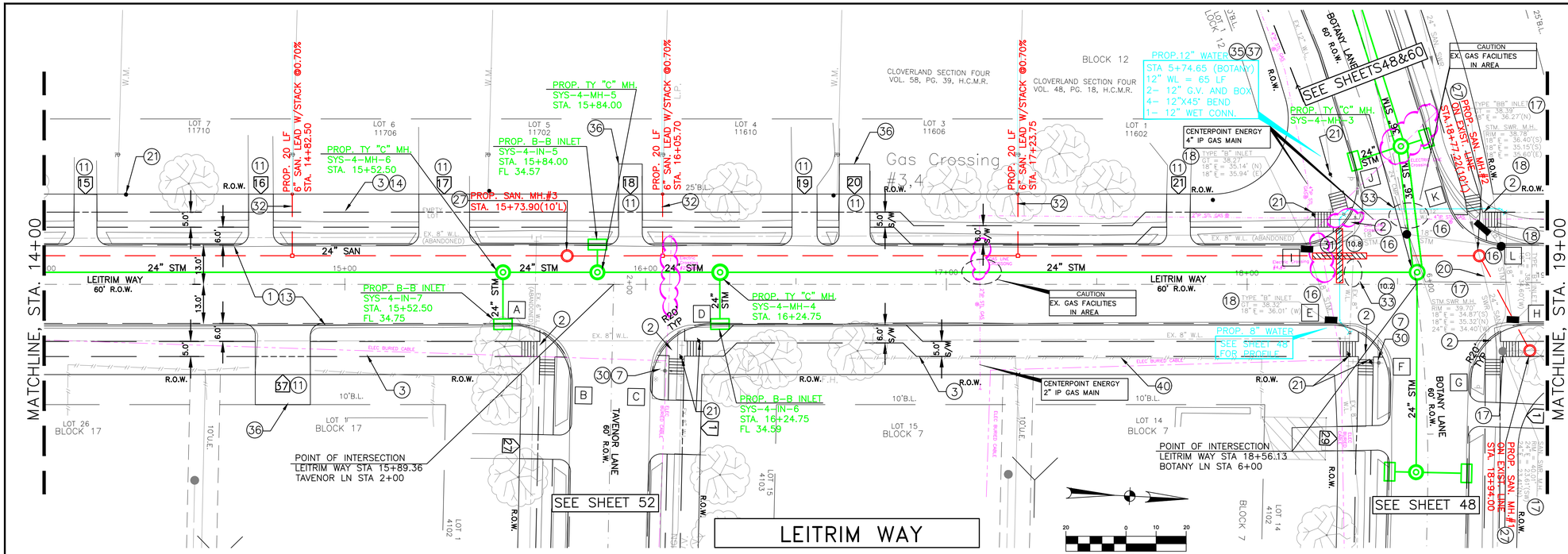
SURVEYED BY:GEOSURV, INC.
FB NO.

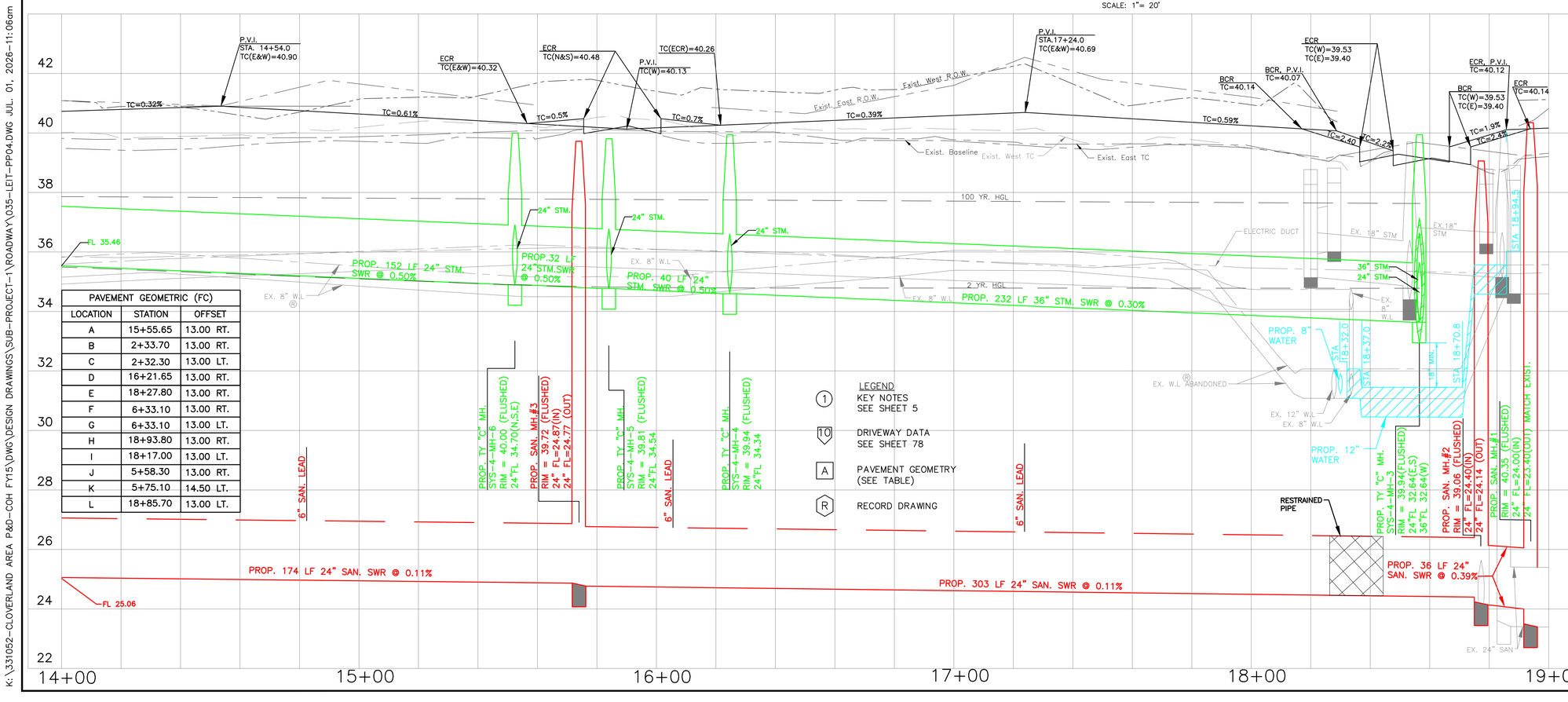
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 9+00 TO STA 14+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 34 OF 159	





PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	15+55.65	13.00 RT.
B	2+33.70	13.00 RT.
C	2+32.30	13.00 LT.
D	16+21.65	13.00 RT.
E	18+27.80	13.00 RT.
F	6+33.10	13.00 RT.
G	6+33.10	13.00 LT.
H	18+93.80	13.00 RT.
I	18+17.00	13.00 LT.
J	5+58.30	13.00 RT.
K	5+75.10	14.50 LT.
L	18+85.70	13.00 LT.

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

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SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

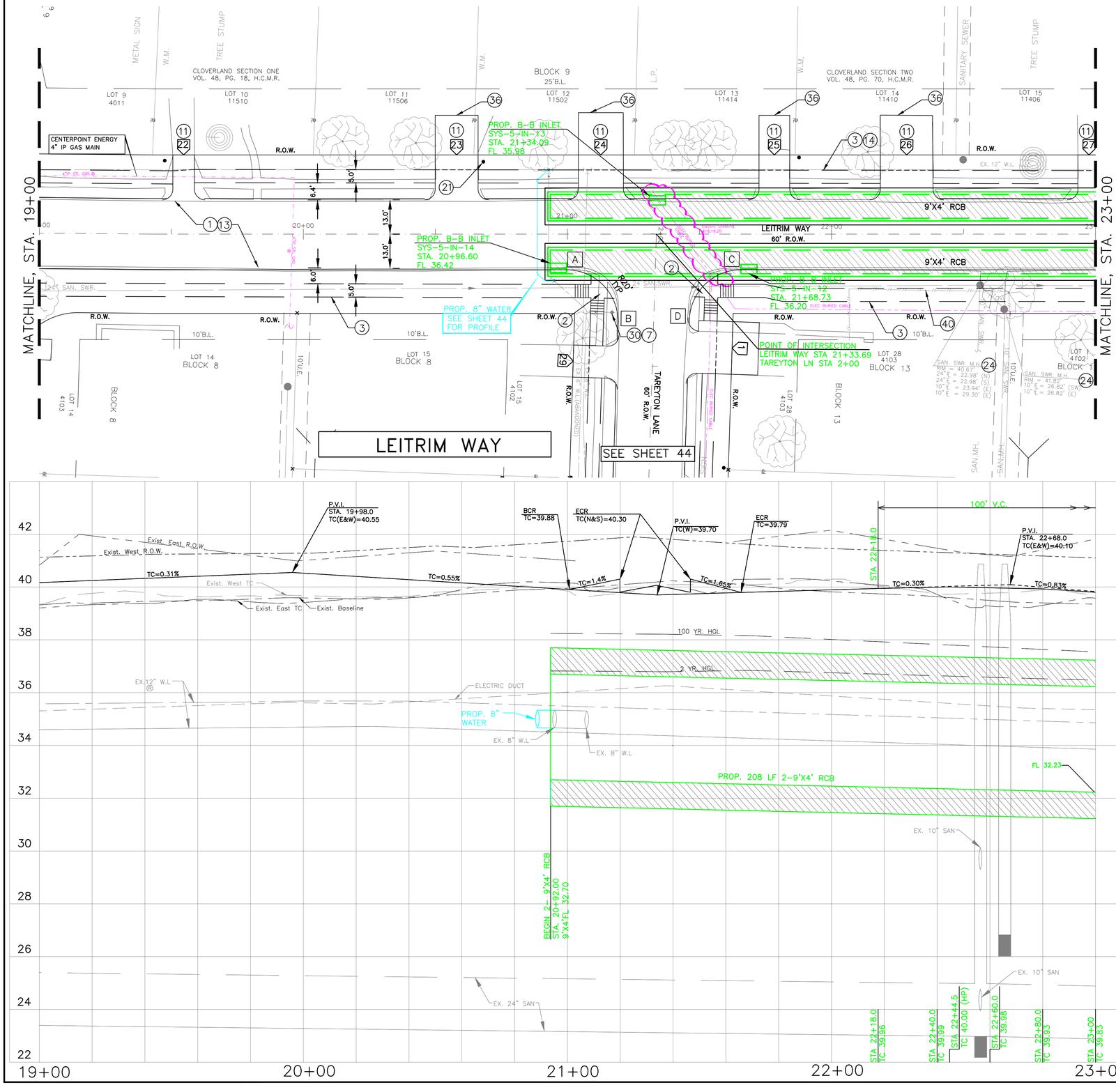
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 14+00 TO STA 19+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 35 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\035-LEIT-PP04.DWG JUL. 01, 2026-11:06am



PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	20+99.65	13.00 RT.
B	2+33.60	13.00 RT.
C	21+65.70	13.00 RT.
D	2+31.70	13.00 LT.

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
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BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

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100% DESIGN REVIEW

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

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SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

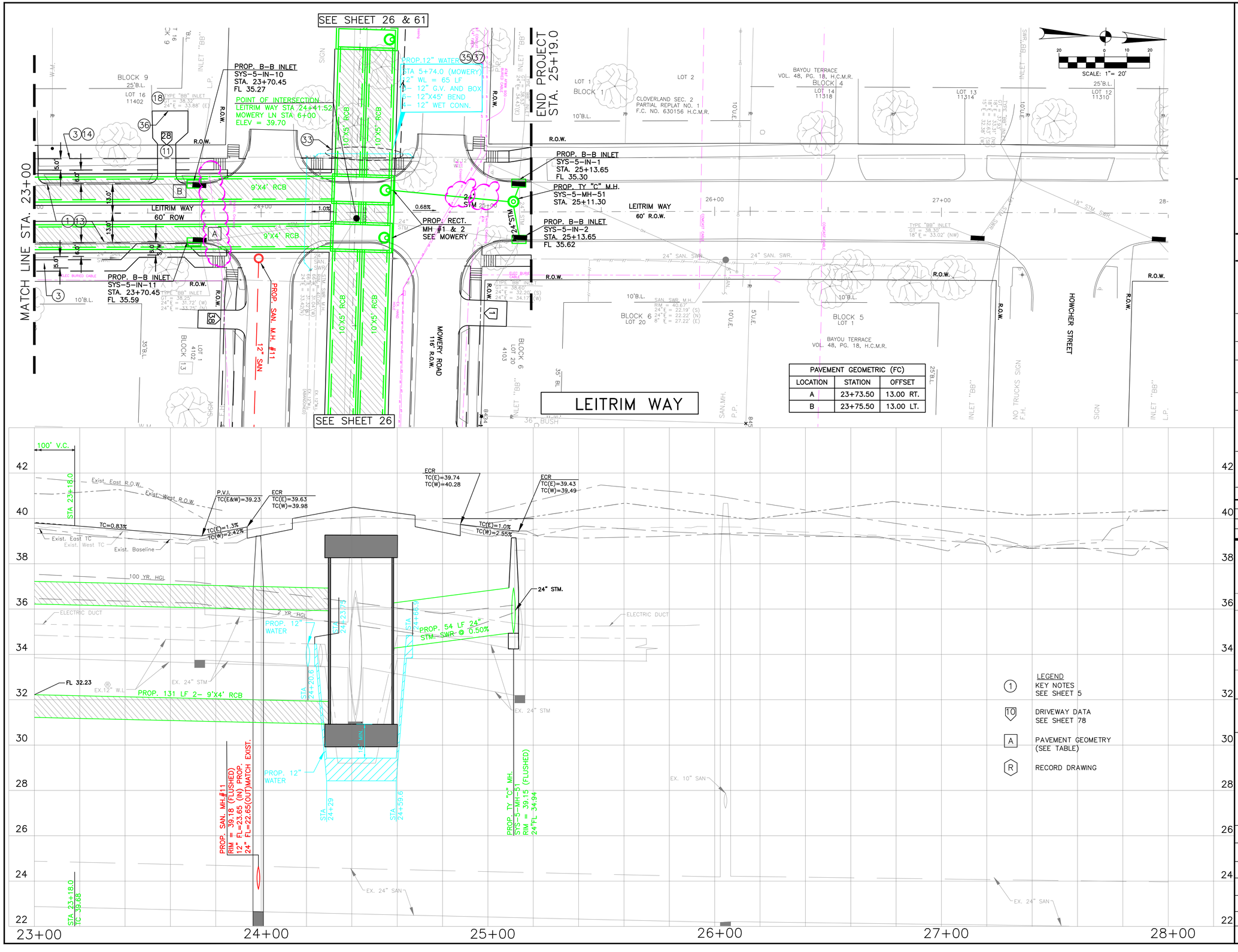
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 19+00 TO STA 23+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 36 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\036-LEIT-PP05.DWG JUL. 01, 2026-10:53am



LEGEND

(1) KEY NOTES SEE SHEET 5

(10) DRIVEWAY DATA SEE SHEET 78

(A) PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

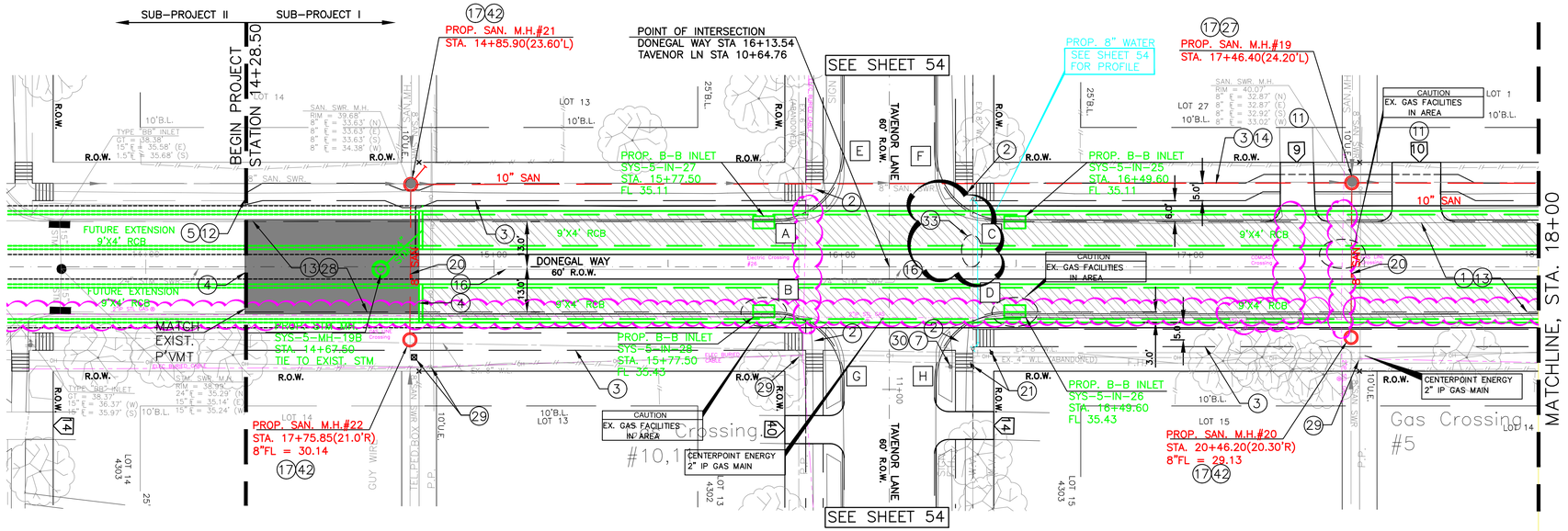
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

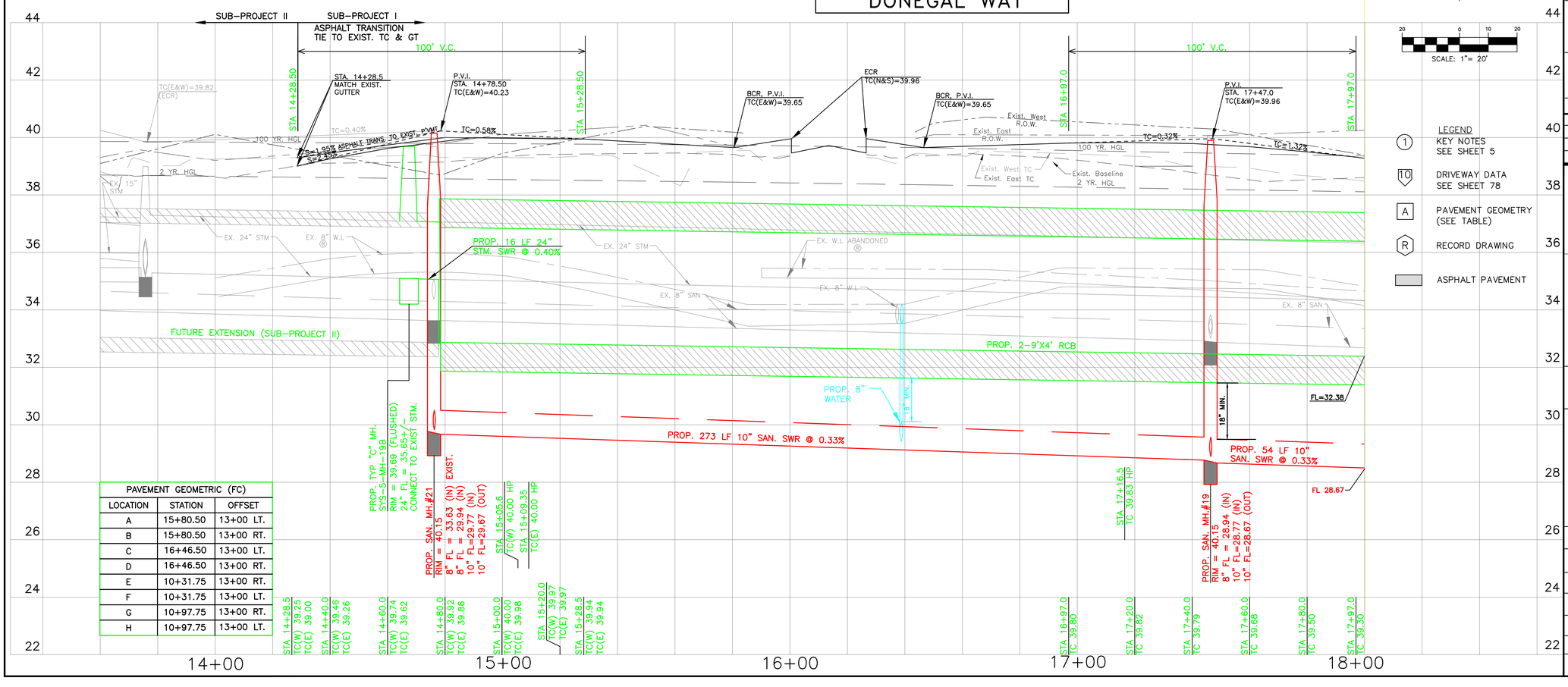
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

LEITRIM WAY
PLAN AND PROFILE
STA 23+00 TO STA 25+19

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 37 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\037-LEIT-PP06.DWG JUL. 01, 2026-10:50am





PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	15+80.50	13+00 LT.
B	15+80.50	13+00 RT.
C	16+46.50	13+00 LT.
D	16+46.50	13+00 RT.
E	10+31.75	13+00 RT.
F	10+31.75	13+00 LT.
G	10+97.75	13+00 RT.
H	10+97.75	13+00 LT.

SCALE: 1"= 20'

LEGEND
- (1) KEY NOTES SEE SHEET 5
- (10) DRIVEWAY DATA SEE SHEET 78
- (A) PAVEMENT GEOMETRY (SEE TABLE)
- (R) RECORD DRAWING
- ASPHALT PAVEMENT

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BENCHMARK:
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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

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SIGNATURE VALID FOR SIX MONTHS.

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CABLE COMPANY

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dba TSC Engineering
10970 STANCLIFF RD
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Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

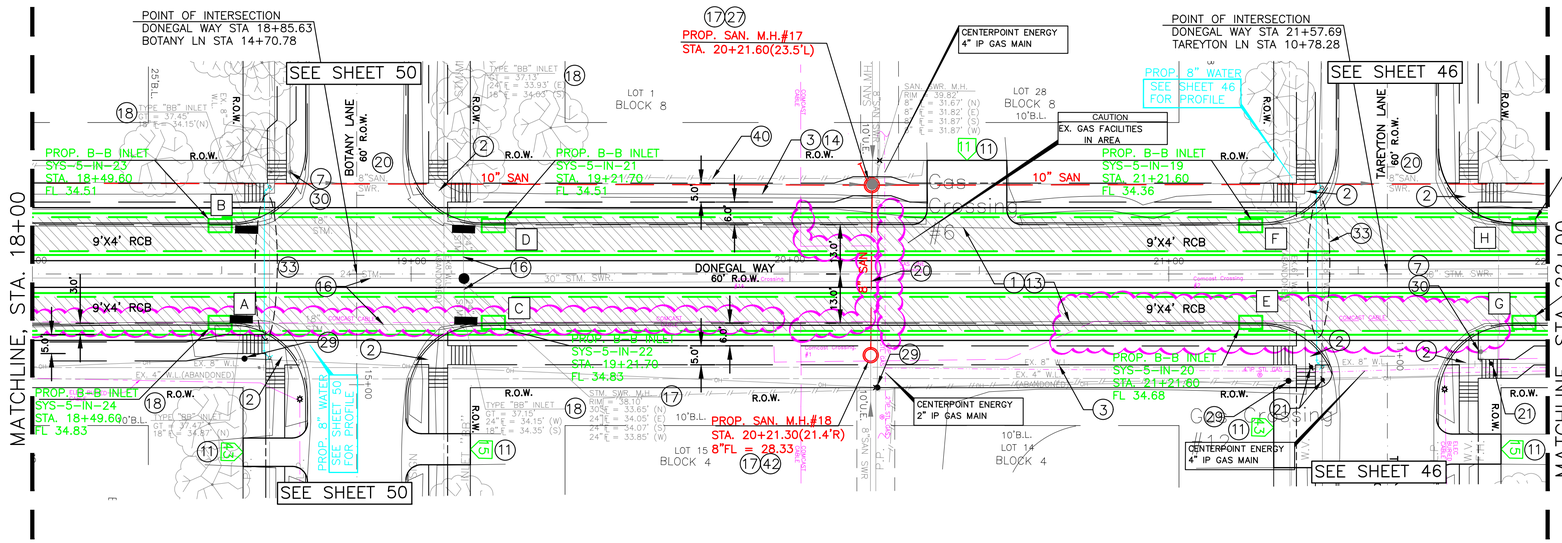
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

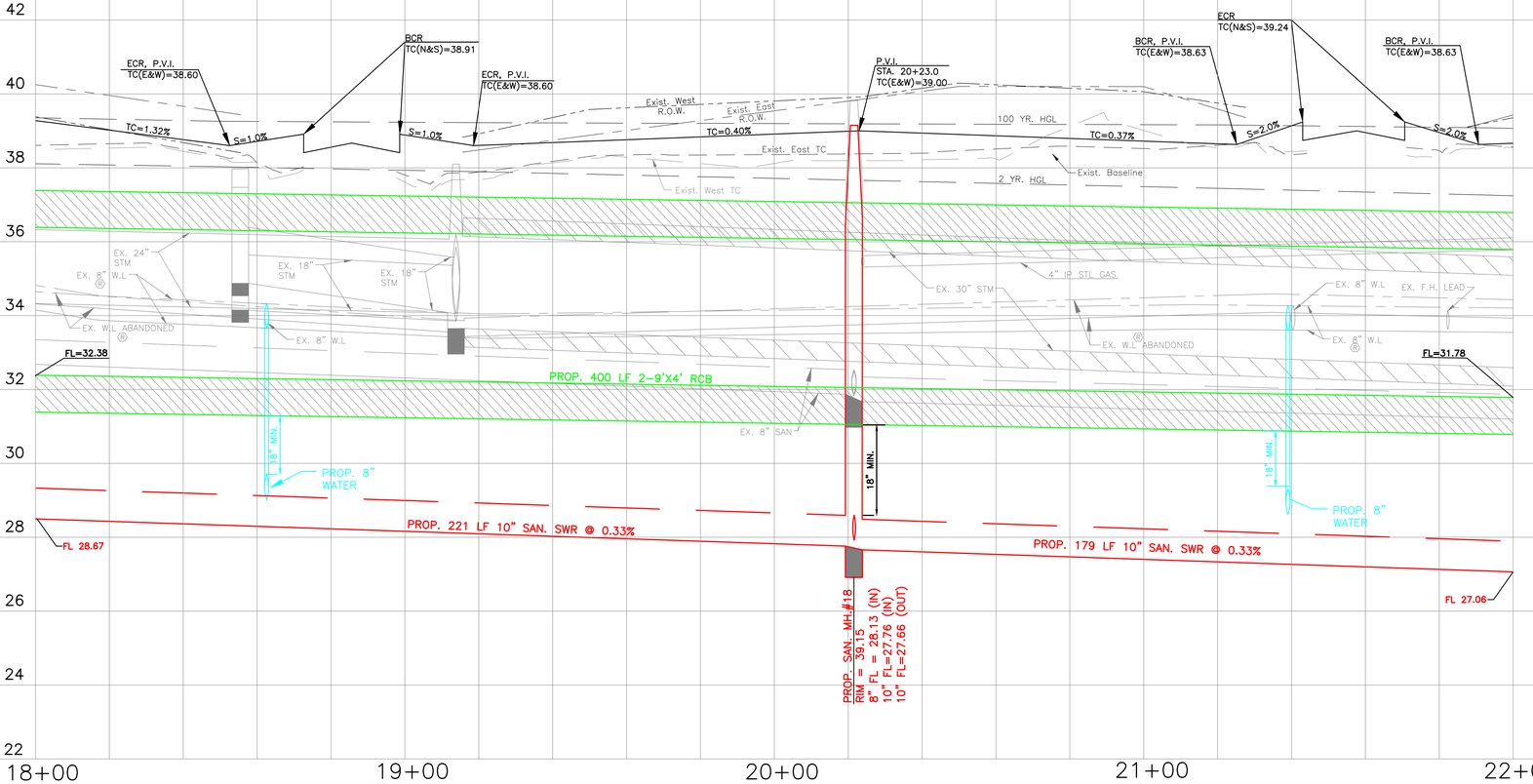
DONEGAL WAY
PLAN AND PROFILE
STA 14+28.50 TO STA 18+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 38 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\038-DONE-PP01.DWG JUL. 01, 2026-10:57am



DONEGAL WAY



PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	18+52.60	13.00' RT.
B	18+52.60	13.00' LT.
C	19+18.65	13.00' RT.
D	19+18.65	13.00' LT.
E	21+24.70	13.00' RT.
F	21+24.70	13.00' LT.
G	21+90.70	13.00' RT.
H	21+90.70	13.00' LT.

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
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ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

20 0 10 20
SCALE: 1"= 20'

LEGEND
(1) KEY NOTES SEE SHEET 5
(10) DRIVEWAY DATA SEE SHEET 78
[A] PAVEMENT GEOMETRY (SEE TABLE)
[R] RECORD DRAWING

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

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CABLE COMPANY

NO.	DATE	REVISIONS	BY

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dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

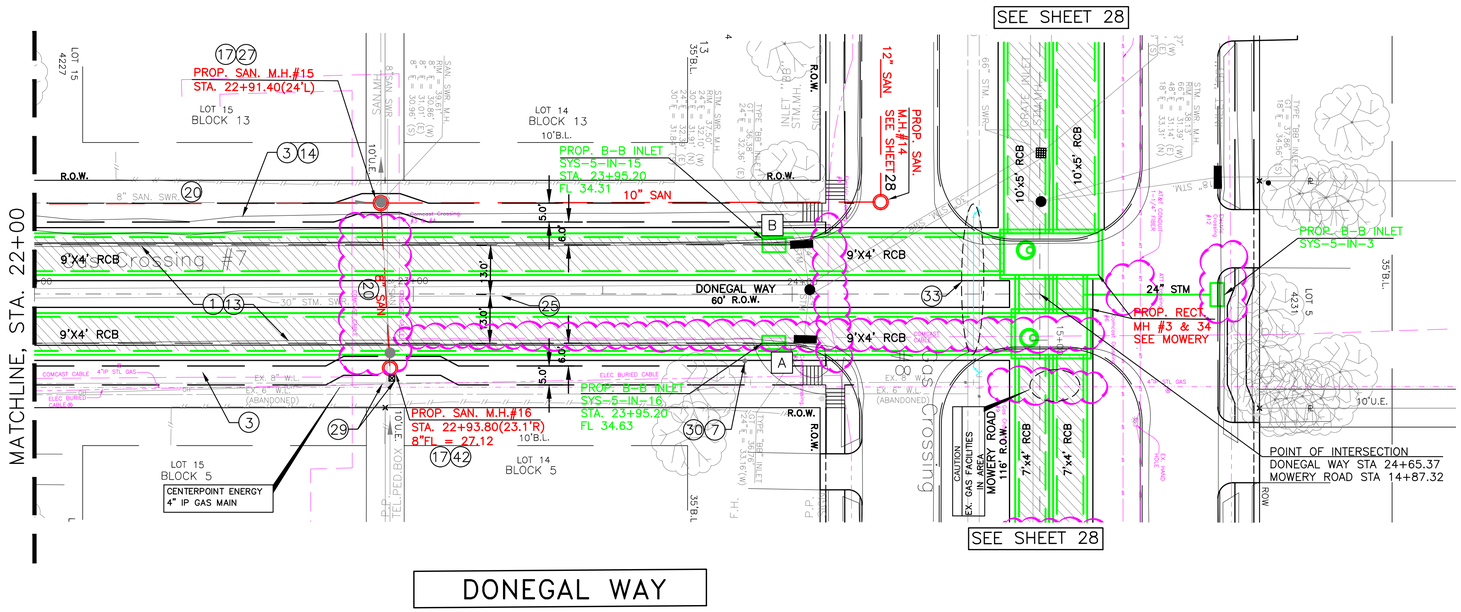
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

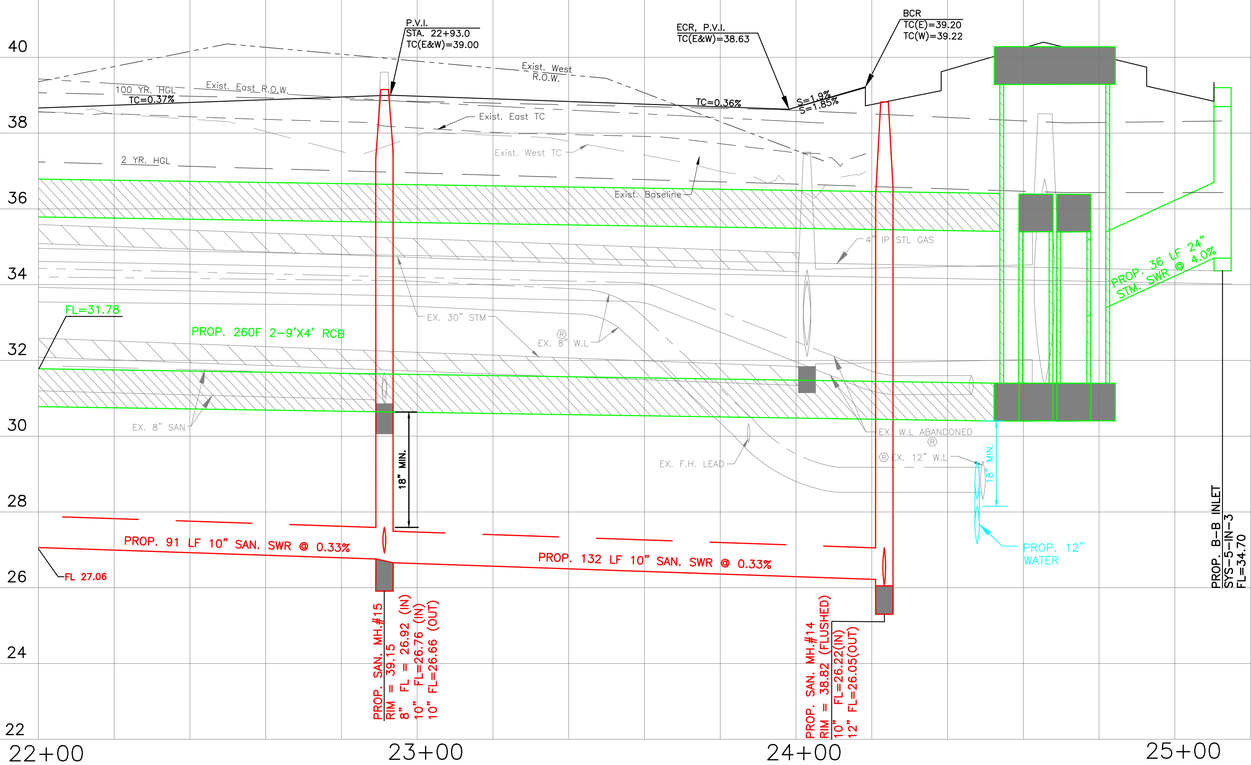
DONEGAL WAY
PLAN AND PROFILE
STA 18+00 TO STA 22+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 39 OF 159	

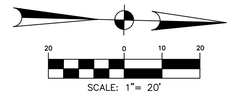
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\039-DONE-PP02.DWG JUL. 01, 2026-10:56am



DONEGAL WAY



PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	23+98.40	13.00 RT.
B	23+98.40	13.00 LT.



LEGEND

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(10) DRIVEWAY DATA SEE SHEET 78

(A) PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

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BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

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DATE:

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CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
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10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

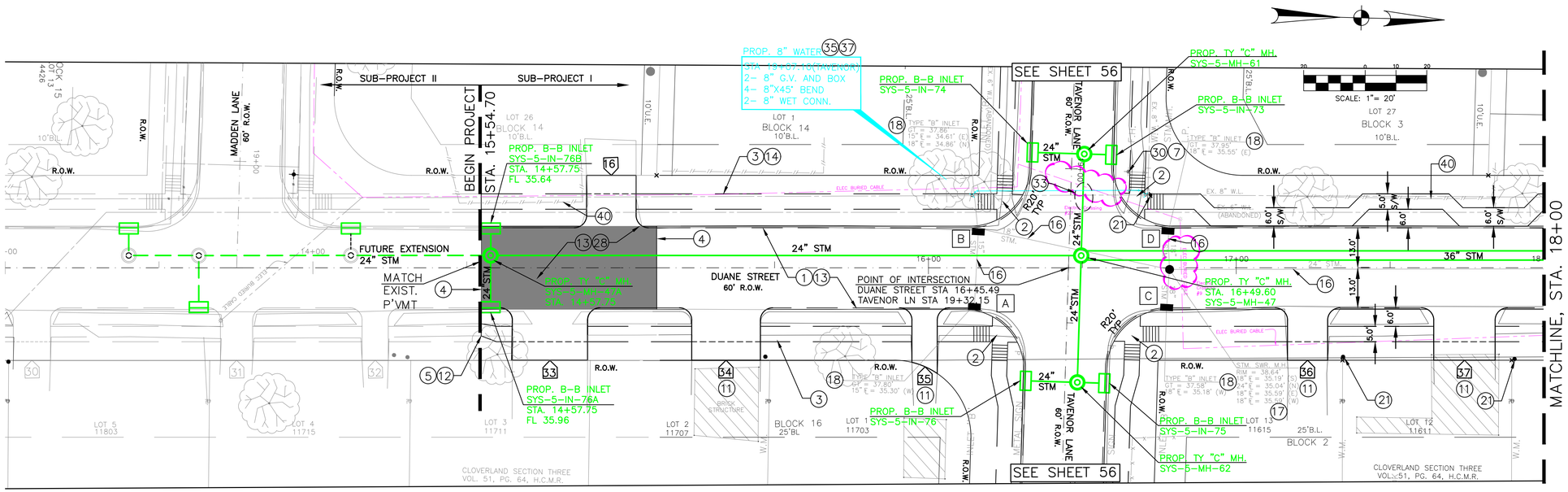
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

DONEGAL WAY
PLAN AND PROFILE
STA 22+00 TO 24+65.37

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 40 OF 159	

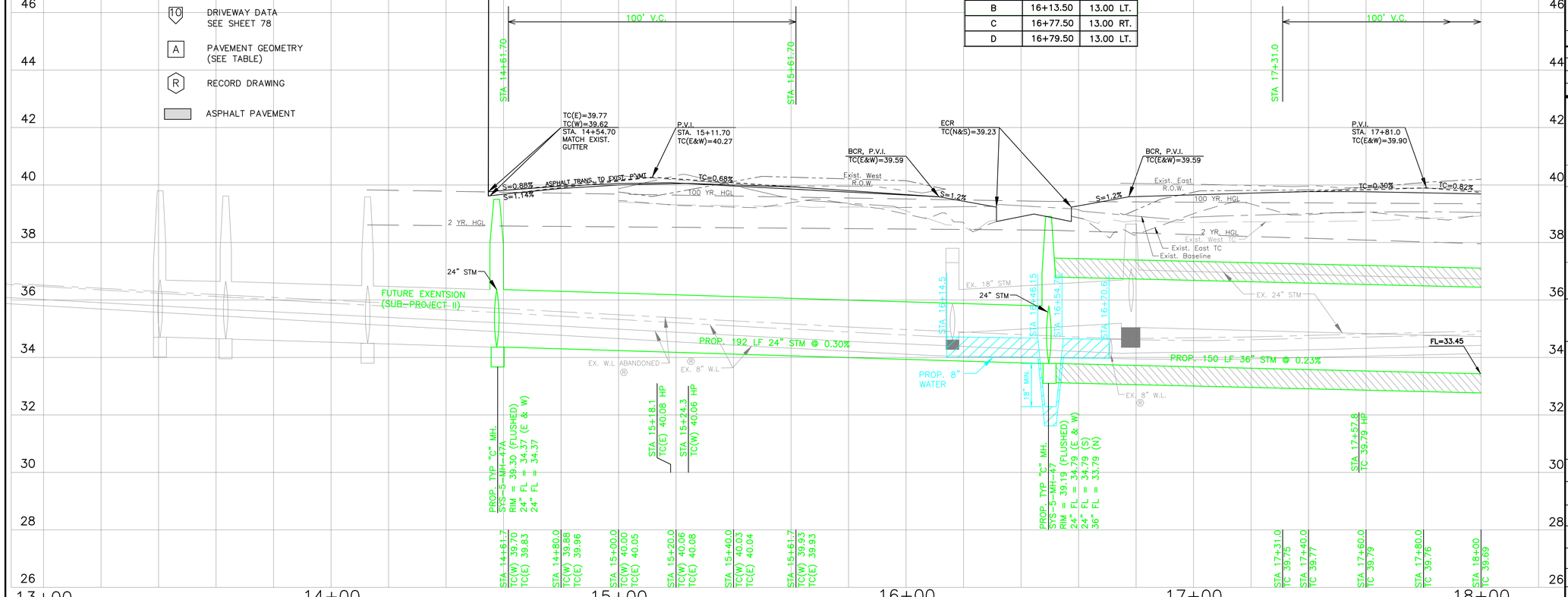
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\040-DONE-PP03.DWG JUL 01, 2026-10:41am



DUANE STREET

LEGEND
1. KEY NOTES SEE SHEET 5
10. DRIVEWAY DATA SEE SHEET 78
A. PAVEMENT GEOMETRY (SEE TABLE)
R. RECORD DRAWING
ASPHALT PAVEMENT

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	16+11.50	13.00 RT.
B	16+13.50	13.00 LT.
C	16+77.50	13.00 RT.
D	16+79.50	13.00 LT.



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10970 STANCLIFF RD
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CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
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DUANE STREET
PLAN AND PROFILE
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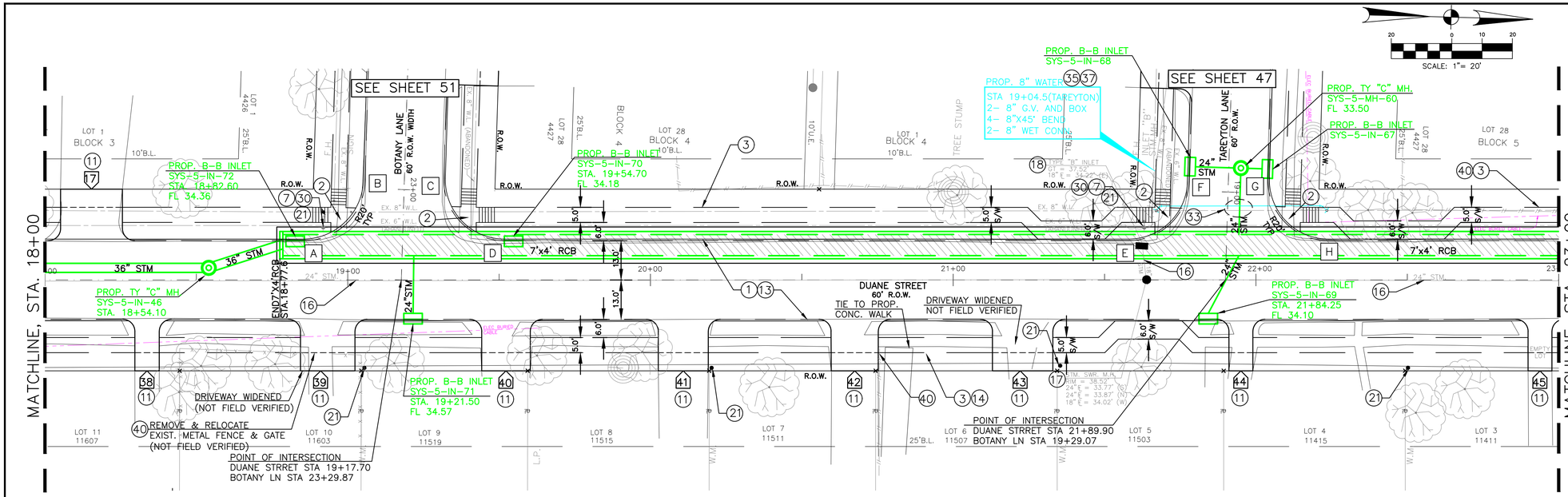
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 41 OF 159	

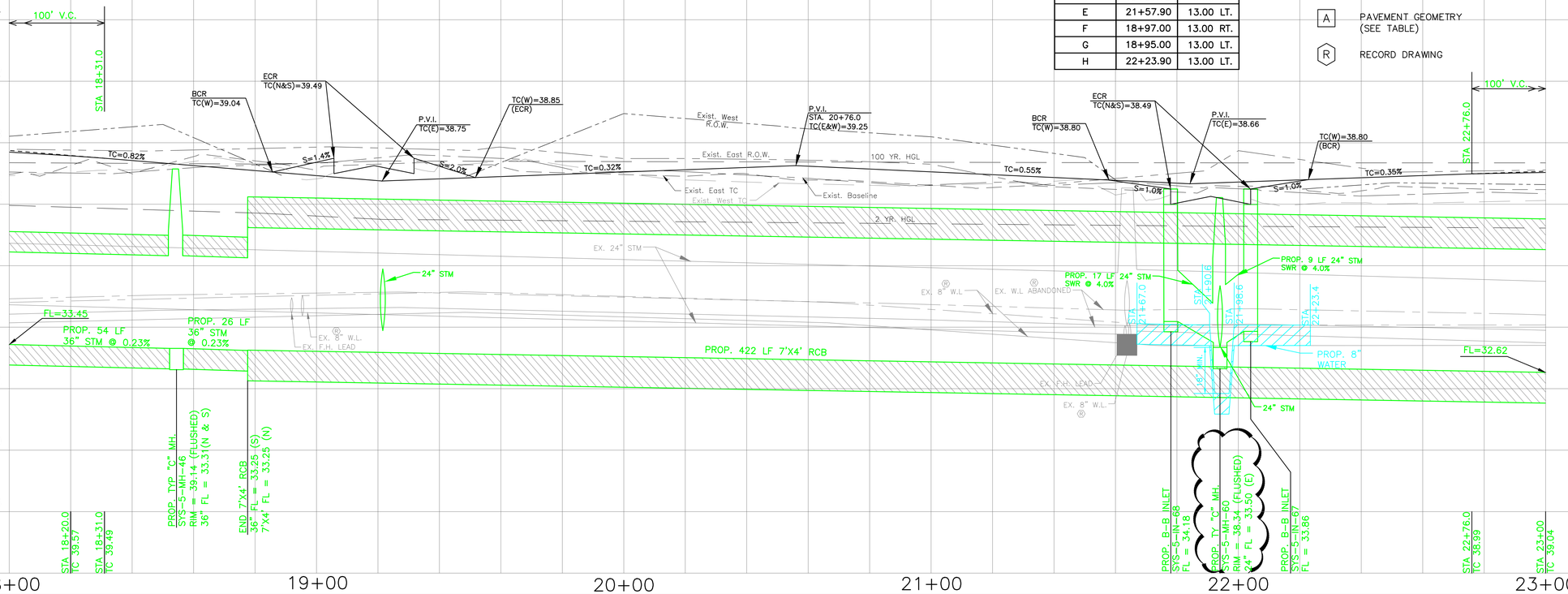
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\041-DUAN-PP01.DWG JUL. 01, 2026-10:51am



DUANE STREET

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	18+85.70	13.00 LT.
B	22+97.85	13.00 RT.
C	22+95.85	13.00 LT.
D	19+51.75	13.00 LT.
E	21+57.90	13.00 LT.
F	18+97.00	13.00 RT.
G	18+95.00	13.00 LT.
H	22+23.90	13.00 LT.

LEGEND
- (1) KEY NOTES SEE SHEET 5
- (10) DRIVEWAY DATA SEE SHEET 78
- [A] PAVEMENT GEOMETRY (SEE TABLE)
- (R) RECORD DRAWING



LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 15OFT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

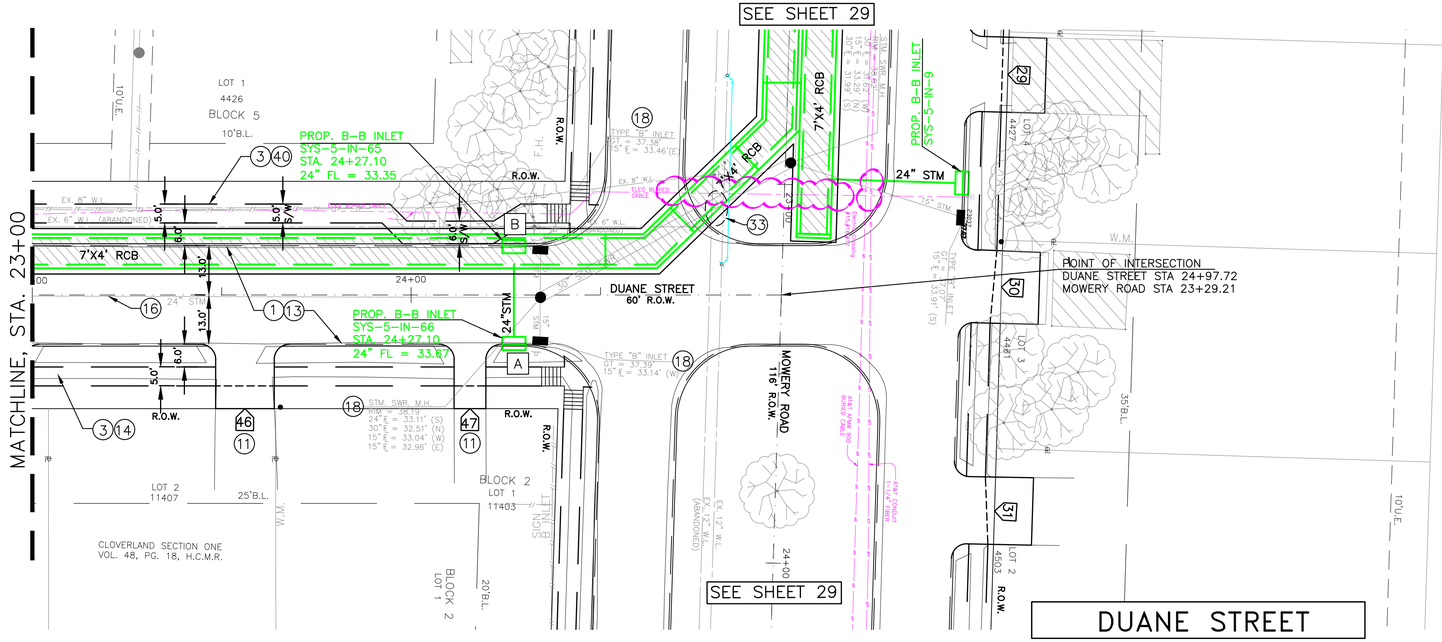
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

DUANE STREET
PLAN AND PROFILE
STA 18+00 TO STA 23+00

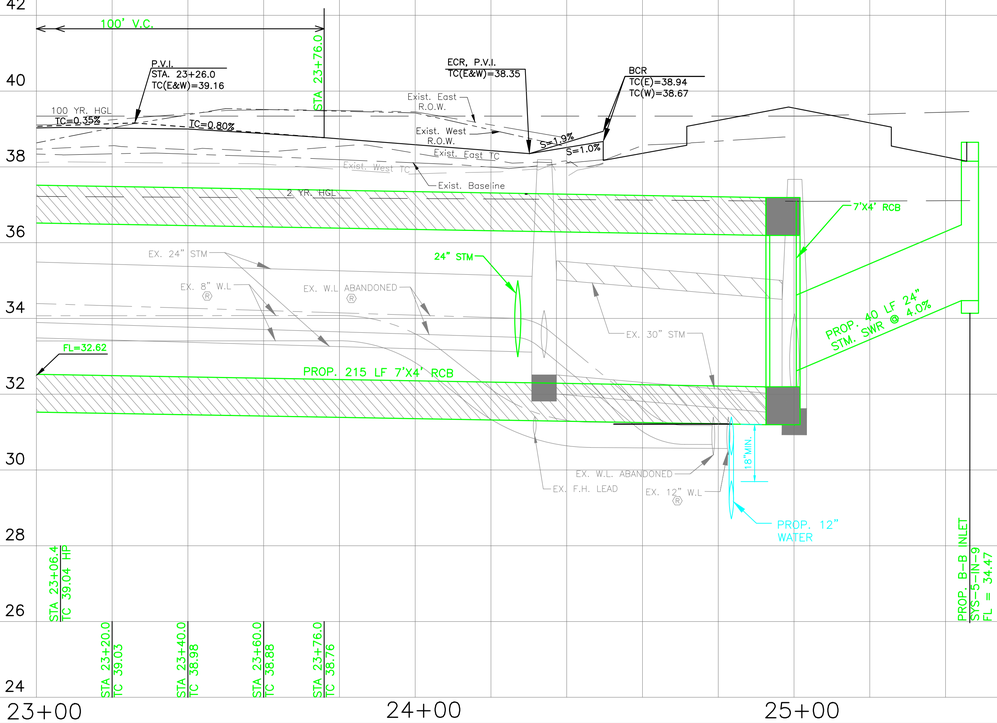
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 42 OF 159	

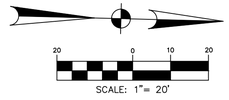
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\042-DUAN-PP02.DWG JUL 01, 2026-10:52am



DUANE STREET

PAVEMENT GEOMETRIC (FC)		
LOCATION	STATION	OFFSET
A	24+30.20	13.00 RT.
B	24+31.70	13.00 LT.





LEGEND

(1) KEY NOTES SEE SHEET 5

(10) DRIVEWAY DATA SEE SHEET 78

[A] PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 15OFT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
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ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

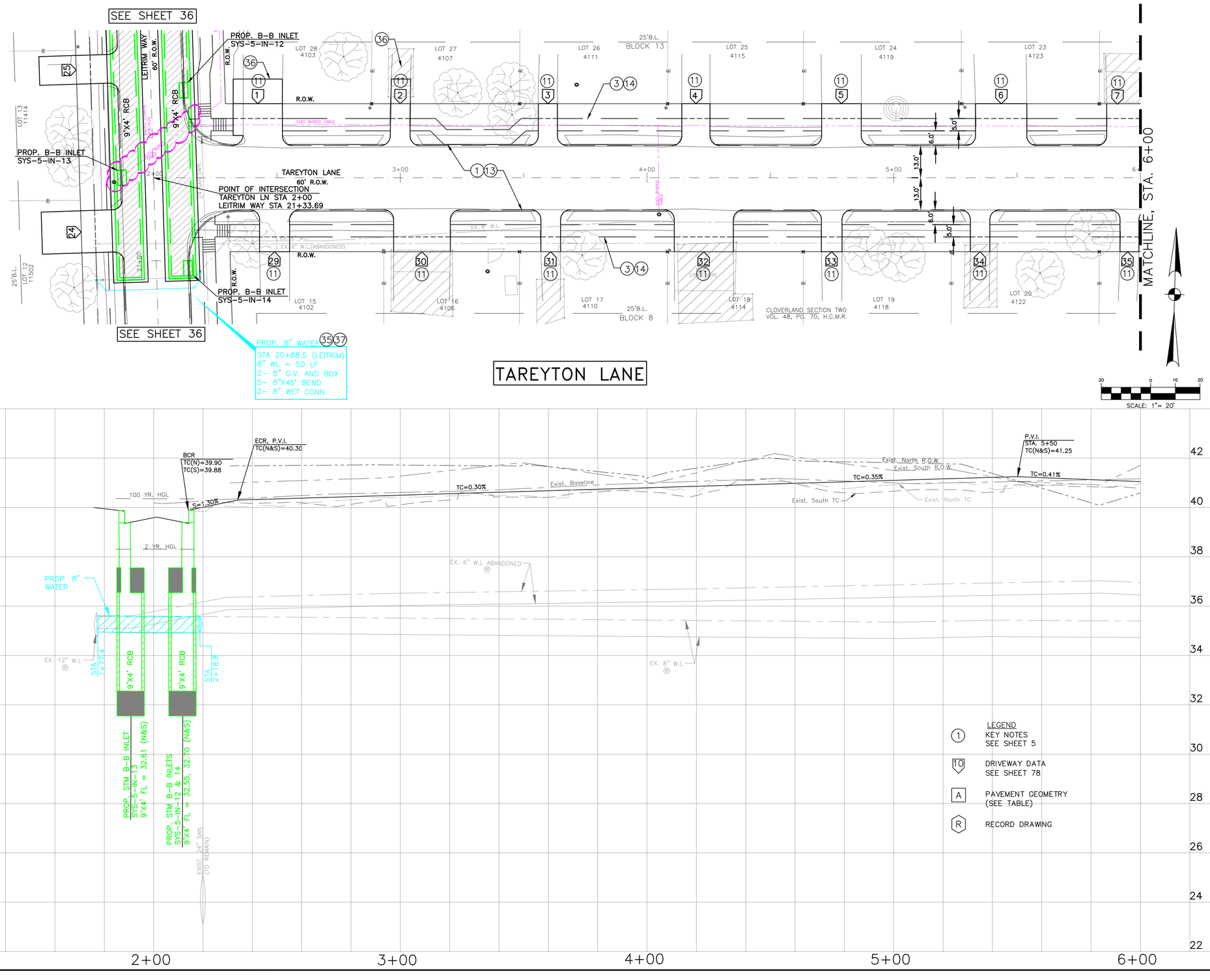
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

DUANE STREET
PLAN AND PROFILE
STA 23+00 TO 24+97.72

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 43 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\043-DUAN-PP03.DWG JUL 01, 2026-10:38am



LEGEND
(1) KEY NOTES SEE SHEET 5
(10) DRIVEWAY DATA SEE SHEET 78
(A) PAVEMENT GEOMETRY (SEE TABLE)
(R) RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
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TBM "B":
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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

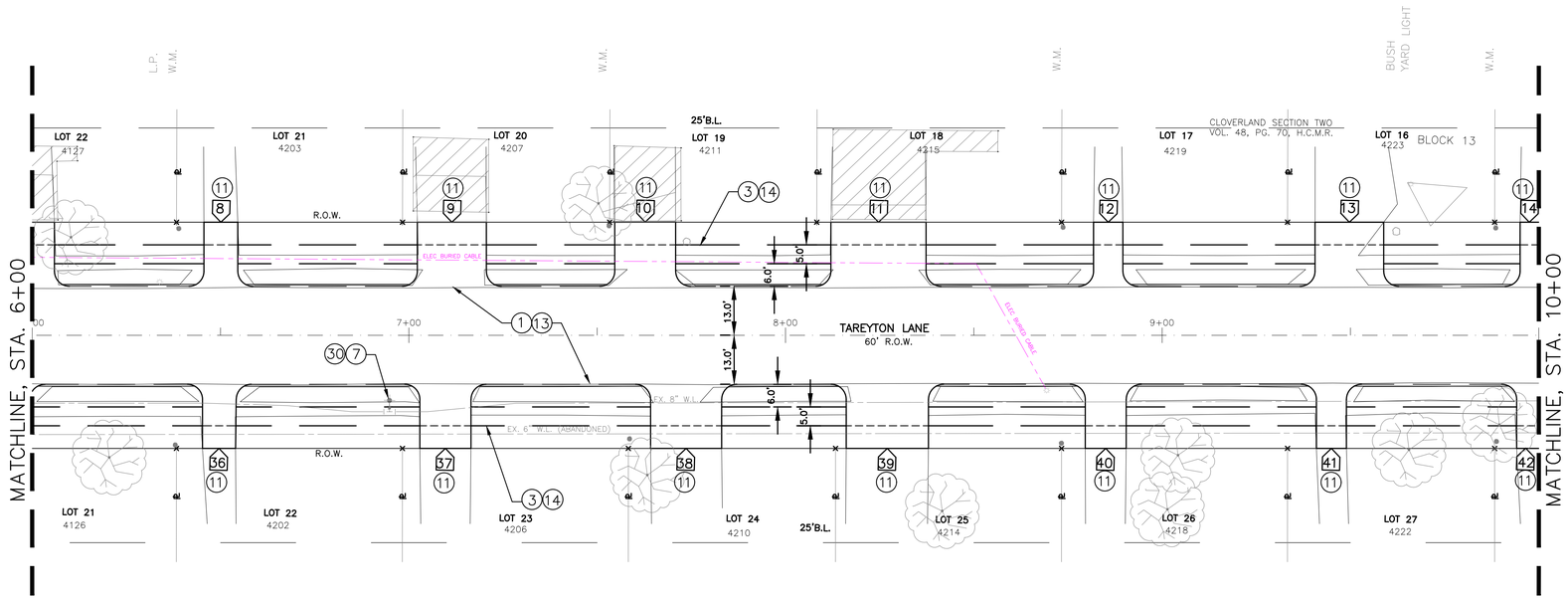
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

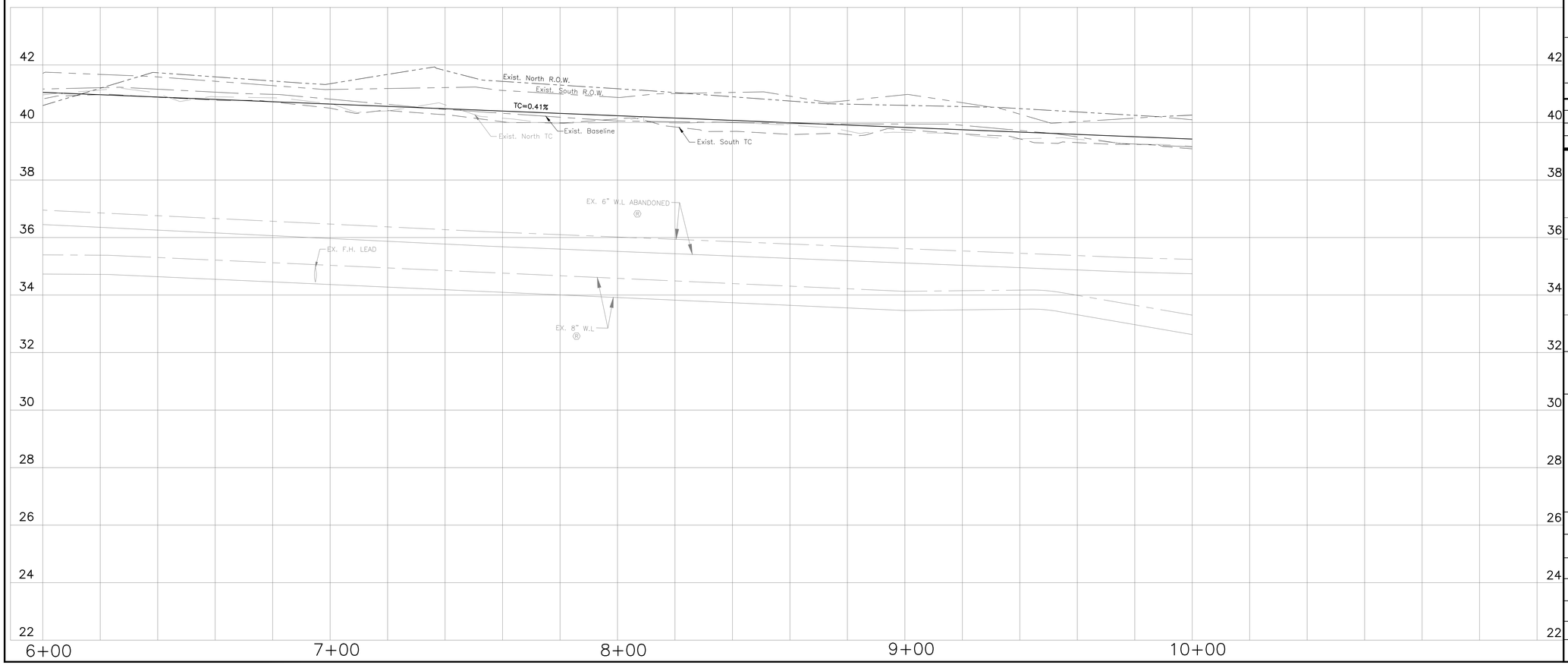
TAREYTON LANE
PLAN AND PROFILE
STA 2+00 TO STA 6+00

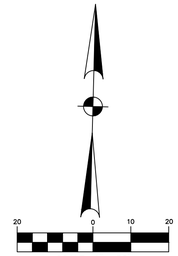
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT 1"=2' HORIZ 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 44 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\044-TARE-PP01.DWG JUL 01, 2026-11:04am



TAREYTON LANE





LEGEND

(1) KEY NOTES SEE SHEET 5

10 DRIVEWAY DATA SEE SHEET 78

A PAVEMENT GEOMETRY (SEE TABLE)

R RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

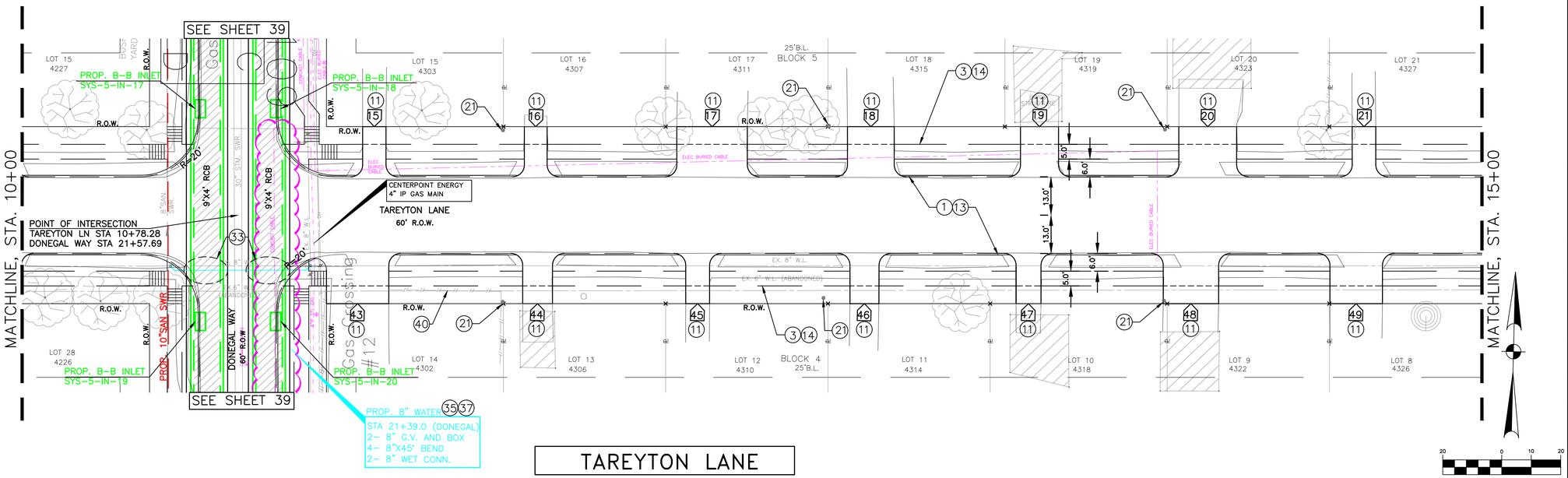
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

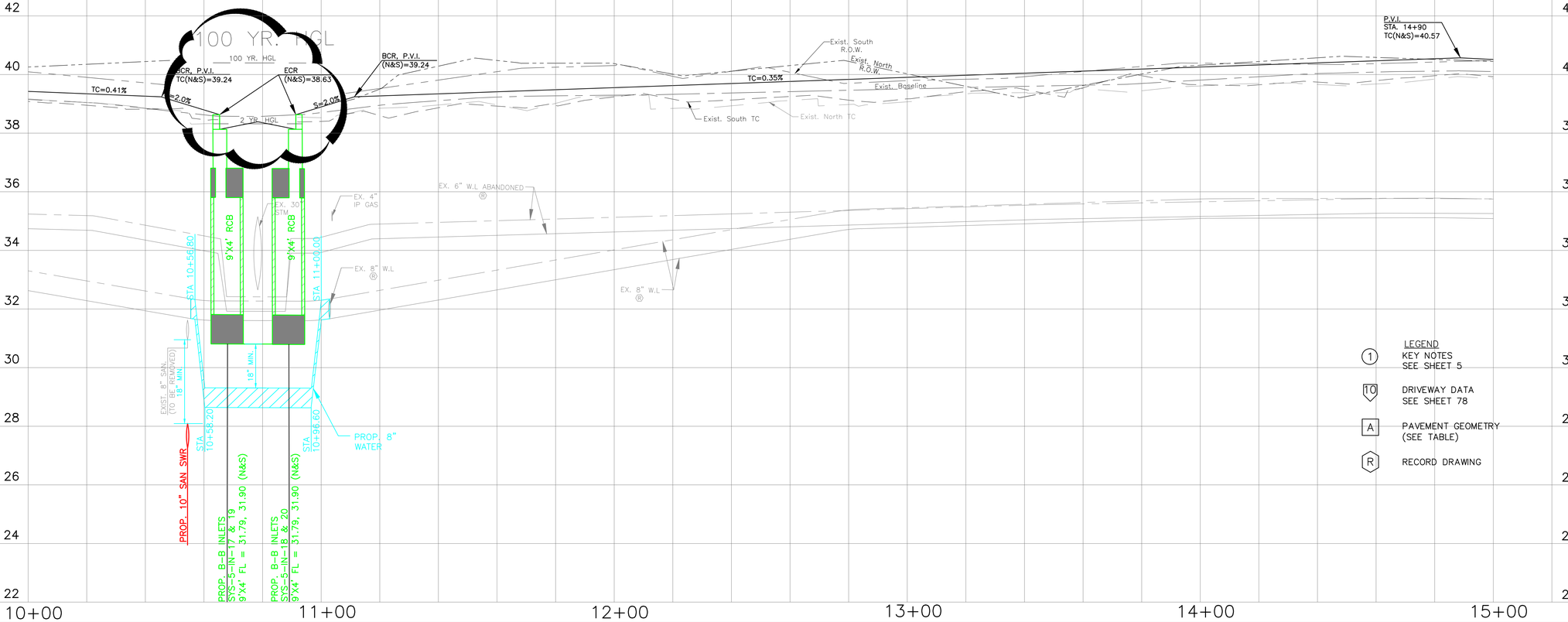
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAREYTON LANE
PLAN AND PROFILE
STA 6+00 TO STA 10+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 45 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\045-TARE-PP02.DWG JUL. 01, 2026-10:39am





LEGEND
1 KEY NOTES SEE SHEET 5
10 DRIVEWAY DATA SEE SHEET 78
A PAVEMENT GEOMETRY (SEE TABLE)
R RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

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SIGNATURE VALID FOR SIX MONTHS.

DATE:

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SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

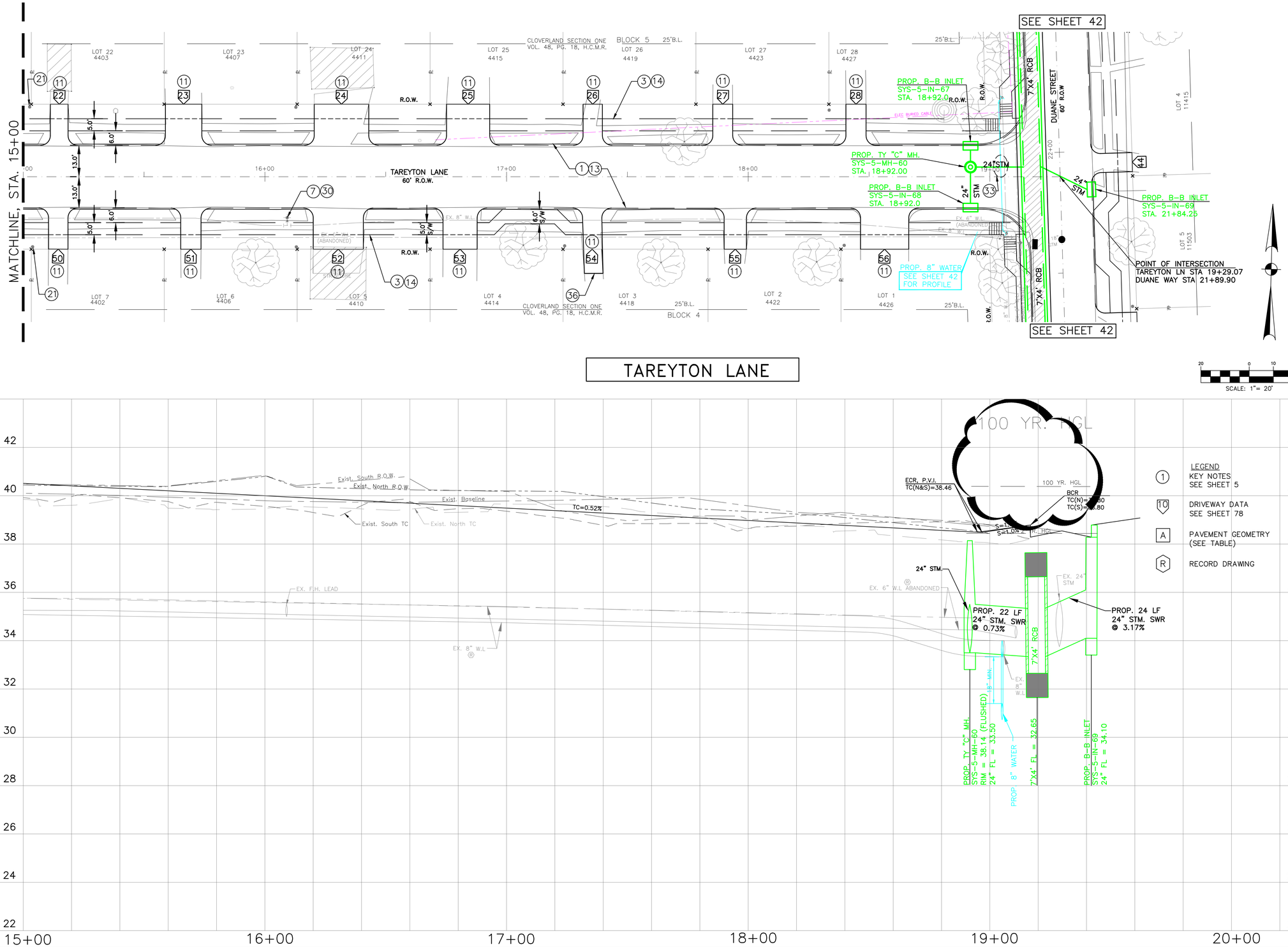
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAREYTON LANE
PLAN AND PROFILE
STA 10+00 TO STA 15+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 46 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\046-TARE-PP03.DWG JUL. 01, 2026-10:58am



TAREYTON LANE

SCALE: 1"= 20'

LEGEND

(1)	KEY NOTES SEE SHEET 5
(10)	DRIVEWAY DATA SEE SHEET 78
(A)	PAVEMENT GEOMETRY (SEE TABLE)
(R)	RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

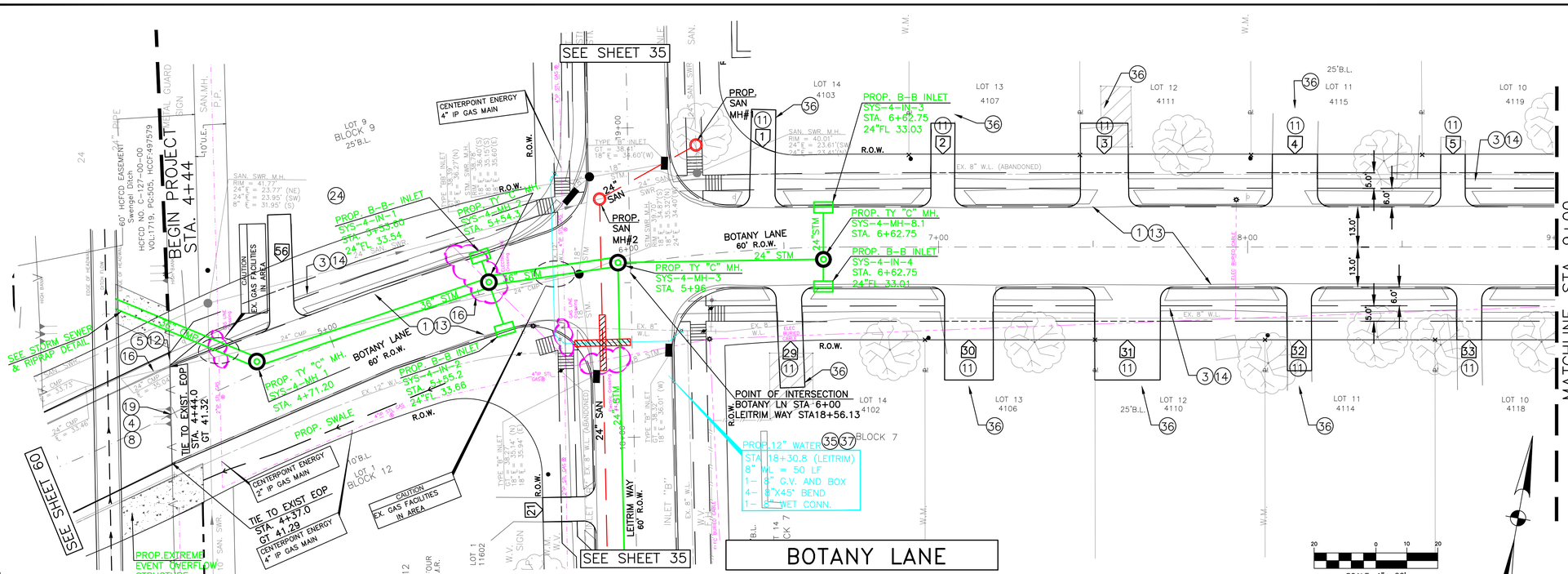
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

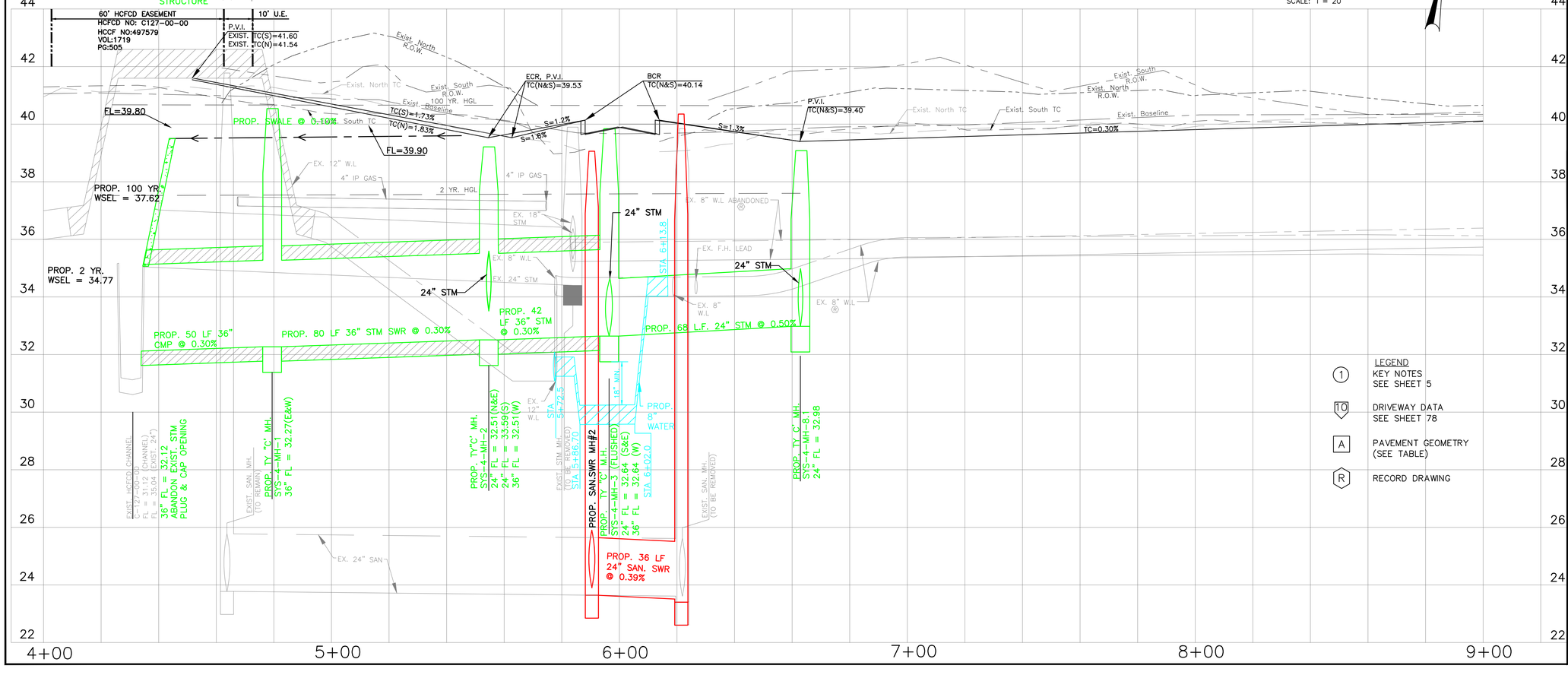
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAREYTON LANE
PLAN AND PROFILE
STA 15+00 TO 19+29.07

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 47 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\047-TARE-PP04.DWG JUL. 01, 2026-10:49am





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BENCHMARK:
FEMA RM 030065
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DATE:

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CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

LEGEND
(1) KEY NOTES SEE SHEET 5
(10) DRIVEWAY DATA SEE SHEET 78
(A) PAVEMENT GEOMETRY (SEE TABLE)
(R) RECORD DRAWING

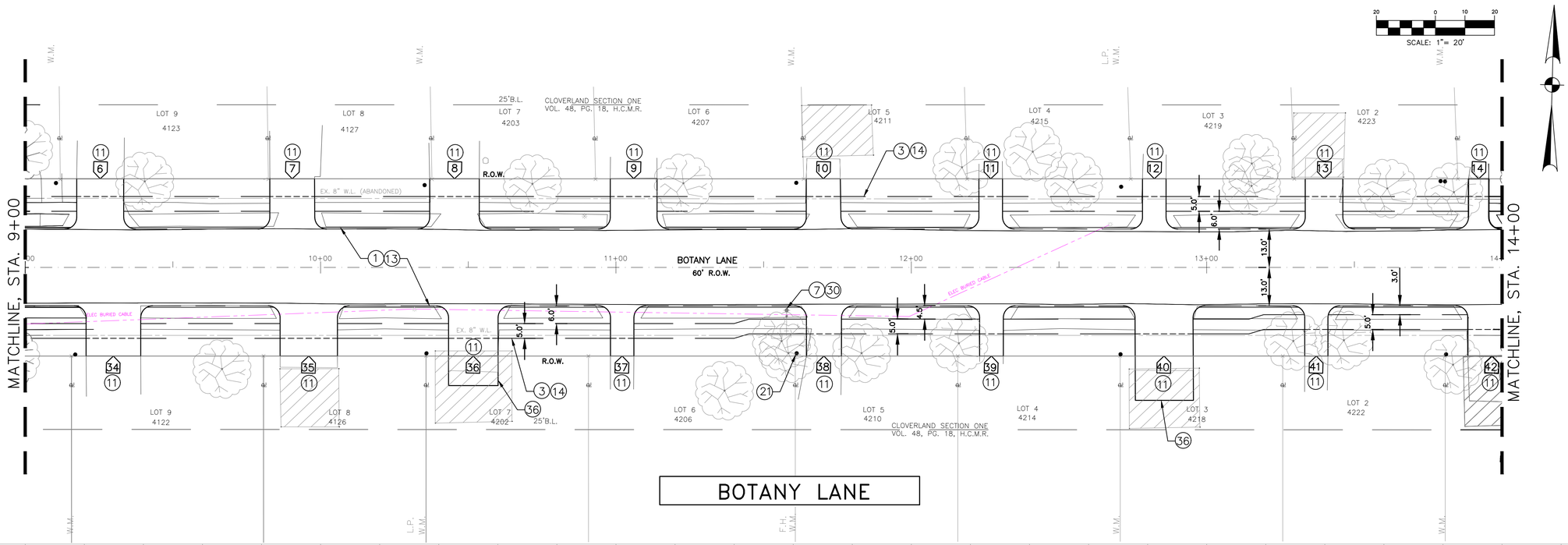
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

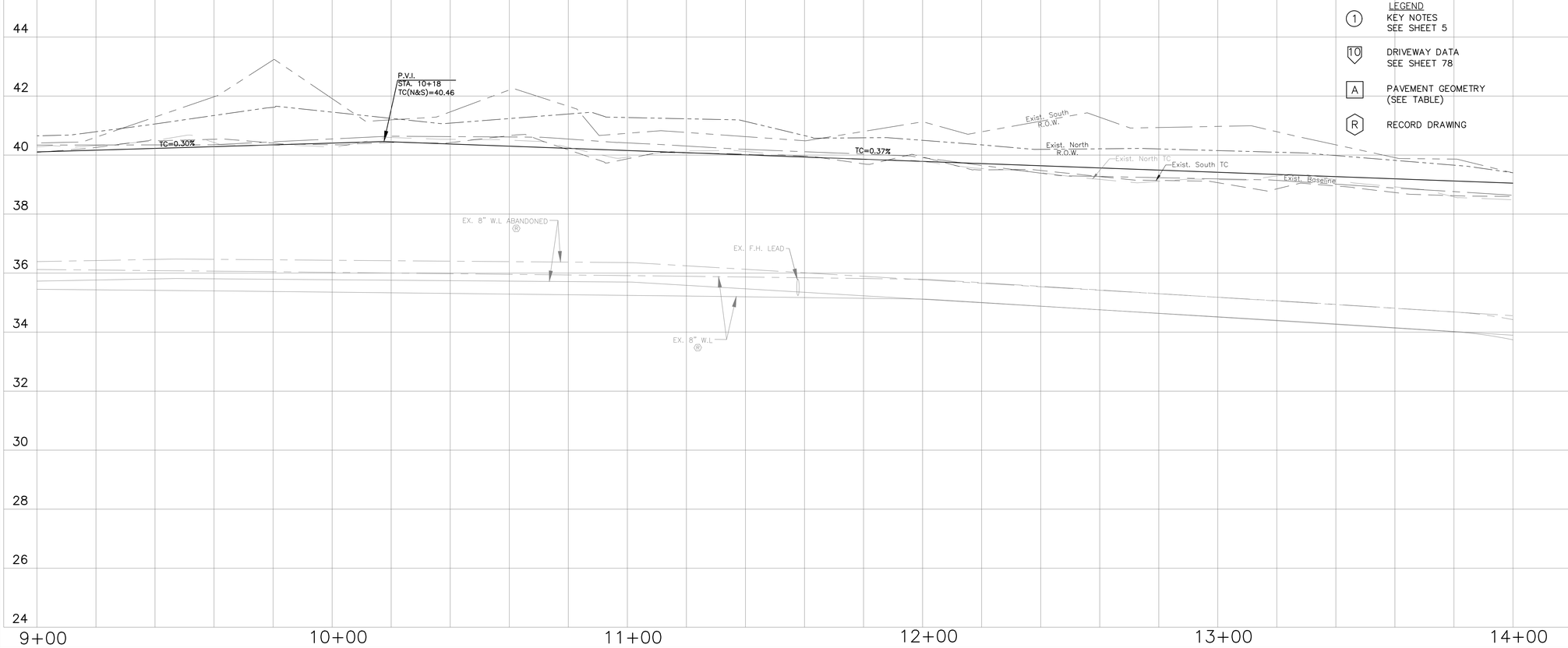
BOTANY LANE
PLAN AND PROFILE
STA 4+44 TO STA 9+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 48 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\048-BOTA-PP01.DWG JUL. 01, 2026-11:05am



BOTANY LANE



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A PAVEMENT GEOMETRY (SEE TABLE)

R RECORD DRAWING

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DATE:

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DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

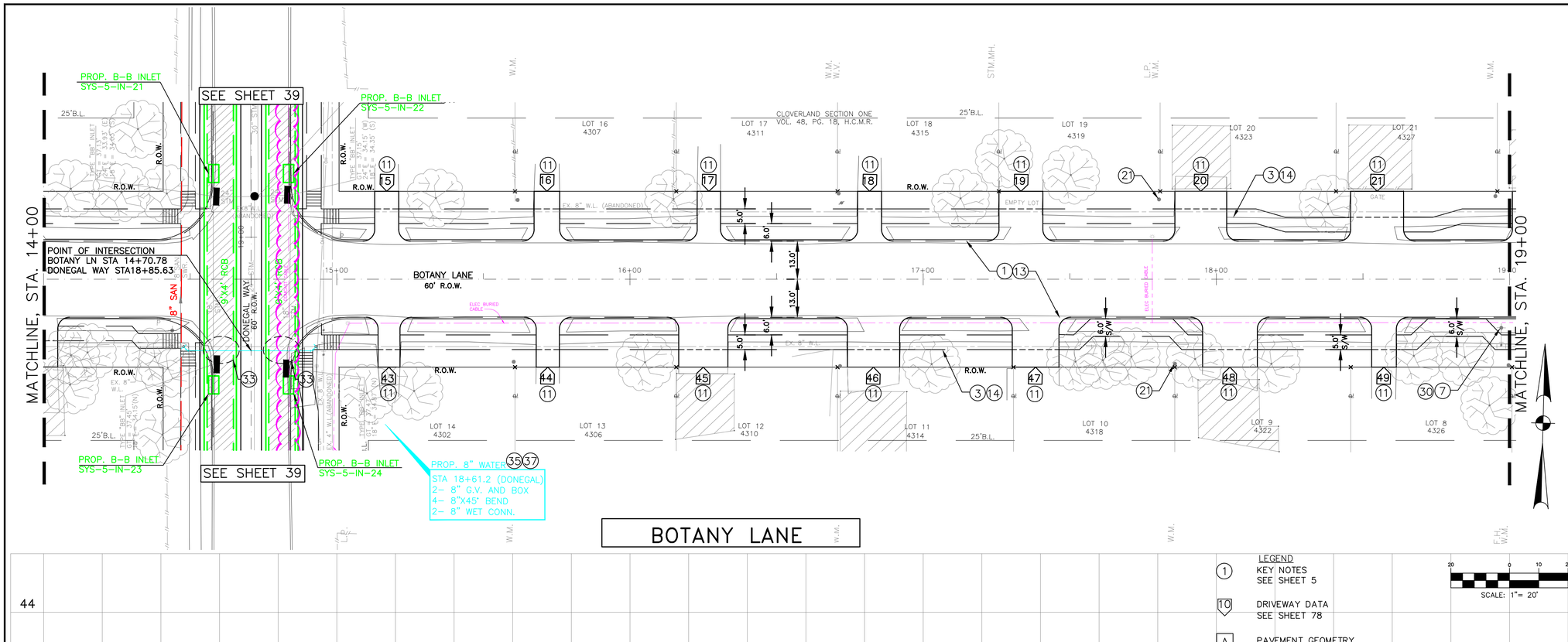
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

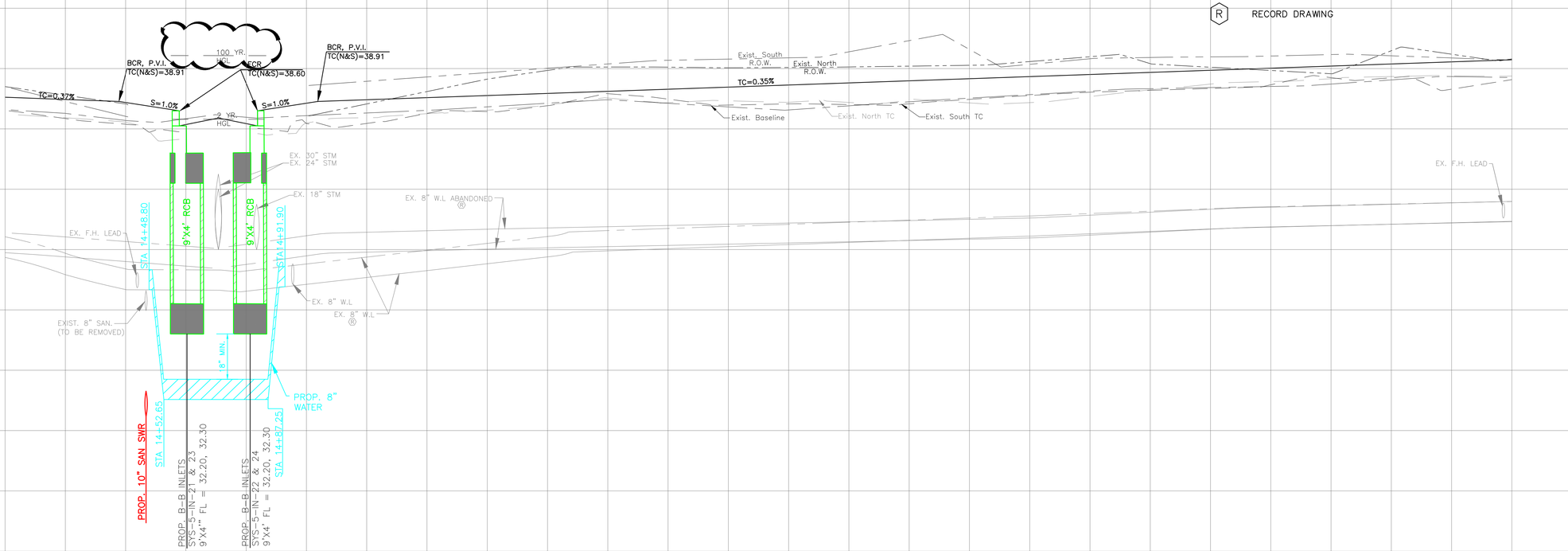
BOTANY LANE
PLAN AND PROFILE
STA 9+00 TO STA 14+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 49 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\049-BOTA-PP02.DWG JUL 01, 2026-10:44am



BOTANY LANE



LEGEND

(1) KEY NOTES SEE SHEET 5

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[A] PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

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CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

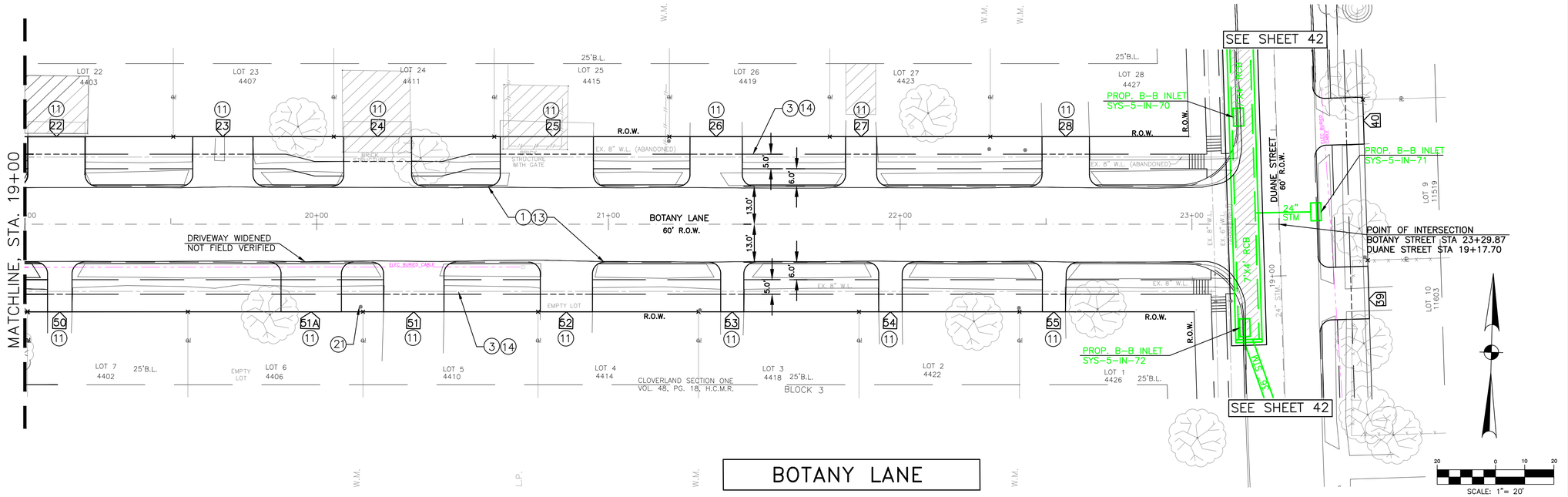
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

BOTANY LANE
PLAN AND PROFILE
STA 14+00 TO STA 19+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 50 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\050-BOTA-PP03.DWG JUL. 01, 2026-10:41am



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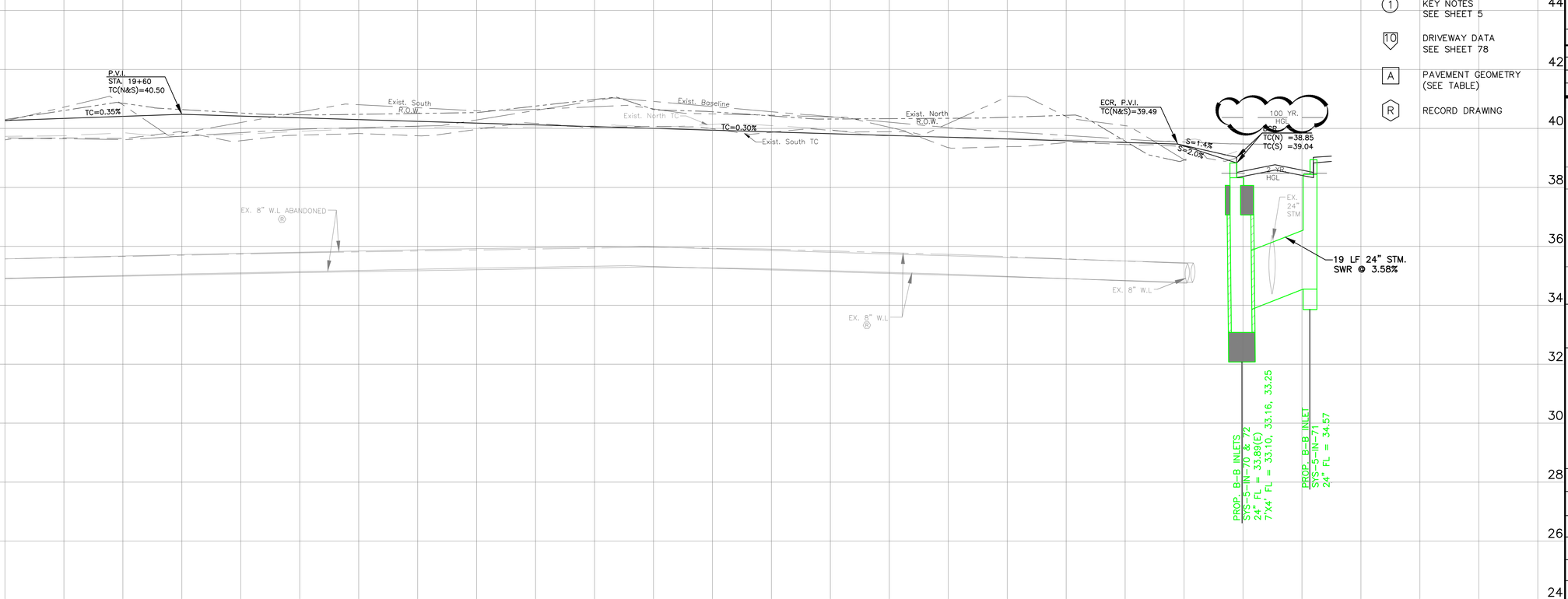

LEGEND

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Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

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FB NO.

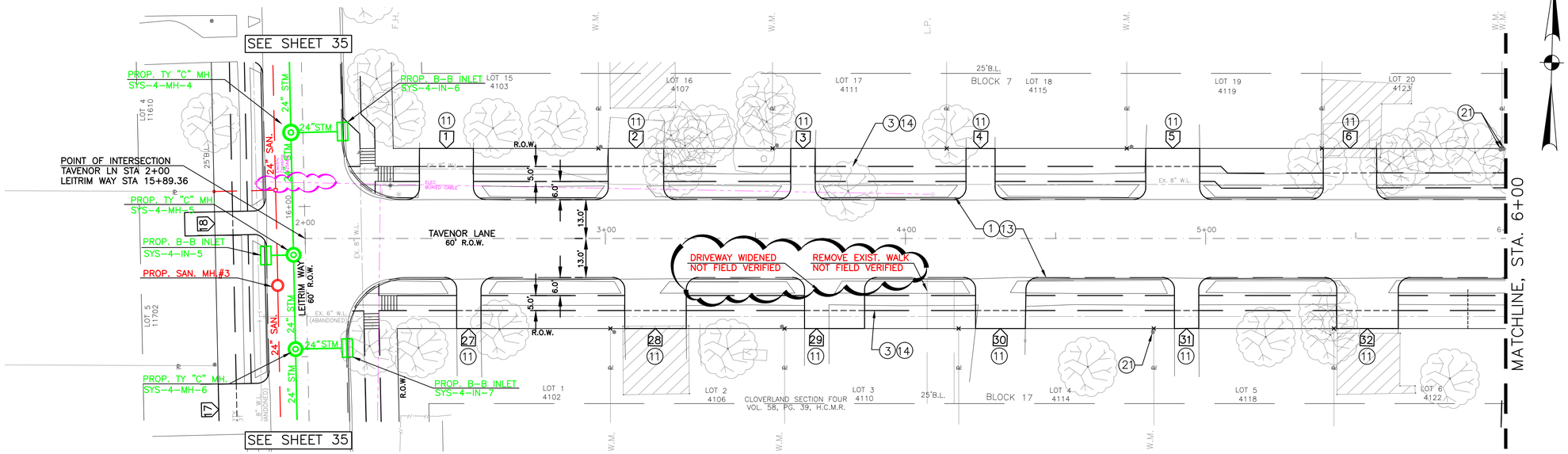
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

BOTANY LANE
PLAN AND PROFILE
STA 19+00 TO 23+29.87

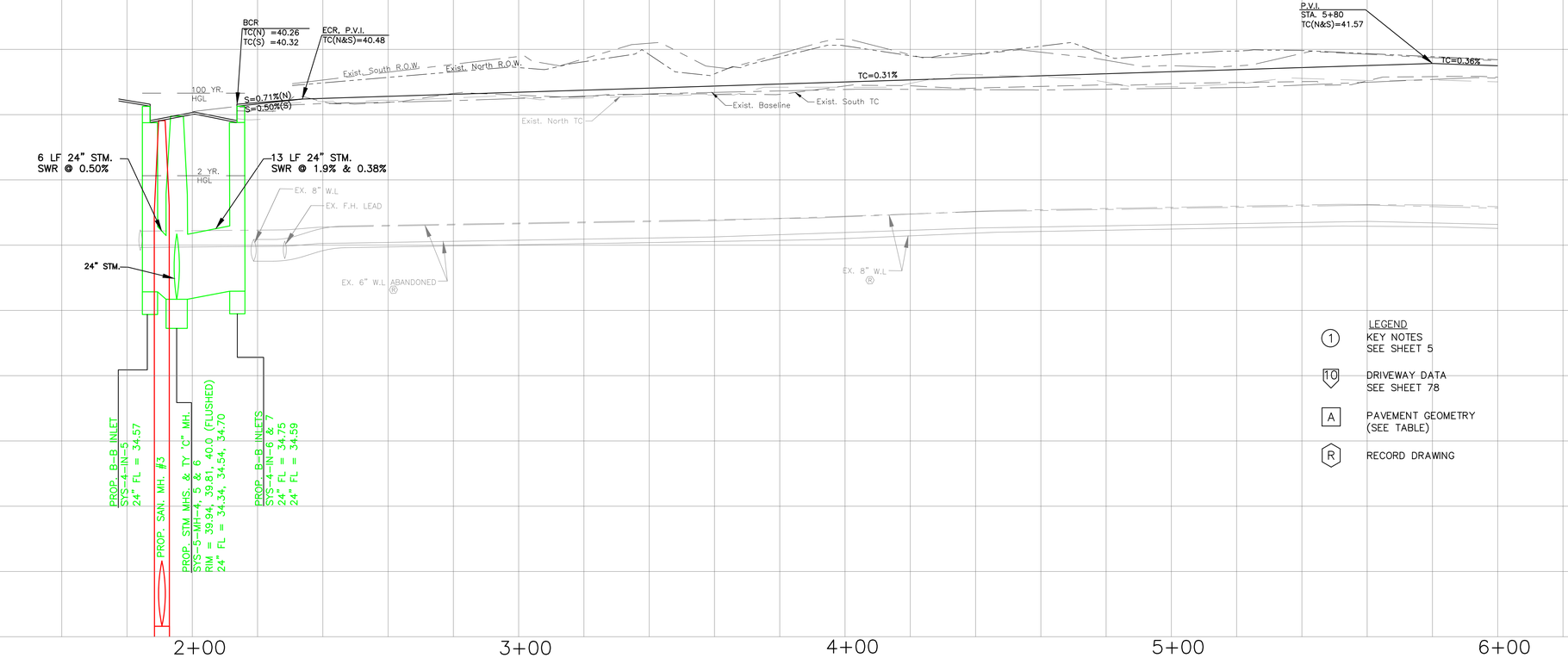
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 51 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\051-BOTA-PP04.DWG JUL. 01, 2026-10:47am



TAVENOR LANE

SCALE: 1"= 20'



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MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

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DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

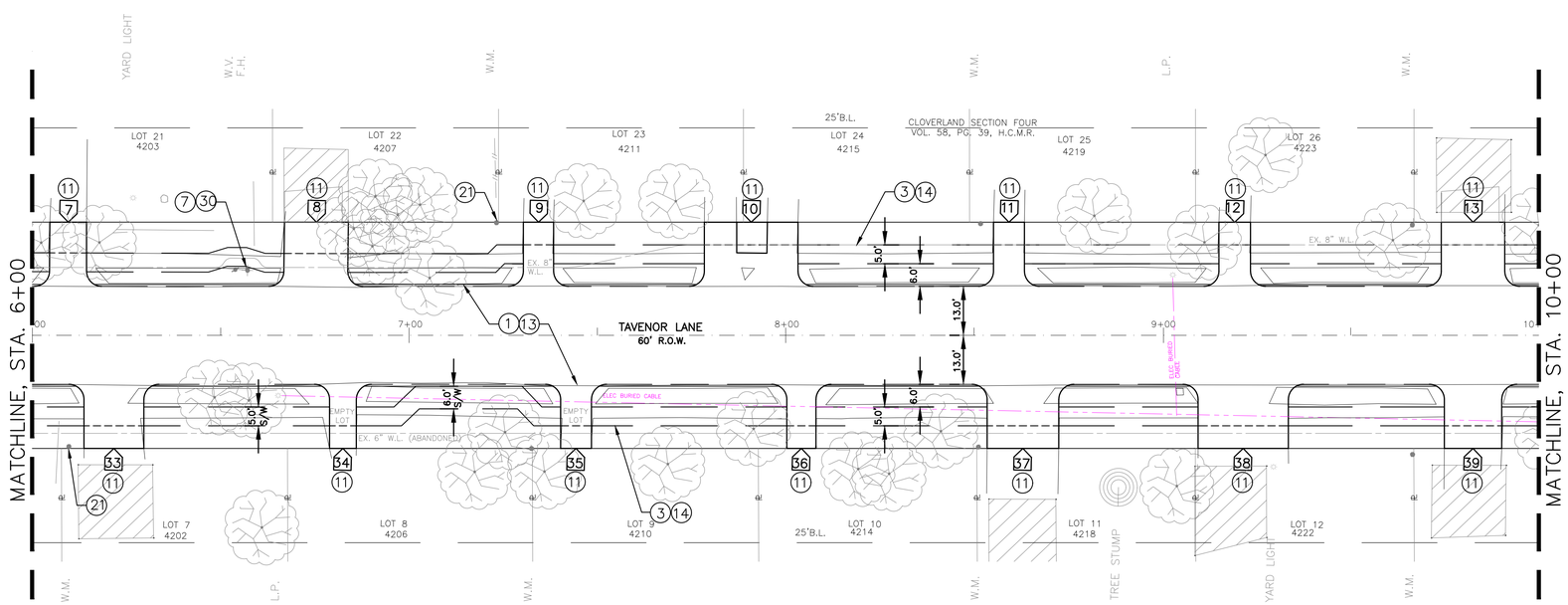
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

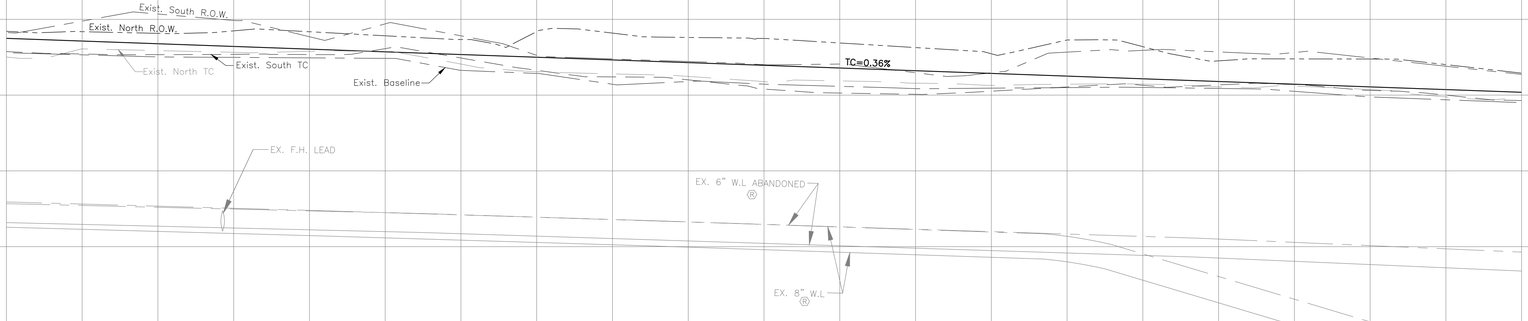
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAVENOR LANE
PLAN AND PROFILE
STA 2+00 TO STA 6+00

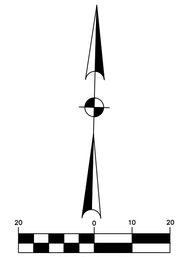
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 52 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\052-TAVE-PP01.DWG JUL. 01, 2026-11:07am





TAVENOR LANE



LEGEND

(1) KEY NOTES SEE SHEET 5

10 DRIVEWAY DATA SEE SHEET 78

A PAVEMENT GEOMETRY (SEE TABLE)

R RECORD DRAWING

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

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TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

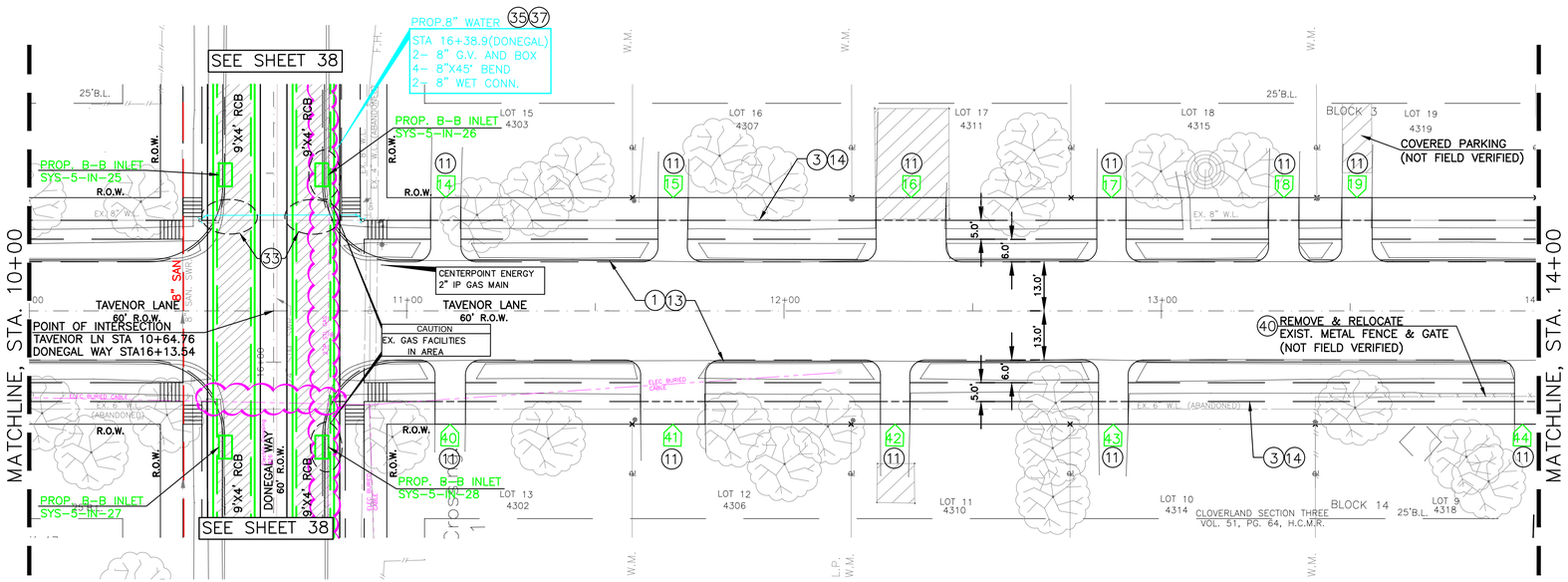
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

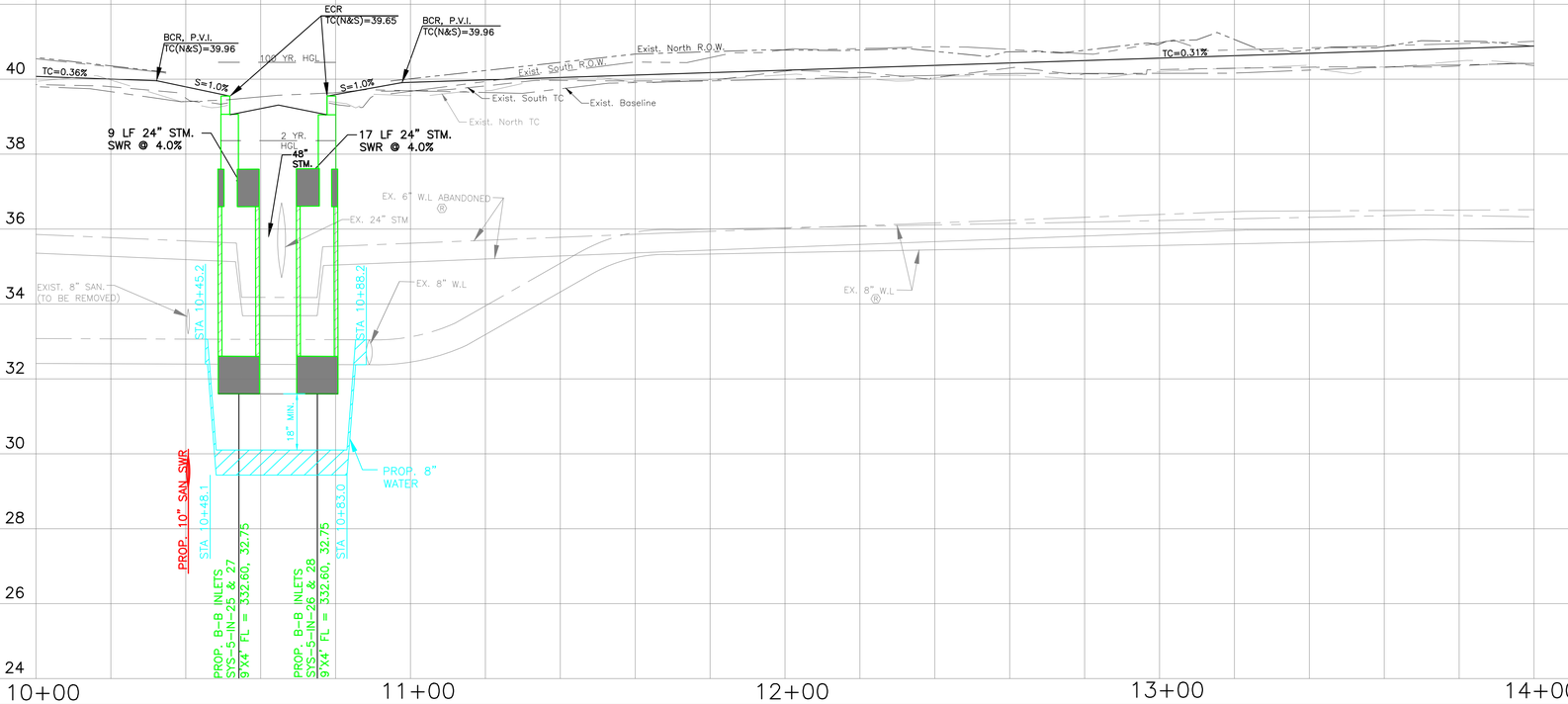
TAVENOR LANE
PLAN AND PROFILE
STA 6+00 TO STA 10+00

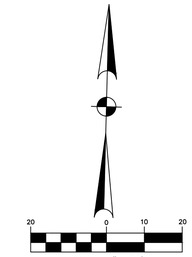
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 53 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\053-TAVE-PP02.DWG JUL. 01, 2026-10:48am



TAVENOR LANE





LEGEND

(1) KEY NOTES SEE SHEET 5

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(A) PAVEMENT GEOMETRY (SEE TABLE)

(R) RECORD DRAWING

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TRW ENGINEERS, INC.
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HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

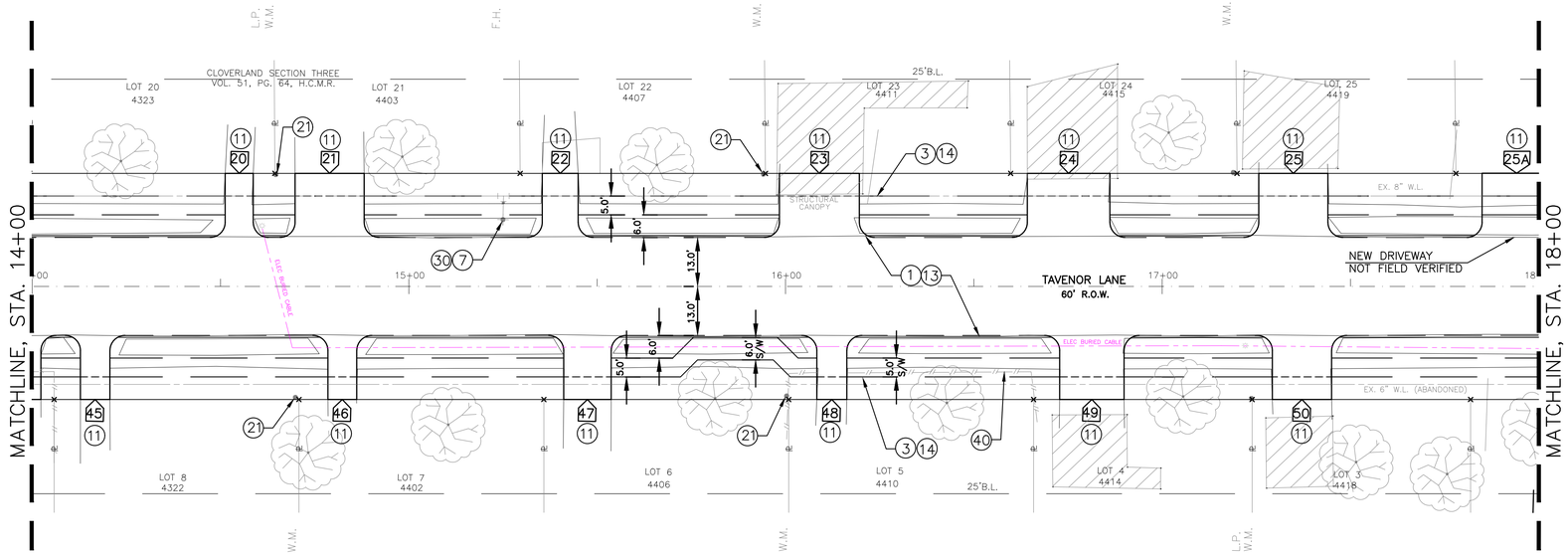
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAVENOR LANE
PLAN AND PROFILE
STA 10+00 TO STA 14+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 54 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\054-TAVE-PP03.DWG JUL. 01, 2026-11:02am



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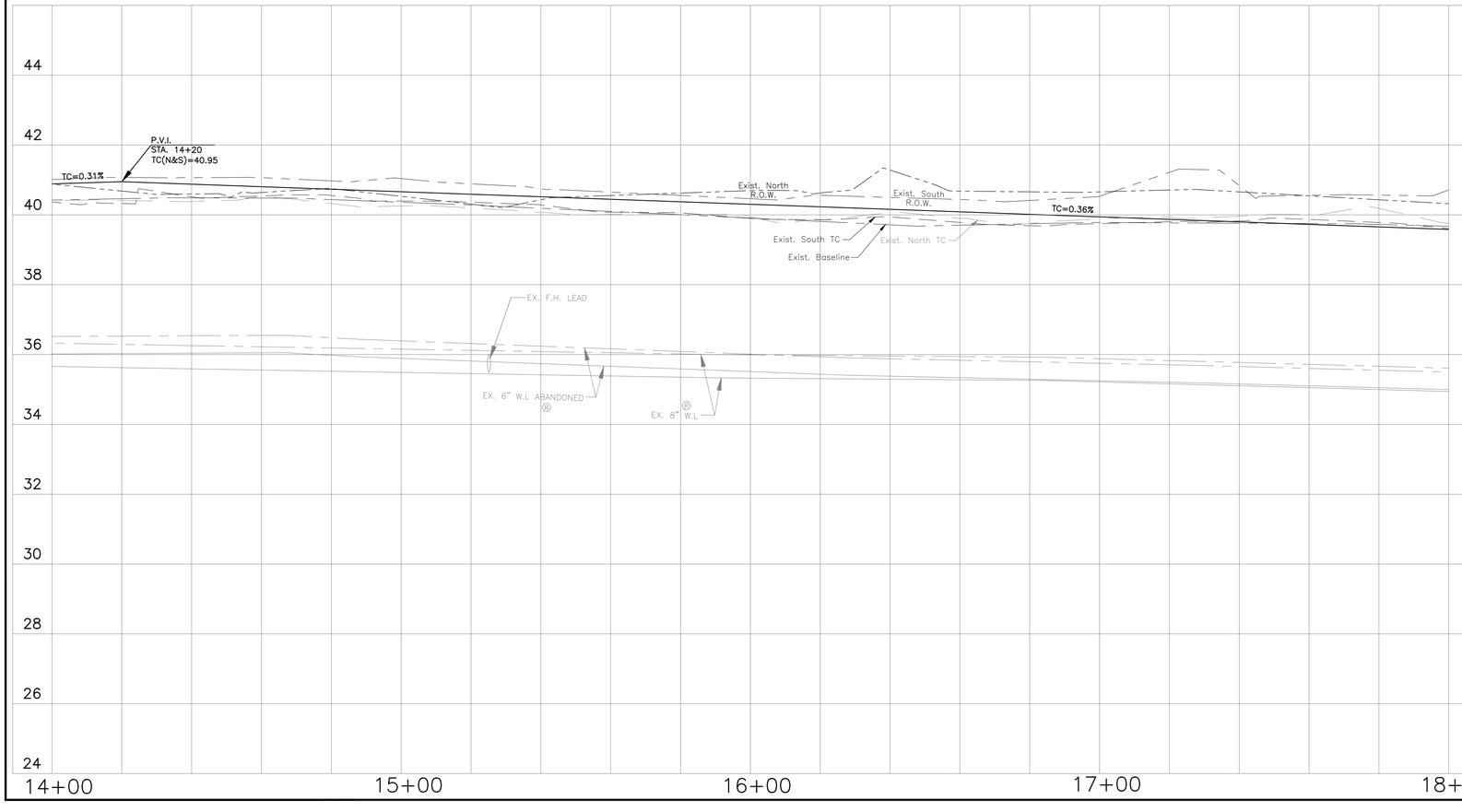

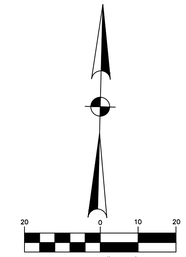

LEGEND
- (1) KEY NOTES SEE SHEET 5
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FB NO.

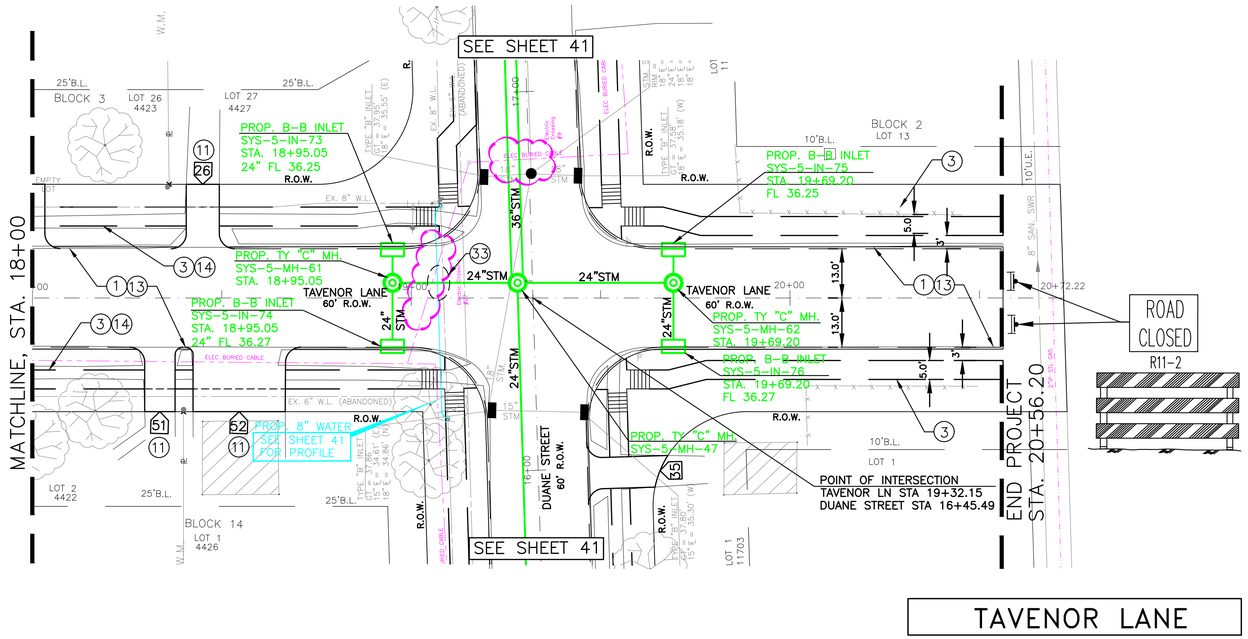
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

TAVENOR LANE
PLAN AND PROFILE
STA 14+00 TO STA 18+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 55 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\055-TAVE-PP04.DWG JUL. 01, 2026-10:37am



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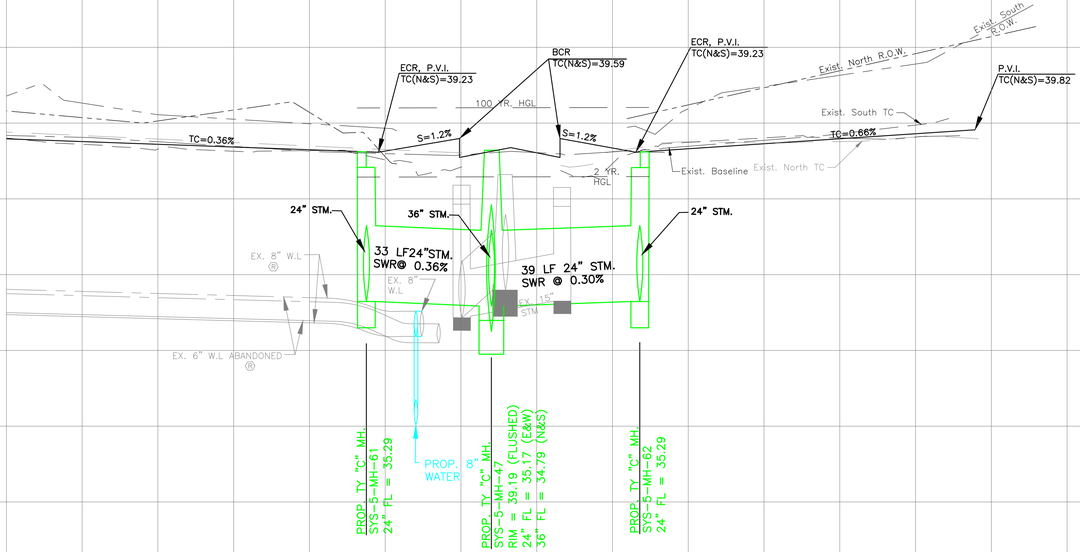

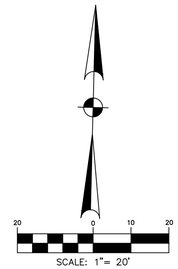

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TAVENOR LANE
PLAN AND PROFILE
STA 18+00 TO 20+56.20

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DRAWING SCALE	
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CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
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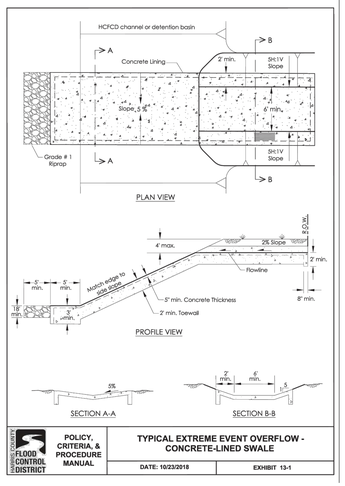
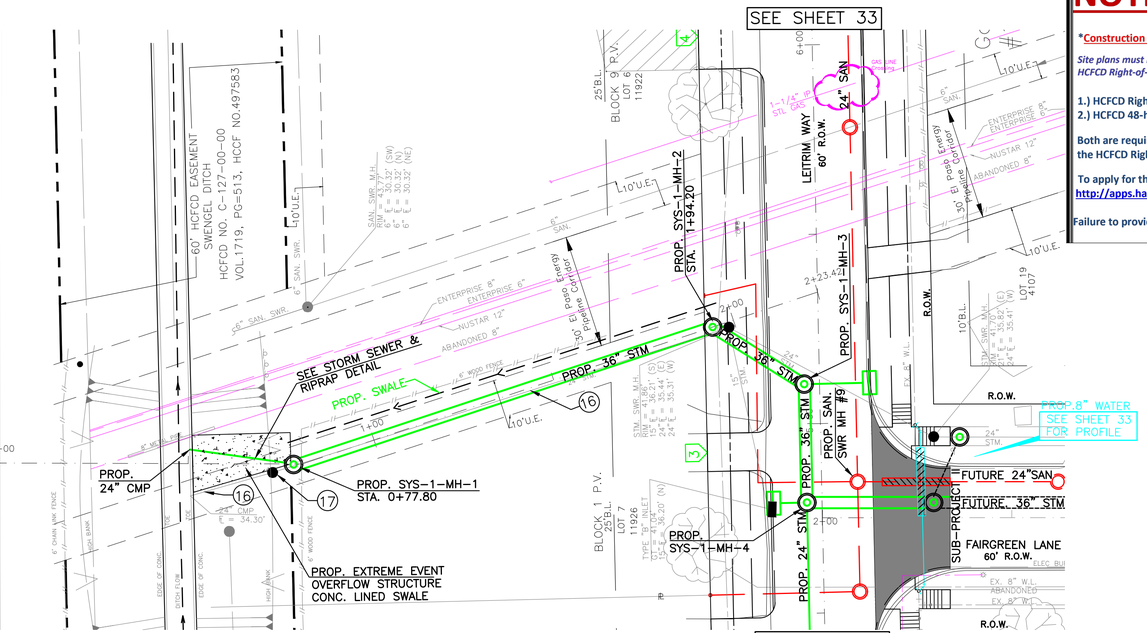
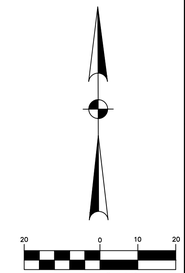
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\056-TAVE-PP05.DWG JUL. 01, 2026-11:00am







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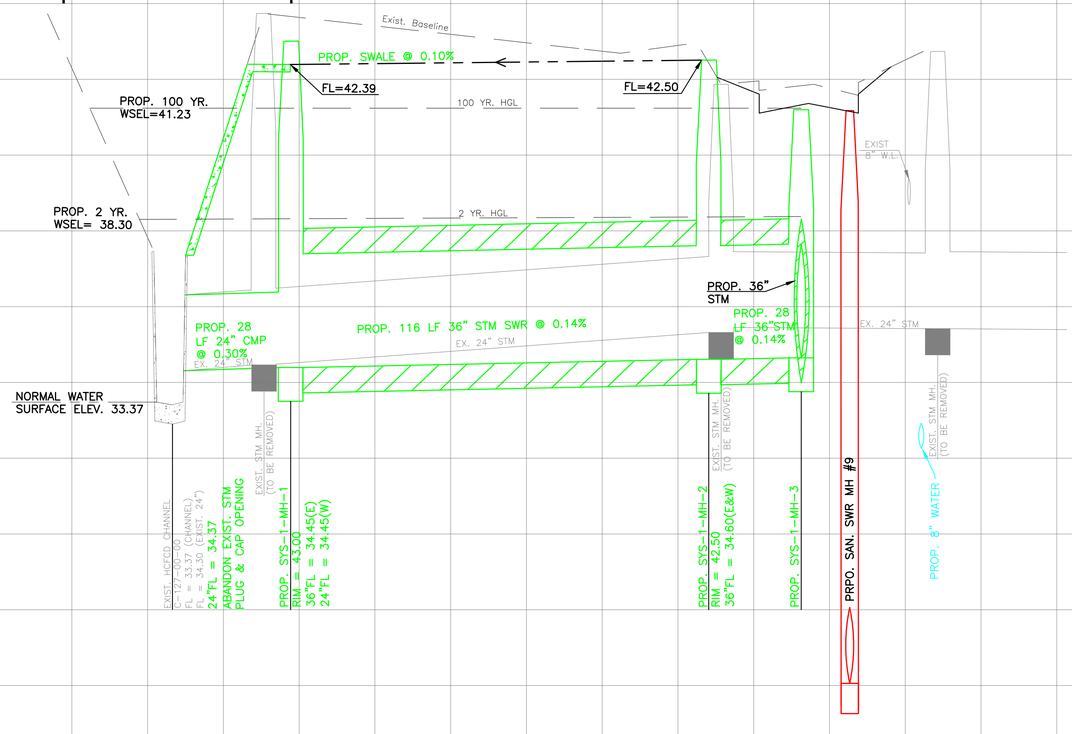
R RECORD DRAWING



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BENCHMARK:
FEMA RM 030065
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ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

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100% DESIGN REVIEW

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VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

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DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

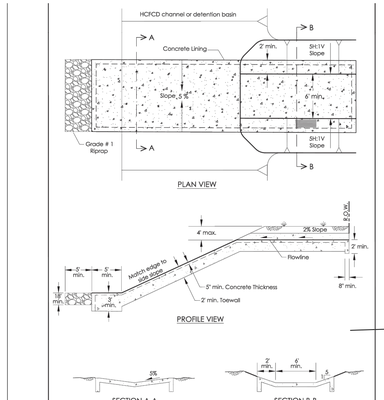
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

HCFCD OUTFALL SYSTEM 1 PLAN AND PROFILE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ. 1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 57 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\057 HCFCD OUTFALL SYSTEM 1 PLAN AND PROFILE.DWG JUL. 01, 2026-10:45am



SEE SHEET 34

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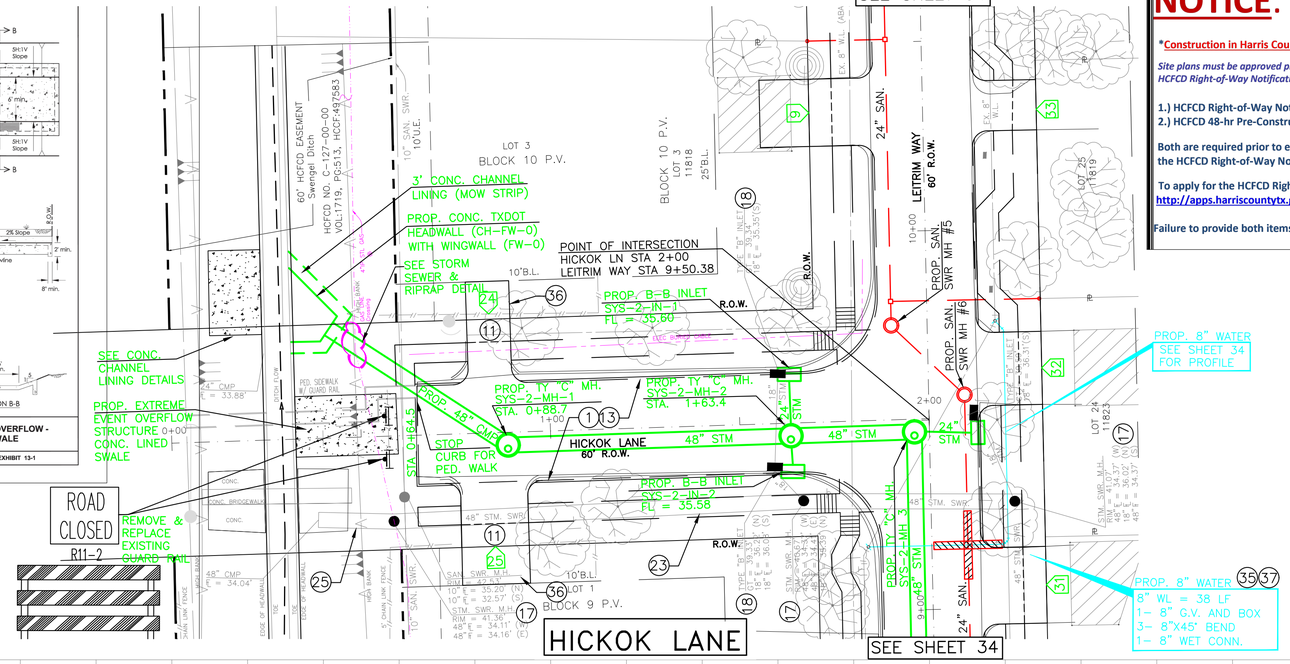
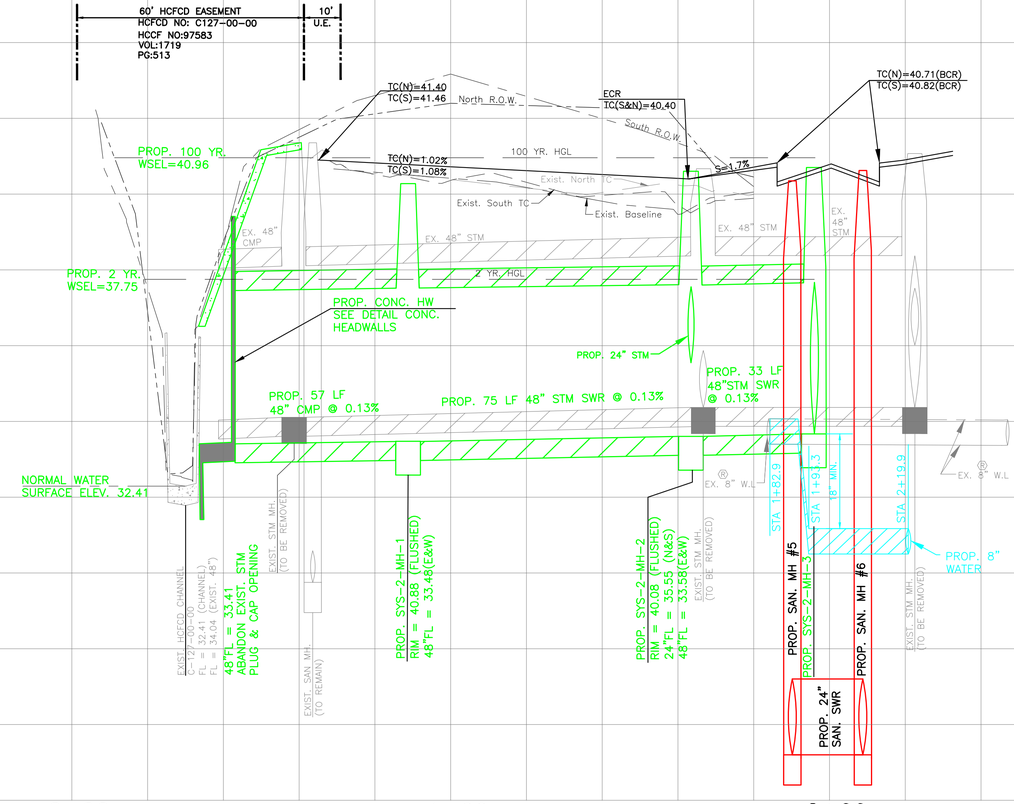


LEGEND
1 KEY NOTES SEE SHEET 5
10 DRIVEWAY DATA SEE SHEET 78
A PAVEMENT GEOMETRY (SEE TABLE)
R RECORD DRAWING

SCALE: 1"= 20'



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FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

HCFCD OUTFALL SYSTEM 2 AND HICKOK LANE PLAN AND PROFILE STA 0+65 TO STA 2+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. 1"=2' HORIZ.1"=20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
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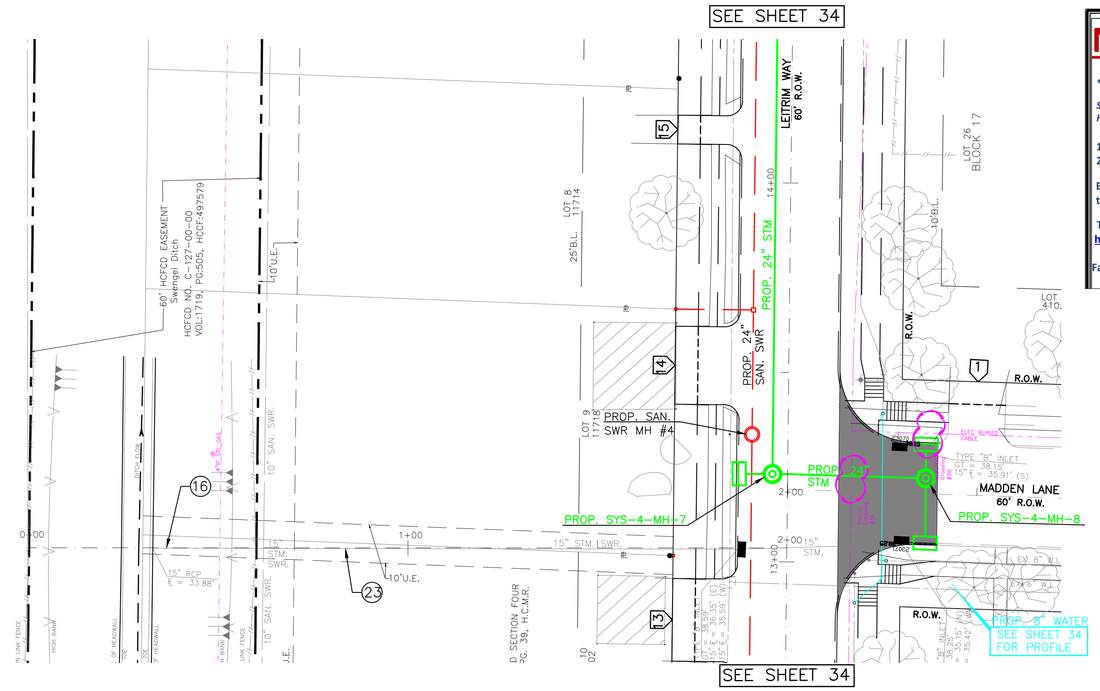
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\058 HCFCD OUTFALL SYSTEM 2 PLAN AND PROFILE.DWG JUL. 01, 2026-10:40am

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\ROADWAY\059 HCFCD OUTFALL SYSTEM 3 PLAN AND PROFILE.DWG JUL. 01, 2026-10:46am



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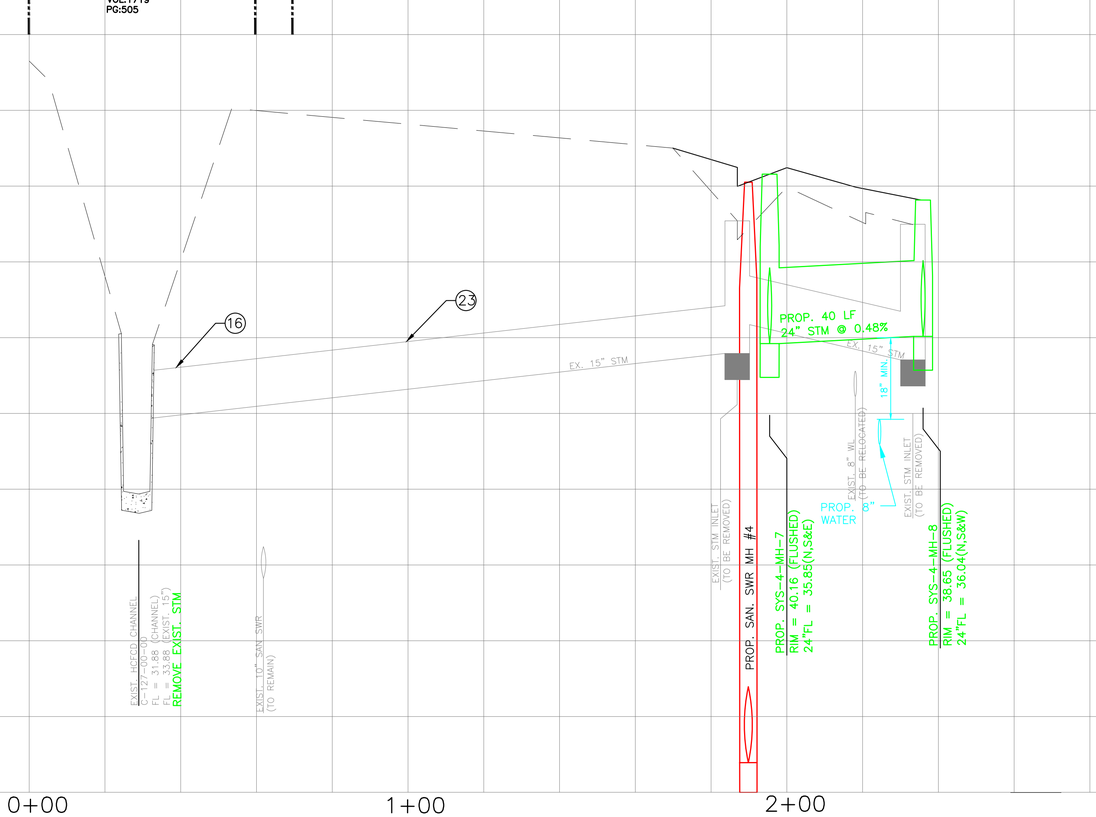

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CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

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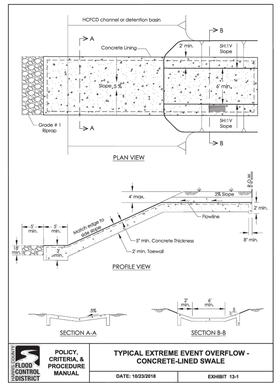
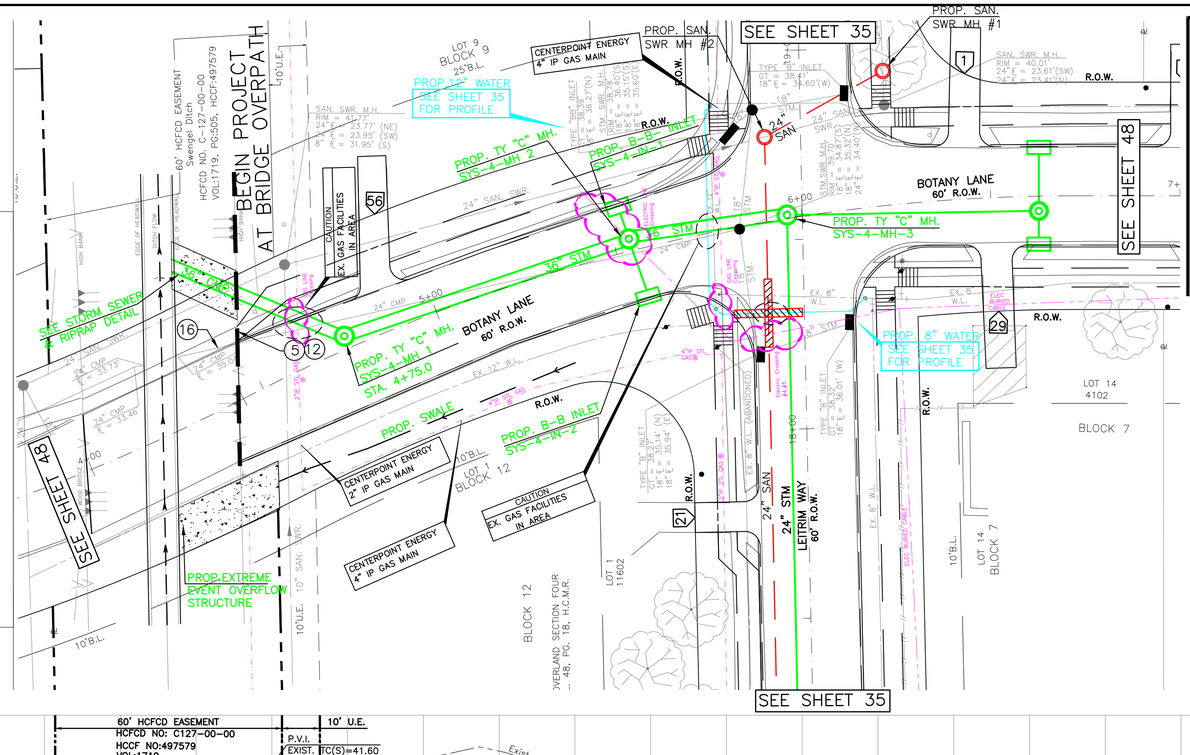
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 59 OF 159	





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(A) PAVEMENT GEOMETRY (SEE TABLE)
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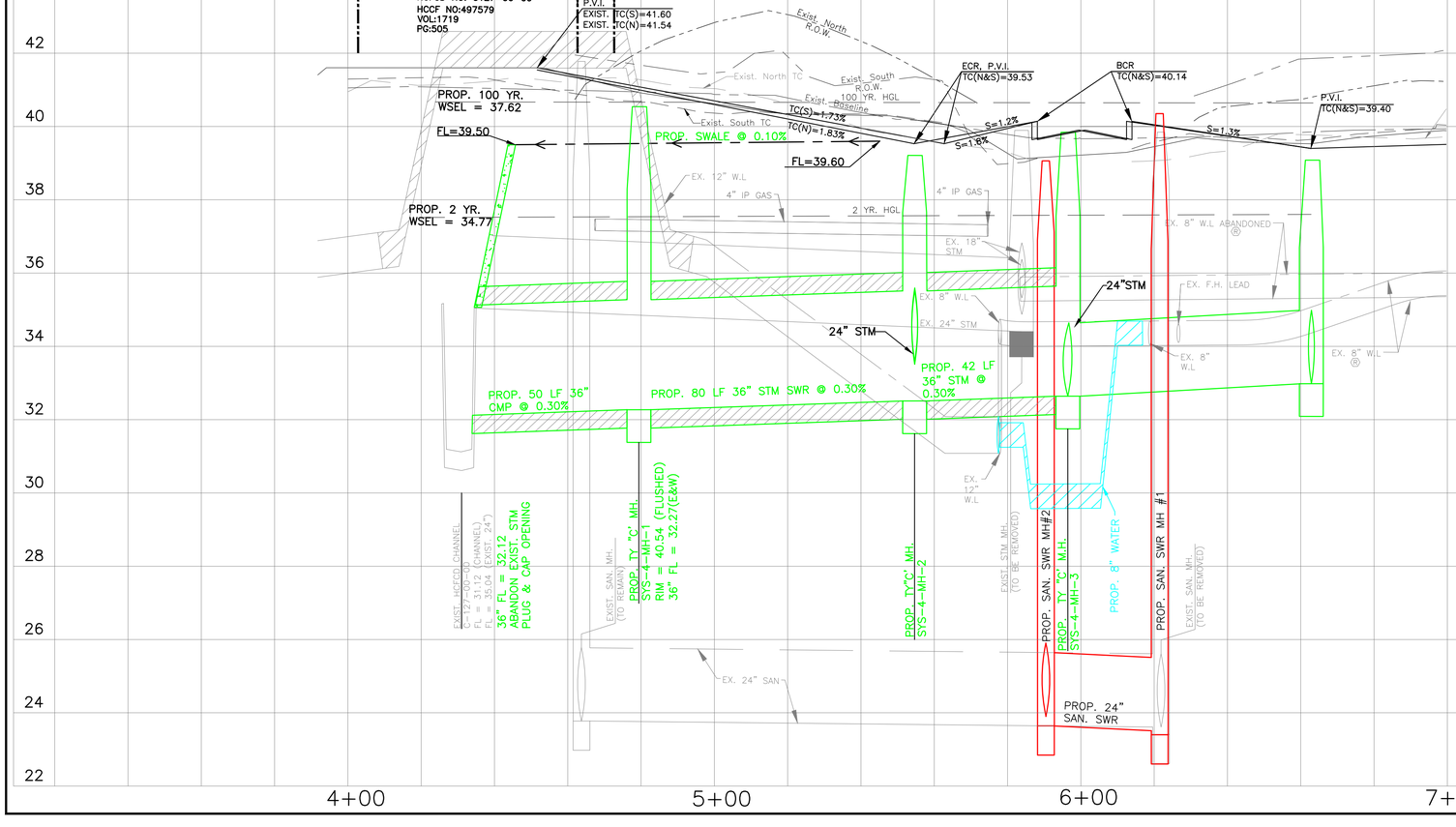

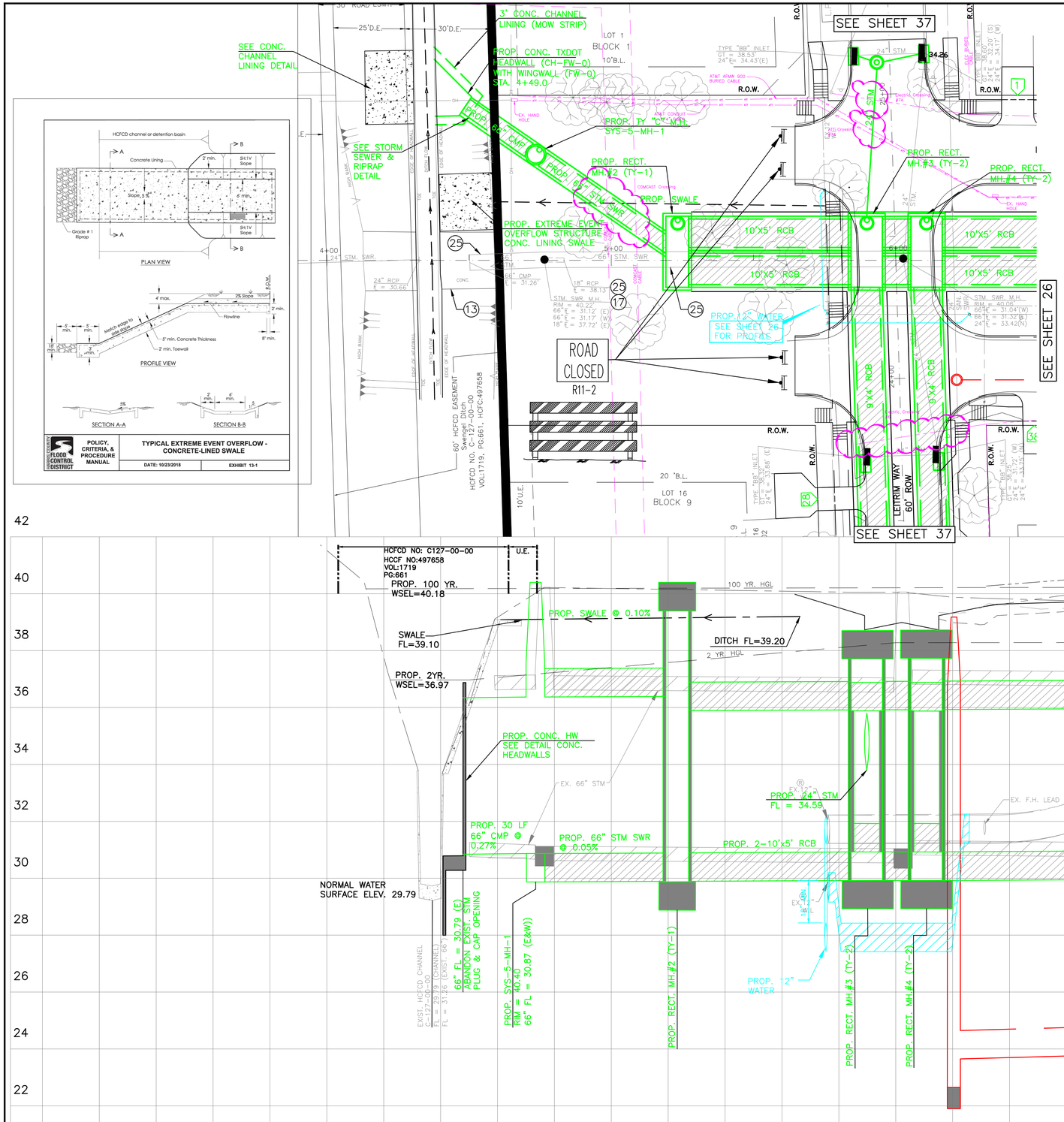
SEE CONC. CHANNEL LINING DETAIL
SEE STORM SEWER & RIPRAP DETAIL
3' CONC. CHANNEL LINING (MOW STRIP)
PROP. CONC. TXDOT HEADWALL (CH-FW-0) WITH WINGWALL (FW-0) STA. 4+49.0
PROP. 66" CMP
PROP. 66" STM. SWR.
PROP. EXTREME EVENT OVERFLOW STRUCTURE CONC. LINING SWALE
PROP. TY "C" M.H. SYS-5-MH-1
PROP. RECT. MH.#2 (TY-1)
PROP. RECT. MH.#3 (TY-2)
PROP. RECT. MH.#4 (TY-2)
PROP. SWALE
PROP. 12" WATER SEE SHEET 26 FOR PROFILE
SEE SHEET 37
SEE SHEET 26
ROAD CLOSED R11-2
10'X5' RCB
9'X4' RCB
LEITRIM WAY 60' ROW
LOT 1 BLOCK 1
LOT 16 BLOCK 9
60' HCFCD EASEMENT Swenger Ditch HCFCD NO. C127-00-00 VOL:1719, PG:661, HCFC:497658
24" RCP
18" RCP
TYPE "BB" INLET
TYPE "BBI" INLET
24" STM
66" STM. SWR.
66" CMP
STM. SWR. M.H.
R.O.W.
U.E.
EX. HAND HOLE
EX. F.H. LEAD
AT&T AFWM 900 BURIED CABLE
COMCAST Crossing
CENTERPOINT ENERGY Crossing
EX. 24" STM.
EX. 66" STM.
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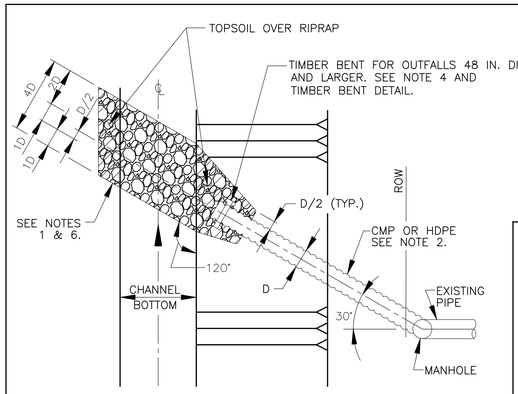
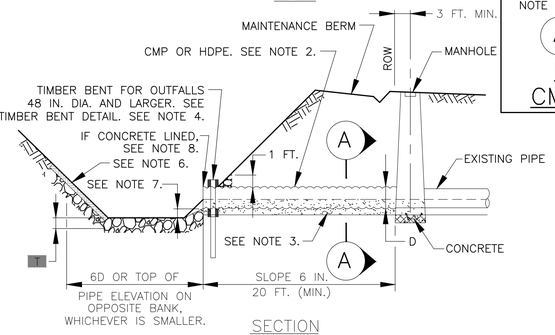
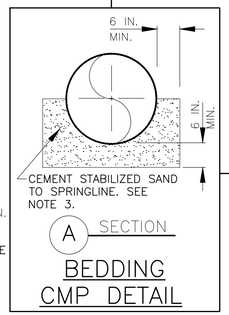


PLAN



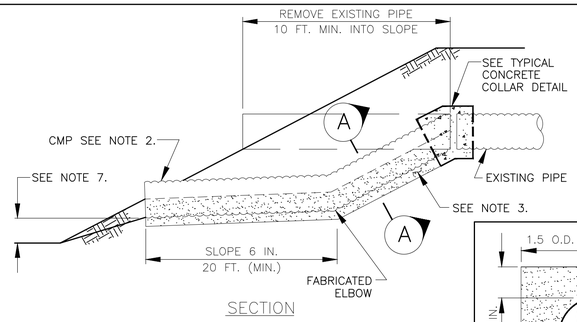
SECTION

TYPICAL STORM SEWER OUTFALL STRUCTURE LAYOUT



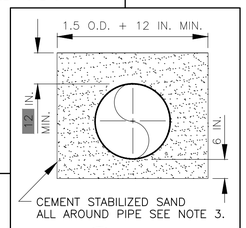
A SECTION

BEDDING CMP DETAIL



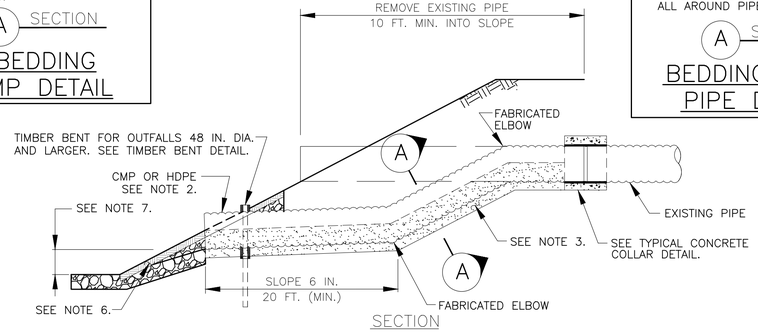
SECTION

PIPE ADJUSTMENT DETAIL 24–INCH TO 42–INCH DIAMETER



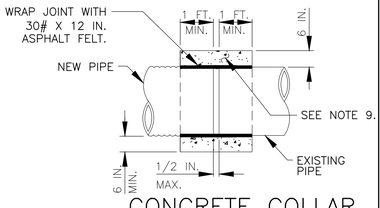
A SECTION

BEDDING HDPE PIPE DETAIL

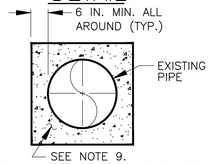


SECTION

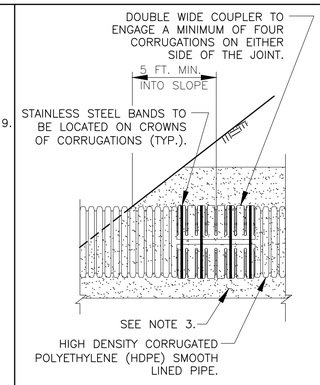
PIPE ADJUSTMENT DETAIL 48–INCH AND LARGER DIAMETER



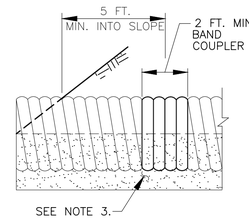
CONCRETE COLLAR DETAIL



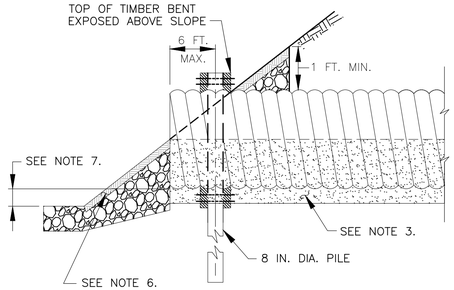
BEDDING CONCRETE PIPE DETAIL



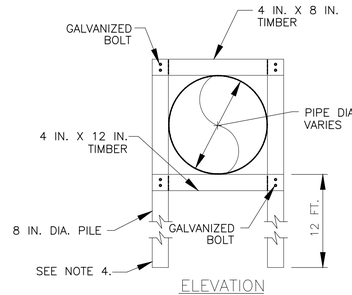
HDPE PIPE BAND COUPLER DETAIL



CMP BAND COUPLER DETAIL

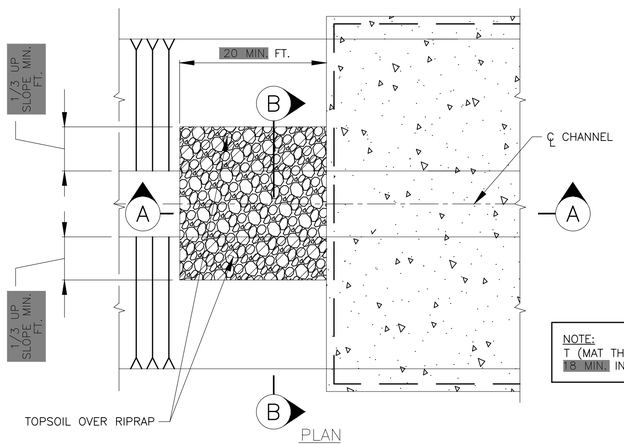


TYPICAL SECTION



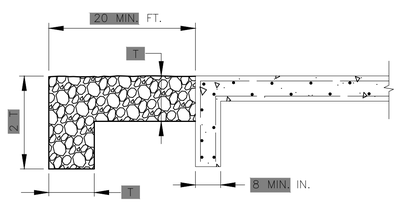
ELEVATION

TIMBER BENT DETAIL FOR 48–INCH AND LARGER OUTFALLS



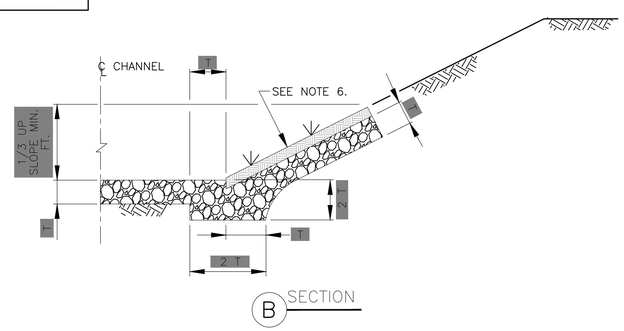
PLAN

NOTE:
T (MAT THICKNESS)
18 MIN. IN. GRADE



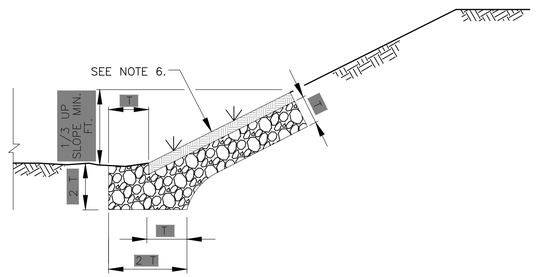
A SECTION

NOTE:
TOE–IN RIPRAP ACROSS CHANNEL BOTTOM & UP SLOPE. DO NOT PLACE TOE AGAINST CONCRETE.



B SECTION

TYPICAL RIPRAP AT CONCRETE CHANNEL LINING



TYPICAL RIPRAP LINING DETAIL–SIDE SLOPE ONLY

PIPE OUTFALL IN CHANNELS

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

CORRUGATED GALVANIZED STEEL PIPE (TYPE I)

PIPE DIA. (in.)	2–2/3" X 1/2" CORRUGATION MIN.FILL* (in.)	gage	SHEET THICKNESS (in.)	(mm)	3" X 1" & 5" X 1" CORRUGATION MIN.FILL* (in.)	gage	SHEET THICKNESS (in.)	(mm)
24	12	16	.064	1.63	–	–	–	–
30	12	16	.064	1.63	–	–	–	–
36	12	16	.064	1.63	–	–	–	–
42	12	16	.064	1.63	12	16	.064	1.63
48	12	16	.064	1.63	12	16	.064	1.63
54	12	14	.079	2.01	12	16	.064	1.63
60	15	12	.109	2.77	12	16	.064	1.63
66	15	12	.109	2.77	15	16	.064	1.63
72	18	10	.138	3.51	15	16	.064	1.63
78	18	8	.168	4.27	18	16	.064	1.63
84	18	8	.168	4.27	18	14	.079	2.01
90	–	–	–	–	18	14	.079	2.01
96	–	–	–	–	18	14	.079	2.01

* MINIMUM DEPTH OF COVER ABOVE TOP OF PIPE, MAXIMUM DEPTH OF COVER ABOVE TOP OF PIPE IS 20 FEET.

STORM SEWER OUTFALL NOTES:

1. INSTALL OUTFALLS 48 INCHES OR LARGER AND TREATMENT PLANT OUTFALLS OF ANY DIAMETER, WITH RIPRAP EROSION DIMENSIONED AS SHOWN IN "TYPICAL STORM SEWER OUTFALL STRUCTURE LAYOUT."
2. STORM SEWER OUTFALL PIPES WITHIN THE HCFCD RIGHT–OF–WAY SHALL BE CMP OR HDPE IN ACCORDANCE WITH SPECIFICATION SECTION 02642–CORRUGATED METAL PIPE, HIGH DENSITY POLYETHYLENE PIPE (HDPE) IN ACCORDANCE WITH SPECIFICATION SECTION 02505–HIGH DENSITY POLYETHYLENE PIPE, OR APPROVED EQUAL. USE TABLE BELOW FOR CORRUGATED GALVANIZED STEEL PIPE.
3. PROVIDE AND PLACE CEMENT STABILIZED SAND IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02321–CEMENT STABILIZED SAND.
4. TIMBER BENTS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02464–TIMBER BENTS.
5. STORM SEWER OUTFALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02316–STRUCTURAL EXCAVATING AND BACKFILLING.
6. RIPRAP SHALL BE PLACED IN ACCORDANCE WITH SPECIFICATION SECTION 02378–RIPRAP AND GRANULAR FILL. FILL RIPRAP VOIDS AND BURY RIPRAP A MINIMUM OF 6 INCHES WITH TOPSOIL ON SIDE SLOPE AS DIRECTED BY THE ENGINEER.
7. IN DETENTION BASIN, SET FLOWLINE OF OUTFALL AT TOE OF THE SLOPE. IN CHANNEL, USE ELEVATION INDICATED IN THE TABLE OR 1 FOOT ABOVE NORMAL WATER LEVEL, WHICH EVER IS HIGHER.
8. SEE CONCRETE CHANNEL LINING DETAIL SHEET FOR CMP OR OUTFALL DETAILS THROUGH CONCRETE CHANNEL LINING.
9. STRUCTURAL CONCRETE #4 BARS (GRADE 40) 12 INCH O.C. EACH WAY – FOR COLLARS ONLY.

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

P.E. SEAL AND SIGNATURE

REV	DESCRIPTION	DATE	APPR
1	DELETED "OR HDPE" FROM NOTE #8	2/8/11	SF

WBS NO: N–210004–0001–4

CLOVERLAND AREA
PAVING AND DRAINAGE

STORM SEWER AND
RIPRAP DETAILS

PREPARED: | CHECKED: | APPROVED:

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD.
HOUSTON, TEXAS 77099
TEL: 713.784.7777 F-12428
TBPE REGISTERED FIRM

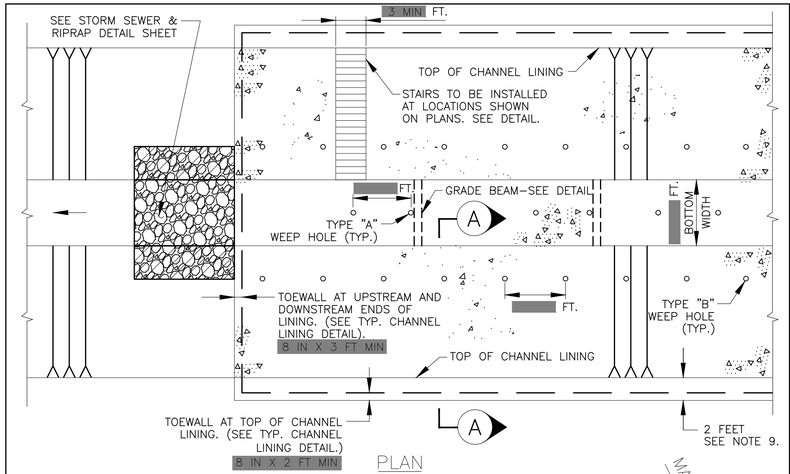
HARRIS COUNTY FLOOD CONTROL DISTRICT
9900 Northwest Freeway
Houston, Texas 77092

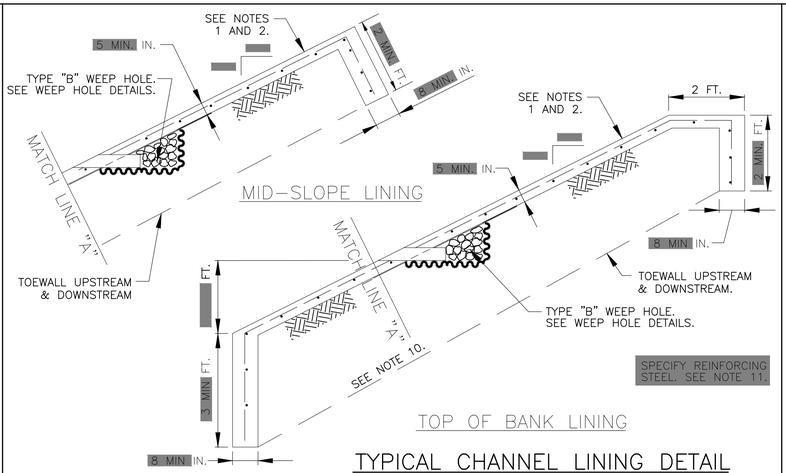
DATE: 12–21–2010
SCALE: NTS

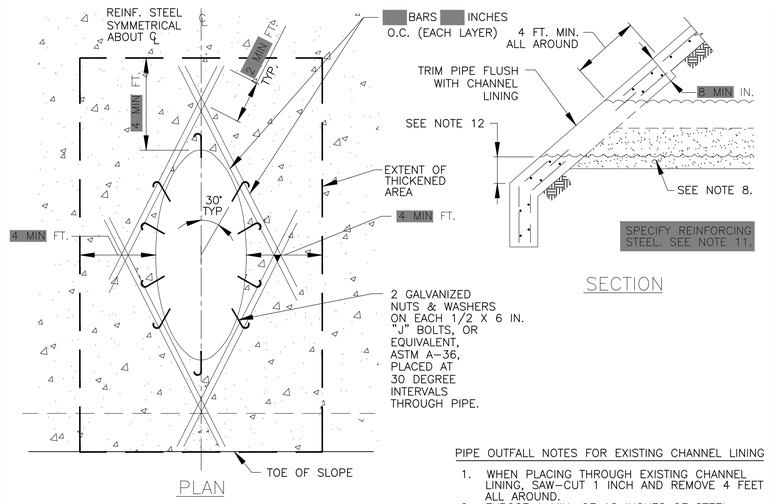
SHEET NUMBER
62 OF 159

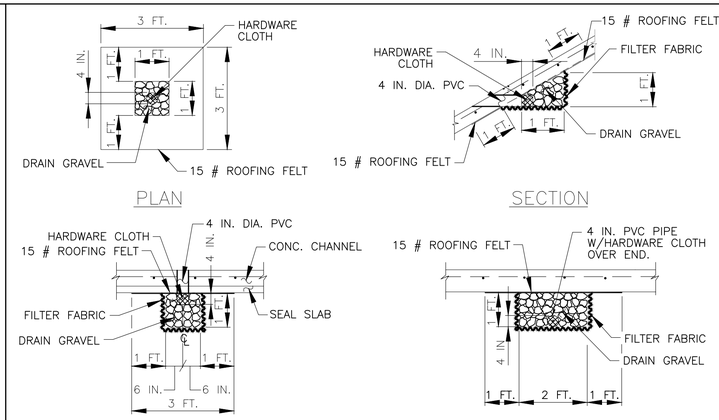
HCFCD Standard Detail Sheets_2010

STD\STORM SEWER AND RIPRAP DETAILS









WEEP HOLE NOTES:

1. MATERIALS:
   a. PIPE: 4 INCH DIA. SCH. 40 PVC
   b. DRAIN GRAVEL:

SIEVE SIZE	% FINER
1 IN	100
3/4 IN	70 – 100
3/8 IN	20 – 90
NO. 4	0 – 60
NO. 8	0

   c. HARDWARE CLOTH: MIN. OPEN 1/8 IN, MAX. OPEN 1/4 IN
   d. FILTER FABRIC: NON–WOVEN GEOTEXTILE
   MIN. AOS SIEVE NO. 100 MIN
   MAX. AOS SIEVE NO. 70 MAX
   WEIGHT OZ/SY 6 OZ. MIN
2. CUT WEEP HOLE PIPE FLUSH WITH CONCRETE SURFACE.
3. TYPE "A" AND "C" WEEP HOLES FOR TYPICAL RECTANGULAR CONCRETE CHANNEL LINING. TO BE STAGGERED.

WEEP HOLE DETAILS

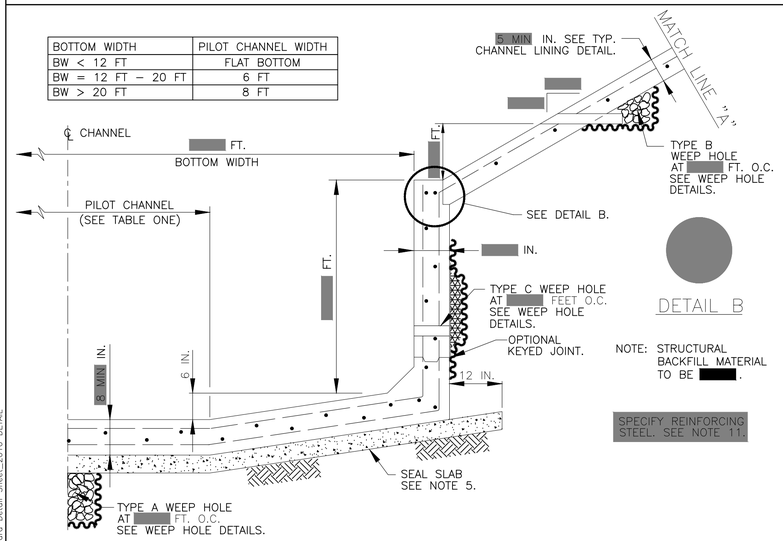
CONCRETE CHANNEL LINING DETAILS NOTES:

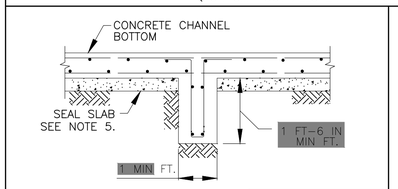
1. STRUCTURAL CONCRETE FOR CONCRETE CHANNEL LINING AND NONSTRUCTURAL CONCRETE FOR SEAL SLAB SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 03310–CONCRETE.
2. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 03310–CONCRETE.
3. EXCAVATION AND BACKFILL FOR CONCRETE CHANNEL LINING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02316–STRUCTURAL EXCAVATING AND BACKFILLING.
4. RIPRAP SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02378–RIPRAP AND GRANULAR FILL.
5. A NON–REINFORCED 4 INCH MINIMUM NONSTRUCTURAL CONCRETE SEAL SLAB WILL BE REQUIRED BENEATH THE BOTTOM OF CONCRETE CHANNELS.
6. STRUCTURAL CONCRETE GRADE BEAMS SHALL BE INSTALLED TRANSVERSLEY AT 20 FOOT MAX. CENTERS ON CONCRETE LINED CHANNELS WITH BOTTOM WIDTHS EQUAL TO OR GREATER THAN 20 FEET.
7. JOINTS:
   A PLACE CONSTRUCTION AND/OR EXPANSION JOINT IN CONCRETE LOW–FLOW AND TRAPEZOIDAL BOTTOM SECTIONS AT 20 FOOT MIN., 60 FOOT MAX. SPACING CONTINUOUSLY THROUGH CHANNEL LINING.
   B. PLACE CONTROL JOINT ON SLOPES AT 20 FOOT SPACING.
8. CEMENT STABILIZED SAND SHALL BE PROVIDED AND PLACED IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02321–CEMENT STABILIZED SAND.
9. DELETE 2 FT FLAT EDGE WHEN LINING IS BELOW TOP OF BANK. SEE MID–SLOPE LINING DETAIL.
10. UPSTREAM AND DOWNSTREAM TOE WALL 3 FOOT MIN. DEPTH AT BOTTOM OF SLOPE AND 8 INCHES THIICK.
11. #4 AT 12 INCH O.C. MINIMUM OR EQUIVALENT WELDED WIRE FABRIC.
12. VARIES BASED ON SIDE SLOPE. MINIMUM 1 FOOT VERTICAL AT TOE OF SLOPE.

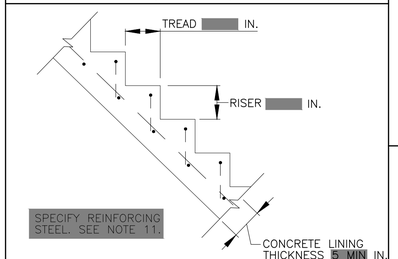
THIS DETAIL SHEET HAS BEEN PREPARED FOR USE ON HCFCD PROJECTS OR PROJECTS TO BE MAINTAINED BY THE HCFCD WHEN COMPLETED BY OTHERS. AN ENGINEER WHO INCORPORATES THE DETAILS ON THIS SHEET BECOMES RESPONSIBLE FOR ITS USE IN THE END PRODUCT IN ACCORDANCE WITH RULE §137.33 (b) AND (c) OF THE TEXAS STATE BOARD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

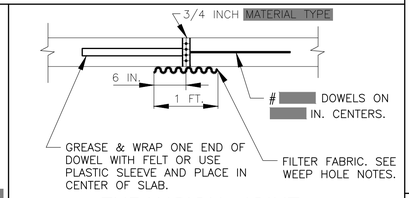
P.E. SEAL AND SIGNATUARE

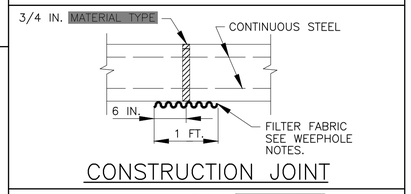
BOTTOM WIDTH	PILOT CHANNEL WIDTH
BW < 12 FT	FLAT BOTTOM
BW = 12 FT – 20 FT	6 FT
BW > 20 FT	8 FT

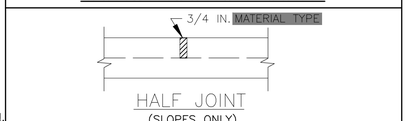












DESCRIPTION	DATE	APPR	REV

WBS NO: N–210004–0001–4

CLOVERLAND AREA
PAVING AND DRAINAGE

CONCRETE CHANNEL LINING DETAILS

PREPARED:

CHECKED:

APPROVED:

TRW ENGINEERS, INC.
dba TSC Engineering
10870 SYNOTT RD
HOUSTON, TX 77099
Tel. 713.784.7777
TEXAS REGISTERED FIRM F–12428

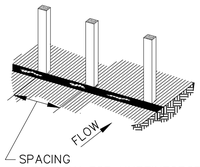
HARRIS COUNTY FLOOD CONTROL DISTRICT
9900 Northwest Freeway
Houston, Texas 77092

DATE: 12–21–2010
SCALE: NTS

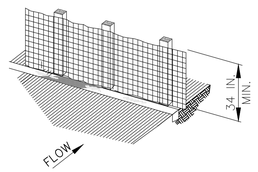
SHEET NUMBER
63 OF 159

HCFCD Standard Detail Sheet_2010 DETAIL

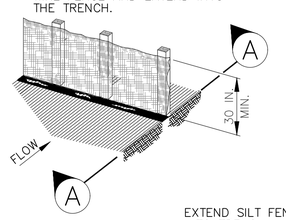
1. SET SUPPORTS AND EXCAVATE 4 IN. X 6 IN. TRENCH UPSLOPE ALONG LINE OF SUPPORTS.



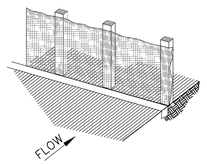
2. SECURE WIRE FENCING TO SUPPORTS.

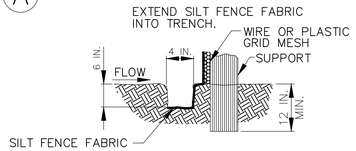


3. ATTACH SILT FENCE FABRIC TO WIRE FENCE AND EXTEND INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.





A SECTION

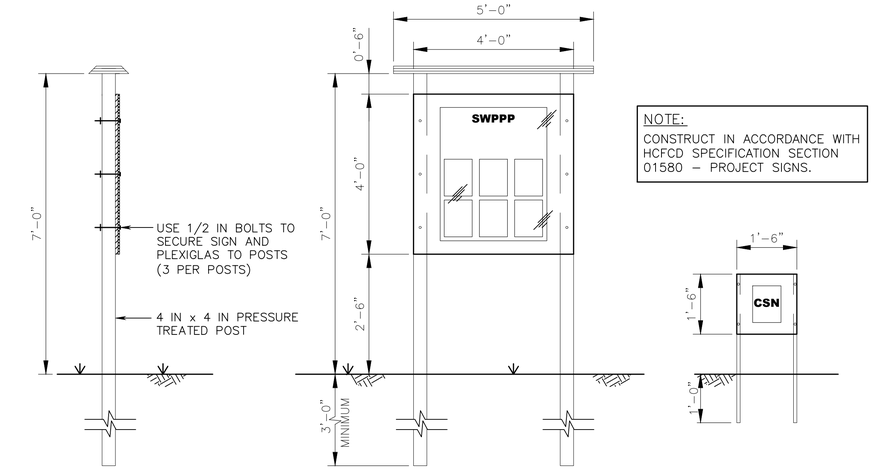
CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02361–SILT FENCES.

× — (RSF) — × — — REINFORCED SILT FENCE
SYMBOL

× — (SF) — × — — SILT FENCE
SYMBOL

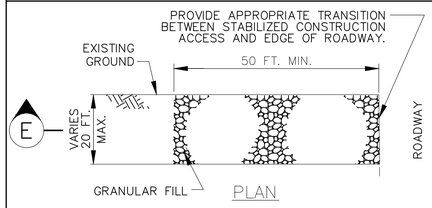
SILT FENCE



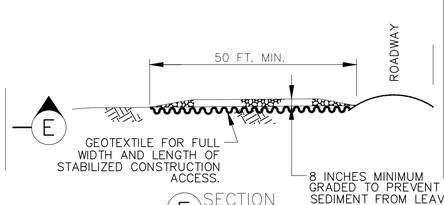
NOTE:
CONSTRUCT IN ACCORDANCE WITH HCFCD SPECIFICATION SECTION 01580 – PROJECT SIGNS.

LEFT SIDE FRONT CSN HOLDER

SWPPP / BMP SIGN AND CONSTRUCTION SITE NOTICE HOLDER DETAILS



PLAN



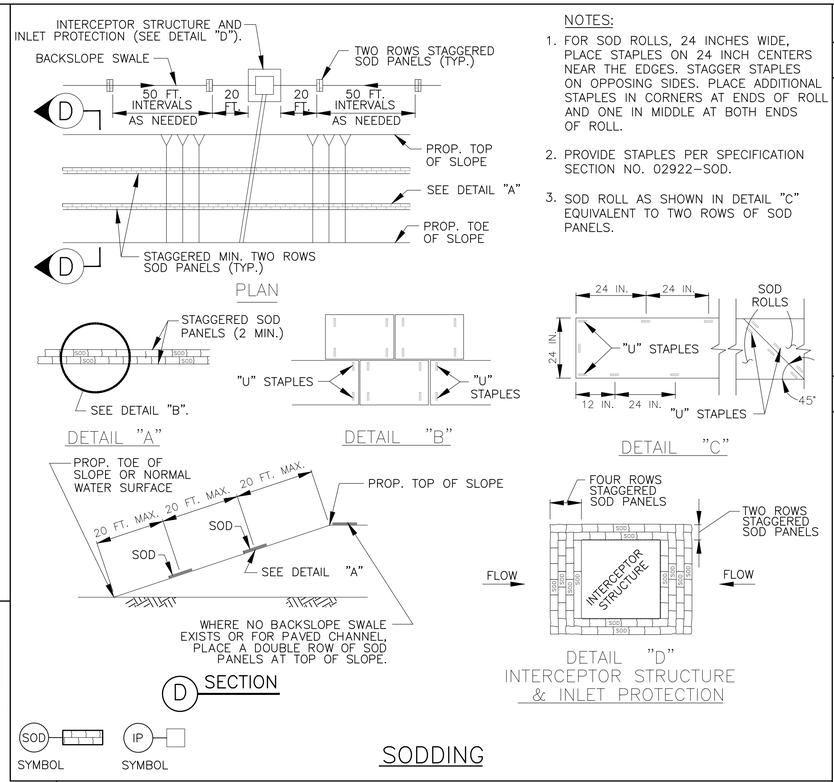
E SECTION

CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02365–STABILIZED CONSTRUCTION ACCESS.

SCA
SYMBOL

STABILIZED CONSTRUCTION ACCESS



PLAN

DETAIL "A" DETAIL "B"

D SECTION

DETAIL "C"

DETAIL "D"
INTERCEPTOR STRUCTURE & INLET PROTECTION

NOTES:

1. FOR SOD ROLLS, 24 INCHES WIDE, PLACE STAPLES ON 24 INCH CENTERS NEAR THE EDGES. STAGGER STAPLES ON OPPOSING SIDES. PLACE ADDITIONAL STAPLES IN CORNERS AT ENDS OF ROLL AND ONE IN MIDDLE AT BOTH ENDS OF ROLL.
2. PROVIDE STAPLES PER SPECIFICATION SECTION NO. 02922–SOD.
3. SOD ROLL AS SHOWN IN DETAIL "C" EQUIVALENT TO TWO ROWS OF SOD PANELS.

SOD
SYMBOL

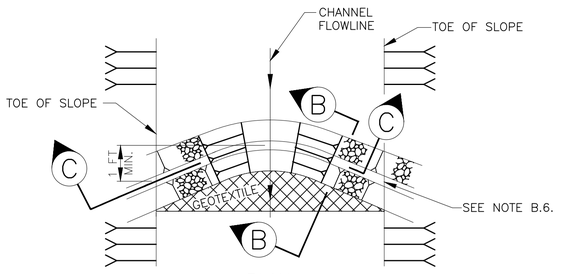
IP
SYMBOL

SODDING

FILTER DAM NOTES:

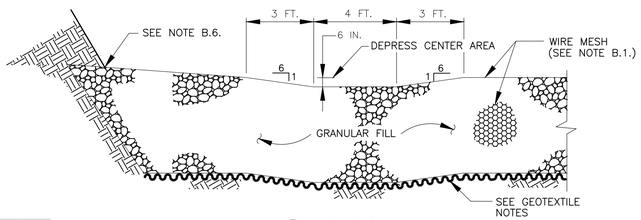
A. TYPES OF FILTER DAMS
   1. TYPE 1 (NON–REINFORCED)
      a. HEIGHT – 18–24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM)
      c. SLOPES – 2:1 (MAXIMUM).
   2. TYPE 2 (REINFORCED).
      a. HEIGHT – 18–36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 2:1 (MAXIMUM).
   3. TYPE 3 (REINFORCED)
      a. HEIGHT – 36–48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 3:1 (MAXIMUM).
   4. TYPE 4 (GABION)
      a. HEIGHT – 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
   5. TYPE 5. AS SHOWN ON THE PLANS.

B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.
   1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
   2. GRANULAR FILL:
      a. PLACE ON MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
      b. 3–5 INCHES FOR ROCK FILTER DAM TYPES 1,2, AND 4 AND 4–8 INCHES FOR ROCK FILTER DAM TYPE 3. REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378–RIPRAP AND GRANULAR FILL.
   3. WIRE MESH: FOLD AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURE TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
   4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
   5. SEE SPECIFICATION SECTION NO. 02364–FILTER DAMS.
   6. EMBED ONE FOOT MINIMUM INTO SLOPE AND AT SLOPE RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA.



PLAN

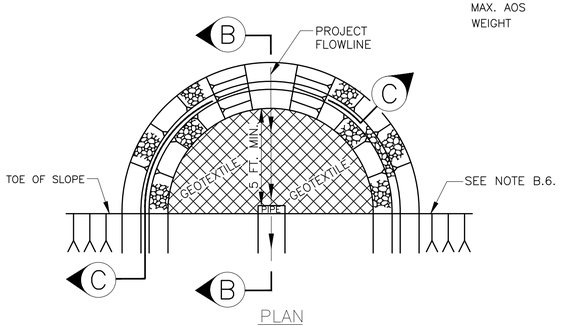
IN–CHANNEL FILTER DAM



C SECTION

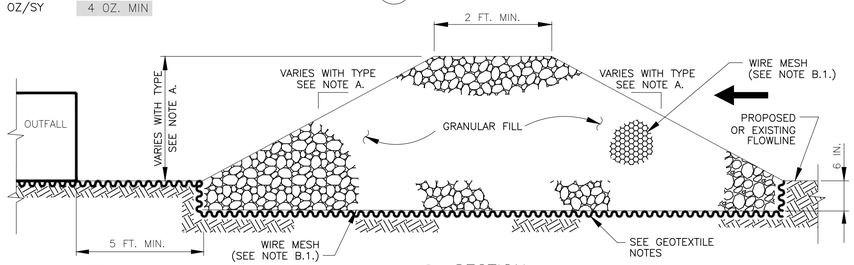
GEOTEXTILE NOTES:

MIN. AOS	SIEVE NO.	120 MIN
MAX. AOS	SIEVE NO.	50 MAX
WEIGHT	OZ/SY	4 OZ. MIN



PLAN

FILTER DAM AT DETENTION BASIN OUTFALL PIPE



NOTE:
ONLY APPLIES FOR DETENTION BASIN OUTFALL PIPE PROTECTION.

B SECTION

FILTER DAM

FD–TYPE
SYMBOL

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

P.E. SEAL AND SIGNATURE

REV	DESCRIPTION	DATE	APPR

WBS NO: N–210004–0001–4

CLOVERLAND AREA
PAVING AND DRAINAGE

STORMWATER POLLUTION PREVENTION DETAILS

PREPARED: CHECKED: APPROVED:

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
TEL: 713.541.7777
TEXAS REGISTERED FIRM F-12428

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

DATE: 08–31–05
SCALE: NTS

SHEET NUMBER
64 OF 159

STD\SWPPP02.DWG

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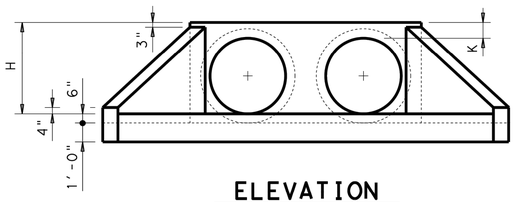
DATE:
FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA OF PIPE, D	Values for one Pipe						Values to be added for each addt'l Pipe		
		W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2
	15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3
	18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
	21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
	24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8
	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9
	36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0
	42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3
	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7
	54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1
	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
	66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3
	18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5
	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8
	30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0
	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2
	36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
	42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7
	48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9
	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9
	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4
	18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5
	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0
	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3
	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'-1"	115	1.7
	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6
	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
	66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9
	72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4
	15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5
	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7
	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9
	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4
	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7
	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0
	36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0
	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
	54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0
	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0



ELEVATION
Showing dimensions

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.

(4) Quantities shown are for one structure end only (one headwall).

(5) Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$

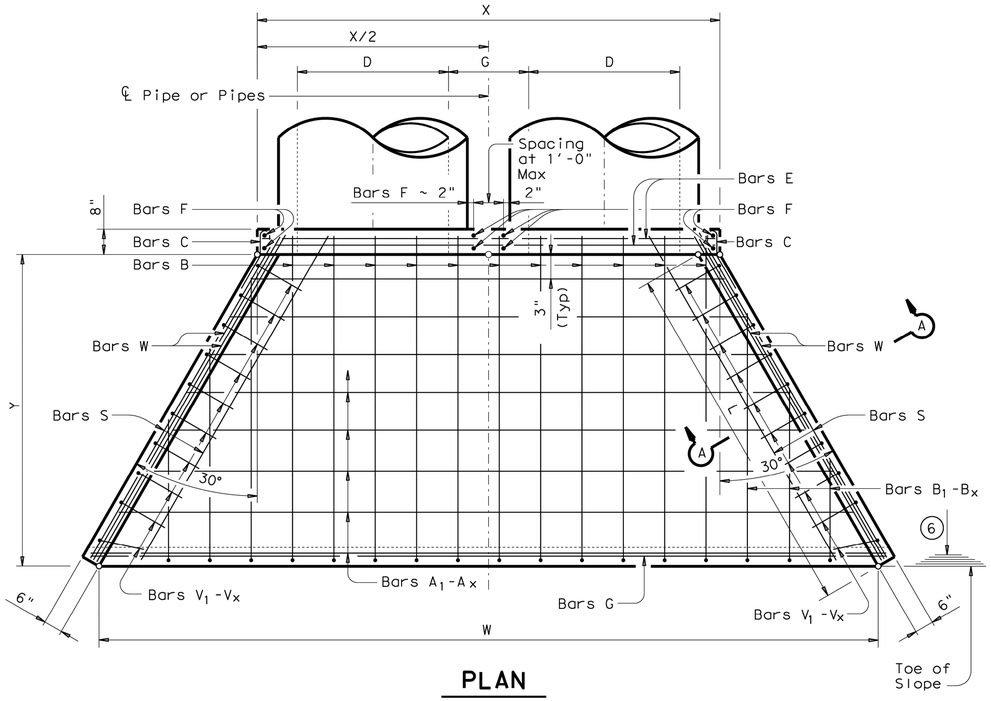
(6) Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

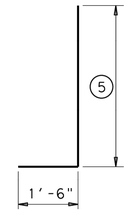
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

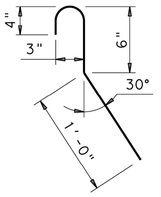
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



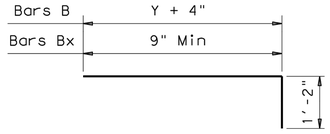
PLAN



BARS V



BARS C
(2'-0" long)



BARS B & B_1-B_x

GENERAL NOTES:

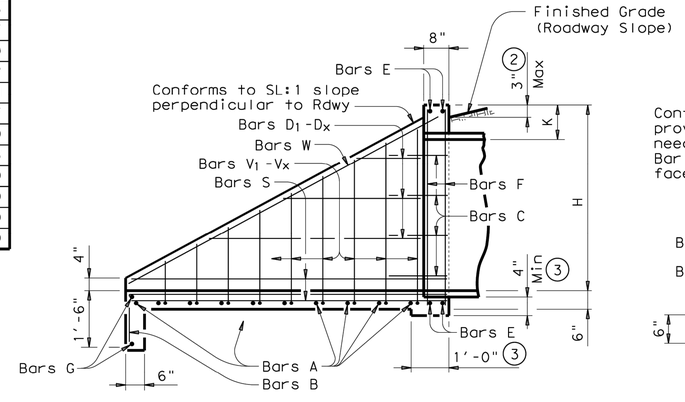
Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

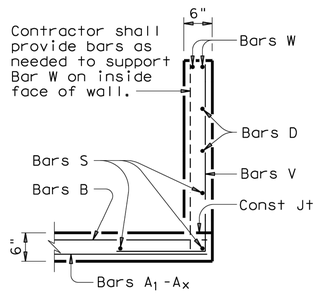
All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.



TYPICAL WING ELEVATION



SECTION A-A

Texas Department of Transportation

Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: chfw00se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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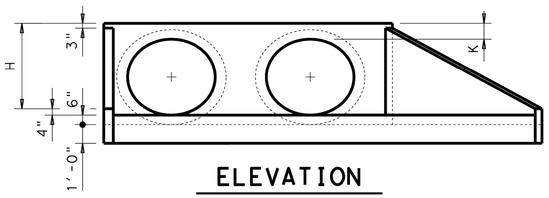
DATE:
FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA. OF PIPE, D	Values for one Pipe						Values to be added for each addt'l Pipe		
		W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 9"	3'- 1 ½"	2'-10"	4'- 0"	90	0.6	2'- 0 ¼"	22	0.2
	15"	5'- 6 ¾"	3'- 5 ¼"	3'- 4"	4'- 8 ½"	102	0.8	2'- 6"	28	0.3
	18"	6'- 4 ¾"	3'- 9 ¼"	3'-10"	5'- 5"	129	0.9	3'- 1"	41	0.4
	21"	7'- 2 ¾"	4'- 1 ¼"	4'- 4"	6'- 1 ½"	144	1.1	3'- 6 ¾"	47	0.5
	24"	8'- 2 ½"	4'- 7"	4'-10"	6'-10"	164	1.4	4'- 1 ¾"	57	0.6
	27"	9'- 0 ½"	4'-11"	5'- 4"	7'- 6 ½"	178	1.6	4'- 6 ¼"	62	0.7
	30"	9'-10 ½"	5'- 3"	5'-10"	8'- 3"	212	1.8	5'- 0"	72	0.9
	33"	10'- 8 ¾"	5'- 7"	6'- 4"	8'-11 ½"	225	2.1	5'- 4 ¾"	79	1.0
	36"	11'- 6 ¾"	5'-11 ¼"	6'-10"	9'- 8"	250	2.4	5'-10 ½"	90	1.2
	42"	13'- 2 ¾"	6'- 7 ¼"	7'-10"	11'- 1"	304	3.0	6'- 8 ¾"	109	1.5
	48"	15'- 4 ¾"	7'- 3 ¼"	9'- 4"	13'- 2 ½"	369	4.0	7'- 7 ¼"	142	2.0
	54"	17'- 1"	7'-11 ½"	10'- 4"	14'- 7 ¼"	429	4.7	8'- 8"	170	2.5
	60"	18'- 9"	8'- 7 ½"	11'- 4"	16'- 0 ¼"	484	5.6	9'- 6 ¼"	194	2.9
	66"	20'- 5"	9'- 3 ½"	12'- 4"	17'- 5 ¼"	550	6.5	10'- 1 ¼"	217	3.3
	72"	22'- 1 ¼"	9'-11 ¾"	13'- 4"	18'-10 ¼"	614	7.5	10'- 9 ¼"	239	3.7
3:1	12"	6'- 2"	3'- 1 ½"	4'- 3"	6'- 0"	118	0.9	2'- 0 ¼"	24	0.3
	15"	7'- 2 ¾"	3'- 5 ¼"	5'- 0"	7'- 0 ¾"	142	1.1	2'- 6"	31	0.4
	18"	8'- 3 ¾"	3'- 9 ¼"	5'- 9"	8'- 1 ½"	179	1.4	3'- 1"	46	0.5
	21"	9'- 4 ¾"	4'- 1 ¼"	6'- 6"	9'- 2 ¼"	197	1.7	3'- 6 ¾"	53	0.7
	24"	10'- 7 ½"	4'- 7"	7'- 3"	10'- 3"	227	2.1	4'- 1 ¾"	65	0.8
	27"	11'- 8 ½"	4'-11"	8'- 0"	11'- 3 ¾"	255	2.4	4'- 6 ¼"	75	1.0
	30"	12'- 9 ½"	5'- 3"	8'- 9"	12'- 4 ½"	298	2.8	5'- 0"	86	1.2
	33"	13'-10 ¾"	5'- 7"	9'- 6"	13'- 5 ¼"	322	3.2	5'- 4 ¾"	94	1.3
	36"	14'-11 ¾"	5'-11 ¼"	10'- 3"	14'- 6"	355	3.7	5'-10 ½"	108	1.5
	42"	17'- 1 ¾"	6'- 7 ¼"	11'- 9"	16'- 7 ½"	441	4.6	6'- 8 ¾"	133	2.0
	48"	20'- 0 ¾"	7'- 3 ¼"	14'- 0"	19'- 9 ½"	542	6.2	7'- 7 ¼"	176	2.7
	54"	22'- 3"	7'-11 ½"	15'- 6"	21'-11"	626	7.5	8'- 8"	211	3.3
	60"	24'- 5"	8'- 7 ½"	17'- 0"	24'- 0 ½"	725	8.9	9'- 6 ¼"	246	3.9
	66"	26'- 7"	9'- 3 ½"	18'- 6"	26'- 2"	821	10.4	10'- 1 ¼"	274	4.5
	72"	28'- 9 ¼"	9'-11 ¾"	20'- 0"	28'- 3 ½"	930	12.0	10'- 9 ¼"	309	5.1
4:1	12"	7'- 7"	3'- 1 ½"	5'- 8"	8'- 0 ¼"	156	1.2	2'- 0 ¼"	28	0.3
	15"	8'-10 ¾"	3'- 5 ¼"	6'- 8"	9'- 5 ¼"	183	1.5	2'- 6"	36	0.5
	18"	10'- 2 ¾"	3'- 9 ¼"	7'- 8"	10'-10"	228	1.9	3'- 1"	52	0.6
	21"	11'- 6 ¾"	4'- 1 ¼"	8'- 8"	12'- 3"	264	2.3	3'- 6 ¾"	63	0.8
	24"	13'- 0 ½"	4'- 7"	9'- 8"	13'- 8"	301	2.8	4'- 1 ¾"	75	1.0
	27"	14'- 4 ½"	4'-11"	10'- 8"	15'- 1"	339	3.4	4'- 6 ¼"	87	1.2
	30"	15'- 8 ½"	5'- 3"	11'- 8"	16'- 6"	394	3.9	5'- 0"	99	1.4
	33"	17'- 0 ¾"	5'- 7"	12'- 8"	17'-11"	432	4.5	5'- 4 ¾"	112	1.7
	36"	18'- 4 ¾"	5'-11 ¼"	13'- 8"	19'- 4"	479	5.2	5'-10 ½"	128	1.9
	42"	21'- 0 ¾"	6'- 7 ¼"	15'- 8"	22'- 1 ¾"	587	6.6	6'- 8 ¾"	158	2.5
	48"	24'- 8 ¾"	7'- 3 ¼"	18'- 8"	26'- 4 ¾"	738	8.9	7'- 7 ¼"	211	3.3
	54"	27'- 5"	7'-11 ½"	20'- 8"	29'- 2 ¾"	871	10.8	8'- 8"	257	4.1
	60"	30'- 1"	8'- 7 ½"	22'- 8"	32'- 0 ¾"	999	12.8	9'- 6 ¼"	297	4.9
	66"	32'- 9"	9'- 3 ½"	24'- 8"	34'-10 ½"	1139	14.9	10'- 1 ¼"	340	5.6
	72"	35'- 5 ¼"	9'-11 ¾"	26'- 8"	37'- 8 ½"	1290	17.3	10'- 9 ¼"	378	6.4
6:1	12"	10'- 5"	3'- 1 ½"	8'- 6"	12'- 0 ¼"	223	1.9	2'- 0 ¼"	32	0.4
	15"	12'- 2 ¾"	3'- 5 ¼"	10'- 0"	14'- 1 ¾"	273	2.5	2'- 6"	43	0.6
	18"	14'- 0 ¾"	3'- 9 ¼"	11'- 6"	16'- 3 ¼"	336	3.2	3'- 1"	61	0.8
	21"	15'-10 ¾"	4'- 1 ¼"	13'- 0"	18'- 4 ½"	396	3.9	3'- 6 ¾"	76	1.1
	24"	17'-10 ½"	4'- 7"	14'- 6"	20'- 6"	450	4.8	4'- 1 ¾"	91	1.4
	27"	19'- 8 ½"	4'-11"	16'- 0"	22'- 7 ½"	519	5.7	4'- 6 ¼"	108	1.6
	30"	21'- 6 ½"	5'- 3"	17'- 6"	24'- 9"	595	6.6	5'- 0"	124	2.0
	33"	23'- 4 ¾"	5'- 7"	19'- 0"	26'-10 ½"	674	7.7	5'- 4 ¾"	143	2.3
	36"	25'- 2 ¾"	5'-11 ¼"	20'- 6"	29'- 0"	737	8.8	5'-10 ½"	162	2.7
	42"	28'-10 ¾"	6'- 7 ¼"	23'- 6"	33'- 2 ¾"	920	11.3	6'- 8 ¾"	202	3.5
	48"	34'- 0 ¾"	7'- 3 ¼"	28'- 0"	39'- 7 ¼"	1189	15.5	7'- 7 ¼"	274	4.6



ELEVATION
Showing dimensions

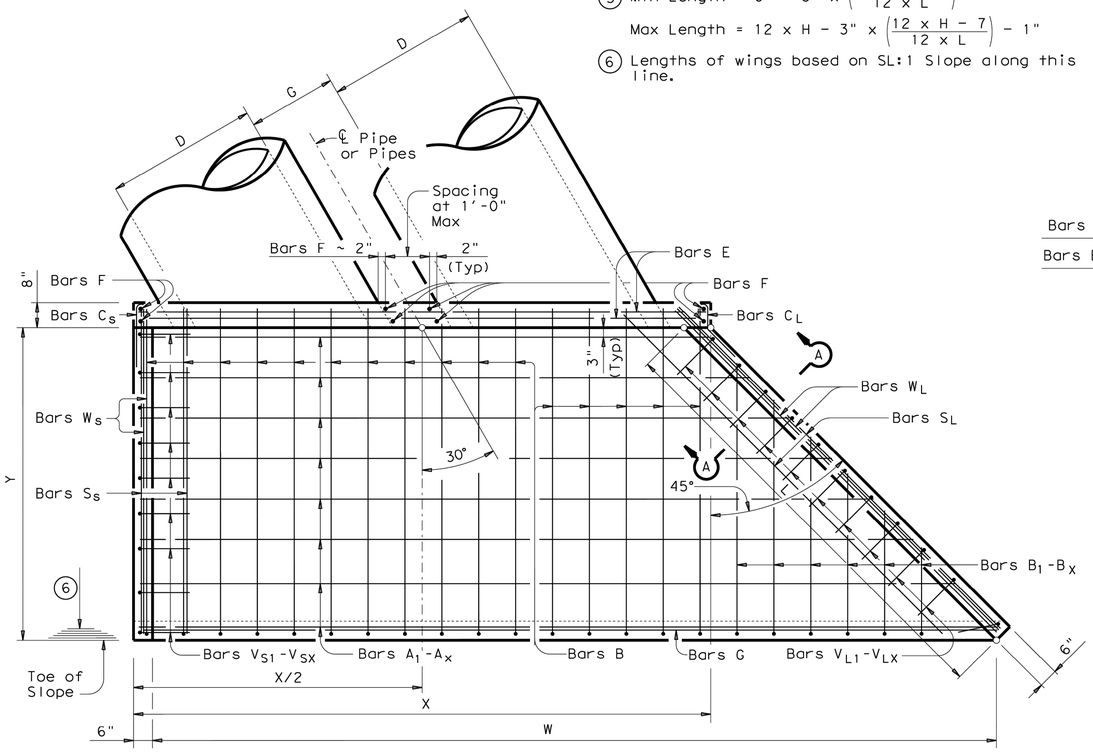
1. Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
2. For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.
4. Quantities shown are for one structure end only (one headwall).
5. Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right)$
   Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$
6. Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

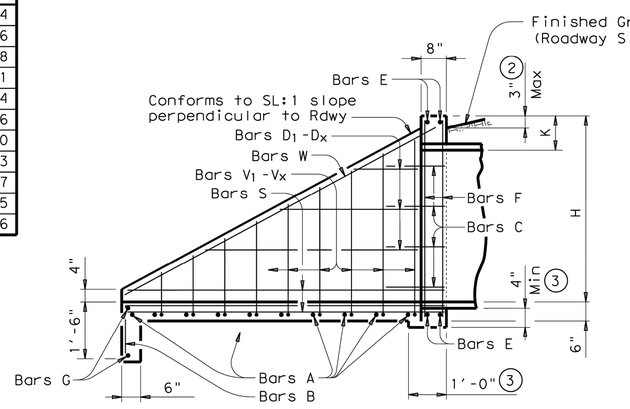
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
CL	# 4	1'-0"	~
CS	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
SL	# 4	~	3
SS	# 4	~	3
V	# 4	1'-0"	~
WL	# 5	~	2
WS	# 5	~	2

TABLE OF CONSTANT DIMENSIONS

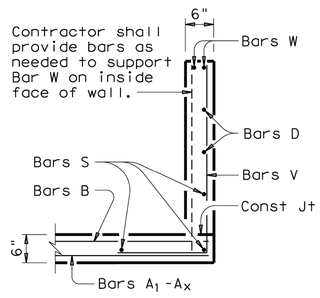
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



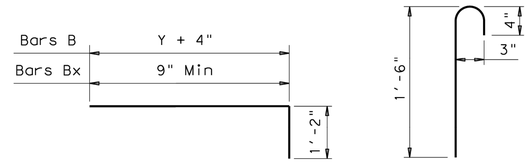
PLAN



TYPICAL WING ELEVATION

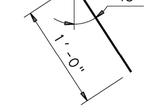


SECTION A-A

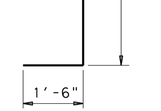


BARS B & B1-Bx

BARS CS
(2'-0" long)



BARS CL
(2'-0" long)



BARS VS & VL

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.

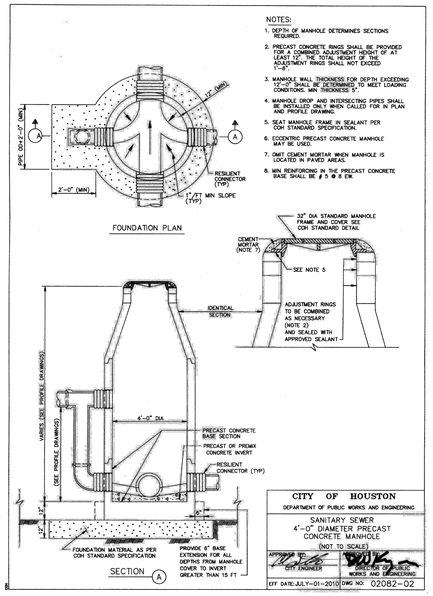
Texas Department of Transportation

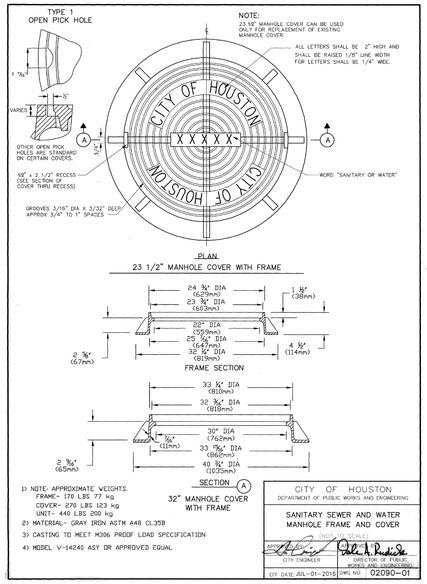
Bridge Division Standard

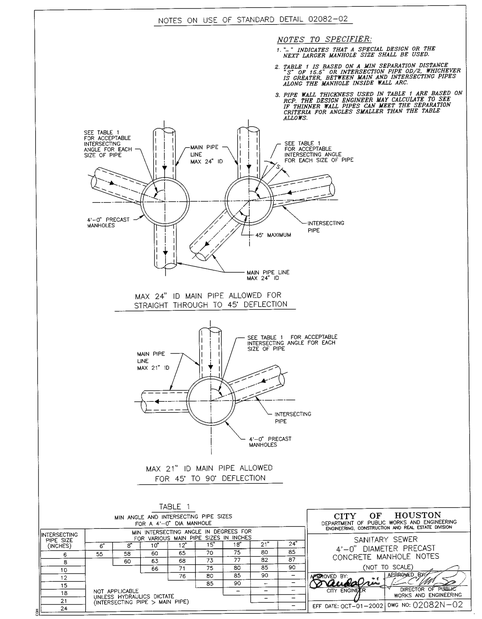
CONCRETE HEADWALLS WITH FLARED WINGS FOR 30° SKEW PIPE CULVERTS

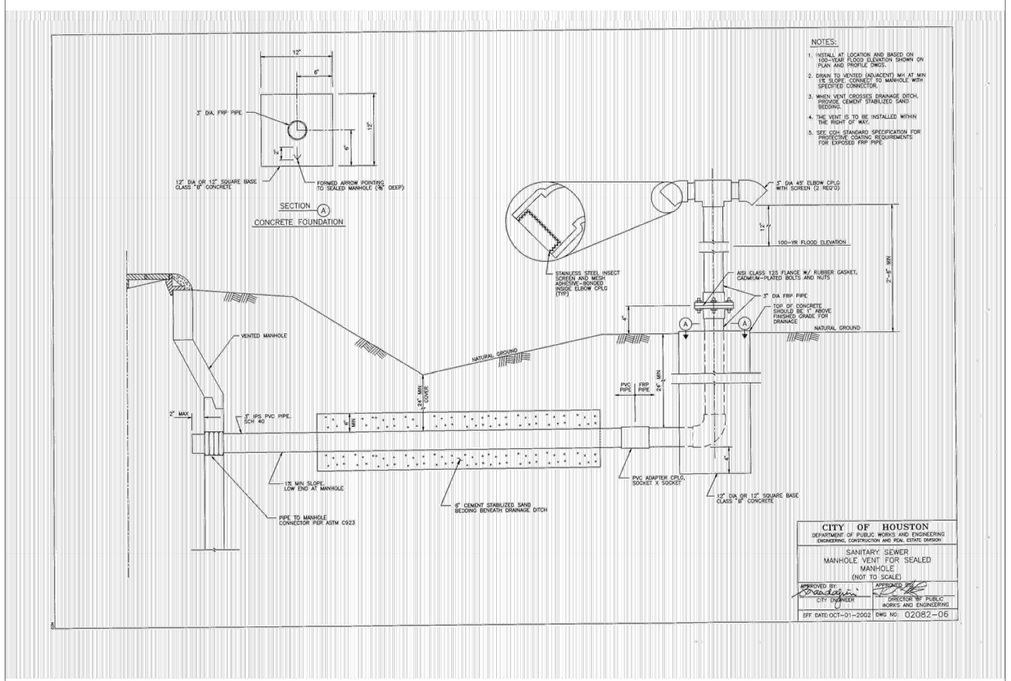
CH-FW-30

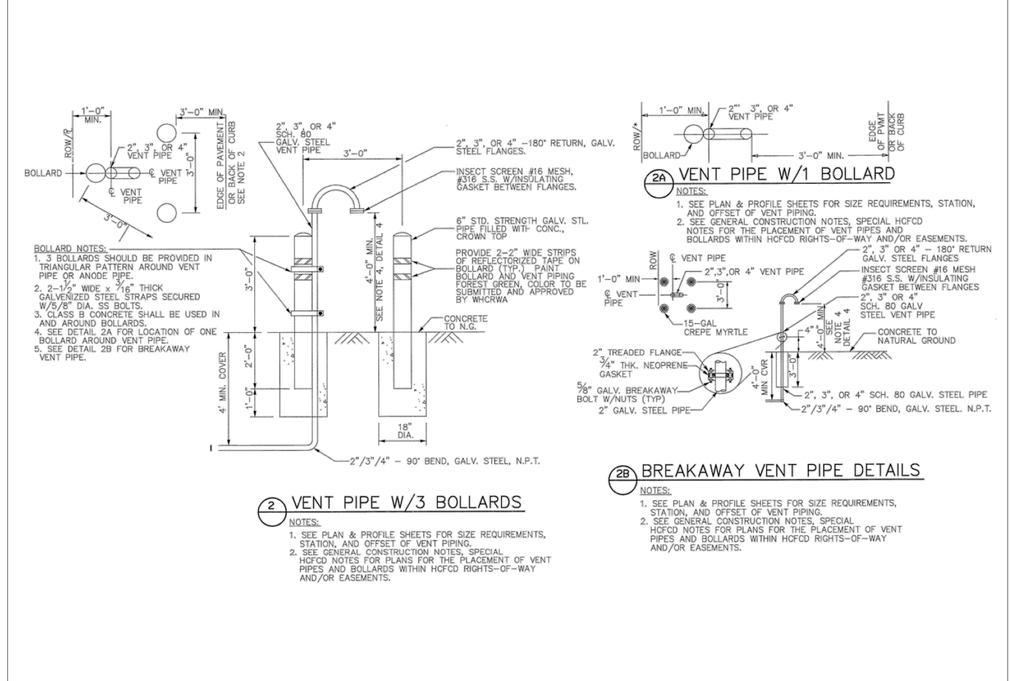
FILE: chfw30se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				66











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THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

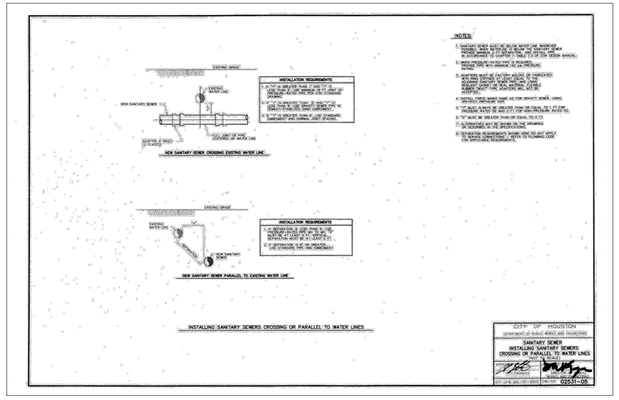
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

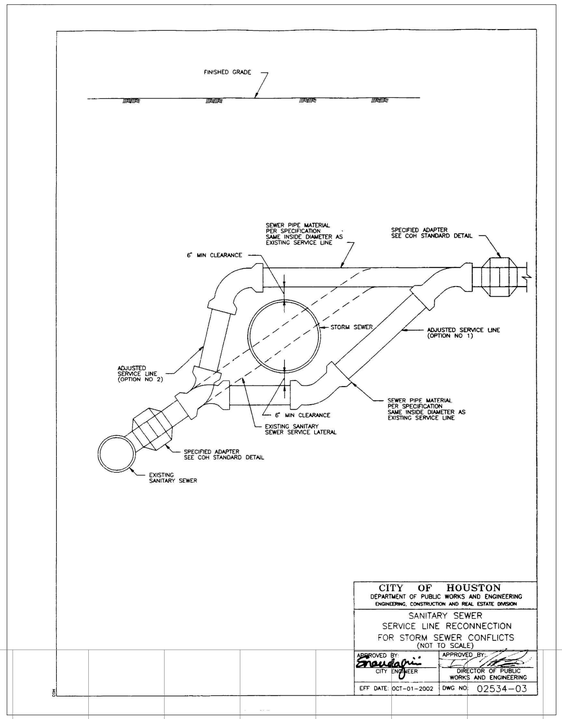
SANITARY SEWER DETAILS
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

Missing or invalid reference
File: ..\..\..\..\..\331051-Braesmont\dgn\Details\Sanitary Details\0244
Sheet: 1

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\067- SANITARY SEWER DETAILS SHEET 1 OF 3.DWG JUL. 01, 2026-10:52am





LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH C127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEGAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.), GEOID12A (CONUS)

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100% DESIGN REVIEW

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

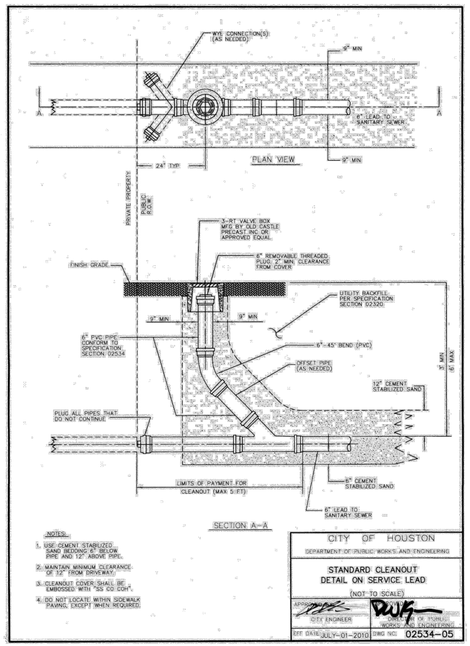
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

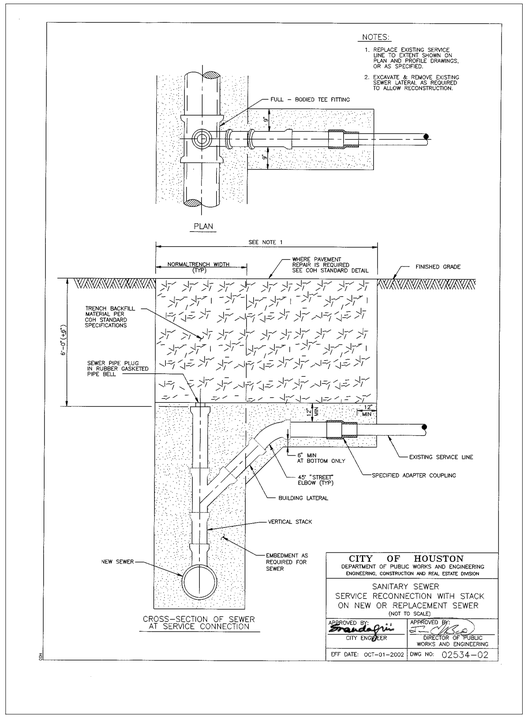
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

SANITARY SEWER DETAILS
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 68 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\068- SANITARY SEWER DETAILS SHEET 2 OF 3.DWG JUL. 01, 2026-10:56am





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SUB-PROJECT 1

SANITARY SEWER DETAILS
SHEET 3 OF 3

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N-210004-0001-4	
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OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~-159	

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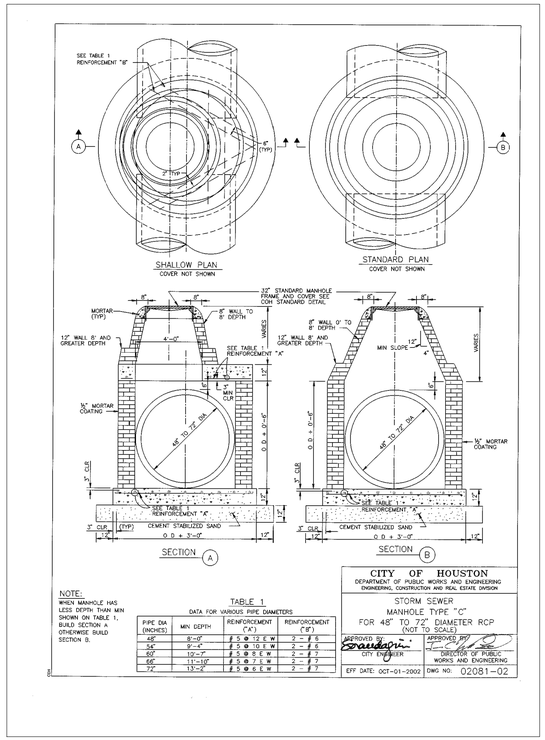

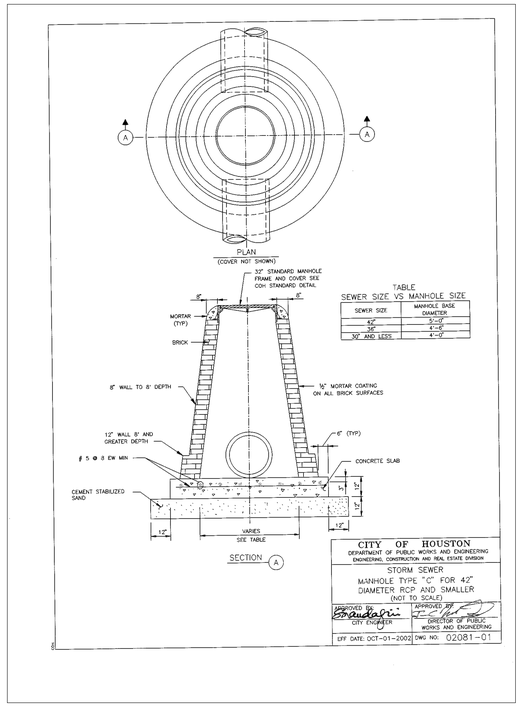

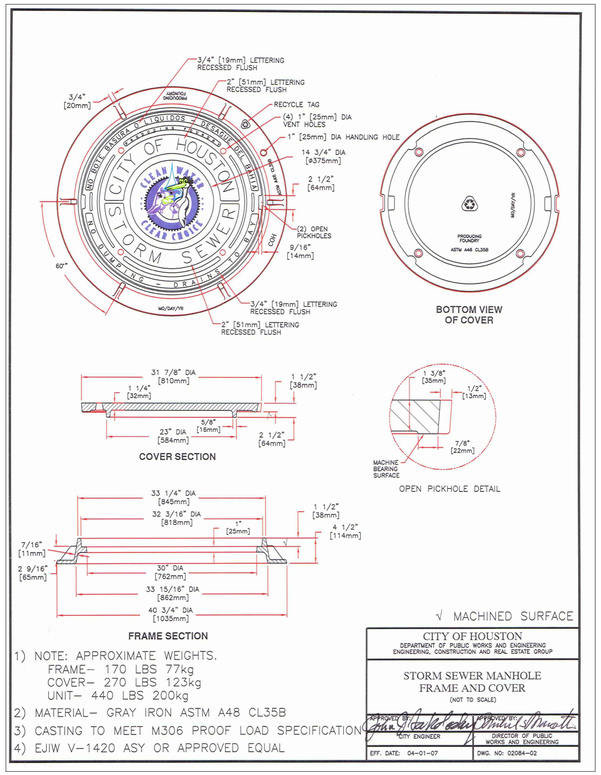

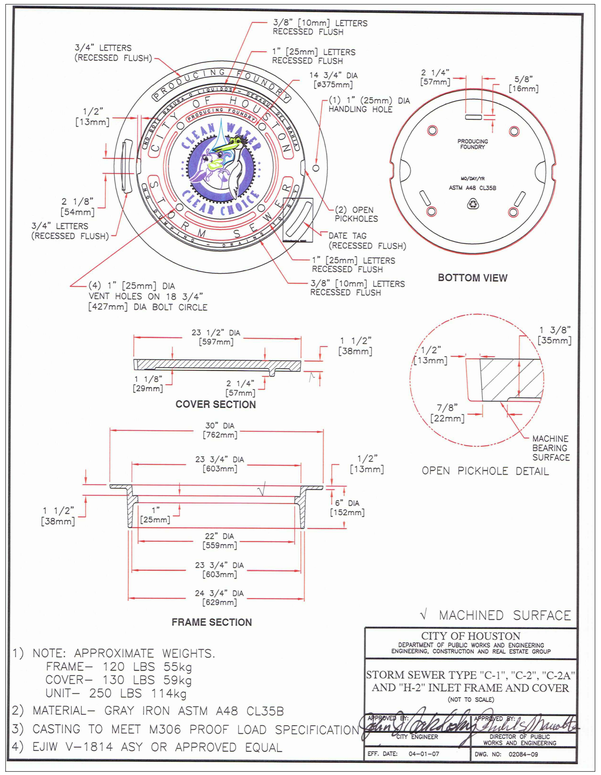

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dba TSC Engineering
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SURVEYED BY:GEOSURV, INC.
FB NO.

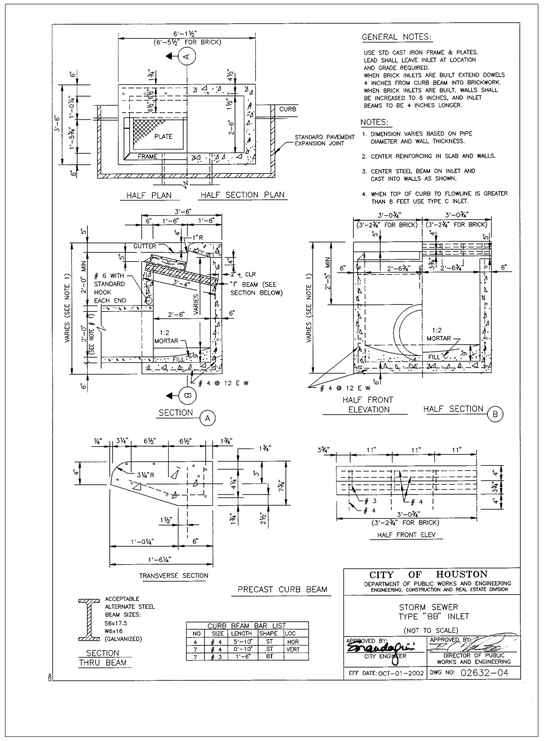
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

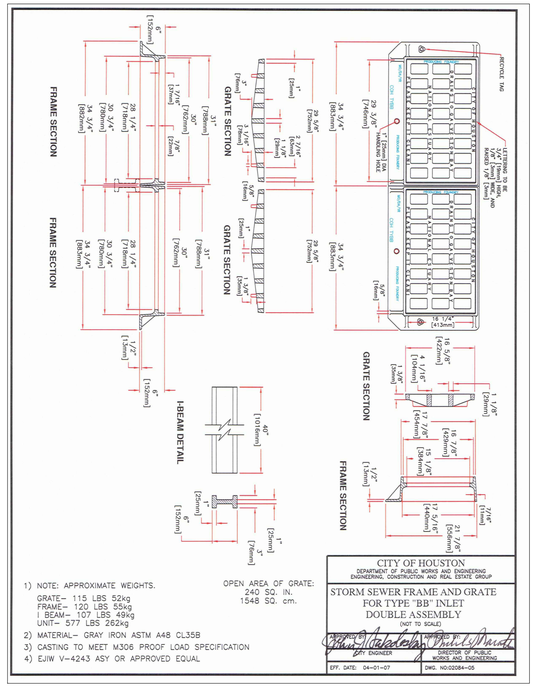
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

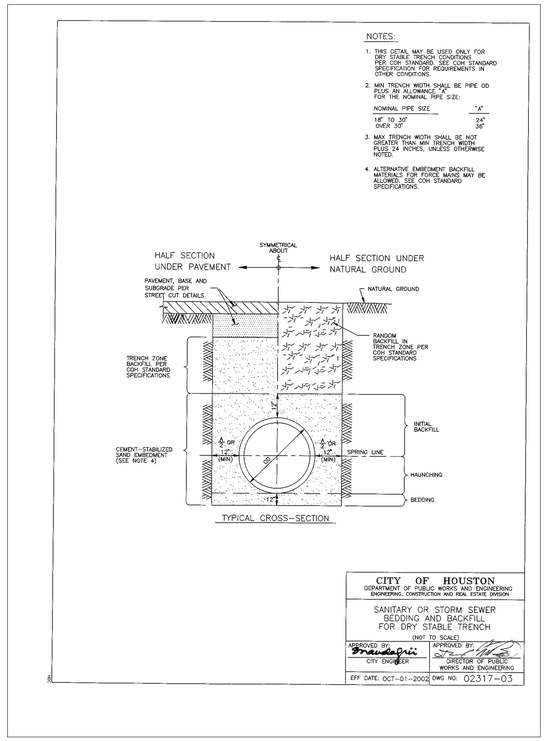
STORM SEWER DETAILS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\070- STORM SEWER DETAILS SHEET 1 OF 2.DWG JUL. 01, 2026-10:53am







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STORM SEWER DETAILS
SHEET 2 OF 2

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SHEET NO. --~~OF~~ 159	

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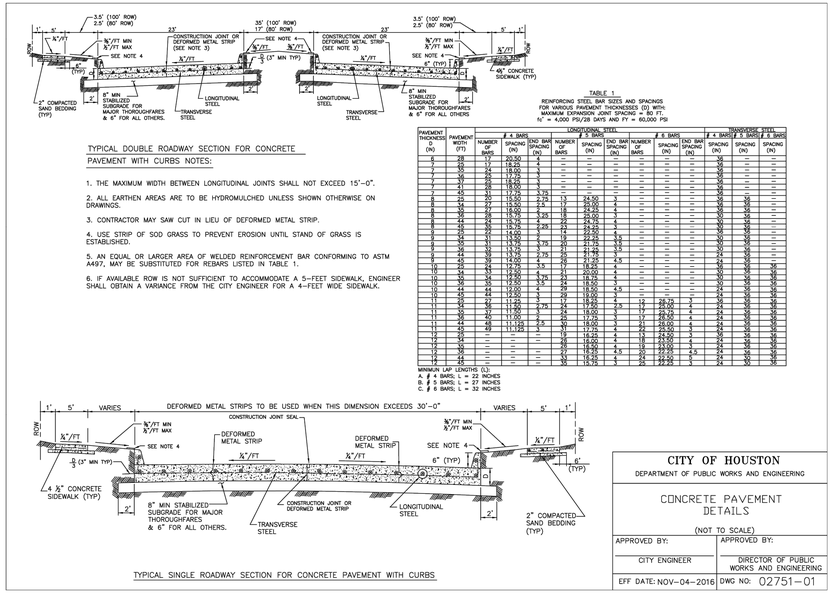
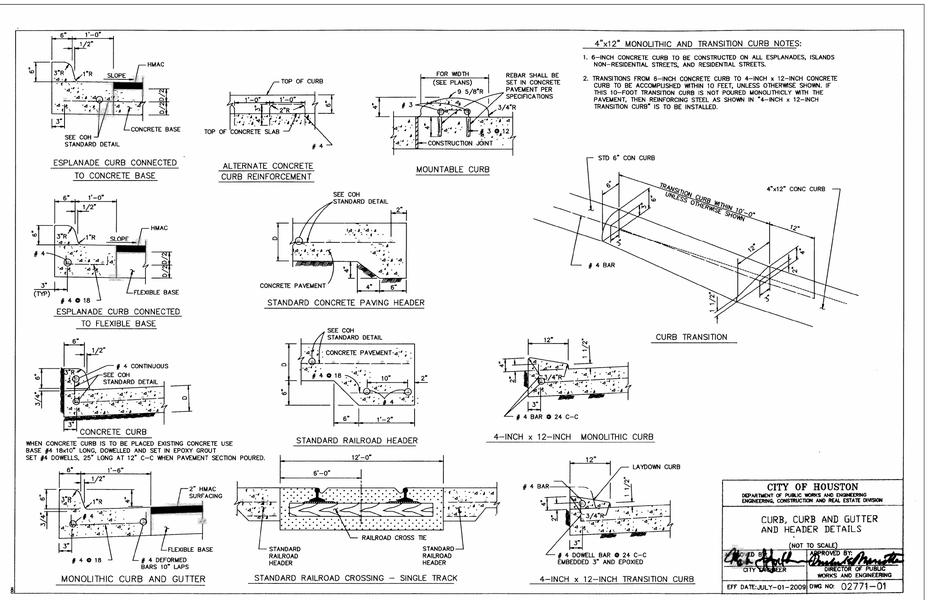


PAVEMENT THICKNESS D (IN)	PAVEMENT WIDTH (FT)	# 4 BARS NUMBER OF BARS	# 4 BARS SPACING (IN)	# 4 BARS END BAR SPACING (IN)	# 5 BARS NUMBER OF BARS	# 5 BARS SPACING (IN)	# 5 BARS END BAR SPACING (IN)	# 6 BARS NUMBER OF BARS	# 6 BARS SPACING (IN)	# 6 BARS END BAR SPACING (IN)	TRANSVERSE STEEL # 4 BARS SPACING (IN)	TRANSVERSE STEEL # 5 BARS SPACING (IN)	TRANSVERSE STEEL # 6 BARS SPACING (IN)
6	28	17	20.50	4	—	—	—	—	—	—	36	—	—
7	23	17	18.25	4	—	—	—	—	—	—	36	—	—
7	30	24	18.00	3	—	—	—	—	—	—	36	—	—
7	37	25	18.25	3	—	—	—	—	—	—	36	—	—
7	41	28	18.00	3	—	—	—	—	—	—	36	—	—
8	30	31	17.25	3.75	—	—	—	—	—	—	36	—	—
8	35	29	15.50	2.75	13	24.50	3	—	—	—	36	36	—
8	36	27	15.00	2.5	13	23.50	3	—	—	—	36	36	—
8	37	27	15.00	2.5	13	23.50	3	—	—	—	36	36	—
8	39	28	15.75	3.25	18	24.00	3	—	—	—	30	36	—
8	44	32	15.75	4	22	24.75	3	—	—	—	30	36	—
8	45	33	15.75	2.88	23	25.25	3	—	—	—	30	36	—
8	50	36	15.75	4	23	22.63	4.5	—	—	—	30	36	—
9	34	31	13.00	2	18	22.00	3.5	—	—	—	30	36	—
9	35	31	13.25	3.75	20	21.75	3.5	—	—	—	30	36	—
9	36	32	13.25	3	21	21.63	3.5	—	—	—	30	36	—
9	44	39	13.25	2.75	25	21.75	3.5	—	—	—	24	36	—
9	48	43	13.00	4	26	21.38	4.5	—	—	—	24	36	—
10	35	34	12.50	3.5	19	24.88	4	—	—	—	30	36	36
10	36	33	12.50	4	21	20.00	4	—	—	—	30	36	36
10	36	34	12.00	3.25	23	19.75	4	—	—	—	30	36	36
10	38	35	12.50	3.5	24	19.50	4	—	—	—	30	36	36
10	43	41	12.00	4	29	19.00	4.5	—	—	—	24	36	36
10	44	42	12.00	4	29	19.00	4.5	—	—	—	24	36	36
11	33	37	11.25	3	17	18.25	4	12	28.75	3	24	36	36
11	34	38	11.50	2.75	24	17.50	4.5	12	29.00	4	24	36	36
11	35	37	11.50	3	24	18.00	3	17	29.75	4	24	36	36
11	40	40	11.50	3	25	17.25	3	17	29.50	4	24	36	36
11	43	48	11.25	2.5	30	16.00	3	21	28.00	4	24	36	36
11	44	48	11.25	3	30	16.00	3	21	28.00	4	24	36	36
12	33	—	—	—	19	18.25	4	13	24.50	3	30	36	36
12	34	—	—	—	20	19.00	4	18	23.50	4	24	36	36
12	35	—	—	—	21	19.00	4	19	24.00	5	24	36	36
12	36	—	—	—	21	19.25	4.5	20	22.25	4.5	24	36	36
12	39	—	—	—	23	18.75	4	20	22.50	5	24	36	36
12	45	—	—	—	30	15.75	3	25	22.25	5	24	30	36

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
CONCRETE PAVEMENT DETAILS	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: NOV-04-2016	DWG NO: 02751-01

K:\331051-Braesmont\dgn\Details\StreetCut Details\02741_01_hot_mix_asphaltic_concrete_pavement_details.tiff



CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
CURB, CURB AND GUTTER AND HEADER DETAILS	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009	DWG NO: 02771-01

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

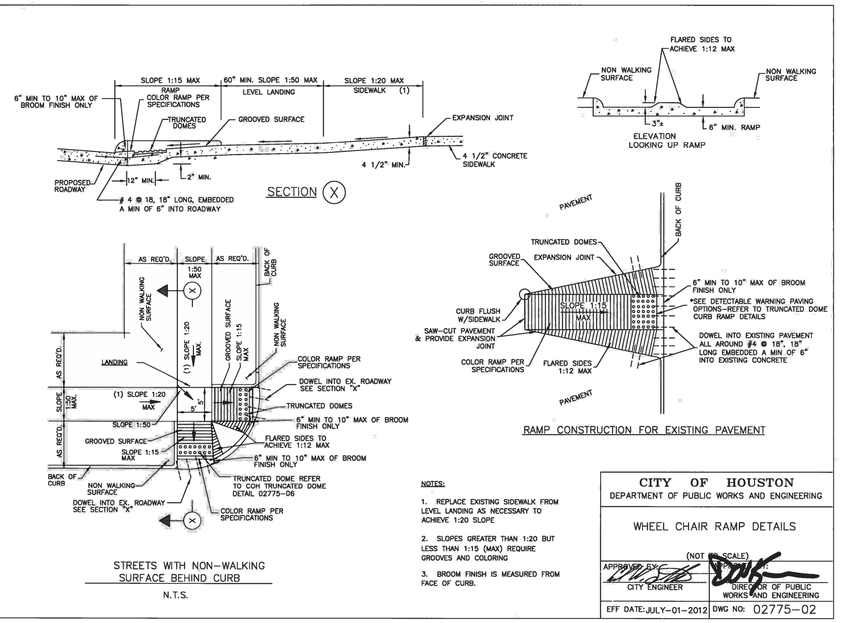
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

PAVEMENT DETAILS SHEET
1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\072- PAVEMENT DETAILS SHEET 1 OF 3.DWG JUL. 01, 2026-10:39am



NOTES:

1. REPLACE EXISTING SIDEWALK FROM LEVEL LANDING AS NECESSARY TO ACHIEVE 1:20 SLOPE
2. SLOPES GREATER THAN 1:20 BUT LESS THAN 1:15 (MAX) REQUIRE GROOVES AND COLORING
3. BROOM FINISH IS MEASURED FROM FACE OF CURB.

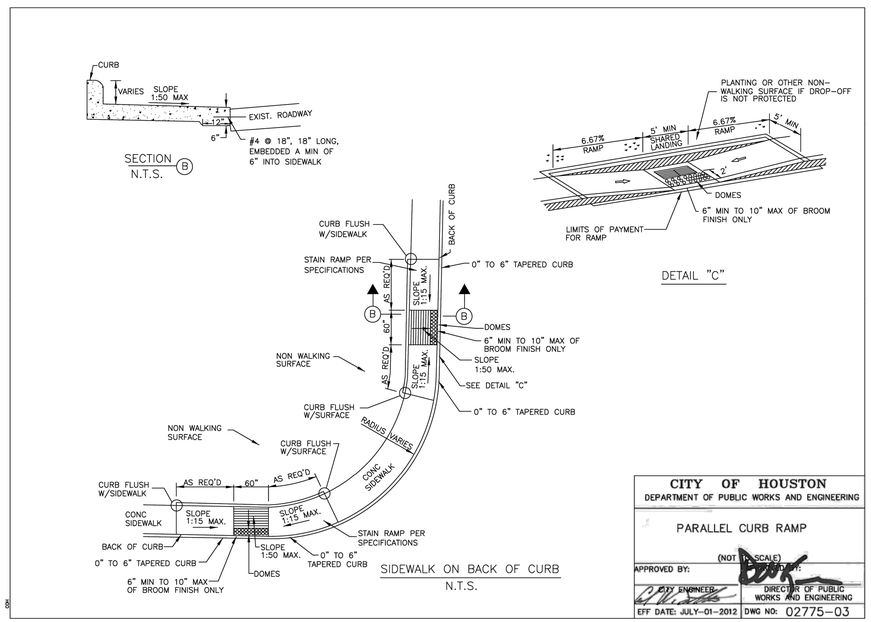
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WHEEL CHAIR RAMP DETAILS

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2012 | DWG NO: 02775-02



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

PARALLEL CURB RAMP

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2012 | DWG NO: 02775-03

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
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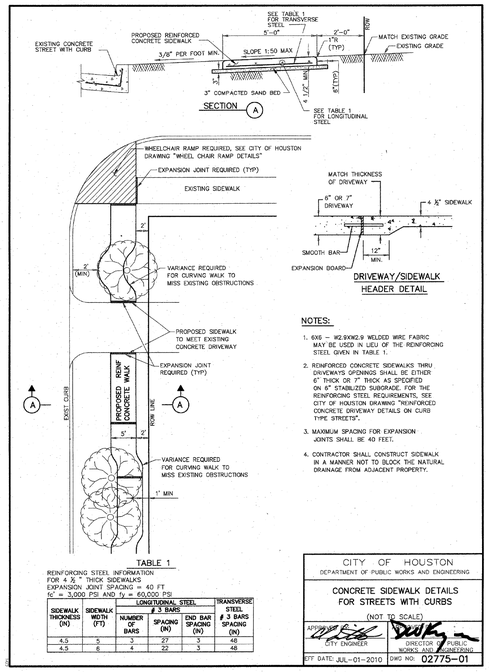
100% DESIGN REVIEW



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 DRAWING "REINFORCED CONCRETE DRIVEWAY DETAILS ON CURB TYPE STREETS".
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.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
f'_c = 3,000 PSI AND f_y = 60,000 PSI

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL # 3 BARS			TRANSVERSE STEEL # 3 BARS SPACING (IN)
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	
4.0	5	3	27	3	48
4.5	6	4	22	3	48

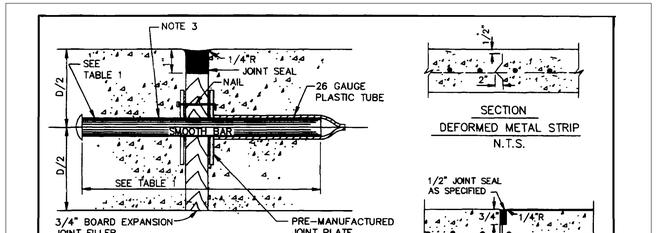
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

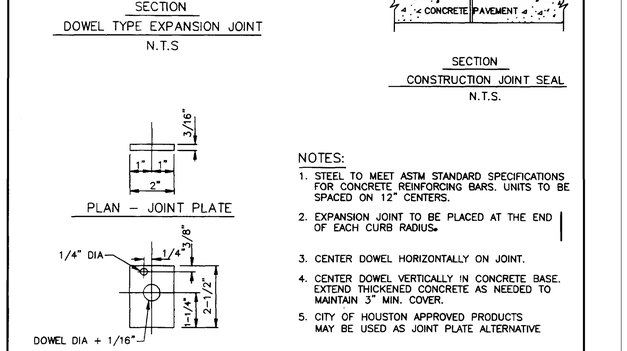
CONCRETE SIDEWALK DETAILS FOR STREETS WITH CURBS

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2010 | DWG NO: 02775-01





NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED ON 12" CENTERS.
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

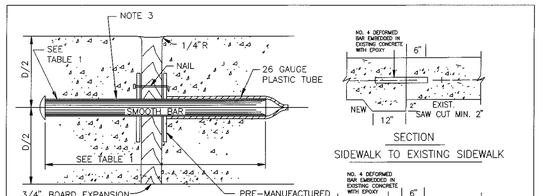
PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

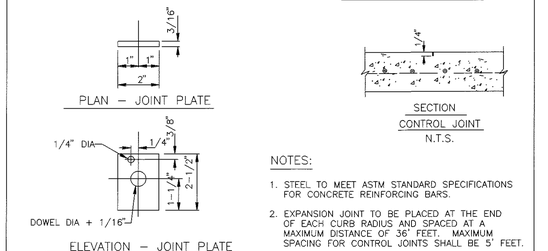
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: June-01-2003 | DWG NO: 02752-01





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 36' 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 2" MIN. COVER.

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: OCT-01-2002 | DWG NO:02752-02

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

PAVEMENT DETAILS SHEET
2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

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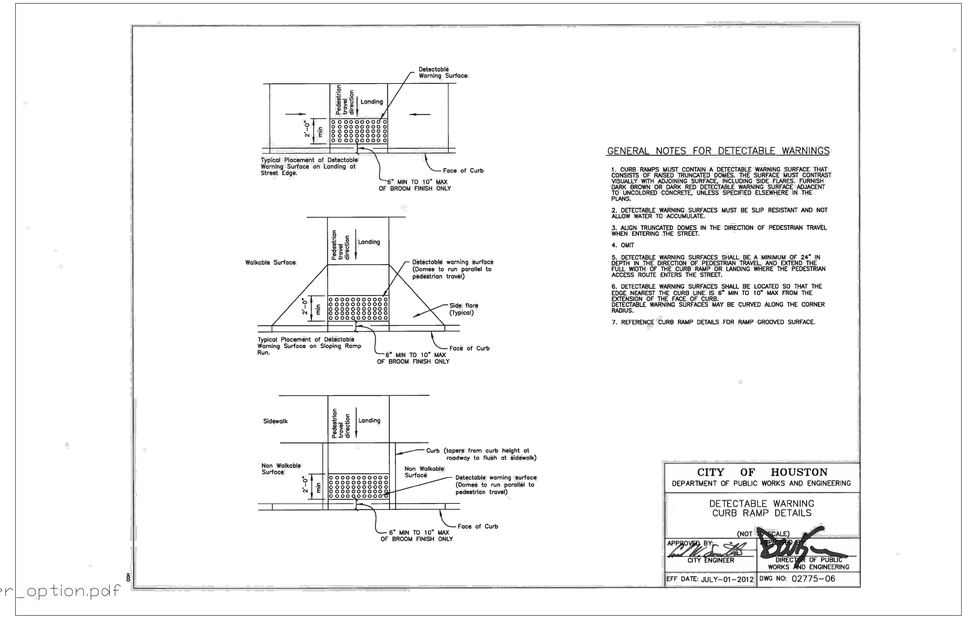

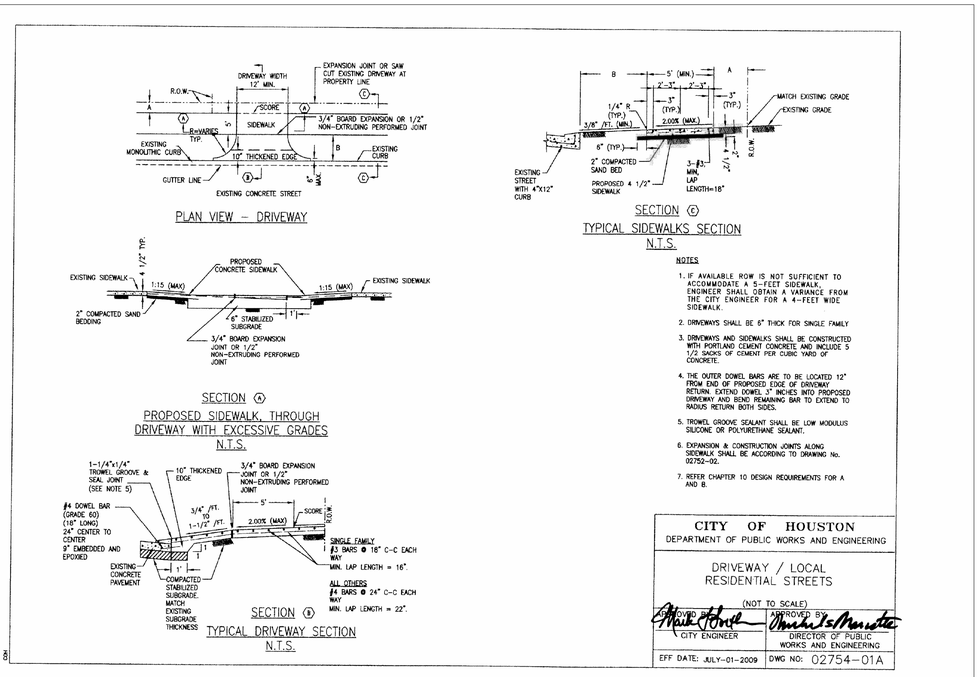

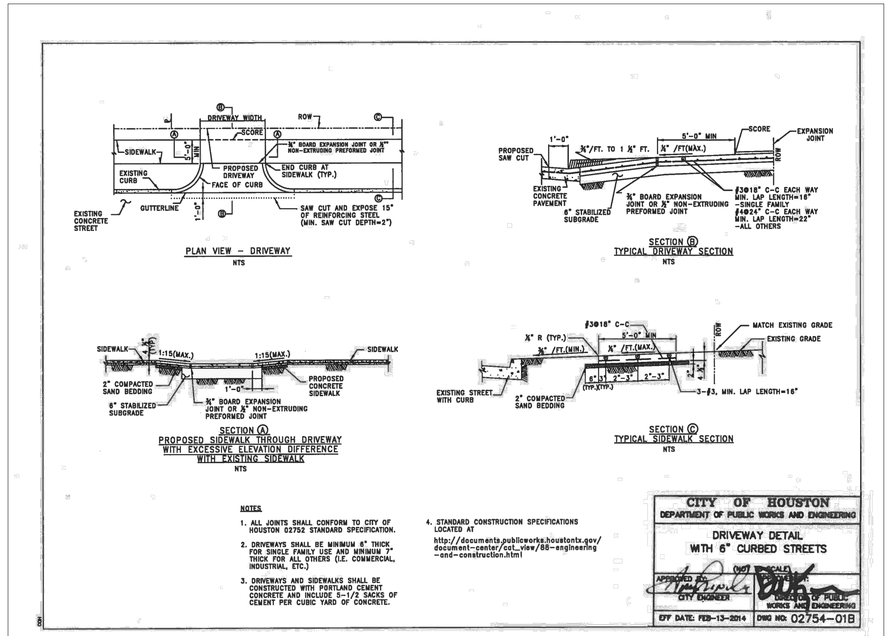

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

PAVEMENT DETAILS SHEET
3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. --~~OF~~ 159	

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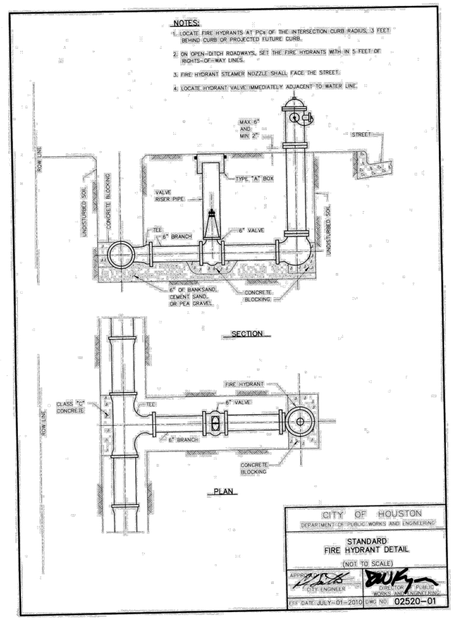
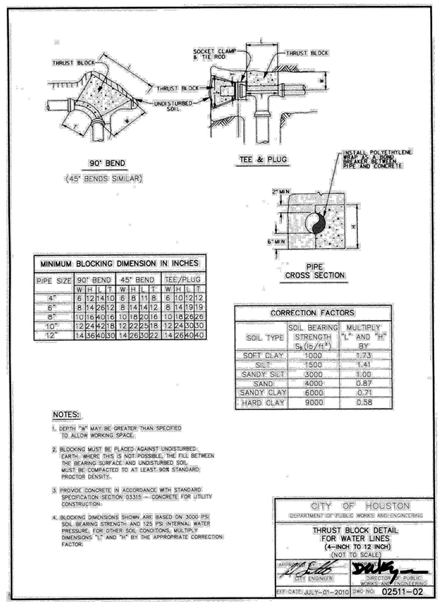




MINIMUM BLOCKING DIMENSION IN INCHES

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	33	30
12"	14	36	60	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 "H" 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 PSF 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)
CITY ENGINEER
DIRECTOR OF PUBLIC WORKS & ENGINEERING
EFF DATE JULY-01-2010 DWG NO. 02511-02

K:\331051-Braesmont\dgn\Details\Water Details\02085-03_valve_box_detail.tiff

K:\330952-Cloverland Area P&D-COH FY15\DWG\Design Drawings\Phase I\Details\DETAILS FOR CAD\02085-01_standard_plastic_meter_box_for_5ft_and_1_meters.tiff

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK–UP UNDER THE AUTHORITY OF DARIUSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB–PROJECT 1

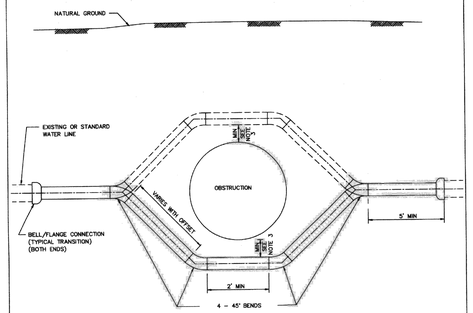
WATER DETAILS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N–210004–0001–4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\075- WATER DETAILS SHEET 1 OF 2.DWG JUL. 01, 2026-10:50am

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

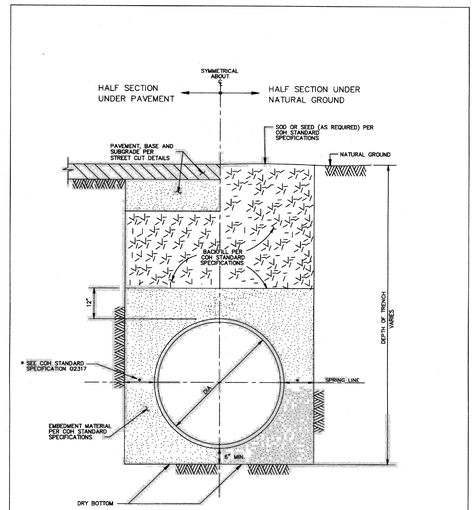
1. DUCTILE IRON PIPE PRESSURE 250 PSI WITH APPROVED RESTRAINED JOINTS.
2. PVC PIPE WITH INTEGRAL RESTRAINED JOINT SYSTEM, OR DUCTILE – IRON RESTRINED JOINT FITTINGS, EPOXY LINED AND COATED, USE 250 PSI AWWA C900 DR 14 FOR PVC RESTRAINED JOINTS.
3. PVC NOT ALLOWED FOR GREATER THAN 20 FT OF COVER OR FOR 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 — DIRECTOR OF PUBLIC WORKS AND ENGINEERING

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



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 — DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2010 DWG NO: 02317-04

LEGAL DESCRIPTION:
BEING A 112.90 ACRES BOUNDED BY MOWERY ROAD ON THE NORTH, HARRIS COUNTY FLOOD CONTROL DITCH G127-00-00 (SWENGEL DITCH) ON THE WEST, FAIRGREEN LANE ON THE SOUTH, AND CULLEN BOULEVARD ON THE EAST.

FLOODPLAIN:
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 48201C0890L, REVISED DATE JUNE 18, 2017 THE SURVEYED PROPERTY DOES NOT LIE WITHIN SHADED ZONE "AE", DEFINED AS SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT.

BENCHMARK:
FEMA RM 030065
MONUMENT IS LOCATED ON EAST SIDE OF CULLEN BOULEVARD BRIDGE OVER SIMS BAYOU IN THE DOWNSTREAM SIDE OF THE BRIDGE ON THE SIDEWALK AT CENTERLINE STREAM.
ELEVATION = 43.43 FEET (NAVD88, 2001 ADJ.). GEOID99 (CONUS)

TBM "A":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS +/- 150FT OF THE INTERSECTION OF OREM DR. AND SEGREST DR, BEING +/- 50FT NORTH OF OREM DR. BRIDGE
ELEVATION = 44.41 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "B":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED +/- 50FT OF THE INTERSECTION OF CULLEN BLVD. AND BUNGALOW LN.
ELEVATION = 39.90 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

TBM "C":
3/4" IR WITH 3" BRASS CAP IN CONCRETE. CONTROL POINT IS LOCATED AT THE NW CORNER OF MADDEN LN AND DONEAL WAY.
ELEVATION = 39.26 FEET (NAVD88, 2001 ADJ.). GEOID12A (CONUS)

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NOTICE:

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINE CAN BE MARKED.

THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

DATE:

CENTERPOINT ENERGY NATURAL GAS UTILITIES SHOWN. (GAS SERVICE LINES ARE NOT SHOWN). THIS SIGNATURE NOT TO BE USED FOR CONFLICT VERIFICATION

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CENTERPOINT ENERGY/UNDERGROUND ELECRICAL FACILITIES VERIFICATION ONLY.

(THIS SIGNATURE VERIFIES EXITING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.)

SIGNATURE VALID FOR SIX MONTHS.

DATE:

CABLE COMPANY

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

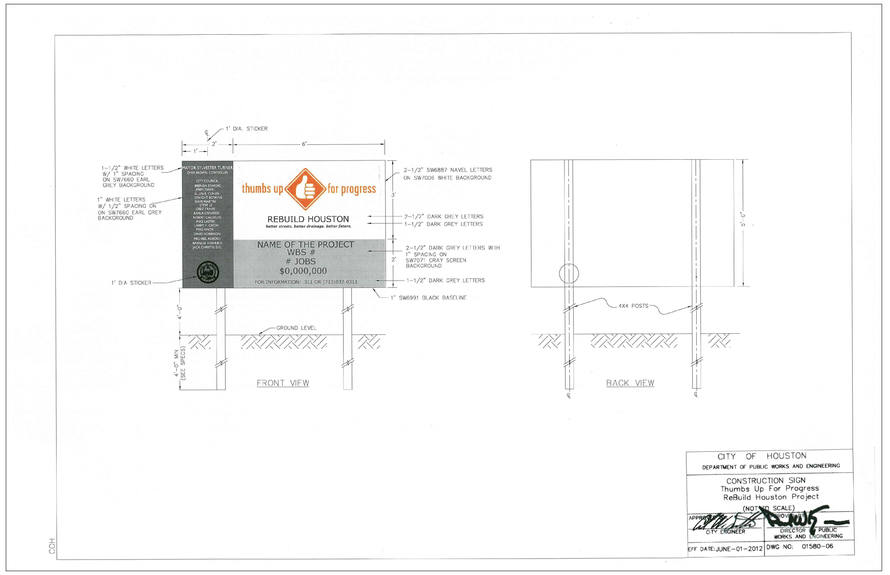
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

WATER DETAILS
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. ~~--GF-~~159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\DETAILS\076- WATER DETAILS SHEET 2 OF 2.DWG JUL. 01, 2026-10:59am

K:\331051-Braesmont\dgn\Details\Misc. Details\02763-01_pavement_marking_details.tif


1" DIA. STICKER
6"
2"
1"
6"
1'-6"
1'-0"
1'-0"
4'-0"
4'-0" MIN (SEE SPECS)
1'-0"
5'
5'-6"
1'-0"
1'-0"
1'-0

MOWERY (NORTH)

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	ROW+10FT	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	DWY. SLOPE @ TIE IN OUTSIDE ROW	COMMENT: OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE	
1	418.67	0.30	39.24	40.47	41.05	11.15	11.00	45.07	10.92	OK		10.0%	10 feet outside ROW
2	357.47	0.30	39.43	40.63	41.44	10.93	11.00	43.49	11.93	OK		12.0%	10 feet outside ROW
3	307.3	0.30	39.58	40.77	41.18	10.84	11.00	42.79	9.15	OK		10.0%	10 feet outside ROW
4	247.22	0.30	39.76	40.80	40.96	9.47	11.00	32.78	5.67	OK		10.0%	10 feet outside ROW
5	192.02	0.30	39.92	40.30		5.24	11.00	7.74		OK	YES	8.0%	
6	140.89	0.30	40.08	40.62		4.93	11.00	5.51		OK		8.0%	
7	87.52	0.30	40.24	40.88		5.84	11.00	6.17		OK		10.0%	
8	31.36	0.30	40.41	41.09		6.22	11.00	8.94		OK	YES	10.0%	
9	22.17	0.42	40.41	40.75		3.12	11.00	4.22		OK		4.0%	
10	79.42	0.42	40.17	40.77		5.49	11.00	3.60		OK	YES	10.0%	
11	131.35	0.42	39.95	40.51		5.11	11.00	6.83		OK		8.0%	
12	191.94	0.42	39.69	40.20		4.61	11.00	3.15		OK	YES	8.0%	
13	242.04	0.42	39.48	40.28	40.92	7.25	11.00	16.53	9.35	OK	YES	10.0%	8 feet outside ROW
14	294.92	0.42	39.26	40.09	40.67	7.55	11.00	18.69	9.06	OK	YES	10.0%	8 feet outside ROW
15	351.27	0.42	39.02	40.00	40.64	8.88	11.00	28.49	9.28	OK		10.0%	10 feet outside ROW
16	411.72	0.42	38.77	39.43		6.01	11.00	7.44		OK		10.0%	
17	121.82	0.49	38.90	39.44		4.92	11.00	5.44		OK		8.0%	
18	64.17	0.49	39.18	39.67		4.43	11.00	4.79		OK	YES	7.0%	
19	7.74	0.49	39.46	39.65	40.42	1.71	11.00	-0.12	6.28	OK		10.0%	5 feet outside ROW
20	50.55	0.34	39.33	39.36	39.76	0.28	11.00	-10.65	2.09	OK		2.0%	10 feet outside ROW
21	89.92	0.31	39.17	39.64		4.27	11.00	6.62		OK		6.0%	
22	27.72	0.31	39.36	39.83		4.24	11.00	6.41		OK	YES	6.0%	
23	24.86	0.45	39.34	39.88		4.92	11.00	8.43		OK	YES	7.0%	
24	79.43	0.45	39.09	39.38		2.60	11.00	6.40		OK		2.0%	
25	132.41	0.45	38.86	39.67	39.88	7.40	11.00	17.57	4.12	OK		10.0%	10 feet outside ROW
26	28.32	0.33	38.96	39.45		4.49	11.00	8.29		OK		6.0%	
27	23.49	0.54	38.92	39.56		5.78	11.00	5.72		OK	YES	10.0%	
28	81.1	0.54	38.62	38.89		2.50	11.00	5.63		OK	YES	2.0%	
29	137.68	0.54	38.31	39.08	39.28	6.98	11.00	14.50	3.63	OK	YES	10.0%	10 feet outside ROW
30	434.66	0.37	38.25	39.15	39.88	8.18	11.00	23.29	9.39	OK	YES	10.0%	10 feet outside ROW
31	377.01	0.37	38.46	39.3	39.76	7.61	11.00	19.15	6.50	OK		10.0%	10 feet outside ROW
32	321.9	0.37	38.67	39.55	39.93	8.04	11.00	22.30	6.21	OK		10.0%	10 feet outside ROW
33	239.45	0.37	38.97	39.4	39.78	3.92	11.00	4.07		OK		6.0%	
34	194.1	0.37	39.14	39.46		2.95	11.00	2.95		OK		4.0%	
35	127.01	0.37	39.38	39.51	39.70	1.16	11.00	-4.17	1.11	OK		2.0%	15 feet outside ROW
36	0	0.37	39.85	39.44	39.47	-3.73	11.00	-43.00	-5.35	!		3.0%	15 feet outside ROW
37	119.4	0.32	39.47	39.68	40.05	1.94	11.00	-7.41	2.25	OK		4.5%	10 feet outside ROW

MOWERY (SOUTH)

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	ROW+10FT	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	DWY. SLOPE @ TIE IN OUTSIDE ROW	COMMENT:OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE	
38	409.82	0.30	39.17	40.14	40.79	8.85	11.00	28.22	9.33	OK		10.0%	10 feet outside ROW
39	349.15	0.30	39.35	40.63	41.61	11.64	11.00	48.72	11.04	OK		10.0%	10 feet outside ROW
40	287.99	0.30	39.53	40.88	41.25	12.24	11.00	53.11	10.15	OK		10.0%	10 feet outside ROW
41	235.06	0.30	39.69	40.63	41.37	8.52	11.00	25.83	9.80	OK		10.0%	10 feet outside ROW
42	173.41	0.30	39.88	40.76	41.56	8.02	11.00	22.12	9.84	OK	covered	10.0%	10 feet outside ROW
43	113.85	0.30	40.05	40.29		2.17	11.00	3.24		OK		2.0%	
44	59.51	0.30	40.22	40.92		6.36	11.00	9.94		OK		6.0%	
45	3.14	0.30	40.39	40.63		2.18	11.00	3.30		OK		2.0%	
46	57.67	0.42	40.16	40.30		1.31	11.00	1.43		OK		0.5%	
47	117.13	0.42	39.90	40.06		1.41	11.00	2.19		OK		0.5%	
48	175.55	0.42	39.66	39.86		1.84	11.00	2.33		OK	covered	1.5%	
49	235.17	0.42	39.41	39.91		4.59	11.00	8.97		OK	covered	6.0%	
50	293.86	0.42	39.16	39.42		2.39	11.00	4.85		OK		2.0%	
51	351.43	0.42	38.91	38.54	39.19	-3.40	11.00	-33.09	1.10	OK		1.1%	10 feet outside ROW
52	113.78	0.35	38.76	39.11		3.18	11.00	4.69		OK		4.0%	
53	60.32	0.35	38.65	39.37		3.84	11.00	3.48		OK	covered	6.0%	
54	7.59	0.35	39.13	39.25	40.12	1.07	11.00	0.28	3.80	OK		10.0%	10 feet outside ROW
55	49.93	0.35	38.98	39.06	39.77	0.69	11.00	-3.13	3.61	OK		10.0%	10 feet outside ROW
56	109.21	0.35	38.78	39.27		4.49	11.00	8.26		OK	covered	6.0%	
57	99.16	0.30	38.81	39.46		5.91	11.00	6.70		OK		10.0%	
58	44.51	0.30	38.98	39.43		4.14	11.00	5.66		OK		6.0%	
59	10.48	0.42	39.07	39.52		4.13	11.00	5.61		OK		6.0%	
60	65.76	0.42	38.93	39.55		4.51	11.00	11.11		OK		10.0%	
61	120.59	0.42	38.60	39.59	40.02	8.98	11.00	29.15	7.54	OK		10.0%	10 feet outside ROW
62	46.66	0.35	38.60	39.73	40.24	10.29	11.00	38.78	9.49	OK		10.0%	10 feet outside ROW
63	11.29	0.35	38.72	39.72	40.31	9.09	11.00	29.98	9.04	OK		10.0%	10 feet outside ROW
64	65.77	0.35	38.53	39.43	40.23	8.19	11.00	23.40	10.01	OK		10.0%	10 feet outside ROW
65	119.38	0.35	38.34	39.34	40.05	9.08	11.00	29.95	10.08	OK	covered	10.0%	10 feet outside ROW
66	188.68	0.34	38.85	39.92	40.36	9.72	11.00	34.61	8.34	OK		10.0%	10 feet outside ROW
67	252.04	0.34	38.63	39.82	39.9	10.80	11.00	42.50	6.24	OK		10.0%	10 feet outside ROW

TAREYTON

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	ROW +10FT	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	DWY. SLOPE @ TIE IN OUTSIDE ROW	COMMENT: OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE	
1	308.55	0.30	39.83	41.58	42.30	10.32	17.00	15.58	10.34	OK		12.0%	10 Feet Outside ROW
2	250.76	0.30	40.00	41.63	42.20	9.57	17.00	13.44	9.38	OK	YES	10.0%	10 Feet Outside ROW
3	190.97	0.30	40.18	41.60		8.37	17.00	10.04		OK		12.0%	
4	130.96	0.30	40.36	41.78		8.37	17.00	10.04		OK		12.0%	
5	71.97	0.30	40.53	41.89		7.97	17.00	10.93		OK		10.0%	
6	7.23	0.30	40.73	41.57		4.95	17.00	6.36		OK		6.0%	
29	300.21	0.30	39.85	41.03		6.94	17.00	7.99		OK		10.0%	
30	240.66	0.30	40.03	41.38		7.94	17.00	10.84		OK	YES	10.0%	
31	188.27	0.30	40.19	41.38		7.02	17.00	8.24		OK	YES	10.0%	
32	126.22	0.30	40.37	41.55		6.90	17.00	7.89		OK	YES	10.0%	
33	74.38	0.30	40.53	41.56		6.08	17.00	5.55		OK		10.0%	
34	14.25	0.30	40.71	41.40		4.07	17.00	3.88		OK	YES	6.0%	
7	45.33	0.41	40.57	41.86		7.61	17.00	9.90		OK	YES	10.0%	
8	99.32	0.41	40.35	41.49		6.73	17.00	7.39		OK		10.0%	
9	160.65	0.41	40.10	41.45		7.95	17.00	10.87		OK	YES	10.0%	
10	212.01	0.41	39.89	41.33		8.45	17.00	10.26		OK	YES	12.0%	
11	273.9	0.41	39.64	41.06		8.37	17.00	10.04		OK	YES	12.0%	
12	334.9	0.41	39.39	40.60		7.12	17.00	8.50		OK		10.0%	
13	398.9	0.41	39.13	40.67		9.06	17.00	12.00		OK		12.0%	
14	448.3	0.41	38.93	40.18		7.36	17.00	9.17		OK		10.0%	
35	46.3	0.41	40.56	41.50		5.52	17.00	7.97		OK		6.0%	
36	100.37	0.41	40.34	41.47		6.60	17.00	7.04		OK		10.0%	
37	160.47	0.41	40.10	41.23		6.66	17.00	7.19		OK		10.0%	
38	224.38	0.41	39.84	41.03		7.01	17.00	8.19		OK		10.0%	
39	277.8	0.41	39.62	40.84		7.16	17.00	8.63		OK		10.0%	
40	335.78	0.41	39.39	40.61		7.20	17.00	8.72		OK		10.0%	
41	395.7	0.41	39.14	39.94		4.69	17.00	5.61		OK		6.0%	
42	450.24	0.41	38.92	40.12		7.05	17.00	8.30		OK		10.0%	
15	366.29	0.35	38.78	39.85		6.27	17.00	6.09		OK		10.0%	
16	311.56	0.35	38.98	40.21		7.25	17.00	8.89		OK		10.0%	
17	251.76	0.35	39.19	40.25		6.26	17.00	6.06		OK		10.0%	
18	197.94	0.35	39.38	40.29		5.38	17.00	7.58		OK		6.0%	
19	140.75	0.35	39.58	40.35		4.55	17.00	5.23		OK	YES	6.0%	
20	83.71	0.35	39.78	40.40		3.67	17.00	4.73		OK	YES	4.0%	
21	30.73	0.35	39.96	40.42		2.66	17.00	2.88		OK		3.0%	
43	370.42	0.35	38.77	39.51		4.35	17.00	4.66		OK		6.0%	
44	309.4	0.35	38.98	40.19		7.09	17.00	8.43		OK	YES	10.0%	
45	255.13	0.35	39.17	39.78		3.56	17.00	2.42		OK		6.0%	
46	198.57	0.35	39.37	39.91		3.16	17.00	4.28		OK		6.0%	
47	142.95	0.35	39.57	39.79		1.30	17.00	1.03		OK	YES	1.0%	
48	87.87	0.35	39.76	40.27		2.99	17.00	3.81		OK	YES	3.0%	
49	31.85	0.35	39.96	40.29		1.95	17.00	2.86		OK		1.0%	
22	24.08	0.52	39.95	40.47		3.09	17.00	4.08		OK	YES	3.0%	
23	75.57	0.52	39.68	40.29		3.59	17.00	3.52		OK		5.0%	
24	140.89	0.52	39.34	40.41		6.26	17.00	6.07		OK	YES	10.0%	
25	193.29	0.52	39.07	40.14		6.29	17.00	6.17		OK		10.0%	
26	244.85	0.52	38.80	40.06		7.39	17.00	9.28		OK		10.0%	
27	298.66	0.52	38.52	39.28		4.44	17.00	4.92		OK		6.0%	
28	353.79	0.52	38.24	39.35		6.53	17.00	6.84		OK		10.0%	
50	25.23	0.52	39.94	40.35		2.41	17.00	2.18		OK		3.0%	
51	80.1	0.52	39.66	40.18		3.08	17.00	4.07		OK		3.0%	
52	141.11	0.52	39.34	40.55		7.12	17.00	8.50		OK	YES	10.0%	
53	191.5	0.52	39.08	40.01		5.48	17.00	7.85		OK		6.0%	
54	246.16	0.52	38.80	38.73	39.20	-0.42	17.00	-4.86	1.15	OK		2.0%	10 Feet Outside ROW
55	305.38	0.52	38.49	38.99		2.94	17.00	3.67		OK		3.0%	
56	367.17	0.52	38.17	39.51		7.88	17.00	10.66		OK		10.0%	

LEITRIM

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	ROW+10FT	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	DWY. SLOPE @ TIE IN OUTSIDE ROW	COMMENT: OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE	
1	53	0.49	41.45	42.15		4.10	17	3.96		OK		6.0%	
2	108.67	0.49	41.18	42.2		5.99	17	5.31		OK		10.0%	
29	77.07	0.54	41.21	42.1		5.22	17	1.11		OK		6.0%	
3	80	0.35	40.96	42.36		8.26	17	9.73		OK		6.0%	
4	29.5	0.59	41.06	42.28		7.15	17	6.59		OK	YES	6.0%	
5	86.8	0.59	40.72	41.87		6.74	17	5.43		OK		6.0%	
6	152.07	0.59	40.34	41.22		5.20	17	7.06		OK	YES	6.0%	
7	73.03	0.35	40.32	40.75		2.51	17	2.45		OK	YES	3.0%	
8	11.83	0.35	40.54	41.55		5.95	17	5.19		OK		10.0%	
30	27.34	0.35	40.48	41.5		5.98	17	5.27		OK	YES	10.0%	
31	49.89	0.53	40.31	41.08		4.51	17	5.10		OK	YES	6.0%	
9	82.23	0.36	40.41	41.99	43.30	9.31	17	12.70	10.90	OK	YES	12.0%	13 Feet Outside ROW
10	15.32	0.36	40.65	41.55		5.32	17	7.41		OK		6.0%	
32	153.85	0.36	40.16	41.45		7.58	17	7.82		OK	YES	6.0%	
33	83.6	0.36	40.40	41.06		3.86	17	3.28		OK		6.0%	
34	20.57	0.36	40.63	40.94		1.84	17	1.55		OK		2.0%	
11	47.53	0.35	40.54	41.49		5.61	17	4.24		OK		10.0%	
12	116.44	0.35	40.30	41.13		4.91	17	6.23		OK	YES	6.0%	
13	169.38	0.35	40.11	41.1		5.80	17	4.77		OK	YES	10.0%	
35	51.47	0.35	40.52	41.4		5.17	17	6.97		OK		6.0%	
36	136.54	0.35	40.23	42.22	42.30	11.72	17	19.54	8.58	OK		10.0%	10 Feet Outside ROW
14	102.42	0.32	40.07	41.34		7.46	17	9.47		OK	YES	10.0%	
15	40.17	0.32	40.27	40.94		3.93	17	3.48		OK		6.0%	
16	18.1	0.59	40.29	40.56		1.57	17	1.79		OK		1.0%	
17	29.03	0.59	39.93	41.45		8.93	17	11.64		OK		10.0%	
37	25.38	0.59	40.25	41.85	42.00	9.41	17	15.01	6.56	OK		10.0%	10 feet Outside ROW
18	129.03	0.59	39.64	41.4	41.80	10.38	17	17.74	9.15	OK		10.0%	10 feet Outside ROW
19	71.15	0.40	39.91	41.34		8.44	17	10.24		OK		10.0%	
20	54.52	0.40	39.97	41.52	42.40	9.11	17	14.13	10.80	OK		12.0%	10 Feet Outside ROW
21	53.2	0.59	39.88	41.21		7.83	17	10.52		OK		10.0%	
22	43.63	0.45	39.75	41.23		8.68	17	10.94		OK		12.0%	
23	59.77	0.31	39.76	41.58	42.80	10.68	17	18.59	11.12	OK		10.0%	15 Feet Outside ROW
24	114.35	0.31	39.60	41.25	43.00	9.73	17	15.91	11.75	OK		12.0%	16 Feet Outside ROW
25	89.91	0.55	39.10	41.29	42.43	12.86	17	24.76	11.93	OK		12.0%	15 Feet Outside ROW
26	39.79	0.55	39.38	41.28	42.50	11.17	17	19.99	10.95	OK		12.0%	15 Feet Outside ROW
27	29.22	0.30	39.51	41.04		8.99	17	11.79		OK		12.0%	
28	90.16	0.30	39.33	41.40	42.65	12.18	17	22.84	11.91	OK		12.0%	15 Feet Outside ROW

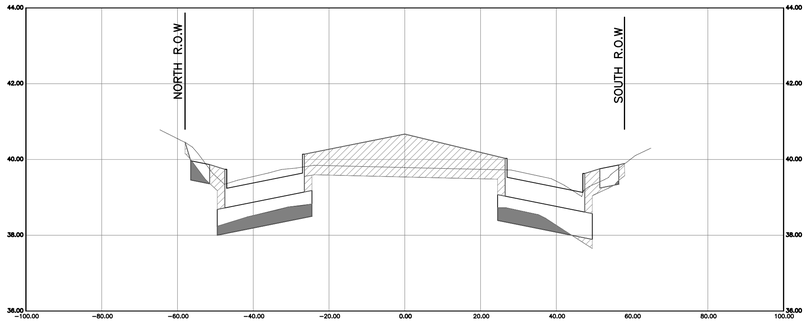
DUANE

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	COMMENT: OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE
16	15.12	0.88	39.62	40.13	3.00	17	3.83	OK		3.0%
33	34.37	1.14	39.40	40.45	6.18	17	5.83	OK		10.0%
34	23.03	0.67	39.61	40.11	2.91	17	3.59	OK	YES	6.0%
35	87.6	0.67	39.18	40.02	4.95	17	6.35	OK		6.0%
36	57.45	0.30	39.23	40.07	4.96	17	6.37	OK		6.0%
37	6.48	0.30	39.38	39.87	2.88	17	3.49	OK	YES	3.0%
17	33.97	0.82	39.12	39.98	5.05	17	6.63	OK		6.0%
38	53.08	0.82	38.97	39.26	1.73	17	1.24	OK		2.0%
39	110.44	0.82	38.50	39.74	7.32	17	9.07	OK		10.0%
40	123.34	0.32	38.35	39.87	8.94	17	11.65	OK		12.0%
41	64.8	0.55	38.40	39.38	5.79	17	8.73	OK		6.0%
42	8.14	0.55	38.71	39.39	4.03	17	3.74	OK		6.0%
43	46.5	0.55	38.50	38.95	2.67	17	2.90	OK		3.0%
44	130.58	0.35	38.20	39.43	7.23	17	8.83	OK		10.0%
45	31.79	0.35	38.55	39.13	3.42	17	5.03	OK		3.0%
46	30.51	0.80	38.42	39.48	6.26	17	8.08	OK		8.0%
47	89.9	0.80	37.94	39.40	8.59	17	10.68	OK		12.0%

TAVENOR

DRIVEWAY NO.	DISTANCE TO HIGH POINT	STREET SLOPE	PROP.GUTTER	EXIST ROW	PROP SLOPE DRIVEWAY WITHOUT S/W	DIST. FROM ROW TO GUTTER	DWY. SLOPE @ ROW	COMMENT: OK=UNDER12%, !=OVER12%	COVERED PARKING	BEGINNING SLOPE	
1	333.72	0.31	40.02	41.40	8.11	17	11.30	OK		10.0%	
2	270.58	0.31	40.22	41.44	7.18	17	8.67	OK	YES	10.0%	
3	214.93	0.31	40.39	41.46	6.27	17	6.09	OK		10.0%	
4	155.79	0.31	40.58	41.71	6.64	17	7.16	OK		10.0%	
5	91.75	0.31	40.78	41.85	6.28	17	6.14	OK		10.0%	
6	32.71	0.31	40.97	41.97	5.90	17	5.05	OK	YES	10.0%	
27	324.72	0.31	40.05	41.11	6.24	17	6.00	OK		10.0%	
28	262.46	0.31	40.25	41.67	8.38	17	10.07	OK	YES	12.0%	
29	208.82	0.31	40.41	41.58	6.86	17	7.77	OK		10.0%	
30	147.61	0.31	40.61	41.75	6.73	17	7.39	OK		10.0%	
31	85.57	0.31	40.80	41.46	3.88	17	3.31	OK		6.0%	
32	25.35	0.31	40.99	41.93	5.53	17	7.99	OK	YES	6.0%	
7	28.72	0.36	40.97	41.64	3.95	17	3.54	OK		6.0%	
8	94.62	0.36	40.73	41.66	5.45	17	7.78	OK	YES	6.0%	
9	153.37	0.36	40.52	41.40	5.15	17	6.94	OK		6.0%	
10	210.04	0.36	40.32	41.31	5.81	17	4.80	OK		10.0%	
11	278.48	0.36	40.08	41.19	6.54	17	6.87	OK		10.0%	
12	338.41	0.36	39.86	40.86	5.86	17	4.92	OK		10.0%	
13	401.69	0.36	39.64	40.90	7.42	17	9.35	OK	YES	10.0%	
33	42.38	0.36	40.92	41.74	4.83	17	6.02	OK	YES	6.0%	
34	103.17	0.36	40.70	41.50	4.69	17	5.62	OK		6.0%	
35	165.07	0.36	40.48	41.02	3.16	17	2.30	OK		5.0%	
36	224.9	0.36	40.27	40.80	3.12	17	2.18	OK		5.0%	
37	283.72	0.36	40.06	40.70	3.77	17	3.01	OK	YES	6.0%	
38	342.2	0.36	39.85	41.03	6.93	17	7.98	OK	YES	10.0%	
39	403.22	0.36	39.63	40.82	6.98	17	8.10	OK	YES	10.0%	
14	310.39	0.31	39.50	40.24	4.38	17	4.74	OK		6.0%	
15	250.15	0.31	39.68	40.64	5.64	17	4.32	OK	YES	10.0%	
16	187.08	0.31	39.87	40.72	4.97	17	6.42	OK		6.0%	
17	134	0.31	40.04	40.72	4.01	17	3.70	OK		6.0%	
18	88.34	0.31	40.18	40.82	3.77	17	3.03	OK		6.0%	
19	68.97	0.31	40.24	40.81	3.37	17	3.87	OK	YES	4.0%	
40	307.67	0.31	39.50	40.15	3.80	17	3.10	OK		6.0%	
41	248.67	0.31	39.69	40.55	5.09	17	6.74	OK		6.0%	
42	189.8	0.31	39.87	40.75	5.20	17	7.06	OK	YES	6.0%	
43	131.97	0.31	40.04	40.75	4.15	17	4.10	OK		6.0%	
44	21.29	0.31	40.38	40.87	2.86	17	2.42	OK		4.0%	
45	2.52	0.31	40.44	41.03	3.46	17	2.13	OK		6.0%	
20	34.19	0.36	40.33	40.58	1.49	17	1.55	OK		1.0%	
21	58.19	0.36	40.24	40.69	2.64	17	2.82	OK		3.0%	
22	119.4	0.36	40.02	40.53	2.99	17	3.81	OK		3.0%	
23	188.21	0.36	39.77	40.83	6.21	17	5.93	OK	YES	10.0%	
24	254.38	0.36	39.54	40.62	6.37	17	6.39	OK	YES	10.0%	
25	314.05	0.36	39.32	40.73	8.28	17	11.79	OK	YES	10.0%	
25A	385	0.36	39.07	40.50	8.43	17	10.21	OK		12.0%	
26	423.54	0.36	38.93	39.93	5.89	17	5.01	OK		10.0%	
46	63.1	0.36	40.22	40.81	3.45	17	3.11	OK		5.0%	
47	128.17	0.36	39.99	40.56	3.35	17	2.84	OK		5.0%	
48	193.05	0.36	39.76	40.38	3.67	17	3.72	OK		5.0%	
49	262.1	0.36	39.51	40.36	5.01	17	7.52	OK	YES	5.0%	
50	317.87	0.36	39.31	40.83	8.95	17	11.69	OK	YES	12.0%	
51	414.42	0.36	38.96	40.18	7.17	17	8.64	OK		10.0%	
52	435.34

6+35.00



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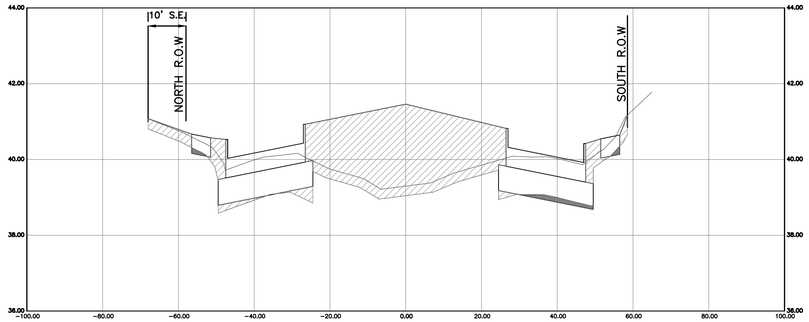

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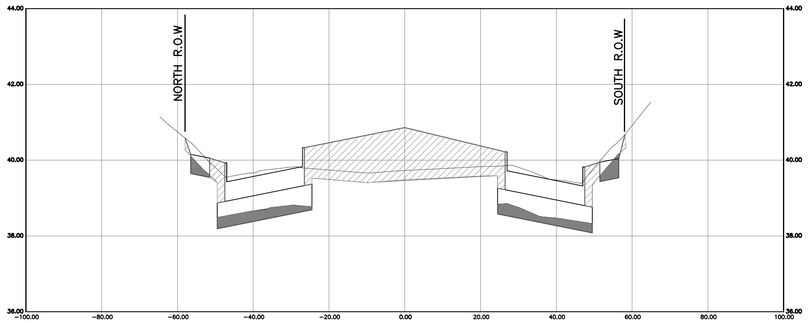

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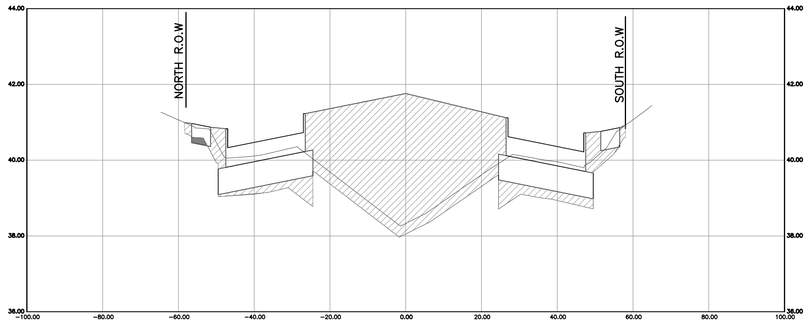
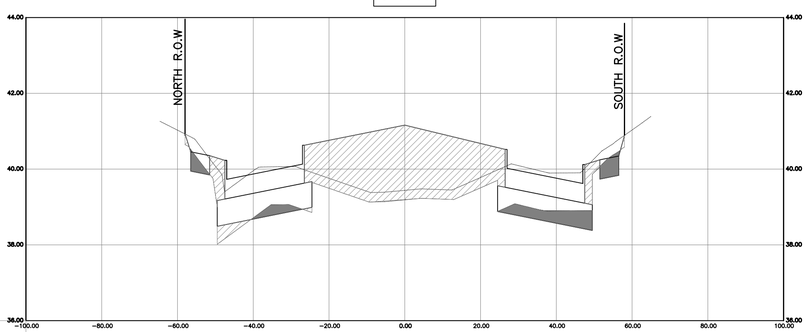


LEGEND

CUT

FILL

8+00.00



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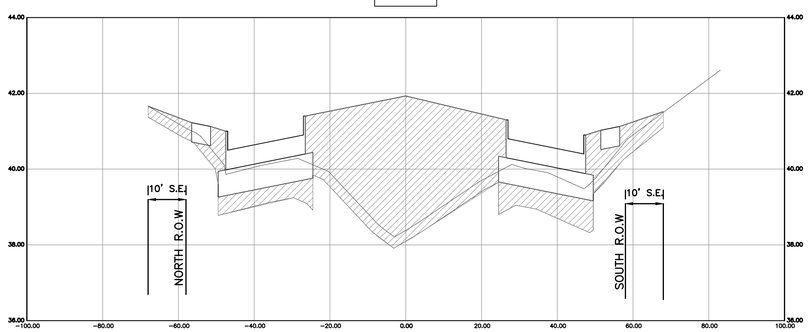

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THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

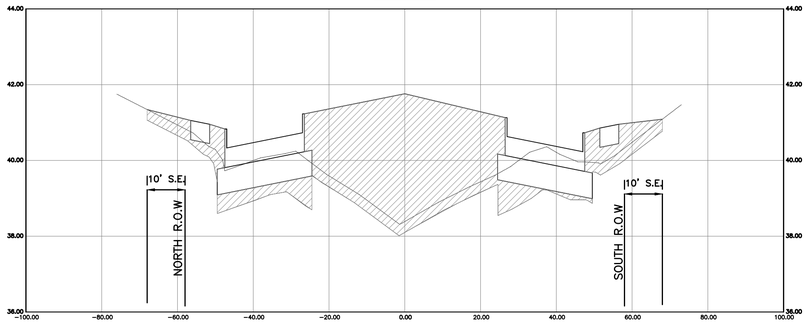
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
MOWERY ROAD
SHEET 1 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\127- CROSS SECTIONS MOWERY ROAD SHEET 1 OF 6.DWG JUL 01, 2026-11:05am

11+00.00



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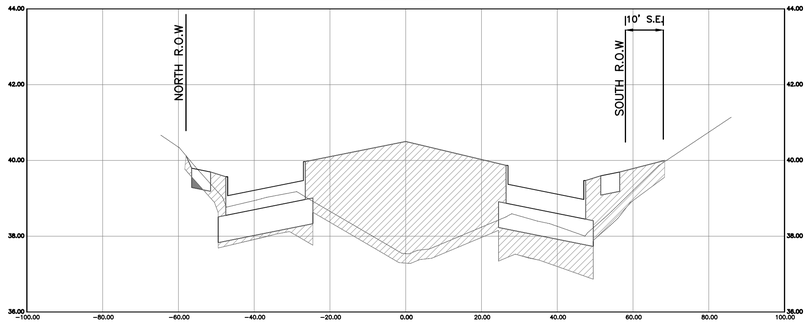

12+00.00

DONEGAL WAY
14+88.00

LEGEND

CUT

FILL

13+00.00

16+00.00

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\128- CROSS SECTIONS MOWERY ROAD SHEET 2 OF 6.DWG JUL. 01, 2026-11:05am

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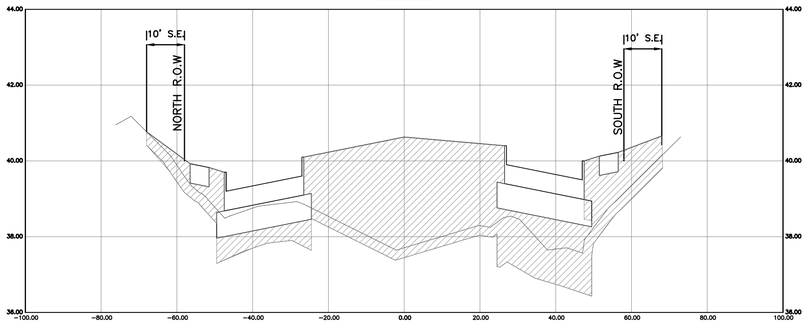
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
MOWERY ROAD
SHEET 2 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

16+50.00



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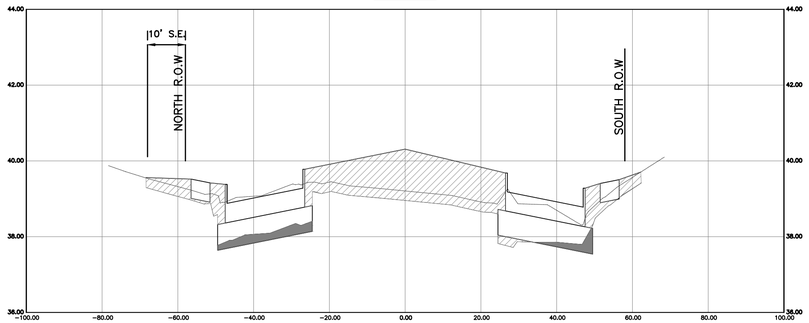

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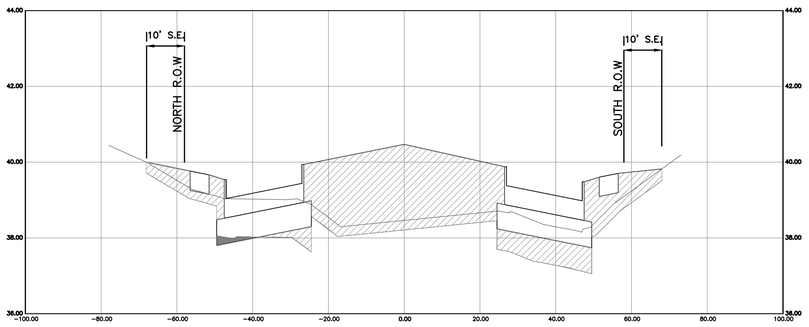

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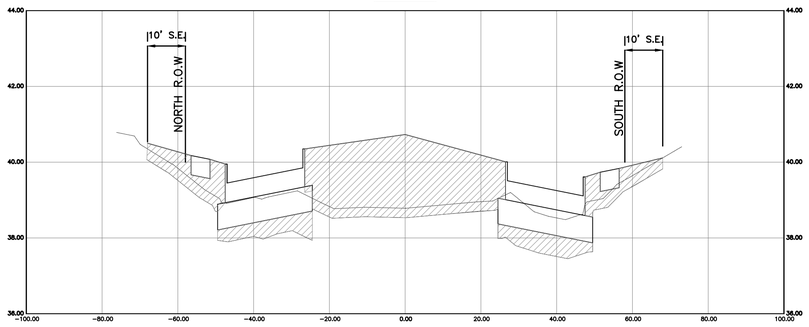


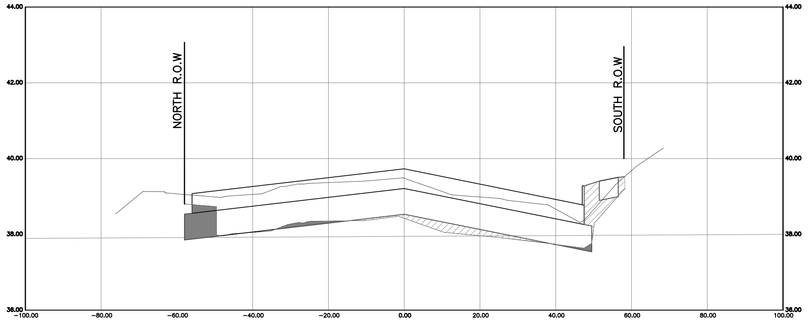
LEGEND

CUT

FILL

RUBIN ST.

17+78.00



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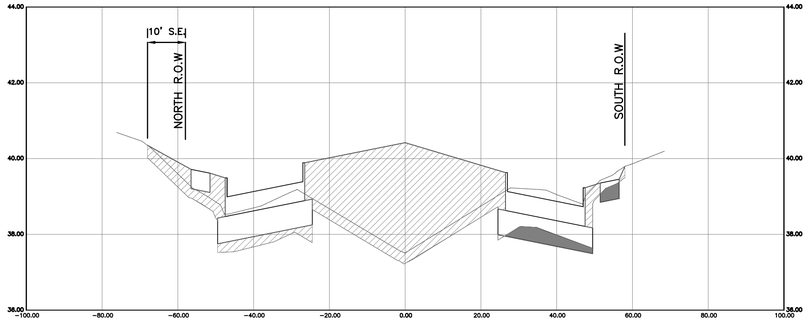

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

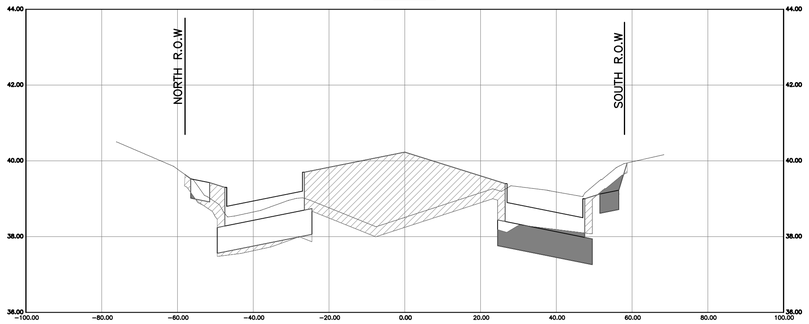
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
MOWERY ROAD
SHEET 3 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\129- CROSS SECTIONS MOWERY ROAD SHEET 3 OF 6.DWG JUL. 01, 2026-10:58am

20+55.00



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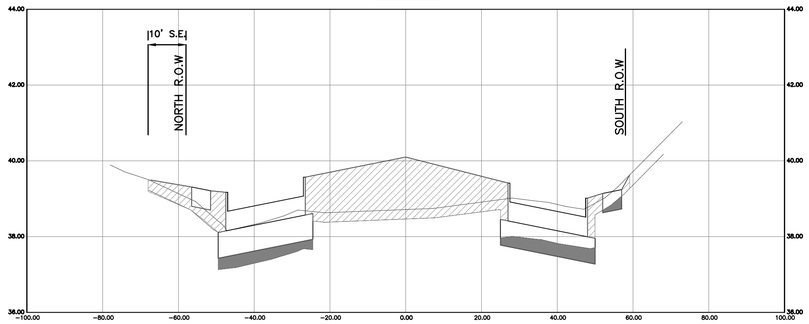

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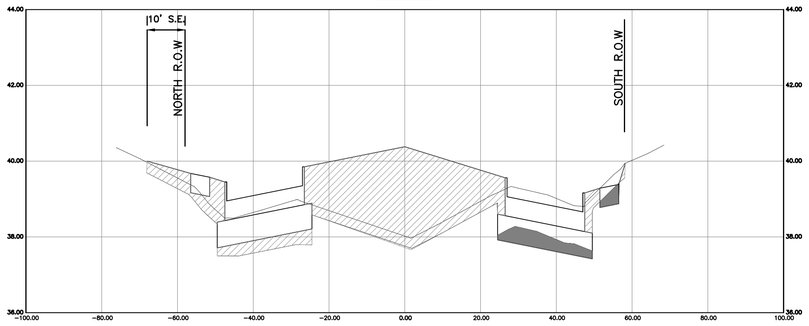

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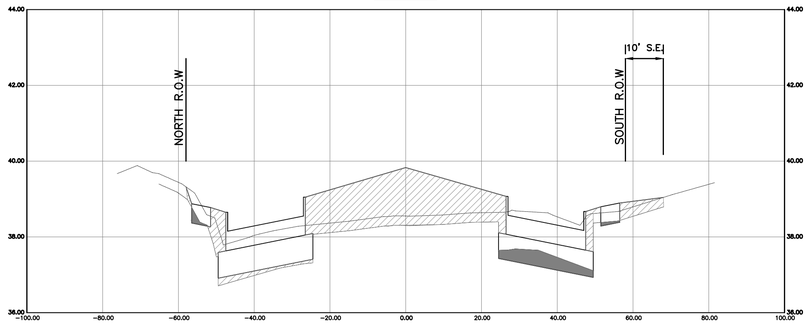
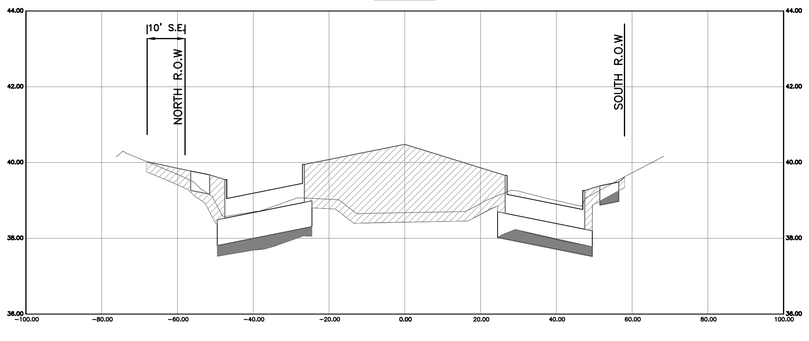


LEGEND

CUT

FILL

21+30.00



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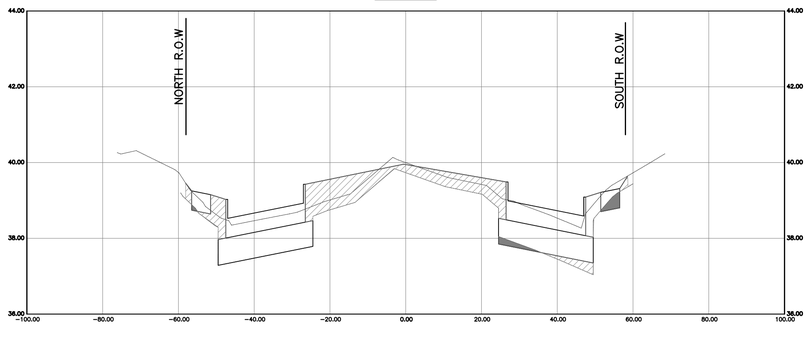

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

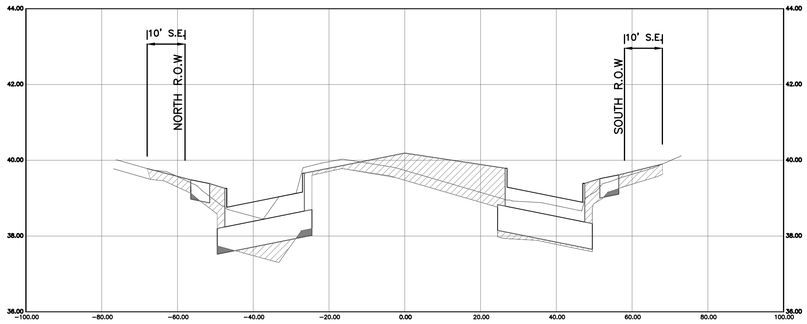
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
MOWERY ROAD
SHEET 4 OF 6

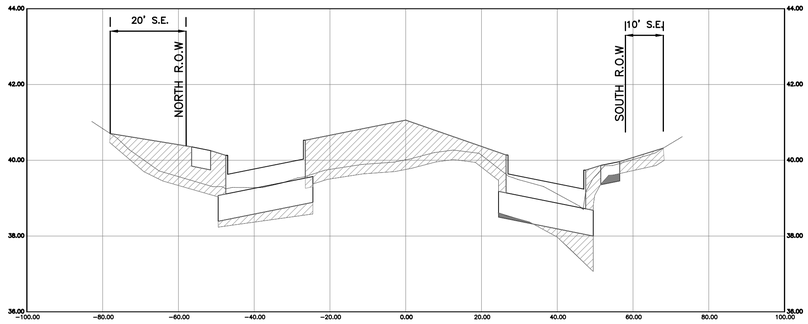
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\130- CROSS SECTIONS MOWERY ROAD SHEET 4 OF 6.DWG JUL. 01, 2026-10:37am

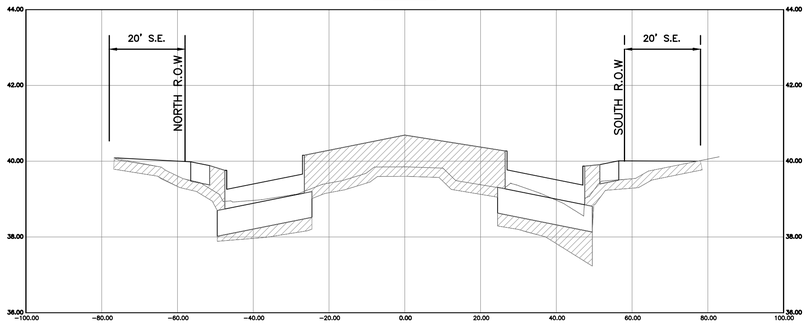
25+00.00



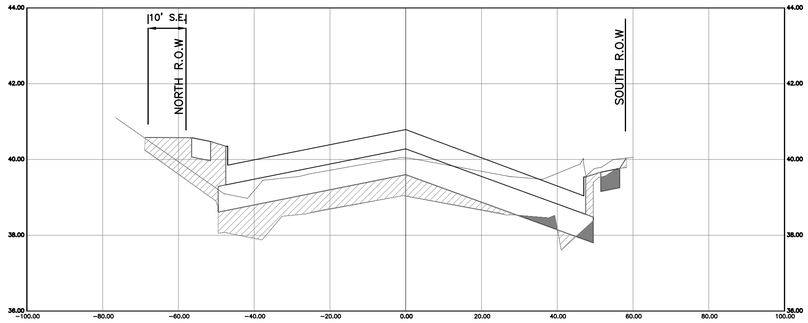
27+00.00



26+00.00



27+60.00

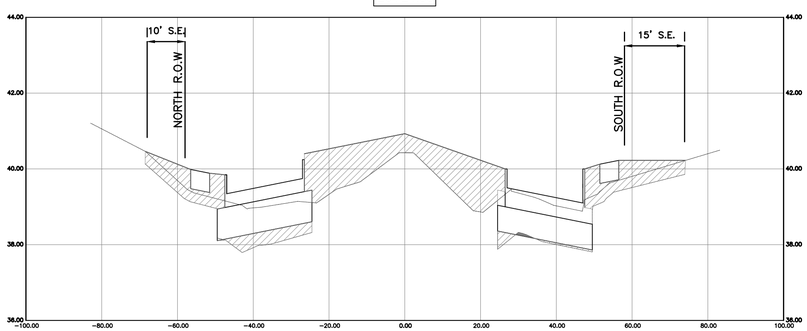


LEGEND

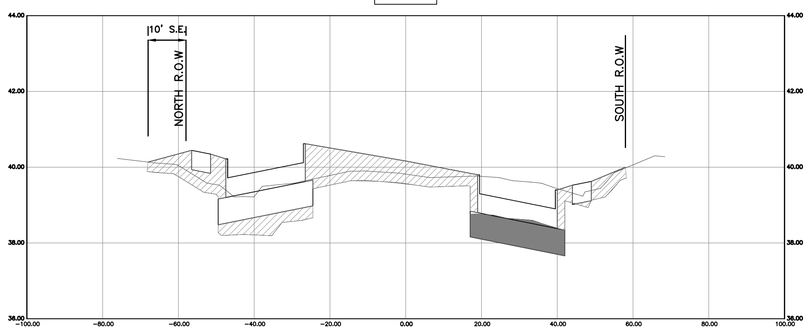
CUT

FILL

26+24.00



28+00.00



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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

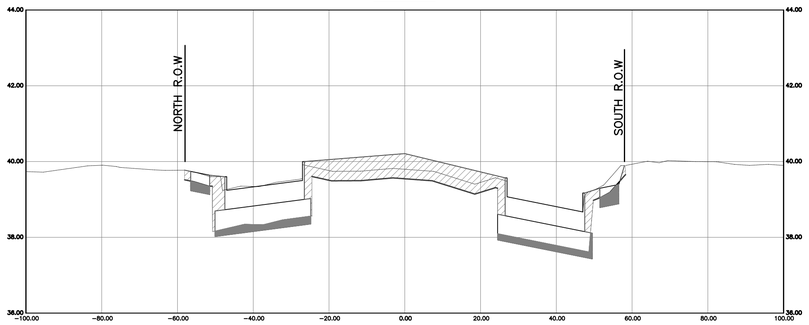
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
MOWERY ROAD
SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\31- CROSS SECTIONS MOWERY ROAD SHEET 5 OF 6.DWG JUL 01, 2026-10:48am

29+00.00



LEGEND

CUT

FILL

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\132- CROSS SECTIONS MOWERY ROAD SHEET 6 OF 6.DWG JUL. 01, 2026-11:07am

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HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

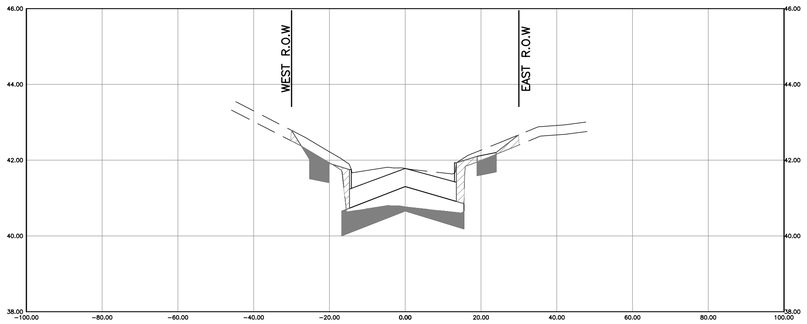
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

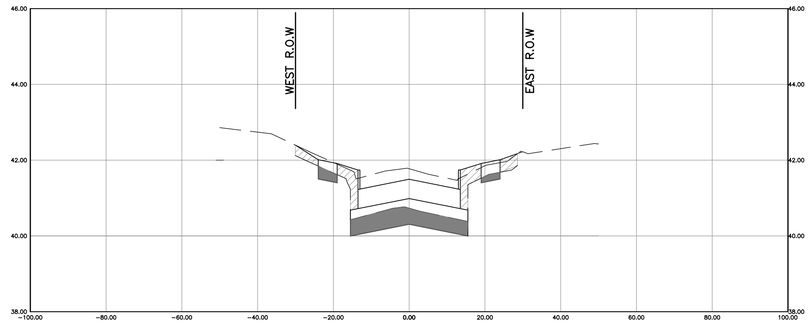
CROSS SECTIONS
MOWERY ROAD
SHEET 6 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

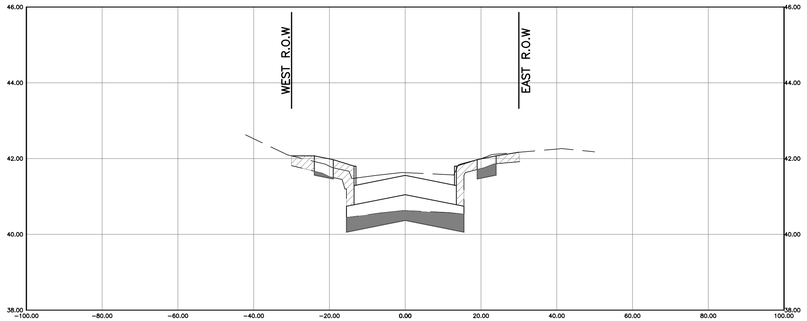
3+35.00



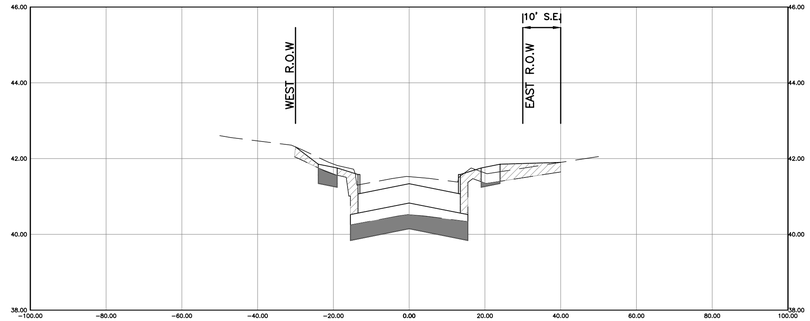
5+73.00



4+00.00

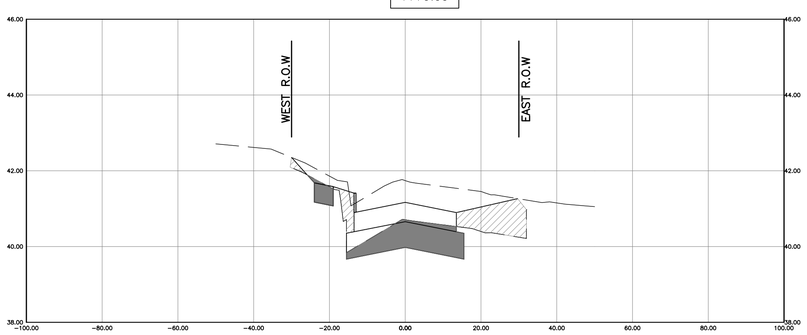


6+00.00

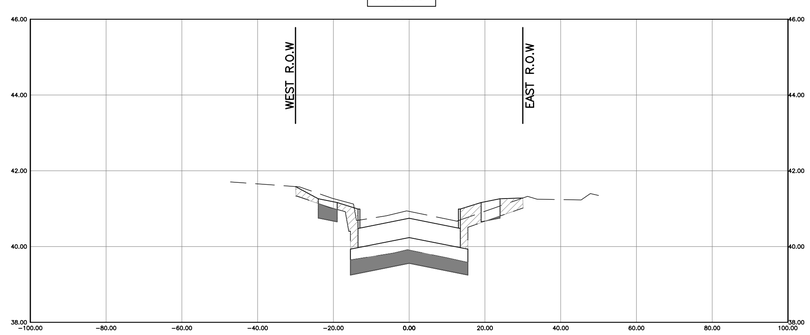


FAIRGREEN LN.

4+79.00



7+00.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

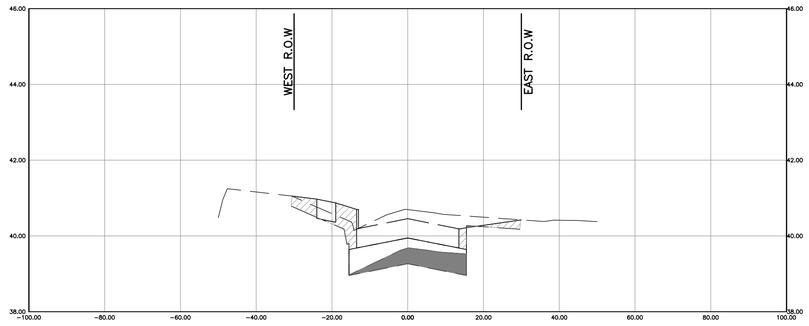
CROSS SECTIONS
LEITRIM WAY
SHEET 1 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

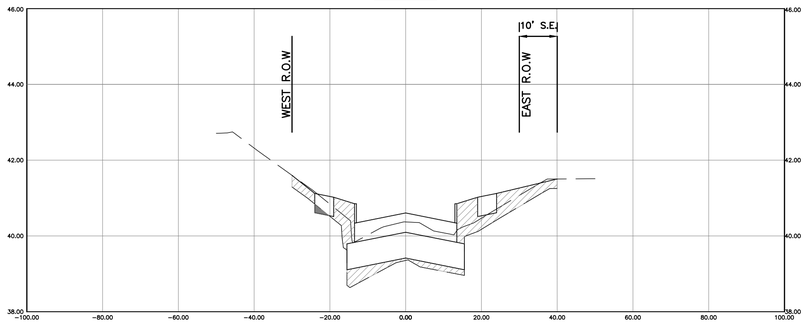
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\133- CROSS SECTIONS LEITRIM WAY SHEET 1 OF 6.DWG JUL. 01, 2026-11:03am

HICKOK LN.

7+48.00



9+00.00



8+00.00

HICKOK LN.

9+46.00

LEGEND

CUT

FILL

8+56.00

10+00.00

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TRW ENGINEERS, INC.
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HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
LEITRIM WAY
SHEET 2 OF 6

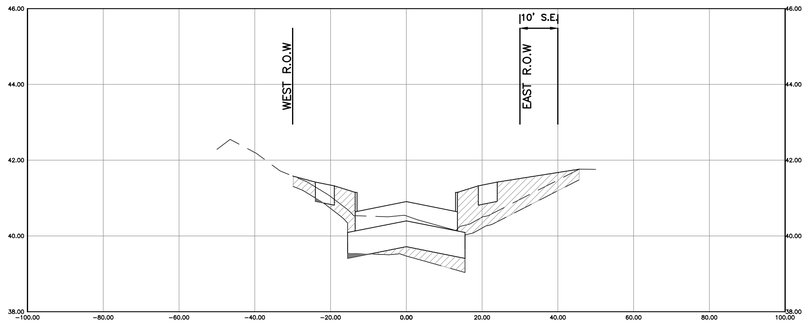
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\134- CROSS SECTIONS LEITRIM WAY SHEET 2 OF 6.DWG JUL. 01, 2026-11:01am

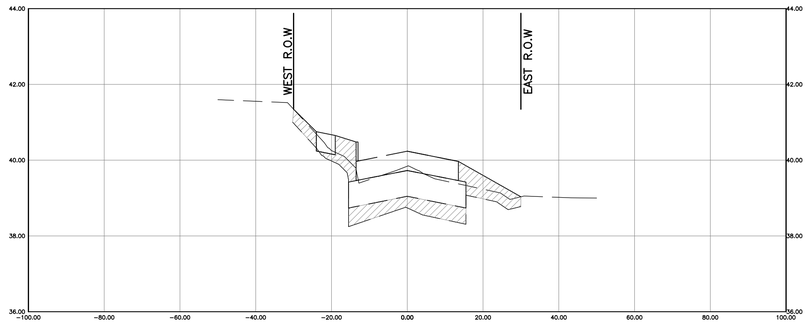
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\135- CROSS SECTIONS LEITRIM WAY SHEET 3 OF 6.DWG JUL. 01, 2026-11:00am

MADDEN LN.

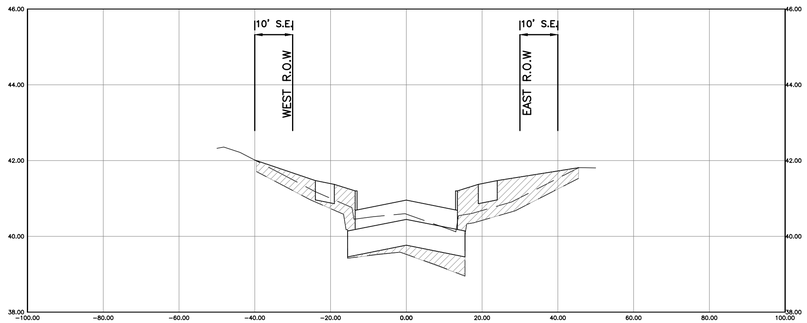
11+00.00



13+23.00



11+15.00



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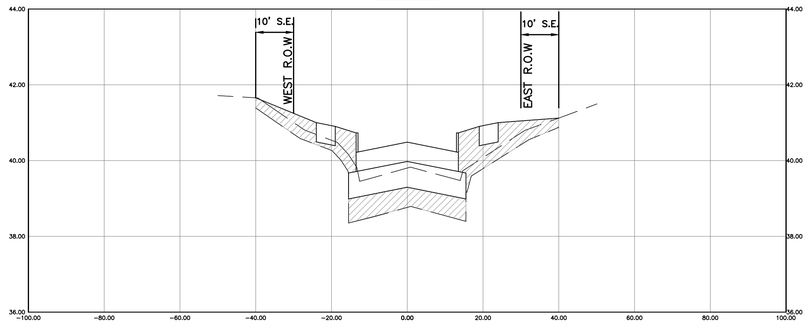
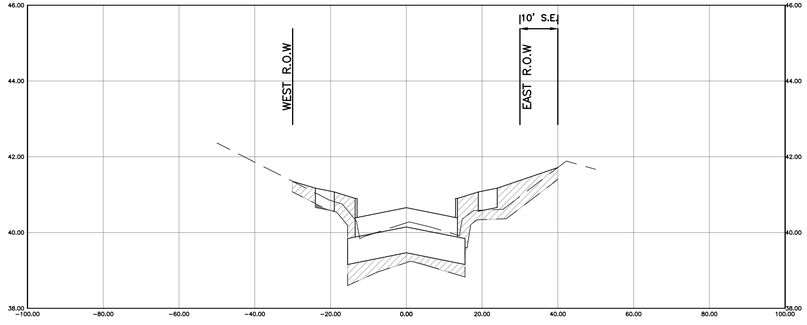


LEGEND

CUT

FILL

12+00.00



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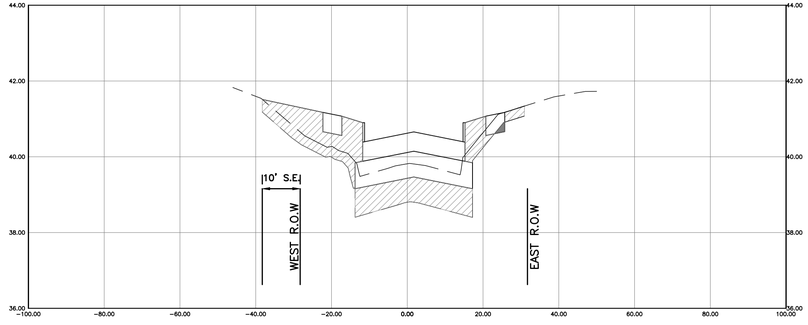

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

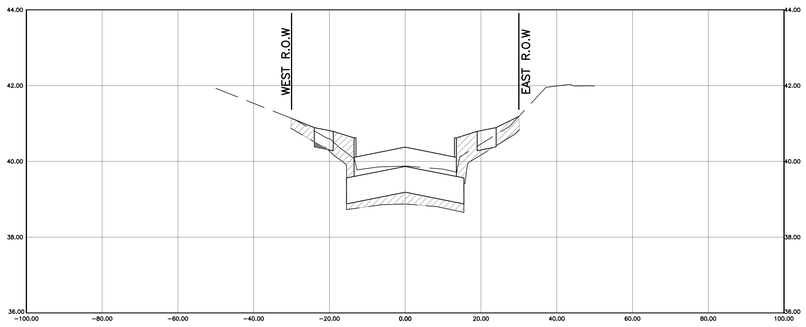
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

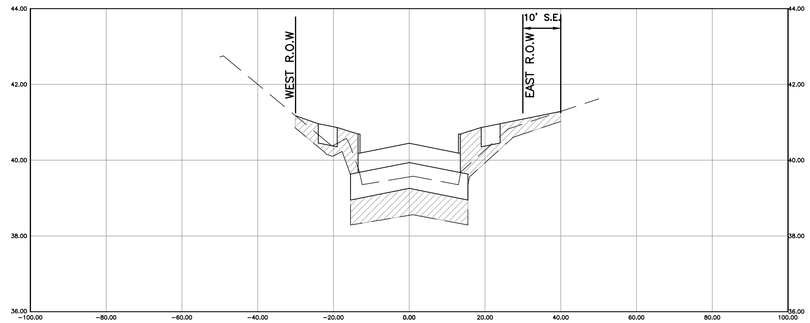
CROSS SECTIONS
LEITRIM WAY
SHEET 3 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

15+00.00

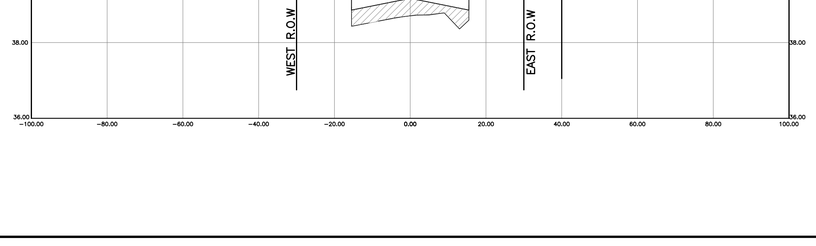


17+24.00

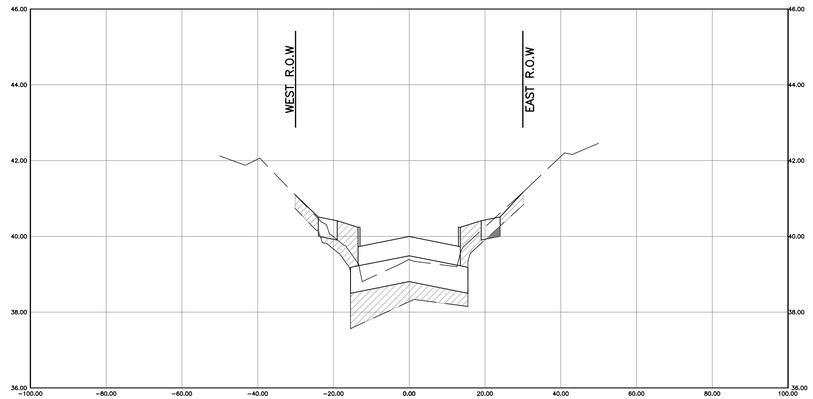


TAVENOR LN.

15+84.00



18+00.00

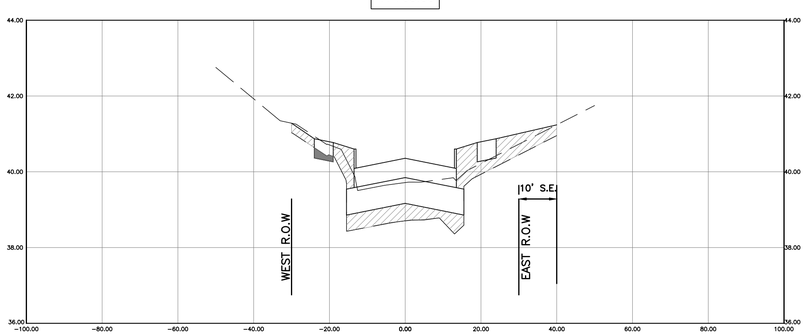


LEGEND

CUT

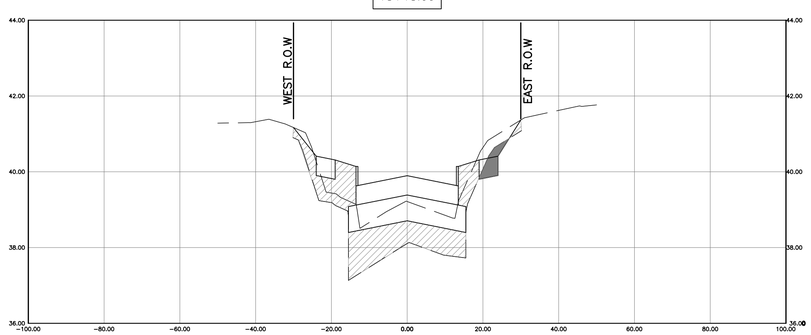
FILL

17+00.00



BOTANY LN.

18+18.00



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Tel. 713.784.4466
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HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB−PROJECT 1

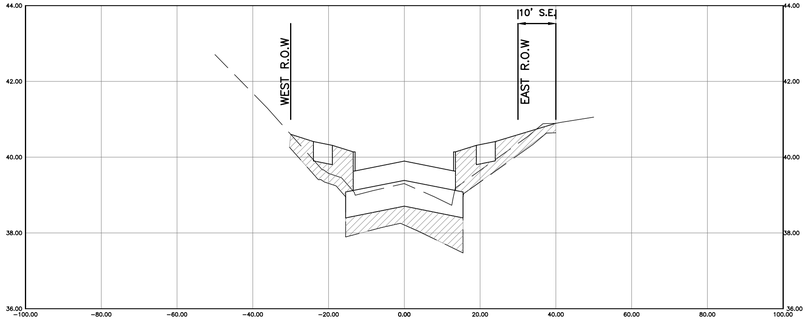
CROSS SECTIONS
LEITRIM WAY
SHEET 4 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N−210004−0001−4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.−−−OF 159	

K:\331052−CLOVERLAND AREA P&D−COH FY15\DWG\DESIGN DRAWINGS\SUB−PROJECT−1\CROSS SECTIONS\136− CROSS SECTIONS LEITRIM WAY SHEET 4 OF 6.DWG JUL. 01, 2026−10:59am

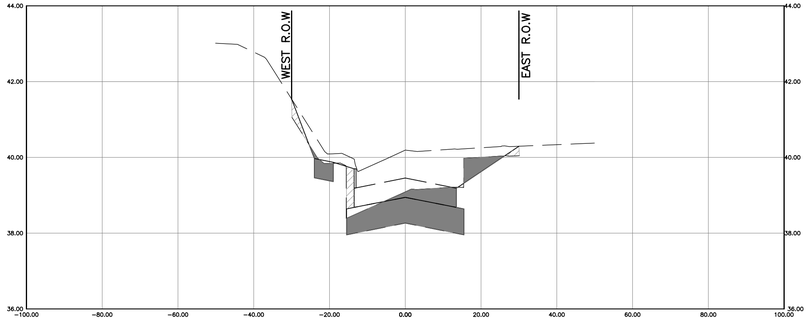
BOTANY LN.

18+98.00

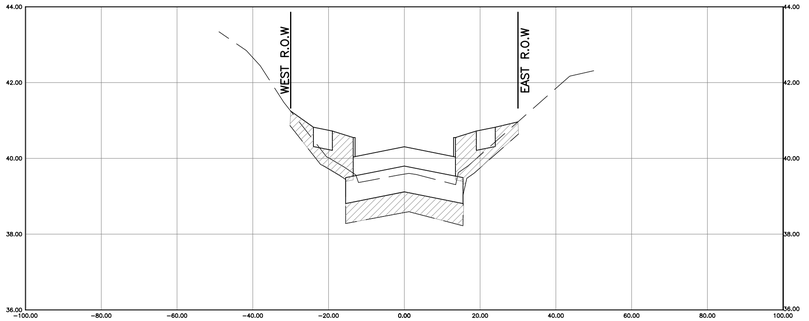


TAREYTON LN.

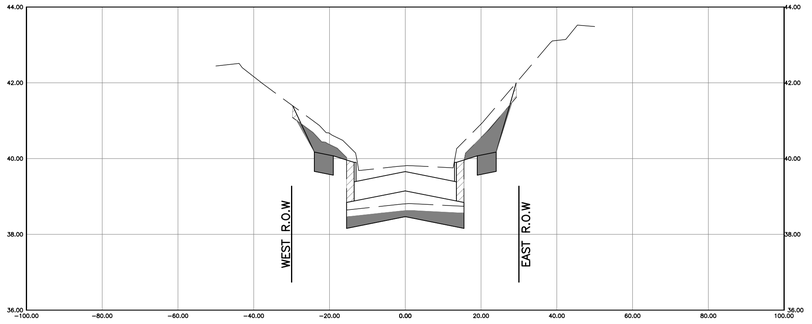
21+34.00



19+98.00



22+00.00

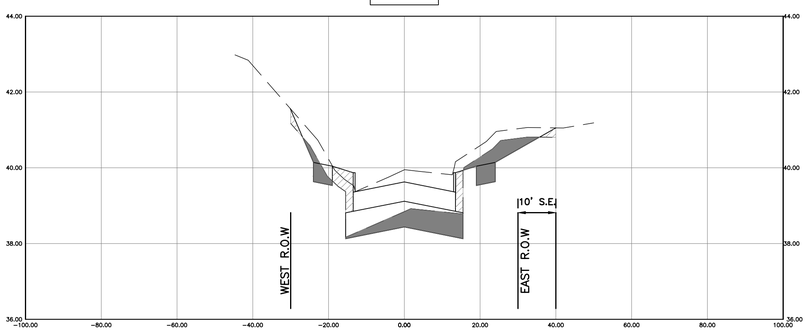


LEGEND

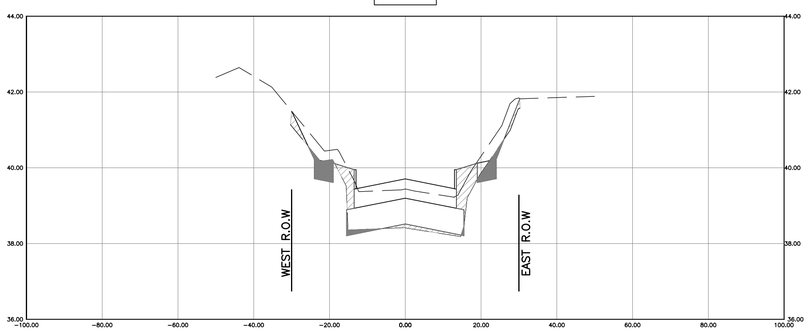
CUT

FILL

21+00.00



22+68.00



THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

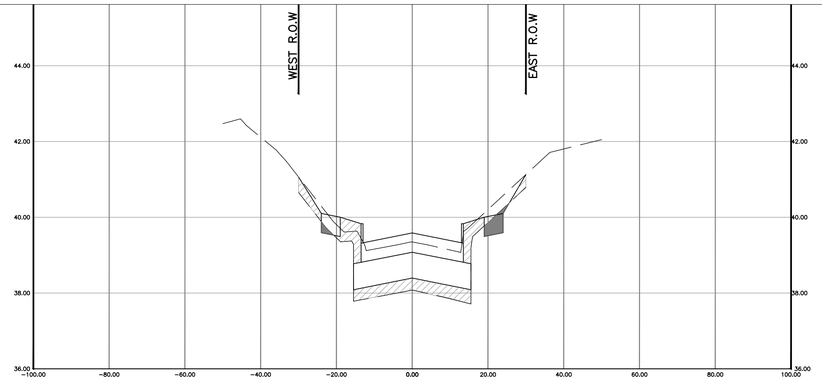
HOUSTON PUBLIC WORKS

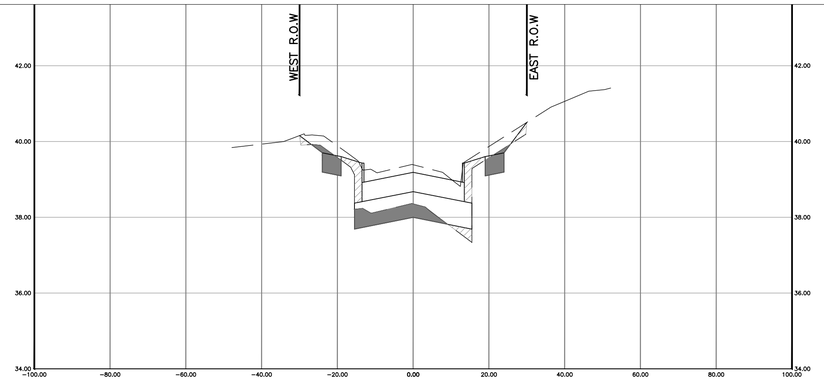
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
LEITRIM WAY
SHEET 5 OF 6

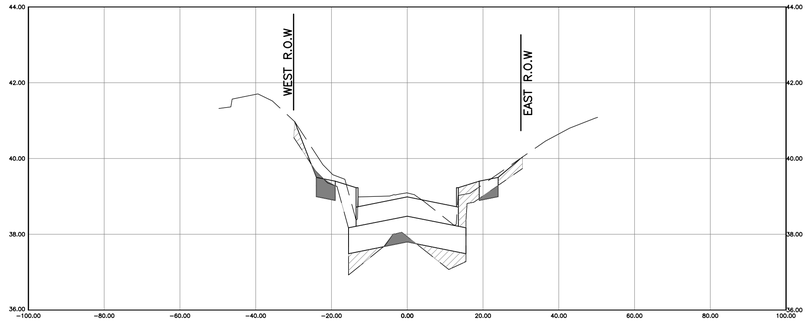
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\137- CROSS SECTIONS LEITRIM WAY SHEET 5 OF 6.DWG JUL. 01, 2026-10:43am

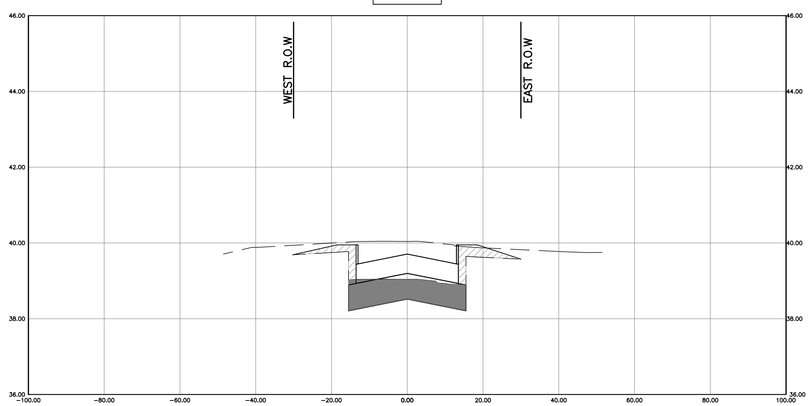




23+73.00



MOWERY RD.
24+40.00



LEGEND

CUT

FILL

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

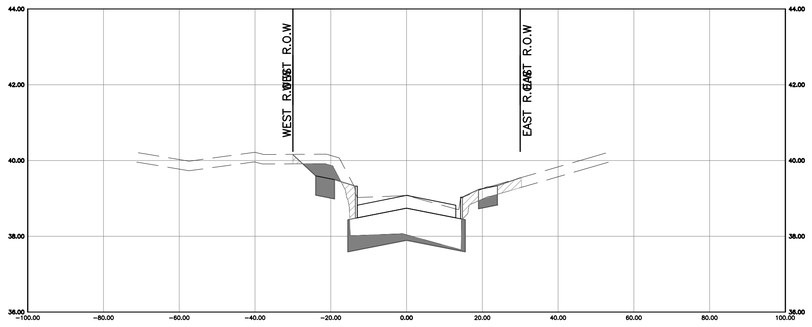
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
LEITRIM WAY
SHEET 6 OF 6

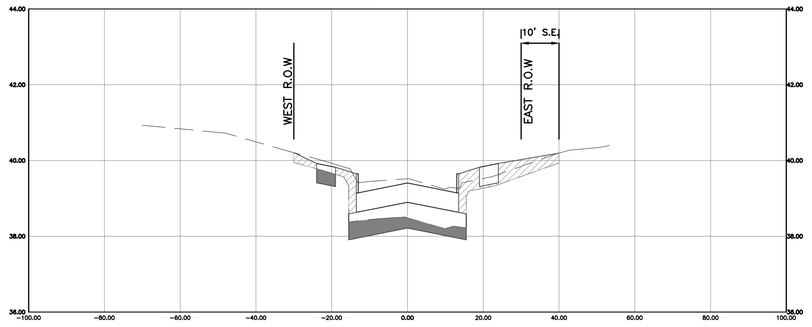
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\138- CROSS SECTIONS LEITRIM WAY SHEET 6 OF 6.DWG JUL. 01, 2026-10:48am

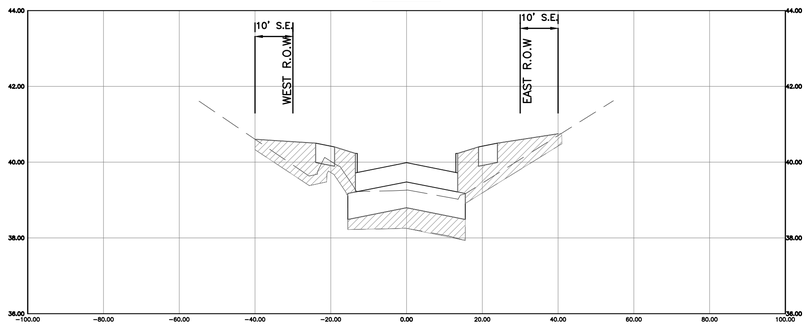
14+28.50



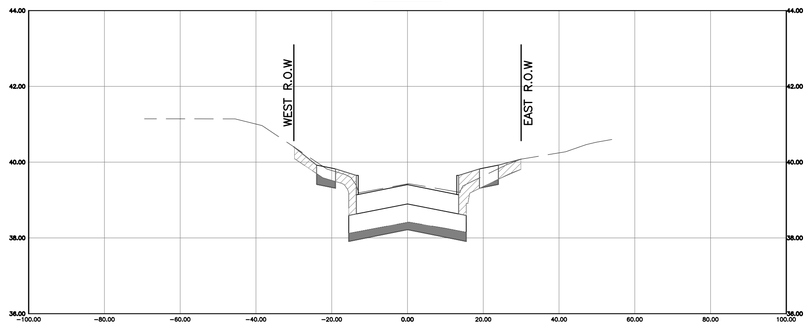
TAVENOR LN.
15+78.00



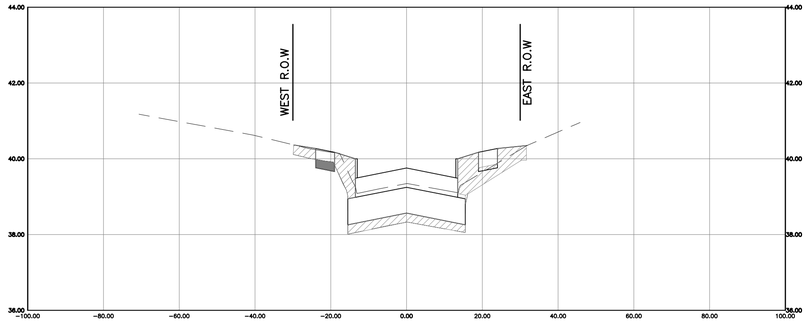
14+78.50



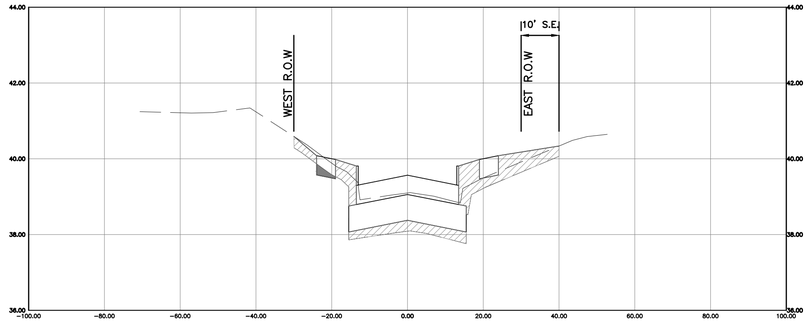
TAVENOR LN.
16+50.00



15+00.00



17+00.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

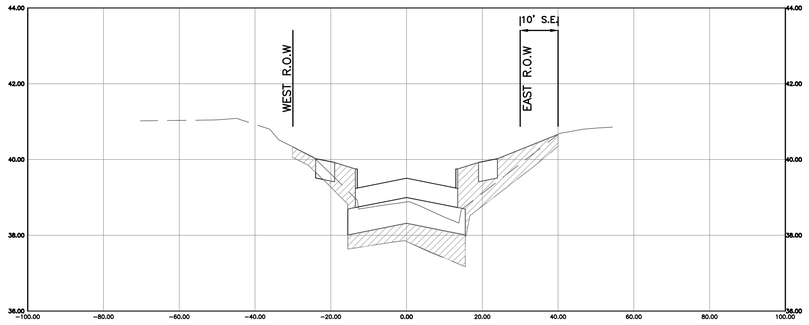
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
DONEGAL WAY
SHEET 1 OF 3

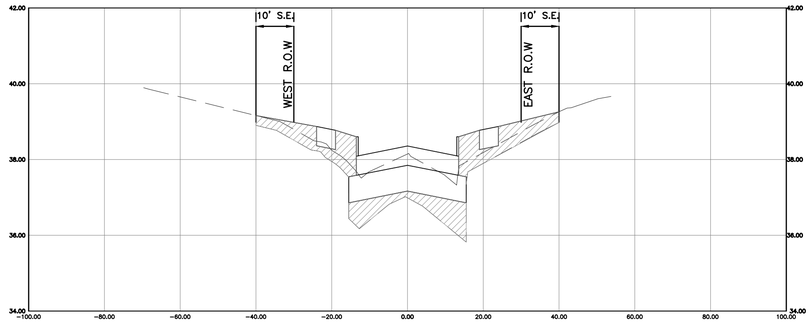
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\139- CROSS SECTIONS DONEGAL WAY SHEET 1 OF 3.DWG JUL 01, 2026-10:58am

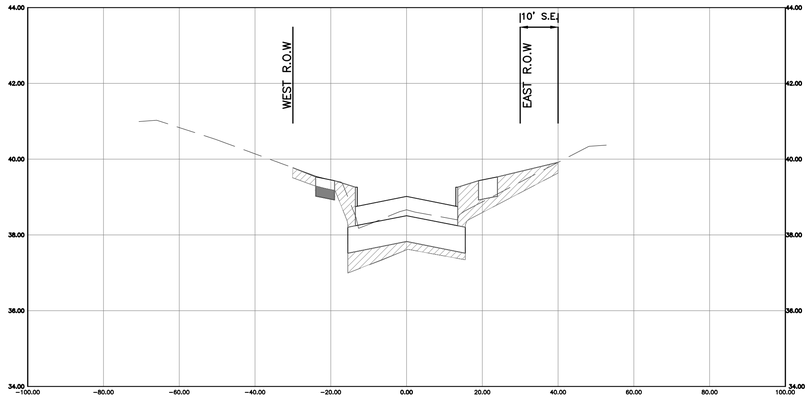
17+47.00



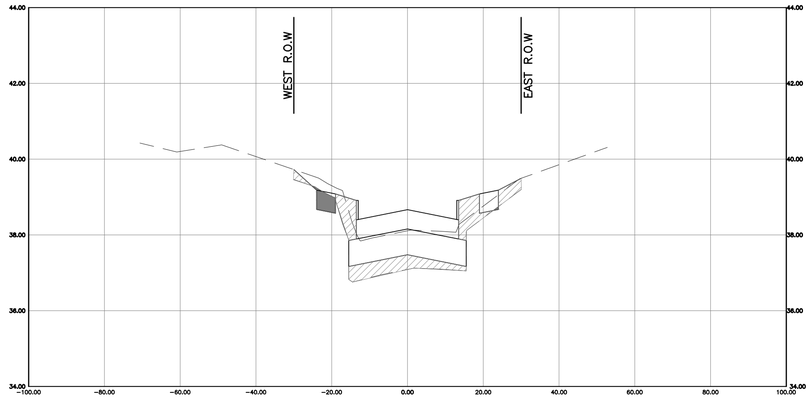
BOTANY LN.
19+22.00



18+00.00



20+00.00

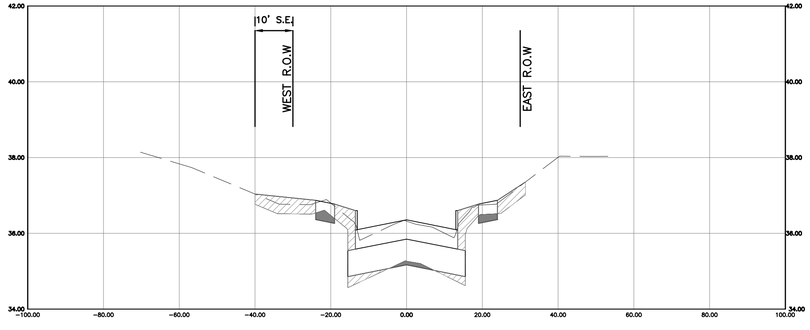


LEGEND

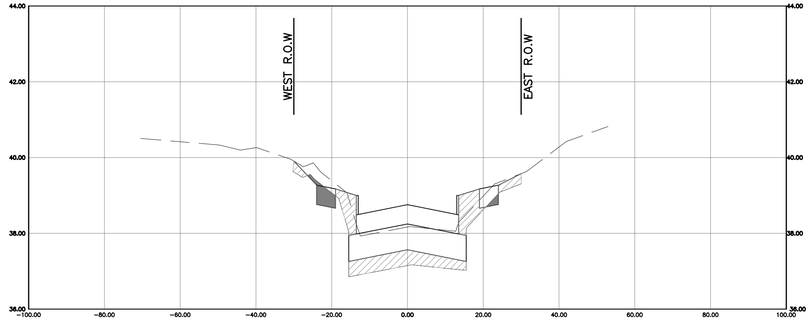
CUT

FILL

BOTANY LN.
18+50.00



20+23.00



K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\140- CROSS SECTIONS DONEGAL WAY SHEET 2 OF 3.DWG JUL 01, 2026-10:59am

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

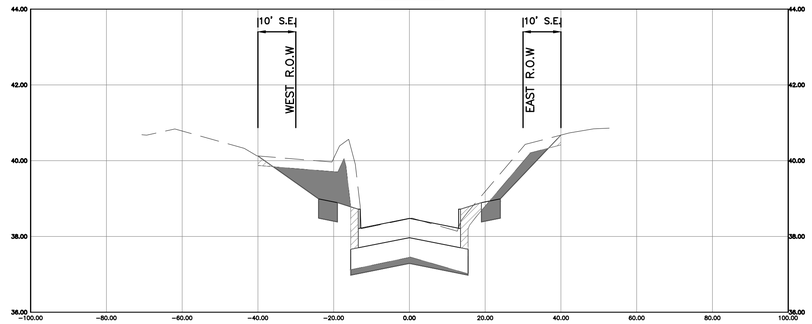
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

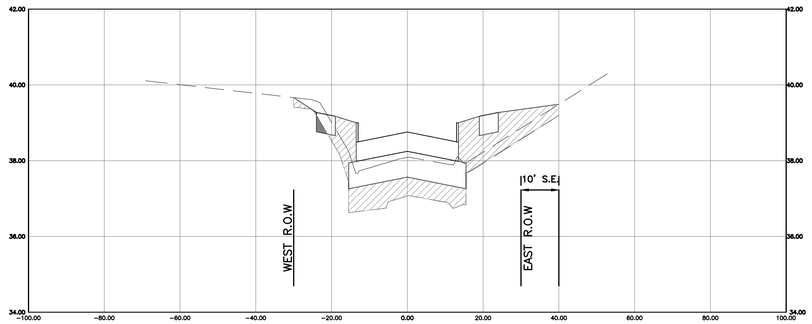
CROSS SECTIONS
DONEGAL WAY
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

21+00.00

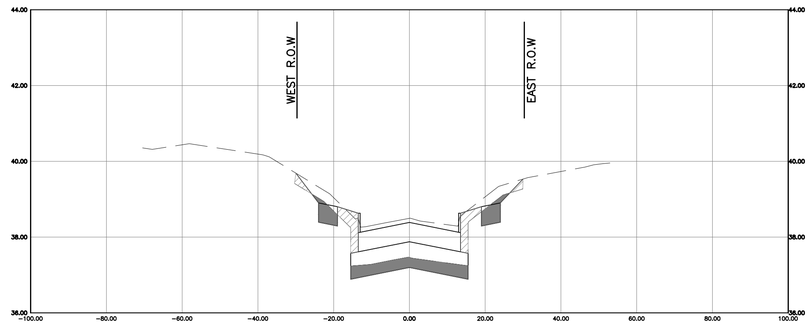


22+93.00



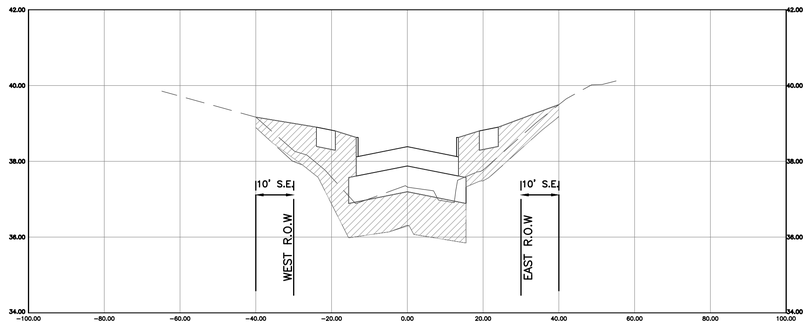
TAREYTON LN.

21+24.00



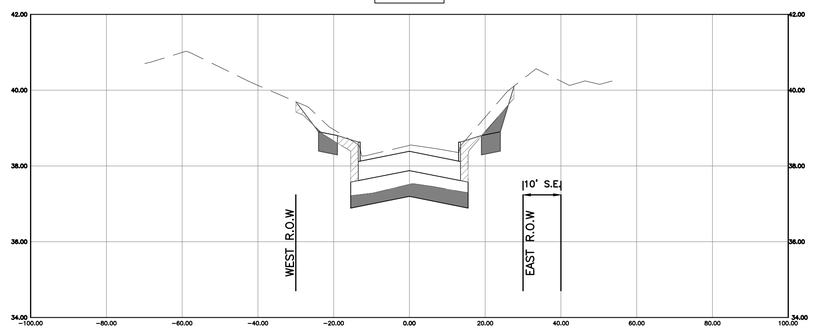
MOWERY DR.

23+95.00



TAREYTON LN.

21+94.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

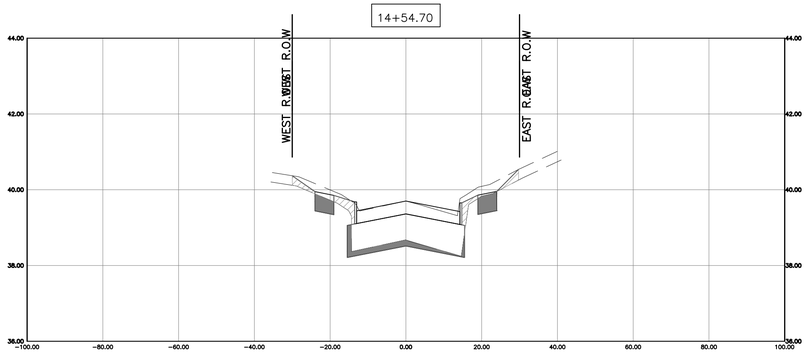
HOUSTON PUBLIC WORKS

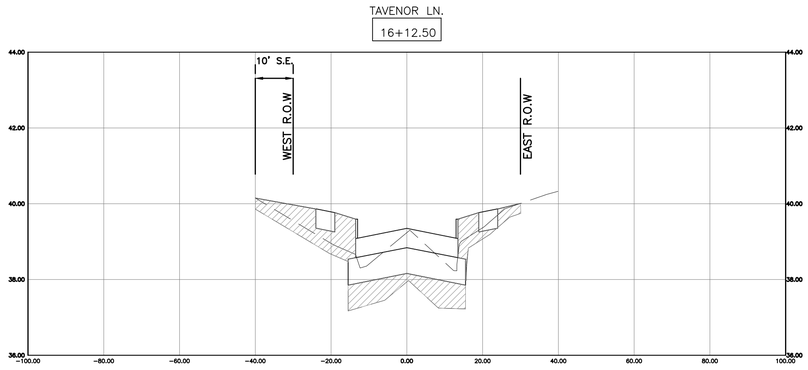
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

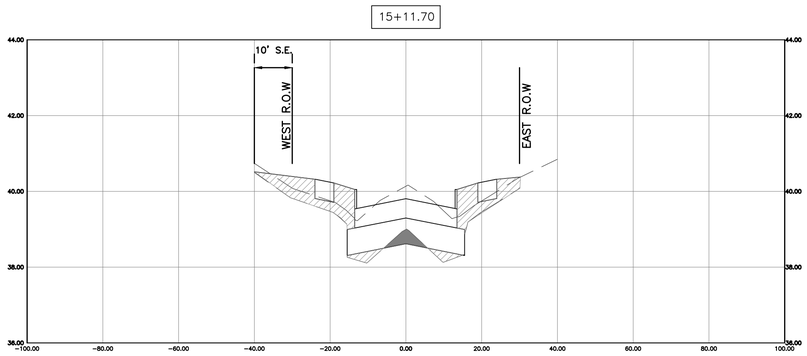
CROSS SECTIONS
DONEGAL WAY
SHEET 3 OF 3

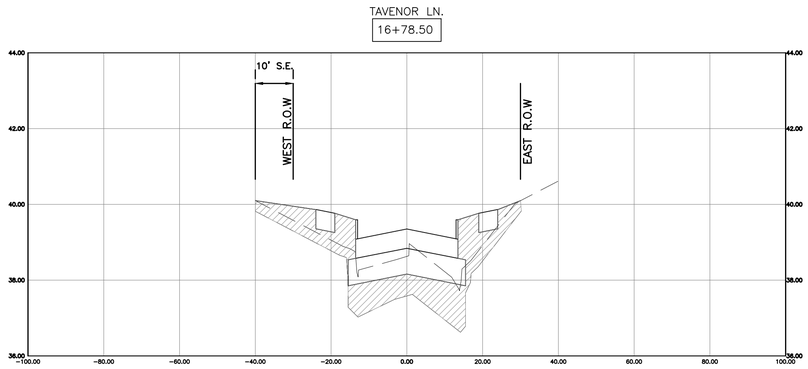
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

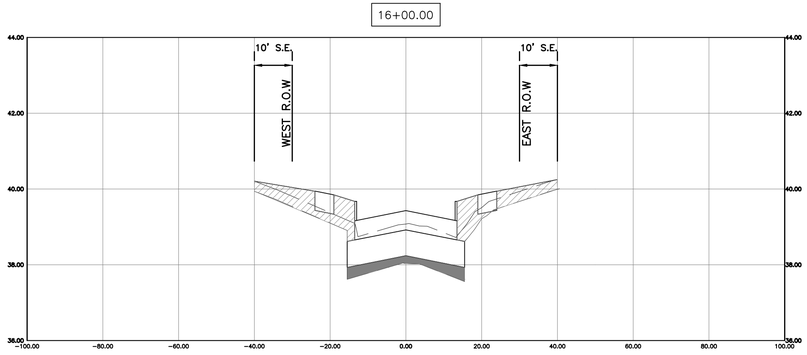
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\141- CROSS SECTIONS DONEGAL WAY SHEET 3 OF 3.DWG JUL 01, 2026-11:05am

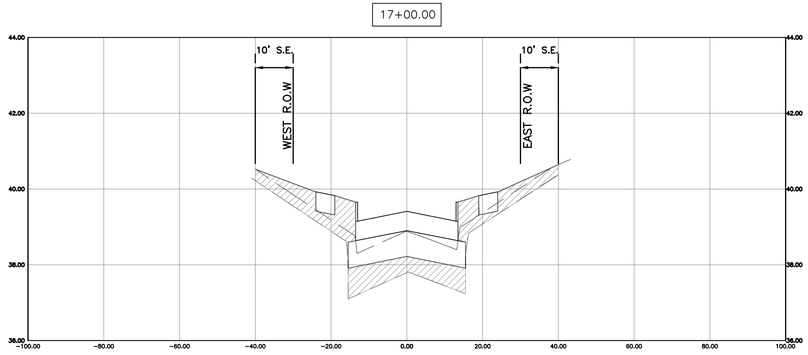












LEGEND

CUT

FILL

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\142- CROSS SECTIONS DUANE STREET SHEET 1 OF 3.DWG JUL. 01, 2026-11:08am

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

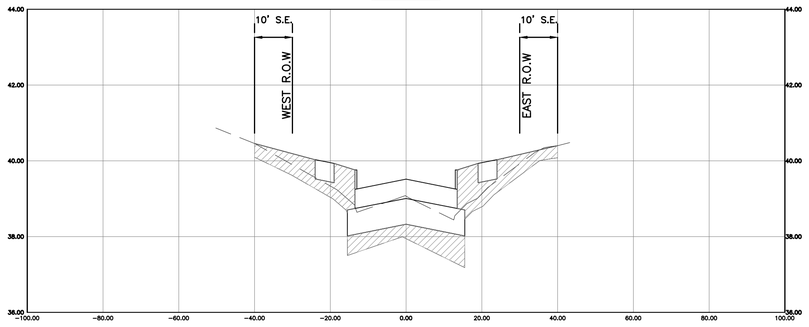
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
DUANE STREET
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\143- CROSS SECTIONS DUANE STREET SHEET 2 OF 3.DWG JUL. 01, 2026-10:43am

17+81.00



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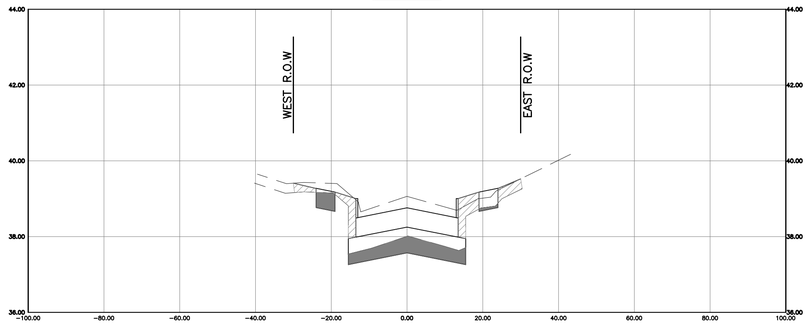
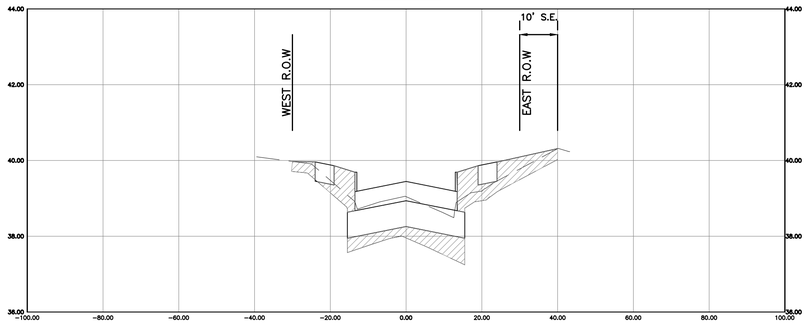


18+00.00



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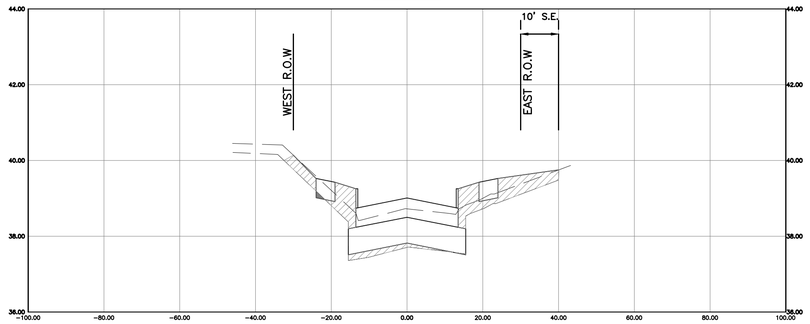
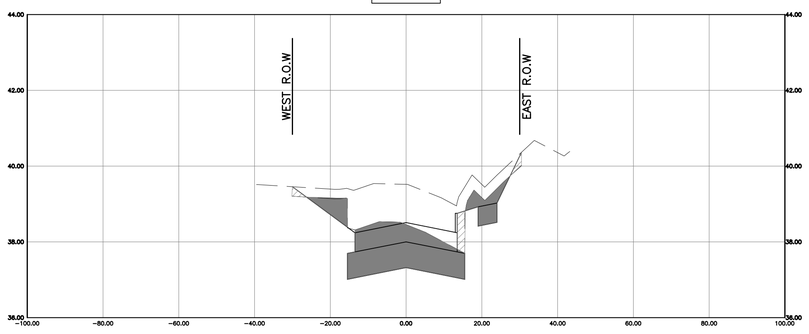
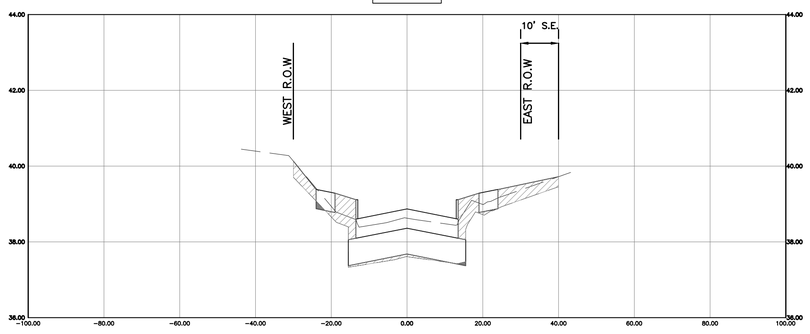


BOTANY LN.

19+21.50



21+00.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

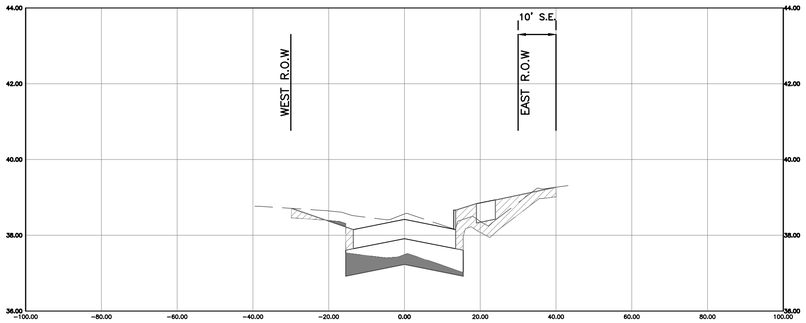
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
DUANE STREET
SHEET 2 OF 3

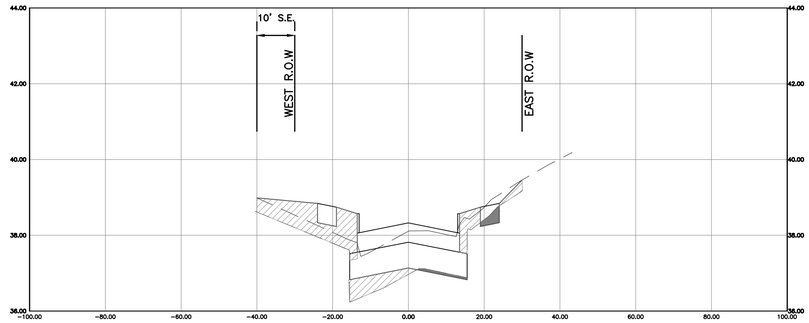
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

TAREYTON LN.

21+84.00



24+00.00



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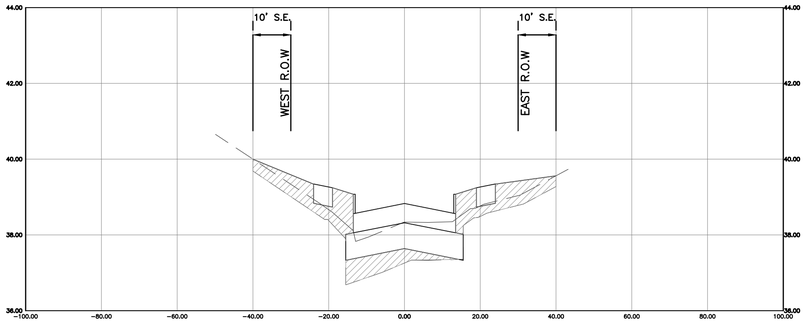
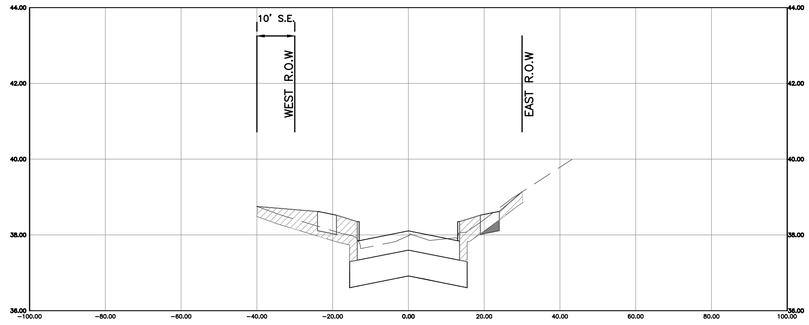


MOWERY RD.

24+27.00



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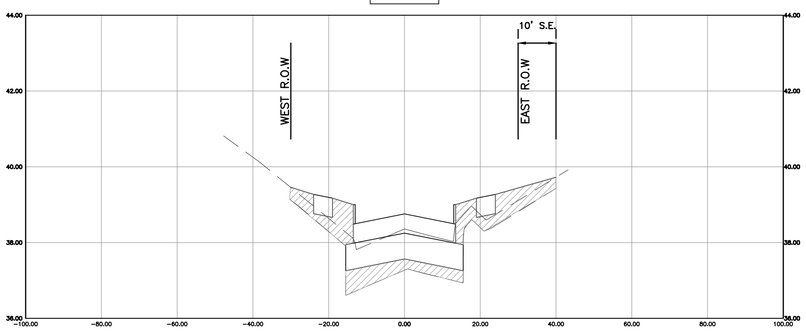


LEGEND

CUT

FILL

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

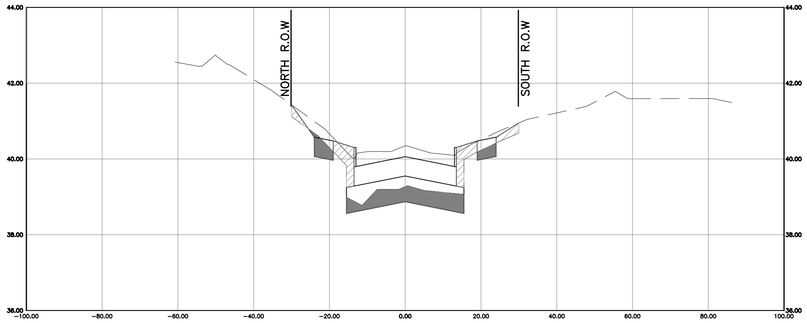
CROSS SECTIONS
DUANE STREET
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\144- CROSS SECTIONS DUANE STREET SHEET 3 OF 3.DWG JUL. 01, 2026-10:54am

LEITRIM WAY

2+33.00



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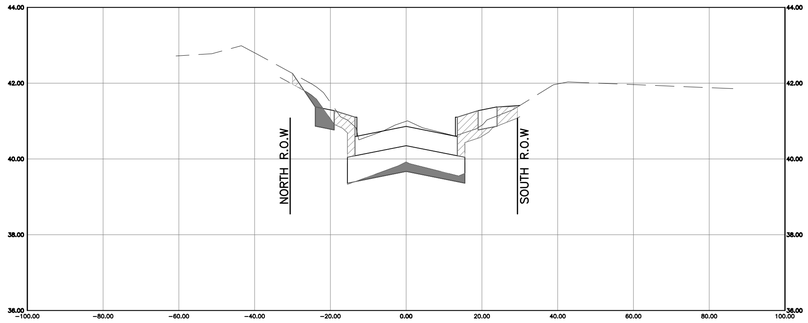

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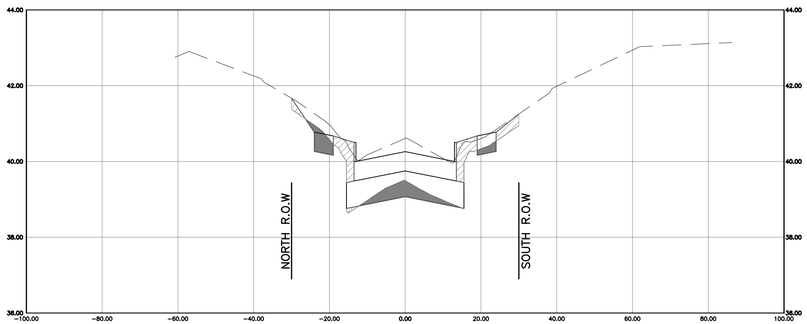

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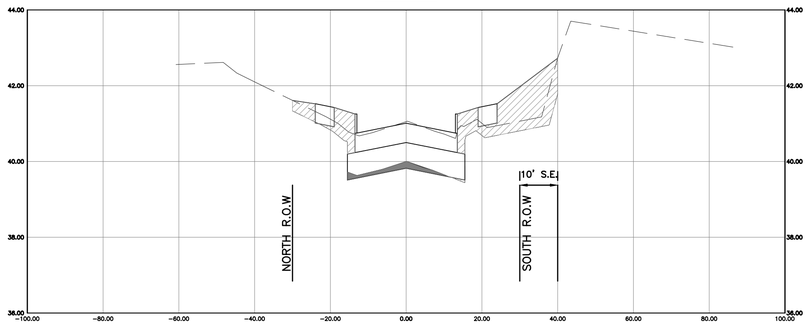

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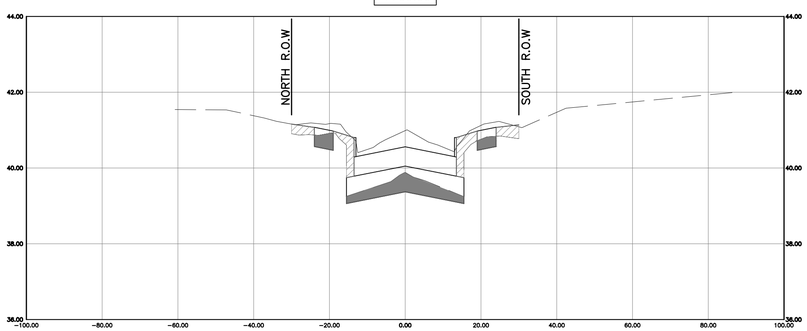

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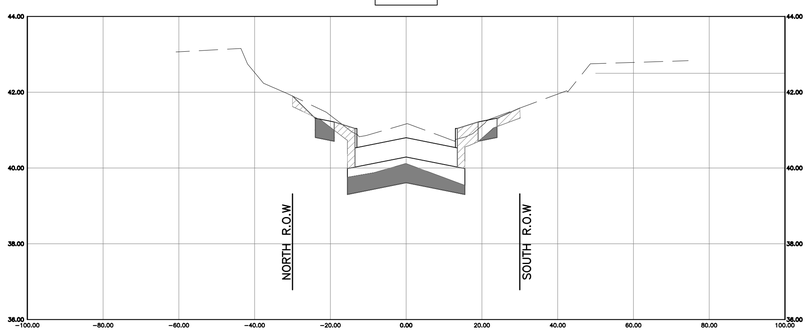

LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

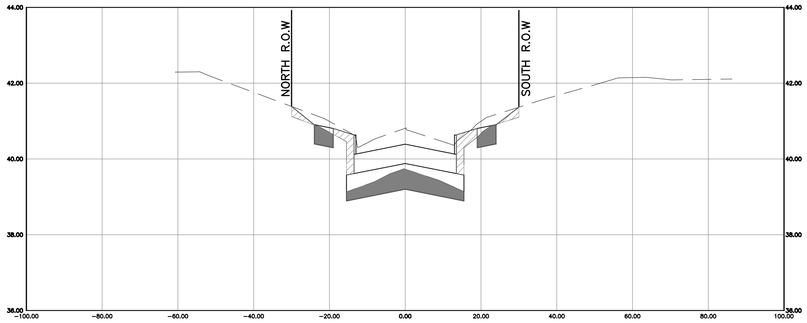
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAREYTON LANE
SHEET 1 OF 4

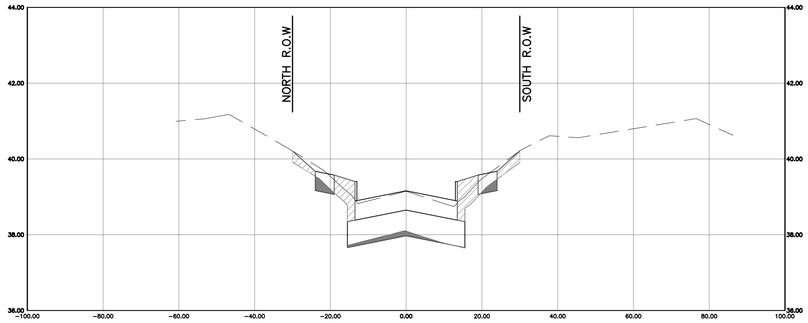
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\145- CROSS SECTIONS TAREYTON LANE SHEET 1 OF 4.DWG JUL. 01, 2026-11:04am

7+00.00



10+00.00



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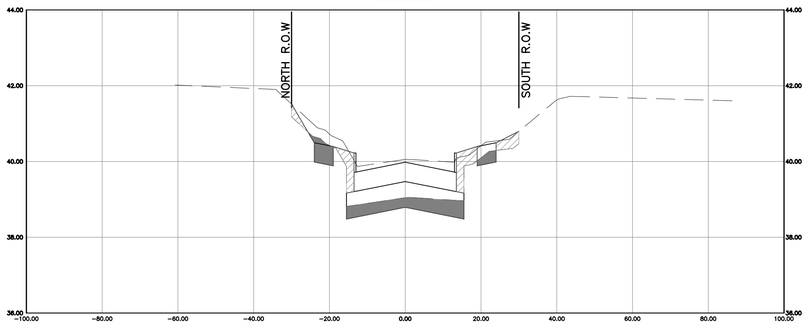
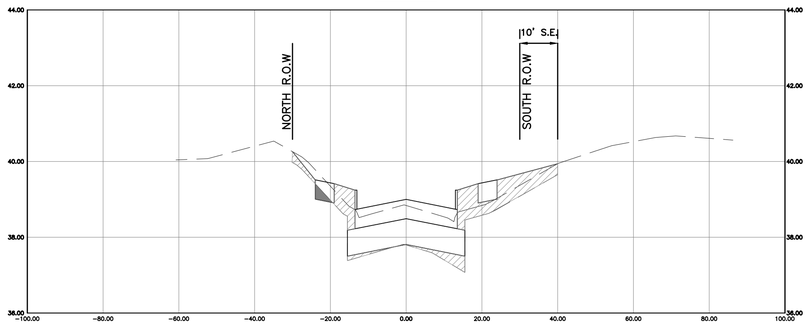
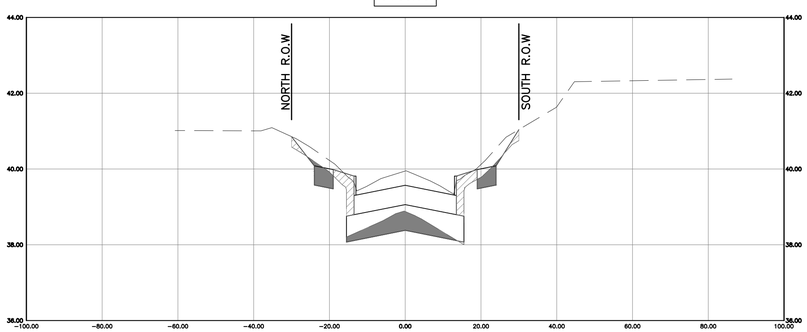


DONEGAL WAY

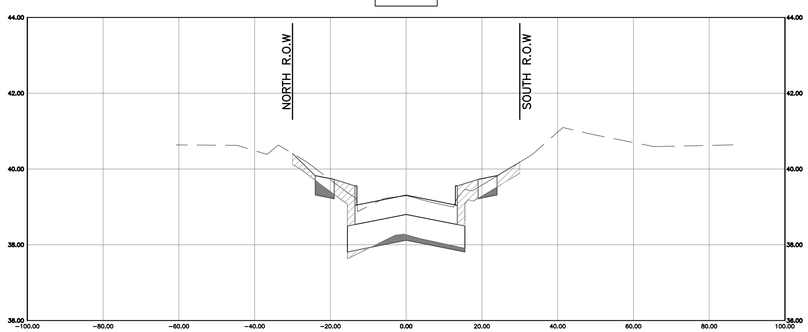
11+11.00



9+00.00



12+00.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

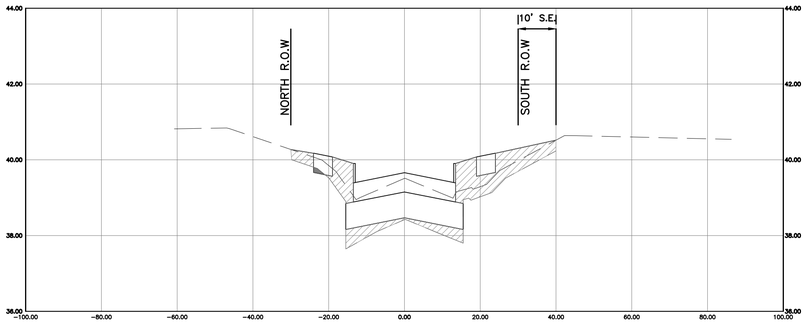
CROSS SECTIONS
TAREYTON LANE
SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

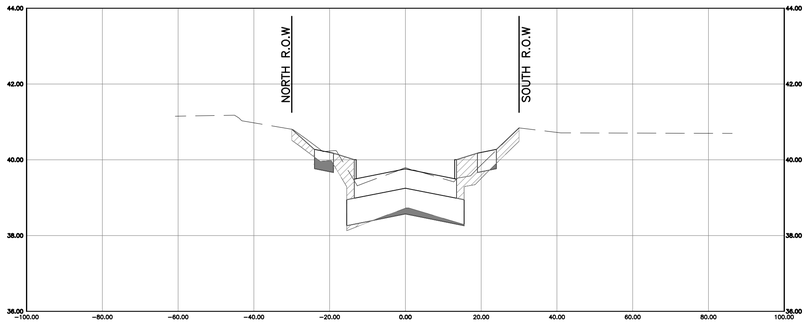
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\146- CROSS SECTIONS TAREYTON LANE SHEET 2 OF 4.DWG JUL 01, 2026-11:07am

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\147- CROSS SECTIONS TAREYTON LANE SHEET 3 OF 4.DWG JUL 01, 2026-10:48am

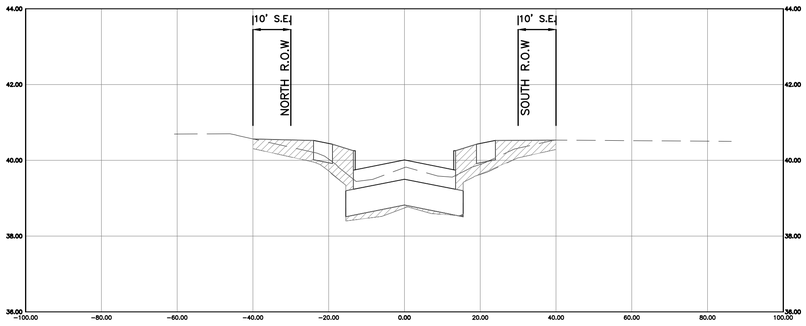
13+00.00



16+00.00



14+00.00



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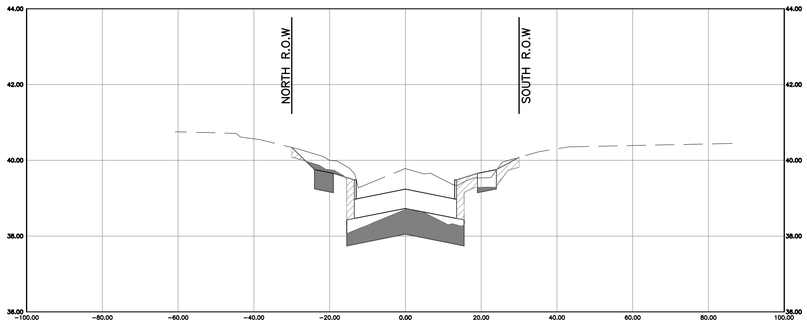

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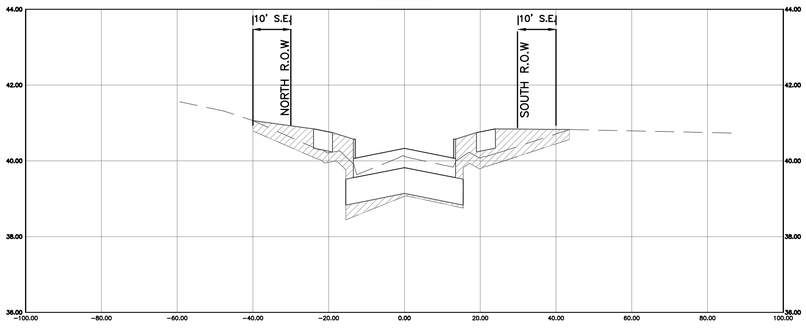
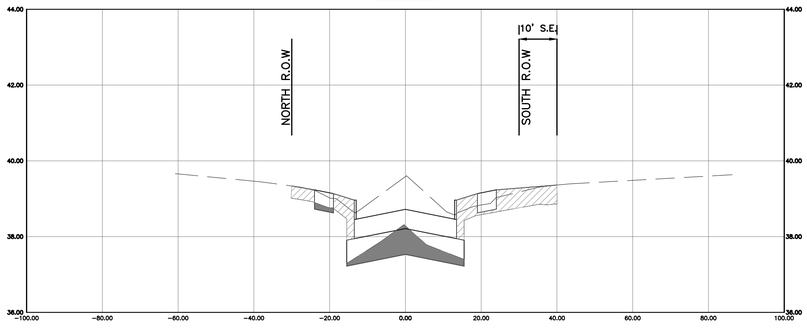


18+00.00



LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

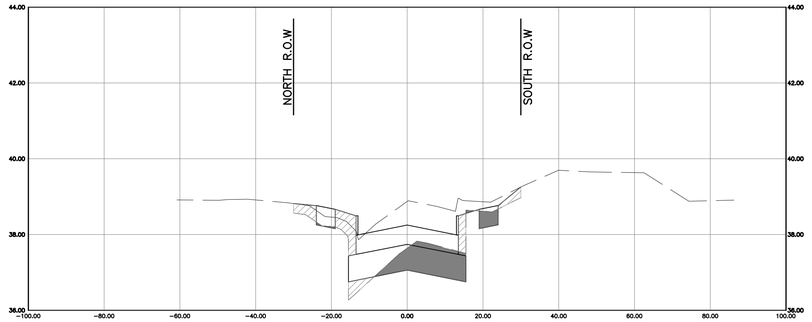
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAREYTON LANE
SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

DUANE ST.

18+92.00



LEGEND

CUT

FILL

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\148- CROSS SECTIONS TAREYTON LANE SHEET 4 OF 4.DWG JUL 01, 2026-11:06am

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NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

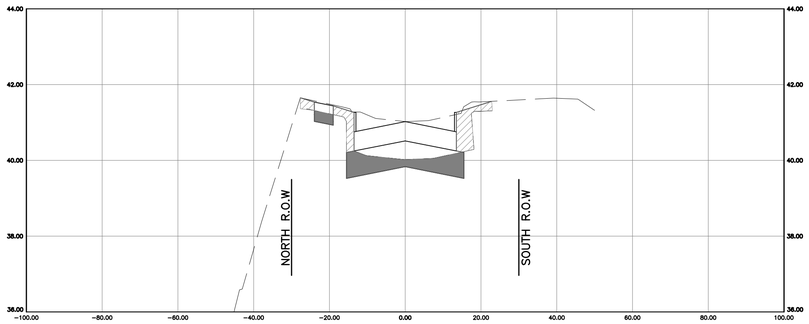
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAREYTON LANE
SHEET 4 OF 4

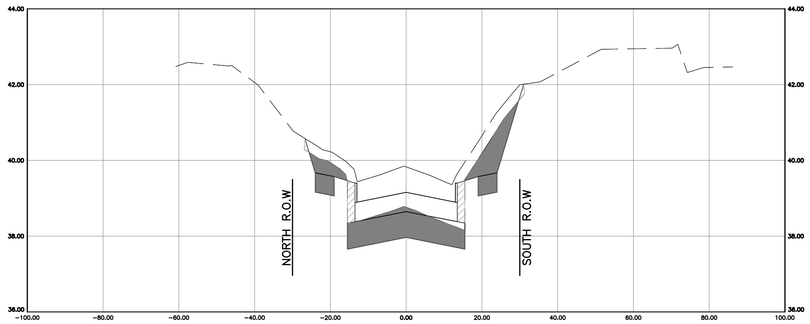
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

4+44.00



LEITRIM WAY

6+63.00



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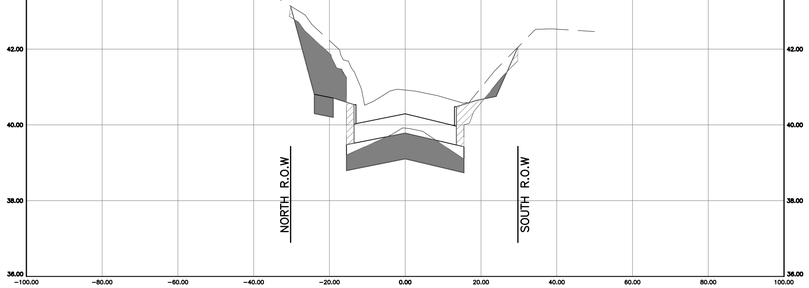
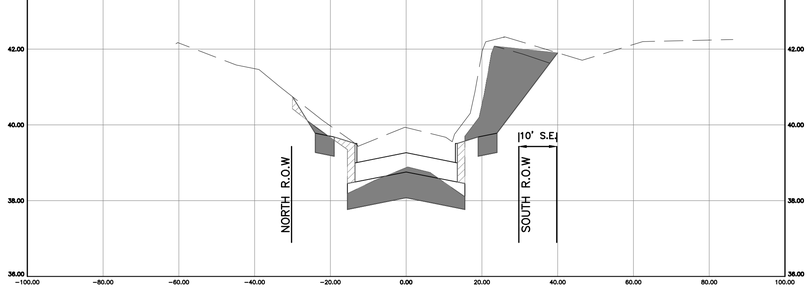
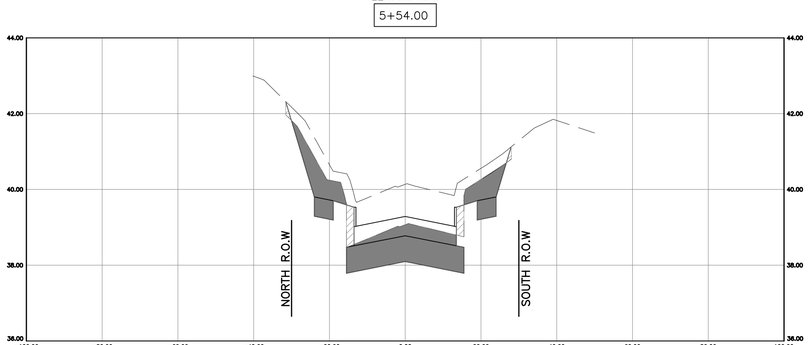


7+00.00



LEITRIM WAY

5+54.00



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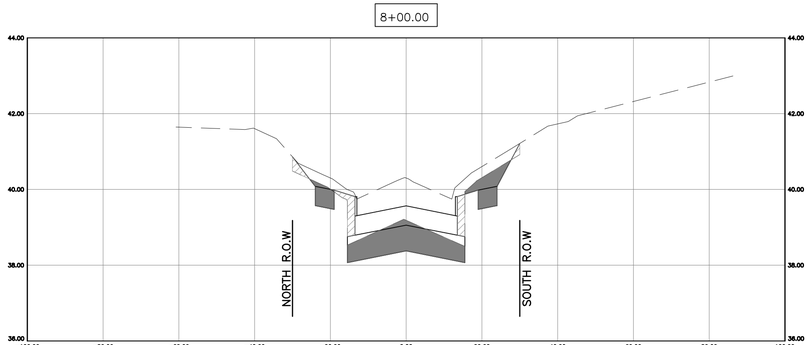

LEGEND

CUT

FILL

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dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

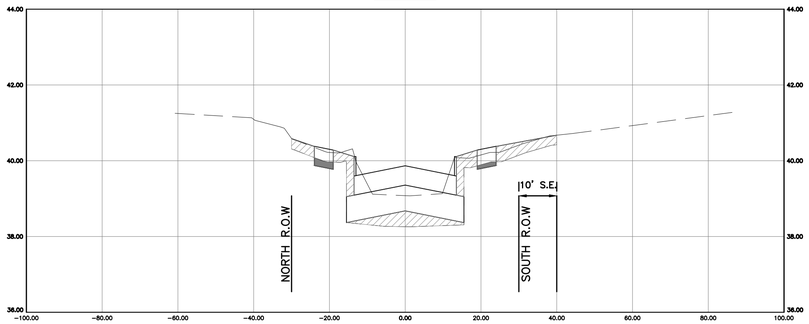
CROSS SECTIONS
BOTANY LANE
SHEET 1 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

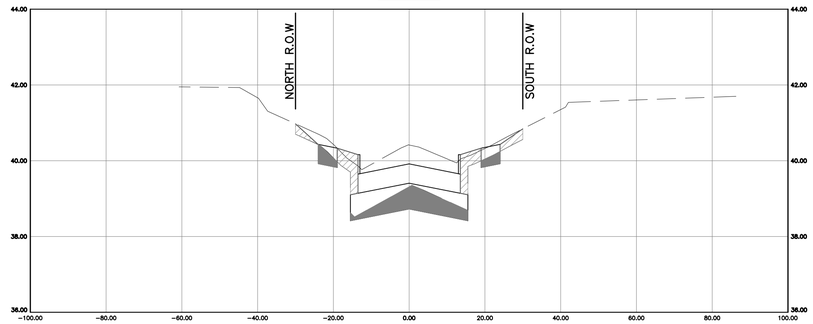
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\149- CROSS SECTIONS BOTANY LANE SHEET 1 OF 4.DWG JUL 01, 2026-10:54am

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\150- CROSS SECTIONS BOTANY LANE SHEET 2 OF 4.DWG JUL. 01, 2026-10:42am

9+00.00



11+00.00



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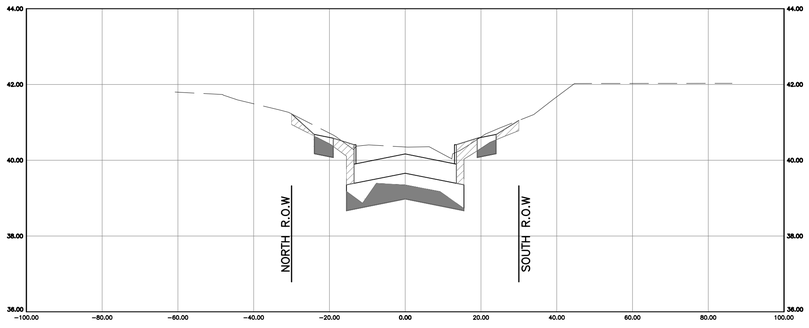

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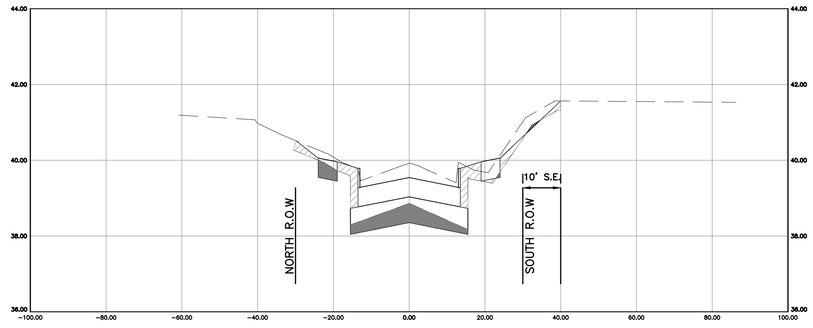

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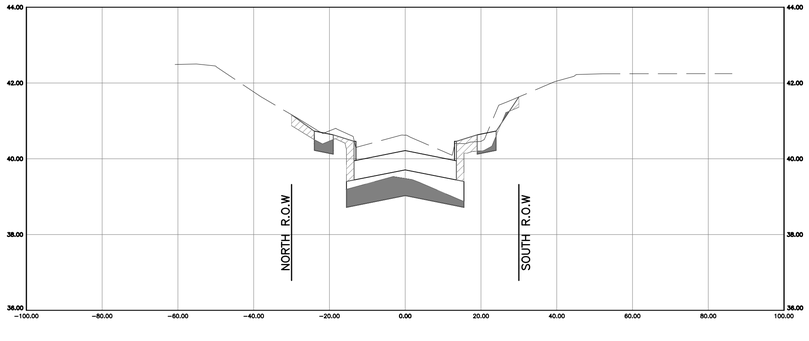

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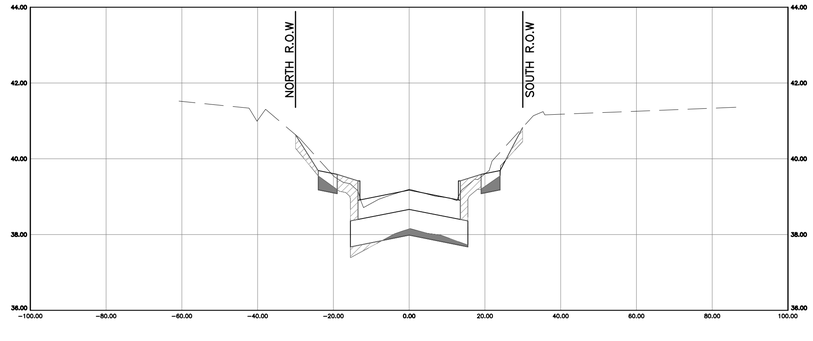

LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
BOTANY LANE
SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\151- CROSS SECTIONS BOTANY LANE SHEET 3 OF 4.DWG JUL 01, 2026-10:49am

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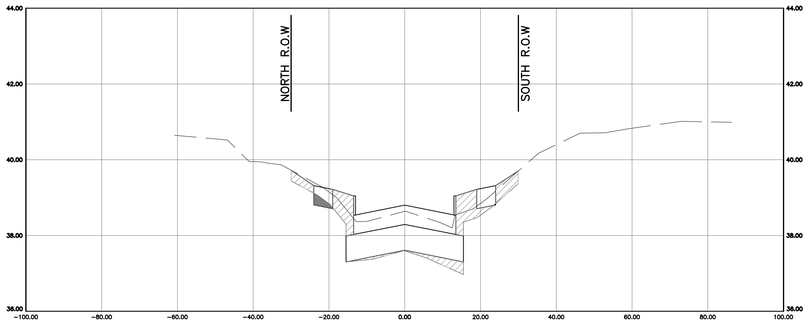

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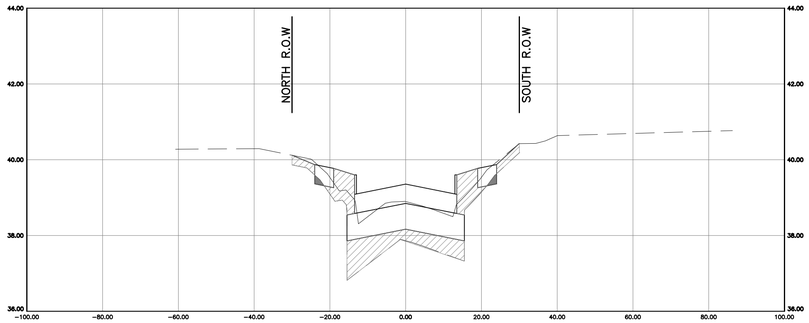
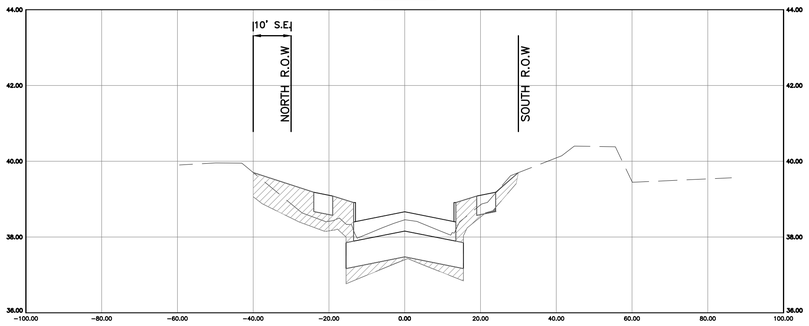


DONEGAL WAY

15+04.00



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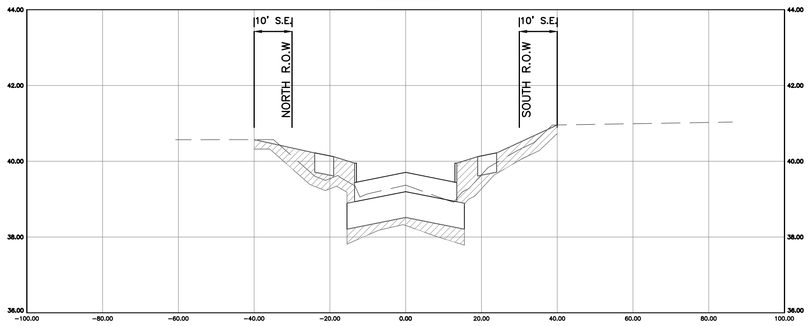

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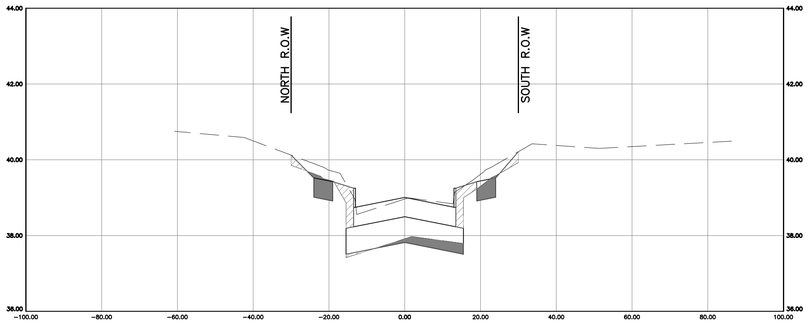

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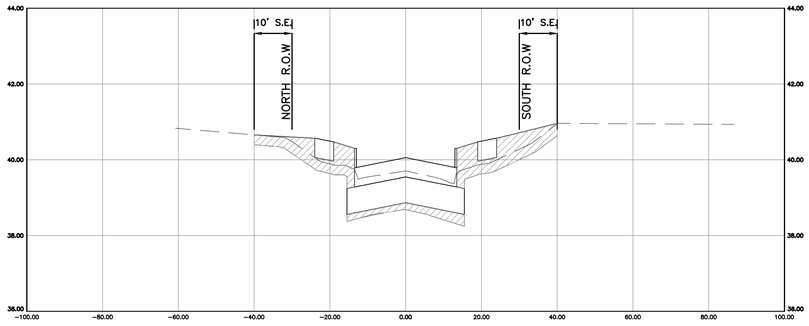

LEGEND

CUT

FILL

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
BOTANY LANE
SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\152- CROSS SECTIONS BOTANY LANE SHEET 4 OF 4.DWG JUL. 01, 2026-10:43am

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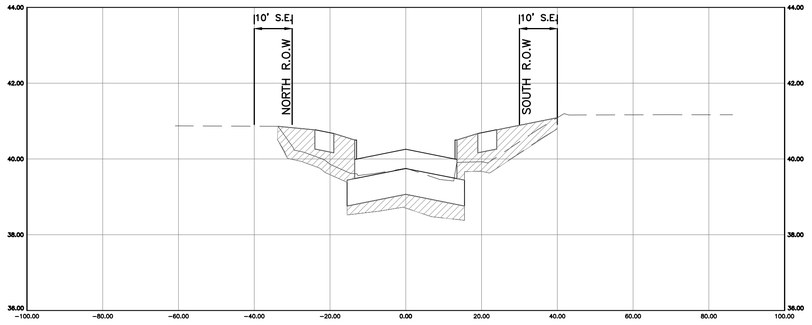

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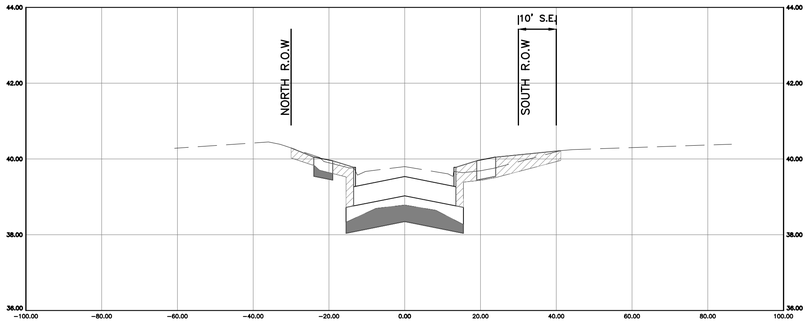

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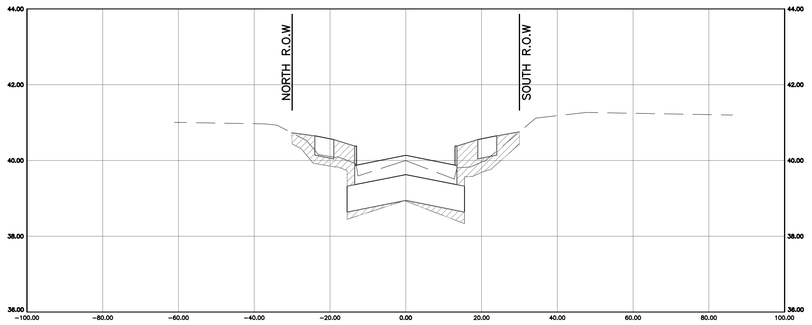
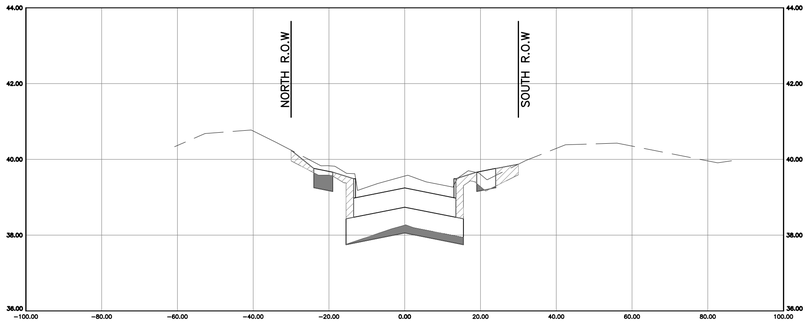


DUANE ST.
22+95.00



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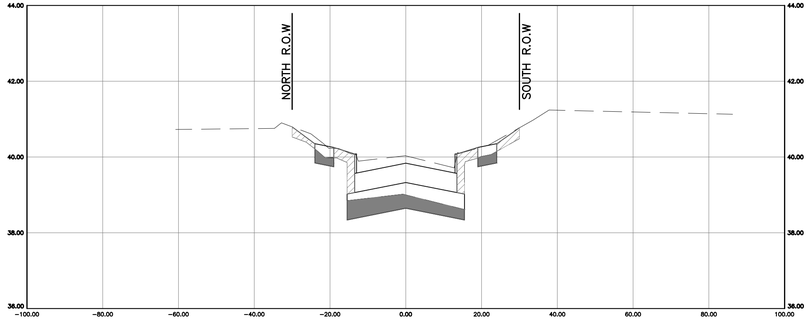

LEGEND

CUT

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FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

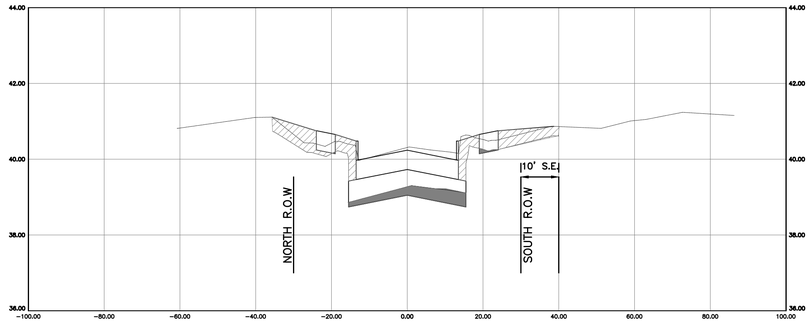
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
BOTANY LANE
SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

LEITRIM WAY

2+33.00



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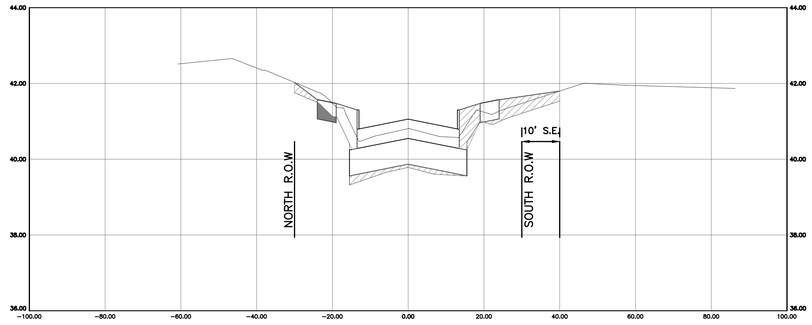

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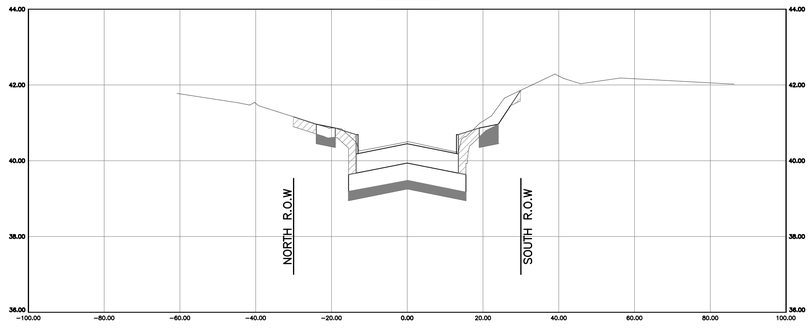

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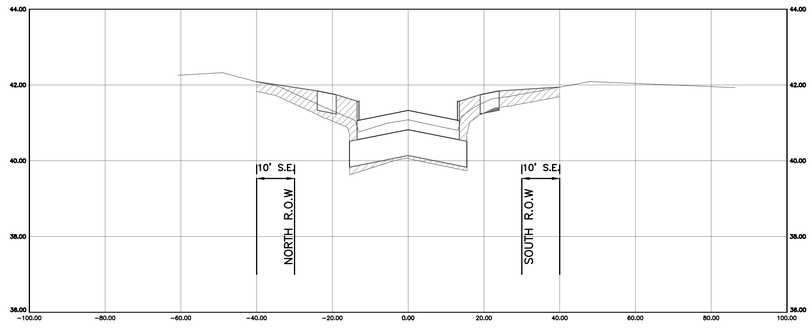

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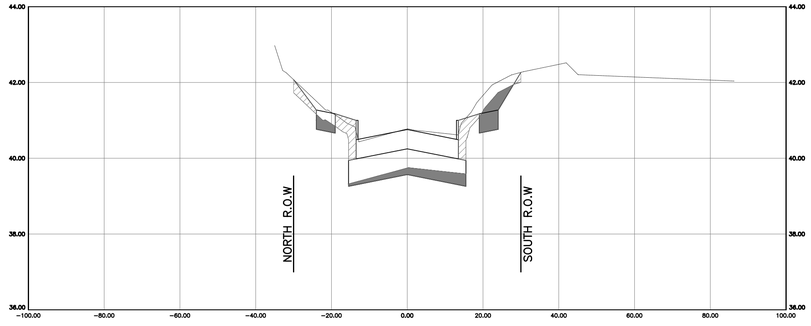

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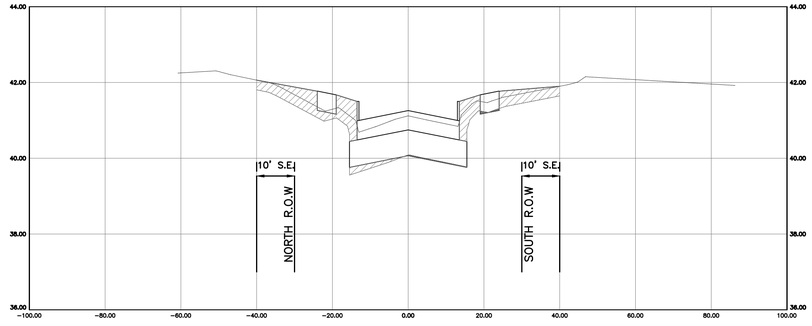

LEGEND

CUT

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dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

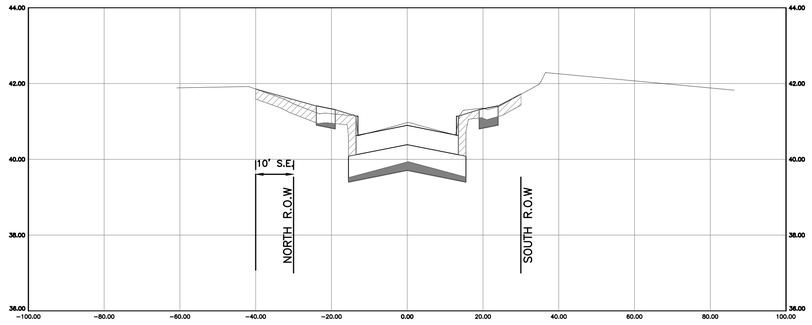
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAVENOR LANE
SHEET 1 OF 4

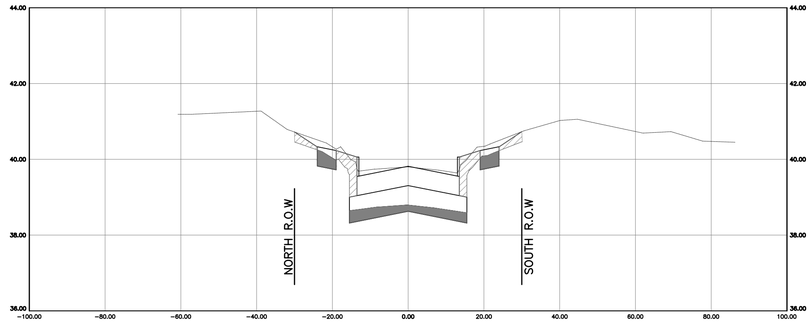
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\153- CROSS SECTIONS TAVENOR LANE SHEET 1 OF 4.DWG JUL. 01, 2026-11:03am

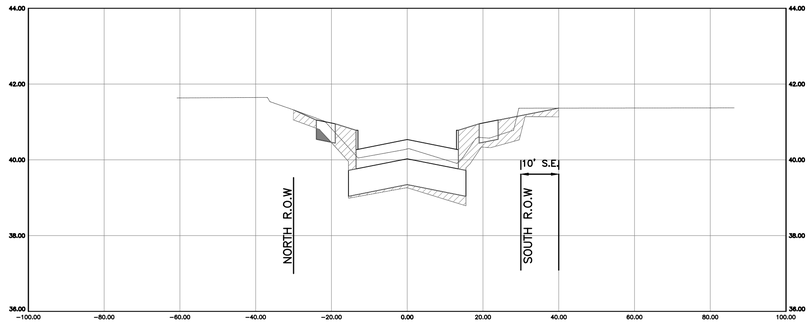
7+00.00



10+00.00



8+00.00



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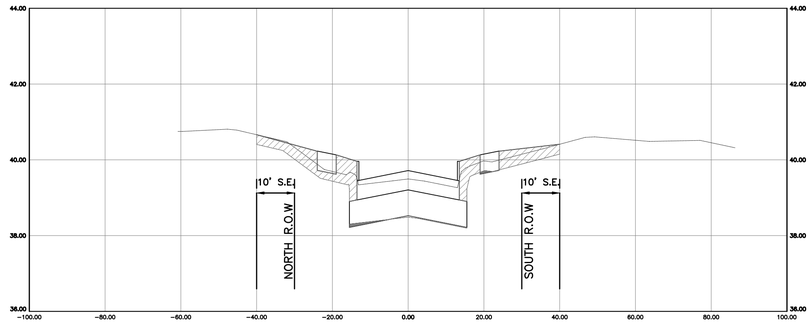

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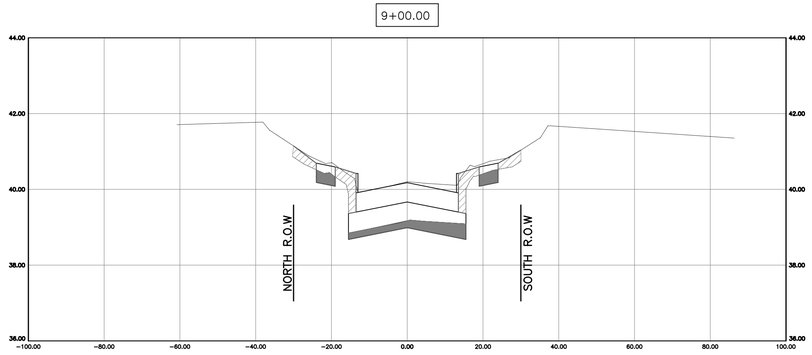
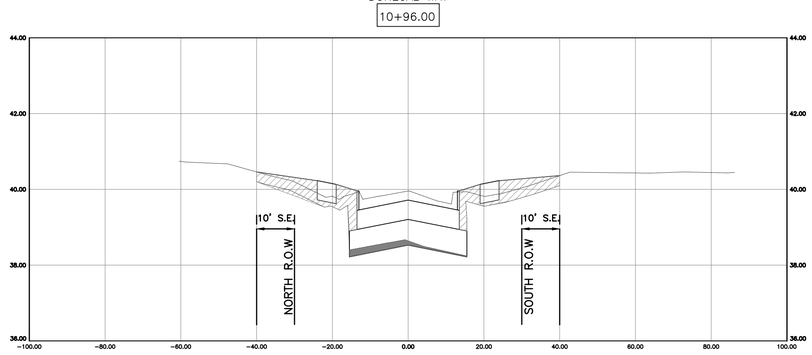


DONEGAL WAY
10+96.00



LEGEND

CUT

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

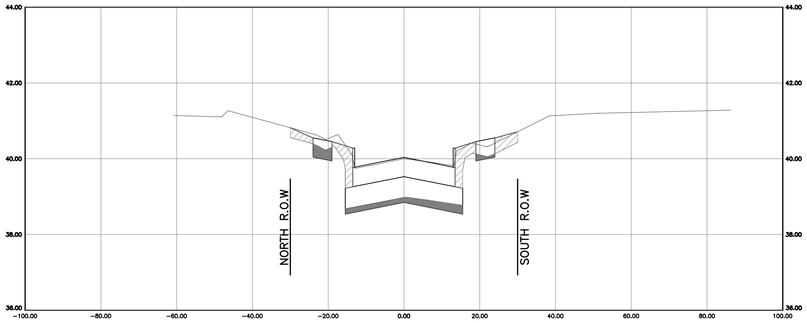
CROSS SECTIONS
TAVENOR LANE
SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\154- CROSS SECTIONS TAVENOR LANE SHEET 2 OF 4.DWG JUL. 01, 2026-10:42am

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\155- CROSS SECTIONS TAVENOR LANE SHEET 3 OF 4.DWG JUL. 01, 2026-11:00am

12+00.00



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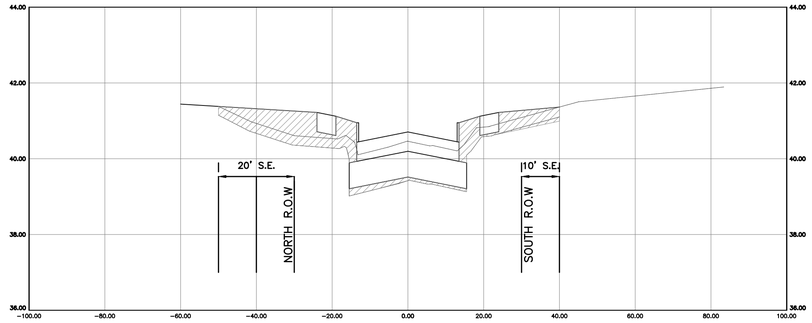

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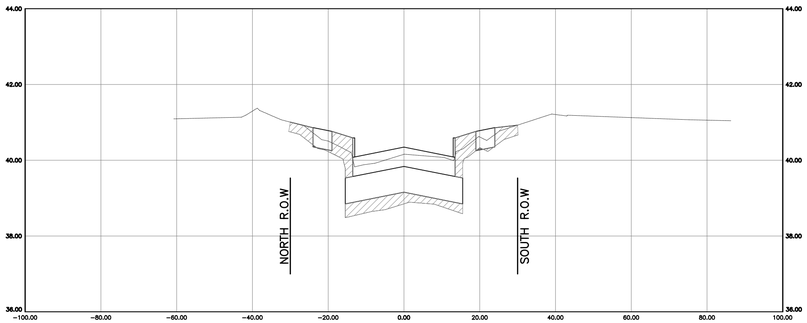

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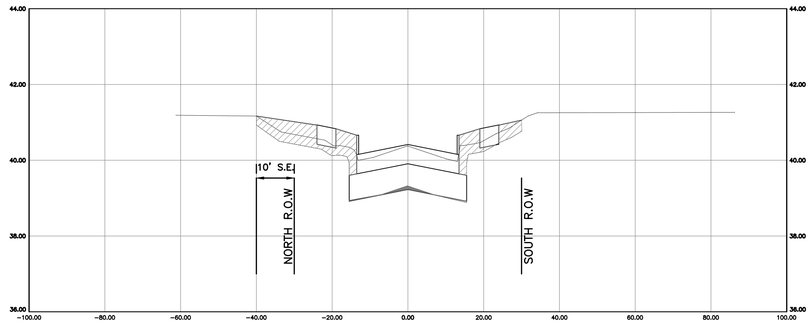

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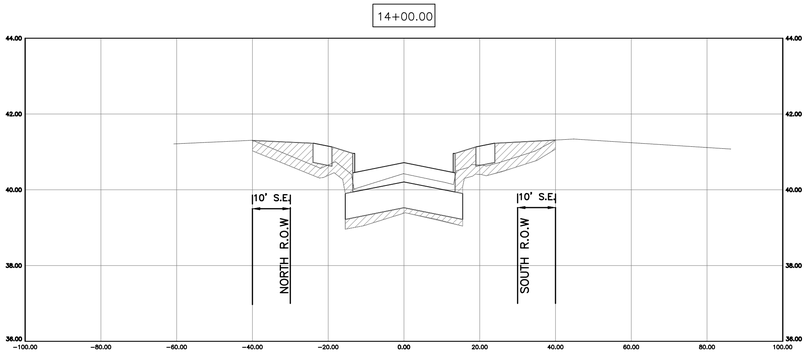

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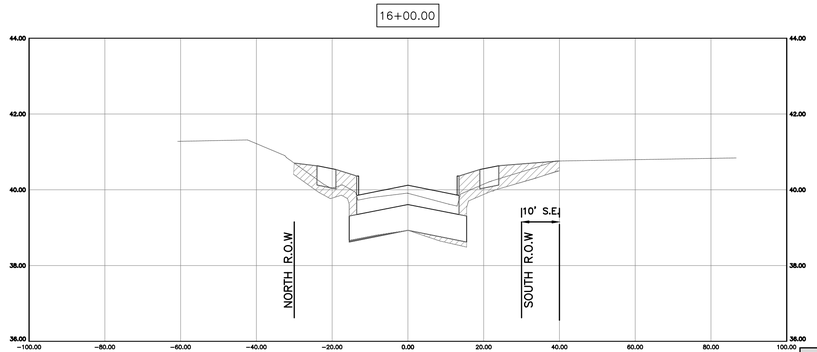

LEGEND

CUT

FILL

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100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

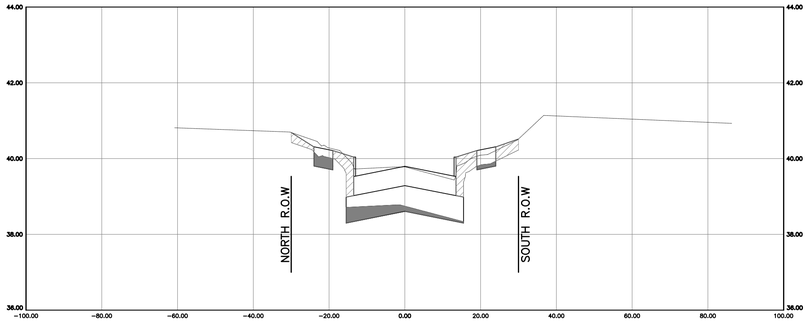
CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAVENOR LANE
SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- ~~OF~~ 159	

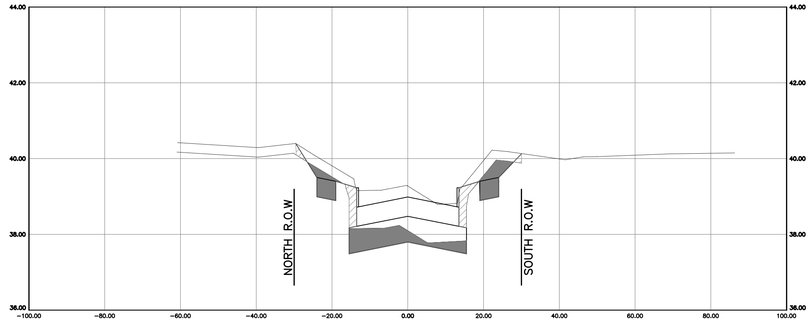
K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\156- CROSS SECTIONS TAVENOR LANE SHEET 4 OF 4.DWG JUL. 01, 2026-10:42am

17+00.00



DUANE ST.

19+66.00



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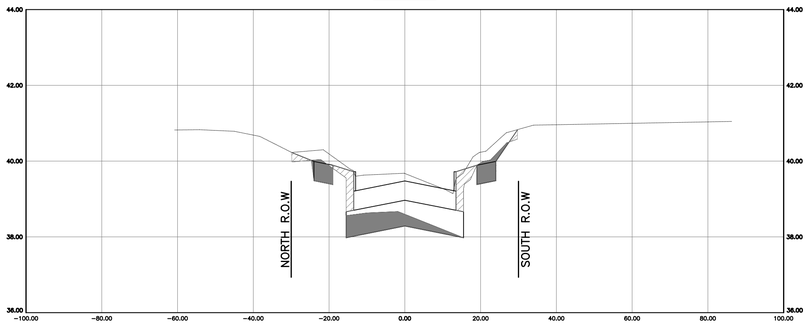

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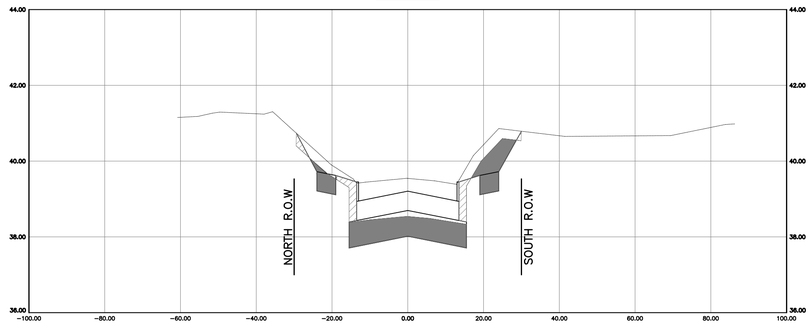

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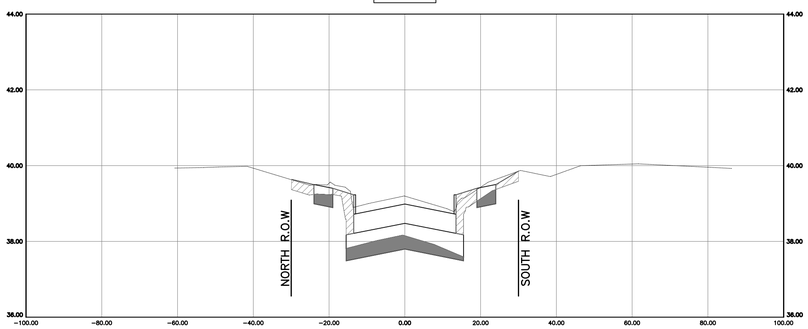

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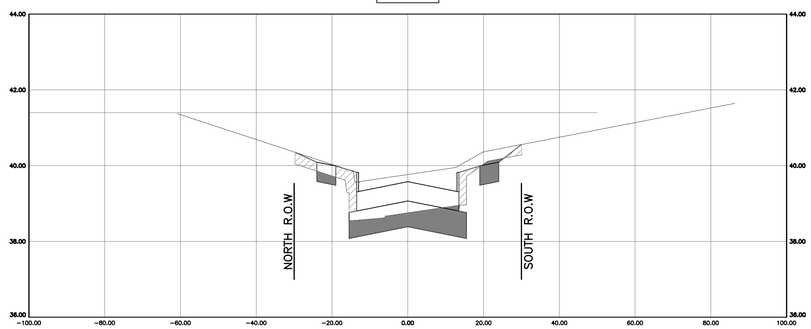

LEGEND

CUT

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FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
TAVENOR LANE
SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.---~~OF~~ 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\157- CROSS SECTIONS HICKOK LANE SHEET 1 OF 1.DWG JUL. 01, 2026-10:51am

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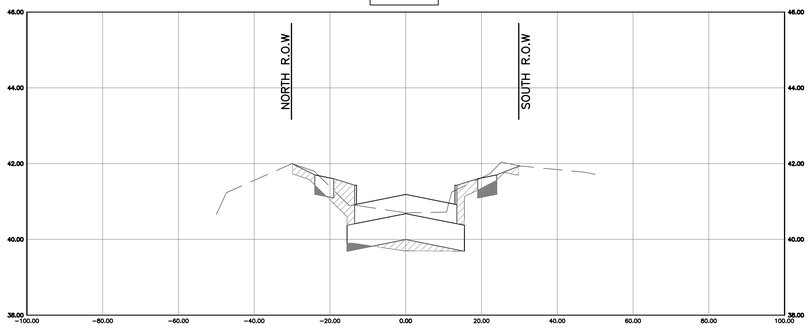
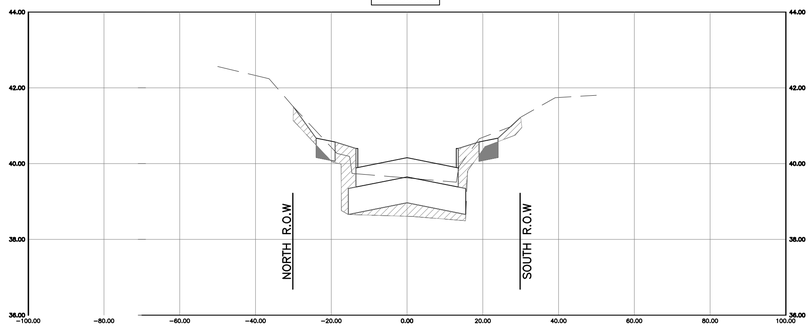


1+66.80



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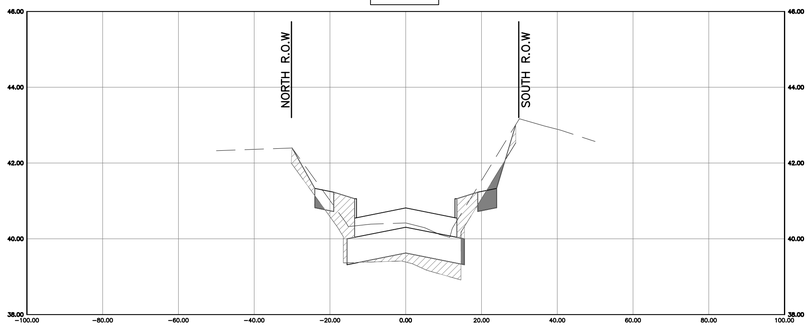

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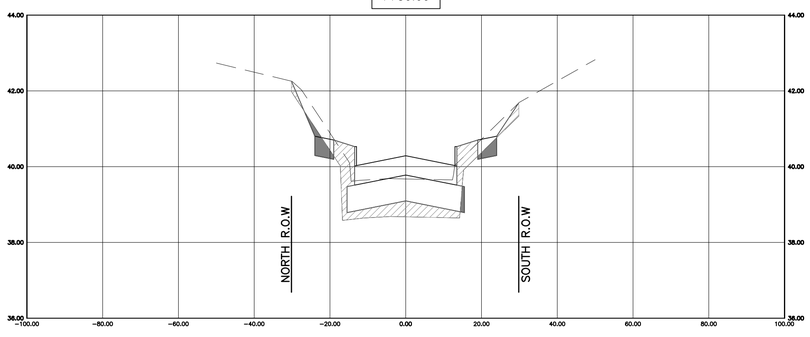

LEGEND

CUT

FILL

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

CROSS SECTIONS
HICKOK LANE
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT.1" = 2' HORIZ. 1" = 20'	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO.--- OF 159	

Instructions

MOWERY ROAD

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
6+38 BEGIN	15.26	54.53	17.90	54.19										
					15.35	59.65	18.23	53.09	62.00	35.24	42	122	137	102
7+00	15.43	64.76	18.56	52.00										
					14.77	77.45	18.81	53.71	100.00	54.72	70	199	287	232
8+00	14.12	90.15	19.05	55.42										
					7.98	100.98	19.29	54.13	100.00	29.56	71	200	374	344
9+00	1.85	111.82	19.53	52.84										
					1.23	857.23	20.50	53.25	100.00	4.55	76	197	3175	3170
10+00	0.61	1602.63	21.46	53.66										
					0.30	900.45	24.54	53.83	60.00	0.68	55	120	2001	2000
10+60	0.00	198.27	27.61	54.00										
					0.00	189.68	23.69	54.88	40.00	0.00	35	81	281	281
11+00	0.00	181.09	19.78	55.76										
					0.03	180.52	20.68	58.58	100.00	0.13	77	217	669	668
12+00	0.07	179.96	21.59	61.41										
					0.03	171.08	20.45	56.71	100.00	0.13	76	210	634	634
13+00	0.00	162.21	19.32	52.01										
					0.21	165.18	22.38	52.83	100.00	0.79	83	196	612	611
14+00	0.43	168.15	25.43	53.65										
					0.23	149.53	15.33	77.02	88.00	0.74	50	251	487	487
14+88	0.03	130.90	5.24	100.38										
					0.01	162.74	15.44	80.16	112.00	0.06	64	333	675	675
16+00	0.00	194.58	25.63	59.94										
					0.00	211.92	24.60	58.84	50.00	0.00	46	109	392	392
16+50	0.00	229.27	23.56	57.75										
					0.62	189.15	22.12	55.01	50.00	1.14	41	102	350	349
17+00	1.23	149.03	20.68	52.27										
					4.87	80.30	13.18	75.67	78.00	14.08	38	219	232	218
17+78	8.52	11.57	5.68	99.08										
					8.46	43.19	14.31	74.13	22.00	6.89	12	60	35	28
18+00	8.40	74.80	22.93	49.19										
					4.20	110.18	20.30	51.66	110.00	17.10	83	210	449	432
19+10	0.00	145.55	17.67	54.13										
					4.05	138.84	18.61	54.40	90.00	13.49	62	181	463	449
20+00	8.09	132.12	19.54	54.67										
					14.29	108.24	18.95	53.44	55.00	29.11	39	109	220	191
20+55	20.48	84.36	18.35	52.21										
					15.36	101.40	18.81	52.64	45.00	25.59	31	88	169	143
21+00	10.23	118.45	19.26	53.07										
					12.44	108.27	18.79	52.77	30.00	13.82	21	59	120	106
21+30	14.65	98.09	18.31	52.48										
					15.69	91.00	20.71	52.07	70.00	40.68	54	135	236	195
22+00	16.74	83.90	23.10	51.65										
					12.83	80.25	20.63	54.19	98.00	46.57	75	197	291	245
22+98	8.92	76.59	18.17	56.73										
					5.76	55.60	18.80	55.67	102.00	21.74	71	210	210	188
24+00	2.59	34.61	19.44	54.61										
					1.51	42.90	19.89	56.30	100.00	5.59	74	209	159	153
25+00	0.43	51.19	20.34	57.98										
					0.22	75.23	19.20	56.49	100.00	0.80	71	209	279	278
26+00	0.00	99.26	18.07	55.00										
					0.12	93.90	21.59	54.16	24.00	0.10	19	48	83	83
26+24	0.23	88.54	25.10	53.31										
					0.81	83.26	24.24	54.20	76.00	2.27	68	153	234	232
27+00	1.38	77.99	23.38	55.09										
					3.25	69.40	16.60	82.69	60.00	7.22	37	184	154	147
27+60	5.12	60.82	9.82	110.29										
					11.31	60.96	16.39	78.93	40.00	16.76	24	117	90	74
28+00	17.51	61.10	22.96	47.58										
					15.01	50.00	22.13	49.79	100.00	55.59	82	184	185	130
29+00	12.51	38.90	21.30	52.00										
									Total	445	1644	4908	13685	13240

LEITRIM WAY

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation(CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
3+35 BEGIN	16.21	5.92	7.79	34.10										
					14.40	8.13	7.74	33.05	65.00	34.65	19	80	20	-15
4+00	12.58	10.33	7.68	32.00										
					17.30	13.80	8.40	40.33	79.00	50.60	25	118	40	-10
4+79	22.01	17.27	9.12	48.67										
					18.92	13.54	8.63	40.58	94.00	65.86	30	141	47	-19
5+73	15.82	9.81	8.14	32.49										
					15.48	11.40	8.10	32.51	27.00	15.48	8	33	11	-4
6+00	15.15	12.99	8.06	32.54										
					14.09	11.74	8.07	32.47	100.00	52.18	30	120	43	-9
7+00	13.03	10.50	8.09	32.40										
					12.09	10.12	8.00	32.61	48.00	21.49	14	58	18	-3
7+48	11.14	9.74	7.91	32.83										
					8.13	11.89	7.90	34.93	52.00	15.66	15	67	23	7
8+00	5.12	14.04	7.89	37.03										
					2.88	18.60	8.16	34.50	56.00	5.97	17	72	39	33
8+56	0.63	23.16	8.43	31.97										
					0.53	24.89	8.93	33.27	44.00	0.87	15	54	41	40
9+00	0.44	26.61	9.43	34.56										
					3.05	18.19	8.75	34.56	46.00	5.19	15	59	31	26
9+46	5.66	9.76	8.06	34.57										
					9.04	9.45	8.22	33.42	54.00	18.08	16	67	19	1
10+00	12.43	9.15	8.37	32.28										
					6.44	22.79	8.36	32.22	100.00	23.86	31	119	84	61
11+00	0.46	36.43	8.34	32.16										
					0.23	38.89	8.24	32.92	15.00	0.13	5	18	22	21
11+15	0.00	41.36	8.14	33.68										
					0.09	37.41	8.49	34.38	85.00	0.28	27	108	118	117
12+00	0.18	33.46	8.85	35.09										
					0.09	31.30	8.88	34.54	123.00	0.40	40	157	143	142
13+23	0.00	29.14	8.90	34.00										
					0.00	39.22	10.32	33.94	77.00	0.00	29	97	112	112
14+00	0.00	49.31	11.74	33.88										
					0.19	50.57	10.84	34.06	54.00	0.37	22	68	101	101
14+54	0.37	51.84	9.93	34.24										
					0.32	36.71	9.48	33.56	46.00	0.54	16	57	63	62
15+00	0.27	21.58	9.02	32.89										
					12.53	12.92	8.66	32.47	84.00	38.99	27	101	40	1
15+84	24.80	4.27	8.31	32.04										
					12.86	18.71	11.17	33.17	116.00	55.23	48	142	80	25
17+00	0.91	33.15	14.04	34.29										
					0.46	38.49	11.94	34.26	24.00	0.41	11	30	34	34
17+24	0.00	43.83	9.84	34.23										
					0.28	38.34	10.14	34.23	76.00	0.79	29	96	108	107
18+00	0.56	32.84	10.44	34.23										
					1.76	37.77	10.98	36.12	18.00	1.17	7	24	25	24
18+18	2.95	42.69	11.53	38.01										
					1.48	43.94	10.47	36.61	80.00	4.37	31	108	130	126
18+98	0.00	45.19	9.41	35.21										
					0.00	42.71	9.79	34.26	100.00	0.00	36	127	158	158
19+98	0.00	40.23	10.17	33.32										
					11.39	23.57	10.16	33.79	102.00	43.03	38	128	89	46
21+00	22.78	6.91	10.15	34.27										
					27.12	5.37	9.63	33.97	34.00	34.16	12	43	7	-27
21+34	31.47	3.82	9.12	33.67										
					26.86	4.40	9.56	33.92	66.00	65.66	23	83	11	-55
22+00	22.25	4.97	9.99	34.17										
					14.18	7.79	9.99	34.17	68.00	35.71	25	86	20	-16
22+68	6.11	10.60	9.99	34.17										
					4.49	15.54	10.12	38.30	32.00	5.32	12	45	18	13
23+00	2.87	20.48	10.25	42.42										
					3.93	16.74	10.70	42.42	73.00	10.63	29	115	45	35
23+73	5.00	13.00	11.15	42.41										
					12.44	10.67	9.21	36.82	67.00	30.86	23	91	26	-4
24+40	19.88	8.35	7.26	31.23										
					16.86	7.94	7.89	34.13	71.00	44.33	21	90	21	-23
25+11	13.84	7.52	8.53	37.02										
									Total	682	746	2804	1787	1105

Instructions

DONEGAL WAY

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation(CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
14+28 BEGIN	13.44	5.38	10.70	28.70										
					6.72	30.54	13.37	30.35	50.00	12.44	25	56	57	44
14+78	0.00	55.71	16.04	32.00										
					0.57	40.15	14.81	32.39	22.00	0.47	12	26	33	32
15+00	1.15	24.59	13.59	32.79										
					6.35	19.83	10.66	32.59	78.00	18.34	31	94	57	39
15+78	11.55	15.07	7.73	32.39										
					9.81	13.06	8.05	32.48	72.00	26.15	21	87	35	9
16+50	8.06	11.05	8.37	32.57										
					4.44	19.47	8.61	33.13	50.00	8.22	16	61	36	28
17+00	0.82	27.90	8.85	33.68										
					0.41	35.97	9.03	33.90	47.00	0.71	16	59	63	62
17+47	0.00	44.05	9.21	34.12										
					0.65	36.80	9.07	34.20	53.00	1.27	18	67	72	71
18+00	1.30	29.55	8.93	34.28										
					2.13	24.32	7.30	35.47	50.00	3.94	14	66	45	41
18+50	2.96	19.10	5.67	36.66										
					1.48	31.76	7.14	38.14	72.00	3.94	19	102	85	81
19+22	0.00	44.42	8.61	39.61										
					1.24	33.43	9.31	35.96	78.00	3.58	27	104	97	93
20+00	2.48	22.45	10.01	32.31										
					2.77	22.41	10.06	33.03	23.00	2.36	9	28	19	17
20+23	3.06	22.38	10.11	33.75										
					13.63	14.45	10.71	35.35	77.00	38.88	31	101	41	2
21+00	24.21	6.51	11.31	36.95										
					19.46	6.89	10.04	34.92	24.00	17.30	9	31	6	-11
21+24	14.72	7.28	8.77	32.89										
					15.84	6.86	9.26	33.04	70.00	41.05	24	86	18	-23
21+94	16.95	6.45	9.75	33.18										
					8.79	30.32	9.87	33.47	99.00	32.24	36	123	111	79
22+93	0.64	54.18	9.98	33.76										
					0.32	68.06	11.06	34.07	102.00	1.21	42	129	257	256
23+95	0.00	81.94	12.14	34.38										
									Total	212	348	1219	1031	819

Instructions

DUANE STREET

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
14+54.70 BEGIN	9.10	4.50	10.30	28.20										
		e			5.75	15.15	10.76	33.20	57.00	12.15	23	70	32	20
15+11.70	2.41	25.80	11.21	38.19										
					4.97	25.60	10.39	36.39	88.30	16.26	34	119	84	67
16+00	7.53	25.41	9.56	34.59										
					3.77	34.83	9.17	37.40	12.50	1.74	4	17	16	14
16+12.50	0.00	44.25	8.79	40.21										
					0.00	50.30	9.54	39.16	66.00	0.00	23	96	123	123
16+78.50	0.00	56.36	10.30	38.11										
					0.00	51.99	9.66	37.08	21.50	0.00	8	30	41	41
17+00	0.00	47.63	9.01	36.05										
					0.00	48.46	8.77	35.66	81.00	0.00	26	107	145	145
17+81	0.00	49.30	8.53	35.26										
					0.00	42.68	8.56	35.33	19.00	0.00	6	25	30	30
18+00	0.00	36.06	8.58	35.41										
					21.47	19.62	8.80	34.65	121.00	96.21	39	155	88	-8
19+21	42.94	3.17	9.02	33.90										
					28.47	6.30	8.52	33.79	79.00	83.30	25	99	18	-65
20+00	14.00	9.43	8.03	33.68										
					7.12	16.62	8.84	33.18	76.00	20.03	25	93	47	27
20+76	0.23	23.81	9.65	32.68										
					0.30	21.50	9.36	32.62	24.00	0.27	8	29	19	19
21+00	0.37	19.20	9.07	32.56										
					4.88	17.32	8.58	32.63	84.00	15.17	27	102	54	39
21+84	9.38	15.45	8.09	32.70										
					4.69	28.57	10.01	33.05	116.00	20.15	43	142	123	103
23+00	0.00	41.69	11.93	33.39										
					0.00	39.27	12.49	34.38	26.00	0.00	12	33	38	38
23+26	0.00	36.86	13.05	35.36										
					1.04	33.27	10.73	35.43	74.00	2.86	29	97	91	88
24+00	2.09	29.68	8.42	35.51										
					1.42	24.10	8.33	35.57	27.00	1.42	8	36	24	23
24+27	0.76	18.53	8.24	35.64										
									Total	270	341	1249	974	704

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\158- EARTHWORK CALCULATIONS SHEET 1 OF 2.DWG JUL. 01, 2026-11:02am

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

EARTHWORK
CALCULATIONS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 158 OF 159	

Instructions

TARREYTON LANE

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
2+23 BEGIN	15.97	8.82	8.86	33.56										
					12.86	9.07	9.07	35.33	77.00	36.67	26	101	26	-11
3+00	9.75	9.33	9.28	37.09										
					11.54	9.22	9.41	36.45	100.00	42.73	35	135	34	-9
4+00	13.32	9.12	9.54	35.80										
					10.28	10.24	9.27	34.86	100.00	38.08	34	129	38	0
5+00	7.24	11.37	8.99	33.93										
					5.13	22.06	11.03	33.64	50.00	9.50	20	62	41	31
5+50	3.02	32.76	13.07	33.35										
					9.47	21.09	10.75	33.21	50.00	17.54	20	62	39	22
6+00	15.92	9.43	8.42	33.07										
					16.39	8.53	8.39	33.91	100.00	60.69	31	126	32	-29
7+00	16.85	7.62	8.36	34.74										
					15.75	8.25	8.76	33.41	100.00	58.34	32	124	31	-28
8+00	14.65	8.89	9.16	32.08										
					14.15	8.16	9.34	34.22	100.00	52.41	35	127	30	-22
9+00	13.65	7.44	9.52	36.36										
					8.87	9.47	9.42	34.71	100.00	32.87	35	129	35	2
10+00	4.10	11.51	9.32	33.06										
					2.53	17.70	10.73	33.85	111.00	10.41	44	139	73	62
11+11	0.96	23.89	12.14	34.64										
					2.81	17.52	10.50	34.66	89.00	9.28	35	114	58	48
12+00	4.66	11.15	8.86	34.68										
					2.46	21.40	10.41	34.86	100.00	9.11	39	129	79	70
13+00	0.26	31.65	11.96	35.04										
					0.15	30.30	12.67	33.67	100.00	0.55	47	125	112	112
14+00	0.04	28.95	13.37	32.29										
					0.02	33.36	15.91	33.14	90.00	0.07	53	110	111	111
14+90	0.00	37.77	18.45	34.00										
					1.87	25.59	14.12	33.96	110.00	7.61	58	138	104	97
16+00	3.74	13.41	9.80	33.93										
					12.13	10.54	8.99	34.40	100.00	44.91	33	127	39	-6
17+00	20.52	7.66	8.18	34.87										
					16.82	13.10	10.95	36.65	100.00	62.30	41	136	49	-14
18+00	13.13	18.54	13.72	38.42										
					15.04	14.52	10.94	38.30	92.00	51.24	37	131	49	-2
18+92	16.95	10.51	8.16	38.18										
									Total	**544**	**654**	**2143**	**980**	**436**

Instructions

TAVENOR LANE

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
2+33 BEGIN	8.18	19.35	10.28	33.50										
					9.31	14.05	10.99	33.27	67.00	23.10	27	83	35	12
3+00	10.44	8.75	11.70	33.04										
					11.15	8.49	10.74	33.18	100.00	41.31	40	123	31	-10
4+00	11.87	8.24	9.79	33.32										
					6.61	12.27	10.92	33.21	100.00	24.47	40	123	45	21
5+00	1.35	16.30	12.06	33.09										
					0.78	20.73	12.64	33.28	80.00	2.32	37	99	61	59
5+80	0.22	25.16	13.22	33.47										
					0.36	24.31	13.35	33.62	20.00	0.26	10	25	18	18
6+00	0.49	23.46	13.48	33.78										
					3.87	18.56	12.00	34.24	100.00	14.34	44	127	69	54
7+00	7.26	13.66	10.51	34.69										
					3.97	17.48	11.39	33.69	100.00	14.69	42	125	65	50
8+00	0.67	21.31	12.26	32.68										
					5.68	15.43	10.33	32.74	100.00	21.04	38	121	57	36
9+00	10.69	9.56	8.39	32.80										
					10.95	9.19	8.48	32.57	100.00	40.57	31	121	34	-7
10+00	11.22	8.82	8.57	32.33										
					5.93	15.26	10.96	32.66	32.00	7.03	13	39	18	11
10+32	0.64	21.70	13.34	32.99										
					2.03	22.46	13.41	37.27	64.00	4.81	32	88	53	48
10+96	3.42	23.23	13.48	41.55										
					5.25	16.45	13.61	37.47	104.00	20.20	52	144	63	43
12+00	7.07	9.68	13.75	33.39										
					3.58	15.56	11.10	37.40	100.00	13.25	41	139	58	44
13+00	0.09	21.44	8.45	41.42										
					0.04	28.93	10.80	37.62	100.00	0.16	40	139	107	107
14+00	0.00	36.43	13.15	33.82										
					0.00	33.56	11.90	33.37	20.00	0.00	9	25	25	25
14+20	0.00	30.69	10.65	32.93										
					0.42	25.67	10.55	33.29	80.00	1.25	31	99	76	75
15+00	0.84	20.66	10.46	33.65										
					0.65	21.52	10.76	33.26	100.00	2.40	40	123	80	77
16+00	0.46	22.38	11.06	32.86										
					4.29	16.25	9.67	32.88	100.00	15.88	36	122	60	44
17+00	8.12	10.12	8.27	32.91										
					12.22	8.25	9.68	33.67	100.00	45.25	36	125	31	-15
18+00	16.31	6.38	11.09	34.44										
					14.41	7.96	9.67	34.14	100.00	53.38	36	126	29	-24
19+00	12.51	9.53	8.26	33.83										
					16.24	7.61	8.71	33.90	66.00	39.71	21	83	19	-21
19+66	19.98	5.69	9.16	33.97										
					24.54	5.67	10.95	33.04	34.00	30.91	14	42	7	-24
20+00	29.11	5.64	12.75	32.12										
					24.48	6.70	12.47	32.09	56.00	50.77	26	67	14	-37
20+56	19.85	7.76	12.19	32.05										
									Total	**467**	**738**	**2305**	**1056**	**589**

Instructions

BOTANY LANE

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
4+44 BEGIN	14.63	9.49	10.665	20.657										
					24.82	8.04	10.99	29.64	56.00	51.48	23	61	17	-35
5+00	35.01	6.59	11.313	38.63										
					41.00	5.37	10.95	36.73	54.00	82.00	22	73	11	-71
5+54	46.99	4.15	10.577	34.82										
					42.46	4.44	10.61	35.05	109.00	171.41	43	141	18	-153
6+63	37.93	4.72	10.65	35.27										
					45.28	5.08	13.19	35.74	37.00	62.04	18	49	7	-55
7+00	52.63	5.44	15.72	36.22										
					40.68	5.64	12.13	36.16	100.00	150.67	45	134	21	-130
8+00	28.73	5.85	8.54	36.11										
					15.10	13.26	9.35	35.02	100.00	55.92	35	130	49	-7
9+00	1.47	20.68	10.16	33.94										
					7.92	14.77	9.21	34.70	100.00	29.33	34	129	55	25
10+00	14.37	8.86	8.26	35.46										
					14.83	8.47	8.83	35.79	18.00	9.89	6	24	6	-4
10+18	15.30	8.07	9.41	36.13										
					15.20	8.70	8.95	40.11	82.00	46.16	27	122	26	-20
11+00	15.10	9.34	8.49	44.09										
					14.03	9.52	10.46	40.04	100.00	51.98	39	148	35	-17
12+00	12.97	9.71	12.44	35.98										
					9.09	10.22	11.40	35.92	100.00	33.66	42	133	38	4
13+00	5.21	10.74	10.36	35.85										
					3.07	13.62	9.74	34.99	100.00	11.38	36	130	50	39
14+00	0.94	16.49	9.12	34.12										
					0.47	25.11	11.76	34.66	104.00	1.80	45	134	97	95
15+04	0.00	33.73	14.39	35.21										
					4.57	20.60	11.58	34.92	96.00	16.25	41	124	73	57
16+00	9.14	7.48	8.77	34.64										
					4.92	18.55	9.16	36.57	100.00	18.22	34	135	69	50
17+00	0.70	29.63	9.56	38.50										
					0.35	33.34	12.26	36.52	100.00	1.29	45	135	123	122
18+00	0.00	37.06	14.95	34.54										
					0.00	36.90	14.27	35.18	100.00	0.00	53	130	137	137
19+00	0.00	36.75	13.59	35.83										
					0.00	41.57	13.81	34.47	60.00	0.00	31	77	92	92
19+60	0.00	46.39	14.03	33.11										
					0.00	34.59	11.37	33.96	40.00	0.00	17	50	51	51
20+00	0.00	22.79	8.71	34.82										
					7.21	12.12	8.40	33.99	100.00	26.69	31	126	45	18
21+00	14.41	1.46	8.10	33.17										
					14.20	8.54	9.13	33.50	100.00	52.57	34	124	32	-21
22+00	13.98	15.61	10.16	33.83										
					10.48	12.31	9.16	38.07	95.00	36.86	32	134	43	6
22+95	6.97	9.00	8.16	42.32										
									Total	**910**	**733**	**2444**	**1095**	**185**

Instructions

HICKOK LANE

	Cross Sectional Areas				Average				Distance between stations (FT)	Volumes				
Station	Total Roadway Excavation (SF)	Embankment Area (SF)	3" Stripping (SF)	12"Pavement & Base Excavation (SF)	Average Total Roadway Excavation (SF)	Average Embankment Area (SF)	Average 3" Stripping (SF)	Average 12" Pavement & Base Excavation (SF)	Distance between stations (FT)	TOTAL ROADWAY EXCAVATION (CY) PAY	3" Stripping (CY) PAY	12" Pavement & Base Excavation (CY) PAY	ROADWAY EMBANKMENT (CY)	BORROW (CY) PAY
	A	B	C	C		F	G	G	I	J	K	K	O	P
	ROADWAY													
0+64 BEGIN	2.60	13.90	8.77	33.55										
					3.37	16.71	11.16	32.83	36.00	4.49	15	44	22	18
1+00	4.14	19.52	13.56	32.11										
					4.27	19.93	12.90	32.37	50.00	7.91	24	60	37	29
1+50	4.40	20.34	12.24	32.63										
					3.38	20.39	11.29	32.62	17.00	2.13	7	21	13	11
1+67	2.35	20.45	10.35	32.62										
									Total	**15**	**46**	**124**	**72**	**58**

TOTAL EARTHWORK QUANTITIES

	MOWERY ROAD	LEITRIM WAY	DONEGAL WAY	DUANE STREET	TARREYTON LANE	BOTANY LANE	TAVENOR LANE	HICKOK LANE	TOTAL
EXCAVATION (CY)	445	682	212	270	544	910	467	15	3545
EMBANKMENT (CY)	13685	1787	1031	974	980	1095	1056	72	20679
BORROW (CY)	13240	1105	819	704	436	185	589	58	17135
3"STRIPPING (CY)	1644	746	348	341	654	733	738	46	5250
12"PAVEMENT & BASE EXCAVATION (CY)	4908	2804	1219	1249	2143	2444	2305	124	17197

THIS DOCUMENT IS RELEASE FOR THE PURPOSE OF INTRIM REVIEW AND MARK-UP UNDER THE AUTHORITY OF DARIUOSH KERMANY, P.E. REGISTRATION #93626 ON OCTOBER 6, 2026.
THIS DOCUMENMT SHOULD NOT BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

100% DESIGN REVIEW

NO.	DATE	REVISIONS	BY

TRW ENGINEERS, INC.
dba TSC Engineering
10970 STANCLIFF RD
HOUSTON, TEXAS 77099
Tel. 713.784.4466
TEXAS REGISTERED FIRM F-12428

SURVEYED BY:GEOSURV, INC.
FB NO.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CLOVERLAND AREA
PAVING AND DRAINAGE IMPROVEMENTS
SUB-PROJECT 1

EARTHWORK
CALCULATIONS
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-210004-0001-4	
DRAWING SCALE	
VERT. HORIZ.	
CITY OF HOUSTON PM	
OMAR ABDULKAREEM, P.E.	
SHEET NO. 159 OF 159	

K:\331052-CLOVERLAND AREA P&D-COH FY15\DWG\DESIGN DRAWINGS\SUB-PROJECT-1\CROSS SECTIONS\159- EARTHWORK CALCULATIONS SHEET 2 OF 2.DWG JUL. 01, 2026-10:45am